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REPORT OF A MARINE MAMMAL SURVEY OF THE EASTERN TROPICAL PACIFIC ABOARD THE RESEARCH VESSEL *DAVID STARR JORDAN* JULY 29-DECEMBER 7, 1989

P. Scott Hill
Alan Jackson
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NOAA-TM-NMFS-SWFC-142

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Center

NOAA Technical Memorandum NMFS

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U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, Secretary
National Oceanic and Atmospheric Administration
John A. Knauss, Under Secretary for Oceans and Atmospheric
National Marine Fisheries Service
William W. Fox, Jr., Assistant Administrator for Fisheries

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REPORT OF A MARINE MAMMAL SURVEY OF THE EASTERN TROPICAL PACIFIC ABOARD THE RESEARCH VESSEL DAVID STARR JORDAN JULY 29 - DECEMBER 7, 1989

P. Scott Hill
Alan Jackson
and
Tim Gerrodette

In 1984, as a result of an amendment to the Marine Mammal Protection Act of 1972, the National Marine Fisheries Service (NMFS) was mandated to conduct a research program to monitor trends in the abundance of stocks of dolphins in the eastern tropical Pacific (ETP). These dolphins are killed incidentally during fishing operations by the U. S. purse seine fishery for yellowfin tuna (Thunnus albacares). In 1986, the Southwest Fisheries Center (SWFC) of the NMFS initiated a six-year program to monitor these stocks of dolphins. In the first three years of the program (1986 through 1988), two surveys of marine mammal populations in the ETP were conducted concurrently each year aboard the National Oceanic and Atmospheric Administration vessels David Starr Jordan and McArthur. The surveys lasted 120 days each. In 1989, the fourth pair of surveys was conducted during the same period of time and using the same vessels.

In this report, we describe the experimental procedures used during the surveys and we present summaries of the distance searched and marine mammals encountered from aboard the David Starr Jordan (Cruise DS-89-05 (222); SWFC Observer Cruise 1267). A separate report of the McArthur cruise has been published by Hill et al. (1990). A report of environmental data collected during the survey is reported by Lierheimer et al. (1990).

SURVEY OBJECTIVES

The primary objective of the cruise was to collect information to calculate relative abundance of dolphin species in the ETP that are taken incidentally by the purse seine fishery for yellowfin tuna. Specific objectives were to collect information to:

1. estimate school density, school size, and species composition of each species taken by the fishery;

2. calibrate observers' estimates of dolphin school size with counts of school sizes obtained from photographs taken from a ship-based helicopter;

3. investigate the physical and biological environment of the affected species; and

4. contribute to on-going U.S. and international programs investigating oceanography and ocean-atmosphere interactions in the ETP.

MATERIALS AND METHODS

Study Area and Itinerary

The David Starr Jordan, herein referred to as the Jordan, traversed predetermined tracklines in the ETP from July 29 through December 7, 1989 (Figure 1), with port calls in Puerto Quetzal, Guatemala; La Libertad, Ecuador; and Manzanillo, Mexico. The itinerary of the vessel included four segments or effort legs:

Leg 1.			
	Departed	San Diego	July 29
	Arrived	Puerto Quetzal	August 27
Leg 2.			
	Departed	Puerto Quetzal	September 3
	Arrived	La Libertad	September 30
Leg 3.			
	Departed	La Libertad	October 5
	Arrived	Manzanillo	October 25
Leg 4.			
	Departed	Manzanillo	November 1
	Arrived	San Diego	December 6

The Jordan conducted photographic censuses of California sea lion rookeries located on the following Mexican islands: Isla Cedros, Islas San Benitos, Isla Natividad, and Isla Asuncion. The Jordan also conducted bird censuses on Isla del Coco (Costa Rica), Isla San Benedicto (Mexico), and Isla La Plata, (Ecuador).

The Jordan experienced several problems throughout the survey which forced the vessel to make unplanned stops. An urgent medical problem developed which necessitated a stop on August 11 in Manzanillo, Mexico, in order to transfer personnel. The Jordan departed from Puerto Quetzal, Guatemala, one day later than scheduled due to a generator malfunction. A helicopter transmission problem required the vessel to stop in Acapulco, Mexico, between September 11 and September 14. A generator breakdown caused the third inport (Manzanillo) to be moved ahead eight days, which in turn compelled the Jordan to stop for fuel in Manzanillo on November 30 before returning to San Diego.

Scientific Personnel

Cruise Leaders	Legs
Aleta Hohn, SWFC	1
Lisa Ballance, SWFC	2
Elizabeth Edwards, SWFC	3
Andrew Dizon, SWFC	4
Identification Specialists	
Scott Sinclair, SWFC	1-2
Gary Friedrichsen, SWFC	1-2
Richard LeDuc, SWFC	3-4
Scott Benson, SWFC	3-4
Observers	
Sallie Beavers, SWFC	1-2
William Irwin, SWFC	1-2
Susan Kruse, SWFC	1-2
Brian Smith, SWFC	1-2
James Carretta, SWFC	3-4
James Cotton, SWFC	3-4
Carrie Fried, SWFC	3-4
Richard Rowlett, SWFC	3-4
Horacio DeAnda, Mexico	1 (until Aug. 11)
Paul Wade, SWFC	2
Debbie Palka, SWFC	4
Photogrammetry Specialists	
Marc Lowry, SWFC	1
James Gilpatrick, SWFC	1-2
Robin Westlake, SWFC	2-3
Morgan Lynn, SWFC	3-4
Bird Survey and Oceanographic Specialists	
Lisa Ballance, SWFC	1-4
Robert Pitman, SWFC	1-4
Lisa Lierheimer, SWFC	1-4
Gregg Thomas, Atl. Oceano. & Meter. Lab.	1-4
Helicopter Support	
Bud Christman, NOAA Corps, OAO	1 (until Aug. 11)
Don Winters, NOAA Corps, OAO	1 (Aug. 11-27)
Dave Gardner, NOAA Corps, OAO	2
Bill Hines, NOAA Corps, OAO	3
Eric Post, OAO	1-3

Miles Croom, NOAA Corps, OAO 4
Ron Helgson, OAO 4

Marine Mammal Species Surveyed

During the survey, the observers recorded information on all species of whales and dolphins sighted throughout the cruise. However, encounter rates are presented only for dolphin species.

Equipment

The Jordan, commissioned in 1964, is 52.1 m in length, has a beam of 11.2 m, and has a 3.8 m draft. During the survey, the vessel maintained a cruising speed of approximately 18.5 km/hr.

Several pieces of equipment were used to gather data. The geographic position of the vessel was recorded periodically and at the time of a marine mammal sighting using the vessel's Satellite Navigation System (SAT NAV). Marine mammals were detected with port and starboard pedestal mounted 25X Fuginon[1] binoculars and a variety of hand-held 7-50X binoculars. The 25X glasses were mounted on the upper deck approximately 10.7 m above the sea surface. Surface temperature and salinity, fluorescence (chlorophyll), and temperature-depth profiles were obtained using a thermosalinograph, fluorometer, and expendable bathythermographs (XBTs), respectively. Discrete conductivity and temperature-depth profiles were also obtained using conductivity-temperature-depth (CTD) probes.

The bearing and radial distances of marine mammals from the vessel were calculated using two methods. The first method was the use of estimates of the bearing and radial distance of a school from the vessel, which were recorded by the observers using a 360° graduated washer attached to the base of the 25X binoculars and graduated reticles enclosed in the right eyepiece of the binoculars.

The second method utilized the Computer Assisted Sighting Technology (CAST) system using information from several sensors to measure sighting angles and then to calculate radial distances. A CAMAC[1] computer collected data from various sources: the vessel's course from the gyroscope; the electronically encoded sighting angles of the 25X binoculars; a measurement of the relative motion of the vessel from a pitch-roll sensor; speed from the speed log; and information concerning survey status, such as identification of observers occupying survey positions from data pads located on the flying bridge. An IBM-compatible computer, which was interfaced

[1]Reference to trade name does not imply endorsement by NMFS.

with the CAMAC, was then used to process information to determine the sighting angle to the cue. Successive sighting angles, recorded as the vessel traveled along the trackline, were used to calculate radial distances. Analyses of CAST data will be presented in a separate report.

A 35 mm F-1 Canon[1] camera with motor drive was used to photograph animals to aid in stock and species identification. The system included 400 mm, 70-210 mm zoom, 50 mm, and 28 mm lenses. Some observers used personal camera equipment to photograph sightings. Animals were also recorded on 1.27 cm video tape using a Panasonic[1] VHS recorder and a Panasonic[1] camera equipped with telephoto lens.

Duty Stations

Three duty stations were used during the survey, with observers rotating through each station.

1. Left Binocular - The port-side observer used a 25X binocular, mounted on the port side of the vessel, to scan the ocean for marine mammal sighting cues. The major area of responsibility for this observer was from the midpoint of the trackline to abeam the port side of the vessel and outward to the horizon or to the extent possible with prevailing environmental conditions.

2. Right Binocular - The starboard observer used a 25X binocular, mounted on the starboard side of the vessel, to search from the midpoint of the trackline to abeam the starboard side of the vessel, and outward to the horizon or to the extent possible with prevailing environmental conditions. Observers in the left and right positions frequently searched up to 10° on the opposite side of the trackline.

3. Recorder - The recorder's duties were to transcribe transect effort data at regular intervals, to make notes of information pertaining to each sighting, and to search the trackline adjacent to the vessel with hand held binoculars for schools not detected by the observers on the 25X glasses.

Observer Teams and Rotation

Two teams of three observers each alternately occupied the three duty stations. Each team was on duty for a two-hour shift. During each shift observers spent approximately equal time occupying each duty station. Teams alternated standing the first watch of the day.

Two of the six observers, one on each team, were experts in identifying marine mammals. Team composition remained constant

during the entire survey. Team members rotated between the duty stations and teams rotated on and off duty without interrupting searching effort. Observers aboard the Jordan and McArthur switched vessels after the second leg, allowing school size estimates for all observers to be calibrated with the ship-based helicopter aboard the Jordan.

Data Collection Procedures

A typical day's searching activity began at sunrise, approximately 0630 hours local time, and ended at sunset, approximately 1830 hours local time. The searching procedure was initiated when observers were occupying the duty stations and a recorder was in place to record information on the Research Vessel Effort Form (Figure 2). Except for approximately two to three hours per night when oceanographic data were collected, the vessel maintained its speed and course between sunset and sunrise to provide wider spatial distribution of searching effort.

When a sighting cue (marine mammals, birds, splashes, etc.) was detected, it was determined whether marine mammals were present and if the sighting was appropriate for tracking using the CAST system. Schools that were not tracked included whales, dolphins detected close to the vessel or at distances greater than 5.6 km lateral to the vessel, small schools of dolphins (<15 animals), and schools detected during poor sighting conditions. If tracking was appropriate, the searching effort was terminated and the observer initiated tracking by turning on a switch attached to the binocular stand. With the vessel maintaining course and speed, and with the school in the field of view of the binoculars, the CAST system recorded successive bearings from the vessel to the animals. After approximately eight minutes the vessel was directed towards the cue and the tracking continued for another eight minutes. When the target was not in the field of view, the switch was turned off until the target was again sighted. The tracking procedure was terminated if the target was lost from view and not resighted, or if the cue was found to be inappropriate for tracking. All marine mammal schools were approached to obtain estimates of school size and species composition. The searching mode was resumed after the vessel returned to original course and speed and the observers resumed searching for other sighting cues.

During each marine mammal sighting, the recorder collected data necessary to complete Research Vessel Effort and Research Vessel Sighting forms (Figure 3). Definition of each data element is given by Ralston[2]. Criteria for assigning sun position and sea state conditions are given in Figure 4 and Table 1, respectively.

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[2]Ralston, F. Ms. Usage procedures and coding notes for research vessel sighting and effort records. Southwest Fisheries Center, P. O. Box 271, La Jolla, CA 92038.

Observers recorded bearing and range to the mammals using the 360° washer and reticles etched into the right eyepiece of the 25X binoculars. The reticle measurements were converted to km using

$$a = 0.003942 \tan (\arctan (45242.52) - 0.001088\ r),$$

where a equals radial distance in km and r denotes the number of reticles below the topmost reticle. Values in this equation were calculated by Barlow (per. comm.) using an equation presented by Smith (1982) and data collected during previous research vessel cruises.

Each observer who had a good view of the school independently recorded, in his or her logbook, high, low and best estimates of school size and a determination of species composition. At no time were the observers allowed to discuss their estimates of school size and species composition. This procedure assured independence and consistency of each observer's data, and will allow individual correction factors to be developed from aerial photographs. On a daily basis the cruise leader (chief of the scientific party aboard the vessel) collected the individual logbooks and transcribed observer estimates of school size and species composition to complete the Research Vessel Sighting Forms.

However, all available observers did discuss species identification and animal behavior, and a consensus was entered on the Research Vessel Sighting and Research Vessel Continuation Forms (Figure 5) shortly after the time of a sighting. Species identifications were validated when possible by photographing the school at close range using 35 mm and video cameras.

During suitable sea states (Beaufort states 0 - 4) and visibility conditions, a Hughes[1] 500D helicopter was used to photograph dolphin schools. The photographs will be used to calibrate dolphin school size estimates made by shipboard observers. We used high resolution 5" format cameras with image motion compensation, which were designed by the Navy for low altitude reconnaissance. The cameras were forward motion compensated to eliminate loss of resolution caused by the movement of the aircraft.

Data Analyses

Sea state conditions were grouped into "calm" conditions, without whitecaps (Beaufort numbers 0-2) or "rough" conditions, with whitecaps (Beaufort numbers 3-6). The presence of whitecaps was important in searching for sighting cues. Animal splashes could not effectively be used as a sighting cue during rough seas because whitecaps were easily confused with the animal splashes.

Visibility conditions were classified into "good" and "poor" categories. Poor visibility conditions were recorded when

horizontal sun position was 12 and vertical position was 1, 2, or 3, or when there were clouds together with fog or rain (Holt, 1987). All other conditions were good conditions.

The study area was divided into four strata, with the sum of the four strata comprising the total study area (Figure 1). The sum of the three northern most strata (inshore, middle and west) constitutes the northern stratum and represents the range of the northern offshore stock of spotted dolphins (the species most impacted by the purse-seine fishery). Data were analyzed using information by stratum, summed over strata and pooled over strata.

The rate of encountering marine mammal schools was determined as the simple ratio of sightings detected per 1000 km searched. The variance of the encounter rate was calculated as

$$\text{Var } (n/L) = [\Sigma l_i[(n_i/l_i) - (n/L)]^2]/L(R - 1)$$

where n equals the number of dolphin schools detected in the survey, L equals total thousands of km searched, l_i equals thousands of km searched during the ith day, n_i equals schools detected during the ith day, and R equals number of days searched.

Encounter rates were calculated for all dolphin schools that were detected during Beaufort states 0 through 6. Rates were calculated for these schools detected in the entire study area and for schools stratified by area, calm and rough sea conditions, good and poor sun conditions, individual observers, and observer teams.

RESULTS

Data describing each leg of searching effort during the entire survey are summarized in Table 2. Information summarized for each marine mammal sighting encountered during the survey is presented in Table 3. The geographic positions of all schools detected during the survey are presented for each species category (code) in Figures 6 through 19. Observer estimates of school size are presented by species and subspecies in Table 4.

During the entire survey, observers searched 12,711 km and detected 745 marine mammal sightings (Table 5). Dolphins were detected in 514 schools and whales were detected in 218 schools (13 schools contained both dolphins and whales). These included 14 species of dolphins and 17 species of whales.

Searching effort was conducted during Beauforts 0 through 6 conditions. Generally, effort was terminated once the seas and wind attained a force of Beaufort 6, though at times Beaufort 6 conditions were workable. Effort was terminated at the discretion

of the team leader and cruise leader. While operating in the searching mode in the study area (Figure 1) during Beauforts 0 through 6, 12,640 km were searched and 473 dolphin schools were detected. The overall rate of detecting schools in the study area was 37.42 schools/1000 km searched (Table 6).

The Jordan conducted survey effort in only two of the four regions, with approximately 70% of its effort in the inshore area 30% of its effort in the middle area. The detection rate in the inshore stratum was over two times the detection rate in the middle stratum (Table 6).

Sea conditions in the study area were rough. Only 22% of the searching effort was completed in calm seas (Table 6). However, 41% of all schools were detected during calm seas and the rate of detecting schools during calm seas was more than two times the rate detected during rough seas.

Poor visibility conditions occurred during 15% of the surveying effort during which time 12% of the schools were detected (Table 6). The rate of detecting schools during good conditions was greater than the rate during poor conditions (38.72 and 30.31 schools/1000 km searched, respectively).

With two exceptions, all observers spent approximately equal time searching (between 24 and 27% of the total distance searched). Observer #22 spent less time on effort due to a slight injury, and observer #4 stood watch in his place (Table 6). Observer #4 also stood watch when other observers were sick. Observer #4 detected 1% of the schools and also had the highest detection rate (19.28 schools/1000 km).

Excluding observer #4, who spent much less time on effort, the percent of all schools that were detected by the observers ranged from 7 to 11% (Table 6). Consequently, rates of detecting dolphin schools also varied considerably (range of 9.27 to 16.36 schools/1000 km).

The percentage of dolphin schools detected by observer teams ranged from 22 to 27% (Table 6). The rate of detecting schools by teams varied from 33.30 to 43.45 schools/1000km searched.

SUMMARY

In this report, we have presented data on dolphin encounter rates, school size, and species composition which meet the primary objectives of the cruise aboard the Jordan. Data on effort and sightings have been summarized. We found that the rate of encountering dolphin schools was much higher during calm seas than during rough seas, and the rate during good visibility conditions

was substantially higher than the rate during poor visibility conditions. The rate was higher in the inshore area than in the middle area. Encounter rates for individual observers and observer teams were variable.

ACKNOWLEDGEMENTS

The cruise aboard the Jordan was successfully executed due to the work of many dedicated professionals. Among those contributing to the success of the cruise were the observers who spent many hours collecting the data, the officers and crew of the NOAA Ship David Starr Jordan who gave their continuous support, and J. Bortniak (Jordan Port Captain) who provided liaison with ship support personnel and the scientists. William Irwin provided essential technical assistance with cruise preparations. Special efforts were provided in procurement by B. Engstrand and B. Watkins. Part of the manuscript was typed by C. Ratcliffe. We are grateful to I. Barrett, R. Neal, D. DeMaster, R. Holt, and B. Remington for their support during the entire cruise preparation and execution. Finally, special recognition is given to S. Sexton for critical logistical arrangements, technical support, and invaluable insights given to the authors.

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Table 1. Sea state conditions measured by the Beaufort scale (from Bowditch, 1966).

Wind force (Beaufort)	Knots	Descriptive	Sea Conditions	Probable wave height in feet
0	0- 1	Calm	Sea smooth and mirror-like	-
1	1- 3	Light air	Scale-like ripple without foam crests	1/4
2	4- 6	Light breeze	Small short wavelets; crests have a glassy appearance and do not break	1/2
3	7-10	Gentle breeze	Large wavelets; some crests begin to break; foam of glassy appearance. Occasional white foam crests	2
4	11-16	Moderate breeze	Small waves, becoming longer; fairly frequent white foam crests	4
5	17-21	Fresh breeze	Moderate waves, taking a more pronounced long form; many white foam crests; there may be some spray	6
6	22-27	Strong breeze	Large waves begin to form; white foam crests are more extensive everywhere; there may be some spray	10

Table 2. Daily searching effort recorded in the eastern tropical Pacific aboard the David Starr Jordan during July 29 through December 7, 1989.

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	01	890731	14.45	05	22	45			3	128	27 55 n	115 17 w	1.20
01	02	890731	14.45	05	22	45	09	02	3	160			2.41
01	03	890731	15.19	05	22	45	09	02	3	160			1.52
01	04	890731	15.19	05	22	45	09	02	3	180			0.76
01	05	890731	15.19	22	45	05	09	02	3	180			4.81
01	06	890731	15.19	45	05	22	09	02	3	180			2.02
02	01	890731	15.19	45	05	22	09	02	3	180			0.51
02	02	890731	15.19	74	51	01	09	02	3	180	27 49 n	115 15 w	9.11
03	01	890731	15.19	01	74	51	09	02	3	180	27 42 n	115 17 w	2.53
04	01	890731	15.19	01	74	51	09	02	3	180	27 40 n	115 17 w	1.01
04	02	890731	15.19	01	74	51	09	02	3	170			4.30
04	03	890731	15.19	51	01	74	09	02	3	170			2.53
04	04	890731	15.19	51	01	74	09	02	4	170			4.30
05	01	890731	15.19	05	22	45	12	01	3	110	27 30 n	115 15 w	5.57
05	02	890731	15.19	22	45	05	12	01	3	110			5.06
06	01	890731	15.74	45	05	22	12	01	3	110	27 27 n	115 08 w	4.98
06	02	890731	15.74	45	05	22	12	01	4	110			1.57
06	03	890731	15.74	05	22	45	12	01	4	110			5.25
06	04	890731	15.74	51	74	01	12	01	4	110	27 25 n	114 59 w	11.02
06	05	890731	15.74	01	51	74	12	12	4	120			10.49
06	06	890731	15.74	74	01	51	02	01	4	120			6.56
07	01	890731	15.74	74	01	51	03	12	4	120	27 15 n	114 38 w	1.84
07	02	890731	15.74	05	22	45	03	01	4	120			4.72
07	03	890731	15.74	45	22	05	04	01	4	120			3.15
08	01	890731	15.74	45	22	05	04	01	3	120	27 11 n	114 31 w	0.52
08	02	890731	15.74	05	45	22	04	01	3	120			5.77
08	03	890731	15.74	22	05	45	04	01	3	120			3.67
09	01	890731	15.74	45	22	05	04	01	4	120			4.98
09	02	890731	15.74	05	45	22	04	01	4	120			5.25
09	03	890731	15.74	74	01	51	02	02	4	179	27 04 n	114 20 w	7.61
10	01	890731	15.74	51	74	01	03	02	4	179	26 58 n	114 18 w	7.61
11	01	890731	15.74	22	05	45	03	02	4	179	26 52 n	114 18 w	7.87
11	02	890731	15.74	05	45	22	03	02	5	179			6.03
11	03	890731	15.74	45	22	05	03	03	5	179			5.51
11	04	890731	15.74	22	05	45	04	02	5	179	26 40 n	114 16 w	4.46
01	01	890801	16.30	74	51	01	09	03	3	178	24 52 n	114 18 w	8.42
01	02	890801	16.30	01	74	51	09	03	3	178			10.87
01	03	890801	15.93	51	01	74	09	02	3	178			10.35
01	04	890801	15.74	22	05	45	09	02	3	178	24 18 n	114 23 w	6.03
01	05	890801	15.74	05	45	22	09	02	3	178			4.46
01	06	890801	15.74	45	05	22	09	02	3	178			5.51
01	07	890801	16.11	22	05	45	09	02	3	178	24 20 n	114 23 w	5.10
01	08	890801	16.11	05	45	22			3	178			4.83
01	09	890801	16.11	05	45	22	09	01	3	178			0.81
01	10	890801	16.11	45	22	05	09	01	3	178			5.10
01	11	890801	16.11	01	74	51	09	01	3	178	24 20 n	114 23 w	11.01
01	12	890801	16.11	51	01	74	09	01	3	178			6.44

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
01	13	890801	16.11	51	01	74	10	01	4	178	24 21 n	114 23 w	5.64
01	14	890801	16.11	74	51	01	10	01	4	178			9.13
02	01	890801	16.11	22	05	45	12	12	4	178	24 19 n	114 22 w	5.37
02	02	890801	16.11	05	45	22	12	12	4	178			1.88
02	03	890801	15.00	05	45	22	12	12	4	178			2.50
02	04	890801	15.00	45	22	05	12	12	4	178			4.75
02	05	890801	15.00	51	01	74	12	12	4	178	23 39 n	114 18 w	1.25
02	06	890801	16.30	51	01	74	02	01	4	178			9.51
02	07	890801	16.30	74	51	01	02	01	4	178			5.43
03	01	890801	16.30	74	51	01	03	01	4	178	23 29 n	114 17 w	2.17
03	02	890801	16.30	01	74	51	03	01	4	178			0.81
04	01	890801	16.30	01	74	51	03	01	4	178			8.96
04	02	890801	16.30	22	05	45	03	01	4	178	23 20 n	114 17 w	5.43
04	03	890801	16.30	05	45	22	03	02	3	178			5.43
04	04	890801	16.30	45	22	05	03	02	3	178			7.06
04	05	890801	16.30	22	05	45	03	02	3	178	23 11 n	114 17 w	3.80
04	06	890801	16.30	22	05	45			3	178			2.44
04	07	890801	16.30	74	01	51			3	178			4.07
05	01	890801	16.30	74	01	51			3	178	23 02 n	114 17 w	5.16
05	02	890801	16.30	51	74	01			3	178			10.87
05	03	890801	16.30	01	51	74			3	178	22 53 n	114 19 w	0.81
01	01	890802	16.30	45	22	05			4	179	21 22 n	114 08 w	6.25
01	02	890802	16.30	22	05	45			4	179			5.70
01	03	890802	16.30	05	45	22			4	179	21 16 n	114 08 w	5.16
01	04	890802	16.30	45	22	05			4	179			5.70
01	05	890802	16.30	22	05	45			4	179			4.62
01	06	890802	16.30	74	51	01			4	179	21 06 n	114 07 w	8.69
01	07	890802	16.30	74	51	01	09	02	4	179			2.72
01	08	890802	16.30	01	74	51	09	02	4	179			8.15
01	09	890802	16.30	01	74	51	09	02	5	179	20 53 n	114 07 w	2.72
01	10	890802	16.30	51	01	74	09	02	5	179			10.32
01	11	890802	16.30	05	22	45	09	01	5	185	20 46 n	114 07 w	5.98
01	12	890802	16.30	22	45	05	09	01	5	185			5.43
01	13	890802	16.30	45	05	22	09	01	5	185			5.16
01	14	890802	16.30	05	22	45	10	01	5	185	20 57 n	114 08 w	5.70
01	15	890802	16.30	22	45	05	10	01	5	185			5.70
01	16	890802	16.30	45	05	22	12	12	5	185			4.62
01	17	890802	16.30	01	74	51	12	12	5	185	20 27 n	114 08 w	3.53
01	18	890802	16.30	01	74	51	12	12	5	303			3.80
01	19	890802	16.30	01	74	51	12	12	5	218			3.53
01	20	890802	16.30	51	01	74	12	12	5	218			5.98
01	21	890802	15.37	51	01	74	12	12	5	218	20 21 n	114 12 w	4.61
01	22	890802	15.37	74	51	01	12	12	5	218			3.07
02	01	890802	15.37	74	51	01			5	218	20 13 n	114 17 w	1.28
02	02	890802	15.37	45	22	05			5	218			5.64
02	03	890802	15.37	22	05	45	12	12	5	218			5.12
02	04	890802	15.37	05	45	22			5	218			5.12
02	05	890802	15.37	45	22	05			5	218	20 06 n	114 25 w	5.64
02	06	890802	15.37	22	05	45			5	218			5.12
02	07	890802	15.37	05	45	22			5	218			4.10
02	08	890802	15.37	51	01	74			4	218	19 59 n	114 31 w	8.45
02	09	890802	15.37	74	51	01			4	218	19 55 n	114 35 w	5.89
03	01	890802	15.56	01	74	51			4	218			2.85

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
03	02	890802	15.56	45	22	05			4	218	19 49 n	114 38 w	5.70
03	03	890802	15.56	22	05	45			4	218			5.44
03	04	890802	15.56	05	45	22			3	218			5.19
03	05	890802	15.56	45	22	05			3	218	19 41 n	114 45 w	5.70
03	06	890802	15.56	22	05	45			3	218			4.67
01	01	890803	16.11	74	01	51			2	218	18 21 n	115 55 w	9.67
01	02	890803	16.11	51	74	01	07	03	2	218	18 17 n	115 59 w	9.13
01	03	890803	16.11	01	51	74	07	02	2	218			7.52
01	04	890803	16.11	22	05	45	07	02	2	218	18 09 n	116 07 w	5.37
01	05	890803	16.11	05	45	22	07	02	2	218			5.37
01	06	890803	16.11	45	22	05	07	02	2	218			4.03
02	01	890803	17.59	01	74	51	08	01	2	216	17 57 n	116 10 w	11.73
02	02	890803	17.59	51	01	74	08	01	2	216			11.14
02	03	890803	17.59	74	51	01	08	01	2	216			5.86
02	04	890803	17.59	74	51	01			2	225			3.52
03	01	890803	17.59	22	05	45	08	12	2	225	17 43 n	116 20 w	5.86
03	02	890803	17.59	05	45	22	12	12	2	225			5.57
03	03	890803	17.59	45	22	05	12	12	2	225			7.04
03	04	890803	17.59	22	05	45	12	12	2	225			1.76
04	01	890803	17.59	22	05	45	12	12	2	225			2.64
04	02	890803	17.59	05	45	22	12	12	2	265	17 33 n	116 31 w	0.59
04	03	890803	17.59	05	45	22	12	12	2	225			1.47
04	04	890803	17.59	45	22	05	12	12	2	225			6.45
04	05	890803	17.59	01	51	74	12	01	2	225	17 30 n	116 34 w	4.98
05	01	890803	17.59	01	51	74	12	01	2	225			5.28
05	02	890803	17.59	74	01	51	01	01	2	225			11.14
05	03	890803	17.59	51	74	01	02	01	2	225			12.02
05	04	890803	17.59	22	05	45	02	02	2	216	17 19 n	116 51 w	1.76
06	01	890803	17.59	05	45	22	02	02	2	216			6.16
06	02	890803	17.59	45	22	05	02	02	2	216	17 14 n	116 57 w	8.80
06	03	890803	17.59	51	74	01	02	02	2	216			8.80
06	04	890803	17.59	01	51	74			2	216	17 05 n	117 03 w	5.86
06	05	890803	17.59	01	51	74			2	216			2.93
01	01	890804	16.30	22	45	05			2	068	17 05 n	116 46 w	6.79
01	02	890804	16.30	45	05	22	12	03	2	068	17 06 n	116 42 w	4.35
01	03	890804	16.30	45	05	22	01	02	2	058			3.26
01	04	890804	16.30	22	05	45	01	02	2	058	17 08 n	116 38 w	5.43
01	05	890804	16.30	22	45	05	01	02	2	058			3.26
01	06	890804	16.30	74	01	51	01	02	1	058	17 11 n	116 33 w	3.53
02	01	890804	16.30	74	01	51	01	02	1	058	17 11 n	116 28 w	2.72
02	02	890804	16.30	51	74	01	01	02	1	058			2.17
03	01	890804	16.30	51	74	01	01	02	1	058			3.53
03	02	890804	16.30	01	51	74	01	02	2	058			10.05
03	03	890804	16.30	22	45	05	01	02	2	058	17 18 n	116 21 w	5.43
03	04	890804	16.30	45	05	22	01	01	2	058			5.16
04	01	890804	16.30	05	22	45	01	01	1	070	17 21 n	116 14 w	5.98
05	01	890804	16.30	51	01	74	01	01	2	070	17 23 n	116 10 w	4.07
05	02	890804	16.30	51	01	74	01	01	3	070			5.16
06	01	890804	16.11	74	51	01	12	12	3	070	17 27 n	116 03 w	5.91
06	02	890804	16.11	01	74	51	08	12	3	070			1.88
06	03	890804	16.11	01	74	51	08	12	3	070	17 28 n	115 58 w	2.69
07	01	890804	16.11	01	74	51			3	070	17 29 n	115 56 w	2.95
07	02	890804	16.11	01	74	51	07	01	3	070			1.07

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
07	03	890804	16.11	45	05	04	07	01	2	070	17 30 n	115 54 w	5.91
07	04	890804	16.11	05	04	45	07	01	2	070			5.37
07	05	890804	16.11	04	45	05	07	01	2	070			4.83
07	06	890804	16.11	45	05	04	07	01	2	070	17 33 n	115 44 w	6.18
07	07	890804	16.11	05	04	45			2	070			5.37
07	08	890804	16.11	04	45	05	07	02	2	070			0.81
08	01	890804	16.11	51	74	01	07	02	2	070	17 37 n	115 33 w	7.25
08	02	890804	16.11	01	51	74	07	02	2	070	17 40 n	115 28 w	8.59
08	03	890804	16.11	45	05	04	07	02	1	070	17 41 n	115 23 w	5.37
08	04	890804	16.11	05	04	45	07	03	1	070			5.37
08	05	890804	16.11	04	45	05	07	03	1	070			5.64
08	06	890804	16.11	45	05	04	07	03	1	070	17 44 n	115 14 w	1.61
01	01	890805	16.30	74	51	01			3	068	18 16 n	113 41 w	2.99
01	02	890805	16.30	74	51	01	12	03	3	068			7.61
01	03	890805	16.30	01	74	51	01	03	4	055	18 18 n	113 34 w	9.24
01	04	890805	16.30	74	01	51	01	02	4	055	18 21 n	113 30 w	8.15
01	05	890805	16.30	04	45	05	01	02	4	055	18 23 n	113 25 w	5.43
01	06	890805	16.30	45	05	04	01	02	4	055			5.98
01	07	890805	16.30	05	04	45	01	02	4	055			4.89
01	08	890805	16.30	04	45	05	01	02	4	055	18 28 n	113 17 w	5.43
01	09	890805	16.30	45	05	04	01	02	4	055			6.25
01	10	890805	16.30	04	05	45	01	02	4	055			4.62
01	11	890805	16.30	51	74	01	01	01	4	055	18 34 n	113 09 w	11.41
01	12	890805	16.30	01	51	74	01	01	4	055			2.72
02	01	890805	16.30	74	01	51	01	01	4	075	18 37 n	113 02 w	4.89
02	02	890805	16.30	74	01	51	01	01	5	075			5.98
02	03	890805	16.30	04	45	05	12	12	5	075	18 39 n	112 54 w	5.43
02	04	890805	16.30	45	05	04	12	12	5	075			5.70
02	05	890805	16.30	05	04	45	12	12	5	075			5.16
02	06	890805	16.30	04	45	05	12	12	5	075	18 41 n	112 46 w	5.43
02	07	890805	16.30	45	05	04	12	12	5	075			5.98
02	08	890805	16.30	05	04	45	07	01	5	075			4.89
02	09	890805	16.30	01	74	51	07	01	4	075	18 44 n	112 36 w	4.89
03	01	890805	16.30	51	01	74	07	01	4	072	18 46 n	112 25 w	4.89
03	02	890805	16.30	51	74	01	07	01	3	072	18 47 n	112 23 w	1.09
04	01	890805	16.30	04	45	05	07	02	3	072	18 49 n	112 19 w	2.99
04	02	890805	16.30	04	45	05	08	02	3	050			2.44
04	03	890805	16.30	45	05	04	08	02	3	050			3.80
01	01	890806	15.74	01	51	74	12	12	3	094	19 21 n	110 48 w	8.92
01	02	890806	15.74	22	45	05	06	01	3	094	19 19 n	110 42 w	5.51
01	03	890806	15.74	45	05	22	06	01	3	094			5.25
01	04	890806	15.74	05	22	45	06	01	3	094			4.98
01	05	890806	15.74	22	45	05	06	01	3	094	19 19 n	110 31 w	6.03
01	06	890806	15.74	45	05	22	06	01	3	094			5.25
01	07	890806	15.74	05	22	45	06	02	3	094			5.51
02	01	890806	16.30	01	74	51	06	02	3	094	19 17 n	110 17 w	2.44
03	01	890806	16.30	51	74	01	06	03	2	094	19 17 n	110 14 w	2.44
01	01	890807	16.30	51	74	01			2	091	19 10 n	108 42 w	2.72
02	01	890807	16.30	51	74	01	11	03	2	091	19 09 n	108 40 w	6.79
02	02	890807	16.30	01	51	74	11	03	2	091			8.96
02	03	890807	16.30	01	51	74	11	03	3	091			1.63
02	04	890807	16.30	74	01	51	11	02	3	111			10.59
03	01	890807	16.30	05	45	04	11	02	3	111	19 05 n	108 21 w	6.25

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	01	890807	16.30	45	22	05	11	02	2	111	19 01 n	108 16 w	5.98
04	02	890807	16.30	22	05	45	11	01	2	111			4.62
04	03	890807	16.30	05	45	22	12	01	2	074			4.35
04	04	890807	16.30	01	74	51	12	01	2	074			11.41
04	05	890807	16.30	51	01	74	01	01	2	074			5.70
05	01	890807	16.30	74	51	01	01	12	3	074			7.33
05	02	890807	16.30	45	22	05	12	12	2	074	19 01 n	107 53 w	6.25
05	03	890807	16.30	22	05	45	12	12	2	078			5.98
05	04	890807	16.30	05	45	22	12	12	2	078			4.07
05	05	890807	16.30	45	22	05	12	12	2	078	19 04 n	107 43 w	5.98
05	06	890807	16.30	22	05	45	07	01	2	078			3.26
06	01	890807	16.30	22	05	45	07	01	2	078	19 04 n	107 37 w	1.09
06	02	890807	16.30	05	45	22	07	01	2	078			4.35
06	03	890807	16.30	74	51	01	07	01	3	078	19 05 n	107 34 w	4.62
07	01	890807	16.30	01	74	51	07	01	3	078			7.06
07	02	890807	16.30	01	74	51	06	01	3	082			6.79
07	03	890807	16.30	51	01	74	02	02	3	226	19 08 n	107 23 w	7.61
07	04	890807	16.30	22	45	05	02	02	3	226	19 05 n	107 25 w	6.25
07	05	890807	16.30	45	05	22	02	02	3	226			5.98
07	06	890807	16.30	05	22	45	02	02	3	226			0.54
08	01	890807	16.30	05	22	45	02	02	3	226	18 55 n	107 35 w	2.72
08	02	890807	16.30	51	01	74	02	02	2	226	18 54 n	107 37 w	10.59
08	03	890807	16.30	74	51	01	02	03	2	226			8.96
01	01	890808	16.30	45	22	05			2	226	17 40 n	108 56 w	3.26
02	01	890808	16.30	45	22	05			2	226	17 38 n	108 58 w	1.09
02	02	890808	16.30	22	05	45	06	02	2	226			4.35
03	01	890808	16.30	05	45	22	07	02	2	226	17 37 n	109 02 w	4.89
04	01	890808	16.30	45	22	05	07	02	2	226	17 33 n	109 07 w	7.06
04	02	890808	16.30	74	01	51	07	02	2	226	17 30 n	109 10 w	2.99
05	01	890808	16.30	51	74	01	07	02	2	226	17 28 n	109 16 w	7.88
06	01	890808	16.30	01	51	74	07	02	2	233	17 23 n	109 24 w	1.63
06	02	890808	16.30	22	05	45	07	01	2	233			1.63
06	03	890808	16.30	22	05	45	07	01	2	226	17 22 n	109 26 w	4.35
06	04	890808	16.30	05	45	22	07	01	2	226			0.54
06	05	890808	16.30	05	22	45	07	01	2	226			0.81
06	06	890808	16.30	05	45	22	07	01	2	226	17 17 n	109 30 w	3.80
06	07	890808	16.30	45	22	05	07	01	2	226			5.70
06	08	890808	16.30	22	05	45	08	01	2	226	17 15 n	109 32 w	1.63
07	01	890808	16.30	05	45	22	08	12	2	226	17 09 n	109 36 w	4.89
07	02	890808	16.30	01	51	74	08	12	2	226	17 06 n	109 39 w	6.52
07	03	890808	16.30	01	51	74	12	12	3	226			4.35
07	04	890808	16.30	74	01	51	12	12	3	226			11.14
07	05	890808	16.30	51	74	01	01	12	3	226			5.16
08	01	890808	16.67	22	45	05			3	226	16 48 n	109 56 w	4.72
08	02	890808	16.67	22	45	05	01	01	3	226	16 46 n	109 58 w	0.28
09	01	890808	16.67	51	74	01	02	02	3	226	16 45 n	110 04 w	8.33
10	01	890808	16.67	01	51	74	02	02	3	226			6.39
10	02	890808	16.67	45	05	22	02	02	3	226	16 36 n	110 12 w	6.39
10	03	890808	16.67	05	22	45	02	02	3	226			5.56
10	04	890808	16.67	22	45	05			3	226			0.56
11	01	890808	16.67	22	05	45			3	226	16 30 n	110 21 w	1.67
01	01	890809	16.48	01	74	51			3	220	15 24 n	111 33 w	5.22
01	02	890809	16.48	01	74	51	07	02	3	220			3.30

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	03	890809	16.48	51	01	74	07	02	3	220			11.26
01	04	890809	16.48	74	51	01	07	02	3	220			10.44
01	05	890809	16.48	22	45	05	07	02	3	220	15 10 n	111 46 w	5.49
01	06	890809	16.48	45	05	22	07	02	3	220			5.77
01	07	890809	16.48	05	22	45	07	02	3	220			5.77
01	08	890809	16.48	22	45	05	07	02	3	220	15 03 n	111 55 w	1.92
02	01	890809	16.48	45	05	22	12	02	2	064	15 02 n	111 56 w	7.14
02	02	890809	16.48	01	51	74	01	02	3	064	15 04 n	111 52 w	11.54
02	03	890809	16.48	74	01	51	01	01	3	064			10.99
02	04	890809	16.48	51	74	01	12	01	3	064			10.71
02	05	890809	16.48	05	22	45	12	12	3	064	15 13 n	111 33 w	4.94
02	06	890809	16.48	22	45	05	12	12	3	064			5.77
02	07	890809	16.48	45	05	22	12	12	3	064			5.22
02	08	890809	16.48	05	22	45	12	12	3	064	15 17 n	111 23 w	5.49
02	09	890809	16.48	22	45	05	12	12	3	064			6.04
02	10	890809	16.48	45	05	22	07	01	3	064			5.22
02	11	890809	16.48	51	74	01	07	01	3	064	15 22 n	111 13 w	0.82
03	01	890809	16.48	51	74	01	07	01	3	064	15 23 n	111 11 w	4.12
03	02	890809	16.48	01	51	74	07	01	3	064			2.47
03	03	890809	16.48	01	51	74	07	01	3	061			4.40
03	04	890809	16.48	01	51	74	07	01	3	061	15 25 n	111 06 w	4.12
03	05	890809	16.48	74	01	51	07	01	3	061			2.47
04	01	890809	16.48	74	01	51	07	01	3	061	15 29 n	111 01 w	1.10
05	01	890809	16.48	74	01	51	07	01	3	061			4.67
05	02	890809	16.48	05	22	45	07	02	2	061	15 29 n	110 59 w	7.42
05	03	890809	16.48	22	45	05	07	02	2	061	15 32 n	110 54 w	8.52
05	04	890809	16.48	45	05	22	07	02	2	061	15 35 n	110 49 w	7.97
05	05	890809	16.48	74	01	51	07	03	2	061	15 37 n	110 44 w	9.89
05	06	890809	16.48	51	74	01	07	03	2	061	15 39 n	110 39 w	11.54
01	01	890810	16.11	22	05	45			2	057	16 32 n	108 50 w	0.27
02	01	890810	16.11	05	45	22	12	03	2	057	16 34 n	108 47 w	8.32
02	02	890810	16.11	45	22	05	12	03	2	057	16 36 n	108 43 w	4.30
03	01	890810	16.11	05	22	45	01	02	2	057	16 40 n	108 40 w	1.34
03	02	890810	16.11	05	22	45	01	02	3	057			1.61
03	03	890810	16.11	74	01	51	01	02	3	057	16 41 n	108 37 w	10.74
04	01	890810	16.11	51	74	01	01	02	3	057	16 46 n	108 31 w	6.44
04	02	890810	16.11	51	74	01	01	02	3	057			3.49
04	03	890810	16.11	01	51	74	01	02	3	057			1.07
04	04	890810	16.11	01	51	74	01	02	4	057			7.79
05	01	890810	16.11	22	45	05	01	01	4	057	16 53 n	108 19 w	6.18
06	01	890810	16.11	45	05	22	01	01	4	057			5.91
06	02	890810	16.11	05	22	45	01	01	4	057	16 57 n	108 11 w	5.37
06	03	890810	16.11	22	45	05	01	01	4	057			5.64
06	04	890810	16.11	45	05	22	12	12	4	057			5.10
06	05	890810	16.11	01	51	74	01	12	3	057	17 02 n	108 02 w	5.64
06	06	890810	16.11	01	51	74	01	12	3	061			5.37
06	07	890810	16.11	74	01	51	07	12	3	061			11.28
06	08	890810	16.11	51	74	01	07	12	3	061			10.47
06	09	890810	16.11	05	22	45	07	01	3	061	17 13 n	107 41 w	4.83
06	10	890810	16.11	22	45	05	07	01	3	061			5.37
06	11	890810	16.11	45	05	22	07	01	3	061			6.44
06	12	890810	16.11	05	22	45	07	01	3	061	17 15 n	107 35 w	5.37
06	13	890810	16.11	22	45	05	07	02	3	061			0.81

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
07	01	890810	16.11	22	45	05	07	02	3	061	17 19 n	107 27 w	1.61
07	02	890810	16.11	74	01	51	07	02	3	061	17 19 n	107 27 w	3.76
08	01	890810	16.11	74	01	51	07	02	3	061	17 20 n	107 24 w	3.76
08	02	890810	16.11	51	74	01	07	02	3	061			4.30
09	01	890810	16.11	01	51	74	07	02	2	061	17 25 n	107 16 w	5.37
10	01	890810	16.11	45	05	22	07	02	2	061	17 27 n	107 13 w	5.91
10	02	890810	16.11	45	05	22	07	03	1	061			0.27
11	01	890810	16.11	05	22	45	07	03	1	061	17 29 n	107 08 w	5.64
01	01	890811	16.30	51	74	01			1	059	18 30 n	105 20 w	5.43
01	02	890811	16.30	51	74	01	01	03	1	059			10.32
02	01	890811	16.30	01	51	74	01	03	1	059	18 34 n	105 10 w	7.88
02	02	890811	16.30	74	01	51	01	02	1	059			7.06
02	03	890811	16.30	74	01	51			1	059			3.26
03	01	890811	16.30	05	22	45			1	059	18 40 n	104 56 w	5.43
03	02	890811	16.30	22	45	05	01	02	1	059			2.72
03	03	890811	16.30	22	45	05	01	01	1	051			2.72
03	04	890811	16.30	45	05	22	01	01	1	051			8.69
03	05	890811	16.30	05	22	45	01	01	1	051			1.09
04	01	890811	16.30	74	01	51	01	01	1	051	18 51 n	105 44 w	2.44
05	01	890811	16.30	74	01	51	01	01	1	051	18 53 n	105 42 w	1.09
05	02	890811	16.30	74	01	51	01	01	1	060			9.24
01	01	890812	16.11	05	45	22	07	03	3	225	18 00 n	105 25 w	6.71
01	02	890812	16.11	45	22	05	07	03	3	225			5.64
01	03	890812	16.11	22	05	45	07	02	3	225			2.95
02	01	890812	16.11	22	05	45	07	02	3	225	17 52 n	105 33 w	1.07
02	02	890812	16.11	05	45	22	07	02	3	225			3.22
02	03	890812	16.11	05	22	45	07	02	3	225			0.54
03	01	890812	16.11	45	22	05	07	02	3	225	17 43 n	105 37 w	2.15
03	02	890812	16.11	51	74	01	07	02	3	225	17 42 n	105 37 w	3.22
04	01	890812	16.11	22	05	04	08	01	2	225	17 37 n	105 54 w	0.54
05	01	890812	16.11	05	04	22	08	12	2	225	17 34 n	105 56 w	3.22
05	02	890812	16.11	05	04	22	12	12	1	225	17 32 n	105 58 w	2.42
05	03	890812	16.11	04	22	05	12	12	1	225			4.83
06	01	890812	16.11	01	74	51	12	12	1	225	17 28 n	106 01 w	10.47
07	01	890812	16.11	51	01	74	01	12	1	225	17 21 n	106 05 w	1.88
08	01	890812	16.11	51	01	74	01	12	1	225	17 22 n	106 09 w	3.49
08	02	890812	16.11	04	05	22	01	12	1	225	17 20 n	106 11 w	4.83
08	03	890812	16.11	05	22	04	02	01	1	225			1.34
09	01	890812	16.11	05	22	04	02	01	1	225	17 16 n	106 14 w	1.88
09	02	890812	16.11	22	04	05	01	01	1	225			4.83
09	03	890812	16.11	04	05	22	01	01	1	225	17 14 n	106 17 w	1.07
10	01	890812	16.11	04	05	22	01	02	1	225	17 12 n	106 20 w	1.34
10	02	890812	16.11	05	22	04	01	02	1	225			2.15
11	01	890812	16.11	05	22	04	01	02	1	225	17 10 n	106 21 w	2.69
11	02	890812	16.11	22	04	05	01	02	1	225			1.07
12	01	890812	16.11	74	51	01	01	02	1	225	17 08 n	106 23 w	2.15
13	01	890812	16.11	74	01	51	02	03	1	225	17 04 n	106 26 w	6.18
01	01	890813	15.93	51	74	01			3	223	16 02 n	107 29 w	5.31
01	02	890813	15.93	51	74	01	07	03	3	223			6.64
01	03	890813	15.93	01	51	74	07	03	3	223			10.62
01	04	890813	15.93	74	01	51	07	02	3	223			11.41
01	05	890813	15.93	05	22	45	07	02	3	223	15 46 n	107 45 w	5.31
01	06	890813	15.93	22	45	05	07	02	3	223			3.19

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	01	890813	15.93	45	05	22	07	02	3	223	15 42 n	107 47 w	5.31
02	02	890813	15.93	05	22	45	07	02	3	223	15 38 n	107 52 w	2.39
03	01	890813	15.93	22	45	05	07	01	3	223	15 39 n	107 54 w	8.23
03	02	890813	15.93	01	51	74	08	01	3	223	15 35 n	107 58 w	3.72
04	01	890813	15.93	01	51	74	08	01	3	223			5.04
04	02	890813	15.93	74	01	51	08	01	3	223	15 29 n	108 03 w	3.45
05	01	890813	15.93	51	74	01	08	12	3	223	15 28 n	108 08 w	10.09
05	02	890813	15.93	45	05	22	12	12	3	223	15 23 n	108 12 w	5.57
05	03	890813	15.93	05	22	45	12	12	3	223			5.57
05	04	890813	15.93	22	45	05	12	12	3	223			5.84
05	05	890813	15.93	45	05	22	12	12	3	223	15 16 n	108 20 w	5.04
05	06	890813	15.93	05	22	45	01	01	3	223			5.04
05	07	890813	15.93	22	45	05	01	01	3	223			5.57
05	08	890813	15.93	51	74	01	01	01	3	223	15 10 n	108 27 w	1.33
06	01	890813	15.93	51	74	01	02	01	4	223	15 05 n	108 31 w	1.86
06	02	890813	15.93	01	51	74	02	01	4	223			6.37
07	01	890813	15.93	01	51	74	02	01	4	223	15 01 n	108 36 w	1.86
07	02	890813	15.93	74	01	51	02	01	4	220			4.51
07	03	890813	15.93	74	01	51	02	01	3	220			5.31
08	01	890813	15.93	45	05	22	02	02	3	220	14 58 n	108 46 w	6.11
08	02	890813	15.93	05	22	45	02	02	3	220			1.33
08	03	890813	15.93	05	22	45	02	02	4	220			2.65
08	04	890813	15.93	05	22	45	02	02	3	220	14 54 n	108 50 w	1.33
08	05	890813	15.93	22	45	05	02	02	3	220			5.31
08	06	890813	15.93	01	74	51	02	03	3	220	14 51 n	108 53 w	9.29
09	01	890813	15.93	51	01	74	02	03	3	220	14 47 n	109 00 w	2.65
01	01	890814	15.74	22	45	05			2	225	13 33 n	110 03 w	6.82
01	02	890814	15.74	45	05	22			2	225			2.62
01	03	890814	15.74	45	05	22			2	214			1.57
01	04	890814	15.74	45	05	22			2	214			1.05
01	05	890814	15.74	05	22	45			2	214	13 28 n	110 09 w	2.36
01	06	890814	15.74	05	22	45			2	214			3.15
01	07	890814	15.74	22	45	05	07	02	2	214			2.10
01	08	890814	15.74	22	45	05	06	02	2	268	13 24 n	110 13 w	3.15
01	09	890814	15.74	45	05	22	06	02	2	268			1.84
02	01	890814	15.74	01	74	51	06	02	2	275	13 23 n	110 20 w	10.23
02	02	890814	15.74	51	01	74	06	02	2	275			8.40
02	03	890814	15.74	74	51	01	06	01	2	275			10.23
02	04	890814	15.74	05	22	45	06	01	2	275	13 26 n	110 39 w	5.25
02	05	890814	15.74	22	45	05	06	01	3	275			5.51
02	06	890814	15.74	45	05	22	06	01	3	275			4.46
02	07	890814	15.74	45	05	22	06	01	3	265	13 27 n	110 49 w	1.31
02	08	890814	15.74	05	22	45	06	01	3	265			2.10
02	09	890814	15.74	05	22	45	06	01	4	265			2.36
02	10	890814	15.74	22	45	05	06	01	4	265			4.98
02	11	890814	15.74	45	05	22	06	12	4	265			4.20
02	12	890814	15.74	74	01	51	06	12	4	265	13 25 n	111 00 w	12.33
02	13	890814	15.74	51	74	01	12	12	4	265			10.23
02	14	890814	15.74	01	51	74	12	12	4	265	13 24 n	111 16 w	10.23
02	15	890814	15.74	05	22	45	12	01	3	265	13 23 n	111 21 w	5.25
02	16	890814	15.74	22	45	05	12	01	3	265			5.25
02	17	890814	15.74	45	05	22	12	01	3	265			5.51
02	18	890814	15.74	05	22	45	01	01	3	265	13 23 n	111 32 w	4.20

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	19	890814	15.74	22	45	05	12	02	3	265			5.77
03	01	890814	15.74	74	51	99	12	03	3	265	13 21 n	111 40 w	1.31
03	02	890814	15.74	22	05	45			3	265			5.25
03	03	890814	15.74	05	45	22	01	03	3	265			4.72
03	04	890814	15.74	05	45	22			3	265			0.79
04	01	890814	15.74	45	22	05			3	270	13 22 n	111 50 w	2.36
01	01	890815	14.82	74	01	51			3	257	13 17 n	113 25 w	8.64
01	02	890815	14.82	51	74	01			4	257			6.17
01	03	890815	14.82	01	51	74			4	257	13 14 n	113 33 w	5.68
01	04	890815	14.82	01	51	74			4	257			2.47
01	05	890815	14.82	22	05	45			4	257	13 13 n	113 38 w	5.43
01	06	890815	14.82	05	45	22			4	257			0.99
01	07	890815	14.82	05	45	22			4	257	13 13 n	113 45 w	4.44
01	08	890815	14.82	45	22	05			4	257			6.42
01	09	890815	14.82	22	05	45			4	257			4.94
01	10	890815	14.82	05	45	22			4	257	13 12 n	113 56 w	3.70
01	11	890815	14.82	45	22	05			4	257			3.21
01	12	890815	14.82	01	74	51			4	257	13 11 n	114 01 w	10.87
01	13	890815	14.82	51	01	74			3	257			8.64
01	14	890815	14.82	74	51	01			3	257			10.37
01	15	890815	14.82	22	05	45	06	12	3	257	13 07 n	114 21 w	5.19
01	16	890815	14.82	05	45	22			3	257			4.44
01	17	890815	14.82	45	22	05	12	12	3	257			5.43
01	18	890815	14.82	22	05	45	12	12	3	257	13 04 n	114 32 w	1.73
01	19	890815	14.82	22	05	45	12	12	4	257			2.72
01	20	890815	14.82	05	45	22	12	12	4	257			4.94
01	21	890815	14.82	45	22	05	12	12	4	257			4.69
01	22	890815	14.82	51	74	01	12	01	4	257	13 02 n	114 41 w	10.12
01	23	890815	14.82	01	51	74	01	01	4	257			4.69
01	24	890815	14.82	01	51	74	01	01	4	242	13 00 n	114 51 w	5.19
01	25	890815	14.82	74	01	51	01	01	4	242			7.16
02	01	890815	14.82	22	05	45	01	02	5	242	12 57 n	115 00 w	5.19
03	01	890815	14.82	05	45	22	01	02	5	242	12 55 n	115 06 w	6.42
03	02	890815	14.82	45	22	05	01	02	5	242	12 54 n	115 10 w	7.41
03	03	890815	14.82	01	51	74	01	02	5	242			7.41
03	04	890815	14.82	74	01	51	01	03	5	242	12 49 n	115 18 w	2.22
04	01	890815	14.82	74	01	51	01	03	4	242	12 48 n	115 24 w	3.46
01	01	890816	15.37	22	05	45			5	257	12 25 n	117 00 w	5.38
01	02	890816	15.37	05	45	22			5	257	12 24 n	117 04 w	5.12
01	03	890816	15.37	45	22	05	06	03	5	257			3.59
01	01	890817	15.93	01	51	74	10	03	3	125	11 06 n	118 07 w	7.43
01	02	890817	15.93	74	01	51	10	03	3	125			6.64
01	03	890817	15.93	51	74	01	10	03	3	125			4.25
02	01	890817	15.93	05	45	22	10	02	3	125	10 58 n	118 00 w	4.51
02	02	890817	15.93	45	22	05	10	02	3	125			5.57
02	03	890817	15.93	22	05	45	11	02	3	125			4.78
02	04	890817	15.93	05	45	22	11	02	2	125	10 53 n	117 53 w	5.57
02	05	890817	15.93	45	22	05	10	02	2	125			5.57
02	06	890817	15.93	22	05	45	10	02	2	125			4.78
02	07	890817	15.93	74	01	51	10	02	3	125	10 47 n	117 44 w	4.78
03	01	890817	17.59	51	74	01	10	01	3	130	10 42 n	117 33 w	10.26
03	02	890817	17.59	05	45	22	12	12	3	130	10 38 n	117 24 w	6.45
03	03	890817	17.59	45	22	05	12	12	3	130			5.86

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
													5.57
03	04	890817	17.59	22	05	45	12	12	3	130			
03	05	890817	17.59	05	45	22	12	12	3	130	10 33 n	117 22 w	5.57
03	06	890817	17.59	45	22	05	12	12	3	130			6.45
03	07	890817	17.59	22	05	45	12	12	3	130			3.81
04	01	890817	17.59	01	74	51	12	12	4	130	10 25 n	117 15 w	1.76
05	01	890817	17.59	01	74	51			4	130	10 23 n	117 14 w	2.64
05	02	890817	17.59	01	74	51			4	126	10 22 n	117 13 w	4.11
05	03	890817	17.59	51	01	74			4	126			4.69
06	01	890817	17.59	74	5i	01			4	162	10 16 n	117 01 w	1.76
06	02	890817	17.59	74	51	01	03	01	4	180			1.76
06	03	890817	17.59	05	45	22	03	02	5	189	10 14 n	117 01 w	4.98
06	04	890817	17.59	05	45	22	03	02	5	189			1.17
06	05	890817	17.59	45	22	05	03	02	5	189			3.52
01	01	890818	15.74	01	74	51	11	02	5	110	08 43 n	116 19 w	6.56
02	01	890818	15.74	51	01	74			5	110	08 44 n	116 12 w	7.35
02	02	890818	15.74	74	51	01			5	110			2.62
03	01	890818	15.74	74	51	01			5	110	08 41 n	116 05 w	5.25
03	02	890818	15.74	45	22	05			5	110	08 40 n	116 02 w	6.03
03	03	890818	15.74	22	05	45			5	110			4.72
03	04	890818	15.74	05	45	22			5	110			1.57
03	05	890818	15.74	05	45	22			5	110			3.94
03	06	890818	15.74	45	22	05			5	110	08 37 n	115 53 w	1.05
04	01	890818	15.74	22	05	45			5	110	08 37 n	115 50 w	4.72
04	02	890818	15.74	05	45	22			5	110			4.72
04	03	890818	15.74	51	01	74			5	110	08 35 n	115 45 w	10.49
04	04	890818	15.74	51	01	74			5	115			0.26
05	01	890818	15.74	74	51	01			5	115	08 34 n	115 38 w	9.18
05	02	890818	15.74	01	74	51			5	115			10.49
05	03	890818	15.74	45	22	05			5	115	08 27 n	115 27 w	5.77
05	04	890818	15.74	22	05	45			5	115			4.98
05	05	890818	15.74	05	45	22			5	115			5.25
05	06	890818	15.74	45	22	05			5	115	08 23 n	115 17 w	5.51
05	07	890818	15.74	22	05	45			5	115			5.25
05	08	890818	15.74	05	45	22			5	115			4.72
05	09	890818	15.74	74	51	01			5	115	08 20 n	115 09 w	8.40
06	01	890818	15.74	01	74	51			5	113	08 17 n	115 03 w	5.25
06	02	890818	15.74	51	01	74			5	113	08 16 n	115 01 w	4.46
06	03	890818	15.74	51	01	74			4	113			3.41
06	04	890818	15.74	45	22	05			4	113	08 14 n	114 56 w	8.13
06	05	890818	15.74	22	05	45			4	113	08 12 n	114 52 w	7.61
06	06	890818	15.74	05	45	22			4	113	08 10 n	114 47 w	4.20
01	01	890819	15.74	51	01	74	10	03	4	110	07 31 n	113 05 w	5.77
01	02	890819	15.74	51	01	74	12	03	4	081			2.10
01	03	890819	15.74	74	51	01	12	03	4	081	07 31 n	113 00 w	1.31
01	04	890819	15.74	74	51	01	12	03	4	081			6.56
01	05	890819	15.74	01	74	51			4	081	07 31 n	112 54 w	5.25
01	06	890819	15.74	01	74	51	12	02	4	081			3.41
01	07	890819	15.74	45	22	05	12	02	4	071	07 31 n	112 50 w	1.57
01	08	890819	15.74	45	22	05			4	071			3.41
01	09	890819	15.74	22	05	45			4	071			4.72
01	10	890819	15.74	05	45	22			4	071			3.15
01	11	890819	15.74	05	45	22	12	02	4	071			2.10
01	12	890819	15.74	45	22	05	12	02	4	071	07 33 n	112 44 w	5.77

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	13	890819	15.74	22	05	45	12	02	4	071			4.98
01	14	890819	15.74	05	45	22	12	02	4	071			4.98
01	15	890819	15.74	74	51	01	12	01	4	071	07 38 n	112 28 w	3.15
01	16	890819	15.74	74	51	01	12	01	4	078			7.35
01	17	890819	15.74	01	74	51	12	01	4	078			11.02
01	18	890819	15.74	51	74	04			4	078			4.20
01	19	890819	15.74	51	01	74			4	078			5.77
01	20	890819	15.74	45	22	05	12	12	5	078	07 42 n	112 07 w	5.77
01	21	890819	15.74	22	05	45	12	12	5	078			4.98
01	22	890819	15.74	05	45	22	12	12	5	078			5.25
01	23	890819	15.74	45	22	05	07	01	4	078	07 43 n	111 58 w	6.30
01	24	890819	15.74	22	05	45			4	078			4.46
01	25	890819	15.74	05	45	22			4	078			2.10
01	26	890819	15.74	05	45	22			4	078			2.62
01	27	890819	15.74	01	74	51			4	078	07 45 n	111 48 w	2.89
02	01	890819	15.74	01	74	51			4	078	07 46 n	111 38 w	1.57
02	02	890819	15.74	51	74	01			4	078			2.36
02	03	890819	15.74	51	74	01			4	078			5.25
02	04	890819	15.74	74	51	01			4	078	07 47 n	111 32 w	7.87
02	05	890819	15.74	45	22	05			4	078	07 48 n	111 28 w	5.77
02	06	890819	15.74	22	05	45			4	078			4.98
02	07	890819	15.74	05	45	22			4	078			4.98
03	01	890819	15.74	74	01	51			4	078	07 51 n	111 11 w	13.91
01	01	890820	16.48	74	51	01	12	02	3	083	08 09 n	109 16 w	4.40
02	01	890820	16.48	22	45	05	12	02	3	079	08 09 n	109 10 w	6.04
02	02	890820	16.48	45	05	22	12	01	3	079			5.49
02	03	890820	16.48	05	22	45	12	01	3	079			5.49
02	04	890820	16.48	22	45	05			3	079	08 09 n	108 58 w	3.85
02	05	890820	16.48	22	45	05	12	01	3	054			1.65
02	06	890820	16.48	45	05	22			3	054			0.55
02	07	890820	16.48	45	05	22			3	079			5.22
02	08	890820	16.48	05	22	45	12	01	3	079			4.67
02	09	890820	16.48	51	01	74	12	12	4	079	08 12 n	108 49 w	11.26
02	10	890820	16.48	74	51	01	12	12	4	079			10.71
02	11	890820	16.48	01	74	51	07	12	4	079			6.04
02	12	890820	16.48	01	74	51	07	01	3	079			2.47
03	01	890820	16.48	01	74	51	07	01	3	072	08 12 n	108 28 w	1.92
03	02	890820	16.48	22	45	05	07	01	3	072			5.49
03	03	890820	16.48	45	05	22	07	01	3	072			5.49
03	04	890820	16.48	05	22	45			3	072			4.94
03	05	890820	16.48	22	45	05			3	072	08 13 n	108 17 w	3.57
04	01	890820	16.48	45	05	22			3	072	08 15 n	108 10 w	2.47
04	02	890820	16.48	45	05	22			3	072			1.92
01	01	890821	16.30	74	01	51			2	081	08 53 n	106 13 w	3.26
02	01	890821	16.30	74	01	51	12	03	3	081	08 54 n	106 08 w	2.72
03	01	890821	16.30	45	22	05			3	051	09 04 n	105 53 w	5.70
03	02	890821	16.30	22	05	45			3	051			1.36
04	01	890821	16.30	74	01	51			3	051	09 12 n	105 40 w	5.70
05	01	890821	16.30	05	45	22	01	01	3	051			3.53
05	02	890821	16.30	05	45	22	12	12	3	051			1.90
05	03	890821	16.30	45	22	05	12	12	3	051	08 14 n	105 37 w	0.54
06	01	890821	16.30	45	22	05	12	12	3	051	09 17 n	105 33 w	6.25
06	02	890821	16.30	22	05	45	12	12	3	051			5.16

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
06	03	890821	16.30	05	45	22	12	12	2	051			4.62
06	04	890821	16.30	05	45	22	12	12	3	051			0.54
07	01	890821	15.74	51	01	74			3	051	09 32 n	105 08 w	3.94
07	02	890821	15.74	45	22	05			2	051	09 33 n	105 07 w	7.87
07	03	890821	15.74	22	05	45			2	051			0.52
07	04	890821	15.74	22	05	45			3	051			6.30
07	05	890821	15.74	05	45	22			3	051	09 39 n	105 00 w	8.13
07	06	890821	15.74	74	01	51			3	051			9.45
07	07	890821	15.74	51	74	01			3	051	09 45 n	105 52 w	2.62
07	08	890821	15.74	51	74	01			3	051			2.62
07	09	890821	15.74	51	74	01			3	036			3.67
07	10	890821	15.74	01	51	74			3	051			4.46
01	01	890822	15.93	45	22	05			2	057	10 38 n	103 30 w	6.11
01	02	890822	15.93	22	05	45			2	057			1.33
01	03	890822	15.93	22	05	45	01	03	2	057			3.98
01	04	890822	15.93	05	45	22	01	03	2	057	10 43 n	103 24 w	4.78
02	01	890822	15.93	74	01	51			2	057	10 48 n	103 16 w	5.31
03	01	890822	15.74	22	45	05	01	01	2	030	10 59 n	103 13 w	1.05
03	02	890822	15.74	22	45	05			2	030			4.46
03	03	890822	15.74	45	05	22			2	030			5.51
03	04	890822	15.74	05	22	45			2	000	11 06 n	103 10 w	5.77
03	05	890822	15.74	22	45	05			3	000			1.31
04	01	890822	15.56	01	51	74			3	080	11 14 n	103 03 w	1.81
05	01	890822	15.56	01	51	74			3	080	11 15 n	103 01 w	5.19
05	02	890822	15.56	74	01	51	12	12	3	080	11 16 n	102 58 w	10.37
05	03	890822	15.56	51	74	01			3	080			1.30
05	04	890822	15.56	51	74	01			3	120			4.41
05	05	890822	15.19	45	22	05	07	01	3	064	11 15 n	102 46 w	4.81
05	06	890822	15.19	22	05	45	07	01	3	064			4.81
05	07	890822	15.19	05	45	22	07	01	3	064			5.32
05	08	890822	15.19	45	22	05			3	064	11 17 n	102 38 w	5.82
05	09	890822	15.19	22	05	45			3	064			2.02
05	10	890822	15.19	22	05	45			3	059	11 19 n	102 33 w	0.76
05	11	890822	15.19	22	05	45			3	053			1.77
05	12	890822	15.19	05	45	22			3	053			1.27
06	01	890822	15.56	01	74	51			3	059	11 27 n	102 26 w	7.26
06	02	890822	15.56	45	22	05			3	059	11 29 n	102 22 w	5.19
06	03	890822	15.56	45	22	05	07	03	3	080			2.59
06	04	890822	15.56	22	05	45			2	080	11 32 n	102 18 w	3.11
06	05	890822	15.56	22	05	45			2	080			4.41
06	06	890822	15.56	05	45	22			2	080	11 31 n	102 14 w	4.67
06	07	890822	15.56	05	45	22	07	03	1	080			1.81
01	01	890823	15.37	51	74	01	12	03	0	076	11 50 n	100 42 w	4.61
01	02	890823	15.37	51	74	01	01	03	1	091	11 50 n	100 40 w	3.84
02	01	890823	15.56	22	45	05	12	02	1	076	11 51 n	100 32 w	5.19
02	02	890823	15.56	45	05	22	12	02	1	076			3.37
02	03	890823	15.56	45	05	22			2	076	11 52 n	100 20 w	2.33
02	04	890823	15.56	05	22	45			2	076			1.81
02	05	890823	15.56	05	22	45	12	02	3	076			3.11
02	06	890823	15.56	22	45	05	12	02	3	076	11 53 n	100 23 w	8.30
02	07	890823	15.56	74	01	51	01	01	2	076	11 54 n	100 20 w	7.52
03	01	890823	15.37	51	74	01	01	01	2	041	11 48 n	100 12 w	4.87
03	02	890823	15.37	45	05	22	12	12	2	041			3.33

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	01	890823	15.37	05	22	45	12	12	2	041	11 52 n	100 09 w	5.38
04	02	890823	15.37	22	45	05	12	12	2	041	11 55 n	100 07 w	2.05
05	01	890823	15.37	01	74	45	08	01	2	038	11 55 n	100 04 w	1.79
05	02	890823	15.37	01	74	51	08	01	2	038			4.36
05	03	890823	15.37	01	74	51	08	01	1	038			3.07
06	01	890823	15.56	22	45	05			2	078	12 01 n	099 56 w	1.81
07	01	890823	15.56	22	45	05			2	078	12 02 n	099 55 w	3.11
07	02	890823	15.56	01	74	51			2	078	12 03 n	099 54 w	4.41
08	01	890823	15.56	51	01	74			1	078	12 02 n	099 48 w	7.52
08	02	890823	15.56	51	01	74	07	03	0	078			1.30
01	01	890824	15.93	74	01	51			2	077	12 22 n	097 53 w	3.72
02	01	890824	15.93	74	01	51			2	077	12 23 n	097 48 w	0.27
03	01	890824	15.93	05	22	45			2	077	12 24 n	097 41 w	5.31
03	02	890824	15.93	22	45	05	12	01	1	077	12 25 n	097 37 w	1.33
04	01	890824	15.93	45	05	22	12	12	1	077	12 24 n	097 36 w	2.92
04	02	890824	15.93	01	51	74	12	12	1	077	12 24 n	097 34 w	10.62
05	01	890824	16.30	74	01	51	06	12	1	077	12 25 n	097 21 w	1.90
05	02	890824	16.30	74	01	51	04	01	1	107			3.53
06	01	890824	15.56	45	22	05	06	01	1	077	12 25 n	097 17 w	5.96
06	02	890824	15.56	22	05	45			1	077	12 26 n	097 14 w	5.19
07	01	890824	15.56	05	45	22	07	01	1	077	12 26 n	097 11 w	2.59
07	02	890824	15.56	45	22	05			1	077			3.11
08	01	890824	15.56	45	22	05	07	02	1	077	12 28 n	097 05 w	1.04
08	02	890824	15.56	22	05	45	06	02	1	077			1.04
09	01	890824	15.56	51	74	01	07	02	1	077	12 33 n	097 04 w	8.04
09	02	890824	15.56	01	51	74	07	02	3	077			5.70
10	01	890824	15.56	05	45	22	07	02	2	077	12 36 n	096 52 w	0.78
11	01	890824	15.56	45	22	05			1	080	12 36 n	096 48 w	4.15
01	01	890825	15.00	74	01	51	12	03	0	077	12 52 n	095 08 w	1.50
02	01	890825	15.19	51	74	01	12	03	0	077	12 52 n	095 03 w	1.77
02	02	890825	15.19	51	74	01	01	03	0	067	12 52 n	095 02 w	2.02
03	01	890825	15.19	01	51	74	12	02	0	067	12 50 n	094 57 w	1.27
04	01	890825	15.19	45	22	05	01	02	0	060	12 51 n	094 53 w	2.02
04	02	890825	15.19	45	22	05	02	02	0	010			3.54
04	03	890825	15.19	22	05	45	03	02	1	010	12 52 n	094 50 w	0.76
05	01	890825	15.19	01	51	74	12	01	4	072	12 58 n	094 44 w	5.57
05	02	890825	15.19	01	51	74			3	072			2.02
05	03	890825	15.19	01	51	74			3	072	13 00 n	094 42 w	6.58
06	01	890825	15.19	74	01	51			3	100	13 02 n	094 36 w	1.77
07	01	890825	15.19	05	22	45			5	100	13 01 n	094 16 w	4.81
07	02	890825	15.19	22	45	05			5	100			4.30
08	01	890825	15.56	51	74	01			4	072	13 04 n	094 07 w	7.78
08	02	890825	15.56	01	51	74			4	072			10.89
08	03	890825	15.56	74	01	51			3	072			3.11
09	01	890825	15.74	45	05	22			2	080	13 13 n	094 50 w	0.52
09	02	890825	15.74	45	05	22			2	076			1.57
10	01	890825	15.74	01	74	51	07	03	2	076	13 15 n	094 47 w	1.57
01	01	890826	15.74	45	22	05			3	080	13 30 n	091 56 w	2.62
02	01	890826	15.74	22	05	45			2	080	13 31 n	091 53 w	0.79
02	02	890826	15.74	22	05	45	12	03	2	080			0.79
02	03	890826	15.74	22	05	45	01	03	2	060			1.31
02	04	890826	15.74	22	05	45			2	060			2.89
02	05	890826	15.74	05	45	22	01	03	2	060	13 32 n	091 49 w	5.25

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	06	890826	15.74	45	22	05	01	03	2	060			6.56
02	07	890826	15.74	22	05	45	01	02	2	060			1.05
02	08	890826	15.74	22	05	45			2	060			1.05
02	09	890826	15.74	22	05	45	01	02	3	060			1.31
03	01	890826	15.74	74	01	51			3	060	13 36 n	091 40 w	1.31
04	01	890826	15.74	74	01	51			3	060	13 38 n	091 38 w	4.20
05	01	890826	15.74	74	01	51	12	02	3	060	13 38 n	091 34 w	2.10
05	02	890826	15.74	51	74	01			3	020			7.08
05	03	890826	15.74	51	74	01	02	01	3	020			2.10
05	04	890826	15.74	01	51	74	02	01	3	020			1.84
05	05	890826	15.74	01	51	74	04	01	3	310	13 44 n	091 30 w	1.31
05	06	890826	15.74	01	51	74	02	01	3	020			7.35
05	07	890826	15.74	05	45	22			2	135	13 50 n	091 29 w	5.25
05	08	890826	15.74	45	22	05			3	090			5.77
05	09	890826	15.74	22	05	45			3	135			3.94
05	10	890826	15.74	22	05	45			2	135			1.31
05	11	890826	15.74	05	45	22	11	01	2	135	13 46 n	091 21 w	7.61
05	12	890826	15.74	45	22	05	12	12	2	135	13 44 n	091 18 w	6.82
06	01	890826	15.93	51	74	01	12	12	2	135	13 36 n	091 13 w	5.31
06	02	890826	15.93	51	74	01			2	180			3.72
06	03	890826	15.93	01	51	74			3	180			1.33
06	04	890826	15.93	01	51	74			3	180	13 31 n	091 10 w	3.45
07	01	890826	15.93	01	74	51			3	110	13 28 n	091 10 w	9.29
07	02	890826	15.93	22	05	45	05	01	3	110	13 25 n	091 03 w	5.31
08	01	890826	15.93	05	45	22	05	02	3	110	13 24 n	091 03 w	5.31
08	02	890826	15.93	45	22	05	05	02	3	110			6.64
08	03	890826	15.93	01	51	74			4	110	13 21 n	090 56 w	4.25
08	04	890826	15.93	01	51	74			5	110			1.86
08	05	890826	15.93	01	51	74			5	073			1.59
09	01	890826	15.93	74	01	51			5	065	13 20 n	090 51 w	1.59
09	02	890826	15.93	74	01	51			4	032			4.78
09	03	890826	15.93	51	74	01			3	340	13 23 n	090 48 w	2.12
01	01	890903	16.48	74	51	01	05	03	2	279	13 32 n	092 13 w	11.54
01	02	890903	16.48	51	01	74	05	03	2	279			5.77
01	03	890903	16.48	51	01	74	05	02	3	279	13 33 n	092 24 w	8.24
02	01	890903	16.11	05	22	45	06	02	2	279	13 38 n	092 33 w	1.88
03	01	890903	16.11	05	22	45	06	02	2	279	13 38 n	092 36 w	0.27
04	01	890903	16.11	05	22	45	06	02	2	279	13 38 n	092 38 w	0.81
05	01	890903	16.11	22	45	05	06	01	2	279	13 38 n	092 41 w	3.76
05	02	890903	16.11	01	74	51	06	01	2	279	13 39 n	092 42 w	6.44
05	03	890903	16.11	01	74	51	06	01	3	279			4.30
05	04	890903	16.11	51	01	74	06	01	3	279			10.74
05	05	890903	16.11	74	51	01	07	12	3	279			6.98
05	06	890903	16.11	74	51	01	12	12	2	279			3.76
05	07	890903	16.11	22	45	05	12	12	2	279	13 43 n	093 05 w	5.91
05	08	890903	16.11	45	05	22	12	12	2	279			5.37
05	09	890903	16.11	05	22	45	10	12	2	279			4.83
05	10	890903	16.11	05	22	45	11	01	2	279	13 44 n	093 13 w	0.54
05	11	890903	16.11	22	45	05	11	01	1	279			2.69
05	12	890903	16.11	22	45	05	10	01	1	304			0.81
05	13	890903	16.11	22	45	05	11	01	1	279			2.15
05	14	890903	16.11	45	05	22	11	01	1	279			4.83
05	15	890903	16.11	05	22	45	11	01	1	279			1.88

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
06	01	890903	16.11	51	01	74	11	01	1	279	13 51 n	093 26 w	0.27
07	01	890903	16.11	74	51	01	01	02	1	249	13 50 n	093 33 w	3.49
07	02	890903	16.11	74	51	01	11	02	1	279	13 51 n	093 34 w	4.83
08	01	890903	16.11	22	45	05	01	02	1	249	13 54 n	093 36 w	5.10
08	02	890903	16.11	45	05	22	01	02	1	249			5.64
08	03	890903	16.11	05	22	45	01	02	1	249			3.76
08	04	890903	16.11	05	22	45	01	02	3	249			1.61
08	05	890903	16.11	22	45	05	01	02	3	249	13 52 n	093 45 w	7.79
08	06	890903	16.11	51	74	01	01	03	2	249	13 52 n	093 52 w	3.49
01	01	890904	16.11	22	45	05			5	274	13 58 n	095 33 w	5.37
01	02	890904	16.11	45	05	22	06	03	5	274			5.64
01	03	890904	16.11	05	22	45	06	03	5	274	13 58 n	095 40 w	5.10
01	04	890904	16.11	22	45	05	06	02	5	274			6.18
01	05	890904	16.11	45	05	22	06	02	5	274			4.30
02	01	890904	16.11	74	01	51	06	02	5	274	13 59 n	095 50 w	8.32
02	02	890904	16.11	74	01	51	06	02	4	274	13 59 n	095 56 w	2.95
02	03	890904	16.11	51	74	01	06	02	3	274			7.52
02	04	890904	16.11	51	74	01	06	01	2	274			2.69
02	05	890904	16.11	01	51	74	06	01	2	274			3.76
03	01	890904	16.11	05	22	45	06	01	2	274	13 53 n	096 12 w	5.37
03	02	890904	16.11	22	45	05	06	01	2	274	13 53 n	096 17 w	5.64
03	03	890904	16.11	45	05	22	06	01	2	274			0.54
03	04	890904	16.11	45	05	22	06	01	2	295			2.69
04	01	890904	16.11	51	74	01	12	12	2	280	13 54 n	096 21 w	3.49
05	01	890904	16.11	01	74	51	11	01	1	280	13 50 n	096 33 w	5.10
06	01	890904	16.11	05	22	45	11	01	1	280	13 50 n	096 38 w	3.76
06	02	890904	16.11	05	22	45	10	01	1	310			1.07
06	03	890904	16.11	22	45	05	10	01	1	310			4.57
06	04	890904	16.11	22	45	05	10	01	1	320			1.07
06	05	890904	16.11	45	05	22	10	01	1	320			4.30
07	01	890904	16.30	05	22	45	11	02	1	280	13 55 n	096 47 w	1.90
08	01	890904	16.30	05	22	45	12	02	0	280	13 55 n	096 48 w	4.35
08	02	890904	16.30	05	45	22	12	02	1	280			1.90
08	03	890904	16.30	01	51	74	12	02	0	280	13 56 n	096 51 w	1.36
09	01	890904	16.30	01	51	74	12	02	0	280	13 55 n	096 52 w	5.16
09	02	890904	16.30	74	01	51	12	02	0	280	13 56 n	096 55 w	1.63
09	03	890904	16.30	74	01	51	11	02	0	300			2.17
09	04	890904	16.30	74	01	51	11	02	1	300			4.35
10	01	890904	16.30	51	74	01	11	02	1	300	13 58 n	097 02 w	0.81
11	01	890904	16.11	45	22	05			2	300	14 00 n	097 03 w	8.32
01	01	890905	16.67	01	51	74	05	03	3	277	14 15 n	098 51 w	5.56
02	01	890905	16.67	74	01	51	05	03	3	277	14 14 n	098 55 w	8.06
02	02	890905	16.67	51	74	01	06	02	3	277	14 14 n	099 00 w	8.06
02	03	890905	16.67	22	45	05	06	02	3	277	14 14 n	099 03 w	2.50
03	01	890905	16.67	45	05	22	06	02	3	277	14 19 n	099 10 w	6.11
03	02	890905	16.67	05	22	45	06	02	3	277	14 20 n	099 14 w	5.00
03	03	890905	16.67	22	45	05	06	02	3	277			2.50
03	04	890905	16.67	22	45	05	06	02	3	269			1.67
03	05	890905	16.67	74	01	51	06	01	3	269	14 21 n	099 18 w	1.39
04	01	890905	16.67	74	01	51			3	269	14 20 n	099 18 w	10.56
04	02	890905	16.67	51	74	01	07	01	3	269	14 21 n	099 26 w	4.17
05	01	890905	17.04	45	05	22	12	12	2	277	14 25 n	099 30 w	4.26
05	02	890905	17.04	05	22	45	12	12	2	277	14 25 n	099 33 w	1.42

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
06	01	890905	17.04	22	45	05	12	12	2	277	14 23 n	099 37 w	6.82
06	02	890905	17.04	45	05	22	11	01	2	277			5.11
06	03	890905	17.04	05	22	45	11	01	2	277			6.53
06	04	890905	17.04	51	74	01	11	01	2	277	14 25 n	099 49 w	2.84
07	01	890905	17.04	01	51	74	11	01	2	277	14 27 n	099 53 w	11.07
07	02	890905	17.04	74	01	51	11	01	2	277			0.57
07	03	890905	17.04	74	01	51	12	01	2	247			2.84
08	01	890905	17.04	22	45	05	12	02	1	247	14 25 n	100 02 w	6.82
08	02	890905	17.04	45	05	22	01	02	2	247			6.25
08	03	890905	17.04	74	51	01	01	02	2	247	14 23 n	100 09 w	6.25
08	04	890905	17.04	74	51	01	01	03	2	247			3.69
01	01	890906	16.11	22	45	05	06	03	2	258	14 37 n	101 53 w	6.44
01	02	890906	16.11	45	05	22	06	02	2	258			1.34
01	03	890906	16.11	45	05	22			3	277			4.57
01	04	890906	16.11	05	22	45	06	02	3	277			5.10
01	05	890906	16.11	74	51	01	06	02	3	277	14 38 n	102 04 w	10.47
02	01	890906	16.11	01	74	51	06	02	3	277	14 37 n	102 16 w	2.15
03	01	890906	16.11	45	22	05	08	01	3	230	14 36 n	102 23 w	3.76
03	02	890906	16.11	45	22	05	08	01	3	220	14 34 n	102 25 w	1.34
04	01	890906	16.11	22	05	45	06	01	3	277	14 33 n	102 25 w	5.64
04	02	890906	16.11	05	45	22	06	01	3	277	14 34 n	102 30 w	1.88
04	03	890906	16.11	05	45	22	06	01	3	312			1.88
05	01	890906	16.11	45	22	05	06	01	3	277	14 35 n	102 31 w	7.25
05	02	890906	16.11	01	74	51	07	01	3	277	14 36 n	102 36 w	5.10
05	03	890906	16.11	01	74	51	05	12	3	340			1.07
06	01	890906	17.04	51	01	74	10	12	3	225	14 39 n	102 43 w	0.57
07	01	890906	16.67	74	51	01	09	01	2	340	14 37 n	102 45 w	5.28
07	02	890906	16.67	22	05	45	09	01	2	340			5.28
08	01	890906	16.67	05	45	22	09	01	2	340	14 44 n	102 47 w	4.72
08	02	890906	16.67	45	22	05	09	01	2	340	14 48 n	102 48 w	6.11
08	03	890906	16.67	22	05	45	05	01	2	112			0.28
09	01	890906	16.67	22	05	45	05	01	2	112	14 52 n	102 48 w	3.06
09	02	890906	16.67	05	45	22	05	01	2	112			2.22
10	01	890906	16.67	51	01	74	05	02	2	112	14 51 n	102 45 w	2.50
11	01	890906	16.67	51	01	74	05	02	2	112	14 52 n	102 43 w	1.94
12	01	890906	16.67	45	22	05	05	02	2	112	14 51 n	102 39 w	6.67
12	02	890906	16.67	22	05	45	05	02	2	112	14 48 n	102 34 w	2.78
12	03	890906	16.67	22	05	45	05	03	2	112			3.33
12	04	890906	16.67	05	45	22	05	03	2	112			7.22
12	05	890906	16.67	05	45	22	05	03	1	122			1.67
01	01	890907	16.85	51	74	01			1	142	15 25 n	101 12 w	5.90
01	02	890907	16.85	51	74	01	10	03	1	142	15 22 n	101 09 w	3.37
01	03	890907	16.85	01	51	74	10	03	1	142			4.49
02	01	890907	16.85	01	51	74	10	03	1	142	15 15 n	101 05 w	1.12
02	02	890907	16.85	45	22	05	09	02	1	172			6.18
02	03	890907	16.85	22	05	45	09	02	2	172			6.74
02	04	890907	16.85	05	45	22	09	02	2	172			5.62
02	05	890907	16.85	45	22	05			2	172	15 03 n	101 04 w	6.18
02	06	890907	16.85	22	05	45			2	172	14 59 n	101 04 w	1.12
02	07	890907	16.85	22	05	45			1	172			3.37
03	01	890907	16.85	05	45	22			1	124	14 56 n	101 04 w	2.53
03	02	890907	16.85	01	51	74	11	01	1	124	14 55 n	101 03 w	4.21
04	01	890907	16.85	01	51	74	11	01	1	124	14 54 n	100 59 w	4.49

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	02	890907	16.85	74	01	51	11	01	1	124			7.58
04	03	890907	16.85	74	01	51	11	01	1	179			3.65
04	04	890907	16.85	51	74	01	11	01	1	126			0.84
05	01	890907	16.85	51	74	01	12	12	1	126	14 48 n	100 50 w	5.90
05	02	890907	16.85	45	22	05	12	12	1	126	14 45 n	100 47 w	2.53
06	01	890907	16.67	74	01	51			1	131	14 42 n	100 43 w	5.56
06	02	890907	16.67	74	01	51			2	131			2.22
06	03	890907	16.67	74	01	51			3	131			1.11
06	04	890907	16.67	51	74	01			3	131	14 42 n	100 40 w	5.56
06	05	890907	16.67	51	74	01			2	131			2.50
06	06	890907	16.67	01	51	74			2	131	14 39 n	100 36 w	9.17
07	01	890907	16.67	22	05	45	05	02	2	131	14 34 n	100 30 w	4.72
07	02	890907	16.67	05	45	22	05	02	2	131			5.28
07	03	890907	16.67	45	22	05	05	02	2	131	14 30 n	100 25 w	9.45
07	04	890907	16.67	51	74	01	05	03	2	131	14 26 n	100 22 w	7.78
07	05	890907	16.67	01	51	74			3	131	14 23 n	100 18 w	7.50
07	06	890907	16.67	74	01	51			3	131	14 19 n	100 14 w	4.44
01	01	890908	16.67	74	01	51	08	02	5	015	13 47 n	097 23 w	9.72
01	02	890908	16.67	51	74	01	08	02	5	015			6.95
01	03	890908	16.67	01	51	74	08	02	5	015			5.28
01	04	890908	16.67	22	45	04	08	03	5	015			6.11
01	05	890908	16.67	45	04	22	08	03	5	015	14 02 n	097 19 w	6.39
01	06	890908	16.67	04	22	45			5	015			4.17
01	01	890909	16.67	45	22	04			2	260	15 47 n	097 23 w	2.78
01	02	890909	16.67	51	74	01			2	260			10.83
01	03	890909	16.67	01	51	74			2	260			2.50
01	04	890909	16.67	01	51	74			2	235			1.67
02	01	890909	16.67	74	01	51			2	260			11.39
02	02	890909	16.67	22	45	05			2	260	15 40 n	097 43 w	5.28
02	03	890909	16.67	45	05	22			2	260			6.11
02	04	890909	16.67	05	22	45			3	260			2.50
02	05	890909	16.67	05	22	45			4	260			2.78
02	06	890909	16.67	22	45	05			4	260	15 37 n	097 53 w	5.00
03	01	890909	16.67	51	01	74			4	260	15 34 n	098 03 w	6.11
03	02	890909	16.67	51	01	74			5	260			5.00
03	03	890909	16.67	74	51	01			5	260			8.33
04	01	890909	16.67	22	45	05			4	260	15 29 n	098 18 w	5.56
04	02	890909	16.67	45	05	22			4	260			4.72
05	01	890909	16.67	74	01	51			4	260	15 27 n	098 28 w	9.45
05	02	890909	16.67	51	74	01			4	260			5.00
01	01	890910	16.11	22	45	05			3	260	15 16 n	100 03 w	4.03
01	02	890910	16.11	22	45	05			3	260			1.34
01	03	890910	16.11	45	05	22			3	260	15 15 n	100 05 w	5.64
01	04	890910	16.11	05	22	45			3	060			5.37
01	05	890910	16.11	22	45	05			3	060			5.64
01	06	890910	16.11	01	51	74			3	015	15 13 n	100 16 w	10.20
02	01	890910	16.11	74	01	51			3	015			2.95
02	02	890910	16.11	74	01	51			3	015			2.95
02	03	890910	16.11	45	05	22			3	009	15 32 n	100 10 w	5.91
02	04	890910	16.11	05	22	45			3	009			5.37
02	05	890910	16.11	22	45	05	03	01	3	009			5.10
02	06	890910	16.11	45	05	22	03	01	3	009	15 42 n	100 09 w	5.64
02	07	890910	16.11	05	22	45	04	01	3	009			5.37

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	08	890910	16.11	22	45	05			3	009			2.15
02	09	890910	16.11	22	45	05			3	329			1.61
03	01	890910	16.11	74	01	51			3	011	15 54 n	100 09 w	5.91
04	01	890910	16.11	51	74	01			3	011	16 01 n	100 12 w	1.34
05	01	890910	16.11	45	05	22			3	011	16 03 n	100 12 w	0.81
05	02	890910	17.22	45	05	22			3	020			5.45
05	03	890910	17.22	05	22	45			3	020	16 06 n	100 09 w	1.44
06	01	890910	16.85	51	74	01			3	020	16 10 n	100 09 w	7.58
07	01	890910	16.85	45	22	05	08	03	4	020	16 24 n	099 58 w	1.97
07	02	890910	16.85	45	22	05	09	03	4	350			0.56
01	01	890914	16.67	04	05	45			2	216	16 40 n	099 59 w	6.95
01	02	890914	16.67	05	45	04	08	03	2	216			7.78
01	03	890914	16.67	45	04	05	08	03	2	216	16 34 n	100 04 w	6.67
01	04	890914	16.67	01	74	51	08	02	2	216	16 31 n	100 06 w	5.56
02	01	890914	16.67	01	74	51	08	02	2	216	16 26 n	100 10 w	5.00
02	02	890914	16.67	51	01	74			2	216			5.56
02	03	890914	16.67	51	01	74			3	216	16 21 n	100 15 w	4.17
02	04	890914	16.67	74	51	01	08	02	3	216			10.00
02	05	890914	16.67	74	51	01	07	01	3	251			1.11
02	06	890914	16.67	45	05	04	07	01	2	251	16 14 n	100 21 w	2.78
03	01	890914	16.67	45	05	04	08	01	1	216	16 12 n	100 24 w	1.11
03	02	890914	16.67	05	04	45	08	01	1	216			5.56
03	03	890914	16.67	04	45	05	08	01	2	216			5.56
03	04	890914	16.67	45	05	04	07	01	2	216	16 07 n	100 29 w	3.89
04	01	890914	16.67	01	51	74	10	01	1	216	15 59 n	100 33 w	7.78
04	02	890914	16.67	51	01	74	11	12	0	216	15 55 n	100 36 w	2.50
05	01	890914	16.67	74	51	01	12	01	0	216	15 49 n	100 40 w	6.39
05	02	890914	16.67	01	74	51	12	01	0	216			6.67
05	03	890914	16.67	05	04	45	01	01	1	216	15 44 n	100 44 w	5.56
05	04	890914	16.67	04	45	05	01	01	0	216			5.56
05	05	890914	16.67	45	05	04	01	01	0	216			2.22
06	01	890914	16.67	45	05	04	01	01	1	216	15 35 n	100 50 w	1.94
06	02	890914	16.67	05	04	45	01	01	1	216	15 34 n	100 51 w	5.56
06	03	890914	16.67	04	45	05	01	02	1	216			5.56
06	04	890914	16.67	45	05	04	01	02	1	216			5.56
06	05	890914	16.67	74	51	01	01	02	0	216	15 26 n	100 57 w	8.33
06	06	890914	16.67	01	74	51	01	02	0	216	15 21 n	101 02 w	10.56
06	07	890914	16.67	51	01	74	01	02	0	216			6.11
06	08	890914	16.67	05	45	04	01	03	1	216	15 13 n	101 08 w	5.56
06	09	890914	16.67	45	04	05	01	03	1	216			5.56
06	10	890914	16.67	04	05	45	02	03	1	216			5.56
06	11	890914	16.67	05	45	04	02	03	1	216	15 55 n	101 15 w	1.94
06	12	890914	16.67	05	45	04	02	03	1	256			3.06
01	01	890915	16.48	74	01	51			2	215	13 46 n	102 17 w	7.14
01	02	890915	16.48	74	01	51	08	03	2	215	13 43 n	102 20 w	0.55
01	03	890915	16.48	51	74	01	08	03	2	215			4.67
02	01	890915	16.48	01	51	74	08	02	2	215	13 37 n	102 25 w	1.10
03	01	890915	16.48	05	04	45	08	02	2	215	13 32 n	102 26 w	1.92
04	01	890915	16.48	99	45	05			2	215	13 30 n	102 26 w	7.42
04	02	890915	16.48	51	74	01	08	01	2	215	13 27 n	102 29 w	11.26
04	03	890915	16.48	01	51	74	08	01	2	215			1.10
05	01	890915	16.48	01	51	74	09	01	2	215	13 21 n	102 34 w	7.97
05	02	890915	16.48	74	01	51	09	01	2	215			10.99

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
05	03	890915	16.48	45	05	04	09	01	2	215	13 11 n	102 36 w	5.49
05	04	890915	16.48	05	04	45	10	01	2	215			5.49
05	05	890915	16.48	04	45	05			2	215			5.49
05	06	890915	16.48	45	05	04			3	215	13 02 n	102 42 w	2.20
05	07	890915	16.48	45	05	04			4	215			1.10
06	01	890915	17.04	01	51	74			2	213	12 51 n	102 50 w	5.96
06	02	890915	17.04	01	51	74			3	213			0.28
07	01	890915	17.04	74	01	51	02	02	3	213	12 43 n	102 54 w	6.82
07	02	890915	17.04	04	45	05	02	02	2	213	12 40 n	102 57 w	4.26
07	03	890915	17.04	04	45	05	02	02	2	200			1.42
07	04	890915	17.04	45	05	04	02	02	1	213			5.68
07	05	890915	17.04	05	04	45			1	213			2.84
07	06	890915	17.04	05	04	45	02	02	2	213			2.84
07	07	890915	17.04	04	45	05	02	02	2	213	12 32 n	103 02 w	9.09
07	08	890915	17.04	01	74	51	02	02	2	213	12 28 n	103 05 w	4.54
08	01	890915	17.04	51	01	74	02	03	1	213	12 23 n	103 05 w	6.25
08	02	890915	17.04	74	51	01	02	03	1	213	12 19 n	103 08 w	7.10
01	01	890916	15.19	22	45	05			4	214	10 48 n	104 14 w	5.57
01	02	890916	15.19	45	05	22			4	214			5.82
01	03	890916	15.19	05	22	45	08	02	5	214			5.82
01	04	890916	15.19	51	74	01			5	214	10 40 n	104 20 w	3.80
02	01	890916	15.19	01	51	74	08	02	5	214	10 38 n	104 29 w	2.78
02	02	890916	15.19	01	51	74	08	02	4	214			4.56
02	03	890916	15.19	74	01	51	08	02	4	214			1.77
01	01	890918	15.37	22	45	05			5	270	06 18 n	108 02 w	5.38
01	02	890918	15.37	45	05	22			5	270	06 18 n	108 05 w	5.38
01	03	890918	15.37	05	22	45			5	270			4.36
01	04	890918	15.37	05	22	45	06	02	5	270			0.77
01	05	890918	15.37	22	45	05	06	02	5	270			5.38
01	06	890918	15.37	45	05	22	06	02	5	270			5.64
01	07	890918	15.37	22	05	45			5	270			1.28
01	08	890918	15.37	74	51	01			5	270	06 16 n	108 20 w	10.76
01	09	890918	15.37	01	74	51			5	270			11.27
01	10	890918	15.37	51	01	74			5	270			9.22
01	11	890918	15.37	05	22	45			5	270	06 14 n	108 37 w	1.54
01	01	890919	16.30	51	01	74	01	02	5	060	04 58 n	110 01 w	7.88
01	02	890919	16.30	22	45	05	01	02	4	060	05 00 n	109 58 w	5.70
01	03	890919	16.30	45	05	22	01	02	4	060			5.43
01	04	890919	16.30	05	22	45	01	02	4	060			5.43
01	05	890919	16.30	22	45	05	01	02	4	060	05 07 n	109 48 w	5.70
01	06	890919	16.30	45	05	22	01	01	4	060			1.63
01	07	890919	16.30	45	05	22	12	01	4	101	05 08 n	109 45 w	3.26
01	08	890919	16.30	05	22	45	01	01	5	060			5.43
01	09	890919	15.93	74	51	01	12	01	5	101	05 09 n	109 40 w	10.62
01	10	890919	15.93	01	74	51	12	01	5	101			10.62
01	11	890919	15.93	51	01	74	12	01	5	101			10.62
01	12	890919	15.93	22	45	05	12	12	5	101	05 05 n	109 21 w	5.57
01	13	890919	15.93	45	05	22	12	12	5	101			5.31
01	14	890919	15.93	05	22	45	12	12	5	101			5.04
01	15	890919	15.93	22	45	05	12	12	5	101	05 03 n	109 12 w	5.57
01	16	890919	15.93	45	05	22	05	01	5	101			5.31
01	17	890919	15.93	05	22	45	05	01	5	101			5.57
01	18	890919	15.93	01	74	51	05	01	5	101	04 59 n	109 01 w	8.23

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
02	01	890919	15.93	51	01	74	05	02	5	105	05 08 n	108 52 w	4.51
02	02	890919	15.93	22	45	05			5	105	05 08 n	108 52 w	5.57
02	03	890919	15.93	45	05	22			5	105			5.31
02	04	890919	15.93	05	22	45			5	105			5.04
02	05	890919	15.93	22	45	05			5	105	05 05 n	108 42 w	7.43
02	06	890919	15.93	51	74	01			5	105	05 02 n	108 36 w	4.78
02	07	890919	15.93	01	51	74			5	105			2.39
01	01	890920	15.93	22	45	05			5	100	04 42 n	107 02 w	2.39
01	02	890920	15.93	22	45	05	01	03	5	060			2.92
01	03	890920	15.93	45	05	22	01	03	5	060			5.57
01	04	890920	15.93	05	22	45	01	03	5	060			5.84
01	05	890920	15.93	22	45	05	12	02	5	080	04 46 n	106 54 w	7.17
01	06	890920	15.93	01	74	51	12	02	5	100	04 46 n	106 50 w	3.72
01	07	890920	15.93	01	74	51	11	02	5	120			3.72
01	08	890920	15.93	01	74	51			5	120	04 45 n	106 43 w	3.45
01	09	890920	15.93	51	01	74	11	02	5	120			10.62
01	10	890920	15.93	74	51	01			5	100			4.78
01	11	890920	15.93	74	51	01	12	01	5	100			5.57
01	12	890920	15.93	45	05	22	12	01	5	100	04 40 n	106 30 w	5.31
01	13	890920	15.93	05	22	45	12	01	5	100			5.57
01	14	890920	15.93	22	45	05	12	01	5	100			5.57
01	15	890920	15.93	45	05	22	12	01	5	100	04 38 n	106 21 w	5.84
01	16	890920	15.93	05	22	45			5	100			5.04
01	17	890920	15.93	22	45	05	12	12	5	100			4.78
01	18	890920	15.93	51	01	74	12	12	5	100	04 36 n	106 11 w	10.62
02	01	890920	15.93	01	51	74	05	02	5	105	04 30 n	105 33 w	7.96
02	02	890920	15.93	74	01	51	05	02	5	105	04 30 n	105 29 w	5.04
02	03	890920	15.93	74	01	51			5	105			2.92
02	04	890920	15.93	51	74	01	05	02	5	105	04 29 n	105 25 w	8.49
02	05	890920	15.93	22	05	99	05	03	5	105	04 28 n	105 20 w	5.84
01	01	890921	16.30	74	51	01			5	107	04 12 n	103 45 w	7.61
01	02	890921	16.30	01	74	51			5	107			1.09
01	03	890921	16.30	01	74	51	11	03	5	107			5.70
01	04	890921	16.30	51	01	74	11	03	5	107			5.70
01	05	890921	16.30	22	45	05	11	02	5	117	04 09 n	103 35 w	4.89
01	06	890921	16.30	45	05	22	11	02	5	117			5.98
01	07	890921	16.30	05	22	45	11	02	5	117			5.43
01	08	890921	16.30	22	45	05	11	02	5	117	04 05 n	103 27 w	5.43
01	09	890921	16.30	45	05	22	11	02	5	117			5.16
01	10	890921	16.30	05	22	45	11	02	5	117			5.98
01	11	890921	16.30	01	74	51	11	01	5	117	04 01 n	103 17 w	7.06
01	12	890921	16.30	01	74	51			5	105			3.53
01	13	890921	16.30	51	01	74			5	105			10.32
01	14	890921	16.30	74	51	01			4	105			10.87
01	15	890921	16.30	22	45	05			4	105	04 56 n	102 58 w	5.43
01	16	890921	16.30	45	05	22	12	12	4	105			5.43
01	17	890921	16.30	05	22	45			5	105			5.43
01	18	890921	16.30	22	45	05	12	12	5	105	03 54 n	102 50 w	5.70
01	19	890921	16.30	45	05	22	12	12	5	105			3.53
01	20	890921	16.30	45	05	22	05	01	5	105			1.90
01	21	890921	16.30	05	22	45			5	105			5.43
01	22	890921	16.30	74	01	51			5	105	03 52 n	102 41 w	11.14
01	23	890921	16.30	51	74	01			5	105			4.89

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	01	890921	16.30	01	51	74			5	105			9.51
02	02	890921	16.30	22	45	05			5	105	03 48 n	102 29 w	5.43
02	03	890921	16.30	45	05	22			5	105			5.70
02	04	890921	16.30	05	22	45			5	105			5.16
02	05	890921	16.30	22	45	05			5	105	03 44 n	102 14 w	2.17
02	06	890921	16.30	22	45	05			5	105			5.98
02	07	890921	16.30	74	01	51			5	105			11.14
01	01	890922	15.56	45	22	05			5	102	03 23 n	100 33 w	5.70
01	02	890922	15.56	22	05	45			5	102	03 22 n	100 30 w	4.41
01	03	890922	15.56	05	45	22			5	102			4.93
01	04	890922	15.56	45	22	05			5	102			5.44
01	05	890922	15.56	51	01	74			5	102	03 21 n	100 23 w	10.11
01	06	890922	15.56	74	51	01			5	102			10.89
01	07	890922	15.56	01	74	51	12	02	5	102			7.00
01	08	890922	15.56	01	74	51			4	102			3.11
01	09	890922	15.56	22	05	45			4	102	03 15 n	100 04 w	4.93
01	10	890922	15.56	05	45	22			4	102			5.44
01	11	890922	15.56	45	22	05	12	01	4	102			5.44
01	12	890922	15.56	22	05	45	12	01	4	102	03 13 n	099 56 w	4.41
02	01	890922	15.56	05	45	22	12	12	4	102	03 11 n	099 51 w	4.41
02	02	890922	15.56	05	45	22	12	12	5	102			1.56
02	03	890922	15.56	74	51	01	12	12	5	102	03 10 n	099 47 w	1.30
02	04	890922	15.56	74	51	01	12	12	5	100			5.19
03	01	890922	15.56	74	51	01	12	12	5	100	03 09 n	099 43 w	3.11
03	02	890922	15.56	01	74	51	04	12	5	100			10.63
03	03	890922	15.56	51	01	74	05	12	5	100			9.85
03	04	890922	15.56	22	45	05	05	01	5	100	03 06 n	099 29 w	5.19
03	05	890922	15.56	45	05	22	05	01	5	100			5.44
03	06	890922	15.56	05	22	45	05	01	5	100			4.93
03	07	890922	15.56	22	45	05	05	01	5	100	03 03 n	099 20 w	5.44
03	08	890922	15.56	45	05	22	05	01	5	100			3.63
03	09	890922	15.56	45	05	22			5	100	03 02 n	099 15 w	1.56
03	10	890922	15.56	05	22	45	06	01	5	100			4.93
03	11	890922	15.56	01	74	51			4	100	03 02 n	099 12 w	7.78
03	12	890922	15.56	51	01	74			4	100	03 00 n	099 06 w	7.78
03	13	890922	15.56	74	51	01			4	100	03 00 n	099 03 w	7.78
04	01	890922	15.56	22	45	05			4	100	03 00 n	098 56 w	5.19
04	02	890922	15.56	45	05	22			4	100	03 00 n	098 55 w	5.44
01	01	890923	16.30	01	51	74			4	102	02 43 n	097 27 w	7.88
01	02	890923	16.30	74	01	51	12	03	5	102	02 42 n	097 22 w	8.15
01	03	890923	16.30	51	74	01	11	02	5	117	02 41 n	097 18 w	8.15
02	01	890923	16.30	45	05	22			5	117	02 39 n	097 09 w	2.72
02	02	890923	16.30	45	05	22	12	02	5	117			2.44
02	03	890923	16.30	05	22	45	12	02	5	117	02 38 n	097 04 w	5.43
02	04	890923	16.30	22	45	05	12	02	5	117			5.70
02	05	890923	16.30	45	05	22	12	02	5	117			3.80
02	06	890923	16.30	45	05	22	12	01	5	117			2.44
02	07	890923	16.30	74	01	51	12	01	5	102	02 36 n	096 56 w	10.87
02	08	890923	16.30	51	74	01	12	01	5	102			11.41
02	09	890923	16.30	04	51	74	12	01	5	102			3.80
02	10	890923	16.30	74	51	99	12	01	5	102	02 33 n	096 41 w	1.90
02	11	890923	16.30	01	51	74	12	01	5	102			4.62
02	12	890923	16.30	05	22	45	12	12	5	102	02 33 n	096 38 w	5.43

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	13	890923	16.30	22	45	05	12	12	5	102			4.35
03	01	890923	16.30	45	05	22	05	01	5	102	02 41 n	096 26 w	4.35
03	02	890923	16.30	51	74	01	05	01	5	102	02 40 n	096 22 w	3.26
03	03	890923	16.30	51	74	01			5	107			8.15
03	04	890923	16.30	01	51	74	05	01	5	107			4.89
04	01	890923	16.48	74	01	51	05	01	5	107	02 41 n	096 11 w	7.42
04	02	890923	16.48	05	22	45	05	02	5	107	02 40 n	096 08 w	5.77
04	03	890923	16.48	22	45	05	05	02	5	107			2.20
05	01	890923	16.48	45	05	22	05	02	5	107	02 40 n	096 03 w	5.22
05	02	890923	16.48	45	05	22			5	107	02 39 n	095 59 w	0.82
06	01	890923	16.48	01	51	74			5	107	02 37 n	095 54 w	4.94
06	02	890923	16.48	74	01	51			5	107			1.37
01	01	890924	15.56	22	45	05			5	103	02 16 n	094 22 w	5.44
01	02	890924	15.56	45	05	22			5	103			0.78
02	01	890924	15.56	05	22	45			5	103	02 14 n	094 15 w	2.07
02	02	890924	15.56	05	22	45			4	103			4.15
02	03	890924	15.56	01	74	51			4	103	02 13 n	094 11 w	10.37
03	01	890924	15.56	22	45	05	12	01	5	103	02 07 n	093 52 w	5.19
03	02	890924	15.56	45	05	22			5	103	02 07 n	093 50 w	5.70
03	03	890924	15.56	05	22	45	12	01	5	103	02 05 n	093 44 w	5.19
03	04	890924	15.56	22	45	05	12	01	5	103			5.19
03	05	890924	15.56	45	05	22			5	103			5.96
03	06	890924	15.56	51	01	74			5	103	02 02 n	093 34 w	7.00
03	07	890924	15.56	51	01	74			5	103	02 01 n	093 30 w	3.37
03	08	890924	15.56	74	51	01			5	103			10.37
03	09	890924	15.56	01	74	51			5	103			10.89
03	10	890924	15.56	05	22	45			5	103	01 58 n	093 16 w	5.19
03	11	890924	15.56	22	45	05			5	103			4.67
03	12	890924	15.56	45	05	22			5	103			5.70
03	13	890924	15.56	05	22	45			5	103	01 56 n	093 07 w	4.67
03	14	890924	15.56	22	45	05			5	103			5.70
03	15	890924	15.56	45	05	22			5	103			1.30
04	01	890924	15.56	74	51	01			5	103	01 57 n	093 00 w	4.93
04	02	890924	15.56	74	51	01			4	103	01 56 n	092 56 w	1.56
04	03	890924	15.56	01	74	51			4	103			5.96
04	04	890924	15.56	01	74	51			3	103	01 56 n	092 54 w	1.56
05	01	890924	15.56	51	01	74			3	103			4.67
05	02	890924	15.56	05	22	45			3	103	01 55 n	092 49 w	4.93
05	03	890924	15.56	22	45	05			3	103			2.85
01	01	890925	16.30	51	01	74			3	140	01 37 n	092 00 w	7.61
02	01	890925	16.48	74	51	01			3	090	01 24 n	091 49 w	6.87
02	02	890925	16.48	01	74	51			3	090			7.97
02	03	890925	16.48	51	01	74			3	090			5.22
02	04	890925	16.48	51	01	74			3	104			1.92
02	05	890925	16.48	22	45	05			4	104	01 24 n	091 38 w	5.49
02	06	890925	16.48	45	05	22			4	104			3.02
02	07	890925	16.48	45	05	22			3	104	01 23 n	091 33 w	2.47
02	08	890925	16.48	05	22	45			3	104			2.20
02	09	890925	16.48	05	22	45			3	104			3.30
02	10	890925	16.48	22	45	05			3	104	01 22 n	091 29 w	7.14
02	11	890925	16.48	01	74	51			3	104	01 22 n	091 25 w	7.14
01	01	890926	15.74	45	22	05			5	107	01 02 n	089 58 w	5.77
01	02	890926	15.74	22	05	45			5	107			2.89

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	01	890926	15.74	05	45	22			5	107	01 01 n	089 53 w	5.25
02	02	890926	15.74	45	22	05			5	107			5.25
02	03	890926	15.74	22	05	45			5	107			5.51
02	04	890926	15.74	01	74	99			5	107	01 00 n	089 45 w	1.84
02	05	890926	15.74	01	74	51			5	107			1.84
03	01	890926	15.74	51	01	74	11	01	5	107	00 59 n	089 39 w	7.61
03	02	890926	15.74	74	51	01			5	107			10.49
03	03	890926	15.74	05	45	22			5	107	00 57 n	089 29 w	5.51
03	04	890926	15.74	45	22	05			5	107			4.46
04	01	890926	15.74	22	05	45			5	107	00 53 n	089 16 w	5.25
04	02	890926	15.74	22	05	45	12	12	5	107			2.62
04	03	890926	15.74	51	01	74	12	12	5	107	00 52 n	089 12 w	10.49
04	04	890926	15.74	74	51	01			5	107			6.30
05	01	890926	15.74	01	74	51			5	107	00 50 n	089 01 w	10.49
05	02	890926	15.74	45	22	04			5	107			5.25
05	03	890926	15.74	22	04	45			5	107			5.77
05	04	890926	15.74	04	45	22			5	107			4.72
05	05	890926	15.74	45	22	04			5	107	00 47 n	088 47 w	5.25
05	06	890926	15.74	22	04	45			5	107			5.25
05	07	890926	15.74	04	45	22			5	107			4.20
05	08	890926	15.74	04	45	22			5	107			1.05
05	09	890926	15.74	74	51	01			5	107	00 46 n	088 39 w	7.87
05	10	890926	15.74	01	74	51			5	107			3.41
05	11	890926	15.74	01	74	51			5	107			4.46
05	12	890926	15.74	51	01	74			5	107	00 44 n	088 30 w	4.46
01	01	890927	15.56	74	51	01			4	107	00 21 n	087 01 w	9.85
01	02	890927	15.56	01	74	51			4	107	00 20 n	086 56 w	7.52
01	03	890927	15.56	01	74	51			4	107			0.26
01	04	890927	15.56	22	45	05			4	107	00 19 n	086 53 w	5.44
01	05	890927	15.56	45	05	22			4	107			5.44
01	06	890927	15.56	05	22	45			4	107			5.44
01	07	890927	15.56	22	45	05			4	107	00 16 n	086 44 w	1.56
02	01	890927	15.56	22	45	05			4	107	00 15 n	086 42 w	2.59
02	02	890927	15.56	45	05	22			4	107			5.19
02	03	890927	15.56	05	22	45			4	107			4.41
02	04	890927	15.56	01	74	51			4	107	00 13 n	086 35 w	10.63
02	05	890927	15.56	51	01	74			4	107			10.11
02	06	890927	15.56	74	51	01			4	107			10.37
02	07	890927	15.56	22	45	05			3	107	00 08 n	086 18 w	5.44
02	08	890927	15.56	45	05	22			3	107			5.44
02	09	890927	15.56	05	22	45			3	107			4.41
02	10	890927	15.56	22	45	05			3	107	00 06 n	086 10 w	5.44
02	11	890927	15.56	45	05	22			3	107			5.19
02	12	890927	15.56	05	22	45			3	107			5.19
02	13	890927	15.56	51	01	74			4	107	00 05 n	086 02 w	10.37
02	14	890927	15.56	74	51	01			4	107			3.63
02	15	890927	15.56	74	51	01			4	101			7.00
02	16	890927	15.56	01	74	51	05	01	4	101			2.59
02	17	890927	15.56	01	74	51			4	101	00 02 n	085 50 w	5.96
02	18	890927	15.56	01	74	51			4	107			1.56
02	19	890927	15.56	22	45	05			4	107	00 01 n	085 45 w	3.63
02	20	890927	15.56	22	45	05			4	107	00 00 s	085 41 w	1.56
02	21	890927	15.56	45	05	22			4	107			5.70

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	22	890927	15.56	05	22	45			4	107			3.11
03	01	890927	15.56	05	22	45			4	107	00 02 s	085 38 w	1.04
03	02	890927	15.56	22	45	05			4	107	00 02 s	085 38 w	7.78
03	03	890927	15.56	74	51	01			4	107	00 03 s	085 33 w	6.22
03	04	890927	15.56	01	74	51			4	107			5.19
01	01	890928	16.67	45	22	05			3	107	00 24 s	084 07 w	5.00
02	01	890928	16.67	22	05	45			3	107	00 26 s	084 02 w	5.83
02	02	890928	16.67	05	45	22	12	01	3	107			6.67
02	03	890928	16.67	45	22	05	12	01	3	107	00 28 s	083 57 w	7.50
02	04	890928	16.67	01	51	74	12	12	3	107	00 29 s	083 53 w	8.06
03	01	890928	16.67	74	01	51			3	107	00 31 s	083 44 w	6.67
04	01	890928	16.67	51	74	01			3	107	00 36 s	083 38 w	1.67
05	01	890928	16.67	22	05	45			3	107	00 36 s	083 36 w	5.56
05	02	890928	16.67	05	45	22			3	107			5.56
05	03	890928	16.67	45	22	05			3	107			5.83
05	04	890928	16.67	22	05	45			3	107	00 39 s	083 27 w	5.28
05	05	890928	16.67	05	45	22			3	107			6.11
05	06	890928	16.67	45	22	05			3	107			4.17
05	07	890928	16.67	74	01	04			3	107	00 42 s	083 18 w	3.06
05	08	890928	16.67	74	01	51			3	107			5.28
06	01	890928	16.67	51	74	01	05	02	3	107	00 44 s	083 13 w	6.11
06	02	890928	16.67	01	51	74			3	107	00 45 s	083 10 w	8.89
06	03	890928	16.67	22	05	45			3	107	00 47 s	083 05 w	2.50
07	01	890928	16.67	22	05	45	05	03	3	107	00 47 s	083 03 w	1.67
07	02	890928	16.67	05	45	22	05	03	3	107			1.39
01	01	890929	17.41	74	01	51			3	098	01 10 s	081 49 w	6.38
01	02	890929	17.41	74	01	51			3	091			2.61
01	03	890929	17.41	51	74	01			3	091	01 11 s	081 43 w	3.77
01	04	890929	17.41	51	74	01			3	091			4.35
02	01	890929	17.41	22	45	05			3	091	01 09 s	081 37 w	6.09
02	02	890929	17.41	45	05	22			3	091			5.22
02	03	890929	17.04	05	22	45			3	100			3.69
03	01	890929	17.04	22	45	05			3	100	01 10 s	081 28 w	4.83
04	01	890929	17.04	45	05	22			3	100			5.11
04	02	890929	17.04	01	74	99			3	100	01 13 s	081 19 w	3.69
04	03	890929	17.04	01	74	51			3	100			8.52
04	04	890929	17.04	51	01	74			3	100			4.54
01	01	891006	15.93	73	71	07			4	272	01 35 s	082 35 w	3.45
02	01	891006	15.93	73	71	07			4	272	01 34 s	082 37 w	1.33
03	01	891006	15.74	07	73	71			4	272	01 32 s	082 40 w	0.79
04	01	891006	15.74	07	73	71			4	272	01 32 s	082 41 w	9.97
04	02	891006	15.74	07	56	67			4	272	01 30 s	082 47 w	6.56
04	03	891006	15.74	56	67	07			4	272			3.94
04	04	891006	15.74	67	07	56			4	272			5.25
04	05	891006	15.74	07	56	67			4	272	01 29 s	082 57 w	5.25
04	06	891006	15.74	56	67	07			4	272			5.25
04	07	891006	15.74	67	07	56			4	272			5.25
04	08	891006	15.74	73	71	57			4	272	01 27 s	083 06 w	10.49
04	09	891006	15.74	71	57	73			4	272			10.49
04	10	891006	15.74	57	73	71			4	272			10.49
05	01	891006	15.74	07	56	67			4	272	01 25 s	083 29 w	7.35
06	01	891006	15.74	56	67	07			4	272	01 24 s	083 35 w	7.61
07	01	891006	16.30	67	07	56			4	272	01 24 s	083 44 w	1.90

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
07	02	891006	16.30	73	71	55			4	272	01 23 s	083 46 w	10.87
07	03	891006	16.30	71	55	73			4	272			10.87
07	04	891006	16.30	55	73	71			4	272			9.24
07	05	891006	16.30	55	73	71			4	267			1.63
07	06	891006	16.30	07	56	67			4	267	01 20 s	084 05 w	8.15
07	07	891006	16.30	56	67	07			4	267	01 20 s	084 10 w	1.09
08	01	891006	16.30	67	07	56			4	267	01 21 s	084 13 w	1.63
09	01	891006	15.93	73	71	55			4	267	01 22 s	084 16 w	6.64
09	02	891006	15.93	71	55	73			4	267			7.70
09	03	891006	15.93	71	55	73			4	267	01 22 s	084 23 w	0.27
01	01	891007	16.48	67	07	56			4	040	00 45 s	085 10 w	7.97
01	02	891007	16.48	07	56	67			4	040	00 40 s	085 07 w	7.97
01	03	891007	16.48	56	67	07			4	040	00 38 s	085 05 w	7.97
01	04	891007	16.48	55	73	71			4	040	00 33 s	085 01 w	10.99
01	05	891007	16.48	73	71	55			4	040			10.99
01	06	891007	16.48	71	55	73			4	040			10.99
01	07	891007	16.48	67	07	56			3	040	00 17 s	084 50 w	4.12
02	01	891007	16.48	67	07	56			3	040	00 13 s	084 49 w	2.75
02	02	891007	16.48	07	56	67	02	01	4	040			10.99
02	03	891007	16.48	56	67	07	02	01	4	040			10.99
02	04	891007	16.48	55	73	71			4	040	00 01 s	084 41 w	0.82
03	01	891007	16.48	55	73	71			4	040	00 00 n	084 41 w	7.14
03	02	891007	16.48	55	73	71	12	12	4	040			3.02
03	03	891007	16.48	73	71	55	12	12	4	040			4.67
03	04	891007	16.48	73	71	55			4	040			4.40
04	01	891007	16.48	67	07	56			4	040	00 13 n	084 32 w	10.44
04	02	891007	16.48	07	56	67			4	040			3.02
04	03	891007	16.48	07	56	67	07	01	4	040	00 20 n	084 28 w	2.47
04	04	891007	16.48	07	56	67			4	040			2.20
04	05	891007	16.48	07	56	67	07	01	4	040			1.65
04	06	891007	16.48	56	67	07	07	01	4	040			10.99
04	07	891007	16.48	55	73	71	07	02	4	040	00 28 n	084 22 w	8.24
04	08	891007	16.48	73	71	55			4	040	00 33 n	084 20 w	8.24
04	09	891007	16.48	71	55	73			4	040	00 37 n	084 17 w	8.24
05	01	891007	16.48	67	07	56			4	040	00 45 n	084 11 w	0.27
01	01	891008	17.22	71	55	73			5	037	02 02 n	083 12 w	9.47
01	02	891008	17.22	55	73	71			5	037			9.76
01	03	891008	17.22	73	71	55			5	037	02 11 n	083 06 w	2.01
01	04	891008	17.22	73	71	55			4	037			3.16
01	05	891008	17.22	73	71	55	02	02	4	037			4.02
01	06	891008	17.22	56	67	07	02	02	5	037	02 16 n	083 02 w	11.48
01	07	891008	17.22	67	07	56	02	02	5	037			4.31
01	08	891008	17.22	67	07	56			5	037			7.18
01	09	891008	17.22	07	56	67			5	037			7.75
01	10	891008	17.22	07	56	67	02	01	5	037			3.73
01	11	891008	17.22	71	55	73	02	01	5	037	02 33 n	082 50 w	11.48
01	12	891008	17.22	55	73	71	02	01	5	037	02 39 n	082 46 w	10.05
01	13	891008	17.22	55	73	71			5	037			1.44
01	14	891008	17.22	73	71	55	02	01	5	037			11.48
01	15	891008	17.22	56	67	07	12	12	5	037	02 50 n	082 38 w	6.32
01	16	891008	17.22	56	67	07			4	037			5.17
01	17	891008	17.22	67	07	56	06	12	4	037			4.02
01	18	891008	17.22	67	07	56			4	037	02 57 n	082 31 w	7.46

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	19	891008	17.22	07	56	67			4	037			5.45
01	20	891008	17.22	07	56	67			4	037			6.03
01	21	891008	17.22	71	55	73			5	037	03 06 n	082 24 w	11.48
01	22	891008	17.22	55	73	71	07	01	5	037			11.48
02	01	891008	16.67	73	71	55			5	033	03 21 n	082 15 w	5.00
03	01	891008	17.04	56	67	07			5	043	03 26 n	082 12 w	5.96
03	02	891008	17.04	67	07	56			4	043			6.25
03	03	891008	17.04	07	56	67			4	043			5.68
03	04	891008	17.04	71	55	73			4	043	03 34 n	082 03 w	5.68
03	05	891008	17.04	55	73	71			4	043			6.82
03	06	891008	17.04	55	73	71			4	043	03 40 n	081 58 w	0.28
01	01	891009	16.67	56	07	67			3	028	04 54 n	081 11 w	8.33
01	02	891009	16.67	56	67	07	02	03	4	028			9.17
01	03	891009	16.67	67	07	56	02	02	4	028			1.94
01	04	891009	15.56	67	07	56	07	02	4	242	05 03 n	081 06 w	3.89
01	05	891009	15.56	67	07	56			4	242			2.59
01	06	891009	15.56	73	71	55			4	242	05 01 n	081 10 w	2.33
01	07	891009	15.56	73	71	55			4	242			4.93
02	01	891009	15.56	71	55	73	07	02	4	242	04 58 n	081 16 w	5.19
02	02	891009	15.56	71	55	73	07	01	4	242			4.41
02	03	891009	15.56	55	73	71	07	01	4	242			9.33
02	04	891009	15.56	07	56	67	08	01	4	242	04 53 n	081 24 w	10.37
02	05	891009	15.56	56	67	07	08	01	4	242			10.37
02	06	891009	15.56	67	07	56	09	12	4	242			10.37
02	07	891009	15.56	73	71	55			4	242	04 42 n	081 42 w	2.85
02	08	891009	15.56	73	71	55			4	242	04 42 n	081 44 w	3.89
02	09	891009	15.56	73	71	55	11	12	4	242	04 40 n	081 46 w	0.52
03	01	891009	15.56	73	71	55			4	242	04 40 n	081 47 w	1.04
03	02	891009	15.56	71	55	73	11	12	4	242	04 39 n	081 48 w	3.89
03	03	891009	15.56	71	55	73			4	242			2.59
04	01	891009	15.00	07	56	67			5	242	04 33 n	082 01 w	4.50
04	02	891009	15.00	07	56	67			5	242			0.50
04	03	891009	15.00	56	67	07			5	242			4.75
04	04	891009	15.00	67	07	56			5	242	04 30 n	082 06 w	5.00
05	01	891009	15.00	73	71	55			5	242	04 25 n	082 16 w	6.25
05	02	891009	15.00	71	55	73			5	242			6.25
05	03	891009	15.00	55	73	71			5	242	04 21 n	082 22 w	0.50
06	01	891009	15.00	07	56	67			5	242	04 18 n	082 23 w	6.25
06	02	891009	15.00	07	56	67			5	242	04 16 n	082 26 w	0.25
01	01	891010	15.37	55	73	71			5	243	03 34 n	083 42 w	8.71
01	02	891010	15.37	73	71	55			5	243	03 32 n	083 46 w	7.94
01	03	891010	15.37	71	55	73			5	243	03 29 n	083 51 w	4.87
01	04	891010	15.37	71	55	73			5	243			3.07
01	05	891010	15.37	67	07	56			5	243	03 27 n	083 55 w	3.07
01	06	891010	15.37	67	07	56			5	243			1.28
02	01	891010	15.19	07	56	67			5	243	03 24 n	084 02 w	1.77
03	01	891010	15.19	55	73	71	12	01	5	243	03 01 n	084 47 w	8.10
03	02	891010	15.19	73	71	55			5	243	02 59 n	084 50 w	1.52
03	03	891010	15.19	73	71	55	12	01	5	243			3.80
04	01	891010	15.56	71	55	73	01	02	5	233	02 57 n	084 52 w	3.37
04	02	891010	15.56	67	07	56	01	02	5	233	02 56 n	084 54 w	2.33
04	03	891010	15.56	67	07	56	01	02	5	233			0.78
04	04	891010	15.56	67	07	56			5	233			4.67

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	05	891010	15.56	07	56	67			5	233	02 54 n	084 57 w	1.04
04	06	891010	15.56	07	56	67			5	243	02 53 n	084 58 w	7.00
04	07	891010	15.56	56	67	07			5	243	02 51 n	085 01 w	4.15
04	08	891010	15.56	56	67	07	12	02	5	243			3.37
04	09	891010	15.56	55	73	71	01	03	5	243	02 49 n	085 05 w	7.26
04	10	891010	15.56	73	71	55	01	03	5	243	02 47 n	085 08 w	3.11
04	11	891010	15.56	73	71	55			5	243			4.93
04	12	891010	15.56	73	71	55			5	243	02 45 n	085 13 w	0.26
01	01	891011	15.19	56	67	07			5	243	02 06 n	086 33 w	2.78
01	02	891011	15.19	56	67	07	07	03	5	243			4.30
01	03	891011	15.19	67	07	56			5	243	02 04 n	086 37 w	7.34
01	04	891011	15.19	07	56	67			5	243	02 03 n	086 40 w	3.04
01	05	891011	15.19	07	56	67	07	02	5	243			0.51
02	01	891011	15.00	71	55	73	07	02	5	243	02 00 n	086 44 w	2.75
03	01	891011	15.74	71	55	73	07	02	5	243	02 01 n	086 48 w	2.36
03	02	891011	15.74	55	73	71	07	02	5	243	02 01 n	086 50 w	4.98
04	01	891011	15.56	56	67	07			5	243	01 52 n	087 10 w	5.70
04	02	891011	15.56	67	07	56	08	01	5	243			5.44
04	03	891011	15.56	07	56	67	12	12	5	243			5.19
04	04	891011	15.56	71	55	73			5	237	01 48 n	087 20 w	10.37
04	05	891011	15.56	55	73	71			5	237			10.37
04	06	891011	15.56	73	71	55	12	01	5	237			1.81
04	07	891011	15.56	73	71	55			5	237	01 41 n	087 32 w	3.37
04	08	891011	15.56	73	71	55	12	01	5	237			2.07
04	09	891011	15.56	73	71	55	12	01	5	237			3.11
04	10	891011	15.56	56	67	07	12	01	5	237	01 38 n	087 37 w	8.30
04	11	891011	17.04	56	67	07			5	027	01 36 n	087 41 w	2.27
04	12	891011	17.04	67	07	56			5	027			2.84
04	13	891011	17.04	67	07	56	07	01	5	027			7.10
04	14	891011	17.04	67	07	56			5	027			1.42
04	15	891011	17.04	07	56	67	08	01	5	027			3.98
04	16	891011	17.04	07	56	67			5	027			7.38
04	17	891011	17.04	71	55	73			5	027	01 47 n	087 36 w	8.52
04	18	891011	17.04	55	73	71			5	027	01 51 n	087 35 w	7.67
05	01	891011	17.04	73	71	55			5	034	01 56 n	087 32 w	3.41
05	02	891011	17.04	56	67	07			5	034	01 57 n	087 31 w	5.68
05	03	891011	17.04	67	07	56			5	034			5.68
05	04	891011	17.04	07	56	67			5	034			6.53
01	01	891012	16.67	73	71	55			5	025	03 36 n	086 35 w	5.28
01	02	891012	16.67	73	71	55	03	03	5	025			2.22
01	03	891012	16.67	71	55	73	03	03	5	025			5.56
01	04	891012	16.67	71	55	73	02	02	5	025			2.22
01	05	891012	16.67	55	73	71	02	02	5	025	03 45 n	086 30 w	0.83
02	01	891012	16.67	55	73	71	02	02	5	025			4.72
02	02	891012	17.04	07	56	67	02	02	5	025	03 49 n	086 28 w	11.36
02	03	891012	17.04	56	67	07	02	02	5	025			11.36
02	04	891012	17.04	67	07	56	03	01	5	025			11.36
02	05	891012	17.04	73	71	55	03	01	5	025	04 08 n	086 17 w	11.36
02	06	891012	17.04	71	55	73	03	01	5	025			4.54
03	01	891012	17.04	55	73	71			4	025	04 20 n	086 12 w	5.96
03	02	891012	17.04	55	73	71	12	12	4	025			3.69
03	03	891012	17.04	07	56	67	12	12	4	025	04 25 n	086 10 w	11.36
03	04	891012	17.04	56	67	07	12	12	4	025			11.36

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
03	05	891012	17.04	67	07	56	07	01	4	025			11.36
03	06	891012	17.04	73	71	55			4	025	04 45 n	086 00 w	11.36
03	07	891012	17.04	71	55	73			4	025			11.36
03	08	891012	17.04	55	73	71			4	025			11.36
03	09	891012	17.04	07	56	67			4	025	05 03 n	085 50 w	8.52
03	10	891012	17.04	56	67	07			4	025	05 08 n	085 47 w	6.25
04	01	891012	16.30	67	07	56			4	025	05 14 n	085 45 w	4.89
04	02	891012	16.30	73	71	55			5	025	05 16 n	085 43 w	4.07
04	03	891012	16.30	73	71	55	08	03	5	025			2.44
04	04	891012	16.30	71	55	73			5	025			5.98
04	05	891012	16.30	71	55	73			5	025	05 24 n	085 40 w	0.27
01	01	891013	16.85	67	07	56			3	020	06 52 n	084 52 w	6.74
02	01	891013	17.04	07	56	67			3	020	06 59 n	084 51 w	5.11
02	02	891013	17.04	55	73	71			3	020	07 02 n	084 49 w	4.26
02	03	891013	17.04	55	73	71	03	02	3	020			7.10
02	04	891013	17.04	73	71	55	03	02	4	020			5.68
02	05	891013	17.04	73	71	55	03	02	4	020	07 11 n	084 44 w	5.68
02	06	891013	17.04	71	55	73	03	01	4	020			5.40
03	01	891013	16.85	67	07	56			4	012	07 21 n	084 38 w	0.56
03	02	891013	16.85	67	07	56	03	01	4	012			2.25
04	01	891013	17.04	07	56	67	03	01	4	024	07 26 n	084 37 w	3.98
04	02	891013	17.04	07	56	67			4	024	07 28 n	084 36 w	2.27
04	03	891013	17.04	56	67	07			4	024			1.42
04	04	891013	15.37	56	67	07			4	230			2.56
05	01	891013	15.37	55	73	71			4	235	07 30 n	084 36 w	1.28
06	01	891013	15.93	55	73	71	10	01	4	235	07 29 n	084 38 w	0.53
07	01	891013	15.19	55	73	71	11	01	4	231	07 28 n	084 42 w	2.02
07	02	891013	15.19	73	71	55	11	01	4	231			1.77
07	03	891013	15.19	73	71	55			4	231	07 27 n	084 44 w	0.51
08	01	891013	15.19	55	73	71			5	231	07 05 n	085 07 w	4.05
08	02	891013	15.19	55	73	71			4	231			3.80
08	03	891013	15.19	73	71	55			4	231			4.05
08	04	891013	15.19	73	71	55			4	231			2.53
08	05	891013	15.19	71	55	73			5	231	06 59 n	085 15 w	1.77
09	01	891013	15.19	67	07	56			4	231	06 53 n	085 14 w	0.51
01	01	891014	15.74	71	55	73			4	230	06 00 n	086 26 w	7.35
01	02	891014	15.74	55	73	71			4	230	05 58 n	086 29 w	2.89
01	03	891014	15.74	55	73	71	08	03	4	230			5.51
01	04	891014	15.74	73	71	55	08	02	4	230	05 55 n	086 32 w	7.08
01	05	891014	15.74	56	67	07	08	02	4	230	05 52 n	086 36 w	3.15
02	01	891014	15.56	67	07	56			4	235	05 48 n	086 41 w	2.59
03	01	891014	15.74	07	56	67			4	235	05 45 n	086 45 w	6.56
03	02	891014	15.74	71	55	73	08	01	4	235	05 43 n	086 47 w	4.20
04	01	891014	16.30	71	55	73	08	01	4	235	05 40 n	086 50 w	4.62
05	01	891014	17.22	55	73	71	08	01	4	235	05 38 n	086 57 w	4.02
05	02	891014	17.22	55	73	71	07	01	4	230			0.57
05	03	891014	17.22	55	73	71	07	01	4	230	05 37 n	086 59 w	0.29
01	01	891015	15.93	07	56	67			4	250	05 06 n	088 17 w	7.17
01	02	891015	15.93	56	67	07			4	250			5.84
01	03	891015	15.93	67	07	56			4	250			5.31
01	04	891015	15.93	67	07	56			4	250			1.33
01	05	891015	15.93	73	71	55			4	250	05 02 n	088 28 w	7.43
01	06	891015	15.93	73	71	55	07	02	4	250	05 01 n	088 32 w	3.19

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	07	891015	15.93	71	55	73			4	250			1.06
02	01	891015	15.93	55	73	71			4	250	05 02 n	088 40 w	4.51
02	02	891015	15.93	07	56	67			4	250	05 01 n	088 41 w	9.82
02	03	891015	15.93	07	56	67			4	250			0.80
02	04	891015	15.93	56	67	07			4	250			10.62
02	05	891015	15.93	67	07	56			4	250			2.65
03	01	891015	15.93	67	07	56			4	250	04 55 n	088 56 w	2.12
04	01	891015	15.93	67	07	56			4	250	04 54 n	088 58 w	1.33
04	02	891015	15.93	73	71	55			4	250	04 54 n	088 59 w	8.76
04	03	891015	15.93	73	71	55	09	01	4	250	04 52 n	089 03 w	1.86
04	04	891015	15.93	71	55	73			4	250			7.96
04	05	891015	15.93	71	55	73	11	01	4	250			2.65
04	06	891015	15.93	55	73	71	11	01	5	250			2.65
05	01	891015	15.93	55	73	71	11	01	5	250	04 49 n	089 12 w	3.98
05	02	891015	15.93	07	56	67			5	250	04 49 n	089 14 w	0.53
06	01	891015	15.93	07	56	67			5	250	04 49 n	089 16 w	9.29
06	02	891015	15.93	56	67	07			5	250			2.12
07	01	891015	15.93	56	67	07	12	01	5	250	04 45 n	089 23 w	2.65
07	02	891015	15.93	56	67	07			5	250			1.33
07	03	891015	15.93	67	07	56			5	250			7.96
08	01	891015	15.93	73	71	55			5	250	04 43 n	089 31 w	0.53
09	01	891015	15.93	73	71	55			4	250	04 43 n	089 32 w	2.12
09	02	891015	15.93	73	71	55			5	250			1.86
10	01	891015	15.93	71	55	73			5	250	04 42 n	089 36 w	6.37
10	02	891015	15.93	55	73	71			4	250			4.51
11	01	891015	15.93	07	56	67			4	250	04 34 n	089 45 w	1.59
01	01	891016	16.85	55	73	71			5	020	04 35 n	090 48 w	5.62
02	01	891016	16.85	67	07	56			5	020	04 48 n	090 41 w	8.99
02	02	891016	16.85	07	56	67			4	020			9.27
03	01	891016	16.85	55	73	71	03	01	5	020	05 04 n	090 35 w	5.06
03	02	891016	16.85	55	73	71	03	01	5	020			1.69
04	01	891016	16.85	67	07	56			5	013	05 25 n	090 29 w	6.74
05	01	891016	16.85	55	73	71	07	01	5	013	05 42 n	090 22 w	2.25
05	02	891016	16.85	55	73	71			5	013			2.81
05	03	891016	16.85	55	73	71	08	01	5	013			5.90
05	04	891016	16.85	73	71	55			5	013			2.25
05	05	891016	16.85	73	71	55			5	013			7.58
05	06	891016	16.85	71	55	73			5	013			10.95
05	07	891016	16.85	67	07	56			5	013	06 00 n	090 16 w	2.25
06	01	891016	16.67	67	07	56	08	02	5	013	06 08 n	090 13 w	3.33
07	01	891016	16.67	55	73	71	08	02	5	013	06 10 n	090 12 w	1.39
07	02	891016	16.67	55	73	71	08	02	5	013	06 11 n	090 11 w	5.56
07	03	891016	16.67	73	71	55			5	013	06 14 n	090 10 w	5.28
07	04	891016	16.67	71	55	73			5	013			1.94
07	05	891016	16.67	71	55	73			5	013	06 17 n	090 08 w	0.28
01	01	891017	17.04	71	55	73			5	011	08 12 n	089 36 w	9.09
01	02	891017	17.04	55	73	71			5	011	08 17 n	089 35 w	5.40
02	01	891017	17.04	56	67	07			3	011	08 35 n	089 29 w	7.10
02	02	891017	17.04	67	07	56			3	011			7.10
02	03	891017	17.04	07	56	67			3	011			7.10
02	04	891017	17.04	71	55	73			4	011	08 48 n	089 25 w	11.36
02	05	891017	17.04	55	73	71			4	011			8.24
02	06	891017	17.04	55	73	71			3	011	09 00 n	089 21 w	3.12

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	07	891017	17.04	73	71	55			3	011			8.52
03	01	891017	16.30	71	55	73			4	005	09 28 n	089 11 w	8.15
03	02	891017	16.30	55	73	71			4	005	09 33 n	089 09 w	2.99
03	03	891017	16.30	55	73	71			3	005			5.16
03	04	891017	16.30	73	71	55			3	005	09 38 n	089 08 w	8.15
03	05	891017	16.30	56	67	07			3	005	09 42 n	089 07 w	5.43
03	06	891017	16.30	67	07	56			3	005			5.43
03	07	891017	16.30	07	56	67			3	005			1.36
03	08	891017	12.04	07	56	67			3	005	09 50 n	089 07 w	2.61
03	09	891017	12.04	07	56	67			3	005	09 52 n	089 07 w	0.20
01	01	891018	15.93	73	71	55			1	353	11 26 n	089 00 w	2.92
01	02	891018	15.93	73	71	55			1	056	11 28 n	089 01 w	2.92
01	03	891018	15.93	71	55	73			1	056			0.53
02	01	891018	15.93	71	55	73	08	03	1	210	11 31 n	089 00 w	6.90
02	02	891018	15.93	07	56	67	08	02	1	210	11 28 n	089 03 w	9.03
02	03	891018	15.93	07	56	67			1	210			1.59
02	04	891018	15.93	56	67	07			1	210			2.65
03	01	891018	15.74	56	67	07			3	210	11 20 n	089 08 w	2.89
04	01	891018	15.74	73	71	55			3	210	11 11 n	089 14 w	0.79
04	02	891018	15.74	73	71	55			3	220	11 09 n	089 14 w	6.30
04	03	891018	15.74	73	71	55			3	220			2.62
04	04	891018	15.74	71	55	73			3	220			9.18
04	05	891018	15.74	55	73	71			3	220	11 00 n	089 21 w	4.72
05	01	891018	15.74	07	56	67			2	220	10 53 n	089 27 w	6.82
05	02	891018	15.74	07	56	67	11	01	2	220	10 49 n	089 30 w	1.84
05	03	891018	15.74	56	67	07	11	01	2	220			4.72
06	01	891018	15.56	73	71	55			1	217	10 44 n	089 38 w	9.59
06	02	891018	15.56	71	55	73	01	01	1	217			10.37
06	03	891018	15.56	55	73	71	01	01	2	217	10 34 n	089 46 w	8.56
06	04	891018	15.56	55	73	71	01	02	2	217			1.81
06	05	891018	15.37	07	56	67	01	02	2	220	10 28 n	089 50 w	7.69
06	06	891018	15.37	56	67	07	01	02	2	220	10 25 n	089 53 w	8.45
06	07	891018	15.37	67	07	56	01	02	2	220			6.92
06	08	891018	15.37	73	71	55	01	02	2	220	10 18 n	089 59 w	2.05
06	09	891018	15.37	73	71	55	01	03	1	220			3.59
06	10	891018	15.37	71	55	73	01	03	1	220			4.87
07	01	891018	15.56	55	73	71	01	03	1	220	10 13 n	090 03 w	7.00
07	02	891018	15.56	55	73	71			1	220	10 09 n	090 07 w	0.26
01	01	891019	15.74	67	07	56			2	216	08 57 n	091 11 w	1.31
01	02	891019	15.74	67	07	56	08	03	2	216			4.20
01	03	891019	15.74	07	56	67	08	03	2	216			5.77
01	04	891019	15.74	56	67	07	08	03	2	216			5.25
01	05	891019	15.74	55	73	71	08	02	2	216	08 48 n	091 18 w	8.92
01	06	891019	15.74	55	73	71	08	02	3	216			1.57
01	07	891019	15.74	73	71	55	08	02	3	216			6.03
01	08	891019	15.74	73	71	55	08	02	2	216	08 40 n	091 25 w	4.46
01	09	891019	15.74	71	55	73	07	02	2	216			6.30
01	10	891019	15.74	71	55	73			2	216			4.20
01	11	891019	15.74	67	07	56			2	216	08 31 n	091 31 w	4.20
01	12	891019	15.74	67	07	56	09	01	2	216			4.72
01	13	891019	15.74	67	07	56			2	216			1.57
01	14	891019	15.74	07	56	67			2	216			6.82
01	15	891019	15.74	07	56	67	09	01	2	216	08 22 n	091 38 w	1.31

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	16	891019	15.74	07	56	67	09	01	3	216			2.36
01	17	891019	15.74	56	67	07			3	216			5.25
01	18	891019	15.74	56	67	07	09	01	3	216			1.31
02	01	891019	15.74	55	73	71	10	01	3	216	08 14 n	091 42 w	1.57
02	02	891019	15.74	55	73	71			3	216			4.20
02	03	891019	15.74	55	73	71	10	01	3	216	08 11 n	091 45 w	0.52
03	01	891019	15.74	73	71	55	11	01	3	220	08 10 n	091 44 w	9.18
03	02	891019	15.74	71	55	73	12	01	3	220	08 05 n	091 48 w	2.62
04	01	891019	15.74	67	07	56	12	01	3	220	08 01 n	091 49 w	5.25
05	01	891019	15.74	07	56	67	01	01	3	220	07 57 n	091 54 w	3.67
06	01	891019	15.74	55	73	71	01	02	3	220	07 54 n	092 01 w	1.57
07	01	891019	16.30	73	71	55	01	02	3	220	07 49 n	092 03 w	3.26
08	01	891019	16.30	67	07	56	01	03	3	220	07 44 n	092 04 w	0.27
09	01	891019	16.30	67	07	56	01	03	3	220	07 44 n	092 05 w	5.98
09	02	891019	16.30	07	56	67	01	03	3	220			5.43
09	03	891019	16.30	56	67	07	01	03	3	220	07 38 n	092 09 w	4.62
09	04	891019	16.30	56	67	07	01	03	3	220	07 35 n	092 12 w	0.27
01	01	891020	15.37	71	55	73			3	220	06 19 n	093 15 w	2.31
01	02	891020	15.37	71	55	73	08	03	3	220			7.94
01	03	891020	15.37	55	73	71	08	03	3	220			0.51
02	01	891020	15.74	55	73	71	08	02	3	220	06 10 n	093 22 w	3.67
02	02	891020	15.74	73	71	55	08	02	4	220			10.49
02	03	891020	15.74	56	67	07	08	02	4	220	06 03 n	093 29 w	6.56
03	01	891020	15.93	67	07	56	08	02	4	220	05 59 n	093 34 w	3.19
03	02	891020	15.93	67	07	56	08	01	4	220	05 58 n	093 36 w	6.37
03	03	891020	15.93	07	56	67	09	01	4	220			9.56
03	04	891020	15.93	71	55	73	09	01	4	220	05 50 n	093 42 w	10.62
03	05	891020	15.93	55	73	71	09	01	4	220			10.62
03	06	891020	15.93	73	71	55	10	01	4	220			10.62
03	07	891020	15.93	56	67	07	11	01	4	220	05 32 n	093 56 w	4.25
04	01	891020	15.74	67	07	56	12	01	3	222	05 26 n	093 59 w	8.66
05	01	891020	15.74	07	56	67	12	01	2	222			5.25
05	02	891020	15.74	07	56	67	12	01	3	222			5.25
05	03	891020	16.30	71	55	73	01	01	3	222	05 15 n	093 06 w	11.41
05	04	891020	16.30	55	73	71	01	01	3	222			2.44
06	01	891020	16.11	73	71	55			3	224	05 03 n	094 15 w	6.98
06	02	891020	16.11	56	67	07			3	224	04 59 n	094 18 w	6.71
06	03	891020	16.11	56	67	07	01	02	3	224			1.34
06	04	891020	16.11	67	07	56	01	02	3	224	04 56 n	094 21 w	1.61
07	01	891020	15.93	07	56	67	01	03	4	224	04 52 n	094 24 w	0.27
08	01	891020	15.37	07	56	67			4	224	04 51 n	094 26 w	2.05
09	01	891020	16.48	71	55	73			4	224	04 52 n	094 30 w	0.27
01	01	891021	15.56	07	56	67			2	325	05 55 n	095 30 w	2.07
01	02	891021	15.56	07	56	67	04	03	2	325			7.78
01	03	891021	15.56	56	67	07	04	03	2	325			6.48
01	04	891021	15.56	56	67	07	04	03	3	325			2.33
01	05	891021	15.56	67	07	56			3	325			8.56
01	06	891021	15.56	67	07	56	05	02	3	325	06 08 n	095 39 w	0.78
01	07	891021	15.56	73	71	55	05	02	3	325	06 09 n	095 39 w	10.37
01	08	891021	15.56	71	55	73	05	02	3	325			10.37
01	09	891021	15.56	55	73	71	05	01	3	325			4.41
02	01	891021	15.93	07	56	67	05	01	3	325	06 24 n	095 50 w	9.03
03	01	891021	15.74	56	67	07	06	01	3	325	06 30 n	095 55 w	7.08

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
03	02	891021	15.74	67	07	56	06	01	3	325	06 33 n	095 57 w	3.67
03	03	891021	15.74	67	07	56	07	01	3	325			3.94
03	04	891021	15.74	73	71	55	07	01	3	325	06 37 n	095 59 w	10.49
03	05	891021	15.74	71	55	73	08	01	3	325			10.49
03	06	891021	15.74	55	73	71	09	01	3	325	06 49 n	096 06 w	3.67
04	01	891021	15.56	55	73	71	09	01	3	325	06 52 n	096 09 w	2.85
04	02	891021	15.56	07	56	67	09	01	3	325	06 54 n	096 10 w	10.37
04	03	891021	15.56	56	67	07			3	325			3.11
04	04	891021	15.56	56	67	07	09	01	4	325			7.26
04	05	891021	15.56	67	07	56			4	325			3.89
05	01	891021	15.56	73	71	55			4	325	07 18 n	096 28 w	3.37
06	01	891021	15.19	07	56	67			5	325	07 23 n	096 31 w	2.28
01	01	891022	15.56	55	73	71	04	03	5	330	09 10 n	097 46 w	4.93
01	02	891022	15.56	55	73	71	04	03	5	326			3.89
01	03	891022	15.56	73	71	55	04	03	5	326			8.56
01	04	891022	15.56	71	55	73	05	02	5	326	09 22 n	097 51 w	8.30
01	05	891022	15.56	67	07	56	05	02	5	326	09 27 n	097 54 w	10.37
01	06	891022	15.56	07	56	67	05	02	5	326	09 34 n	097 58 w	10.37
01	07	891022	15.56	56	67	07	05	02	5	326			10.37
01	08	891022	15.56	55	73	71	05	01	5	326	09 45 n	098 05 w	10.37
01	09	891022	15.56	73	71	55	05	01	5	326			10.37
01	10	891022	15.56	71	55	73	06	01	5	326			2.07
01	11	891022	15.56	71	55	73	06	01	5	323	09 58 n	098 12 w	8.30
01	12	891022	15.56	67	07	56	07	01	5	323	10 03 n	098 15 w	5.19
01	13	891022	15.56	07	56	67	07	01	5	323			5.19
01	14	891022	15.56	56	67	07	07	01	5	323			1.30
02	01	891022	14.63	56	67	07	07	01	5	323	10 09 n	098 19 w	2.93
03	01	891022	16.30	55	73	71	09	01	5	323	10 17 n	098 22 w	2.17
04	01	891022	15.19	55	73	71	09	01	5	323	10 18 n	098 23 w	5.06
04	02	891022	15.19	73	71	55	09	01	5	323			6.83
05	01	891022	15.93	73	71	55	09	02	5	323	10 26 n	098 28 w	7.43
05	02	891022	15.93	04	55	73	09	02	5	323			1.33
05	03	891022	15.93	71	55	73	09	02	5	323			2.92
05	04	891022	15.93	71	07	56	09	02	5	323	10 31 n	098 32 w	1.86
05	05	891022	15.93	67	07	56	09	02	5	323	10 32 n	098 33 w	0.80
06	01	891022	16.11	07	56	67	10	02	4	323	10 34 n	098 35 w	6.98
06	02	891022	16.11	56	67	07	10	02	4	323			6.71
06	03	891022	16.11	55	73	71	10	03	4	323	10 41 n	098 40 w	5.37
06	04	891022	16.11	73	71	55	10	03	4	334	10 42 n	098 44 w	5.10
06	05	891022	16.11	73	71	55			4	334	10 45 n	098 45 w	0.27
01	01	891023	16.30	56	67	07			1	328	12 34 n	100 02 w	7.88
01	02	891023	16.30	67	07	56			1	328	12 38 n	100 04 w	7.88
01	03	891023	16.30	07	56	67	05	02	1	328			2.44
02	01	891023	15.19	71	55	73			0	328	12 46 n	100 06 w	1.27
03	01	891023	16.30	71	55	73	05	02	0	328	12 48 n	100 06 w	5.16
03	02	891023	16.30	55	73	71	05	02	0	328			10.87
03	03	891023	16.30	73	71	55	05	02	0	328			8.15
03	04	891023	16.30	73	71	55	05	01	1	328			2.72
03	05	891023	16.30	56	67	07	05	01	1	328	13 03 n	100 14 w	13.58
03	06	891023	16.30	67	07	56	06	01	0	328	13 12 n	100 19 w	8.96
03	07	891023	16.30	67	07	56	06	01	0	323	13 17 n	100 22 w	0.54
03	08	891023	16.30	07	56	67	06	01	0	323			0.54
04	01	891023	16.30	07	56	67	07	01	0	323	13 22 n	100 22 w	1.09

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	02	891023	16.30	71	55	73	07	01	0	323	13 22 n	100 23 w	3.26
04	03	891023	16.30	71	55	73	07	01	1	323	13 24 n	100 23 w	7.61
04	04	891023	16.30	55	73	71	08	01	0	323			1.90
05	01	891023	16.30	55	73	71	08	01	0	323	13 30 n	100 26 w	3.80
05	02	891023	16.30	73	71	55	08	01	0	323			10.87
06	01	891023	16.30	56	67	07	09	01	1	323	13 43 n	100 36 w	6.52
06	02	891023	16.30	67	07	56	09	02	1	323			7.33
06	03	891023	16.30	07	56	67	09	02	1	323			6.25
06	04	891023	16.30	71	55	73	10	02	1	323	13 53 n	100 43 w	8.15
06	05	891023	16.30	55	73	71	10	02	1	323	13 56 n	100 44 w	4.07
07	01	891023	15.93	73	71	55	10	03	1	323	14 02 n	100 46 w	5.04
07	02	891023	15.93	56	67	07	10	03	1	323	14 05 n	100 49 w	5.31
01	01	891024	15.74	73	71	55			2	323	15 53 n	102 01 w	2.62
01	02	891024	15.74	73	71	55	04	03	2	323			2.62
02	01	891024	15.74	71	55	73	05	03	2	323	15 56 n	102 04 w	3.94
03	01	891024	15.74	55	73	71	05	02	2	323	16 01 n	102 06 w	3.67
03	02	891024	15.74	07	56	67	05	02	2	323	16 03 n	102 08 w	10.49
03	03	891024	15.74	56	67	07	05	02	2	323			10.49
03	04	891024	15.74	67	07	56	05	02	2	323			10.49
03	05	891024	15.74	73	71	55	05	01	2	323	16 21 n	102 21 w	10.49
03	06	891024	15.74	71	55	73	06	01	2	323			10.49
03	07	891024	15.74	55	73	71	06	01	2	323			3.94
03	08	891024	15.74	55	73	71	06	01	2	327			3.94
04	01	891024	15.74	07	56	67	07	01	2	323	16 37 n	102 33 w	9.18
04	02	891024	15.74	56	67	07	07	01	2	323			8.66
04	03	891024	15.74	67	07	56	08	01	2	323			7.87
04	04	891024	15.74	67	07	56	09	01	3	323	16 50 n	102 47 w	1.31
04	05	891024	15.74	73	71	55	09	01	3	323	16 50 n	102 47 w	10.49
04	06	891024	15.74	71	55	73	09	01	3	323			5.51
05	01	891024	16.11	71	55	73	09	02	3	323	16 59 n	102 54 w	3.22
05	02	891024	16.11	55	73	71	09	02	3	323			10.74
05	03	891024	16.11	07	56	67	09	02	3	323	17 06 n	102 59 w	8.06
05	04	891024	16.11	56	67	07	09	02	3	323	17 11 n	103 02 w	8.06
05	05	891024	16.11	67	07	56	10	02	3	323	17 15 n	103 05 w	5.91
05	06	891024	16.11	67	07	56	10	03	3	323			2.15
05	07	891024	16.11	73	71	55	10	03	3	323	17 19 n	103 09 w	5.37
05	08	891024	16.11	73	71	55			3	323			1.34
05	09	891024	16.11	71	55	73	10	03	3	323			9.40
05	10	891024	16.11	71	55	73			3	323	17 29 n	103 14 w	0.27
01	01	891101	15.74	07	67	56	12	01	2	225	19 01 n	104 23 w	3.41
01	02	891101	15.74	07	67	56	02	01	2	150	18 59 n	104 23 w	3.41
01	03	891101	15.74	07	67	56	02	02	2	150	18 58 n	104 25 w	2.62
01	04	891101	15.74	67	56	07	02	02	2	150			4.46
01	05	891101	15.74	67	56	07	02	02	2	180	18 54 n	104 23 w	6.03
01	06	891101	15.74	56	07	67	02	02	2	180			7.08
01	07	891101	15.74	56	07	67	03	02	2	140	18 47 n	104 22 w	3.41
01	08	891101	15.74	55	71	73	03	02	3	140	18 46 n	104 21 w	7.87
01	09	891101	15.74	71	73	55	03	02	3	140	18 40 n	104 17 w	4.98
01	10	891101	15.74	71	73	55	04	02	3	130	18 37 n	104 15 w	3.67
01	11	891101	15.74	73	55	71	04	02	3	130	18 36 n	104 14 w	7.08
01	12	891101	15.74	07	67	56	04	03	3	130	18 33 n	104 11 w	6.56
01	13	891101	15.74	67	56	07	04	03	3	130			6.56
01	14	891101	15.74	67	56	07	04	03	3	130	18 28 n	104 06 w	0.26

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	01	891102	15.93	73	55	71			3	146	16 52 n	102 56 w	6.37
01	02	891102	15.93	55	71	73	11	03	4	146			4.51
01	03	891102	15.93	55	71	73			4	146	16 48 n	102 54 w	1.59
01	04	891102	15.93	71	73	55			4	146			4.25
01	05	891102	15.93	71	73	55	11	03	4	146			1.33
01	06	891102	15.93	56	07	67	11	03	4	146	16 43 n	102 51 w	4.51
01	07	891102	15.93	56	07	67	11	02	4	146			6.11
01	08	891102	15.93	07	67	56	11	02	4	146			8.49
01	09	891102	15.93	07	67	56			4	146			0.80
01	10	891102	15.93	07	67	56	11	02	4	146			0.80
01	11	891102	15.93	07	67	56	08	02	4	246			0.53
01	12	891102	15.93	67	56	07	08	02	4	246	16 32 n	102 46 w	10.62
01	13	891102	15.93	73	55	71			4	246	16 28 n	102 50 w	2.92
02	01	891102	15.56	55	71	73	09	01	4	246	16 27 n	102 52 w	9.59
02	02	891102	15.56	71	73	55	09	01	4	246			9.07
02	03	891102	15.56	56	07	67	10	01	4	234	16 23 n	103 04 w	10.37
02	04	891102	15.56	07	67	56	10	01	4	234			10.37
02	05	891102	15.56	67	56	07	11	01	4	234			7.78
02	06	891102	15.56	67	56	07	11	01	3	234			2.59
02	07	891102	15.56	73	55	71	11	01	3	234	16 14 n	103 21 w	5.70
03	01	891102	15.19	73	55	71	12	01	3	234	16 11 n	103 27 w	1.27
03	02	891102	15.19	55	71	73	12	01	3	234	16 08 n	103 26 w	0.51
04	01	891102	15.19	71	73	07	11	02	3	265			3.80
04	02	891102	15.56	56	07	67	11	02	3	265	16 04 n	103 35 w	4.67
05	01	891102	15.19	07	67	56	11	03	3	265	16 04 n	103 44 w	2.02
05	02	891102	15.19	73	55	71	11	03	3	265	16 04 n	103 46 w	4.30
05	03	891102	15.19	73	55	71	11	03	3	275	16 03 n	103 49 w	2.02
05	04	891102	15.19	73	55	73	11	03	3	275			1.27
05	05	891102	15.19	55	71	73	11	03	3	270	16 03 n	103 51 w	3.80
05	06	891102	15.19	55	71	73			3	270	16 03 n	103 54 w	0.25
01	01	891103	15.74	67	56	07			2	219	15 56 n	105 31 w	2.36
01	02	891103	15.74	67	56	07	08	03	2	219			2.89
01	03	891103	15.74	56	07	67	08	03	2	219			5.25
01	04	891103	15.74	07	67	56	08	03	2	219	15 51 n	105 36 w	1.84
02	01	891103	15.74	71	73	55	08	02	2	219	15 44 n	105 40 w	7.08
03	01	891103	15.74	73	55	71	09	02	2	219	15 39 n	105 44 w	8.13
03	02	891103	15.74	55	71	73	09	02	2	219	15 35 n	105 47 w	7.87
03	03	891103	15.74	67	56	07	09	02	2	219	15 31 n	105 51 w	5.25
03	04	891103	15.74	67	56	07			2	219			3.41
03	05	891103	15.74	67	56	07	09	01	2	219	15 26 n	105 55 w	1.84
03	06	891103	15.74	56	07	67	09	01	2	219			2.62
04	01	891103	15.74	56	07	67			2	219	15 24 n	105 58 w	1.31
05	01	891103	15.74	07	67	56			3	219	15 21 n	105 59 w	2.62
05	02	891103	15.74	07	67	56			2	219			1.31
05	03	891103	15.74	71	73	55			1	219	15 20 n	106 00 w	4.72
06	01	891103	15.00	71	73	55			2	219	15 17 n	106 03 w	2.00
07	01	891103	14.82	73	55	71	12	01	1	221	15 14 n	106 02 w	2.22
08	01	891103	14.82	55	71	73	12	01	0	221	15 12 n	106 01 w	2.72
08	02	891103	14.82	55	71	73	11	01	0	255	15 10 n	106 02 w	3.46
08	03	891103	14.82	67	56	07	11	01	1	221	15 08 n	106 03 w	4.20
09	01	891103	15.93	56	07	67			1	230	15 04 n	106 07 w	2.65
10	01	891103	15.93	07	67	56	12	02	1	230	15 03 n	106 10 w	5.04
11	01	891103	15.37	71	73	55	01	02	0	227	14 59 n	106 18 w	6.40

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
12	01	891103	15.56	73	55	71	01	02	0	227	14 56 n	106 23 w	6.74
12	02	891103	15.56	67	56	07	01	03	0	227	14 53 n	106 27 w	5.19
12	03	891103	15.56	56	07	67	01	03	0	227			6.22
12	04	891103	15.56	07	67	56	01	03	0	227			5.70
12	05	891103	15.56	07	67	56	01	03	0	227	14 45 n	106 35 w	0.26
01	01	891104	15.19	55	71	73			2	222	13 34 n	107 43 w	2.78
02	01	891104	14.82	71	73	55	08	03	2	222	13 29 n	107 43 w	3.21
03	01	891104	15.00	07	67	56	08	02	2	222	13 25 n	107 51 w	6.25
03	02	891104	15.00	67	56	07	08	02	2	222	13 22 n	107 54 w	3.00
04	01	891104	15.19	55	71	73	09	02	3	222	13 23 n	107 50 w	8.61
04	02	891104	15.19	71	73	55	09	01	3	222	13 19 n	107 53 w	9.62
04	03	891104	15.19	73	55	71	09	01	3	222			9.87
04	04	891104	15.19	07	67	56	10	01	3	222	13 10 n	108 02 w	10.12
04	05	891104	15.19	67	56	07	10	01	3	222			10.12
04	06	891104	15.19	56	07	67	11	01	3	222			5.32
05	01	891104	15.19	56	07	67	11	01	3	222	12 57 n	108 14 w	3.80
05	02	891104	15.19	55	71	73	12	01	3	222	12 55 n	108 15 w	4.81
06	01	891104	15.19	71	73	55	12	01	3	222	12 50 n	108 18 w	8.10
06	02	891104	15.19	73	55	71	12	02	3	222	12 46 n	108 21 w	2.78
07	01	891104	15.00	55	71	73	01	03	3	222	12 48 n	108 30 w	3.50
08	01	891104	15.19	71	73	55	01	03	2	222	12 47 n	108 35 w	7.09
08	02	891104	15.19	71	73	55			2	222	12 45 n	108 39 w	0.25
01	01	891105	15.00	56	07	67			3	065	12 59 n	107 34 w	3.25
01	02	891105	15.00	56	07	67	01	03	3	065			3.25
01	03	891105	15.00	07	67	56	01	03	3	065	13 00 n	107 30 w	6.75
01	04	891105	15.00	73	55	71	01	03	3	065	13 02 n	107 27 w	4.25
01	05	891105	15.00	73	55	71	01	02	4	065			4.50
01	06	891105	11.67	73	55	71	02	02	4	065	13 05 n	107 20 w	0.97
01	07	891105	15.00	55	71	73	02	02	4	065			1.25
01	08	891105	15.00	55	71	73	02	02	4	065	13 06 n	107 19 w	8.75
01	09	891105	15.00	71	73	55	02	02	4	065			10.00
01	10	891105	15.00	56	07	67	02	02	4	065	13 10 n	107 08 w	5.50
02	01	891105	15.00	07	67	56	02	01	4	065	13 12 n	107 04 w	10.00
02	02	891105	15.00	67	56	07	02	01	4	065			10.00
02	03	891105	15.00	73	55	71	03	01	4	065	13 18 n	106 52 w	10.00
02	04	891105	15.00	55	71	73	04	01	4	065			3.00
02	05	891105	15.00	55	71	73	04	01	4	045	13 22 n	106 44 w	1.25
03	01	891105	15.00	55	71	73	04	01	4	065	13 23 n	106 43 w	3.75
03	02	891105	15.00	71	73	55	04	01	4	065			8.75
04	01	891105	15.19	56	07	67	05	01	4	065	13 26 n	106 34 w	8.61
04	02	891105	15.19	07	67	56	05	01	4	065			10.12
04	03	891105	15.19	67	56	07	05	01	3	065			4.05
05	01	891105	15.00	67	56	07	06	02	3	065	13 32 n	106 20 w	1.00
05	02	891105	15.00	73	55	71	06	02	3	065	13 33 n	106 19 w	1.75
06	01	891105	15.19	55	71	73	06	02	3	065	13 31 n	106 13 w	6.07
06	02	891105	15.19	71	73	55	06	02	3	065			3.54
06	03	891105	15.19	71	73	55	06	02	4	065			1.52
06	04	891105	15.19	71	73	55			4	065			1.01
06	05	891105	15.19	56	07	67			4	065	13 33 n	106 06 w	1.52
06	06	891105	15.19	56	07	67	06	02	4	065			1.77
07	01	891105	15.19	07	67	56	06	03	4	065	13 35 n	106 02 w	3.29
08	01	891105	15.19	07	67	56	06	03	4	065	13 36 n	105 59 w	4.30
01	01	891106	15.37	71	73	55			4	208	13 56 n	104 54 w	1.28

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	02	891106	15.37	71	73	55	09	03	4	208			3.84
01	03	891106	15.37	73	55	71	09	03	4	208	13 54 n	104 55 w	5.12
01	04	891106	15.37	55	71	73	09	03	4	208			5.12
01	05	891106	15.37	67	56	07	09	03	4	208	13 48 n	104 57 w	7.43
02	01	891106	15.37	56	07	67	09	02	4	208	13 41 n	105 00 w	8.71
02	02	891106	15.37	07	67	56	09	02	4	208	13 36 n	105 03 w	8.45
02	03	891106	15.37	71	73	55	09	02	4	208	13 31 n	105 06 w	10.25
02	04	891106	15.37	73	55	71	10	01	4	208			7.69
03	01	891106	15.37	55	71	73	10	01	4	208	13 20 n	105 11 w	1.79
04	01	891106	15.56	67	56	07	10	01	4	208	13 16 n	105 09 w	10.37
04	02	891106	15.56	56	07	67	11	01	4	208			10.37
04	03	891106	15.56	07	67	56	12	01	4	208			8.82
04	04	891106	15.56	07	67	56			4	208	12 59 n	105 17 w	1.56
04	05	891106	15.56	71	73	55	12	01	4	208			2.33
05	01	891106	15.37	73	55	71	01	01	4	208	12 52 n	105 17 w	7.69
05	02	891106	16.48	55	71	73	01	02	4	208	12 48 n	105 19 w	8.24
06	01	891106	15.19	67	56	07	01	02	4	208	12 43 n	105 22 w	3.54
07	01	891106	15.56	56	07	67	01	02	4	208	12 40 n	105 22 w	6.48
07	02	891106	15.56	07	67	56	01	02	4	208			6.48
07	03	891106	15.56	71	73	55	01	03	4	208	12 32 n	105 25 w	1.30
07	04	891106	15.56	71	73	55			4	208			1.30
07	05	891106	15.56	71	73	55	01	03	4	208			2.85
07	06	891106	15.56	73	55	71	01	03	4	208			5.19
07	07	891106	15.56	55	71	73	01	03	4	208			5.70
07	08	891106	15.56	55	71	73	01	03	4	208	12 22 n	105 32 w	0.26
01	01	891107	15.56	07	67	56	08	03	3	214	10 50 n	106 27 w	3.63
02	01	891107	15.19	55	71	73	07	02	3	272	10 42 n	106 29 w	5.82
02	02	891107	15.19	55	71	73			3	163	10 41 n	106 33 w	3.29
02	03	891107	15.19	71	73	55	11	02	3	163			5.06
02	04	891107	15.19	71	73	55	11	02	3	163			4.30
02	05	891107	15.19	73	55	71	11	02	3	163	10 34 n	106 31 w	3.04
03	01	891107	15.19	07	67	56	11	01	3	167	10 20 n	106 28 w	4.56
04	01	891107	15.19	67	56	07	11	01	3	167	10 17 n	106 27 w	8.10
04	02	891107	15.00	55	71	73	12	01	3	167	10 13 n	106 26 w	10.25
05	01	891107	15.19	71	73	55			3	170	10 01 n	106 21 w	3.54
05	02	891107	15.19	71	73	55	01	01	3	170			3.29
06	01	891107	15.19	07	67	56	02	01	3	170	09 56 n	106 20 w	2.02
07	01	891107	14.82	67	56	07	02	01	2	170	09 49 n	106 18 w	7.41
07	02	891107	14.82	56	07	67	02	02	2	170	09 45 n	106 17 w	7.41
07	03	891107	14.82	55	71	73	02	02	2	170	09 40 n	106 16 w	7.41
07	04	891107	14.82	71	73	55	03	02	2	170	09 35 n	106 15 w	6.17
07	05	891107	14.82	71	73	55	03	02	1	170			1.23
07	06	891107	14.82	73	55	71	03	02	1	170	09 31 n	106 14 w	2.72
07	07	891107	14.82	73	55	71	03	02	2	170			4.69
07	08	891107	14.82	07	67	56	03	02	2	170	09 26 n	106 14 w	3.70
07	09	891107	14.82	07	67	56	03	03	2	170			1.73
07	10	891107	14.82	67	56	07	03	03	2	170			5.93
07	11	891107	14.82	56	07	67	03	03	2	170			1.73
07	12	891107	14.82	56	07	67	03	03	2	170	09 19 n	106 13 w	0.25
01	01	891108	14.08	73	55	71			2	174	07 47 n	106 03 w	2.35
01	02	891108	14.08	73	55	71	10	03	2	174			2.11
02	01	891108	15.19	55	71	73	10	02	3	174	07 43 n	106 07 w	1.27
03	01	891108	15.19	56	07	67	10	02	3	164			8.86

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
03	02	891108	14.45	07	67	56	10	02	4	164	07 34 n	106 06 w	7.22
03	03	891108	14.45	67	56	07	10	02	4	164	07 29 n	106 05 w	7.22
03	04	891108	14.45	73	55	71	10	02	4	164	07 25 n	106 05 w	3.61
03	05	891108	14.45	73	55	71	11	01	4	164			3.85
04	01	891108	14.82	55	71	73	11	01	4	164	07 17 n	106 03 w	0.74
05	01	891108	14.45	55	71	73	11	01	4	174	07 16 n	106 03 w	4.82
05	02	891108	14.45	71	73	55	11	01	4	174			4.09
05	03	891108	14.45	56	07	67	12	01	4	174	07 10 n	106 02 w	8.43
05	04	891108	14.45	56	07	67	12	01	5	174			1.20
05	05	891108	14.45	07	67	56	12	01	5	174			2.41
05	06	891108	14.45	07	67	56	01	01	5	174			7.22
05	07	891108	14.45	67	56	07	12	01	5	174			9.63
05	08	891108	14.45	73	55	71	02	01	4	174	06 53 n	105 58 w	4.09
05	09	891108	14.45	73	55	71			4	174			5.54
05	10	891108	14.45	55	71	73			4	174			9.63
05	11	891108	14.45	71	73	55	02	01	4	174			1.20
05	12	891108	14.45	71	73	55			4	174			7.22
05	13	891108	14.45	71	73	55	02	02	4	174			1.20
05	14	891108	14.45	56	07	67	02	02	4	174	06 36 n	105 53 w	2.89
05	15	891108	14.45	56	07	67	02	02	4	174			2.17
05	16	891108	14.45	56	07	67			4	174			2.17
05	17	891108	14.45	07	67	56			4	174	06 32 n	105 52 w	6.74
06	01	891108	14.08	73	55	71			4	174	06 19 n	105 48 w	1.88
07	01	891108	13.52	73	55	71			4	174	06 16 n	105 49 w	0.23
01	01	891109	15.37	67	56	07			3	045	07 04 n	104 17 w	1.79
02	01	891109	15.00	56	07	67			4	045	07 09 n	104 12 w	0.25
03	01	891109	15.00	71	73	55	02	02	4	045			9.25
03	02	891109	15.74	73	55	71	02	02	4	045	07 17 n	104 05 w	6.30
03	03	891109	15.74	73	55	71			4	045			0.79
04	01	891109	15.74	55	71	73			4	045			0.52
04	02	891109	15.93	67	56	07			4	045	07 20 n	103 55 w	10.62
04	03	891109	15.93	56	07	67			4	045			3.98
04	04	891109	15.93	56	07	67	03	01	5	045			6.64
04	05	891109	15.93	07	67	56	03	01	5	045			1.59
04	06	891109	15.93	07	67	56			5	045			1.86
04	07	891109	15.93	07	67	56			5	045	07 30 n	103 42 w	5.31
05	01	891109	15.93	67	56	07			4	045	07 45 n	103 22 w	5.57
05	02	891109	15.93	67	56	07			4	045			3.98
05	03	891109	15.93	56	07	67	06	01	4	045			5.31
05	04	891109	15.93	56	07	67			4	045	07 51 n	103 15 w	3.45
06	01	891109	15.93	07	67	56			4	045	07 56 n	103 08 w	0.27
07	01	891109	15.74	71	73	55			4	045	07 57 n	103 07 w	2.62
07	02	891109	15.74	71	73	55	07	02	4	045			4.72
07	03	891109	15.74	73	55	71			4	045			5.25
07	04	891109	15.74	73	55	71			4	045			2.36
07	05	891109	15.74	55	71	73			4	045	08 03 n	103 01 w	1.84
07	06	891109	15.74	55	71	73	07	02	4	045	08 03 n	103 00 w	5.25
07	07	891109	15.74	67	56	07	07	02	4	045	08 05 n	102 58 w	5.25
07	08	891109	15.74	56	07	67	07	03	4	045			3.15
07	09	891109	15.74	56	07	67	07	03	4	045	08 09 n	102 54 w	2.10
07	10	891109	15.74	07	67	56			4	045			3.94
07	11	891109	15.74	07	67	56			4	045	08 11 n	102 51 w	0.26
01	01	891110	15.93	55	71	73			4	056	09 07 n	101 37 w	5.84

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	02	891110	15.93	71	73	55			4	056			2.65
02	01	891110	15.93	73	55	71			4	056	09 12 n	101 29 w	3.72
02	02	891110	15.93	07	67	56			4	056	09 13 n	101 27 w	0.53
02	03	891110	15.93	07	67	56	02	02	4	056			6.37
02	04	891110	15.93	07	67	56	02	02	4	056			0.53
03	01	891110	15.56	67	56	07	02	02	3	056	09 19 n	101 22 w	0.52
04	01	891110	16.11	55	71	73	02	01	3	056	09 21 n	101 16 w	9.67
04	02	891110	16.11	71	73	55	03	01	4	056			12.35
04	03	891110	16.11	73	55	71	03	01	4	056			4.03
05	01	891110	16.11	07	67	56	04	01	3	056	09 32 n	101 03 w	10.20
05	02	891110	16.11	67	56	07	04	01	3	056			1.88
06	01	891110	15.93	56	07	67	05	01	3	056	09 39 n	100 53 w	1.86
06	02	891110	15.93	56	07	67	05	01	3	056			1.59
06	03	891110	15.93	56	07	67			3	056			3.19
06	04	891110	15.93	55	71	73	06	01	2	056	09 42 n	100 49 w	7.96
06	05	891110	15.93	55	71	73			2	056	09 44 n	100 46 w	2.65
06	06	891110	15.93	71	73	55	06	01	1	056			4.78
07	01	891110	15.93	73	55	71	06	02	1	056	09 51 n	100 40 w	5.84
07	02	891110	15.93	07	67	56	06	02	1	056	09 52 n	100 38 w	7.17
08	01	891110	14.63	67	56	07	06	02	1	060	09 56 n	100 35 w	7.32
08	02	891110	14.63	55	71	73			1	060	09 59 n	100 31 w	1.95
09	01	891110	15.56	55	71	73			1	072	10 02 n	100 31 w	0.26
01	01	891111	15.37	56	07	67	01	03	2	065	10 37 n	098 59 w	4.61
02	01	891111	15.19	07	67	56	01	03	1	065	10 38 n	098 56 w	1.77
03	01	891111	15.74	73	55	71	02	02	1	065	10 40 n	098 55 w	6.82
04	01	891111	14.82	55	71	73	02	02	1	065	10 43 n	098 50 w	4.44
05	01	891111	15.56	71	73	55	02	02	2	065	10 43 n	098 44 w	3.37
05	02	891111	15.56	56	07	67	02	01	2	065	10 44 n	098 40 w	7.00
05	03	891111	15.56	56	07	67			3	065	10 46 n	098 36 w	3.37
05	04	891111	15.56	07	67	56	02	01	3	065			5.19
05	05	891111	15.56	07	67	56	03	01	3	065	10 48 n	098 32 w	2.59
05	06	891111	15.56	07	67	56	03	01	3	065			0.52
05	07	891111	15.56	07	67	56			3	065			0.52
06	01	891111	15.37	67	56	07			5	065	10 49 n	098 29 w	8.71
07	01	891111	15.19	73	55	71	04	01	5	065	10 51 n	098 24 w	5.06
07	02	891111	15.19	73	55	71			5	065			4.30
07	03	891111	15.19	55	71	73	04	01	5	065			10.12
07	04	891111	15.19	71	73	55			5	065			10.12
07	05	891111	15.19	56	07	67	05	01	4	065	10 59 n	098 07 w	10.12
07	06	891111	15.19	07	67	56			4	065			5.06
07	07	891111	15.19	07	67	56	06	02	4	065	11 04 n	097 58 w	1.01
08	01	891111	15.19	67	56	07	06	02	4	065	11 03 n	097 55 w	3.04
08	02	891111	15.19	67	56	07	06	02	4	060	11 03 n	097 54 w	5.57
08	03	891111	15.19	73	55	71			4	060	11 05 n	097 52 w	5.32
08	04	891111	15.19	73	55	71			4	098	11 07 n	097 48 w	2.28
08	05	891111	15.19	55	71	73	05	02	4	098	11 06 n	097 47 w	6.58
09	01	891111	15.00	71	73	55			4	098	11 06 n	097 43 w	4.75
09	02	891111	15.00	56	07	67			4	098	11 06 n	097 39 w	6.25
09	03	891111	15.00	56	07	67			4	098	11 05 n	097 36 w	0.25
01	01	891112	15.00	71	73	55			4	076	11 07 n	096 03 w	7.75
01	02	891112	15.00	73	55	71			4	076	11 08 n	095 58 w	7.75
02	01	891112	15.00	55	71	73			4	076	11 08 n	095 53 w	5.25
02	02	891112	15.00	67	56	07			4	076	11 09 n	095 50 w	2.75

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
02	03	891112	15.00	67	56	07			4	076			7.25
02	04	891112	15.00	56	07	67			4	076	11 10 n	095 44 w	0.75
03	01	891112	15.00	71	73	55			4	076	11 12 n	095 33 w	8.00
03	02	891112	15.00	71	73	55	02	01	4	076			1.50
03	03	891112	15.00	73	55	71	02	01	4	076			2.00
03	04	891112	15.00	73	55	71	02	01	5	076			7.75
03	05	891112	15.00	55	71	73	03	01	5	076			10.00
03	06	891112	15.00	67	56	07	03	01	5	076	11 16 n	095 11 w	10.00
03	07	891112	15.00	56	07	67	04	01	5	076			10.00
03	08	891112	15.00	07	67	56	05	01	5	076			3.75
03	09	891112	15.00	07	67	56	05	01	4	076			6.25
03	10	891112	15.00	71	73	55	05	01	4	076	11 21 n	094 49 w	3.00
03	11	891112	15.00	71	73	55	05	01	5	076			2.00
04	01	891112	15.00	71	73	55	05	01	4	076	11 22 n	094 44 w	2.50
04	02	891112	15.00	73	55	71	05	01	5	076			5.00
04	03	891112	15.00	73	55	71			5	076	11 23 n	094 39 w	5.00
04	04	891112	15.00	55	71	73	05	02	5	076			6.25
04	05	891112	15.00	55	71	73	05	02	4	076			3.75
04	06	891112	15.00	67	56	07	05	02	4	076	11 25 n	094 31 w	7.50
04	07	891112	15.00	56	07	67	06	02	4	076	11 27 n	094 26 w	7.50
04	08	891112	15.00	07	67	56	06	03	4	076	11 28 n	094 21 w	6.25
04	09	891112	15.00	07	67	56			4	076			1.25
04	10	891112	15.00	71	73	55			4	076	11 29 n	094 17 w	2.00
04	11	891112	15.00	71	73	55	06	03	4	076			1.75
04	12	891112	15.00	71	73	55			4	076			0.75
04	13	891112	15.00	71	73	55			4	076	11 29 n	094 14 w	0.25
01	01	891113	15.00	07	67	56	01	03	4	080	11 50 n	092 41 w	8.00
01	02	891113	15.00	67	56	07	01	03	4	080	11 51 n	092 36 w	1.00
02	01	891113	15.37	56	07	67	01	02	4	080	11 53 n	092 32 w	8.45
03	01	891113	15.00	55	71	73	01	02	4	090	11 55 n	092 22 w	2.00
04	01	891113	15.56	71	73	55			4	090	11 56 n	092 19 w	1.81
04	02	891113	15.56	71	73	55	01	02	4	090			4.93
04	03	891113	15.56	73	55	71	01	02	4	090			6.22
04	04	891113	15.56	07	67	56	02	01	4	090	11 56 n	092 12 w	10.37
04	05	891113	15.56	67	56	07	02	01	4	090			10.37
04	06	891113	15.56	56	07	67	03	01	4	090			10.37
04	07	891113	15.56	55	71	73	03	01	4	090	11 57 n	091 52 w	10.37
04	08	891113	15.56	71	73	55			4	090			1.81
04	09	891113	15.56	71	73	55	04	01	4	090	11 58 n	091 45 w	1.81
05	01	891113	15.74	07	67	56	05	02	3	085	11 55 n	091 35 w	9.18
05	02	891113	15.74	67	56	07	05	02	3	085	11 57 n	091 28 w	0.79
06	01	891113	15.56	67	56	07			4	085	11 57 n	091 27 w	4.67
06	02	891113	15.56	56	07	67	05	02	3	085			3.63
06	03	891113	15.56	56	07	67			3	085			1.04
06	04	891113	15.56	56	07	67	05	02	3	085	11 57 n	091 20 w	0.52
07	01	891113	15.56	55	71	73	05	02	3	085	11 59 n	091 15 w	2.33
07	02	891113	15.74	55	71	73	02	03	3	180	11 59 n	091 14 w	2.89
07	03	891113	15.74	55	71	73	02	03	3	180	11 59 n	091 13 w	0.26
01	01	891114	15.19	73	55	71			3	208	10 32 n	091 55 w	1.27
02	01	891114	15.56	73	55	71			4	208	10 27 n	091 58 w	1.81
02	02	891114	15.56	73	55	71			3	208	10 26 n	091 59 w	2.33
03	01	891114	15.56	55	71	73			2	208	10 24 n	091 58 w	2.07
03	02	891114	15.56	55	71	73			1	208			1.56

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	01	891114	15.56	55	71	73			2	208			1.30
04	02	891114	15.56	71	73	55	09	02	2	208			5.19
04	03	891114	15.37	56	07	67	09	02	2	208	10 17 n	092 01 w	9.74
04	04	891114	15.37	56	07	67	09	02	2	208			0.51
04	05	891114	15.37	07	67	56	09	02	3	208			2.56
04	06	891114	15.37	07	67	56	09	02	2	208			5.12
04	07	891114	15.37	07	67	56	09	02	1	208	10 08 n	092 07 w	0.26
05	01	891114	15.74	73	55	71			3	213	10 02 n	092 04 w	1.05
05	02	891114	15.74	73	55	71	10	01	3	213			1.31
06	01	891114	15.74	55	71	73	10	01	2	215			6.56
06	02	891114	15.56	71	73	55	11	01	2	215	09 55 n	092 12 w	2.33
06	03	891114	15.56	71	73	55	11	01	1	215			3.37
06	04	891114	15.56	56	07	67	11	01	1	215	09 53 n	092 15 w	3.63
07	01	891114	15.37	07	67	56			2	215	09 48 n	092 21 w	0.51
08	01	891114	15.74	73	55	71			2	215	09 42 n	092 28 w	3.15
09	01	891114	15.19	55	71	73			3	210	09 36 n	092 33 w	5.32
09	02	891114	15.19	71	73	55			3	210	09 33 n	092 35 w	3.04
10	01	891114	15.37	56	07	67			2	210	09 31 n	092 36 w	7.94
10	02	891114	15.37	07	67	56			1	210			4.61
10	03	891114	15.37	07	67	56			1	210			1.79
10	04	891114	15.37	67	56	07			1	210	09 23 n	092 41 w	4.36
11	01	891114	15.37	73	55	71			1	210	09 19 n	092 42 w	1.28
11	02	891114	15.37	73	55	71			1	210	09 18 n	092 43 w	0.26
01	01	891115	15.93	67	56	07			2	220	07 53 n	093 28 w	2.39
02	01	891115	15.56	67	56	07			2	220	07 52 n	093 31 w	0.78
02	02	891115	15.56	56	07	67			2	220			7.52
02	03	891115	15.56	56	07	67	09	02	2	220			1.56
02	04	891115	15.56	07	67	56	09	02	2	220			9.07
02	05	891115	15.56	71	73	55	09	02	3	220	07 41 n	093 38 w	2.33
03	01	891115	15.56	73	55	71			3	220	07 35 n	093 41 w	7.78
03	02	891115	15.56	73	55	71			4	220	07 31 n	093 44 w	2.33
03	03	891115	15.56	55	71	73	09	02	3	220			4.41
04	01	891115	15.56	67	56	07	10	01	2	220	07 23 n	093 54 w	4.15
04	02	891115	15.56	56	07	67	10	01	2	220			5.44
04	03	891115	15.56	07	67	56	11	01	2	220			4.41
04	04	891115	15.56	71	73	55	11	01	3	220	07 18 n	093 58 w	4.93
05	01	891115	15.19	73	55	71	12	01	3	220	07 16 n	094 05 w	2.78
06	01	891115	15.37	73	55	71	12	01	3	220	07 15 n	094 07 w	0.26
07	01	891115	15.74	67	56	07	12	01	2	220	07 11 n	094 11 w	9.45
07	02	891115	15.74	56	07	67	01	02	2	220			7.35
08	01	891115	15.74	71	73	55	01	02	2	220	06 59 n	094 22 w	4.20
08	02	891115	15.74	71	73	55	01	02	1	220			2.89
08	03	891115	15.74	73	55	71	01	02	1	220			0.79
09	01	891115	15.37	73	55	71	01	03	1	220	06 54 n	094 24 w	4.61
09	02	891115	15.37	55	71	73	01	03	1	220	06 52 n	094 26 w	2.56
09	03	891115	15.37	55	71	73	01	03	2	220			1.79
09	04	891115	15.37	55	71	73	01	03	2	220	06 50 n	094 27 w	0.26
01	01	891116	14.08	55	71	73			5	215	05 28 n	095 12 w	7.98
01	02	891116	14.08	71	73	55	09	03	4	215			3.99
01	03	891116	14.08	71	73	55			4	215			4.93
01	04	891116	14.08	73	55	71			4	215	05 18 n	095 17 w	7.04
01	05	891116	14.08	07	67	56			4	215	05 15 n	095 20 w	9.38
01	06	891116	14.08	67	56	07			4	215			9.38

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	07	891116	14.08	56	07	67	09	02	4	215			2.11
01	08	891116	14.08	56	07	67			4	215	05 10 n	095 23 w	4.46
02	01	891116	13.89	55	71	73			4	215	04 53 n	095 33 w	3.24
03	01	891116	14.08	71	73	55			4	215	04 50 n	095 34 w	4.46
03	02	891116	14.08	71	73	55			4	215	04 47 n	095 36 w	1.64
03	03	891116	14.08	73	55	71			4	215			5.86
03	04	891116	14.08	07	67	56			4	210	04 43 n	095 39 w	6.10
03	05	891116	14.08	07	67	56			4	210			0.70
04	01	891116	14.08	67	56	07	12	01	4	210	04 37 n	095 44 w	7.51
04	02	891116	14.08	56	07	67	12	01	4	210	04 32 n	095 46 w	7.74
04	03	891116	14.08	55	71	73	01	01	4	210	04 28 n	095 49 w	2.35
04	04	891116	14.08	55	71	73	01	01	4	200	04 28 n	095 50 w	7.04
04	05	891116	14.08	71	73	55	01	01	4	200	04 24 n	095 51 w	9.38
04	06	891116	14.08	73	55	71			4	200			2.35
04	07	891116	14.08	73	55	71	01	02	4	200	04 18 n	095 54 w	0.70
04	08	891116	14.08	73	55	71	01	02	4	205	04 17 n	095 53 w	6.33
04	09	891116	14.08	07	67	56	01	02	4	205	04 13 n	095 55 w	4.22
04	10	891116	14.08	07	67	56	10	02	4	317	04 11 n	095 56 w	2.82
04	11	891116	15.56	67	56	07	10	02	4	317	04 13 n	095 57 w	6.48
04	12	891116	15.56	67	56	07			4	317			1.30
04	13	891116	15.56	56	07	67	10	03	4	317	04 16 n	096 00 w	7.26
05	01	891116	15.19	55	71	73			4	317	04 24 n	096 08 w	0.25
01	01	891117	15.37	56	07	67	05	03	3	307	05 28 n	097 16 w	8.45
01	02	891117	15.37	07	67	56	05	03	3	307	05 31 n	097 20 w	4.10
01	03	891117	15.37	07	67	56	05	02	3	307			3.84
01	04	891117	15.37	67	56	07	05	02	3	307	05 34 n	097 23 w	7.43
02	01	891117	15.37	73	55	71	06	02	3	307	05 38 n	097 28 w	5.64
02	02	891117	15.37	73	55	71			3	307	05 39 n	097 32 w	4.10
02	03	891117	15.37	55	71	73			3	307			4.87
02	04	891117	15.37	55	71	73	06	02	3	307	05 43 n	097 36 w	5.38
02	05	891117	15.37	71	73	55	06	01	4	307			7.17
03	01	891117	15.37	56	07	67	06	01	3	307	05 48 n	097 42 w	9.99
03	02	891117	15.37	07	67	56	06	01	2	307			4.87
03	03	891117	15.37	07	67	56	07	01	2	307	05 53 n	097 49 w	2.05
04	01	891117	15.37	07	67	56	07	01	2	307	05 55 n	097 50 w	0.51
04	02	891117	15.37	67	56	07	07	01	2	307			7.17
04	03	891117	15.37	67	56	07	07	01	3	307			3.07
04	04	891117	15.37	73	55	71	08	01	3	307	05 58 n	097 54 w	10.25
04	05	891117	15.37	55	71	73	08	01	3	307			3.84
04	06	891117	15.37	55	71	73	09	01	3	307			6.40
04	07	891117	15.37	71	73	55	09	01	3	307			10.25
04	08	891117	15.37	56	07	67	09	01	2	307	06 10 n	098 08 w	10.25
04	09	891117	15.37	07	67	56	10	01	2	307			5.12
04	10	891117	15.37	07	67	56	10	02	2	307	06 16 n	098 14 w	5.12
05	01	891117	15.56	67	56	07	10	02	2	307	06 19 n	098 18 w	5.19
06	01	891117	15.56	73	55	71			3	307	06 22 n	098 21 w	3.37
06	02	891117	15.56	73	55	71	10	02	3	307			3.63
06	03	891117	15.56	55	71	73	10	02	3	307			1.81
07	01	891117	15.56	71	73	55			2	307	06 31 n	098 25 w	1.04
01	01	891118	14.26	71	73	55			4	187	06 30 n	099 26 w	2.61
01	02	891118	14.26	71	73	55			4	187	06 29 n	099 26 w	0.95
02	01	891118	14.26	73	55	71			4	192	06 25 n	099 26 w	5.70
02	02	891118	14.26	55	71	73			4	192			5.23

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
02	03	891118	14.26	67	56	07			4	192	06 18 n	099 27 w	0.95
03	01	891118	14.63	67	56	07			4	192	06 15 n	099 28 w	4.15
03	02	891118	14.63	56	07	67			4	192			8.05
03	03	891118	14.63	56	07	67	10	02	4	192			1.71
03	04	891118	14.63	07	67	56	10	02	4	192			5.36
03	05	891118	14.63	07	67	56			4	192			4.39
03	06	891118	14.63	71	73	55			5	192	06 00 n	099 31 w	6.83
03	07	891118	14.63	71	73	55	10	01	4	192	05 56 n	099 31 w	2.93
03	08	891118	14.63	73	55	71	10	01	5	192			2.19
03	09	891118	14.63	73	55	71			4	192			5.61
04	01	891118	14.26	55	71	73	11	01	4	192	05 46 n	099 32 w	5.94
04	02	891118	14.26	67	56	07	11	01	5	192	05 41 n	099 32 w	9.51
04	03	891118	14.26	56	07	67	12	01	5	192			9.51
04	04	891118	14.26	07	67	56			5	192			9.51
04	05	891118	14.26	71	73	55			5	192	05 25 n	099 34 w	7.84
04	06	891118	14.26	71	73	55			4	192	05 19 n	099 35 w	1.66
04	07	891118	14.26	73	55	71			4	192			2.85
05	01	891118	13.89	73	55	71			4	192	05 15 n	099 36 w	2.31
05	02	891118	13.89	55	71	73			4	192			3.47
05	03	891118	13.89	55	71	73			5	192			5.79
05	04	891118	13.89	67	56	07			5	192	05 09 n	099 37 w	1.62
05	05	891118	13.89	67	56	07			5	192			4.86
06	01	891118	13.70	56	07	67			4	192	04 58 n	099 39 w	2.74
06	02	891118	13.70	71	73	55			4	192	04 56 n	099 39 w	1.60
06	03	891118	13.70	71	73	55	02	03	4	192			2.28
06	04	891118	13.70	71	73	55			4	192			0.69
06	05	891118	13.70	73	55	71			4	192			4.57
06	06	891118	13.70	73	55	71			4	192	04 50 n	099 38 w	0.23
01	01	891119	13.33	07	67	56			4	188	03 23 n	099 47 w	2.44
01	02	891119	13.33	07	67	56			4	188			2.00
02	01	891119	13.89	67	56	07			4	188	03 19 n	099 47 w	1.39
02	02	891119	13.89	67	56	07			4	188			1.39
02	03	891119	13.89	67	56	07			4	182			1.62
02	04	891119	13.89	67	56	07			4	182	03 16 n	099 49 w	1.39
02	05	891119	13.89	56	07	67			4	182			1.62
02	06	891119	13.89	56	07	67	10	02	4	182			4.40
02	07	891119	13.89	55	71	73	10	02	4	182	03 12 n	099 49 w	2.31
02	08	891119	13.89	55	71	73			4	182	03 09 n	099 50 w	2.78
03	01	891119	13.89	71	73	55			4	182	03 07 n	099 48 w	8.10
03	02	891119	13.89	73	55	71	10	02	4	182			4.63
03	03	891119	13.89	73	55	71			4	182			4.63
03	04	891119	13.89	07	67	56			4	182	02 56 n	099 49 w	1.85
04	01	891119	13.89	07	67	56			4	182	02 54 n	099 49 w	3.47
04	02	891119	13.89	07	67	56	11	01	4	182			1.39
04	03	891119	13.89	67	56	07	11	01	4	182			9.26
04	04	891119	13.89	56	07	67			4	182			3.24
04	05	891119	13.89	56	07	67	11	01	4	182			2.78
04	06	891119	13.89	56	07	67			4	182			3.24
04	07	891119	13.89	55	71	73			4	182	02 40 n	099 52 w	9.26
04	08	891119	13.89	71	73	55			4	182			1.16
04	09	891119	13.89	71	73	55			5	182			2.78
04	10	891119	13.89	71	73	55			4	182	02 30 n	099 53 w	5.32
04	11	891119	13.89	73	55	71			4	182			9.26

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
04	12	891119	13.89	07	67	56			4	182	02 21 n	099 55 w	9.26
04	13	891119	13.89	67	56	07			4	182			2.31
04	14	891119	14.45	67	56	07			4	175	02 13 n	099 56 w	2.41
04	15	891119	14.45	67	56	07			5	175	02 12 n	099 56 w	4.82
04	16	891119	14.45	56	07	67			5	175			7.22
04	17	891119	14.45	56	07	67	02	02	5	175			2.41
04	18	891119	14.45	55	71	73	02	02	5	175	02 03 n	099 57 w	7.22
04	19	891119	14.45	71	73	55	02	02	5	175	01 58 n	099 57 w	7.22
04	20	891119	14.45	73	55	71			5	175	01 54 n	099 57 w	7.22
04	21	891119	14.45	07	67	56			5	175	01 49 n	099 57 w	4.82
04	22	891119	14.45	67	56	07			5	175			4.82
04	23	891119	14.45	56	07	67			5	175			2.41
04	24	891119	14.45	56	07	67			5	175	01 41 n	099 59 w	0.24
01	01	891120	15.19	73	55	71			4	250	01 07 n	101 34 w	7.34
01	02	891120	15.19	55	71	73			4	250			7.09
01	03	891120	15.19	71	73	55			4	250	01 05 n	101 43 w	7.09
01	04	891120	15.19	56	07	67			4	250	01 03 n	101 49 w	6.33
02	01	891120	15.19	07	67	56			4	250	00 59 n	102 00 w	7.09
02	02	891120	15.19	67	56	07			4	250	00 57 n	102 07 w	6.83
02	03	891120	15.19	73	55	71			4	250	00 56 n	102 11 w	10.12
02	04	891120	15.19	55	71	73			4	250			10.12
02	05	891120	15.19	71	73	55			4	250			8.10
02	06	891120	15.19	71	73	55	09	01	4	250			2.02
02	07	891120	15.19	56	07	67			4	250	00 51 n	102 33 w	7.34
02	08	891120	15.19	56	07	67	10	01	4	250	00 49 n	102 39 w	2.78
02	09	891120	15.19	07	67	56			4	250			2.02
02	10	891120	15.19	07	67	56	10	01	4	250			2.28
03	01	891120	15.00	67	56	07			4	250	00 46 n	102 51 w	6.00
03	02	891120	15.00	73	55	71			4	250	00 44 n	102 55 w	10.00
03	03	891120	15.00	55	71	73			4	250			8.50
04	01	891120	14.82	71	73	55			4	250	00 45 n	103 11 w	1.48
04	02	891120	14.82	56	07	67			4	250	00 45 n	103 12 w	2.72
04	03	891120	14.82	56	07	67	12	02	4	250			4.69
04	04	891120	14.82	07	67	56	12	02	4	250	00 44 n	103 17 w	1.23
04	05	891120	14.82	07	67	56	01	02	4	215	00 43 n	103 18 w	6.17
04	06	891120	14.82	67	56	07	01	02	4	215	00 41 n	103 21 w	1.98
04	07	891120	14.82	67	56	07			4	215			0.99
04	08	891120	14.82	67	56	07			4	250	00 39 n	103 23 w	4.44
04	09	891120	14.82	73	55	71			4	250	00 38 n	103 26 w	4.94
04	10	891120	14.82	55	71	73			4	250			0.74
04	11	891120	14.82	55	71	73			4	250			1.48
04	12	891120	14.82	55	71	73			4	250	00 37 n	103 32 w	1.73
05	01	891120	14.82	71	73	55			4	250	00 36 n	103 34 w	2.72
06	01	891120	15.00	71	73	55			4	250	00 33 n	103 42 w	0.25
01	01	891121	15.00	67	56	07			4	252	00 08 n	105 27 w	5.75
01	02	891121	15.00	56	07	67			4	252			5.50
01	03	891121	15.00	07	67	56			4	252			2.50
01	04	891121	15.00	07	67	56	07	02	4	252			1.75
01	05	891121	15.00	07	67	56			4	252			1.50
01	06	891121	15.00	71	73	55			4	252	00 06 n	105 39 w	10.50
02	01	891121	15.74	73	55	71			4	330	00 05 n	105 46 w	8.66
02	02	891121	15.74	55	71	73			4	330	00 08 n	105 48 w	8.40
02	03	891121	15.74	67	56	07			4	330	00 14 n	105 50 w	10.49

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	observer codes right	observer codes rec.	sun position horz.	sun position vert.	beauf. no.	course (deg.)	position latitude	position longitude	km in leg
02	04	891121	15.74	56	07	67			4	330			6.03
02	05	891121	15.74	56	07	67			4	319	00 25 n	105 57 w	4.46
02	06	891121	15.74	07	67	56			4	319			10.49
02	07	891121	15.74	71	73	55	06	01	4	319	00 33 n	106 04 w	6.56
02	08	891121	15.74	71	73	55			4	319			3.94
02	09	891121	15.74	73	55	71			4	319			7.08
02	10	891121	15.74	73	55	71	08	01	4	319			3.41
02	11	891121	15.74	55	71	73	08	01	4	319			7.87
02	12	891121	15.74	55	71	73	09	01	4	319			2.62
02	13	891121	15.74	67	56	07	09	01	4	319	00 52 n	106 18 w	10.49
02	14	891121	15.74	56	07	67			4	319			8.13
03	01	891121	15.74	07	67	56			4	319	01 08 n	106 32 w	0.26
04	01	891121	15.37	71	73	55	10	02	4	319	01 12 n	106 34 w	4.87
05	01	891121	15.00	73	55	71			3	319	01 18 n	106 42 w	5.25
05	02	891121	15.00	67	56	07			3	319	01 21 n	106 44 w	0.25
06	01	891121	15.74	56	07	67			3	319	01 25 n	106 49 w	5.51
06	02	891121	15.74	07	67	56			3	319	01 29 n	106 52 w	5.51
01	01	891122	15.56	55	71	73			5	328	02 53 n	108 06 w	5.19
01	02	891122	15.56	71	73	55			5	328			5.19
01	03	891122	15.56	73	55	71			5	328			5.19
01	04	891122	15.56	07	67	56			5	328	03 04 n	108 12 w	10.37
01	05	891122	15.56	67	56	07			5	328			10.37
01	06	891122	15.56	56	07	67			5	328			3.11
02	01	891122	15.74	56	07	67			5	300	03 18 n	108 20 w	2.62
02	02	891122	15.74	55	71	73	06	01	5	300	03 19 n	108 22 w	7.87
02	03	891122	15.74	55	71	73			5	300	03 21 n	108 26 w	2.62
02	04	891122	15.74	71	73	55	06	01	5	300			1.84
03	01	891122	15.37	71	73	55			5	271	03 23 n	108 32 w	2.05
03	02	891122	15.37	73	55	71			5	271			3.59
03	03	891122	15.37	73	55	71	08	01	5	271			6.66
03	04	891122	15.37	07	67	56			5	271	03 22 n	108 39 w	4.61
03	05	891122	15.37	07	67	56			5	275	03 22 n	108 41 w	5.64
03	06	891122	15.37	67	56	07			5	275			10.25
03	07	891122	15.37	56	07	67			5	275			10.25
03	08	891122	15.37	55	71	73			5	275	03 25 n	108 59 w	10.25
03	09	891122	15.37	71	73	55			5	275			6.92
03	10	891122	15.37	71	73	55			5	280			3.33
03	11	891122	15.37	73	55	71			5	280			10.25
03	12	891122	15.37	07	67	56			5	280	03 26 n	109 19 w	7.69
03	13	891122	15.37	67	56	07			5	280	03 27 n	109 24 w	3.84
04	01	891122	15.37	56	07	67			5	280	03 29 n	109 29 w	6.92
04	02	891122	15.37	56	07	67	11	02	5	280			1.28
04	03	891122	15.37	55	71	73	11	02	5	280	03 29 n	109 33 w	6.40
04	04	891122	15.37	55	71	73	11	03	5	280			1.28
04	05	891122	15.37	71	73	55	11	03	5	280	03 31 n	109 39 w	7.69
04	06	891122	15.37	73	55	71	11	03	5	280	03 31 n	109 41 w	6.40
05	01	891122	15.19	73	55	71			5	280	03 33 n	109 51 w	0.25
01	01	891123	15.56	56	07	67			4	326	04 05 n	111 18 w	0.78
01	02	891123	15.56	56	07	67			4	346	04 06 n	111 18 w	7.00
01	03	891123	15.56	07	67	56			4	346	04 09 n	111 20 w	7.78
01	04	891123	15.56	67	56	07			4	346	04 13 n	111 23 w	7.78
01	05	891123	15.56	73	55	71			4	346	04 21 n	111 19 w	10.37
01	06	891123	15.56	55	71	73			4	346			4.67

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	07	891123	15.56	55	71	73			4	346	04 30 n	111 22 w	5.70
01	08	891123	15.56	71	73	55			4	346			3.89
02	01	891123	15.37	71	73	55			4	346	04 36 n	111 22 w	3.59
03	01	891123	15.37	56	07	67	05	01	4	346	04 45 n	111 24 w	5.12
03	02	891123	15.37	07	67	56	06	01	4	346			5.12
03	03	891123	15.37	67	56	07	06	01	4	346			5.12
03	04	891123	15.37	73	55	71			4	346	04 54 n	111 26 w	6.66
03	05	891123	15.37	73	55	71	07	01	4	346			3.59
03	06	891123	15.37	55	71	73	07	01	4	346			10.25
03	07	891123	15.37	71	73	55	08	01	4	346	05 06 n	111 29 w	4.61
04	01	891123	15.74	56	07	67	08	01	4	340	05 09 n	111 30 w	9.18
04	02	891123	15.74	07	67	56	09	02	4	340			9.18
04	03	891123	15.74	67	56	07	09	02	4	340	05 19 n	111 33 w	0.26
05	01	891123	15.00	73	55	71	09	02	4	340	05 20 n	111 33 w	8.00
05	02	891123	15.00	55	71	73	09	02	4	340	05 24 n	111 33 w	5.75
05	03	891123	15.00	71	73	55	09	03	4	340			5.00
05	04	891123	15.00	71	73	55	09	03	4	340	05 31 n	111 35 w	0.25
01	01	891124	15.00	71	73	55			2	342	07 05 n	111 57 w	8.25
01	02	891124	15.00	73	55	71	04	03	2	342			1.25
02	01	891124	15.00	55	71	73	04	02	2	342	07 14 n	111 56 w	2.25
03	01	891124	15.00	55	71	73	04	02	2	342	07 16 n	111 55 w	2.00
04	01	891124	15.19	67	56	07			2	342	07 19 n	111 56 w	4.56
04	02	891124	15.19	67	56	07	04	02	2	342	07 21 n	111 56 w	5.57
04	03	891124	15.19	56	07	67	05	02	2	342			10.12
04	04	891124	15.19	07	67	56	05	01	2	342			5.06
04	05	891124	15.19	07	67	56	05	01	1	342			5.06
04	06	891124	15.19	71	73	55	05	01	1	342	07 33 n	112 00 w	1.01
04	07	891124	15.19	71	73	55	05	01	3	342			2.78
04	08	891124	15.19	71	73	55	05	01	4	342			6.33
04	09	891124	15.19	73	55	71	05	01	4	342			10.12
04	10	891124	15.19	55	71	73	06	01	4	342			9.11
05	01	891124	15.37	67	56	07	07	01	4	342	07 53 n	112 05 w	3.84
06	01	891124	14.82	56	07	67	07	01	3	342	07 56 n	112 06 w	7.41
06	02	891124	14.82	07	67	56	08	01	4	342	08 01 n	112 07 w	0.99
07	01	891124	15.37	07	67	56	08	01	4	342	08 01 n	112 06 w	4.10
07	02	891124	15.37	71	73	55	08	01	4	342	08 04 n	112 07 w	8.97
08	01	891124	15.37	73	55	71	08	02	4	342	08 09 n	112 15 w	6.15
08	02	891124	15.37	55	71	73	09	02	4	342			5.12
08	03	891124	15.19	67	56	07	09	02	4	342	08 16 n	112 17 w	7.59
08	04	891124	15.19	56	07	67	09	02	4	342	08 20 n	112 18 w	7.09
08	05	891124	15.19	56	07	67	08	02	4	353			0.51
08	06	891124	15.19	07	67	56	08	02	4	353	08 27 n	112 20 w	2.53
08	07	891124	15.19	07	67	56	08	03	4	353			5.06
08	08	891124	15.19	71	73	55	08	03	4	353	08 31 n	112 21 w	5.57
08	09	891124	15.19	71	73	55	08	03	4	353			2.02
08	10	891124	15.19	71	73	55			4	353	08 36 n	112 22 w	0.25
01	01	891125	13.89	07	67	56			5	010	10 08 n	112 24 w	2.55
01	02	891125	13.89	07	67	56	03	03	5	010			0.93
01	03	891125	13.89	07	67	56			5	010	10 11 n	112 23 w	2.08
01	04	891125	13.89	07	67	56	03	03	5	010			0.23
01	05	891125	13.89	67	56	07	03	03	5	010			6.25
01	06	891125	13.89	56	07	67	03	02	5	010			6.02
01	07	891125	13.89	55	71	73			5	010	10 20 n	112 23 w	3.70

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
01	08	891125	13.89	55	71	73	04	02	5	010			2.78
02	01	891125	13.52	71	73	55	04	02	5	016	10 29 n	112 28 w	5.63
02	02	891125	13.52	07	67	56	04	01	5	016	10 31 n	112 29 w	4.51
02	03	891125	13.52	67	56	07	04	01	5	016			4.51
02	04	891125	13.52	56	07	67	04	01	5	016			4.51
03	01	891125	13.70	55	71	73	05	01	5	016	10 49 n	112 26 w	4.57
03	02	891125	13.70	71	73	55	05	01	5	016			4.57
03	03	891125	13.70	73	55	71	06	01	5	016			1.14
04	01	891125	13.89	07	67	56	07	01	5	016	11 07 n	112 19 w	4.63
04	02	891125	13.89	67	56	07	07	01	5	016			4.63
04	03	891125	13.89	56	07	67	07	01	5	016			9.26
04	04	891125	13.89	07	67	56	07	02	5	016			4.63
04	05	891125	13.89	67	56	07	07	02	5	016			4.63
04	06	891125	13.89	55	71	73	07	02	5	016	11 27 n	112 15 w	6.94
04	07	891125	13.89	71	73	55	07	02	5	016	11 30 n	112 14 w	0.93
04	08	891125	13.89	71	73	55			5	008			0.93
04	09	891125	13.89	71	73	55	08	02	5	008			5.09
04	10	891125	13.89	73	55	71	08	02	5	008	11 35 n	112 13 w	2.08
04	11	891125	13.89	73	55	71			5	008			0.93
04	12	891125	13.89	73	55	71			4	345	11 37 n	112 13 w	1.62
04	13	891125	13.89	73	55	71	09	03	4	345			2.31
04	14	891125	13.89	07	67	56	09	03	4	345	11 40 n	112 14 w	2.31
01	01	891126	13.15	73	55	71			5	350	13 15 n	112 38 w	6.14
01	02	891126	13.15	55	71	73	04	03	5	350			5.92
01	03	891126	13.15	71	73	55	04	03	5	350	13 20 n	112 38 w	5.92
01	04	891126	13.15	56	07	67	04	02	5	350	13 24 n	112 39 w	4.38
01	05	891126	13.15	07	67	56	04	02	5	350			4.38
01	06	891126	13.15	67	56	07	04	02	5	350			4.38
01	07	891126	13.15	67	56	07	04	02	5	350	13 31 n	112 40 w	0.22
01	01	891127	14.26	67	56	07			4	048	16 02 n	112 04 w	5.23
01	02	891127	14.26	56	07	67			4	048			4.99
01	03	891127	14.26	56	07	67	02	03	4	048			0.48
01	04	891127	14.26	07	67	56	02	02	4	048			5.47
01	05	891127	14.26	71	73	55			4	048	16 08 n	111 56 w	1.90
01	06	891127	14.26	71	73	55	02	02	4	048			7.61
01	07	891127	14.26	73	55	71	02	02	4	048			9.51
01	08	891127	14.26	55	71	73			4	048			2.38
01	09	891127	14.26	55	71	73			4	044	16 18 n	111 44 w	7.13
01	10	891127	14.26	67	56	07			4	044	16 21 n	111 40 w	8.08
01	11	891127	14.26	67	56	07	03	01	4	044			1.43
01	12	891127	14.26	56	07	67	03	01	4	044			9.51
01	13	891127	14.26	07	67	56	04	01	4	044			9.51
01	14	891127	14.26	71	73	55	04	01	4	044	16 33 n	111 27 w	7.13
01	15	891127	14.26	71	73	55	05	01	4	044	16 36 n	111 23 w	2.38
01	16	891127	14.26	73	55	71	05	01	4	044			9.51
01	17	891127	14.26	55	71	73	05	01	4	044			4.75
01	18	891127	14.26	55	71	73	06	01	4	044	16 43 n	111 16 w	3.09
02	01	891127	14.45	67	56	07	06	02	4	044	16 48 n	111 06 w	4.33
02	02	891127	14.45	56	07	67	06	02	4	044			4.33
02	03	891127	14.45	07	67	56			4	044			4.33
02	04	891127	14.45	71	73	55	06	02	4	044	16 54 n	111 00 w	6.02
03	01	891127	14.08	73	55	71			4	044	16 59 n	111 00 w	5.63
03	02	891127	14.08	55	71	73	07	03	4	044			2.35

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
03	03	891127	14.08	55	71	73			4	044			2.35
03	04	891127	14.08	67	56	07			4	044	17 03 n	110 55 w	3.28
03	05	891127	14.08	67	56	07			4	044	17 05 n	110 54 w	0.00
01	01	891128	14.82	55	71	73			3	044	18 12 n	109 37 w	2.22
01	02	891128	14.82	55	71	73	02	03	3	044			1.23
01	03	891128	14.82	55	71	73	02	03	3	039			1.48
02	01	891128	14.82	71	73	55	03	03	3	039	18 16 n	109 35 w	0.74
02	02	891128	14.82	71	73	55	02	03	3	056	18 16 n	109 34 w	3.70
02	03	891128	14.82	07	67	56	02	02	2	056	18 18 n	109 32 w	9.88
02	04	891128	14.82	67	56	07	02	02	2	056			9.38
02	05	891128	14.82	67	56	07	02	02	3	056			0.49
02	06	891128	14.82	56	07	67	03	02	3	056	18 25 n	109 20 w	0.74
03	01	891128	15.19	56	07	67	02	02	3	092	18 28 n	109 17 w	1.27
04	01	891128	15.00	55	71	73	02	02	3	092	18 28 n	109 16 w	8.75
05	01	891128	15.00	71	73	55	02	01	3	092	18 27 n	109 07 w	0.75
06	01	891128	14.63	73	55	71			3	092	18 27 n	109 01 w	5.85
06	02	891128	14.63	07	67	56	03	01	3	092	18 27 n	108 57 w	5.36
06	03	891128	14.63	07	67	56			3	092			4.39
06	04	891128	14.63	67	56	07	03	02	3	092			9.75
06	05	891128	14.63	56	07	67	04	01	3	092			9.75
06	06	891128	14.63	55	71	73	04	02	2	092	18 24 n	108 37 w	2.93
06	07	891128	14.63	55	71	73			1	092			6.34
07	01	891128	15.19	71	73	55	04	02	1	092	18 23 n	108 30 w	2.78
07	02	891128	15.19	71	73	55			1	092	18 23 n	108 28 w	0.76
07	03	891128	15.19	71	73	55	04	02	1	092			5.82
07	04	891128	15.19	73	55	71	05	02	2	092	18 22 n	108 24 w	7.09
07	05	891128	15.19	73	55	71			2	085	18 23 n	108 19 w	0.76
08	01	891128	15.00	07	67	56	05	03	3	080	18 23 n	108 16 w	4.75
08	02	891128	15.00	67	56	07	05	03	3	080			4.50
08	03	891128	15.00	56	07	67	05	03	3	080			4.00
08	04	891128	15.00	56	07	67			3	080	18 25 n	108 07 w	0.25
01	01	891129	14.08	56	07	67			3	078	18 38 n	106 23 w	4.46
01	02	891129	14.08	56	07	67			4	078	18 38 n	106 20 w	3.05
01	03	891129	14.08	07	67	56			4	078	18 39 n	106 16 w	2.11
01	04	891129	14.08	07	67	56	01	03	4	078			4.46
01	05	891129	14.08	67	56	07	01	03	4	078	18 39 n	106 13 w	7.04
01	06	891129	14.08	73	55	71	02	02	4	078	18 40 n	106 08 w	2.58
02	01	891129	14.08	55	71	73	02	02	4	078	18 43 n	106 07 w	8.91
02	02	891129	14.08	71	73	55	02	02	4	078			7.27
03	01	891129	14.08	56	07	67	03	01	4	075	18 46 n	105 54 w	5.40
03	02	891129	14.08	07	67	56	03	01	4	075			5.86
03	03	891129	14.08	67	56	07	03	01	4	075	18 47 n	105 47 w	5.40
03	04	891129	14.08	73	55	71	04	01	4	075	18 49 n	105 45 w	1.17
04	01	891129	14.26	55	71	73	04	01	4	075	18 50 n	105 43 w	0.95
05	01	891129	14.45	71	73	55			4	025	18 51 n	105 42 w	3.13
05	02	891129	14.45	71	73	55			4	075	18 53 n	105 41 w	1.93
05	03	891129	14.45	71	73	55	05	02	4	075	18 53 n	105 40 w	0.96
05	04	891129	14.45	56	07	67	05	02	4	075	18 53 n	105 39 w	3.37
06	01	891129	14.82	56	07	67			4	075	18 54 n	105 37 w	4.94
06	02	891129	14.82	07	67	56			4	075			6.67
06	03	891129	14.82	07	67	56			4	082	18 56 n	105 29 w	1.98
06	04	891129	14.82	07	67	56	05	02	4	082			1.23
06	05	891129	14.82	67	56	07	05	02	4	082			3.70

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
07	01	891129	15.19	67	56	07			3	082	18 56 n	105 23 w	5.57
07	02	891129	15.19	73	55	71			3	082	18 56 n	105 20 w	0.76
08	01	891129	15.37	73	55	71			3	082	18 57 n	105 18 w	3.33
08	02	891129	15.37	55	71	73			3	082	18 57 n	105 16 w	4.87
08	03	891129	15.37	55	71	73			2	082			2.56
08	04	891129	15.37	71	73	55			2	082	18 56 n	105 10 w	3.33
08	05	891129	15.37	71	73	55			2	082	18 56 n	105 08 w	0.26
01	01	891201	15.74	71	73	55			1	277	19 07 n	104 47 w	9.45
01	02	891201	15.74	71	73	55			1	320	19 08 n	104 55 w	1.05
01	03	891201	15.74	73	55	71			1	320			10.49
01	04	891201	15.74	55	71	73			2	320			10.49
02	01	891201	15.74	56	67	07			2	277	19 19 n	105 04 w	0.79
03	01	891201	15.74	67	07	56			2	277	19 21 n	105 06 w	5.77
03	02	891201	15.74	67	07	56			2	277	19 21 n	105 10 w	0.26
01	01	891202	15.37	07	56	67			4	289	19 42 n	107 02 w	7.43
01	02	891202	15.37	56	67	07			4	289			7.17
01	03	891202	15.37	67	07	56			4	289	19 45 n	107 11 w	3.84
01	04	891202	15.37	67	07	56	06	02	4	289			3.33
01	05	891202	15.37	55	71	73	06	02	4	289	19 46 n	107 16 w	4.10
02	01	891202	15.19	71	73	55	06	02	4	303	19 45 n	107 23 w	9.11
02	02	891202	15.19	73	55	71	06	02	4	303			9.11
02	03	891202	15.19	07	56	67	07	02	4	303	19 52 n	107 32 w	4.30
02	04	891202	15.19	07	56	67	07	01	4	283			5.82
02	05	891202	15.19	56	67	07	08	01	4	283			5.06
02	06	891202	15.19	56	67	07	07	01	4	305	19 54 n	107 41 w	5.06
02	07	891202	15.19	67	07	56	07	01	4	305			6.33
02	08	891202	15.19	67	07	56	08	01	4	305			3.80
02	09	891202	15.19	55	71	73	08	01	4	305	19 59 n	107 50 w	10.12
02	10	891202	15.19	71	73	55	08	01	4	305			10.12
02	11	891202	15.19	73	55	71	09	01	4	305			10.12
02	12	891202	15.19	07	56	67	09	02	5	305	20 09 n	108 07 w	4.05
02	13	891202	15.19	07	56	67	09	02	5	305			6.07
02	14	891202	15.19	56	67	07	09	02	5	305			10.12
02	15	891202	15.19	67	07	56	10	02	5	305			10.12
02	16	891202	15.19	55	71	73	10	02	5	305	20 20 n	108 24 w	7.34
03	01	891202	15.00	71	73	55	10	03	4	305	20 23 n	108 29 w	5.75
03	02	891202	15.00	73	55	71	10	03	4	305			5.50
03	03	891202	15.00	73	55	71			4	305	20 27 n	108 32 w	0.25
01	01	891203	15.19	73	55	71			4	322	21 29 n	110 14 w	6.07
01	02	891203	15.19	55	71	73			4	322			5.82
01	03	891203	15.19	71	73	55			4	322			6.07
02	01	891203	15.56	67	07	56	05	02	4	322	21 38 n	110 21 w	7.52
03	01	891203	15.93	07	56	67	06	02	4	318	21 46 n	110 26 w	5.31
03	02	891203	15.93	56	67	07	06	02	4	318	21 48 n	110 30 w	5.31
03	03	891203	15.93	73	55	71	06	02	4	318	21 50 n	110 32 w	5.31
03	04	891203	15.93	55	71	73	07	02	4	318			10.62
03	05	891203	15.93	55	71	73	07	01	3	318	21 57 n	110 38 w	5.31
03	06	891203	15.93	71	73	55	07	01	4	318	21 59 n	110 41 w	8.76
03	07	891203	15.93	71	73	55	07	01	3	318	22 03 n	110 44 w	1.86
03	08	891203	15.93	67	07	56	07	01	3	318	22 05 n	110 47 w	7.96
03	09	891203	15.93	67	07	56	08	01	3	318	22 10 n	110 50 w	2.65
03	10	891203	15.93	07	56	67	08	01	3	318			10.62
03	11	891203	15.93	56	67	07	08	02	3	318			10.62

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
03	12	891203	15.93	73	55	71	08	02	3	318	22 20 n	111 00 w	10.62
03	13	891203	15.93	55	71	73	09	02	3	318			7.96
03	14	891203	15.93	55	71	73	09	02	4	318			2.65
03	15	891203	15.93	71	73	55	09	02	4	318			2.65
03	16	891203	15.93	71	73	55	09	02	4	318	22 32 n	111 11 w	7.96
03	17	891203	15.93	67	07	56	09	02	4	318	22 36 n	111 15 w	3.72
03	18	891203	15.93	67	07	56	09	02	4	332	22 38 n	111 17 w	4.25
03	19	891203	15.93	07	56	67	09	03	4	332	22 40 n	111 18 w	1.59
04	01	891203	17.59	56	67	07	09	03	4	318	22 43 n	111 22 w	2.64
04	02	891203	17.59	56	67	07	09	03	4	332			5.28
04	03	891203	17.59	56	67	07	09	03	4	332	22 46 n	111 25 w	0.29
01	01	891204	16.85	56	67	07	05	03	3	322	24 14 n	112 47 w	8.43
01	02	891204	16.85	67	07	56	05	03	3	322	24 18 n	112 50 w	8.43
01	03	891204	16.85	71	73	55	05	02	3	322	24 22 n	112 54 w	8.43
01	04	891204	16.85	71	73	55	05	02	4	322	24 26 n	112 57 w	2.81
01	05	891204	16.85	55	71	73	05	02	4	322			11.24
01	06	891204	16.85	55	71	73	06	02	4	322			11.24
01	07	891204	16.85	56	67	07	06	02	4	322	24 38 n	113 07 w	11.24
01	08	891204	16.85	67	07	56	06	02	4	322			5.62
01	09	891204	16.85	67	07	56	06	02	3	322	24 44 n	113 11 w	3.37
01	10	891204	16.85	67	07	56	07	02	3	322			2.25
01	11	891204	16.85	07	56	67	07	01	2	322			11.24
01	12	891204	16.85	71	73	55	07	01	2	322	24 54 n	113 20 w	6.46
01	13	891204	16.85	71	73	55	09	01	2	270	24 58 n	113 23 w	2.81
02	01	891204	17.04	73	55	71	10	02	3	270	25 01 n	113 31 w	7.67
03	01	891204	16.67	56	67	07	10	02	3	270	25 02 n	113 37 w	9.17
03	02	891204	16.85	67	07	56	10	02	4	270			5.34
03	03	891204	16.67	67	07	56	07	02	4	014	25 03 n	113 48 w	5.83
03	04	891204	16.67	07	56	67	07	02	4	014			11.11
03	05	891204	16.67	71	73	55	07	02	4	014	25 13 n	113 46 w	8.33
03	06	891204	16.67	73	55	71	07	02	4	014	25 17 n	113 43 w	3.61
03	07	891204	16.67	73	55	71	09	03	4	322	25 19 n	113 42 w	4.72
03	08	891204	16.67	55	71	73	09	03	4	322	25 21 n	113 44 w	6.39
03	09	891204	16.67	55	71	73	09	03	4	337	25 24 n	113 47 w	1.67
03	10	891204	16.67	55	71	73	09	03	4	337	25 25 n	113 47 w	0.28
01	01	891205	16.85	55	71	73	05	03	4	330	26 57 n	114 56 w	9.55
01	02	891205	16.85	71	73	55	05	03	4	330			3.09
02	01	891205	16.85	71	73	55	05	02	4	334	27 05 n	115 00 w	3.37
02	02	891205	16.85	73	55	71	05	02	4	334			9.55
02	03	891205	16.85	07	56	67	05	02	4	334	27 12 n	115 03 w	10.11
02	04	891205	16.85	07	56	67	05	02	3	334	27 19 n	115 06 w	1.12
02	05	891205	16.85	56	67	07	05	02	3	334			8.15
03	01	891205	17.59	67	07	56	06	02	4	334	27 23 n	115 10 w	8.21
04	01	891205	17.59	55	71	73	06	01	4	334	27 26 n	115 11 w	5.86
04	02	891205	17.59	71	73	55	07	01	4	334			5.86
04	03	891205	17.59	73	55	71	07	02	4	334			5.86
04	04	891205	17.59	07	56	67	07	02	4	334	27 36 n	115 16 w	4.40
05	01	891205	17.59	56	67	07	08	02	3	334	27 39 n	115 20 w	8.50
05	02	891205	17.59	67	07	56	08	02	3	334	27 44 n	115 23 w	4.40
06	01	891205	15.93	55	71	73	08	02	4	334	27 47 n	115 24 w	2.39
07	01	891205	17.41	71	73	55	08	02	4	334	27 48 n	115 27 w	2.90
07	02	891205	17.41	71	73	55	08	02	4	350	27 50 n	115 27 w	6.67
07	03	891205	17.41	73	55	71	08	02	4	350	27 51 n	115 28 w	5.51

Table 2. (continued)

series	leg	date	speed km/hr	observer codes left	right	rec.	sun position horz.	vert.	beauf. no.	course (deg.)	position latitude	longitude	km in leg
07	04	891205	17.41	73	55	71	08	03	4	350			1.45
08	01	891205	17.22	07	56	67	08	03	4	350	27 59 n	115 30 w	1.72
08	02	891205	17.22	07	56	67	08	03	4	350	28 00 n	115 30 w	0.29

Table 3. Marine mammal sightings, classified by species code groups, encountered in the eastern tropical Pacific during July 29 through December 7, 1989.

Sightings by Species

species: OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA) species code: 2

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890804	03	04	04	01	01	2	05	3.2	17 23 n	116 16 w	100.0	346.0	256.0
890805	01	12	03	01	01	4	51	1.9	18 39 n	113 02 w	95.0	20.0	15.0
890805	02	09	04	07	01	4	74	2.1	18 44 n	112 35 w	100.0	55.0	33.0
890806	02	01	02	06	02	3	74	0.6	19 16 n	110 16 w	100.0	56.0	46.0
890808	04	02	05	07	02	2	01	4.1	17 29 n	109 11 w	6.0	40.0	31.0
890808	08	02	12	01	01	3	45	9.2	16 46 n	109 58 w	46.7	433.0	297.0
890810			12	07	01	3	04	2.5	17 24 n	107 18 w	50.0	25.0	12.0
890810	04	04	06	01	02	4	51	0.1	16 53 n	108 20 w	100.0	0.0*	2.0
890811	03	04	11	01	01	1	05	3.9	18 45 n	104 47 w	100.0	0.0*	2.0
890812			08	07	02	2	74	0.3	17 31 n	105 47 w	15.0	585.0	503.0
890812	04	01	09	08	01	2	22	0.8	17 37 n	105 54 w	45.0	52.0	43.0
890812	05	03	10	12	12	1	05	0.1	17 28 n	106 01 w	100.0	1.0	1.0
890812	07	01	13	01	12	1	01	4.0	17 20 n	106 06 w	25.5	292.0	237.0
890813	04	01	02	08	01	3	51	1.7	15 29 n	108 03 w	100.0	60.0	49.0
890813	09	01	09	02	03	3	51	0.1	14 47 n	108 01 w	27.5	35.0	28.0
890814			04	12	12	4	04	2.3	13 24 n	111 11 w	100.0	40.0	25.0
890816			01	01	03	5	01	0.3	12 04 n	118 41 w	35.0	150.0	130.0
890817	02	07	01	10	02	3	01	1.6	10 46 n	117 43 w	75.0	0.0*	190.0
890817	05	03	04			4	51	0.5	10 20 n	117 10 w	31.7	0.0*	29.0
890822	02	01	02			2	74	3.6	10 48 n	103 15 w	15.0	288.0	223.0
890822	05	10	03			3	22	0.9	11 19 n	102 32 w	31.7	733.0	583.0
890823			05	01	01	2	99	10.2	11 54 n	100 15 w	16.8	337.0	269.0
890823	05	02	07	08	01	2	74	1.4	11 55 n	100 04 w	56.7	147.0	83.0
890824	01	01	01			2	01	0.9	12 22 n	097 51 w	100.0	282.0	228.0
890824	04	02	06	12	12	1	51	1.8	12 25 n	097 31 w	89.3	338.0	270.0
890824	07	02	08			1	22	5.5	12 27 n	097 08 w	65.7	0.0*	125.0
890824	10	01	13	07	02	2	45	4.9	12 36 n	096 52 w	100.0	85.0	108.0
890825	01	01	02	12	03	0	74	0.7	12 53 n	095 07 w	63.7	153.0	119.0
890825	02	02	03	01	03	0	74	4.0	12 52 n	095 01 w	100.0	158.0	133.0
890905	02	03	02	06	02	3	45	6.5	14 14 n	099 04 w	68.3	195.0	153.0
890905	03	01	03	06	02	3	45	4.3	14 20 n	099 11 w	100.0	0.0*	4.0
890905	04	02	05	07	01	3	74	5.7	14 21 n	099 27 w	32.0	92.0	70.0
890905	06	03	08	11	01	2	22	1.3	14 24 n	099 44 w	99.0	182.0	112.0
890905	06	03	09	11	01	2	45	0.5	14 24 n	099 44 w	100.0	26.0	22.0
890905	06	03	10	11	01	2	22	0.6	14 24 n	099 47 w	100.0	8.0	6.0
890905	07	03	13	12	01	2	74	6.8	14 27 n	100 01 w	24.3	513.0	405.0
890905	08	03	16	01	02	2	51	1.4	14 22 n	100 12 w	78.3	257.0	127.0
890906	01	05	02	06	02	3	74	2.5	14 39 n	102 09 w	100.0	175.0	138.0
890906	02	01	04	06	02	3	01	5.1	14 38 n	102 18 w	100.0	175.0	115.0
890906	05	03	06	05	12	3	01	3.6	14 37 n	102 39 w	100.0	27.0	19.0
890906	06	01	08	10	12	3	51	3.5	14 39 n	102 43 w	94.7	220.0	143.0

Table 3. (continued)

Sightings by Species

species: OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA) species code: 2

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890906	07	02	09	09	01	2	22	0.1	14 41 n	102 47 w	30.0	28.0	25.0
890906	09	02	11	05	01	2	05	4.1	14 51 n	102 46 w	95.0	0.0*	75.0
890906	10	01	13	05	02	2	51	1.7	14 51 n	102 44 w	89.3	80.0	64.0
890906	12	05	25	05	03	1	45	1.2	14 45 n	102 25 w	88.0	0.0*	102.0
890907	01	01	01			1	51	0.8	15 25 n	101 12 w	100.0	240.0	200.0
890907	01	01	03			1	51	2.7	15 24 n	101 11 w	99.0	65.0	40.0
890907	01	03	04	10	03	1	01	3.0	15 20 n	101 07 w	100.0	114.0	92.0
890907	06	06	15			2	51	1.2	14 36 n	100 32 w	100.0	11.0	7.0
890910	01	04	01			3	05	0.0	15 15 n	100 09 w	100.0	0.0*	12.0
890910	02	08	02			3	22	4.6	15 50 n	100 07 w	39.3	203.0	173.0
890910	05	03	04			3	05	6.0	16 07 n	100 09 w	62.7	95.0	67.0
890914	03	03	05	08	01	2	04	2.0	16 09 n	100 27 w	31.7	0.0*	250.0
890914	04	02	08	11	12	0	51	0.0	15 54 n	100 37 w	32.2	510.0	311.0
890915			05			2	04	2.6	12 50 n	102 53 w	100.0	0.0*	25.0
890915	03	01	03	08	02	2	05	1.4	13 32 n	102 26 w	100.0	120.0	102.0
890915	04	02	04	08	01	2	51	3.2	13 25 n	102 30 w	65.3	51.0	38.0
890916	01	03	01	08	02	5	22	2.4	10 41 n	104 19 w	40.0	80.0	57.0
890919	01	18	02	05	01	5	01	6.4	04 58 n	108 57 w	70.0	0.0*	47.0
890923	02	11	02	12	01	5	51	0.7	02 33 n	096 38 w	100.0	0.0*	75.0
890923	06	01	05			5	51	0.0	02 37 n	095 52 w	1.7	55.0	20.0
890924	01	02	02			5	45	1.3	02 15 n	094 18 w	68.3	275.0	210.0
890924	03	14	05			5	22	0.5	01 55 n	093 03 w	42.0	163.0	130.0
890926	02	05	03			5	01	4.9	00 59 n	089 43 w	100.0	163.0	133.0
890927	01	06	01			4	22	0.4	00 17 n	086 46 w	100.0	12.0	10.0
891009	05	02	03			5	55	1.2	04 21 n	082 22 w	100.0	41.0	30.0
891023	03	06	11	06	01	0	07	3.2	13 12 n	100 19 w	53.3	123.0	112.0
891023	05	02	17	08	01	0	71	0.2	13 35 n	100 29 w	68.0	241.0	228.0
891023	05	02	19	08	01	0	73	0.2	13 38 n	100 31 w	100.0	22.0	18.0
891023	06	02	22	09	02	1	67	6.1	13 48 n	100 40 w	100.0	250.0	200.0
891023	07	02	27	10	03	1	67	3.2	14 07 n	100 50 w	100.0	127.0	107.0
891024	01	02	01	04	03	2	73	2.9	15 55 n	102 02 w	100.0	10.0	9.0
891102	01	13	02			4	73	2.4	16 29 n	102 54 w	51.7	183.0	157.0
891102	03	02	04	12	01	3	71	0.1	16 08 n	103 26 w	53.0	1508.0	1258.0
891102	04	02	06	11	02	3	56	0.1	16 04 n	103 37 w	35.7	441.0	395.0
891103	01	04	01	08	03	2	07	4.8	15 50 n	105 37 w	100.0	31.0	22.0
891103	08	03	08	11	01	1	67	0.4	15 08 n	106 03 w	100.0	92.0	77.0
891104	01	01	01			2	55	3.0	13 34 n	107 43 w	100.0	60.0	52.0
891104	02	01	03	08	03	2	73	4.9	13 28 n	107 44 w	5.8	127.0	104.0
891104	05	02	07	12	01	3	55	1.9	12 53 n	108 17 w	100.0	81.0	71.0
891105	01	10	02	02	02	4	56	0.8	13 11 n	107 05 w	83.3	118.0	102.0
891105	05	02	05	06	02	3	55	6.0	13 33 n	106 17 w	45.0	72.0	60.0
891106	04	05	04	12	01	4	71	3.8	12 57 n	105 18 w	27.2	325.0	254.0
891107	01	01	01	08	03	3	07	3.6	10 48 n	106 29 w	20.0	390.0	350.0
891107	02	04	03	11	02	3	71	1.3	10 34 n	106 31 w	14.0	82.0	158.0

Table 3. (continued)

Sightings by Species

species: OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA) species code: 2

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891108	01	02	01	10	03	2	55	3.9	07 45 n	106 02 w	100.0	30.0	27.0
891109	05	04	03			4	07	3.9	07 52 n	103 15 w	100.0	267.0	193.0
891110	04	03	04	03	01	4	55	0.1	09 24 n	101 13 w	100.0	16.0	14.0
891110	05	02	05	04	01	3	56	3.9	09 35 n	100 58 w	100.0	233.0	198.0
891110	06	06	08	06	01	1	71	3.1	09 47 n	100 42 w	96.8	212.0	190.0
891113	01	02	02	01	03	4	56	1.1	11 51 n	092 35 w	56.7	170.0	132.0
891113	04	09	05	04	01	4	73	4.4	11 58 n	091 45 w	74.0	437.0	375.0
891113	07	02	13	02	03	3	55	0.9	11 59 n	091 13 w	92.0	0.0*	273.0
891114	05	02	05	10	01	3	55	4.5	10 01 n	092 04 w	82.0	282.0	249.0
891117	07	01	06			2	71	1.8	06 31 n	098 26 w	100.0	182.0	148.0
891120	01	04	02			4	07	0.9	01 02 n	101 53 w	80.0	182.0	148.0
891120	02	10	03	10	01	4	07	0.2	00 48 n	102 44 w	95.0	163.0	137.0
891120	03	03	07			4	71	4.5	00 40 n	103 08 w	71.7	93.0	80.0
891120	05	01	10			4	73	0.5	00 35 n	103 36 w	100.0	60.0	50.0
891123	02	01	02			4	73	3.6	04 37 n	111 23 w	95.0	183.0	147.0
891125	01	08	01	04	02	5	55	2.0	10 24 n	112 22 w	50.0	65.0	47.0
891127	01	18	04	06	01	4	71	5.0	16 45 n	111 14 w	100.0	108.0	98.0
891129	01	05	01	01	03	4	67	5.9	18 39 n	106 12 w	43.3	212.0	190.0
891129	02	01	02	02	02	4	71	0.0	18 44 n	106 01 w	65.3	195.0	175.0
891202	01	05	01	06	02	4	55	4.1	19 47 n	107 18 w	100.0	98.0	88.0

Table 3. (continued)

Sightings by Species

species: SPINNER DOLPHIN (STENELLA LONGIROSTRIS) species code: 3

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
				horz.	vert.								
yrmody			number			number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890817	02	07	01	10	02	3	01	1.6	10 46 n	117 43 w	25.0	0.0*	190.0
890823			05	01	01	2	99	10.2	11 54 n	100 15 w	83.2	337.0	269.0
890825	10	01	08	07	03	2	74	1.9	13 15 n	094 46 w	25.0	150.0	75.0
890903			03	02	02	2	05	2.6	13 36 n	092 32 w	100.0	0.0*	75.0
890903			05	06	01	2	22	3.7	13 38 n	092 35 w	100.0	0.0*	100.0
890903			06	06	01	2	05	0.2	13 38 n	092 38 w	11.0	77.0	0.0*
890903			16	11	02	1	04	0.8	13 53 n	093 35 w	100.0	0.0*	1.0
890903	01	03	01	05	02	3	51	3.8	13 34 n	092 29 w	66.0	591.0	483.0
890903	05	15	11	11	01	1	22	8.3	13 47 n	093 20 w	6.3	376.0	285.0
890903	08	05	19	01	02	3	22	6.2	13 52 n	093 52 w	46.7	337.0	198.0
890904			09	11	02	1	99	0.0	13 57 n	096 59 w	100.0	7.0	7.0
890904	02	05	02	06	01	2	01	8.2	14 00 n	096 05 w	37.2	247.0	185.0
890904	04	01	05	12	12	2	51	4.4	13 54 n	096 23 w	27.5	378.0	300.0
890904	09	04	10	11	02	1	01	0.7	13 57 n	097 00 w	100.0	16.0	16.0
890904	10	01	11	11	02	1	74	2.5	13 58 n	097 02 w	75.0	263.0	218.0
890915	04	02	04	08	01	2	51	3.2	13 25 n	102 30 w	1.3	51.0	38.0
890919	01	18	02	05	01	5	01	6.4	04 58 n	108 57 w	30.0	0.0*	47.0
891014	01	04	02	08	02	4	71	2.3	05 54 n	086 34 w	100.0	167.0	139.0

Table 3. (continued)

Sightings by Species

species: COASTAL SPOTTED DOLPHIN (S.A. GRAFFMANI) species code: 6

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891201			01			1	71	1.0	19 03 n	104 24 w	100.0	35.0	26.0
891201	02	01	04			2	56	3.8	19 19 n	105 04 w	100.0	18.0	14.0

Table 3. (continued)

Sightings by Species

species: EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS) species code: 10

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890804	07	08	09	07	02	2	04	5.6	17 35 n	115 37 w	100.0	206.0	175.0
890805	01	12	03	01	01	4	51	1.9	18 39 n	113 02 w	5.0	20.0	15.0
890808	02	02	02	06	02	2	05	0.3	17 38 n	108 58 w	100.0	95.0	79.0
890808	08	02	12	01	01	3	45	9.2	16 46 n	109 58 w	20.0	433.0	297.0
890810			12	07	01	3	04	2.5	17 24 n	107 18 w	50.0	25.0	12.0
890810	01	01	01			2	05	0.2	16 32 n	108 50 w	100.0	203.0	170.0
890810	02	02	04	12	03	2	45	0.8	16 38 n	108 40 w	100.0	17.0	13.0
890811	05	02	16	01	01	1	01	3.7	18 56 n	104 37 w	8.0	160.0	140.0
890812			08	07	02	2	74	0.3	17 31 n	105 47 w	85.0	585.0	503.0
890812			26			1	74	0.0	17 01 n	106 30 w	100.0	236.0	203.0
890812	03	02	07	07	02	3	74	1.9	17 40 n	105 39 w	36.4	287.0	214.0
890812	04	01	09	08	01	2	22	0.8	17 37 n	105 54 w	55.0	52.0	43.0
890812	07	01	13	01	12	1	01	4.0	17 20 n	106 06 w	74.5	292.0	237.0
890812	09	02	19	01	01	1	04	2.5	17 16 n	106 15 w	100.0	15.0	10.0
890816			01	01	03	5	01	0.3	12 04 n	118 41 w	65.0	150.0	130.0
890822	01	03	01	01	03	2	05	0.6	10 43 n	103 24 w	100.0	148.0	117.0
890822	02	01	02			2	74	3.6	10 48 n	103 15 w	51.7	288.0	223.0
890822	05	10	03			3	22	0.9	11 19 n	102 32 w	68.3	733.0	583.0
890823	05	02	07	08	01	2	74	1.4	11 55 n	100 04 w	43.3	147.0	83.0
890824	04	02	06	12	12	1	51	1.8	12 25 n	097 31 w	10.7	338.0	270.0
890824	07	02	08			1	22	5.5	12 27 n	097 08 w	1.0	0.0*	125.0
890825	01	01	02	12	03	0	74	0.7	12 53 n	095 07 w	3.0	153.0	119.0
890825	03	01	04	12	02	0	01	0.8	12 50 n	094 57 w	11.7	140.0	112.0
890825	08	03	06			3	74	2.2	13 08 n	094 56 w	34.5	481.0	337.0
890905	02	03	02	06	02	3	45	6.5	14 14 n	099 04 w	31.7	195.0	153.0
890905	05	02	06	12	12	2	05	4.2	14 25 n	099 33 w	100.0	58.0	49.0
890905	07	03	13	12	01	2	74	6.8	14 27 n	100 01 w	75.7	513.0	405.0
890905	08	03	16	01	02	2	51	1.4	14 22 n	100 12 w	21.7	257.0	127.0
890906	06	01	08	10	12	3	51	3.5	14 39 n	102 43 w	5.3	220.0	143.0
890906	09	02	11	05	01	2	05	4.1	14 51 n	102 46 w	5.0	0.0*	75.0
890906	10	01	13	05	02	2	51	1.7	14 51 n	102 44 w	10.7	80.0	64.0
890906	12	05	25	05	03	1	45	1.2	14 45 n	102 25 w	12.0	0.0*	102.0
890907	01	01	03			1	51	2.7	15 24 n	101 11 w	1.0	65.0	40.0
890910	02	08	02			3	22	4.6	15 50 n	100 07 w	60.7	203.0	173.0
890910	05	03	04			3	05	6.0	16 07 n	100 09 w	4.0	95.0	67.0
890914	03	03	05	08	01	2	04	2.0	16 09 n	100 27 w	1.3	0.0*	250.0
890914	04	02	08	11	12	0	51	0.0	15 54 n	100 37 w	67.8	510.0	311.0
890915	02	01	02	08	02	2	01	2.0	13 37 n	102 25 w	100.0	64.0	49.0
890915	07	08	08	02	02	2	01	3.9	12 25 n	103 07 w	100.0	45.0	37.0
890916	01	03	01	08	02	5	22	2.4	10 41 n	104 19 w	60.0	80.0	57.0
891023	01	02	03			1	07	3.6	12 42 n	100 07 w	100.0	96.0	82.0
891023	03	06	11	06	01	0	07	3.2	13 12 n	100 19 w	46.7	123.0	112.0
891023	05	02	17	08	01	0	71	0.2	13 35 n	100 29 w	32.0	241.0	228.0
891023	06	05	26	10	02	1	73	2.4	13 59 n	100 46 w	100.0	9.0	7.0

Table 3. (continued)

Sightings by Species

species: EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS) species code: 10

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891102	01	13	02			4	73	2.4	16 29 n	102 54 w	48.3	183.0	157.0
891102	03	02	04	12	01	3	71	0.1	16 08 n	103 26 w	47.0	1508.0	1258.0
891102	04	02	06	11	02	3	56	0.1	16 04 n	103 37 w	64.3	441.0	395.0
891104			08	12	02	3	99	6.1	12 45 n	108 23 w	100.0	191.0	171.0
891104	02	01	03	08	03	2	73	4.9	13 28 n	107 44 w	14.5	127.0	104.0
891105	01	10	02	02	02	4	56	0.8	13 11 n	107 05 w	16.7	118.0	102.0
891105	05	02	05	06	02	3	55	6.0	13 33 n	106 17 w	5.0	72.0	60.0
891106	04	05	04	12	01	4	71	3.8	12 57 n	105 18 w	5.0	325.0	254.0
891107	01	01	01	08	03	3	07	3.6	10 48 n	106 29 w	80.0	390.0	350.0
891113	01	02	02	01	03	4	56	1.1	11 51 n	092 35 w	43.3	170.0	132.0
891113	04	09	05	04	01	4	73	4.4	11 58 n	091 45 w	25.0	437.0	375.0
891113	07	02	13	02	03	3	55	0.9	11 59 n	091 13 w	8.0	0.0*	273.0
891114	05	02	05	10	01	3	55	4.5	10 01 n	092 04 w	18.0	282.0	249.0
891125	01	08	01	04	02	5	55	2.0	10 24 n	112 22 w	50.0	65.0	47.0
891129	01	05	01	01	03	4	67	5.9	18 39 n	106 12 w	56.7	212.0	190.0
891129	02	01	02	02	02	4	71	0.0	18 44 n	106 01 w	1.3	195.0	175.0

Table 3. (continued)

Sightings by Species

species: WHITEBELLY SPINNER DOLPHIN (STENELLA LONGIROSTRIS) species code: 11

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890924	01	02	02			5	45	1.3	02 15 n	094 18 w	31.7	275.0	210.0
890924	03	14	05			5	22	0.5	01 55 n	093 03 w	58.0	163.0	130.0
891120	01	04	02			4	07	0.9	01 02 n	101 53 w	20.0	182.0	148.0
891120	02	10	03	10	01	4	07	0.2	00 48 n	102 44 w	5.0	163.0	137.0
891120	03	03	07			4	71	4.5	00 40 n	103 08 w	28.3	93.0	80.0
891122	01	06	01			5	07	0.8	03 16 n	108 20 w	100.0	64.0	51.0
891123	02	01	02			4	73	3.6	04 37 n	111 23 w	5.0	183.0	147.0

Table 3. (continued)

Sightings by Species

species: STRIPED DOLPHIN (S. COERULEOALBA) species code: 13

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890802	02	09	02			4	51	1.3	19 53 n	114 36 w	100.0	32.0	22.0
890803	01	06	01	07	02	2	45	1.0	18 02 n	115 13 w	100.0	40.0	31.0
890803	05	04	04	02	02	2	05	3.5	17 18 n	116 51 w	100.0	38.0	28.0
890804			05	01	01	1	45	0.0	17 24 n	116 14 w	10.0	9.0	9.0
890804	05	02	07	01	01	3	51	1.3	17 24 n	116 06 w	100.0	50.0	30.0
890804	08	04	10	07	03	1	05	1.1	17 43 n	115 19 w	100.0	18.0	15.0
890804	08	06	11	07	03	1	45	2.6	17 45 n	115 12 w	100.0	10.0	9.0
890805			06	07	01	3	99	0.0	18 47 n	112 23 w	100.0	38.0	30.0
890806	01	06	01	06	01	3	45	1.3	19 18 n	110 27 w	100.0	53.0	42.0
890807	03	01	02	11	02	3	45	1.7	19 03 n	108 17 w	100.0	28.0	24.0
890807	06	03	05	07	01	3	51	0.7	19 06 n	107 32 w	100.0	55.0	30.0
890807	07	04	07	02	02	3	05	1.7	19 03 n	107 27 w	100.0	5.0	4.0
890807	07	06	08	02	02	3	05	2.3	18 58 n	107 32 w	100.0	62.0	48.0
890807	08	02	09	02	02	2	01	0.8	18 53 n	107 37 w	100.0	15.0	15.0
890808	04	02	05	07	02	2	01	4.1	17 29 n	109 11 w	94.0	40.0	31.0
890808	05	01	07	07	02	2	74	4.2	17 26 n	109 19 w	100.0	55.0	42.0
890808	06	08	09	08	01	2	05	0.2	17 14 n	109 35 w	100.0	25.0	20.0
890810	06	13	08	07	02	3	22	0.0	17 17 n	107 31 w	100.0	29.0	22.0
890812	02	03	05	07	02	3	05	3.5	17 49 n	105 36 w	100.0	23.0	18.0
890812	03	02	06	07	02	3	01	0.6	17 40 n	105 39 w	100.0	0.0*	35.0
890812	10	02	21	01	02	1	05	2.2	17 11 n	106 20 w	100.0	0.0*	20.0
890813	07	03	05	02	01	3	01	6.5	14 56 n	108 41 w	100.0	20.0	15.0
890813	08	06	08	02	03	3	01	5.9	14 48 n	108 56 w	100.0	0.0*	3.0
890813	09	01	09	02	03	3	51	0.1	14 47 n	108 01 w	72.5	35.0	28.0
890814	03	04	07			3	45	2.3	13 21 n	111 48 w	100.0	8.0	6.0
890817	03	07	02	12	12	3	05	0.8	10 26 n	117 15 w	100.0	0.0*	10.0
890817	04	01	03	12	12	4	74	0.0	10 25 n	117 14 w	100.0	145.0	120.0
890820	03	03	01	07	01	3	05	0.3	08 14 n	108 23 w	100.0	0.0*	26.0
890820	03	05	02			3	45	0.6	08 14 n	108 14 w	100.0	8.0	4.0
890820	04	02	03			3	45	2.0	08 16 n	108 07 w	100.0	6.0	3.0
890821	02	01	02	12	03	3	74	4.9	08 54 n	106 08 w	100.0	0.0*	40.0
890821	07	10	07			3	51	1.6	09 50 n	104 46 w	100.0	0.0*	17.0
890824			03			2	74	2.0	12 23 n	097 50 w	100.0	57.0	42.0
890824	01	01	02			2	01	0.3	12 23 n	097 51 w	100.0	40.0	24.0
890824	03	02	04	12	01	1	45	1.5	12 25 n	097 37 w	100.0	32.0	26.0
890824	09	02	11	07	02	3	51	0.8	12 35 n	096 56 w	100.0	133.0	112.0
890922	01	12	01	12	01	4	05	0.7	03 12 n	099 54 w	100.0	0.0*	8.0
890923	03	04	03	05	01	5	01	3.6	02 39 n	096 15 w	100.0	20.0	9.0
890923	04	03	04	05	02	5	22	1.1	02 39 n	096 07 w	100.0	0.0*	0.0*
890924	03	02	03			5	05	0.0	02 06 n	093 48 w	100.0	0.0*	25.0
890924	04	03	06			4	51	0.4	01 56 n	092 54 w	100.0	35.0	24.0
890925	02	06	05			4	45	0.1	01 23 n	091 33 w	100.0	25.0	23.0
890926	01	02	02			5	22	2.3	01 01 n	089 54 w	100.0	85.0	72.0
890926	04	04	04			5	74	2.3	00 50 n	089 03 w	100.0	93.0	72.0

Table 3. (continued)

Sightings by Species

species: STRIPED DOLPHIN (S. COERULEOALBA) species code: 13

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890927	02	03	03			4	05	2.6	00 14 n	086 37 w	100.0	0.0*	5.0
890928	02	04	02	12	12	3	51	0.1	00 30 s	083 47 w	100.0	64.0	32.0
890928	03	01	03			3	01	5.2	00 31 s	083 40 w	100.0	0.0*	15.0
890928	05	08	08			3	74	0.1	00 43 s	083 14 w	100.0	127.0	103.0
890928	07	02	10	05	03	3	45	0.9	00 47 s	083 02 w	100.0	12.0	10.0
890929	01	04	02			3	51	3.7	01 12 s	081 40 w	100.0	56.0	36.0
890929	02	02	03			3	22	0.1	01 09 s	081 32 w	100.0	7.0	7.0
891006	01	01	01			4	71	1.8	01 35 s	082 36 w	100.0	24.0	18.0
891006	02	01	02			4	71	3.6	01 34 s	082 38 w	100.0	18.0	12.0
891006	03	01	03			4	71	0.0	01 32 s	082 41 w	100.0	10.0	8.0
891007	05	01	05			4	67	2.6	00 45 n	084 11 w	100.0	91.0	77.0
891008	02	01	04			5	71	1.0	03 23 n	082 13 w	100.0	37.0	26.0
891010	03	03	01	12	01	5	73	1.5	02 58 n	084 53 w	100.0	15.0	9.0
891012	02	06	02	03	01	5	71	2.1	04 16 n	086 13 w	100.0	41.0	31.0
891012	03	10	03			4	56	2.3	05 10 n	085 46 w	100.0	0.0*	11.0
891013	01	01	02			3	67	2.1	06 54 n	084 51 w	100.0	61.0	51.0
891013	03	02	06	03	01	4	67	1.2	07 22 n	084 38 w	100.0	56.0	45.0
891014	02	01	05			4	67	4.7	05 48 n	086 41 w	100.0	25.0	18.0
891015	01	07	01			4	55	4.0	05 00 n	088 35 w	100.0	36.0	23.0
891015	11	01	05			4	56	3.1	04 34 n	089 46 w	100.0	34.0	20.0
891019	01	18	03	09	01	3	56	5.0	08 17 n	091 43 w	100.0	19.0	16.0
891019	04	01	06	12	01	3	07	2.7	07 58 n	091 51 w	100.0	36.0	33.0
891019	05	01	07	01	01	3	56	3.3	07 57 n	091 54 w	100.0	38.0	32.0
891019	07	01	10	01	02	3	73	1.4	07 48 n	092 05 w	100.0	17.0	14.0
891020	01	02	01	08	03	3	55	0.3	06 14 n	093 20 w	100.0	38.0	32.0
891020	02	03	03	08	02	4	67	0.9	06 01 n	093 31 w	100.0	93.0	74.0
891020	03	07	04	11	01	4	56	1.2	05 31 n	093 57 w	100.0	34.0	29.0
891020	05	04	07	01	01	3	55	1.0	05 09 n	094 11 w	100.0	41.0	35.0
891020	07	01	08	01	03	4	07	0.0	04 52 n	094 24 w	100.0	72.0	54.0
891020	08	01	09			4	56	2.6	04 50 n	094 27 w	100.0	26.0	20.0
891021	01	08	03	05	02	3	71	2.2	06 15 n	095 43 w	100.0	0.0*	12.0
891021	01	09	04	05	01	3	55	0.2	06 21 n	095 47 w	100.0	29.0	24.0
891021	02	01	05	05	01	3	56	6.3	06 28 n	095 53 w	100.0	0.0*	50.0
891021	02	01	06	05	01	3	56	3.8	06 28 n	095 53 w	0.3	96.0	81.0
891022	05	05	02	09	02	5	67	0.2	10 32 n	098 33 w	100.0	144.0	121.0
891103	10	01	11	12	02	1	07	0.6	15 01 n	106 13 w	100.0	30.0	23.0
891104			05	08	02	2	04	2.8	13 21 n	107 54 w	100.0	43.0	38.0
891104	02	01	03	08	03	2	73	4.9	13 28 n	107 44 w	4.8	127.0	104.0
891104	07	01	09	01	03	3	71	3.0	12 46 n	108 33 w	100.0	41.0	35.0
891105	03	02	03	04	01	4	55	0.2	13 26 n	106 36 w	100.0	15.0	12.0
891105	04	03	04	05	01	3	67	0.1	13 31 n	106 24 w	100.0	23.0	20.0
891106	03	01	03	10	01	4	55	2.6	13 19 n	105 12 w	100.0	21.0	14.0
891107	04	02	04	12	01	3	55	2.4	10 08 n	106 25 w	100.0	13.0	10.0
891107	06	01	06	02	01	3	67	0.5	09 55 n	106 20 w	100.0	70.0	64.0

Table 3. (continued)

Sightings by Species

species: STRIPED DOLPHIN (S. COERULEOALBA) species code: 13

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891108	06	01	07			4	55	3.5	06 18 n	105 48 w	100.0	21.0	19.0
891109	02	01	01			4	07	0.0	07 09 n	104 12 w	100.0	30.0	23.0
891109	03	03	02			4	55	4.6	07 20 n	104 01 w	100.0	39.0	33.0
891110	03	01	03	02	02	3	67	0.7	09 19 n	101 22 w	100.0	94.0	84.0
891110	08	02	10			1	55	5.7	09 59 n	100 31 w	100.0	66.0	59.0
891111	03	01	03	02	02	1	55	0.7	10 42 n	098 52 w	100.0	24.0	22.0
891113	07	01	12	05	02	3	55	2.6	11 59 n	091 14 w	100.0	20.0	15.0
891114			04			1	07	4.3	10 05 n	092 08 w	100.0	52.0	45.0
891114	02	02	01			3	73	3.9	10 25 n	091 59 w	100.0	54.0	47.0
891114	06	03	08	11	01	1	73	1.5	09 53 n	092 15 w	100.0	75.0	65.0
891114	07	01	09			2	67	1.7	09 47 n	092 21 w	100.0	12.0	9.0
891114	09	01	11			3	55	3.3	09 33 n	092 35 w	100.0	18.0	15.0
891114	10	04	12			1	67	0.4	09 21 n	092 42 w	100.0	2.0	2.0
891115			08	12	01	3	71	2.2	07 15 n	094 07 w	100.0	18.0	16.0
891115	01	01	01			2	56	6.5	07 53 n	093 28 w	100.0	83.0	74.0
891115	02	05	03	09	02	3	73	2.9	07 41 n	093 38 w	100.0	90.0	72.0
891115	04	04	06	11	01	3	73	2.2	07 16 n	094 00 w	100.0	42.0	35.0
891115	06	01	07	12	01	3	73	3.6	07 15 n	094 07 w	100.0	75.0	69.0
891116	03	05	02			4	67	0.6	04 39 n	095 41 w	100.0	73.0	61.0
891117	01	04	01	05	02	3	67	0.3	05 37 n	097 27 w	100.0	24.0	18.0
891117	06	03	05	10	02	3	71	5.3	06 26 n	098 25 w	100.0	34.0	30.0
891121	02	14	01			4	07	1.0	01 03 n	106 27 w	100.0	50.0	36.0
891121	04	01	04	10	02	4	71	3.4	01 15 n	106 36 w	100.0	15.0	12.0
891121	05	02	05			3	67	0.6	01 21 n	106 44 w	100.0	38.0	32.0
891121	06	02	06			3	07	2.9	01 31 n	106 55 w	100.0	36.0	31.0
891124			05	08	01	4	99	3.1	08 09 n	112 08 w	100.0	53.0	47.0
891124	01	02	01	04	03	2	55	0.8	07 11 n	111 58 w	100.0	33.0	28.0
891127	02	03	05			4	07	0.3	16 53 n	111 01 w	100.0	0.0*	4.0
891128	01	03	01	02	03	3	55	6.1	18 12 n	109 35 w	100.0	7.0	5.0
891128	02	06	03	03	02	3	56	2.4	18 25 n	109 20 w	100.0	31.0	27.0
891128	04	01	05	02	02	3	71	3.1	18 28 n	109 10 w	100.0	22.0	18.0
891128	05	01	06	02	01	3	73	3.4	18 27 n	109 06 w	100.0	62.0	52.0
891128	07	03	08	04	02	1	73	7.5	18 22 n	108 24 w	100.0	0.0*	6.0
891128	07	05	10			2	73	3.0	18 23 n	108 19 w	100.0	38.0	31.0
891129	07	02	07			3	73	1.5	18 56 n	105 19 w	100.0	7.0	6.0
891203	03	19	04	09	03	4	07	6.8	22 41 n	111 19 w	100.0	88.0	67.0

Table 3. (continued)

Sightings by Species

species: ROUGH-TOOTHED DOLPHIN (STENO BREDANENSIS) species code: 15

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890808	07	05	10	01	12	3	74	0.1	16 42 n	109 52 w	97.0	37.0	28.0
890812	09	03	20	01	01	1	04	0.2	17 14 n	106 17 w	100.0	5.0	4.0
890813	08	01	06	02	02	3	05	0.2	14 57 n	108 46 w	100.0	7.0	6.0
890814	01	05	02			2	45	0.5	13 28 n	110 09 w	100.0	5.0	5.0
890823	04	02	06	12	12	2	45	0.6	11 55 n	100 07 w	100.0	19.0	17.0
890824	07	02	09			1	22	0.8	12 27 n	097 08 w	100.0	7.0	9.0
890903			02	05	03	3	01	0.0	13 33 n	092 31 w	100.0	12.0	10.0
890903	08	01	17	01	02	1	22	0.7	13 54 n	093 38 w	100.0	5.0	5.0
890904	03	04	04	06	01	2	05	0.0	13 53 n	096 20 w	100.0	6.0	5.0
890905	04	02	04	07	01	3	01	0.2	14 21 n	099 27 w	100.0	11.0	8.0
890905	04	02	05	07	01	3	74	5.7	14 21 n	099 27 w	1.3	92.0	70.0
890906	07	02	09	09	01	2	22	0.1	14 41 n	102 47 w	70.0	28.0	25.0
890906	12	02	19	05	02	2	22	2.8	14 47 n	102 32 w	100.0	0.0*	8.0
890915	01	03	01	08	03	2	74	0.0	13 41 n	102 22 w	64.0	0.0*	19.0
891015	04	06	02	11	01	5	73	2.6	04 49 n	089 12 w	100.0	13.0	12.0
891023	04	02	13	07	01	0	73	0.1	13 24 n	100 23 w	100.0	20.0	18.0
891023	05	02	16	08	01	0	73	0.6	13 35 n	100 29 w	100.0	12.0	11.0
891023	06	02	21	09	02	1	07	0.7	13 47 n	100 39 w	100.0	22.0	19.0
891023	06	04	24	10	02	1	55	0.1	13 54 n	100 42 w	100.0	10.0	8.0
891024			03	06	01	2	55	0.3	16 36 n	102 33 w	71.0	14.0	11.0
891102	02	07	03	11	01	3	55	1.0	16 12 n	103 26 w	100.0	10.0	7.0
891103	06	01	04			2	71	4.6	15 16 n	106 03 w	100.0	5.0	5.0
891103	09	01	09			1	07	0.9	15 03 n	106 08 w	100.0	9.0	7.0
891108			05	11	01	4	99	1.3	07 19 n	106 02 w	100.0	23.0	20.0
891110	07	02	09	06	02	1	07	1.4	09 55 n	100 35 w	100.0	3.0	3.0
891113			04	01	02	4	99	0.2	11 55 n	092 24 w	100.0	7.0	5.0
891115	09	03	14	01	03	2	55	2.4	06 50 n	094 27 w	100.0	42.0	35.0
891117	04	10	03	10	02	2	67	6.0	06 18 n	098 17 w	100.0	0.0*	50.0
891124	02	01	02	04	02	2	71	1.0	07 15 n	111 55 w	99.0	8.0	6.0
891129			09			2	04	0.7	18 56 n	105 09 w	100.0	3.0	3.0

Table 3. (continued)

Sightings by Species

species: "LONG-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS SUBSP. ?) species code: 16

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731			01			3	22	1.2	27 55 n	115 17 w	100.0	500.0	200.0
890731	03	01	05	09	02	3	51	0.5	27 41 n	115 17 w	100.0	50.0	38.0
890731	05	02	07	12	01	3	05	0.0	27 28 n	115 09 w	100.0	400.0	200.0
891203	02	01	01	05	02	4	07	4.9	21 41 n	110 25 w	100.0	767.0	650.0
891204	01	13	06	09	01	2	71	1.3	24 58 n	113 25 w	100.0	442.0	418.0
891205	03	01	02	06	02	4	67	4.7	27 27 n	115 12 w	100.0	350.0	333.0
891205	04	04	03	07	02	4	07	4.0	27 38 n	115 17 w	100.0	200.0	244.0

Table 3. (continued)

Sightings by Species

species: "SHORT-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS SUBSP. ?) species code: 17

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890801	05	03	05			3	01	0.8	22 53 n	114 19 w	100.0	630.0	470.0
890807	01	01	01			2	51	0.5	19 10 n	108 41 w	100.0	16.0	14.0
890810	05	01	07	01	01	4	22	0.1	16 55 n	108 16 w	100.0	37.0	28.0
890909			02			2	45	0.2	15 47 n	097 22 w	100.0	12.0	8.0
890909	01	04	03			2	51	0.7	15 35 n	097 14 w	100.0	233.0	187.0
891006	07	07	08			4	56	3.0	01 19 s	084 11 w	100.0	50.0	45.0
891013	02	06	05	03	01	4	55	4.5	07 16 n	084 42 w	100.0	223.0	203.0
891018	04	05	03			3	55	2.7	10 58 n	089 24 w	100.0	193.0	167.0
891019	05	01	08	01	01	3	07	1.2	07 56 n	091 55 w	100.0	226.0	204.0
891019	06	01	09	01	02	3	55	3.0	07 54 n	092 02 w	100.0	167.0	151.0
891021	02	01	06	05	01	3	56	3.8	06 28 n	095 53 w	16.3	96.0	81.0
891110			06	04	01	3	04	0.8	09 36 n	100 56 w	100.0	44.0	38.0
891111	02	01	02	01	03	1	07	4.0	10 38 n	098 54 w	100.0	157.0	132.0
891115	03	03	04	09	02	3	71	4.4	07 28 n	093 47 w	100.0	0.0*	627.0
891115	07	02	11	01	02	2	56	0.3	07 04 n	094 16 w	100.0	377.0	341.0

Table 3. (continued)

Sightings by Species

species: BOTTLENOSED DOLPHIN (TURSIOPS TRUNCATUS) species code: 18

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890808	07	05	10	01	12	3	74	0.1	16 42 n	109 52 w	3.0	37.0	28.0
890810	07	02	10	07	02	3	51	1.1	17 20 n	107 24 w	100.0	14.0	11.0
890811	01	02	03	01	03	1	01	0.1	18 34 n	105 10 w	30.0	35.0	35.0
890811	02	02	05	01	02	1	74	0.5	18 36 n	105 05 w	100.0	18.0	17.0
890811	03	03	09	01	01	1	22	0.4	18 54 n	105 41 w	100.0	8.0	5.0
890811	03	03	10	01	01	1	45	2.1	18 42 n	104 53 w	100.0	1.0	1.0
890811	03	05	12	01	01	1	05	4.2	18 46 n	104 47 w	20.0	189.0	158.0
890811	05	02	16	01	01	1	01	3.7	18 56 n	104 37 w	2.0	160.0	140.0
890821	03	02	03			3	05	0.8	09 06 n	105 50 w	12.0	80.0	68.0
890825	08	03	06			3	74	2.2	13 08 n	094 56 w	0.5	481.0	337.0
890826	01	01	01			3	22	0.2	13 30 n	091 55 w	100.0	24.0	21.0
890826	03	01	05			3	01	0.8	13 36 n	091 39 w	100.0	128.0	128.0
890826	05	09	06			3	05	0.8	13 48 n	091 24 w	100.0	16.0	16.0
890826	06	04	08			3	74	0.0	13 31 n	091 10 w	100.0	15.0	15.0
890826	08	02	09	05	02	3	45	0.5	13 22 n	091 58 w	100.0	0.0*	1.0
890826	08	03	10			4	74	0.0	13 20 n	090 54 w	100.0	84.0	84.0
890903			06	06	01	2	05	0.2	13 38 n	092 38 w	41.0	77.0	0.0*
890903	05	15	11	11	01	1	22	8.3	13 47 n	093 20 w	1.0	376.0	285.0
890905	06	03	08	11	01	2	22	1.3	14 24 n	099 44 w	1.0	182.0	112.0
890905	07	01	12	11	01	2	01	0.9	14 27 n	099 56 w	100.0	1.0	1.0
890907	01	03	05	10	03	1	51	4.0	15 20 n	101 07 w	100.0	15.0	19.0
890910	03	01	03			3	01	0.0	15 56 n	100 08 w	20.7	55.0	43.0
890914	03	03	05	08	01	2	04	2.0	16 09 n	100 27 w	0.3	0.0*	250.0
890915	01	03	01	08	03	2	74	0.0	13 41 n	102 22 w	36.0	0.0*	19.0
890915	06	01	06			2	01	4.7	12 48 n	102 54 w	21.0	18.0	37.0
890925			01			3	74	0.0	01 41 n	092 00 w	100.0	27.0	24.0
890925			03			3	04	0.0	01 25 n	091 57 w	100.0	51.0	40.0
891013	08	04	08			4	73	2.7	07 00 n	085 14 w	14.0	73.0	55.0
891014	04	01	06	08	01	4	55	3.4	05 40 n	086 50 w	100.0	77.0	62.0
891015	07	03	03			5	56	0.1	04 43 n	089 31 w	50.0	0.0*	12.0
891016	03	02	01	03	01	5	55	1.5	05 07 n	090 33 w	65.3	30.0	25.0
891019	03	02	05	12	01	3	71	0.1	08 04 n	091 49 w	51.0	43.0	35.0
891020	05	03	06	01	01	3	55	0.8	05 11 n	094 09 w	40.0	44.0	35.0
891023	06	05	25	10	02	1	71	0.1	13 58 n	100 45 w	100.0	6.0	5.0
891106	04	05	04	12	01	4	71	3.8	12 57 n	105 18 w	1.2	325.0	254.0
891106	06	01	05	01	02	4	67	2.8	12 41 n	105 23 w	100.0	27.0	24.0
891108	02	01	02	10	02	3	71	2.5	07 43 n	106 08 w	22.7	30.0	25.0
891109	06	01	04			4	67	0.6	07 56 n	103 08 w	10.0	31.0	27.0
891110	06	06	08	06	01	1	71	3.1	09 47 n	100 42 w	3.2	212.0	190.0
891113			07			4	73	0.0	11 58 n	091 42 w	100.0	0.0*	2.0
891113	02	01	03	01	02	4	56	0.0	11 55 n	092 27 w	30.0	11.0	10.0
891113	04	09	05	04	01	4	73	4.4	11 58 n	091 45 w	1.0	437.0	375.0
891121	03	01	03			4	67	0.5	01 08 n	106 32 w	15.0	40.0	35.0
891124	04	10	04	06	01	4	55	1.1	07 49 n	112 04 w	100.0	18.0	15.0

Table 3. (continued)

Sightings by Species

species: RISSO'S DOLPHIN (GRAMPUS GRISEUS) species code: 21

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890811	01	02	03	01	03	1	01	0.1	18 34 n	105 10 w	70.0	35.0	35.0
890811	03	05	12	01	01	1	05	4.2	18 46 n	104 47 w	80.0	189.0	158.0
890812			01			2	05	0.2	18 00 n	105 25 w	100.0	3.0	3.0
890903			06	06	01	2	05	0.2	13 38 n	092 38 w	48.0	77.0	0.0*
890903			13	11	01	1	01	2.3	13 51 n	093 27 w	100.0	7.0	7.0
890906	05	03	07	05	12	3	74	0.0	14 37 n	102 39 w	100.0	0.0*	2.0
890907	03	02	11	11	01	1	01	1.8	14 54 n	101 01 w	100.0	16.0	10.0
890907	07	03	18	05	02	2	45	1.4	14 27 n	100 22 w	100.0	12.0	12.0
890910	03	01	03			3	01	0.0	15 56 n	100 08 w	79.2	55.0	43.0
890914	01	01	01			2	04	0.3	16 37 n	100 01 w	100.0	7.0	5.0
890914	02	01	03	08	02	2	01	1.5	16 27 n	100 10 w	100.0	6.0	6.0
890915	06	01	06			2	01	4.7	12 48 n	102 54 w	45.7	18.0	37.0
891016	03	02	01	03	01	5	55	1.5	05 07 n	090 33 w	34.7	30.0	25.0
891024			03	06	01	2	55	0.3	16 36 n	102 33 w	29.0	14.0	11.0
891024	04	06	06	09	01	3	55	0.1	16 58 n	102 53 w	100.0	17.0	15.0
891101	01	05	01	02	02	2	56	0.9	18 52 n	104 23 w	100.0	5.0	5.0
891103	03	03	02	09	02	2	56	0.4	15 30 n	105 52 w	100.0	0.0*	2.0
891103	05	03	03			1	55	0.2	15 17 n	106 03 w	100.0	7.0	6.0
891105	07	01	07	06	03	4	07	0.2	13 35 n	106 00 w	100.0	3.0	3.0
891111	05	04	05	02	01	3	07	2.6	10 48 n	098 32 w	100.0	0.0*	5.0
891113	02	01	03	01	02	4	56	0.0	11 55 n	092 27 w	3.3	11.0	10.0
891113	05	02	09	05	02	3	56	1.7	11 57 n	091 28 w	100.0	15.0	12.0
891113	07	02	14	02	03	3	71	0.5	11 59 n	091 13 w	100.0	10.0	7.0
891127	01	12	02	03	01	4	56	0.5	16 27 n	111 33 w	100.0	6.0	5.0
891128	06	07	07			1	71	1.3	18 24 n	108 31 w	100.0	9.0	8.0

Table 3. (continued)

Sightings by Species

species: PACIFIC WHITE-SIDED DOLPHIN (LAGENORHYNCHUS OBLIQUIDENS) species code: 22

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731			02	09	02	3	01	0.3	27 54 n	115 15 w	100.0	10.0	10.0
891206			02			2	73	0.2	30 53 n	116 32 w	100.0	3.0	2.0

Table 3. (continued)

Sightings by Species

species: FRASER'S DOLPHIN (LAGENODELPHIS HOSEI) species code: 26

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891123	03	07	05	08	01	4	71	2.1	05 09 n	111 30 w	100.0	657.0	533.0

Table 3. (continued)

Sightings by Species

species: MELON-HEADED WHALE (PEPONOCEPHALA ELECTRA) species code: 31

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890915			07			3	01	0.3	12 46 n	102 54 w	100.0	254.0	216.0

Table 3. (continued)

Sightings by Species

species: PYGMY KILLER WHALE (FERESA ATTENUATA) species code: 32

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890804			05	01	01	1	45	0.0	17 24 n	116 14 w	90.0	9.0	9.0
890812			23	01	02	1	01	0.1	17 09 n	106 22 w	100.0	11.0	9.0
890906	11	01	15	05	02	2	01	0.1	14 52 n	102 43 w	92.0	38.0	35.0
891007	03	04	02			4	73	0.7	00 12 n	084 33 w	100.0	28.0	26.0
891023	02	01	04			0	55	1.8	12 47 n	100 07 w	100.0	14.0	13.0
891113	06	04	11	05	02	3	56	3.3	11 57 n	091 20 w	100.0	133.0	118.0

Table 3. (continued)

Sightings by Species

species: PILOT WHALE (GLOBICEPHALA SP.) species code: 34

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890821	03	02	03			3	05	0.8	09 06 n	105 50 w	51.7	80.0	68.0
891006	05	01	06			4	07	0.6	01 24 s	083 32 w	100.0	8.0	7.0

Table 3. (continued)

Sightings by Species

species: SHORT-FINNED PILOT WHALE (GLOBICEPHALA MACRORHYNCHUS) species code: 36

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891011	04	18	02			5	73	3.2	01 55 n	087 33 w	100.0	12.0	10.0
891013	01	01	01			3	67	6.3	06 53 n	084 52 w	100.0	5.0	6.0
891015	07	03	03			5	56	0.1	04 43 n	089 31 w	50.0	0.0*	12.0
891019	03	02	05	12	01	3	71	0.1	08 04 n	091 49 w	49.0	43.0	35.0
891020	02	02	02	08	02	4	73	3.2	06 08 n	093 25 w	100.0	12.0	10.0
891020	05	03	06	01	01	3	55	0.8	05 11 n	094 09 w	60.0	44.0	35.0
891021	01	05	02			3	67	4.6	06 06 n	095 38 w	60.0	0.0*	35.0
891021	03	01	08	06	01	3	56	2.1	06 30 n	095 55 w	100.0	15.0	10.0
891108	02	01	02	10	02	3	71	2.5	07 43 n	106 08 w	27.2	30.0	25.0
891109	06	01	04			4	67	0.6	07 56 n	103 08 w	90.0	31.0	27.0
891109	07	06	06	07	02	4	71	0.0	08 05 n	102 59 w	100.0	8.0	6.0
891115	07	02	10	01	02	2	07	0.8	07 05 n	094 15 w	100.0	4.0	3.0
891115	09	02	13	01	03	1	71	0.5	06 52 n	094 26 w	100.0	10.0	10.0
891116	01	05	01			4	67	0.2	05 13 n	095 21 w	100.0	12.0	7.0
891121	03	01	03			4	67	0.5	01 08 n	106 32 w	85.0	40.0	35.0
891123	04	03	08	09	02	4	67	0.1	05 19 n	111 33 w	81.7	60.0	52.0

Table 3. (continued)

Sightings by Species

species: KILLER WHALE (ORCINUS ORCA) species code: 37

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890806	03	01	03	06	03	2	74	4.4	19 18 n	110 12 w	100.0	5.0	4.0
890815	03	04	02	01	03	5	01	1.9	12 48 n	115 20 w	100.0	5.0	5.0
890821	03	02	03			3	05	0.8	09 06 n	105 50 w	4.0	80.0	68.0
890919	01	02	01	01	02	4	22	0.7	05 01 n	109 56 w	100.0	2.0	2.0
890919	02	04	03			5	05	0.2	05 05 n	108 42 w	100.0	6.0	5.0
890928	02	01	01			3	22	0.3	00 27 s	084 00 w	100.0	2.0	2.0
891110	02	04	01	02	02	4	07	2.7	09 16 n	101 23 w	100.0	7.0	6.0
891117	05	01	04	10	02	2	07	0.1	06 21 n	098 20 w	100.0	3.0	2.0
891129	06	02	06			4	07	3.4	18 55 n	105 31 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: SPERM WHALE (PHYSETER MACROCEPHALUS) species code: 46

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731			04	09	02	3	01	0.0	27 43 n	115 17 w	100.0	2.0	2.0
890811	01	01	01			1	01	0.4	18 30 n	105 18 w	100.0	28.0	25.0
890821	03	02	03			3	05	0.8	09 06 n	105 50 w	7.2	80.0	68.0
890923	02	04	01	12	02	5	22	1.8	02 37 n	097 01 w	100.0	12.0	12.0
890927	01	06	02			4	22	3.4	00 16 n	086 44 w	100.0	3.0	3.0
890927	02	05	04			4	51	2.5	00 10 n	086 24 w	100.0	3.0	3.0
890927	02	07	05			3	45	1.6	00 08 n	086 16 w	100.0	7.0	7.0
890928	06	01	09	05	02	3	51	5.8	00 44 s	083 12 w	100.0	14.0	14.0
891006	04	05	04			4	56	0.4	01 29 s	082 57 w	100.0	1.0	1.0
891006	04	09	05			4	71	0.0	01 27 s	083 17 w	100.0	5.0	5.0
891006	08	01	09			4	67	2.2	01 21 s	084 14 w	78.3	13.0	10.0
891008	03	03	05			4	07	1.2	03 34 n	082 05 w	100.0	13.0	13.0
891011	01	05	01	07	02	5	07	1.4	02 02 n	086 43 w	42.0	16.0	15.0
891013	08	04	08			4	73	2.7	07 00 n	085 14 w	86.0	73.0	55.0
891014	01	04	03	08	02	4	71	3.1	05 52 n	086 36 w	100.0	4.0	3.0
891122	03	12	03			5	67	3.2	03 27 n	109 20 w	100.0	11.0	9.0
891127	01	01	01			4	56	3.9	16 03 n	112 03 w	100.0	1.0	1.0
891129	05	04	04	05	02	4	56	5.4	18 54 n	105 38 w	100.0	20.0	15.0
891204	02	01	07	10	02	3	73	0.3	25 01 n	113 35 w	100.0	1.0	1.0
891204	03	03	08	07	02	4	07	5.0	25 04 n	113 48 w	100.0	3.0	3.0

Table 3. (continued)

Sightings by Species

species: DWARF SPERM WHALE (KOGIA SIMUS) species code: 48

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890808			04	07	02		05	0.1	17 35 n	109 05 w	100.0	1.0	1.0
890809			01	07	02	3	04	0.1	15 02 n	111 55 w	100.0	4.0	4.0
890812			15	01	12	1	04	0.2	19 21 n	106 09 w	100.0	1.0	1.0
890823			03	11	03	1	51	3.5	11 52 n	100 36 w	100.0	1.0	1.0
890823	02	01	04	12	02	1	45	0.7	11 51 n	100 31 w	100.0	4.0	4.0
890904	06	01	08	11	01	1	05	1.3	13 50 n	096 40 w	100.0	1.0	1.0
890906	10	01	12	05	02	2	01	0.4	14 51 n	102 45 w	100.0	1.0	1.0
890906	11	01	14	05	02	2	01	0.0	14 52 n	102 43 w	100.0	1.0	1.0
890906	12	04	22	05	03	2	45	0.4	14 46 n	102 27 w	100.0	1.0	1.0
890907	02	07	07			1	05	3.3	14 59 n	101 04 w	100.0	1.0	1.0
890907	03	01	09			1	05	5.0	14 56 n	101 03 w	100.0	1.0	1.0
890907	03	02	10	11	01	1	01	0.4	15 56 n	101 03 w	100.0	1.0	1.0
890907	06	06	14			2	51	2.5	14 37 n	100 34 w	100.0	1.0	1.0
890914	05	04	11	01	01	0	04	1.0	15 41 n	100 48 w	100.0	1.0	1.0
890914	06	06	14	01	02	0	01	1.5	15 19 n	101 04 w	100.0	1.0	1.0
890914	06	09	15	01	03	1	45	0.2	15 09 n	101 12 w	100.0	1.0	1.0
890915	08	01	10	02	03	1	51	0.2	12 21 n	103 07 w	100.0	2.0	2.0
891018	02	02	01	08	02	1	07	0.1	11 27 n	089 04 w	100.0	3.0	3.0
891019	03	02	04	12	01	3	55	0.0	08 05 n	091 48 w	100.0	1.0	1.0
891023	03	03	08	05	02	0	73	1.5	12 57 n	100 11 w	100.0	1.0	1.0
891023	03	04	10	05	01	1	71	3.3	13 02 n	100 14 w	100.0	1.0	1.0
891023	03	06	12	06	01	0	07	0.2	13 14 n	100 21 w	100.0	1.0	1.0
891103			06	12	01	1	04	0.9	15 13 n	106 03 w	100.0	2.0	2.0
891103	11	01	12	01	02	0	71	0.4	14 57 n	106 19 w	100.0	2.0	2.0
891104	04	05	06	10	01	3	56	1.1	13 01 n	108 09 w	100.0	2.0	2.0
891107	07	01	07	02	01	2	56	0.1	09 49 n	106 18 w	100.0	1.0	1.0
891115	08	03	12	01	02	1	73	0.3	06 55 n	094 24 w	100.0	5.0	5.0
891124	04	02	03	04	02	2	67	0.3	07 21 n	111 56 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: BEAKED WHALE (ZIPHIID) species code: 49

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890914	03	03	06	08	01	2	04	3.3	16 08 n	100 28 w	100.0	2.0	2.0
890914	05	04	10	01	01	0	04	0.2	15 41 n	100 48 w	100.0	2.0	2.0
891008	01	14	01	02	01	5	71	0.5	02 49 n	082 38 w	100.0	1.0	1.0
891022	06	04	03	10	03	4	71	0.0	10 42 n	098 44 w	100.0	1.0	1.0
891023	03	02	06	05	02	0	73	3.0	12 54 n	100 10 w	100.0	2.0	2.0
891115	07	01	09	12	01	2	67	0.0	07 09 n	094 13 w	100.0	1.0	1.0
891123	01	03	01			4	07	1.8	04 12 n	111 22 w	100.0	2.0	2.0
891203	04	02	05	09	03	4	67	1.4	22 46 n	111 23 w	100.0	4.0	4.0
891204	01	03	01	05	02	3	71	5.4	24 22 n	112 54 w	100.0	1.0	1.0
891204	01	03	03	05	02	3	71	4.2	24 26 n	112 52 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: SOUTHERN BOTTLENOSED WHALE (HYPEROODON PLANIFRONS) species code: 50

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891123	04	03	08	09	02	4	67	0.1	05 19 n	111 33 w	18.2	60.0	52.0

Table 3. (continued)

Sightings by Species

species: UNID. MESOPLODONT (MESOPLODON SP.) species code: 51

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
				horz.	vert.								
yrmody			number			number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890807	05	06	04	07	01	2	05	1.0	19 04 n	107 38 w	100.0	3.0	3.0
890809			04	12	01	3	04	0.3	15 11 n	111 36 w	100.0	1.0	1.0
890809	02	11	05	07	01	3	74	0.0	15 22 n	111 13 w	100.0	4.0	4.0
890811			13	01	01	1	04	0.1	18 52 n	105 43 w	100.0	2.0	2.0
890812			11	12	12	1	04	4.8	17 24 n	106 05 w	100.0	0.0*	1.0
890812			14	01	12	1	51	1.4	17 19 n	106 07 w	100.0	1.0	1.0
890814			03	06	01	2	04	4.3	13 25 n	110 35 w	100.0	1.0	1.0
890903	05	04	09	06	01	3	01	0.6	13 40 n	092 53 w	100.0	2.0	2.0
890903	05	05	10	07	12	3	74	1.7	13 41 n	092 57 w	100.0	2.0	2.0
890904			03			2	99	0.0	13 57 n	096 08 w	100.0	2.0	2.0
890906	09	01	10	05	01	2	05	3.8	14 52 n	102 48 w	100.0	3.0	3.0
890906	11	01	15	05	02	2	01	0.1	14 52 n	102 43 w	8.0	38.0	35.0
890906	12	04	24	05	03	2	05	0.5	14 45 n	102 25 w	100.0	2.0	2.0
890907	03	01	08			1	05	1.1	14 56 n	101 04 w	100.0	2.0	2.0
890907	04	02	12	11	01	1	74	0.5	14 52 n	100 56 w	100.0	3.0	3.0
890907	07	02	16	05	02	2	05	6.5	14 31 n	100 26 w	100.0	1.0	1.0
890914			17			1	99	2.4	15 04 n	101 18 w	100.0	1.0	1.0
890914	06	04	12	01	02	1	45	2.4	15 28 n	100 56 w	100.0	2.0	2.0
890914	06	06	13	01	02	0	01	4.1	15 20 n	100 03 w	100.0	3.0	3.0
890915			09			2	01	0.0	12 23 n	103 06 w	100.0	2.0	2.0
890922			04			4	99	0.3	03 00 n	098 57 w	100.0	3.0	3.0
890925	02	02	04			3	01	0.2	01 24 n	091 44 w	100.0	2.0	2.0
891018			05	01	01	1	04	0.5	10 34 n	089 46 w	100.0	1.0	1.0
891019			02	07	02	2	99	1.4	08 34 n	091 29 w	100.0	1.0	1.0
891019	01	02	01	08	03	2	07	2.5	08 56 n	091 12 w	100.0	1.0	1.0
891023	01	02	02			1	07	0.4	12 38 n	100 04 w	100.0	1.0	1.0
891023	05	02	15	08	01	0	73	3.5	13 33 n	100 27 w	100.0	2.0	2.0
891024	04	05	05	09	01	3	71	0.7	16 51 n	102 48 w	100.0	2.0	2.0
891103	07	01	05	12	01	1	73	1.7	15 13 n	106 03 w	100.0	2.0	2.0
891103	10	01	10	12	02	1	07	0.1	15 01 n	106 12 w	100.0	3.0	3.0
891104	01	01	02			2	71	1.8	13 33 n	107 44 w	100.0	2.0	2.0
891114	06	02	07	11	01	2	73	1.4	09 55 n	092 12 w	100.0	1.0	1.0
891127	01	15	03	05	01	4	73	1.0	16 36 n	111 23 w	100.0	1.0	1.0
891128	02	04	02	02	02	2	56	1.3	18 22 n	109 26 w	100.0	2.0	2.0
891129	08	01	08			3	73	2.6	18 57 n	105 16 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

species: CUVIER'S BEAKED WHALE (ZIPHIUS CAVIROSTRIS) species code: 61

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890809	04	01	06	07	01	3	01	1.5	15 29 n	111 01 w	100.0	3.0	3.0
890814	01	01	01			2	05	0.1	13 32 n	110 04 w	100.0	1.0	1.0
890906	12	03	20	05	03	2	05	0.4	14 47 n	102 30 w	100.0	1.0	1.0
890906	12	04	21	05	03	2	45	1.3	14 46 n	102 29 w	100.0	1.0	1.0
890921	01	13	01			5	01	0.7	03 57 n	103 08 w	100.0	1.0	1.0
890922	02	04	02	12	12	5	51	0.8	03 09 n	099 44 w	100.0	2.0	2.0
891103	12	01	14	01	02	0	71	0.2	14 55 n	106 25 w	100.0	4.0	4.0
891103	12	03	16	01	03	0	07	2.3	14 50 n	106 31 w	100.0	2.0	2.0
891114	06	01	06	10	01	2	73	0.3	09 57 n	092 11 w	100.0	2.0	2.0
891114	08	01	10			2	73	1.8	09 41 n	092 28 w	100.0	1.0	1.0
891115			05	11	01	2	04	0.8	07 19 n	093 57 w	100.0	1.0	1.0
891117	03	01	02	06	01	3	07	0.2	05 51 n	097 46 w	100.0	3.0	3.0
891204	03	05	09	07	02	4	73	0.7	25 17 n	113 43 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: BAIRD'S BEAKED WHALE (BERNARDIUS BAIRDI) species code: 63

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731	04	04	06	09	02	4	01	1.3	27 34 n	115 17 w	100.0	5.0	5.0
890731	10	01	11	03	02	4	51	1.8	26 53 n	114 18 w	100.0	7.0	7.0

Table 3. (continued)

Sightings by Species

species: RORQUAL (BALAENOPTERA SP.) species code: 70

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890821	06	02	05	12	12	3	05	0.8	09 20 n	105 29 w	100.0	1.0	1.0
890903	08	05	18	01	02	3	45	3.1	13 52 n	093 45 w	100.0	1.0	1.0
890924			01			5	05	0.1	02 16 n	094 22 w	100.0	1.0	1.0
891113			06	04	01	4	99	0.2	11 58 n	091 44 w	100.0	1.0	1.0
891113			08			4	71	0.0	11 55 n	091 39 w	100.0	1.0	1.0
891113	01	02	01	01	03	4	67	0.5	11 51 n	092 36 w	100.0	1.0	1.0
891114	04	03	02	09	02	2	07	2.4	10 17 n	092 01 w	100.0	1.0	1.0
891120	03	01	04			4	56	2.0	00 45 n	102 52 w	100.0	1.0	1.0
891202	02	16	03	10	02	5	55	1.0	20 22 n	108 27 w	100.0	1.0	1.0
891203	03	10	02	08	01	3	56	3.1	22 14 n	110 56 w	100.0	1.0	1.0
891204	01	12	05	07	01	2	71	5.0	24 56 n	113 22 w	100.0	1.0	1.0
891205	05	02	04	08	02	3	07	0.1	27 45 n	115 24 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: BRYDE'S WHALE (B. EDENI) — species code: 72

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890826	09	02	11			4	74	7.9	13 21 n	090 50 w	100.0	1.0	1.0
890905			14	12	02	1	04	0.6	14 25 n	100 02 w	100.0	2.0	1.0
890914	01	04	02	08	02	2	51	0.0	16 26 n	100 10 w	100.0	1.0	1.0
891121	03	01	02			4	07	0.6	01 08 n	106 32 w	100.0	4.0	3.0

Table 3. (continued)

Sightings by Species

species: FIN WHALE (B. PHYSALUS) species code: 74

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude		longitude		proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg	min	deg	min	(% of school)	best	low
891206			03			2	07	10.4	30	n	116	w	100.0	5.0	5.0

Table 3. (continued)

Sightings by Species

species: BLUE WHALE (B. MUSCULUS) species code: 75

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890801	01	14	02	10	01	4	51	0.1	23 56 n	114 19 w	100.0	1.0	1.0
891022			01	10	01	5	04	0.6	10 13 n	098 21 w	100.0	1.0	1.0
891111	01	01	01	01	03	2	07	1.5	10 37 n	098 59 w	100.0	1.0	1.0
891111	04	01	04	02	02	1	73	1.3	10 44 n	098 47 w	100.0	1.0	1.0
891111	07	04	06			5	55	5.3	10 58 n	098 11 w	100.0	1.0	1.0
891112	04	02	02	05	01	5	71	2.0	11 23 n	094 39 w	100.0	1.0	1.0
891113			15	02	03	3	73	2.9	11 58 n	091 13 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

species: HUMPBACK WHALE (MEGAPTERA NOVAEANGLIAE) species code: 76

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731	09	03	10	02	02	4	74	1.0	27 00 n	114 20 w	100.0	2.0	2.0
891003			01			2	71	1.0	02 11 s	080 55 w	100.0	2.0	2.0
891206			01	03	02	1	56	3.5	30 32 n	116 38 w	100.0	3.0	3.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731	06	06	08	02	01	4	51	0.7	27 16 n	114 40 w	100.0	14.0	9.0
890731	07	03	09	04	01	4	45	0.5	27 12 n	114 32 w	100.0	7.0	5.0
890801	04	07	04			3	51	0.7	23 02 n	114 17 w	100.0	4.0	3.0
890803	03	04	03	12	12	2	05	7.5	17 34 n	116 30 w	100.0	0.0*	2.0
890804	01	03	01	01	02	2	45	0.5	17 07 n	116 39 w	100.0	1.0	1.0
890804	01	06	02	01	02	1	01	5.1	17 12 n	116 32 w	100.0	3.0	0.0*
890804	02	02	03	01	02	1	51	6.4	17 12 n	116 27 w	100.0	100.0	10.0
890804	04	01	06	01	01	1	45	0.3	17 21 n	116 11 w	100.0	5.0	3.0
890805	03	02	05	07	01	3	74	0.4	18 47 n	112 23 w	100.0	1.0	1.0
890807	05	03	03	12	12	2	05	5.6	19 01 n	108 58 w	100.0	0.0*	5.0
890807	07	01	06	07	01	3	74	10.3	19 07 n	107 27 w	100.0	1.0	1.0
890808			06	07	02	2	74	4.5	17 29 n	109 11 w	100.0	0.0*	3.0
890808	01	01	01			2	22	5.3	17 39 n	108 58 w	100.0	0.0*	10.0
890808	03	01	03	07	02	2	45	0.5	17 35 n	109 06 w	100.0	0.0*	5.0
890808	06	07	08	07	01	2	22	2.7	17 15 n	109 32 w	100.0	0.0*	1.0
890808	09	01	13	02	02	3	51	5.0	16 42 n	110 08 w	100.0	0.0*	3.0
890809	02	02	02	01	02	3	01	2.2	15 04 n	111 52 w	100.0	25.0	17.0
890809	02	04	03	12	01	3	74	6.5	15 11 n	111 36 w	100.0	0.0*	9.0
890809	05	02	07	07	02	2	22	6.4	15 31 n	110 59 w	100.0	0.0*	5.0
890810			02			1	05	0.0	16 33 n	108 49 w	100.0	0.0*	5.0
890810	08	02	11	07	02	3	51	2.6	17 24 n	107 18 w	100.0	0.0*	10.0
890810	09	01	13	07	02	2	01	1.5	17 26 n	107 13 w	100.0	10.0	10.0
890811	01	02	02	01	03	1	74	0.8	18 31 n	105 17 w	100.0	12.0	9.0
890811	02	01	04	01	03	1	51	0.3	18 34 n	105 09 w	100.0	0.0*	5.0
890811	02	03	06			1	51	8.5	18 38 n	105 01 w	100.0	0.0*	10.0
890811	02	03	07			1	51	5.0	18 38 n	105 01 w	100.0	13.0	12.0
890811	03	01	08			1	05	3.5	18 41 n	104 56 w	100.0	0.0*	3.0
890811	05	01	14	01	01	1	01	3.9	18 53 n	105 42 w	100.0	6.0	4.0
890812	01	01	02	07	03	3	05	7.0	17 58 n	105 27 w	100.0	0.0*	5.0
890812	01	02	03	07	03	3	22	5.9	17 54 n	105 30 w	100.0	0.0*	5.0
890812	01	03	04	07	02	3	22	6.4	17 52 n	105 33 w	100.0	0.0*	1.0
890812	06	01	12	12	12	1	01	7.0	17 23 n	106 06 w	100.0	0.0*	15.0
890812	08	03	17	02	01	1	22	1.4	17 17 n	106 11 w	100.0	0.0*	20.0
890812	12	01	25	01	02	1	51	0.5	17 06 n	106 25 w	100.0	0.0*	20.0
890813	01	01	01			3	51	0.4	16 02 n	107 29 w	100.0	0.0*	1.0
890813	05	08	03	01	01	3	51	2.2	15 08 n	108 28 w	100.0	0.0*	10.0
890813	06	02	04	02	01	4	51	8.3	15 01 n	108 35 w	100.0	0.0*	1.0
890813	08	06	07	02	03	3	51	2.6	14 48 n	108 53 w	100.0	0.0*	2.0
890814	02	13	05	12	12	4	74	6.3	13 24 n	111 13 w	100.0	0.0*	1.0
890814	03	02	06			3	45	0.1	13 21 n	111 43 w	100.0	0.0*	4.0
890815	02	01	01	01	02	5	22	1.6	12 56 n	115 01 w	100.0	0.0*	3.0
890817	05	03	04			4	51	0.5	10 20 n	117 10 w	1.7	0.0*	29.0
890818	01	01	01	11	02	5	01	5.4	08 41 n	116 15 w	100.0	0.0*	3.0
890821	01	01	01			2	74	0.5	08 54 n	106 11 w	100.0	0.0*	33.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890821	04	01	04			3	01	2.1	09 12 n	105 40 w	100.0	0.0*	9.0
890822	06	05	04			2	05	6.1	11 31 n	102 16 w	100.0	0.0*	1.0
890822	06	06	05			2	05	5.4	11 32 n	102 12 w	100.0	0.0*	4.0
890823			09			1	01	0.7	12 03 n	099 51 w	100.0	0.0*	2.0
890823	07	02	08			2	74	1.4	12 03 n	099 51 w	100.0	5.0	5.0
890824	04	02	05	12	12	1	51	5.8	12 24 n	097 34 w	100.0	0.0*	7.0
890824	06	02	07			1	45	0.2	12 26 n	097 13 w	100.0	0.0*	2.0
890824	09	01	10	07	02	1	74	2.5	12 33 n	097 02 w	100.0	1.0	1.0
890825	09	02	07			2	05	0.9	13 14 n	094 49 w	100.0	0.0*	2.0
890826	02	04	02			2	22	5.2	13 32 n	091 50 w	100.0	0.0*	1.0
890826	06	01	07	12	12	2	74	0.2	13 36 n	091 12 w	100.0	0.0*	5.0
890903	02	01	04	06	02	2	22	4.0	13 38 n	092 33 w	100.0	0.0*	200.0
890903	05	01	07	06	01	2	45	4.9	13 39 n	092 42 w	100.0	0.0*	0.0*
890903	05	02	08	06	01	2	74	3.9	13 39 n	092 43 w	100.0	0.0*	4.0
890903	06	01	12	11	01	1	51	3.7	13 51 n	093 26 w	100.0	0.0*	8.0
890903	07	02	14	11	02	1	51	1.1	13 51 n	093 35 w	100.0	0.0*	2.0
890903	07	02	15	11	02	1	74	0.5	13 51 n	093 35 w	100.0	0.0*	12.0
890904	05	01	06	11	01	1	74	8.5	13 50 n	096 35 w	100.0	0.0*	2.0
890904	05	01	07	11	01	1	74	0.1	13 50 n	096 36 w	100.0	1.0	1.0
890904	11	01	12			2	45	1.4	14 01 n	097 06 w	100.0	0.0*	1.0
890905	01	01	01	05	03	3	01	5.7	14 15 n	098 53 w	100.0	0.0*	4.0
890905	06	02	07	11	01	2	05	7.5	14 24 n	099 42 w	100.0	0.0*	2.0
890905	06	04	11	11	01	2	74	0.6	14 24 n	099 49 w	100.0	3.0	3.0
890906	01	01	01	06	03	2	22	4.8	14 37 n	102 53 w	100.0	0.0*	0.0*
890906	02	01	03	06	02	3	74	6.9	14 38 n	102 17 w	100.0	0.0*	1.0
890906	12	01	16	05	02	2	22	6.6	14 51 n	102 38 w	100.0	0.0*	1.0
890906	12	01	18	05	02	2	22	6.2	14 59 n	102 35 w	100.0	25.0	15.0
890906	12	04	23	05	03	2	45	0.9	14 45 n	102 26 w	100.0	1.0	1.0
890907	01	01	02			1	74	1.1	15 24 n	101 11 w	100.0	0.0*	25.0
890907	05	02	13	12	12	1	45	4.3	14 44 n	100 47 w	100.0	0.0*	6.0
890907	07	04	19	05	03	2	51	0.7	14 25 n	100 20 w	100.0	8.0	6.0
890907	07	06	20			3	74	0.0	17 18 n	100 12 w	100.0	0.0*	1.0
890914	03	02	04	08	01	1	04	8.9	16 12 n	100 24 w	100.0	0.0*	10.0
890914	03	03	07	08	01	2	04	5.9	16 08 n	100 28 w	100.0	0.0*	2.0
890920	01	07	01	11	02	5	01	2.4	04 46 n	106 45 w	100.0	0.0*	2.0
890921	01	23	03			5	74	3.1	03 50 n	102 32 w	100.0	0.0*	1.0
890922			03	04	12	5	04	0.3	03 08 n	099 40 w	100.0	0.0*	3.0
890923	06	01	05			5	51	0.0	02 37 n	095 52 w	31.7	55.0	20.0
890924	03	03	04	12	01	5	05	4.7	02 04 n	093 42 w	100.0	0.0*	75.0
890925			02			3	01	3.5	01 33 n	091 57 w	100.0	0.0*	3.0
890928	04	01	04			3	51	3.1	00 36 s	083 38 w	100.0	0.0*	5.0
890928	05	02	05			3	45	3.9	00 38 s	083 30 w	100.0	0.0*	1.0
890928	05	05	06			3	05	1.5	00 41 s	083 22 w	100.0	1.0	1.0
890929	01	01	01			3	74	0.7	01 11 s	081 47 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891006	08	01	09			4	67	2.2	01 21 s	084 14 w	21.7	13.0	10.0
891007	04	03	03	07	01	4	07	7.7	00 21 n	084 27 w	100.0	0.0*	1.0
891007	04	09	04			4	55	0.1	00 42 n	084 12 w	100.0	0.0*	4.0
891008	01	22	02	07	01	5	55	6.9	03 14 n	082 18 w	100.0	0.0*	2.0
891008	01	22	03	07	01	5	55	2.7	03 17 n	082 18 w	100.0	0.0*	6.0
891009	02	09	01	11	12	4	73	4.7	04 40 n	081 46 w	100.0	0.0*	1.0
891011			03			5	04	0.1	02 04 n	087 22 w	100.0	8.0	6.0
891011	01	05	01	07	02	5	07	1.4	02 02 n	086 43 w	8.0	16.0	15.0
891012	01	05	01	02	02	5	55	0.2	03 46 n	086 30 w	100.0	0.0*	1.0
891012	04	04	04			5	71	4.6	05 24 n	085 40 w	100.0	15.0	9.0
891013	02	03	04	03	02	3	55	6.7	07 07 n	084 46 w	100.0	0.0*	2.0
891013	06	01	07	10	01	4	73	2.3	07 29 n	084 38 w	100.0	0.0*	1.0
891014	01	01	01			4	55	5.5	05 58 n	086 29 w	100.0	0.0*	10.0
891014	01	05	04	08	02	4	56	7.7	05 51 n	086 36 w	100.0	0.0*	5.0
891015	10	02	04			4	55	5.7	04 40 n	089 41 w	100.0	0.0*	5.0
891017	02	07	01			3	71	8.7	09 04 n	089 20 w	100.0	0.0*	3.0
891018	02	02	02	08	02	1	56	6.0	11 23 n	089 06 w	100.0	0.0*	20.0
891018	05	03	04	11	01	2	67	5.7	10 46 n	089 33 w	100.0	30.0	25.0
891018	06	06	06	01	02	2	56	6.6	10 21 n	089 56 w	100.0	0.0*	6.0
891019	08	01	11	01	03	3	07	6.0	07 44 n	092 04 w	100.0	0.0*	65.0
891019	09	03	12	01	03	3	67	6.4	07 36 n	092 11 w	100.0	0.0*	0.0*
891020	04	01	05	12	01	3	67	6.8	05 23 n	094 02 w	100.0	0.0*	30.0
891021			07	05	01	3	04	5.9	06 28 n	095 53 w	100.0	0.0*	12.0
891021	01	02	01	04	03	2	56	6.1	05 58 n	095 32 w	100.0	0.0*	22.0
891021	01	05	02			3	67	4.6	06 06 n	095 38 w	40.0	0.0*	35.0
891021	03	04	09	07	01	3	73	6.5	06 39 n	096 00 w	100.0	0.0*	20.0
891021	03	06	10	09	01	3	55	0.0	06 50 n	096 08 w	100.0	0.0*	7.0
891023			29			1	73	0.1	14 15 n	100 54 w	100.0	3.0	3.0
891023	01	01	01			1	67	5.9	12 37 n	100 04 w	100.0	0.0*	25.0
891023	03	03	09	05	02	0	71	10.4	12 57 n	100 11 w	100.0	0.0*	2.0
891023	06	03	23	09	02	1	56	6.6	13 51 n	100 41 w	100.0	0.0*	1.0
891023	07	02	28	10	03	1	67	6.1	14 07 n	100 50 w	100.0	0.0*	20.0
891024	02	01	02	05	03	2	73	2.5	15 59 n	102 06 w	100.0	0.0*	14.0
891024	04	04	04	09	01	3	07	5.2	16 50 n	102 47 w	100.0	0.0*	2.0
891101	01	07	02	03	02	2	07	2.8	18 47 n	104 22 w	100.0	0.0*	5.0
891102	01	07	01	11	02	4	56	0.8	16 38 n	102 48 w	100.0	0.0*	2.0
891102	04	01	05	11	02	3	71	3.0	16 04 n	103 33 w	100.0	0.0*	1.0
891103	08	02	07	11	01	0	71	1.2	15 10 n	106 03 w	100.0	0.0*	2.0
891103	12	02	15	01	03	0	67	7.9	14 53 n	106 28 w	100.0	0.0*	15.0
891103	12	03	17	01	03	0	56	7.5	14 50 n	106 31 w	100.0	0.0*	3.0
891105			01	01	03	3	04	0.2	13 00 n	107 30 w	100.0	0.0*	4.0
891105	06	05	06			4	56	0.0	13 33 n	106 06 w	100.0	0.0*	3.0
891106	01	05	01	09	03	4	67	4.4	13 44 n	104 59 w	100.0	0.0*	6.0
891106	02	04	02	10	01	4	71	0.3	13 25 n	105 09 w	100.0	0.0*	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891107	02	04	03	11	02	3	71	1.3	10 34 n	106 31 w	52.7	82.0	158.0
891107	05	02	05	01	01	3	71	0.4	09 59 n	106 21 w	100.0	3.0	3.0
891107	07	11	09	03	03	2	07	8.6	09 19 n	106 13 w	100.0	0.0*	10.0
891107	07	11	10	03	03	2	56	0.6	09 19 n	106 13 w	100.0	0.0*	110.0
891108	03	01	03	10	02	3	56	0.1	07 35 n	106 06 w	100.0	0.0*	1.0
891108	03	05	04	11	01	4	55	2.5	07 21 n	106 03 w	100.0	0.0*	2.0
891108	05	10	06			4	55	7.4	06 42 n	105 56 w	100.0	0.0*	10.0
891110			02	02	02	4	07	1.8	09 16 n	101 23 w	100.0	0.0*	15.0
891110	06	06	07	06	01	1	71	7.8	09 46 n	100 43 w	100.0	0.0*	40.0
891111	07	07	07	06	02	4	67	3.1	11 04 n	097 57 w	100.0	0.0*	15.0
891111	08	05	08	05	02	4	73	0.0	11 06 n	097 44 w	100.0	5.0	4.0
891112	03	06	01	03	01	5	56	7.0	11 17 n	095 07 w	100.0	0.0*	1.0
891113	06	01	10			4	67	9.0	11 57 n	091 27 w	100.0	0.0*	15.0
891114	04	07	03	09	02	1	07	3.9	10 08 n	092 07 w	100.0	0.0*	12.0
891114	11	01	13			1	73	2.0	09 19 n	092 42 w	100.0	0.0*	25.0
891115	02	04	02	09	02	2	67	10.4	07 45 n	093 35 w	100.0	0.0*	80.0
891116	04	13	03	10	03	4	56	1.1	04 20 n	096 03 w	100.0	0.0*	57.0
891118	01	02	01			4	73	2.5	06 29 n	099 26 w	100.0	0.0*	5.0
891118	04	07	02			4	55	1.2	05 16 n	099 34 w	100.0	0.0*	35.0
891119	02	08	01			4	55	4.3	03 09 n	099 50 w	100.0	0.0*	3.0
891122	02	04	02	06	01	5	71	3.7	03 23 n	108 28 w	100.0	0.0*	5.0
891122	04	06	04	11	03	5	73	1.8	03 32 n	109 45 w	100.0	0.0*	52.0
891123	03	01	03	05	01	4	56	4.4	04 46 n	111 24 w	100.0	0.0*	1.0
891123	04	01	06	08	01	4	56	6.4	05 12 n	111 30 w	100.0	0.0*	6.0
891125	03	03	02	06	01	5	55	1.3	10 56 n	112 24 w	100.0	0.0*	1.0
891125	04	14	03	09	03	4	07	2.8	11 40 n	112 14 w	100.0	0.0*	167.0
891129	05	04	05	05	02	4	56	0.3	18 54 n	105 37 w	100.0	12.0	10.0
891201			02			2	04	0.2	19 06 n	104 44 w	100.0	0.0*	3.0
891201	01	04	03			2	71	0.7	19 18 n	105 02 w	100.0	0.0*	1.0
891204	01	03	02	05	02	3	71	8.8	24 24 n	112 56 w	100.0	0.0*	50.0
891204	01	11	04	07	01	2	56	8.3	24 52 n	113 18 w	100.0	0.0*	20.0
891205	07	04	05	08	03	4	55	0.0	27 55 n	115 29 w	100.0	0.0*	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED SMALL WHALE species code: 78

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890803	02	04	02			2	51	1.7	17 43 n	116 19 w	100.0	1.0	1.0
890804	07	06	08	07	01	2	04	0.0	17 33 n	115 43 w	100.0	1.0	1.0
890805	01	09	02	01	02	4	45	6.1	18 30 n	113 13 w	100.0	2.0	1.0
890809	05	05	08	07	03	2	74	2.1	15 38 n	110 42 w	100.0	1.0	1.0
890810			09	07	01	3	45	0.0	17 17 n	107 30 w	100.0	1.0	1.0
890810	03	03	05	01	02	3	74	2.6	16 46 n	108 32 w	100.0	1.0	1.0
890811	05	02	15	01	01	1	74	2.3	18 55 n	104 39 w	100.0	2.0	2.0
890812	08	01	16	01	12	1	01	1.2	17 22 n	106 09 w	100.0	4.0	3.0
890812	08	03	18	02	01	1	22	2.2	17 17 n	106 14 w	100.0	0.0*	1.0
890812	11	02	22	01	02	1	04	0.4	17 09 n	106 22 w	100.0	2.0	2.0
890812	12	01	24	01	02	1	74	0.5	17 08 n	106 24 w	100.0	2.0	2.0
890821	07	02	06			2	22	3.5	09 36 n	105 05 w	100.0	1.0	1.0
890823	01	01	01	12	03	0	74	1.0	11 50 n	100 42 w	100.0	1.0	1.0
890824			12			3	01	0.0	12 35 n	096 55 w	100.0	1.0	1.0
890825	01	01	01	12	03	0	74	4.6	12 52 n	095 07 w	100.0	4.0	4.0
890905	08	03	15	01	02	2	74	3.2	14 22 n	100 09 w	100.0	1.0	1.0
890906	05	02	05	07	01	3	74	3.3	14 36 n	102 37 w	100.0	1.0	1.0
890906	12	01	17	05	02	2	45	8.8	14 48 n	102 35 w	100.0	1.0	1.0
890907	07	03	17	05	02	2	22	3.1	14 29 n	100 24 w	100.0	1.0	1.0
890914	05	01	09	12	01	0	74	0.7	15 50 n	100 40 w	100.0	2.0	2.0
890914	06	12	16	02	03	1	45	0.0	15 04 n	101 16 w	100.0	1.0	1.0
890921	01	14	02			4	51	0.2	03 57 n	103 03 w	100.0	3.0	2.0
890926	01	01	01			5	45	7.0	01 02 n	089 57 w	100.0	2.0	2.0
891006	09	01	10			4	71	2.8	01 22 s	084 17 w	100.0	0.0*	1.0
891009			02			5	73	0.9	04 26 n	082 15 w	100.0	0.0*	1.0
891018	06	10	07	01	03	1	71	1.9	10 13 n	090 03 w	100.0	2.0	2.0
891023	03	01	05	05	02	0	71	0.1	12 49 n	100 07 w	100.0	1.0	1.0
891023	03	02	07	05	02	0	73	3.4	12 55 n	100 10 w	100.0	14.0	14.0
891023	05	02	14	08	01	0	73	4.9	13 33 n	100 27 w	100.0	1.0	1.0
891023	05	02	18	08	01	0	71	0.5	13 37 n	100 30 w	100.0	2.0	2.0
891103	11	01	13	01	02	0	71	0.0	14 57 n	106 21 w	100.0	3.0	3.0
891104	03	02	04	08	02	2	67	2.4	13 22 n	107 54 w	100.0	0.0*	2.0
891107			02	10	02	3	56	1.0	10 43 n	106 28 w	100.0	2.0	2.0
891107	07	08	08	03	02	2	67	3.5	09 25 n	106 14 w	100.0	0.0*	2.0
891109	07	05	05			4	73	0.0	08 03 n	103 00 w	100.0	1.0	1.0
891120	04	12	09			4	73	0.1	00 36 n	103 34 w	100.0	1.0	1.0
891123	04	02	07	09	02	4	07	2.4	05 16 n	111 31 w	100.0	2.0	2.0
891124	02	01	02	04	02	2	71	1.0	07 15 n	111 55 w	1.0	8.0	6.0
891128	07	04	09	05	02	2	73	4.5	18 22 n	108 23 w	100.0	0.0*	3.0
891203	03	11	03	08	02	3	56	0.9	22 17 n	110 57 w	100.0	2.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED LARGE WHALE — species code: 79

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890731			03	09	02	3	25	0.6	27 47 n	115 15 w	100.0	1.0	1.0
890801	01	13	01	10	01	4	51	1.5	24 03 n	114 21 w	100.0	1.0	1.0
890801	03	02	03	03	01	4	74	0.3	23 26 n	114 17 w	100.0	1.0	1.0
890802	01	22	01	12	12	5	51	0.6	20 16 n	114 16 w	100.0	1.0	1.0
890805	01	06	01	01	02	4	05	2.9	18 26 n	113 23 w	100.0	1.0	1.0
890826	02	05	03	01	03	2	05	0.8	13 33 n	091 47 w	100.0	1.0	1.0
890826	02	06	04	01	03	2	22	6.4	13 34 n	091 45 w	100.0	0.0*	1.0
890928	05	06	07			3	22	3.9	00 42 s	083 18 w	100.0	1.0	1.0
891023			20			1	56	0.0	13 41 n	100 34 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: SPOTTED DOLPHIN (STENELLA ATTENUATA) species code: 90

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890811	05	02	16	01	01	1	01	3.7	18 56 n	104 37 w	90.0	160.0	140.0
890812	03	02	07	07	02	3	74	1.9	17 40 n	105 39 w	63.6	287.0	214.0
890825	03	01	04	12	02	0	01	0.8	12 50 n	094 57 w	88.3	140.0	112.0
890825	04	02	05	02	02	0	45	6.1	12 53 n	094 50 w	100.0	0.0*	67.0
890825	08	03	06			3	74	2.2	13 08 n	094 56 w	65.0	481.0	337.0
890825	10	01	08	07	03	2	74	1.9	13 15 n	094 46 w	75.0	150.0	75.0
890903	01	03	01	05	02	3	51	3.8	13 34 n	092 29 w	0.7	591.0	483.0
890903	05	15	11	11	01	1	22	8.3	13 47 n	093 20 w	59.3	376.0	285.0
890903	08	05	19	01	02	3	22	6.2	13 52 n	093 52 w	53.3	337.0	198.0
890904	01	05	01	06	02	5	05	0.2	13 59 n	095 48 w	100.0	75.0	63.0
890904	02	05	02	06	01	2	01	8.2	14 00 n	096 05 w	62.8	247.0	185.0
890904	04	01	05	12	12	2	51	4.4	13 54 n	096 23 w	72.5	378.0	300.0
890904	10	01	11	11	02	1	74	2.5	13 58 n	097 02 w	25.0	263.0	218.0
890909			01			2	04	0.6	15 47 n	097 17 w	100.0	0.0*	0.0*
891129	03	03	03	03	01	4	67	5.2	18 47 n	105 47 w	100.0	225.0	195.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED CETACEAN species code: 96

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
891007	01	07	01			3	67	3.4	00 15 s	084 49 w	100.0	0.0*	4.0
891101	01	10	03	04	02	3	55	0.2	18 36 n	104 14 w	100.0	2.0	2.0
891120	01	01	01			4	55	0.1	01 06 n	101 38 w	100.0	1.0	1.0
891120	03	03	06			4	71	0.5	00 42 n	103 04 w	100.0	1.0	1.0
891123	03	06	04	07	01	4	55	0.4	05 02 n	111 28 w	100.0	1.0	1.0
891128	04	01	04	02	02	3	55	2.2	18 28 n	109 15 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED WHALE species code: 98

date	series	leg	sight	sun position		beauf.	detected	perp.	latitude	longitude	proportion	mean school size est	
yrmody			number	horz.	vert.	number	by	dist.(km)	deg min	deg min	(% of school)	best	low
890808	08	01	11			3	22	0.8	16 46 n	109 58 w	100.0	1.0	1.0
890810	02	01	03	12	03	2	45	6.7	16 36 n	108 45 w	100.0	1.0	1.0
890823	01	02	02	01	03	1	51	2.8	11 50 n	100 40 w	100.0	2.0	2.0
890907	02	03	06	09	02	2	22	6.1	15 08 n	101 04 w	100.0	1.0	1.0
891006	07	06	07			4	07	1.8	01 20 s	084 09 w	100.0	1.0	1.0
891013			03			3	67	1.1	06 57 n	084 51 w	100.0	3.0	2.0
891120	03	02	05			4	71	4.0	00 43 n	103 00 w	100.0	2.0	2.0
891120	04	04	08	12	02	4	07	1.7	00 43 n	103 18 w	100.0	1.0	1.0
891202	02	02	02	06	02	4	73	1.6	19 49 n	107 29 w	100.0	1.0	1.0
891205	01	02	01	05	03	4	73	3.4	27 04 n	115 01 w	100.0	1.0	1.0

Table 4. Marine mammal school size estimates for each observer, classified by species codes, for sightings encountered in the eastern tropical Pacific during July - September (Part A) and October - December (Part B), 1989.

A: Sightings encountered July through September, 1989.

			obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
	date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species	2: OFFSHORE SPOTTED DOLPHIN															
	890804	04	250	100			450	100	370	100	280	100	375	100	350	100
	890805	03											20	95		
	890805	04	75	100									60	100	30	100
	890806	02	60	100									60	100	48	100
	890808	05					45	5					37	5	37	8
	890808	12					600	75			550	65				
	890812	09			50	60	60	50	45	25						
	890812	10					1	100	1	100						
	890812	13	350	30	130	25	400	20	160	23			475	20	240	35
	890813	02	35	100									75	100	70	100
	890813	09	35	15									35	40		
	890822	02	275	25									300	20		
	890822	03					1000	60	650	20	550	15				
	890823	07	150	35									200	60	90	75
	890824	01	230	100									375	100	240	100
	890824	06	185	98									450	85	380	85
	890824	13							85	100						
	890825	02											75	99	110	92
	890825	03	235	100									100	100	140	100
	890905	02					225	65	160	70	200	70				
	890905	05													140	96
	890905	08	275	99									150	99	120	99
	890905	09					22	100	25	100	30	100				
	890905	10							8	100						
	890905	13	250	40									390	10	900	23
	890905	16	210	80									235	70	325	85
	890906	02	170	100									85	100	270	100
	890906	04	275	100									110	100	140	100
	890906	06	7	100									20	100	55	100
	890906	08	195	97									290	95	175	92
	890906	09					28	30								
	890906	13	75	99									45	75	120	94
	890907	01													240	100
	890907	03	65	99												
	890907	04	80	100									48	100	215	100
	890907	15	8	100									13	100	12	100
	890910	02	195	45									75	50	340	23
	890910	04					125	95	75	93						
	890914	08	380	40									500	40	650	22
	890915	03			70	100	80	100			210	100				
	890915	04											38	99	70	97
	890916	01													80	60
	890923	05	55	5												
	890924	02					225	70	400	75	200	60				
	890924	05					100	50	250	33	140	43				
	890926	03	160	100									60	100	270	100

Table 4A. (continued)

			obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
	date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species	2: OFFSHORE SPOTTED DOLPHIN															
	890927	01							12	100						
species	3: SPINNER DOLPHIN															
	890825	08	150	25												
	890903	01	450	99											672	99
	890903	11					450	9	425	10						
	890903	19	300	40											375	40
	890904	02	270	35			225	35	160	30	260	23	215	60	350	40
	890904	05											280	30	475	25
	890904	10	16	100												
	890904	11	150	70									115	75	525	80
	890915	04											38	1	70	3
species	10: EASTERN SPINNER DOLPHIN															
	890804	09	145	100	125	100	350	100			160	100			250	100
	890805	03											20	5		
	890808	02					160	100	45	100	80	100				
	890808	12					600	25			550	35				
	890810	01					180	100	310	100	120	100				
	890810	04					25	100	7	100	18	100				
	890811	16													160	8
	890812	07	370	40					120	40			340	40	320	22
	890812	09			50	40	60	50	45	75						
	890812	13	350	70	130	75	400	80	160	77			475	80	240	65
	890812	19			15	100										
	890822	01					155	100	230	100	60	100				
	890822	02	275	75									300	80		
	890822	03					1000	40	650	80	550	85				
	890823	07	150	65									200	40	90	25
	890824	06	185	2									450	15	380	15
	890825	02											75	1	110	8
	890825	04	250	15									85	10	85	10
	890825	06	450	30									512	39		
	890905	02					225	35	160	30	200	30				
	890905	06					75	100	20	100	80	100				
	890905	13	250	60									390	90	900	77
	890905	16	210	20									235	30	325	15
	890906	08	195	3									290	5	175	8
	890906	13	75	1									45	25	120	6
	890907	03	65	1												
	890910	02	195	55									75	50	340	77
	890910	04					125	5	75	7						
	890914	08	380	60									500	60	650	78
	890915	02	60	100									58	100	75	100
	890915	08	25	100											65	100
	890916	01													80	40
species	11: WHITEBELLY SPINNER DOLPHIN															
	890924	02					225	30	400	25	200	40				
	890924	05					100	50	250	67	140	57				

Table 4A. (continued)

		obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 13: STRIPED DOLPHIN															
890802	02	25	100									40	100		
890803	01	34	100			30	100	45	100	55	100	30	100	47	100
890803	04	50	100					24	100					40	100
890804	07											50	100		
890804	10					18	100								
890804	11			8	100					12	100				
890806	01	50	100			50	100					55	100	57	100
890807	02					22	100			35	100				
890807	05											55	100		
890807	07					5	100	5	100						
890807	08					80	100	45	100					60	100
890807	09	15	100												
890808	05					45	95					37	95	37	92
890808	07	30	100									80	100	55	100
890808	09					25	100								
890810	08					23	100	23	100	40	100				
890812	05					22	100			25	100				
890813	05	17	100									24	100	18	100
890813	09	35	85									35	60		
890814	07					8	100								
890817	03	185	100									70	100	180	100
890820	02									8	100				
890820	03									6	100				
890824	02	45	100									35	100		
890824	04					30	100	25	100	40	100				
890824	11	210	100									80	100	110	100
890923	03	20	100												
890924	06	35	100												
890925	05									25	100				
890926	02					80	100	75	100	100	100				
890926	04	65	100									55	100	160	100
890928	02	25	100									66	100	100	100
890928	08	110	100									50	100	220	100
890928	10									12	100				
890929	02	20	100									48	100	100	100
890929	03					7	100								
species 15: ROUGH-TOOTHED DOLPHIN															
890808	10	38	99							36	97	43	98	30	94
890812	20			5	100										
890813	06	7	100												
890814	02					5	100								
890823	06					16	100	18	100	22	100				
890824	09					7	100								
890903	17							5	100						
890904	04					6	100	5	100	6	100				
890905	04	16	100									7	100		
890905	05													140	4
890906	09					28	70								

Table 4A. (continued)

		obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 16: "LONG-SNOUTED WHITEBELLY"															
890731	05	50	100									45	100	55	100
890731	07							400	100						
species 17: "SHORT-SNOUTED WHITEBELLY"															
890801	05	550	100					1200	100	400	100	550	100	450	100
890807	01											10	100	22	100
890810	07					35	100	35	100	40	100				
890909	03	350	100									160	100	190	100
species 18: BOTTLENOSED DOLPHIN															
890808	10	38	1							36	3	43	2	30	6
890810	10	20	100									15	100	6	100
890811	03	35	30												
890811	05	25	100											11	100
890811	09							8	100						
890811	10									1	100				
890811	12					350	25	135	15	83	20				
890811	16													160	2
890821	03	83	8			97	20	59	20						
890825	06											512	1		
890826	01					30	100	8	100			35	100		
890826	05	128	100												
890826	06					16	100								
890826	08													15	100
890826	10													84	100
890903	11					450	1	425	2						
890905	08	275	1									150	1	120	1
890905	12	1	100												
890907	05	15	100												
890910	03	75	5							48	18	31	45	65	15
species 21: RISSO'S DOLPHIN															
890811	03	35	70												
890811	12					350	75	135	85	83	80				
890907	11	16	100												
890907	18	12	100												
890910	03	75	95							48	82	31	55	65	85
890914	01			7	100										
890914	03	6	100												
species 32: PYGMY KILLER WHALE															
890906	15	50	94									38	92	27	90
species 34: PILOT WHALE															
890821	03	83	78			97	70	59	59						
species 37: KILLER WHALE															
890806	03					5	100					5	100	4	100
890815	02	5	100									4	100	6	100
890821	03	83	7			97	2	59	7						

Table 4A. (continued)

			obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
	date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species	37: KILLER WHALE															
	890919	01	2	100												
	890919	03					6	100								
	890928	01					2	100								
species	46: SPERM WHALE															
	890811	01	28	100												
	890821	03	83	7			97	8	59	14						
	890923	01							12	100						
	890927	02					3	100	3	100						
	890927	04											3	100		
	890927	05					7	100								
	890928	09											14	100		
species	48: DWARF SPERM WHALE															
	890823	04							4	100	4	100				
	890904	08					1	100								
	890906	12	1	100									1	100		
	890906	14	1	100												
	890906	22									1	100				
	890907	07					1	100								
	890907	09					1	100								
	890907	10	1	100												
	890907	14											1	100		
	890914	11			1	100										
	890914	14	1	100												
	890914	15									1	100				
	890915	10											2	100		
species	49: BEAKED WHALE															
	890914	06			2	100										
	890914	10			2	100										
species	51: UNID. MESOPLODONT															
	890807	04					3	100			3	100				
	890809	05											4	100	4	100
	890903	09	2	100												
	890903	10													2	100
	890906	10					3	100								
	890906	15	50	6									38	8	27	10
	890906	24					2	100			1	100				
	890907	08					2	100								
	890907	12													3	100
	890907	16					1	100								
	890914	12									2	100				
	890914	13	3	100												
	890925	04	2	100												
species	61: CUVIER'S BEAKED WHALE															
	890809	06	3	100									3	100		
	890814	01					1	100			1	100				

Table 4A. (continued)

	date	sight no.	obs 1 best est.	obs 1 pct	obs 4 best est.	obs 4 pct	obs 5 best est.	obs 5 pct	obs 22 best est.	obs 22 pct	obs 45 best est.	obs 45 pct	obs 51 best est.	obs 51 pct	obs 74 best est.	obs 74 pct
species	61: CUVIER'S BEAKED WHALE															
	890906	20					1	100								
	890906	21									1	100				
	890921	01	1	100												
	890922	02											2	100	2	100
species	63: BAIRD'S BEAKED WHALE															
	890731	06	6	100			7	100	5	100			4	100	5	100
	890731	11	8	100			8	100	6	100	7	100	8	100	8	100
species	70: RORQUAL															
	890821	05					1	100	1	100						
	890903	18									1	100				
species	72: BRYDE'S WHALE															
	890826	11													1	100
	890914	02	1	100									1	100		
species	75: BLUE WHALE															
	890801	02	1	100			1	100	1	100	1	100	1	100	1	100
species	76: HUMPBACK WHALE															
	890731	10	2	100									2	100	2	100
species	77: UNIDENTIFIED DOLPHIN															
	890731	08											20	100	8	100
	890731	09									7	100				
	890801	04											4	100		
	890804	01									1	100				
	890804	02	3	100												
	890804	03											100	100		
	890804	06									5	100				
	890805	05													1	100
	890807	06													1	100
	890809	02	25	100												
	890810	13	10	100												
	890811	02													12	100
	890811	07	20	100											7	100
	890811	14	6	100												
	890823	08													5	100
	890824	10													1	100
	890904	07													1	100
	890905	11													3	100
	890906	18							25	100						
	890906	23									1	100				
	890907	19											8	100		
	890923	05	55	95												
	890928	06					1	100								
	890929	01													1	100

Table 4A. (continued)

		obs 1		obs 4		obs 5		obs 22		obs 45		obs 51		obs 74	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 78: UNIDENTIFIED SMALL WHALE															
890803	02											1	100		
890804	08			1	100										
890805	02									2	100				
890809	08													1	100
890810	05													1	100
890811	15													2	100
890812	16	4	100												
890812	22			2	100										
890812	24			2	100									2	100
890821	06							1	100						
890823	01													1	100
890825	01													4	100
890905	15													1	100
890906	05													1	100
890906	17									1	100				
890907	17							1	100						
890914	09													2	100
890914	16									1	100				
890921	02											3	100		
890926	01									2	100				
species 79: UNIDENTIFIED LARGE WHALE															
890801	01											1	100		
890801	03													1	100
890802	01											1	100		
890805	01					1	100								
890826	03					1	100								
890928	07							1	100						
species 90: SPOTTED DOLPHIN															
890811	16													160	90
890812	07	370	60					120	60			340	60	320	78
890825	04	250	85									85	90	85	90
890825	06	450	70									512	60		
890825	08	150	75												
890903	01	450	1											672	1
890903	11					450	90	425	88						
890903	19	300	60											375	60
890904	01					40	100	105	100	80	100				
890904	02	270	65			225	65	160	70	260	77	215	40	350	60
890904	05											280	70	475	75
890904	11	150	30									115	25	525	20
species 98: UNIDENTIFIED WHALE															
890808	11							1	100						
890810	03									1	100				
890823	02											2	100		
890907	06							1	100						

Table 4B. Sightings encountered October through December, 1989.

	date	sight no.	obs 7 best est.	obs 7 pct	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 57 best est.	obs 57 pct	obs 67 best est.	obs 67 pct	obs 71 best est.	obs 71 pct	obs 73 best est.	obs 73 pct
species	2: OFFSHORE SPOTTED DOLPHIN															
	891009	03	20	100	50	100					35	100	60	100		
	891023	11	80	60			150	50			140	50				
	891023	17	95	80	380	65	230	70			260	60	240	65		
	891023	19	12	100	18	100	35	100			35	100	12	100		
	891023	22							250	100						
	891023	27	50	100			80	100			250	100				
	891024	01			10	100							7	100	14	100
	891102	02			200	50							200	45	150	60
	891102	04	1250	80	1500	50	1750	55			2400	50	1100	50	1050	33
	891102	06	210	8	400	75	750	10			425	35	290	65	570	21
	891103	01	40	100									20	100	32	100
	891103	08	30	100	150	100	100	100			120	100	60	100		
	891104	01			75	100							40	100	65	100
	891104	03													215	23
	891104	07	55	100	70	100	85	100			160	100	50	100	65	100
	891105	02	55	80			110	85			190	85				
	891105	05			100	90										
	891106	04											190	85	320	78
	891107	01	320	35			350	10			500	15				
	891107	03													65	9
	891108	01			45	100							20	100	25	100
	891109	03	180	100			350	100			270	100				
	891110	04			25	100							8	100	14	100
	891110	05	140	100			250	100			310	100				
	891110	08	190	98	180	98	260	98			290	97	145	95	210	95
	891113	02	60	60			250	50			200	60				
	891113	05			700	75							300	75	310	72
	891114	05	75	80	400	85	450	92			425	80	140	75	200	80
	891117	06	150	100			260	100			320	100	80	100	100	100
	891120	02	145	90			180	70			220	80				
	891120	03	130	95			150	95			210	95				
	891120	07			100	75							80	70	100	70
	891120	10			60	100							60	100	60	100
	891123	02	140	95			200	95			210	95				
	891125	01			75	60							80	40	40	50
	891127	04	55	100			130	100			140	100				
	891129	01			350	50							130	40	155	40
	891129	02	140	99							195	97				
	891202	01			135	100							75	100	85	100
species	3: SPINNER DOLPHIN															
	891014	02	90	100			350	100			110	100	175	100	110	100
species	6: COASTAL SPOTTED DOLPHIN															
	891201	04	15	100			20	100			20	100				

Table 4B. (continued)

	date	sight no.	obs 7 best est.	obs 7 pct	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 57 best est.	obs 57 pct	obs 67 best est.	obs 67 pct	obs 71 best est.	obs 71 pct	obs 73 best est.	obs 73 pct
species	10: EASTERN SPINNER DOLPHIN															
	891023	03	40	100			150	100			125	100			70	100
	891023	11	80	40			150	50			140	50				
	891023	17	95	20	380	35	230	30			260	40	240	35		
	891023	26			8	100							9	100		
	891102	02			200	50							200	55	150	40
	891102	04	1250	20	1500	50	1750	45			2400	50	1100	50	1050	67
	891102	06	210	92	400	25	750	90			425	65	290	35	570	79
	891104	03													215	58
	891105	02	55	20			110	15			190	15				
	891105	05			100	10										
	891106	04											190	10	320	20
	891107	01	320	65			350	90			500	85				
	891113	02	60	40			250	50			200	40				
	891113	05			700	24							300	24	310	27
	891114	05	75	20	400	15	450	8			425	20	140	25	200	20
	891125	01			75	40							80	60	40	50
	891129	01			350	50							130	60	155	60
	891129	02	140	1							195	3				
species	11: WHITEBELLY SPINNER DOLPHIN															
	891120	02	145	10			180	30			220	20				
	891120	03	130	5			150	5			210	5				
	891120	07			100	25							80	30	100	30
	891122	01	65	100			85	100			43	100				
	891123	02	140	5			200	5			210	5				
species	13: STRIPED DOLPHIN															
	891006	01											40	100	8	100
	891006	02											25	100	12	100
	891006	03	6	100									15	100	10	100
	891007	05	45	100			150	100			115	100	55	100		
	891008	04	20	100			50	100			35	100	45	100		
	891010	01			20	100							15	100	9	100
	891012	02			45	100							60	100	17	100
	891013	02					80	100			80	100			22	100
	891013	06			50	100	95	100			70	100	40	100	26	100
	891014	05	15	100							35	100				
	891015	01			40	100							50	100	18	100
	891015	05	8	100			70	100			25	100				
	891019	03	8	100	20	100	30	100			18	100	20	100	20	100
	891019	06	16	100	40	100	85	100			22	100	27	100	26	100
	891019	07	15	100	45	100	65	100			45	100	35	100	21	100
	891019	10	9	100	20	100	30	100			15	100	15	100	14	100
	891020	01			50	100							25	100	40	100
	891020	03	18	100			175	100			85	100				
	891020	04	8	100							35	100	60	100		
	891020	07	25	100	50	100	65	100			43	100	25	100	40	100
	891020	08	10	100			95	100			110	100				
	891020	09			25	100							25	100	28	100
	891021	04	12	100	40	100	65	100			18	100	19	100	18	100

Table 4B. (continued)

		obs 7		obs 55		obs 56		obs 57		obs 67		obs 71		obs 73	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 13: STRIPED DOLPHIN															
891021	06													65	2
891022	02	80	100			200	100			235	100			60	100
891103	11	35	100									25	100	30	100
891104	03													215	19
891104	09			60	100							30	100	33	100
891105	03			15	100							12	100	17	100
891105	04	12	100	27	100	40	100			27	100	10	100	22	100
891106	03			30	100							12	100		
891107	04			17	100							12	100	10	100
891107	06	45	100	50	100	130	100			90	100	40	100	65	100
891108	07			35	100							6	100	22	100
891109	01	15	100			55	100			21	100				
891109	02			45	100							45	100	27	100
891110	03	40	100			210	100			120	100	45	100	55	100
891110	10	65	100	80	100							35	100	85	100
891111	03			40	100							16	100	17	100
891113	12			20	100										
891114	01	50	100	50	100							50	100	65	100
891114	08	55	100			110	100			95	100			42	100
891114	09	4	100			20	100			16	100			7	100
891114	11			20	100							12	100	22	100
891114	12	2	100			2	100			2	100				
891115	01	18	100	80	100	150	100			85	100				
891115	03											80	100	100	100
891115	06			50	100							35	100	40	100
891115	07	45	100	50	100	135	100					35	100	110	100
891116	02	25	100			75	100			120	100				
891117	01	12	100			30	100			30	100				
891117	05			45	100							30	100	28	100
891121	01	25	100			60	100			65	100				
891121	04			12	100							16	100	16	100
891121	05	25	100			50	100			40	100				
891121	06	30	100			45	100			33	100				
891124	01			45	100							25	100	28	100
891128	01			7	100							7	100	6	100
891128	03	22	100	33	100	65	100			30	100	10	100	27	100
891128	05			25	100							21	100	21	100
891128	06			60	100							60	100	65	100
891128	10	25	100	35	100	85	100			25	100	27	100	29	100
891129	07			6	100							7	100	7	100
891203	04	40	100			150	100			75	100				
species 15: ROUGH-TOOTHED DOLPHIN															
891015	02			22	100							8	100	9	100
891023	13			20	100									12	100
891023	16														
891023	21	14	100			30	100								
891023	24			12	100							7	100		
891102	03			10	100										
891103	04			5	100							6	100	5	100

Table 4B. (continued)

	date	sight no.	obs 7 best est.	obs 7 pct	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 57 best est.	obs 57 pct	obs 67 best est.	obs 67 pct	obs 71 best est.	obs 71 pct	obs 73 best est.	obs 73 pct
species	15: ROUGH-TOOTHED DOLPHIN															
	891103	09	10	100							7	100				
	891110	09	3	100			3	100			4	100				
	891115	14	20	100	60	100	60	100			28	100				
	891124	02											8	99		
species	16: "LONG-SNOUTED WHITEBELLY"															
	891203	01	500	100			1000	100			800	100				
	891204	06			600	100							325	100	400	100
	891205	02													350	100
	891205	03													200	100
species	17: "SHORT-SNOUTED WHITEBELLY"															
	891006	08	28	100			100	100			32	100			40	100
	891013	05			320	100							180	100	170	100
	891018	03			260	100							140	100	180	100
	891019	08	125	100	375	100	375	100			155	100	210	100	115	100
	891019	09	85	100	190	100	300	100			150	100	160	100	115	100
	891021	06													65	98
	891111	02	70	100			300	100			140	100			120	100
	891115	11	290	100	425	100	500	100			500	100	220	100	325	100
species	18: BOTTLENOSED DOLPHIN															
	891013	08			73	14							80	100	100	100
	891014	06			50	100							20	50	31	71
	891016	01			40	75							35	35	44	68
	891019	05			49	50							40	25	55	45
	891020	06					38	50					6	100		
	891023	25			5	100							190	5	320	2
	891106	04													30	100
	891106	05	12	100			35	100			33	100				
	891108	02					30	90								
	891109	04					40	10			23	10				
	891110	08	190	2	180	2	260	2			290	3	145	5	210	5
	891113	03											12	90		
	891113	05			700	1							300	1	310	1
	891121	03									40	15				
	891124	04	20	100	15	100							20	100	18	100
species	21: RISSO'S DOLPHIN															
	891016	01			40	25							20	50	31	29
	891024	06			20	100							25	100	7	100
	891101	01					5	100								
	891103	03			8	100							6	100	6	100
	891105	07	3	100												
	891113	03											12	10		
	891113	09	8	100			25	100			13	100				
	891113	14			7	100									12	100
	891127	02					6	100								
	891128	07			12	100							9	100	6	100

Table 4B. (continued)

		obs 7		obs 55		obs 56		obs 57		obs 67		obs 71		obs 73	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 26: FRASER'S DOLPHIN															
891123	05			1000	100							520	100	450	100
species 32: PYGMY KILLER WHALE															
891007	02			33	100							14	100	37	100
891023	04			20	100							8	100	14	100
891113	11			50	100	175	100			260	100	60	100	120	100
species 34: PILOT WHALE															
891006	06	6	100			12	100			6	100				
species 36: SHORT-FINNED PILOT WHALE															
891011	02													12	100
891013	01									5	100				
891019	05			49	50							35	65	44	32
891020	02													12	100
891020	06					38	50					40	75	55	55
891021	08					15	100								
891108	02					30	10								
891109	04					40	90			23	90				
891109	06											4	100	12	100
891115	10	6	100							1	100				
891115	13											11	100	10	100
891116	01									12	100				
891121	03									40	85				
891123	08			20	60	100	90								
species 37: KILLER WHALE															
891110	01	4	100							10	100				
891117	04	2	100			5	100			2	100	2	100	2	100
891129	06	1	100												
species 46: SPERM WHALE															
891006	04	1	100			1	100			1	100				
891006	05											5	100	5	100
891006	09	12	66			15	70			13	99				
891008	05													13	100
891011	01	18	84												
891013	08			73	86										
891014	03			5	100							4	100	3	100
891122	03					12	100			10	100				
891127	01									1	100				
891129	04					20	100								
891204	07													1	100
891204	08	3	100												
species 48: DWARF SPERM WHALE															
891018	01	3	100												
891019	04			1	100									1	100
891023	08													1	100
891023	10											1	100		

Table 4B. (continued)

	date	sight no.	obs 7 best est.	obs 7 pct	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 57 best est.	obs 57 pct	obs 67 best est.	obs 67 pct	obs 71 best est.	obs 71 pct	obs 73 best est.	obs 73 pct
species	48: DWARF SPERM WHALE															
	891023	12	1	100							1	100				
	891103	12											2	100		
	891104	06					2	100								
	891107	07					1	100								
	891115	12													5	100
	891124	03									1	100				
species	49: BEAKED WHALE															
	891008	01											1	100		
	891022	03											1	100	1	100
	891023	06													2	100
	891115	09									1	100				
	891123	01	2	100												
	891203	05									4	100				
	891204	01											1	100		
	891204	03											1	100		
species	50: SOUTHERN BOTTLENOSED WHALE															
	891123	08			20	40	100	10								
species	51: UNID. MESOPLODONT															
	891019	01	1	100												
	891023	02	1	100							1	100				
	891023	15													2	100
	891024	05											2	100		
	891103	05													2	100
	891103	10	3	100												
	891104	02											2	100	2	100
	891114	07											1	100	1	100
	891127	03													1	100
	891128	02					2	100								
	891129	08													2	100
species	61: CUVIER'S BEAKED WHALE															
	891103	14											4	100	4	100
	891103	16	2	100												
	891114	06	2	100	2	100							2	100	2	100
	891114	10													1	100
	891117	02	3	100												
	891204	09													1	100
species	70: RORQUAL															
	891113	01									1	100				
	891114	02	1	100												
	891120	04	1	100			1	100								
	891202	03			1	100									1	100
	891203	02					1	100								
	891204	05											1	100		
	891205	04													1	100

Table 4B. (continued)

		obs 7		obs 55		obs 56		obs 57		obs 67		obs 71		obs 73	
date	sight no.	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct	best est.	pct
species 72: BRYDE'S WHALE															
891121	02	4	100			3	100			3	100			4	100
species 75: BLUE WHALE															
891111	01	1	100			1	100			1	100			1	100
891111	04	1	100												
891111	06			1	100										
891112	02											1	100	1	100
species 77: UNIDENTIFIED DOLPHIN															
891006	09	12	34			15	30			13	1				
891011	01	18	16												
891012	04											15	100		
891018	04									30	100				
891107	03													65	91
891107	05											3	100	2	100
891111	08													5	100
891129	05					12	100								
species 78: UNIDENTIFIED SMALL WHALE															
891018	07											2	100		
891023	05											1	100		
891023	07													14	100
891023	14													1	100
891023	18											2	100		
891103	13											3	100		
891109	05													1	100
891120	09													1	100
891123	07	2	100												
891124	02											8	1		
891203	03					2	100								
species 90: SPOTTED DOLPHIN															
891129	03			325	100							210	100	140	100
species 96: UNIDENTIFIED CETACEAN															
891101	03			2	100										
891120	01			1	100										
891120	06											1	100		
891123	04			1	100										
891128	04			1	100										
species 98: UNIDENTIFIED WHALE															
891006	07	1	100												
891120	05											2	100		
891120	08	1	100												
891202	02													1	100
891205	01													1	100

Table 5. Summary of marine mammal sightings encountered in the eastern tropical Pacific during July 29 through December 7, 1989.

species name (scientific name)	species code	species sightings total	pure	mixed	means of school size estimates low /(n)	high /(n)	best /(n)
OFFSHORE SPOTTED DOLPHIN (STENELLA ATTENUATA)	2	105	43	62	84.95(105)	145.60(91)	110.48(91)
SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	3	18	6	12	81.57(17)	163.81(12)	113.94(13)
COASTAL SPOTTED DOLPHIN (S.A. GRAFFMANI)	6	2	2	0	20.00(2)	30.50(2)	26.50(2)
EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	10	60	13	47	87.28(60)	150.31(55)	116.35(55)
WHITEBELLY SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	11	7	1	6	37.06(7)	58.75(7)	46.53(7)
STRIPED DOLPHIN (S. COERULEOALBA)	13	124	119	5	30.53(123)	53.49(107)	40.53(107)
ROUGH-TOOTHED DOLPHIN (STENO BREDANENSIS)	15	30	24	6	11.72(30)	14.64(27)	12.24(27)
"LONG-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS SUBSP. ?)	16	7	7	0	297.57(7)	627.14(7)	387.00(7)
"SHORT-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS SUBSP. ?)	17	15	14	1	175.21(15)	198.63(14)	170.05(14)
BOTTLENOSED DOLPHIN (TURSIOPS TRUNCATUS)	18	44	19	25	15.49(43)	22.09(38)	19.24(39)
RISSO'S DOLPHIN (GRAMPUS GRISEUS)	21	25	17	8	13.63(24)	22.21(21)	18.29(22)
PACIFIC WHITE-SIDED DOLPHIN (LAGENORHYNCHUS OBLIQUIDENS)	22	2	2	0	6.00(2)	8.50(2)	6.50(2)
FRASER'S DOLPHIN (LAGENODELPHIS HOSEI)	26	1	1	0	533.00(1)	767.00(1)	657.00(1)
UNIDENTIFIED DOLPHIN	77	164	158	6	12.27(160)	45.01(31)	11.43(34)
SPOTTED DOLPHIN (STENELLA ATTENUATA)	90	15	4	11	116.24(14)	217.93(13)	159.76(13)

Table 5. (continued)

species name (scientific name)	species code	species sightings total	pure	mixed	means of school size estimates low /(n)	high /(n)	best /(n)
MELON-HEADED WHALE (PEPONOCEPHALA ELECTRA)	31	1	1	0	216.00(1)	314.00(1)	254.00(1)
PYGMY KILLER WHALE (FERESA ATTENUATA)	32	6	4	2	34.38(6)	44.14(6)	38.18(6)
PILOT WHALE (GLOBICEPHALA SP.)	34	2	1	1	21.08(2)	28.52(2)	24.68(2)
SHORT-FINNED PILOT WHALE (GLOBICEPHALA MACRORHYNCHUS)	36	16	8	8	14.41(16)	21.67(14)	17.47(14)
KILLER WHALE (ORCINUS ORCA)	37	9	8	1	3.30(9)	4.40(9)	3.80(9)
SPERM WHALE (PHYSETER MACROCEPHALUS)	46	20	16	4	9.17(20)	12.90(19)	10.67(20)
DWARF SPERM WHALE (KOGIA SIMUS)	48	28	28	0	1.57(28)	1.61(28)	1.57(28)
BEAKED WHALE (ZIPHIID)	49	10	10	0	1.70(10)	1.80(10)	1.70(10)
SOUTHERN BOTTLENOSED WHALE (HYPEROODON PLANIFRONS)	50	1	0	1	9.46(1)	12.92(1)	10.92(1)
UNID. MESOPLODONT (MESOPLODON SP.)	51	35	34	1	1.91(35)	2.12(34)	1.94(34)
CUVIER'S BEAKED WHALE (ZIPHIUS CAVIROSTRIS)	61	13	13	0	1.77(13)	2.00(13)	1.77(13)
BAIRD'S BEAKED WHALE (BERNARDIUS BAIRDI)	63	2	2	0	6.00(2)	7.00(2)	6.00(2)
RORQUAL (BALAENOPTERA SP.)	70	12	12	0	1.00(12)	1.25(12)	1.00(12)
BRYDE'S WHALE (B. EDENI)	72	4	4	0	1.50(4)	2.25(4)	2.00(4)
FIN WHALE (B. PHYSALUS)	74	1	1	0	5.00(1)	6.00(1)	5.00(1)
BLUE WHALE (B. MUSCULUS)	75	7	7	0	1.14(7)	1.29(7)	1.14(7)
HUMPBACK WHALE (MEGAPTERA NOVAEANGLIAE)	76	3	3	0	2.33(3)	2.33(3)	2.33(3)
UNIDENTIFIED SMALL WHALE	78	40	39	1	1.83(40)	2.15(34)	1.97(34)
UNIDENTIFIED LARGE WHALE	79	9	9	0	1.00(9)	1.25(8)	1.00(8)
UNIDENTIFIED CETACEAN	96	6	6	0	1.67(6)	1.20(5)	1.20(5)
UNIDENTIFIED WHALE	98	10	10	0	1.30(10)	1.50(10)	1.40(10)

Table 6. Summary of distance searched, dolphin schools detected, and rates of encountering dolphins by observers aboard the Jordan in the eastern tropical Pacific during July 29 through December 7, 1989.

	Distance Searched (km)[1]	Percent Distance Searched	Number Schools Detected	Percent Schools Detected	Detection Rate (Schools/ 1000 km)	S.E. Detection Rate	Number[2] Days Searched
All Data	12640	100	473	100	37.42	10.90	103
Inshore	8862	70	397	84	44.80	16.90	80
Middle	3778	30	76	16	21.12	9.85	32
Sea State Conditions							
Calm	2786	22	194	41	69.65	56.26	46
Rough	9854	78	279	59	28.31	7.36	99
Visibility Conditions							
Good	10693	85	414	88	38.72	12.36	102
Poor	1947	15	59	12	30.31	24.61	76
Observers							
1	2992	27	40	8	13.37	6.78	49
4	363	3	7	1	19.28	41.81	13
5	3032	24	40	8	13.19	7.51	49
7	3233	26	33	7	10.21	3.94	53
22	2814	22	32	7	11.37	7.70	47
45	3052	24	34	7	11.14	5.84	50
51	2996	24	49	10	16.36	9.15	49
55	3325	26	51	11	15.34	5.01	53
56	3213	25	39	8	12.14	4.80	53
67	3211	25	35	7	10.90	4.66	53
71	3343	26	41	9	12.26	3.67	53
73	3344	26	31	7	9.27	5.15	53
74	3000	24	41	9	13.67	8.84	49

Table 6. (continued)

	Distance Searched (km)	Percent Distance Searched	Number Schools Detected	Percent Schools Detected	Detection Rate (Schools/ 1000 km)	S.E. Detection Rate	Number[2] Days Searched
Teams[3]							
Team 1	2992	24	130	27	43.45	45.82	49
Team 2	3032	24	113	24	37.27	35.03	49
Team 3	3324	26	119	25	35.79	18.17	53
Team 4	3213	25	107	22	33.30	17.75	53

[1]Numbers may not add precisely due to rounding.

[2]Day included in tally of searching effort if variable occurred during any part of the day.

[3]Team 1 members were observers 1,51,74; Team 2 members were observers 5,22,45; Team 3 members were observers 55,71,73; and Team 4 members were observers 7,56,67. 78km of trackline was searched when either both or neither of the team leaders were on duty and is not used for team analysis.

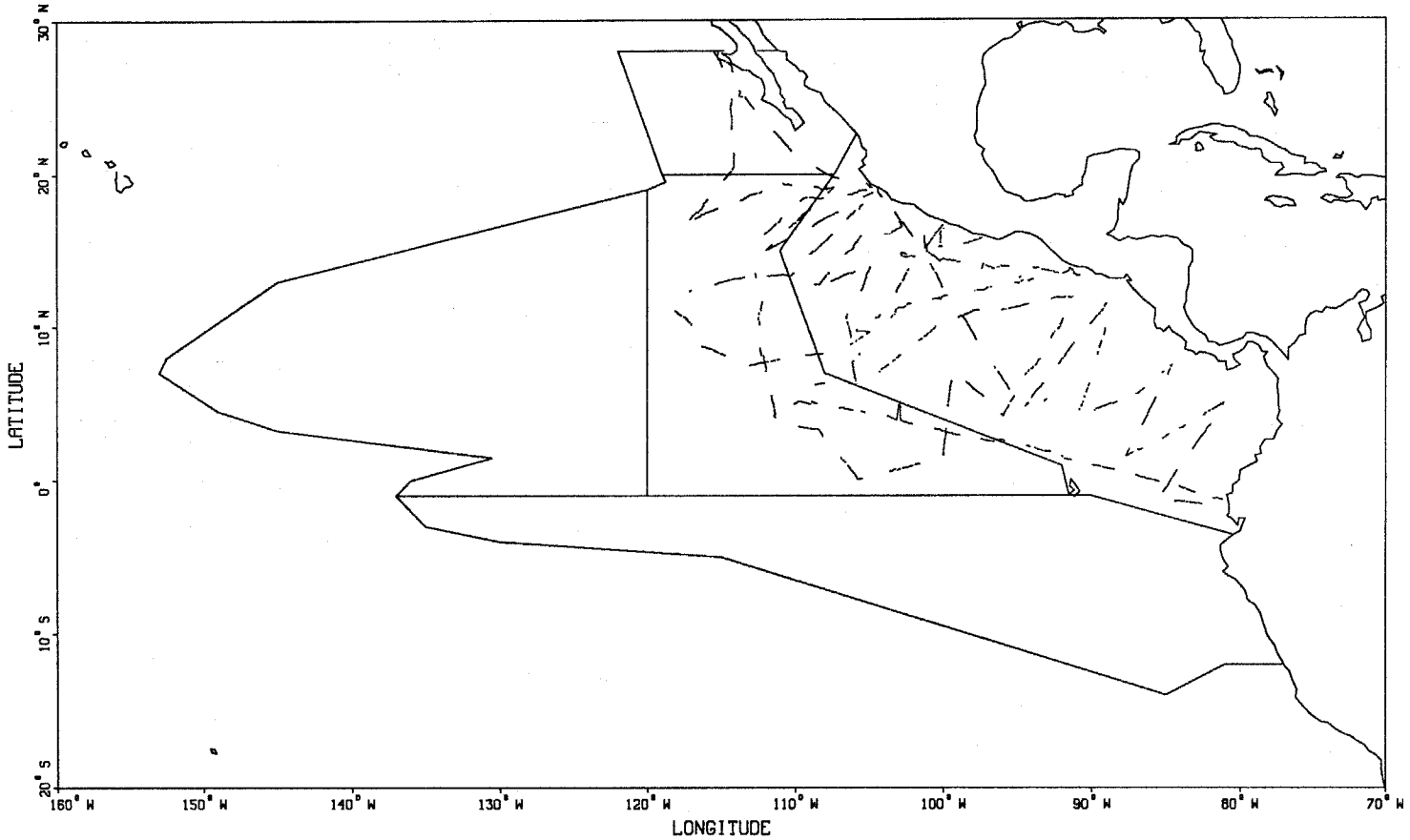


Figure 1. Tracklines surveyed by the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

CRUISE #	YEAR	MONTH	DAY
1	5	7	9

RESEARCH SHIP
MARINE MAMMAL
DAILY EFFORT RECORD

SERIES #	LEG #	START OF LEG									END OF LEG	COMPASS COURSE	VESSEL SPEED	POSITION: ONE OR MORE PER SERIES				OBSERVER POSITION			SIGHTING Y/N	END LEG CODE
		TIME	SURFACE TEMP. °F & 10ths	BEAU #	FOG/ RAIN	HORZ. SUN	VERT. SUN	WIND DIR. °T	SWELL DIR. °T	SWELL HEIGHT FT.	TIME	°T	KTS & 10ths	LATITUDE	N/S	LONGITUDE	E/W	LEFT BINO.	RIGHT BINO.	REC.		
11	13	15	19	22	23	24	26	28	31	34	36	40	43	46	50	51	56	57	59	61	63	64

ENDING CODES

1 = COURSE CHANGE
2 = SPEED CHANGE
4 = EFFORT TERMINATED
5 = LEG ENDS TO RECORD POSITION IN FOLLOWING LEG
8 = LEG ENDS DUE TO CHANGE IN ENVIRONMENTAL CONDITIONS
9 = LEG ENDS DUE TO CHANGE IN OBSERVER POSITIONS

FOG/RAIN CODES

NO FOG OR RAIN = 1
FOG = 2
RAIN = 3
FOG AND RAIN = 4

NOTES:

Figure 2. Research ship marine mammal daily effort record.

NOAA FORM 88-104

RESEARCH SHIP MARINE MAMMAL SIGHTING RECORD

CRUISE #	DATE YEAR	DATE MONTH	DATE DAY	SIGHT #	SERIES #	LEG #	CARD #
							0 1
1	5	7	9	11	13	15	17

SIGHTING CUE TIME	CUE CODE	SIGHT CODE	BEARING FROM SHIP	DISTANCE nm & 10ths	ENVIR. COND. AT CUE BEAU	SURF TEMP °F & 10ths	HORZ SUN	VERT SUN	POSITION AT TIME OF CUE LATITUDE	N/S	LONGITUDE	E/W	SOURCE CODE	TIME M.M. SIGHTED	>BIRDS Y/N	OBSERVER POSITIONS LEFT BINO.	RIGHT BINO.	REC	M.M. DETECTED BY
19	23	24	25	28	31	32	35	37	39	43	44	49	50	51	55	56	58	60	62

OBSERVER 1

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	CARD #	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
				0 2								
64	66	70	74	77 17	19	22	24	27	29	32	34	37

S P 1 | S P 2 | S P 3 | S P 4

OBSERVER 2

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
39	41	45	49	53	56	58	61	63	66	68	71

S P 1 | S P 2 | S P 3 | S P 4

OBSERVER 3

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	CARD #	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
		0 3										
73	75	78 17	19	23	27	30	32	35	37	40	42	45

S P 1 | S P 2 | S P 3 | S P 4

OBSERVER 4

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	CARD #	SP 4 CODE
											0 4	
47	49	53	57	61	64	66	69	71	74	76	78 17	19

S P 1 | S P 2 | S P 3 | S P 4

OBSERVER 5

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
23	27	31	35	38	40	43	45			50	53

S P 1 | S P 2 | S P 3 | S P 4

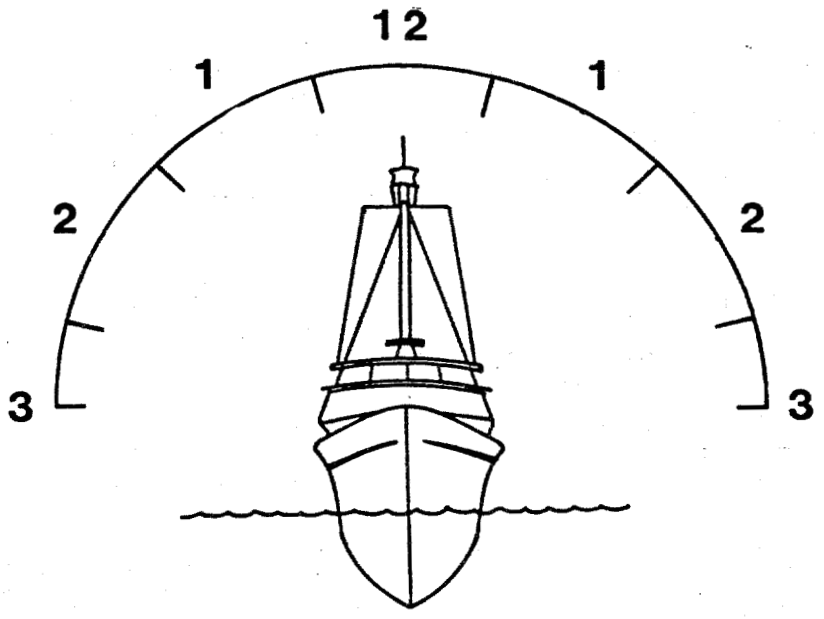
OBSERVER 6

OBS. CODE	SCHOOL SIZE ESTIMATE BEST	HIGH	LOW	SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	CARD #	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
								0 5				
55	57	61	65	69	72	74	77 78 17		19	22	24	27

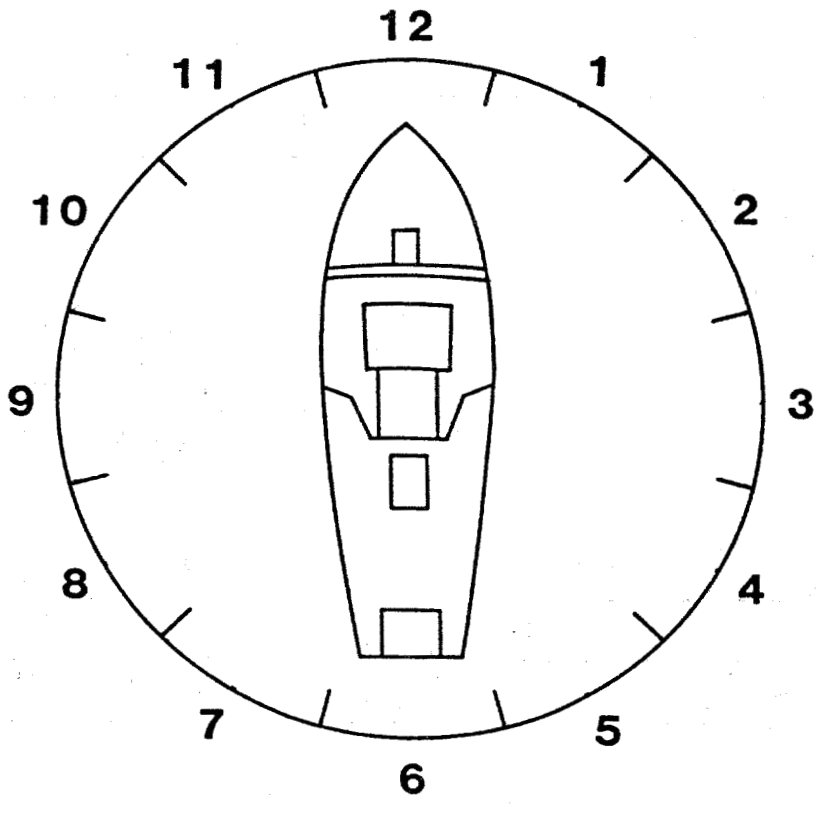
S P 1 | S P 2 | S P 3 | S P 4

RC 1	RC 2	RC 3	RC 4	RC 5	RC 6
29	30	31	32	33	34

Figure 3. Research ship marine mammal sighting record. NOAA FORM 88-105



VERTICAL SUN POSITION



HORIZONTAL SUN POSITION

Figure 4. Vertical and horizontal sun position categories.

Figure 5. Research ship sighting continuation record.

CRUISE #	DATE YEAR	DATE MONTH	DATE DAY	SIGHT #	SERIES #	LEG #	OBS. CODE
1	5	7	9	11	13	15	17

SIGHTING SUMMARY

LIST ALL DIAGNOSTIC FEATURES OBSERVED
(INCLUDING ESTIMATED BODY LENGTH)

SKETCH FEATURES OF ANIMALS SIGHTED

BEHAVIOR – (DESCRIBE AGGREGATION, MOVEMENT, BOW AND STERN RIDING, BLOWS, ETC.)

MOVEMENT OF SCHOOL: SPEED (KTS) ⌊⌋⌋⌋ DIRECTION (RELATIVE TO BOW) ⌊⌋⌋⌋

ASSOCIATED ANIMALS – (INCLUDE NUMBER AND SPECIES OF BIRDS)

PHOTOS: ROLL # _____

FRAME (S): # _____

TOTAL TIME OF OBSERVATION _____

ENVIR. COND. (RAIN, OVERCAST, FOG, CHOPPY) _____

CLOSEST DISTANCE OF OBSERVATION _____

AMT. OF TIME AT CLOSEST DISTANCE _____

TAGS ASSOCIATED WITH SIGHTING _____

METHOD OF OBSERVATION (EYE, 7x, 10x, 25x) _____

NOAA FORM 88-105a

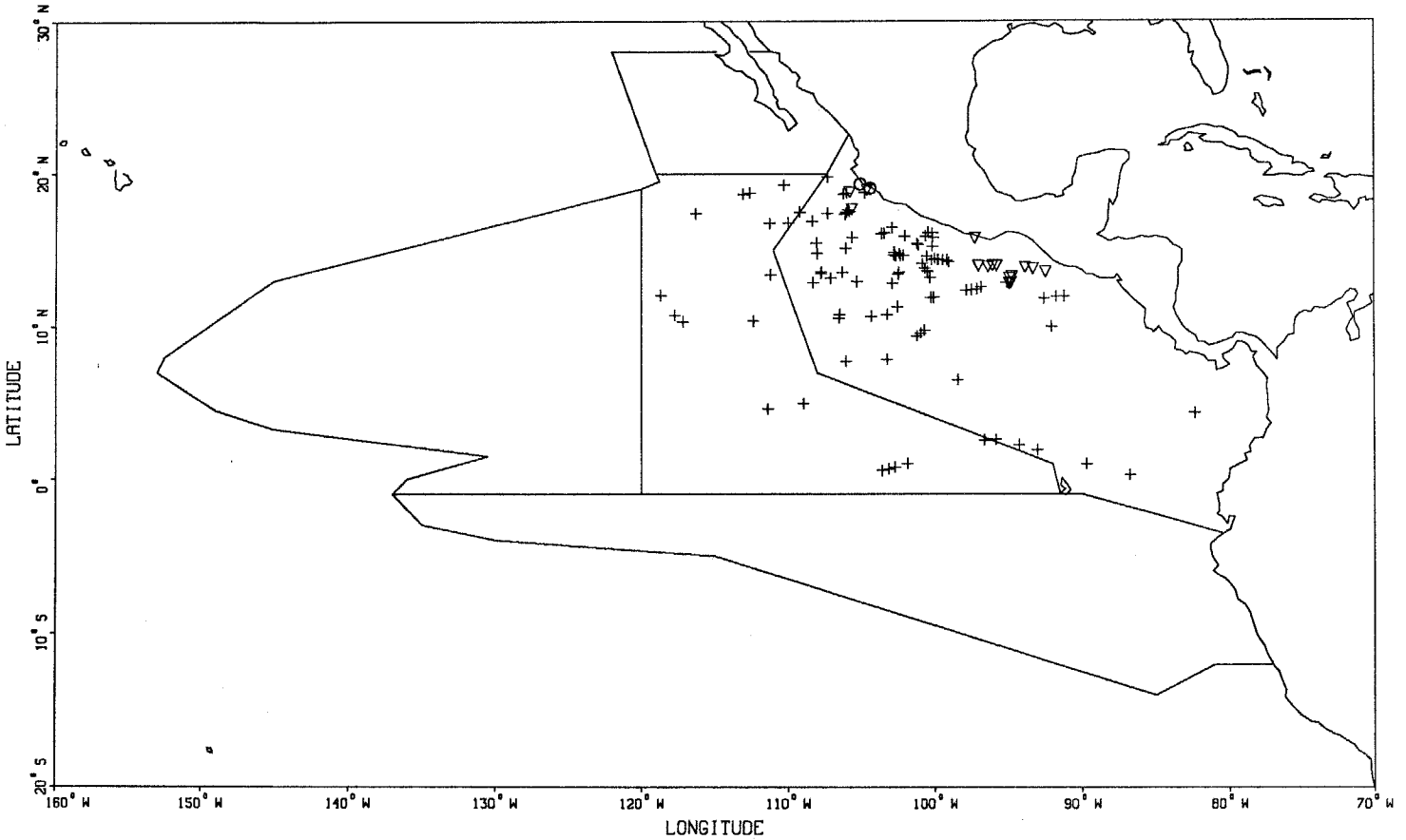


Figure 6. Offshore (+), coastal (O) and unidentified (▽) spotted dolphins detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

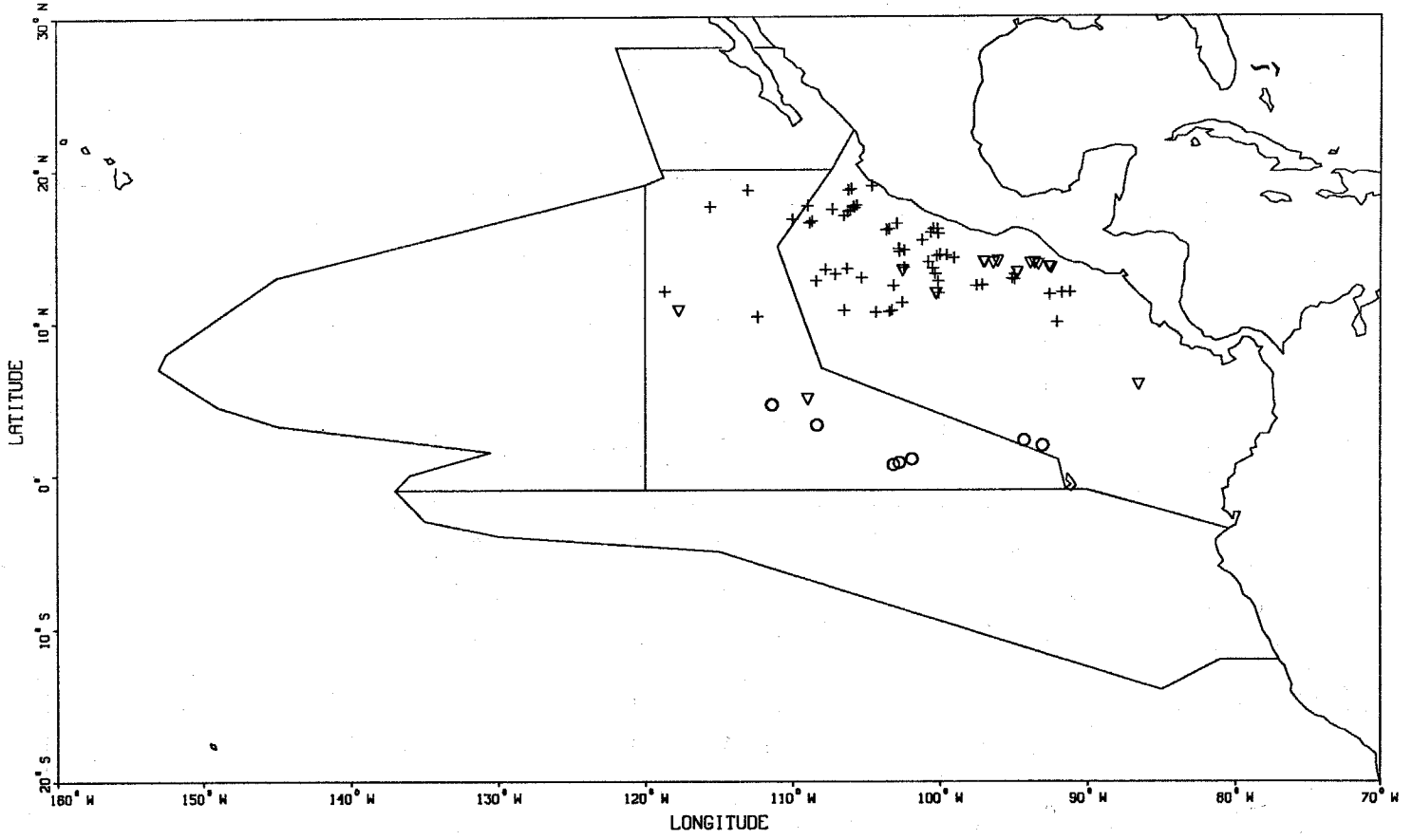


Figure 7. Eastern (+), whitebelly (o) and unidentified (▽) spinner dolphins detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

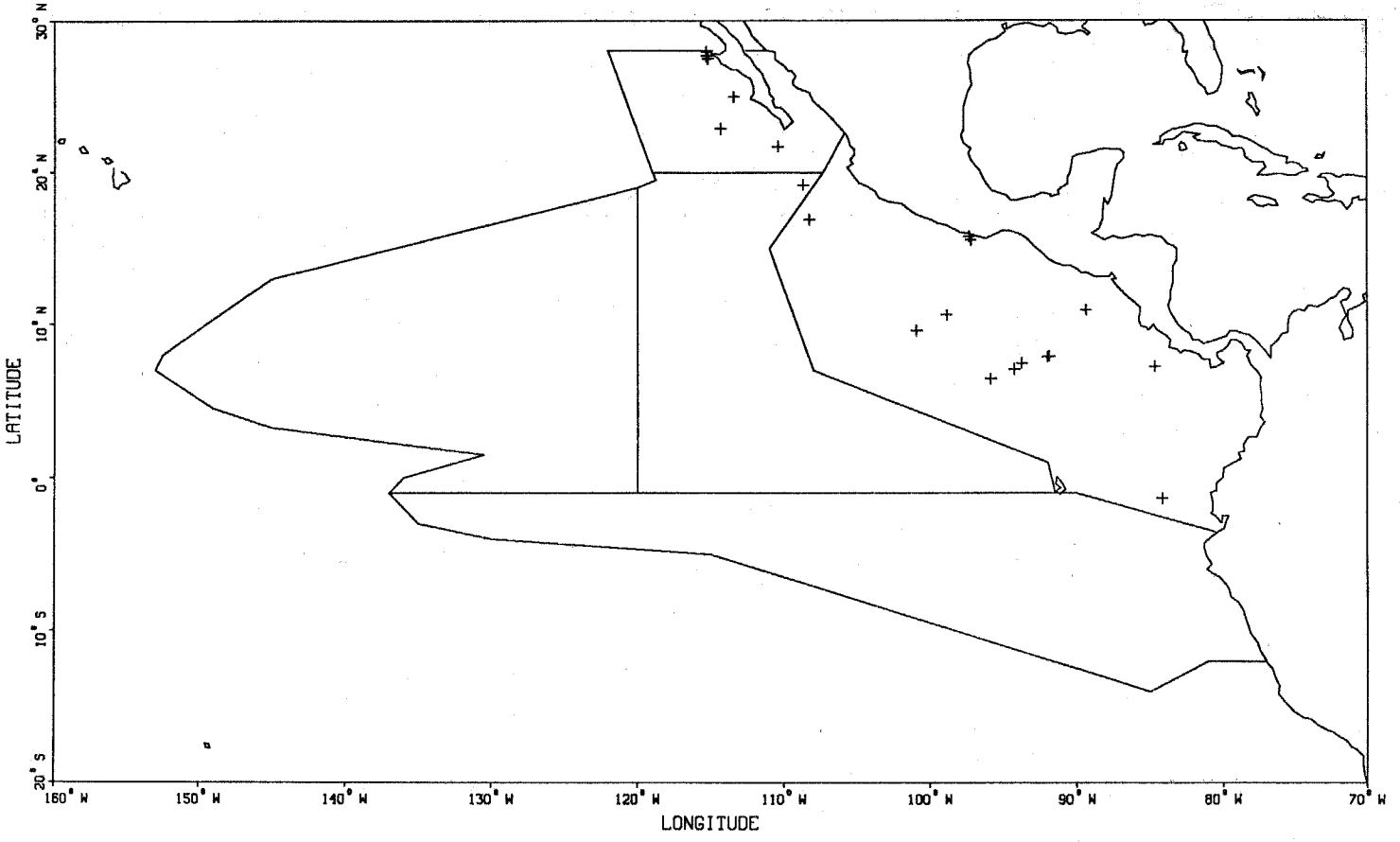


Figure 8. Common dolphins (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

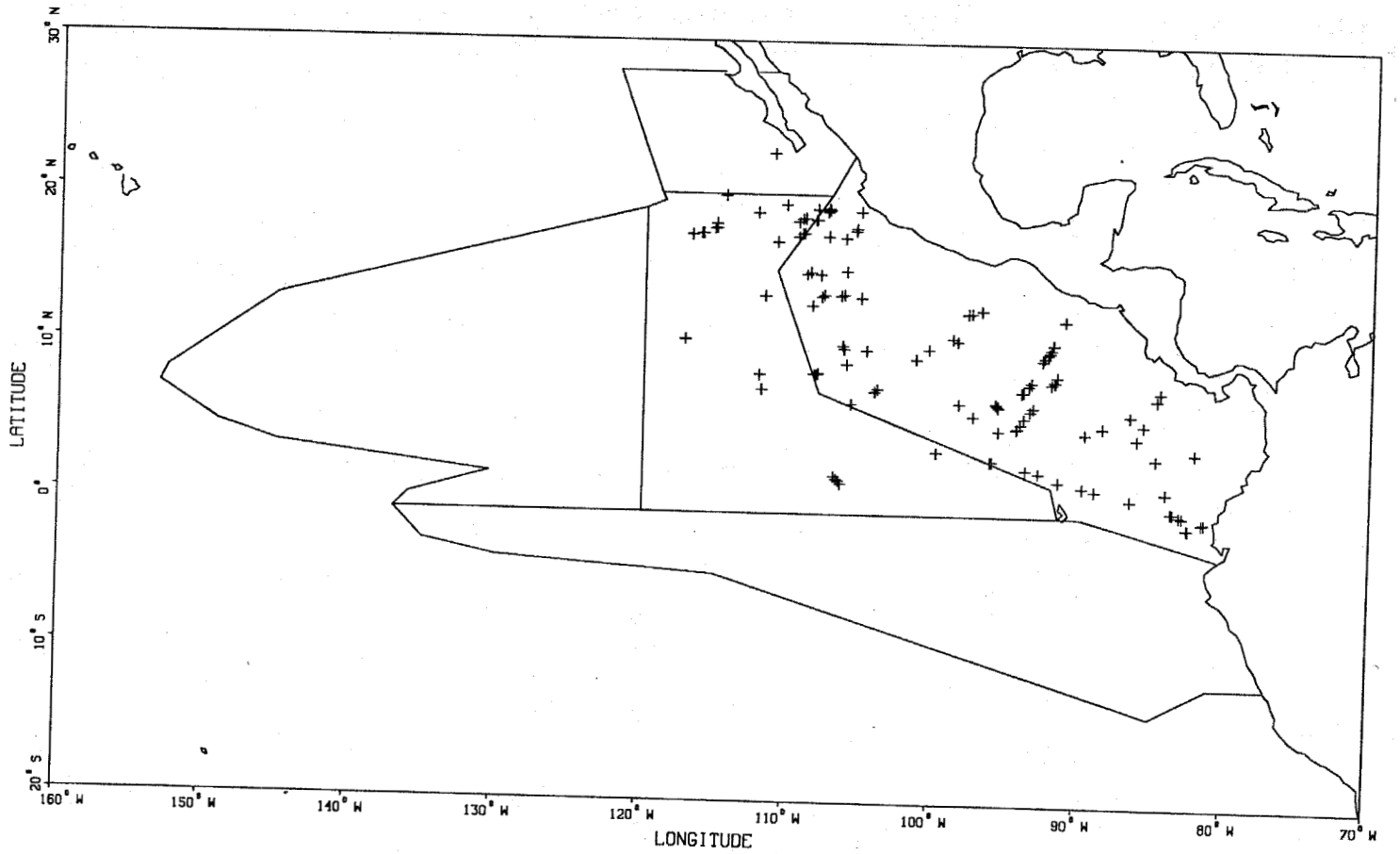


Figure 9. Striped dolphins (+) detected from aboard the NOAA ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

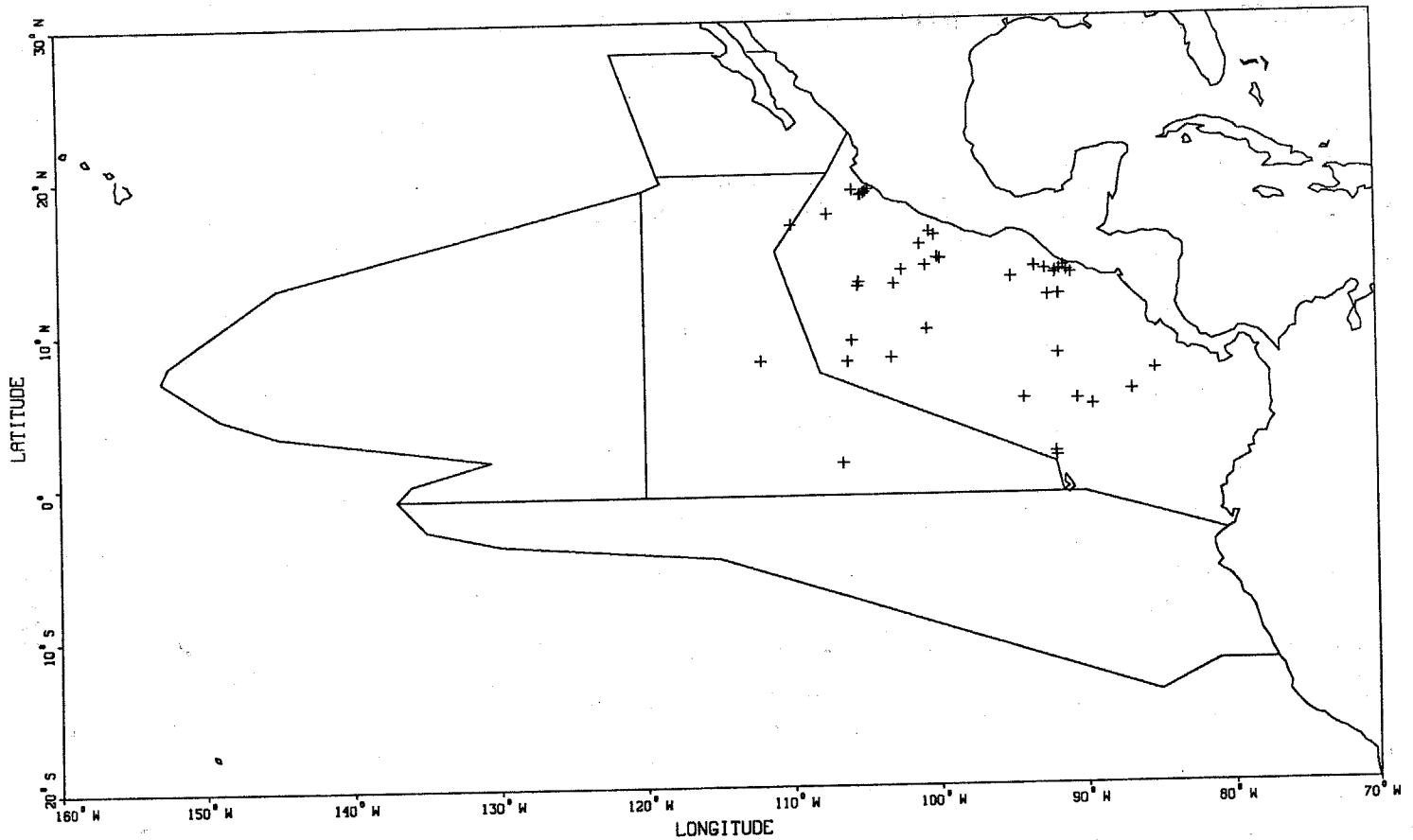


Figure 10. Bottlenose dolphins (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

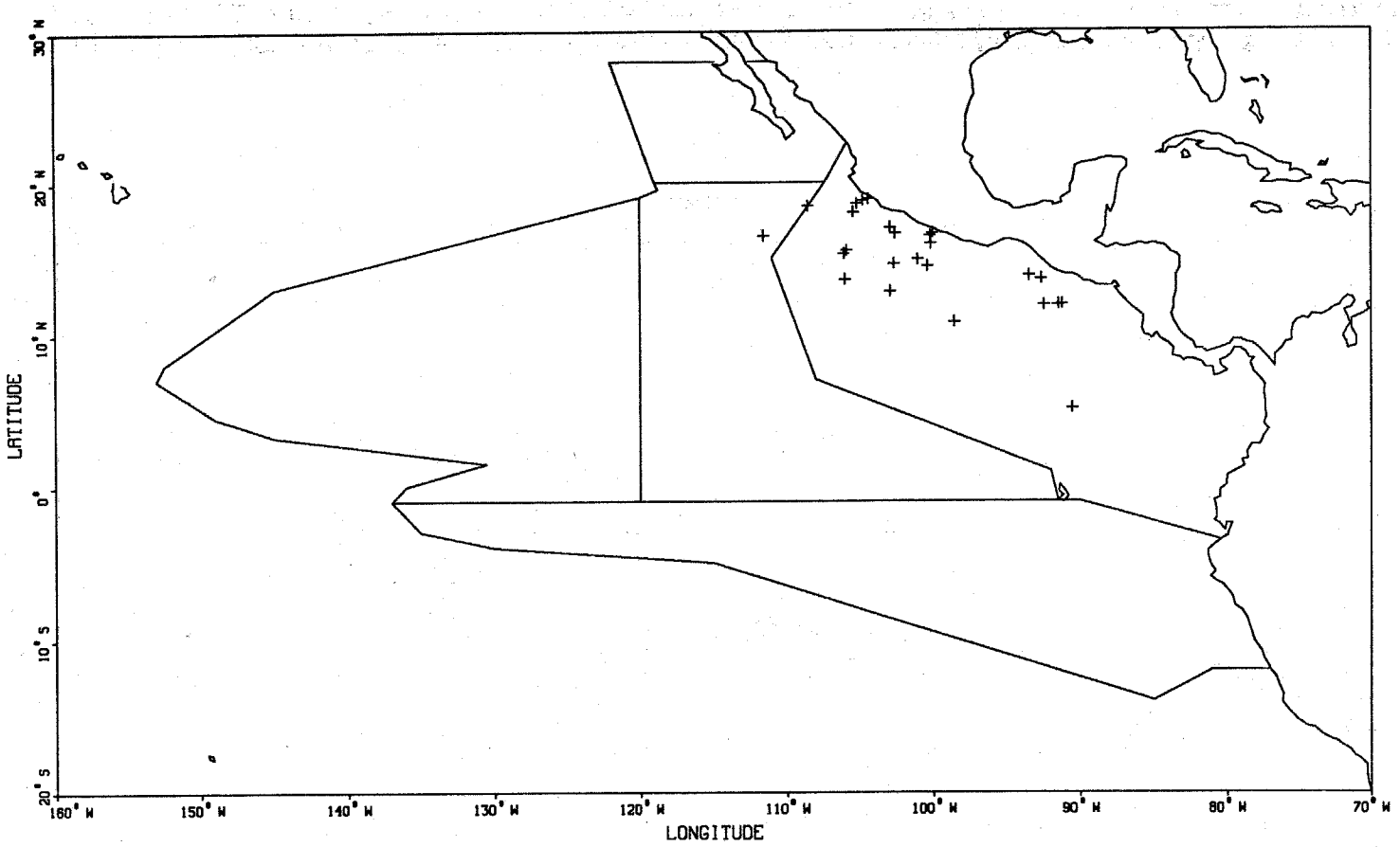


Figure 11. Risso's dolphins (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

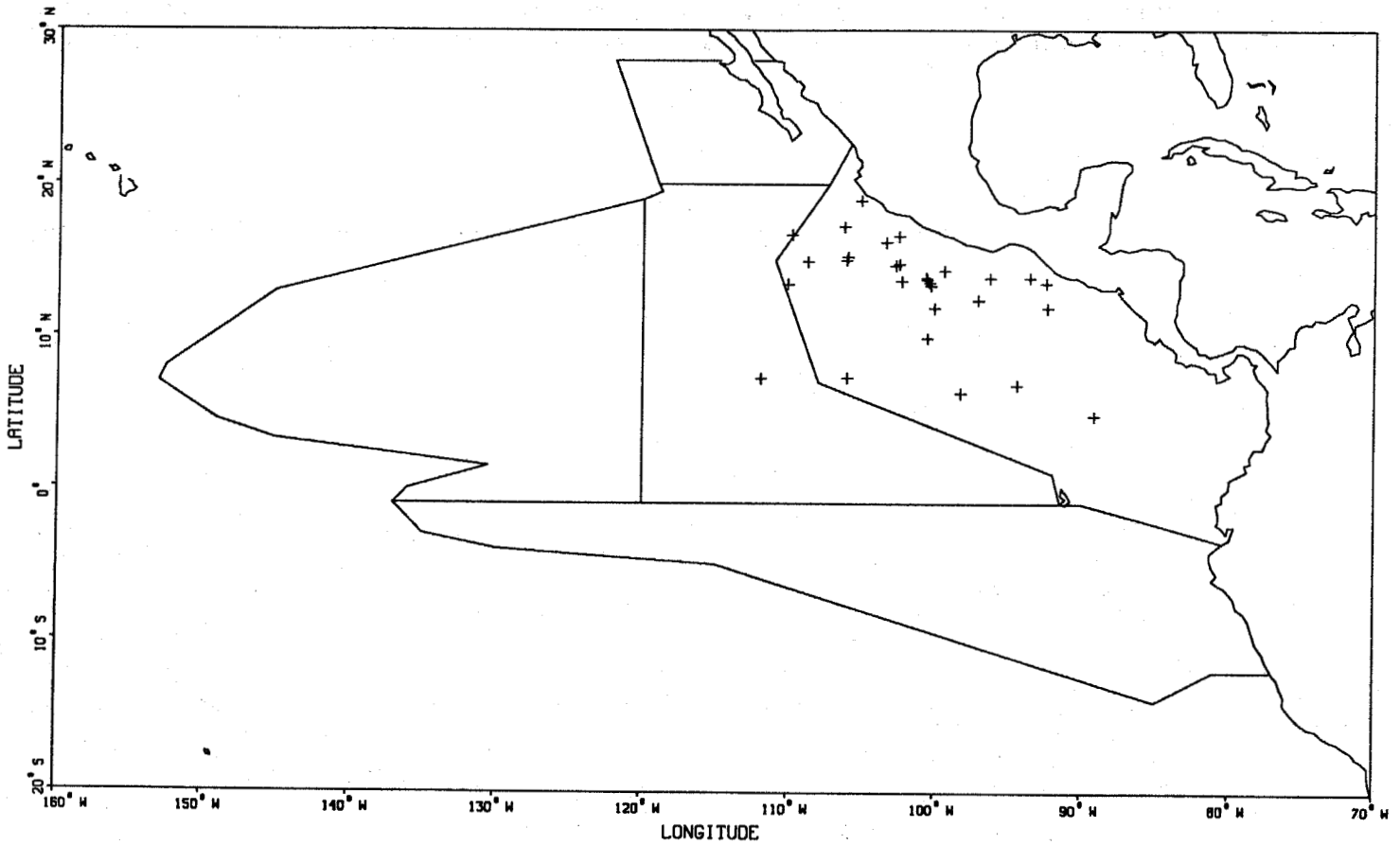


Figure 12. Rough-toothed dolphins (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

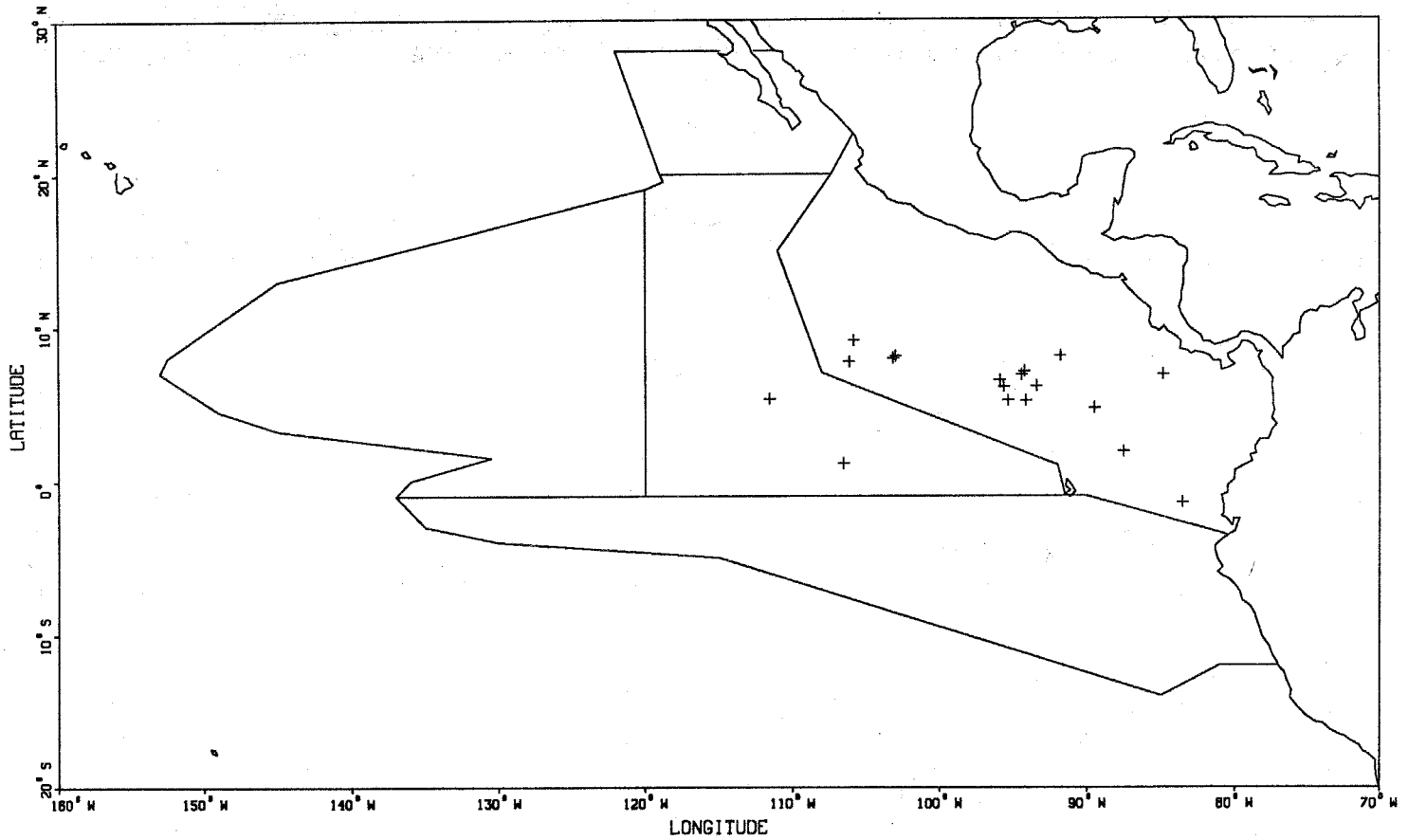


Figure 13. Pilot whales (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

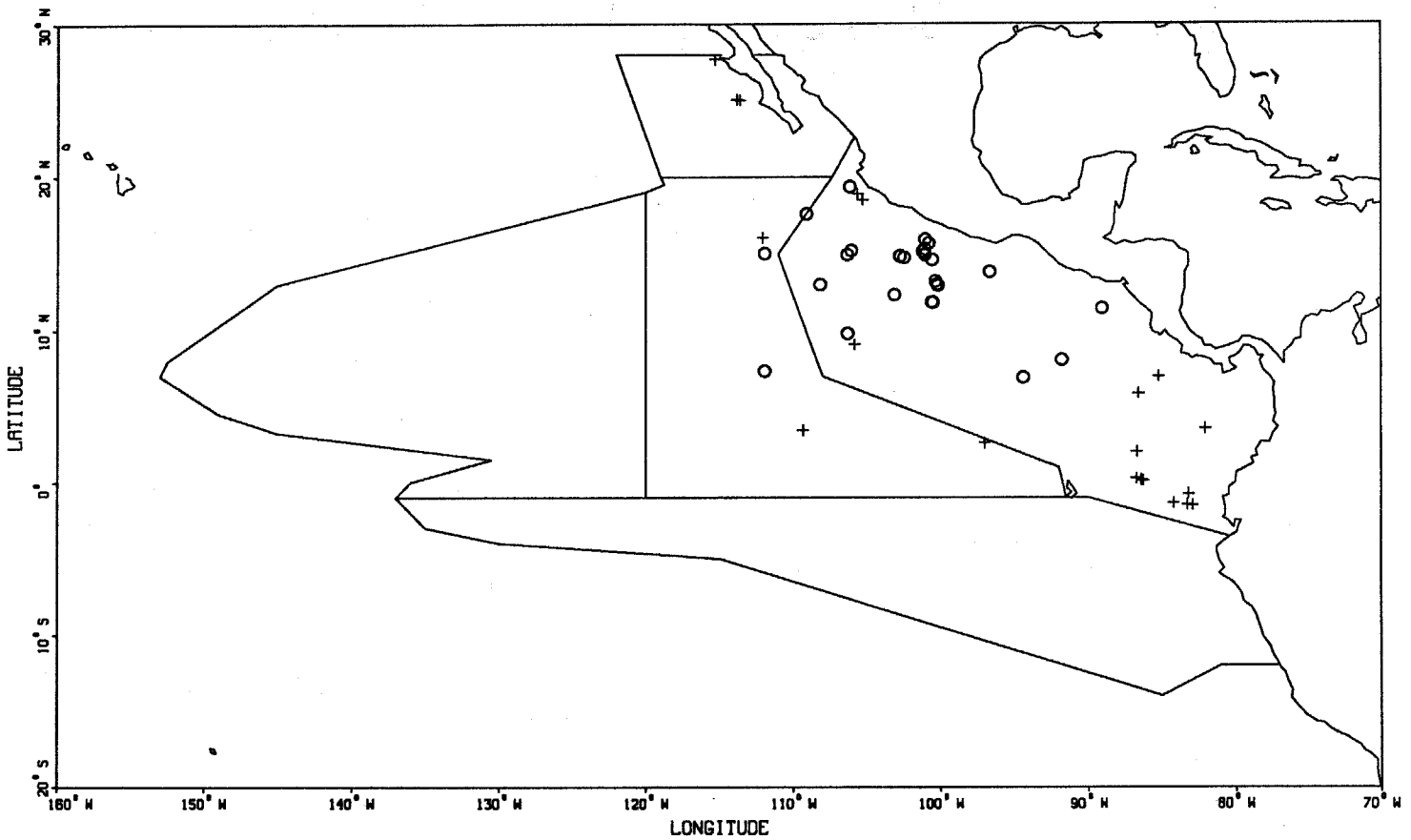


Figure 14. Sperm (+) and dwarf sperm (O) whales detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

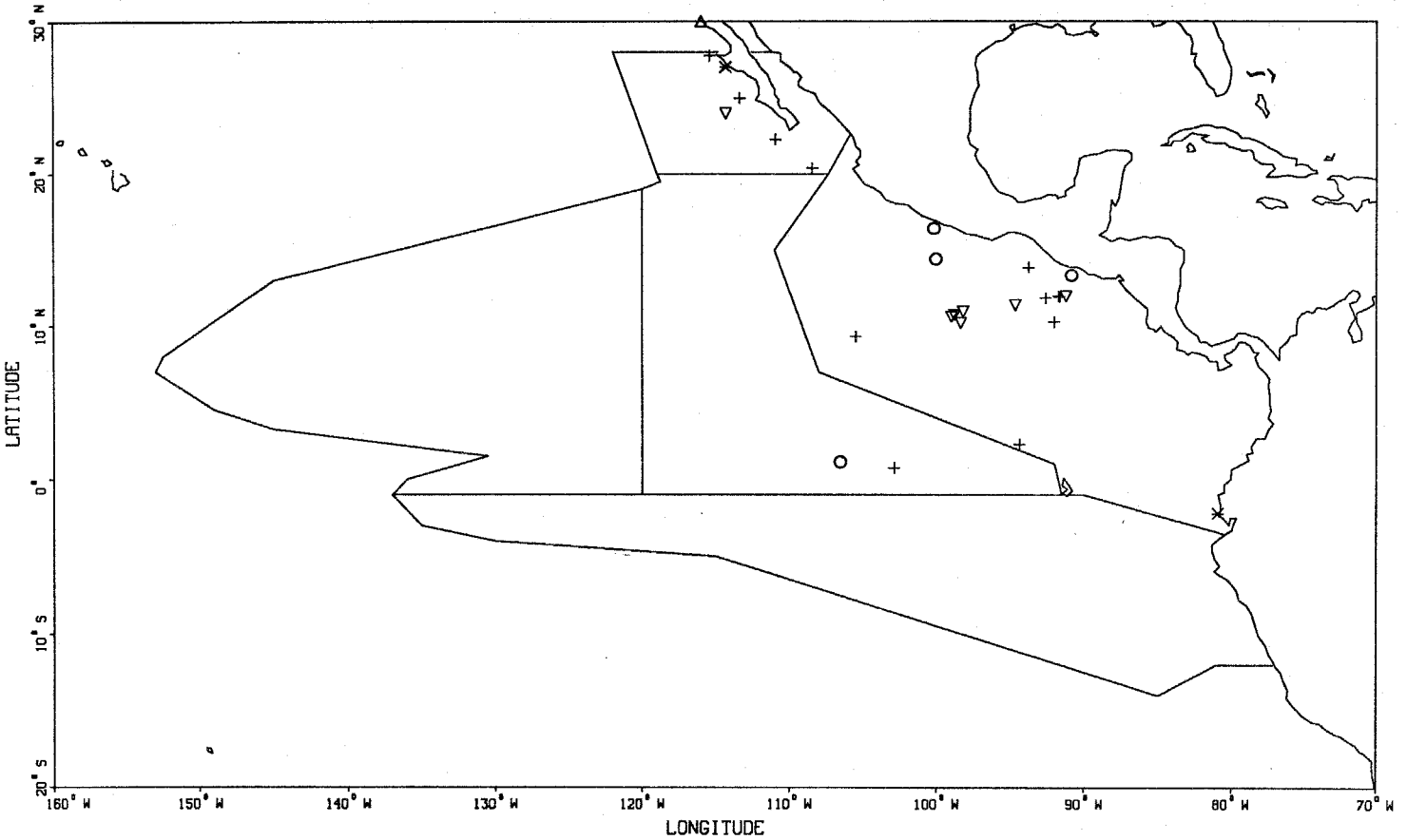


Figure 15. Unidentified rorquals (+), Bryde's (O), blue (▽), humpback (✳) and fin (△) whales detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

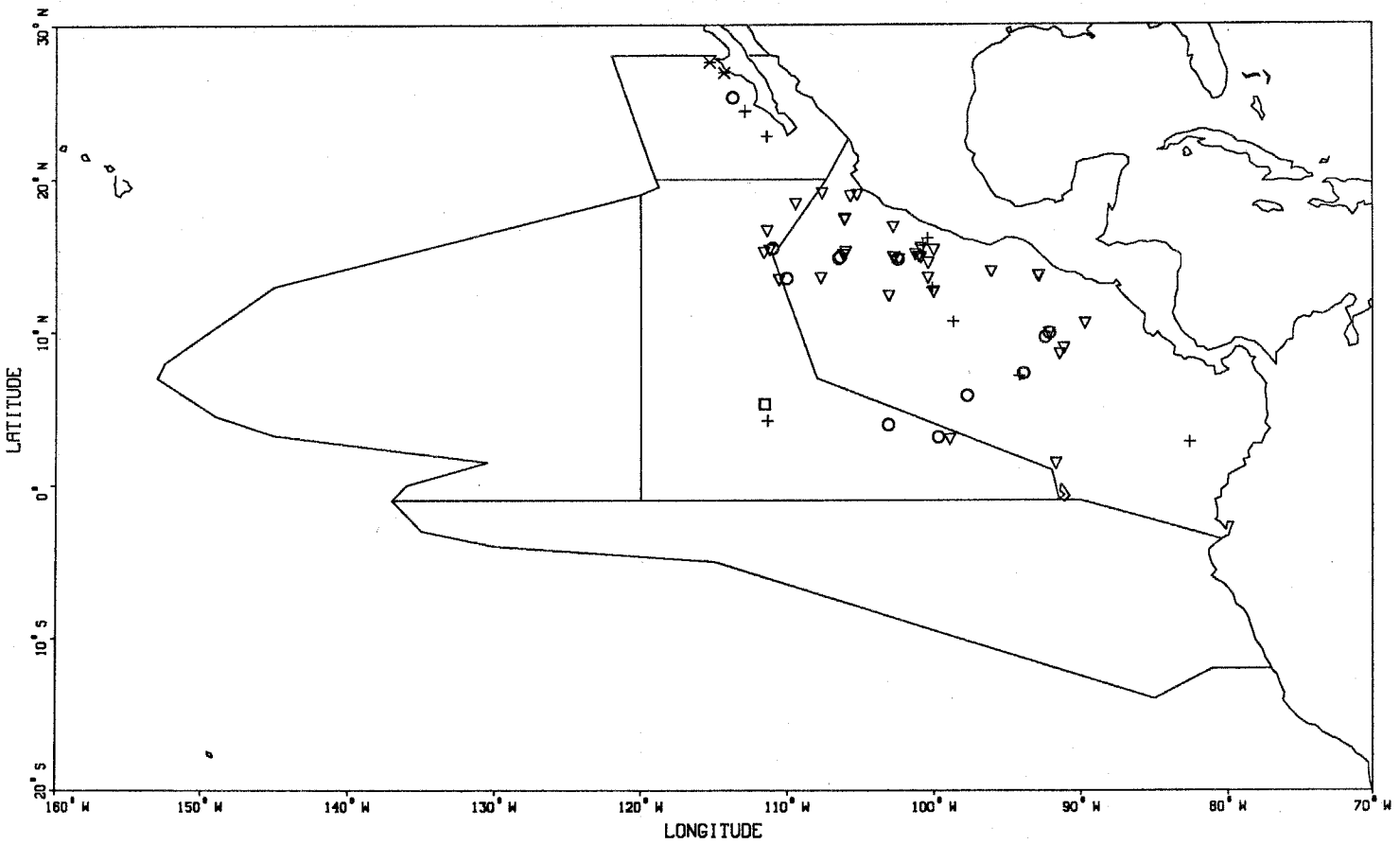


Figure 16. Unidentified beaked (+), Cuvier's beaked (O), mesoplodon (▽), bottlenose (□) and Baird's beaked (✳) whales detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

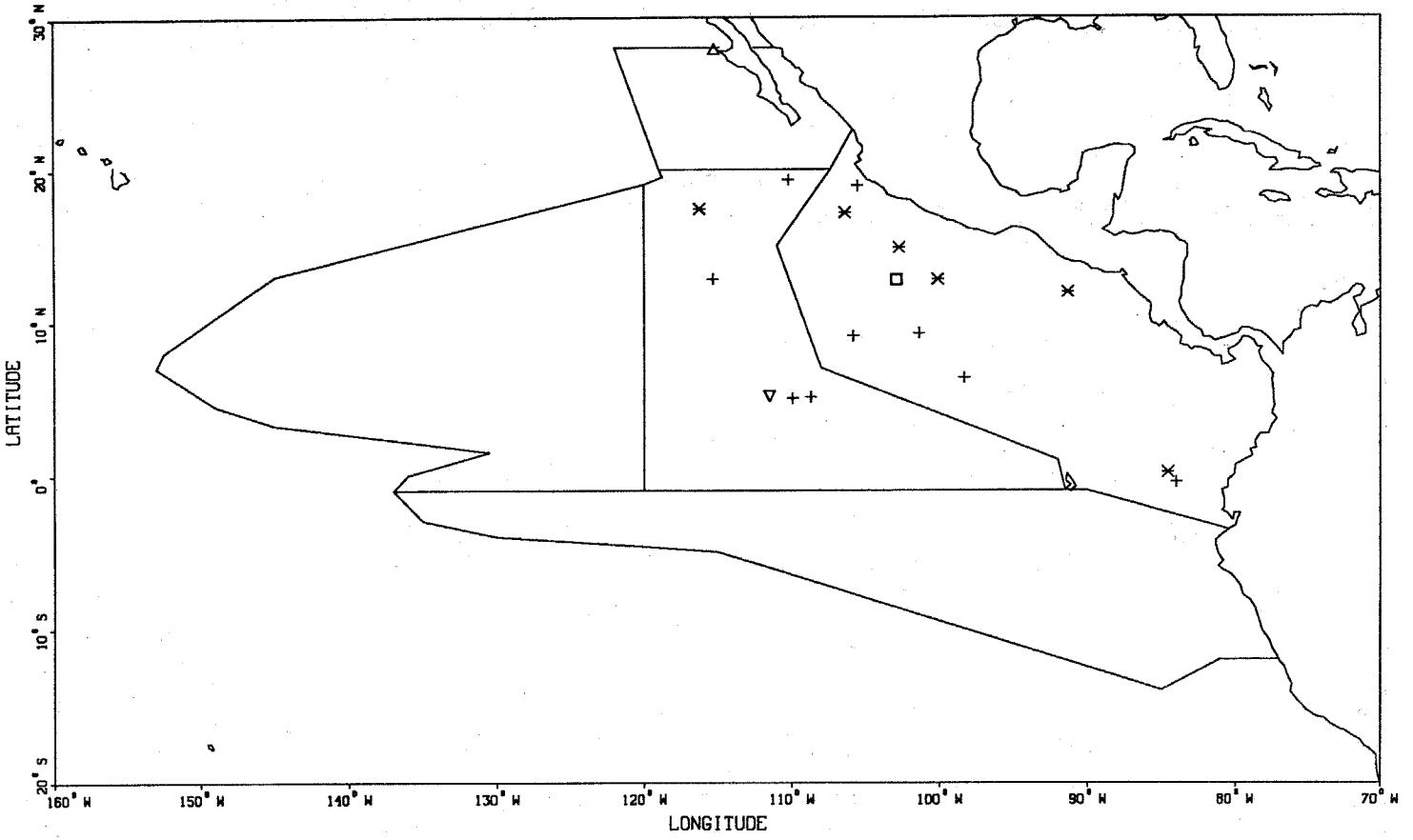


Figure 17. Killer whales (+), Fraser's dolphins (▽), melon-headed (□) and pygmy killer (✳) whales and Pacific white-sided dolphins (△) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

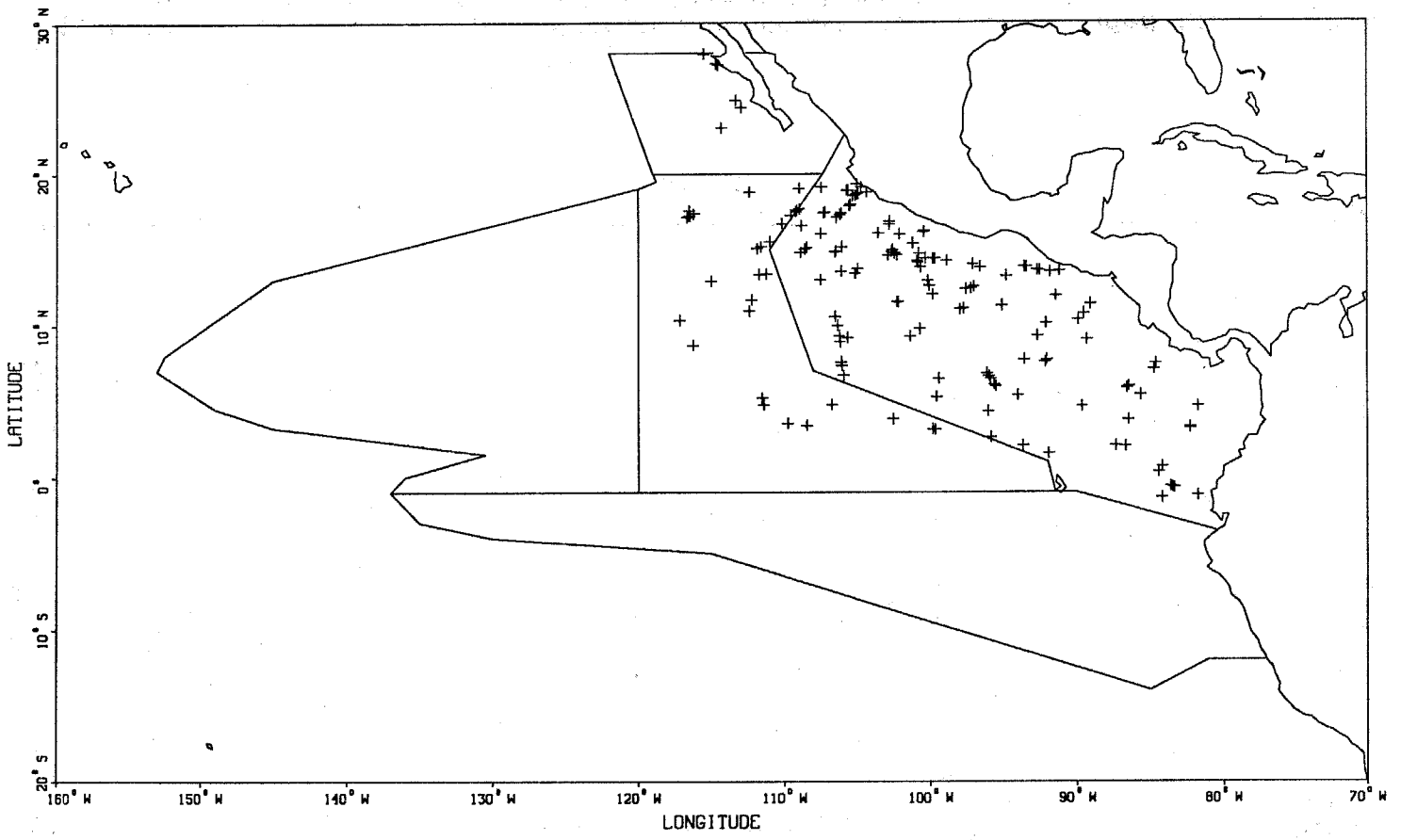


Figure 18. Unidentified dolphins (+) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

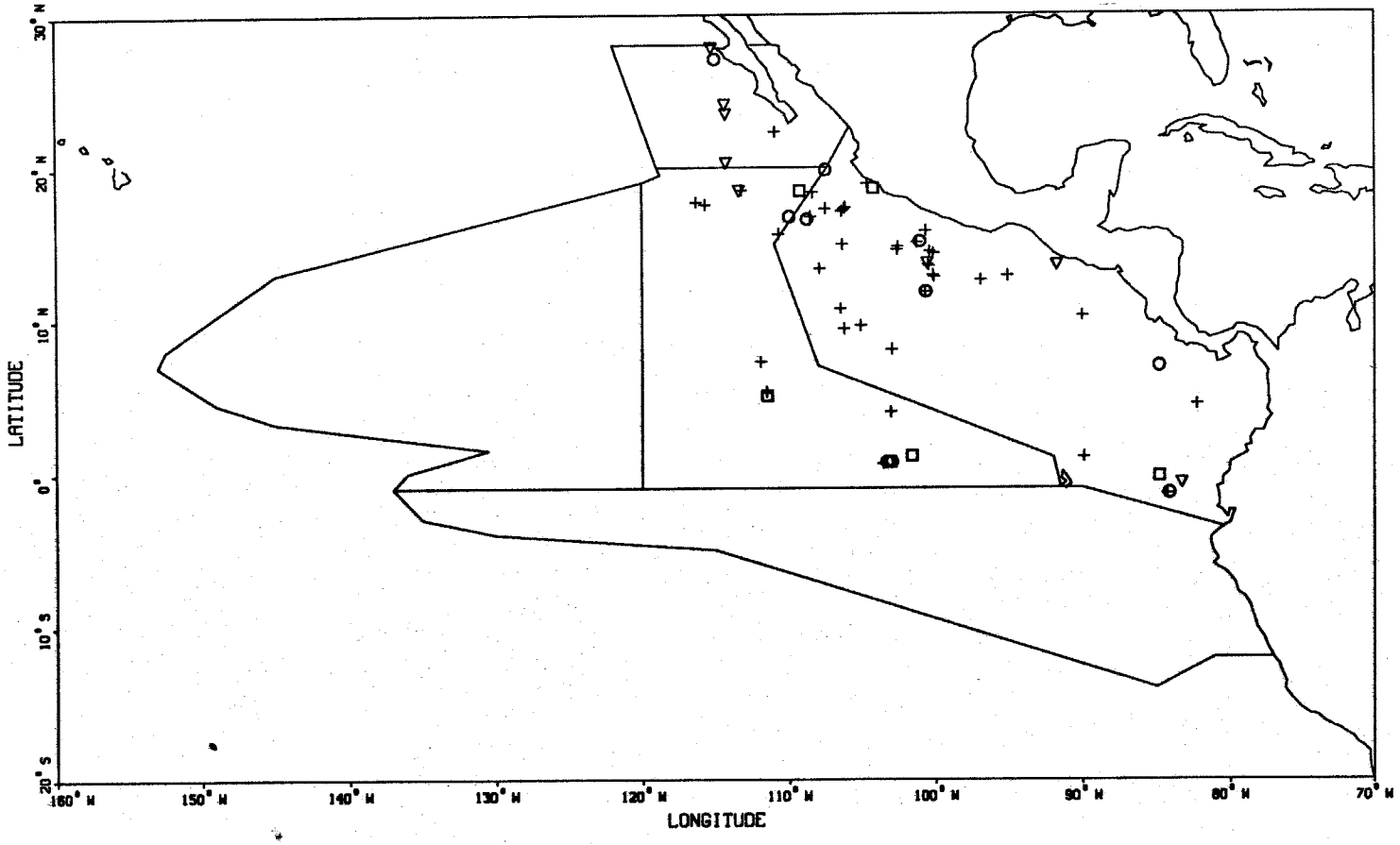


Figure 19. Unidentified small whales (+), unidentified whales (O), unidentified large whales (▽) and unidentified cetaceans (□) detected from aboard the NOAA Ship David Starr Jordan from July 29 through December 7, 1989, in the eastern tropical Pacific.

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