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MAY 1991

REPORT OF A MARINE MAMMAL SURVEY OF THE EASTERN TROPICAL PACIFIC ABOARD THE RESEARCH VESSEL *McARTHUR* JULY 28-DECEMBER 6, 1990

P. Scott Hill
Alan Jackson
Tim Gerrodette

NOAA-TM-NMFS-SWFSC-159

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

NOAA Technical Memorandum NMFS

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La Jolla. California 92038

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U.S. DEPARTMENT OF COMMERCE
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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 McARTHUR JULY 28 - DECEMBER 6, 1990

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 Science Center (SWFSC) of the NMFS initiated a six-year program to monitor these stocks of dolphins. In the first four years of the program (1986 through 1989), 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 1990, the fifth pair of surveys was conducted during the same time period and using the same vessels.

In this report, we describe the experimental procedures used during the 1990 surveys and we present summaries of the distance searched and marine mammals encountered from aboard the *McArthur* (Cruise AR-90-04; SWFSC Observer Cruise 1370). A separate report of the *David Starr Jordan* cruise has been published by Hill et al. (1991). A report of environmental data collected during the survey is reported by Philbrick et al. (1991).

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

3. 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 McArthur followed predetermined tracklines in the ETP from July 28 through December 6, 1990 (Figure 1), with port calls in Hilo, Hawaii; Puerto Caldera, Costa Rica; and Guayaquil, Ecuador. The itinerary of the vessel included four segments or effort legs:

Leg 1.		
Departed	San Diego	July 28
Arrived	Hilo	August 26
Leg 2.		
Departed	Hilo	August 31
Arrived	Puerto Caldera	September 29
Leg 3.		
Departed	Puerto Caldera	October 4
Arrived	Guayaquil	November 2
Leg 4.		
Departed	Guayaquil	November 7
Arrived	San Diego	December 6

Scientific personnel aboard the McArthur also conducted bird censuses on Isla del Coco (Costa Rica) and Isla de Guadalupe (Mexico).

Scientific Personnel

Cruise Leaders	Legs
Tim Gerrodette, SWFSC	1
Paul Wade, SWFSC	2
Paul Fiedler, SWFSC	3
Debbie Palka, SWFSC	4
Identification Specialists	
Jim Cotton, SWFSC	1-2
Gary Friedrichsen, SWFSC	1-2
Scott Benson, SWFSC	3-4
Richard LeDuc, SWFSC	3-4

Observers

Wes Armstrong, SWFSC	1-2
William Irwin, SWFSC	1-2
Scott Leopold, SWFSC	1-2
Brian Smith, SWFSC	1-2
James Carretta, SWFSC	3-4
Darlene Everhart, SWFSC	3-4
Carrie LeDuc, SWFSC	3-4
Joe Raffetto, SWFSC	3-4
Stephanie Phipps, SWFSC	1
Cheryl Glick, SWFSC	2
Angel Herrera, Costa Rica	3
Pedro Ramirez, Peru	4

Bird Census Specialists

Mike Force, Contractor	1-4
Tom Staudt, Contractor	1-4

Oceanographic data were collected by the McArthur survey department personnel.

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 McArthur, commissioned in 1966, is 53.3 m in length, has a beam of 11.6 m, and has a 3.7 m draft. During the surveys, 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 (SATNAV). Marine mammals were detected with port and starboard pedestal mounted 25X Fuginon[1] binoculars and a variety of hand-held 7x50 binoculars. The glasses were mounted on the upper deck approximately 10.7 m above the sea surface. Surface temperature and salinity, and temperature profiles were obtained using a thermosalinograph and expendable bathythermographs (XBTs), respectively. Salinity and temperature profiles were obtained using conductivity-temperature-depth (CTD) device. Water samples collected during these casts were analyzed for chlorophyll, salinity, nutrients, and primary productivity (using a C-14 uptake

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

method).

The bearing and radial distance from the vessel to each sighted marine mammal school was recorded. The bearing from the vessel to the school was recorded by the observers using a 360° graduated washer attached to the base of the 25X binoculars. The distance was determined by utilizing graduated reticles enclosed in the right eyepiece of the 25X binoculars.

Replicate angle and distance measurements to objects (buoys and points of land) were recorded opportunistically utilizing the 25X binoculars and the ship's radar. Analyses of these data will be covered in another 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 also 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 a 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 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 on 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. On approximately one-third of the nights, the McArthur was forced to steam at a slightly reduced speed in order to conserve fuel.

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 to approach. Generally, all marine mammal schools (dolphins and whales) encountered within 5.6 km lateral to the vessel were deemed as appropriate to turn on. For these schools, the searching effort was terminated and the vessel was directed to intersect the school. in order for the observers to obtain estimates of school size and species composition. The searching mode was resumed after the vessel returned to its 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

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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.

state conditions are given in Figure 4 and Table 1, respectively. Observers recorded bearing and range to the mammals using the 360° washer and reticles etched into the right eyepieces of the 25 power 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 on the vessel) collected the individual logbooks and transcribed observer estimates of school size and species composition to complete the Research Vessel Sighting Forms.

All available observers, however, were allowed to 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.

Data Analyses

Sea state conditions were grouped into "calm" conditions, without whitecaps (Beaufort numbers 0-2), or "rough" conditions, with whitecaps (Beaufort numbers 3-5). 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 considered 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

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

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 5. Rates were calculated for these schools detected in the entire study area and for schools stratified by area, species, individual Beaufort numbers, 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 18,997 km and made 517 marine mammal sightings (Table 5). Dolphins were detected in 303 schools and whales were detected in 214 schools (22 schools contained both dolphins and whales). These included 11 species of dolphins and 16 species of whales.

Searching effort was conducted during Beauforts 0 through 5 conditions. Generally, effort was terminated shortly after the seas and wind attained a force of Beaufort 6. Effort was terminated at the discretion of the team leader and the cruise leader. While operating in the searching mode in the study area (Figure 1), 17,819 km were searched and 272 dolphin schools were detected. The overall rate of detecting schools in the study area was 15.26 schools/1000 km searched (Table 6).

Searching effort of the McArthur was distributed among all four strata, with the highest percentage of effort (36%) occurring in the southern area (Table 6). The detection rates varied among the four strata (from 19.76 to 12.60 schools/1000 km searched).

The detection rate was highest in the inshore area and lowest in the western area (Table 6).

Sea conditions in the study area were extremely rough. Only 6% of the searching effort was completed in calm seas (Table 6). However, 11% of all schools were detected during calm seas and the rate of detecting schools during calm seas was nearly two times the detection rate during rough seas.

Poor visibility conditions occurred during 23% of the surveying effort, during which time 29% of the schools were detected (Table 6). It seems that visibility conditions had little effect on sighting dolphin schools as the rate of detecting schools during poor conditions was actually higher than the rate of detection during good conditions.

The percentage of schools detected by each mammal observer ranged from 4 to 13% (Table 6). The rates of detecting dolphin schools also varied considerably among observers (range of 2.27 to 7.33 schools/1000 km).

The percentage of schools detected by each team ranged from 21 to 28% (Table 6). The rate of detecting schools by teams ranged from 13.14 to 19.72 schools/1000 km 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 McArthur. Data on effort and sightings have been summarized. We found that the rate of encountering dolphin schools was higher during calm seas than during rough seas, and the rate during good visibility conditions was lower than the encounter rate during poor visibility conditions. Detection rates were highest in the inshore area and lowest in the western area. Encounter rates among observers and among teams were variable.

ACKNOWLEDGMENTS

The cruise aboard the NOAA Ship McArthur was successfully executed due to the work of many dedicated professionals. Among those contributing to the success of the cruise were the marine mammal observers who spent many long hours collecting the data and especially the officers and crew of the McArthur who gave their continuous support. Special recognition should be given to the survey department personnel of the McArthur who exceeded our data gathering expectations. Special efforts were provided in

procurement by B. Engstrand and B. Watkins. Many of the figures were provided by J. Tran. R. Rasmussen edited the effort and sightings data. 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 her 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 McARTHUR during July 28 through December 6, 1990.

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	900730	18.52	01	74	76			3	159	25 39 n	120 53 w	4.01
01	02	900730	18.52	01	74	76	09	03	3	159			2.47
01	03	900730	18.52	01	74	76	09	03	4	159			2.47
01	04	900730	18.52	01	74	76	09	03	4	159			2.47
01	05	900730	18.52	76	01	74	09	03	4	159	25 34 n	120 52 w	6.48
02	01	900730	18.52	74	76	01	09	03	4	159	25 27 n	120 50 w	6.79
02	02	900730	18.52	74	76	01	09	03	3	159			1.54
02	03	900730	18.52	22	75	07	09	03	3	159	25 24 n	120 48 w	4.01
02	04	900730	18.52	22	75	07	09	02	3	159			1.85
03	01	900730	20.74	22	75	07			3	159	25 19 n	120 46 w	2.42
03	02	900730	20.74	22	75	07	09	02	3	159			2.07
03	03	900730	20.74	75	07	22			3	159			2.07
03	04	900730	20.74	75	07	22	10	02	3	159			4.84
03	05	900730	20.74	75	07	22	10	02	3	159	25 13 n	120 45 w	6.22
03	06	900730	20.74	75	07	22			3	159			0.69
03	07	900730	20.74	07	22	75			3	159			3.11
03	08	900730	20.74	07	22	75	10	02	3	159			2.07
03	09	900730	20.74	07	22	75	10	02	3	159			1.73
03	10	900730	20.74	07	22	75			3	159			4.84
03	11	900730	20.74	07	22	75	10	02	3	159			2.07
03	12	900730	18.89	01	76	74	10	02	3	159	25 04 n	120 41 w	9.45
03	13	900730	18.89	01	76	74	10	01	3	159			3.15
03	14	900730	18.89	74	01	76	10	01	3	159			8.19
03	15	900730	20.37	74	01	76	10	01	3	159	24 54 n	120 37 w	4.75
03	16	900730	20.37	76	74	01			3	159			6.11
03	17	900730	20.37	76	74	01	11	01	3	159			7.47
03	18	900730	20.37	07	75	22	11	01	3	159	24 44 n	120 32 w	10.19
03	19	900730	20.37	07	75	22	11	01	3	159			3.40
03	20	900730	20.37	75	22	07	12	12	3	159			5.43
03	21	900730	20.37	75	22	07			3	159			1.70
03	22	900730	20.37	75	22	07	12	12	3	159	24 34 n	120 26 w	3.06
03	23	900730	20.37	75	22	07			2	159			3.40
03	24	900730	20.37	22	07	75	12	01	2	159			4.07
03	25	900730	20.37	22	07	75			2	159			3.06
03	26	900730	20.37	22	07	75	12	01	2	159			6.45
03	27	900730	20.37	76	01	74	03	01	2	159	24 24 n	120 21 w	13.58
03	28	900730	20.37	74	76	01	03	01	2	159			6.79
03	29	900730	21.11	74	76	01	03	01	2	161			14.08
03	30	900730	21.11	01	74	76	03	01	2	161			7.04
03	31	900730	20.37	22	75	07	04	02	1	161	24 03 n	120 11 w	7.47
03	32	900730	20.37	22	75	07	04	02	2	161			2.72
03	33	900730	20.37	75	07	22	04	02	2	161			4.07
03	34	900730	20.37	75	07	22	04	02	1	161			4.07
03	35	900730	20.37	75	07	22	04	02	2	161			3.73
03	36	900730	20.74	07	22	75			1	161	23 53 n	120 07 w	1.73
03	37	900730	20.74	07	22	75	04	02	1	161			6.91
03	38	900730	20.93	74	76	01	04	02	1	161			1.40
04	01	900730	14.82	01	74	76	04	02	1	161	23 43 n	120 02 w	7.41

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	900730	14.82	76	01	74	04	03	2	161			7.41
04	03	900730	14.82	22	07	75	04	03	2	161	23 33 n	119 57 w	4.94
04	04	900730	20.37	07	75	22	04	03	2	180			6.79
01	01	900731	21.85	22	75	07			1	159	22 00 n	119 21 w	8.01
01	02	900731	21.85	22	75	07	09	03	2	159			2.55
01	03	900731	21.85	75	07	22			2	159			7.65
01	04	900731	21.85	75	07	22	09	03	2	159			1.82
01	05	900731	21.85	75	07	22	09	03	3	159			1.46
01	06	900731	21.85	07	22	75	09	03	3	159			2.19
01	07	900731	21.85	07	22	75			3	159			2.55
02	01	900731	20.56	01	76	74			1	159	21 40 n	119 14 w	10.96
02	02	900731	20.56	76	74	01	09	02	2	159	21 34 n	119 12 w	6.17
03	01	900731	18.52	76	74	01	09	02	1	159	21 30 n	119 08 w	1.54
03	02	900731	18.52	74	01	76	09	02	1	159			4.01
03	03	900731	18.52	74	01	76	09	02	2	159	21 27 n	119 07 w	3.70
04	01	900731	21.11	75	07	22	10	01	2	159	21 25 n	119 07 w	3.52
04	02	900731	21.11	75	07	22	10	01	0	159			2.11
04	03	900731	21.11	75	07	22	10	01	1	159			6.69
04	04	900731	21.11	07	22	75			1	159			2.11
05	01	900731	21.11	07	22	75	10	01	1	160	21 17 n	119 03 w	2.46
06	01	900731	21.11	22	75	07	12	12	1	160	21 12 n	119 02 w	3.52
07	01	900731	21.11	22	75	07	12	12	1	160	21 10 n	119 02 w	1.41
08	01	900731	21.30	76	74	01	12	12	1	159	21 03 n	118 59 w	5.68
09	01	900731	21.48	74	01	76	12	12	2	160	20 56 n	118 54 w	3.22
09	02	900731	21.48	74	01	76	12	12	3	160			5.01
10	01	900731	21.11	01	76	74	03	01	3	160	20 52 n	118 52 w	11.26
10	02	900731	21.11	07	22	75	03	01	2	160	20 46 n	118 49 w	3.52
11	01	900731	21.30	07	22	75	03	01	2	160	20 42 n	118 48 w	3.90
12	01	900731	22.22	22	75	07	04	01	2	160	20 38 n	118 44 w	5.93
12	02	900731	22.22	22	75	07	04	01	2	163	20 35 n	118 43 w	6.30
12	03	900731	22.22	75	07	22	04	01	2	163	20 32 n	118 42 w	3.70
13	01	900731	22.22	74	01	76	03	02	2	170	20 26 n	118 41 w	5.56
14	01	900731	22.22	01	76	74	04	02	2	170	20 21 n	118 42 w	1.48
15	01	900731	22.22	01	76	74	04	02	2	170	20 19 n	118 40 w	1.85
16	01	900731	22.22	07	22	75	04	02	2	159	20 14 n	118 41 w	12.22
17	01	900731	20.37	22	75	07	03	02	1	159	20 04 n	118 37 w	3.73
17	02	900731	20.37	76	74	01	04	03	1	159			6.11
17	03	900731	20.37	76	74	01	04	03	2	150			9.17
17	04	900731	20.37	76	74	01	04	03	2	150	19 55 n	118 31 w	0.34
01	01	900801	22.96	76	74	01			2	201	18 36 n	118 43 w	11.48
01	02	900801	22.96	74	01	76	08	03	2	201			1.53
02	01	900801	22.96	01	76	74	08	03	2	201			8.42
02	02	900801	22.96	07	22	75	08	02	2	201			15.31
02	03	900801	22.96	22	75	07	08	02	3	201	18 13 n	118 48 w	16.08
02	04	900801	22.96	75	07	22	08	02	3	201			14.54
02	05	900801	22.96	74	01	76	08	01	3	201	18 00 n	118 55 w	15.31
02	06	900801	22.22	01	76	74	08	01	3	201			14.82
02	07	900801	22.22	76	74	01	08	01	3	201			3.70
02	08	900801	22.22	76	74	01	08	01	3	190			11.11
02	09	900801	22.22	22	75	07	12	12	4	190	17 38 n	119 02 w	15.56
02	10	900801	22.22	75	07	22	12	12	4	190			4.44
02	11	900801	22.22	75	07	22	12	12	3	190			9.63
02	12	900801	22.22	07	22	75	12	12	3	190			3.33
02	13	900801	22.22	07	22	75	12	12	2	195			11.48

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	14	900801	22.22	01	76	74	02	01	2	195	17 16 n	119 08 w	5.56
03	01	900801	22.22	01	76	74	02	01	2	200			3.33
03	02	900801	22.22	76	74	01	03	01	3	200	17 10 n	119 09 w	5.19
04	01	900801	22.22	76	74	01	03	01	3	200			7.41
04	02	900801	22.22	74	01	76	03	01	3	200			5.19
04	03	900801	22.22	74	01	76	03	01	4	200			9.63
04	04	900801	22.22	75	07	22	03	02	4	200	16 54 n	119 13 w	1.48
05	01	900801	19.63	07	22	75	03	02	4	200	16 50 n	119 16 w	5.56
06	01	900801	20.37	07	22	75	03	02	3	200			2.72
06	02	900801	20.37	01	76	74	03	02	4	200			10.19
06	03	900801	20.37	76	74	01	03	02	4	200			10.87
06	04	900801	20.37	74	01	76	03	03	4	200			4.41
06	05	900801	20.37	74	01	76	02	03	4	220			5.43
06	06	900801	20.37	75	07	22	02	03	4	220			7.81
06	07	900801	20.37	07	22	75	03	03	3	220			1.36
06	08	900801	20.37	07	22	75	03	03	3	195			5.43
06	09	900801	20.37	07	22	75	04	03	3	195	16 21 n	119 29 w	0.34
01	01	900802	20.19	22	75	07			3	120	15 40 n	118 26 w	3.36
01	02	900802	20.19	22	75	07	10	03	3	120			6.39
01	03	900802	20.19	75	07	22	10	03	3	120	15 36 n	118 23 w	7.40
01	04	900802	20.19	75	07	22	11	03	3	120			1.68
01	05	900802	20.19	07	22	75	11	03	3	120			5.72
01	06	900802	20.19	07	22	75	11	02	3	120			4.04
01	07	900802	20.19	01	76	74	11	02	4	120	15 32 n	118 13 w	13.46
01	08	900802	20.19	76	74	01	11	02	4	120			4.04
02	01	900802	20.74	76	74	01	11	02	4	120	15 26 n	118 03 w	7.26
02	02	900802	20.74	74	01	76	11	02	4	120			11.75
02	03	900802	20.74	75	07	22	11	01	4	120			13.83
02	04	900802	20.74	07	22	75	11	01	4	120	15 18 n	117 50 w	13.83
02	05	900802	20.74	22	75	07	11	01	4	120			13.83
02	06	900802	20.74	76	74	01	11	12	4	120	15 10 n	117 35 w	1.04
03	01	900802	20.74	76	74	01	11	12	4	120	15 08 n	117 33 w	8.64
03	02	900802	20.74	74	01	76	12	12	4	116			8.30
03	03	900802	20.74	74	01	76	12	12	5	116			5.53
03	04	900802	20.74	01	76	74	06	12	5	116			13.83
03	05	900802	20.74	07	22	75	05	01	5	116	14 59 n	117 16 w	13.83
03	06	900802	20.74	22	75	07	05	01	5	116			9.33
03	07	900802	20.74	22	75	07	05	01	5	116			2.07
04	01	900802	19.26	01	74	76			4	116	14 47 n	116 53 w	6.74
04	02	900802	19.26	74	76	01			4	116			7.06
04	03	900802	19.26	74	76	01			5	116			3.85
04	04	900802	19.26	75	22	07			4	116			8.99
04	05	900802	19.26	22	07	75	06	02	4	116			4.17
04	06	900802	19.26	22	07	75	05	02	4	120	14 40 n	116 38 w	1.61
04	07	900802	19.26	22	07	75	05	03	4	120			3.85
04	08	900802	19.26	07	75	22	05	03	4	120			5.14
04	09	900802	19.26	07	75	22			4	120			2.89
04	10	900802	19.26	07	75	22	05	03	4	120			1.28
04	11	900802	19.26	01	74	76	05	03	4	120	14 37 n	116 32 w	9.31
01	01	900803	19.08	76	74	01			4	227	13 46 n	117 10 w	8.90
01	02	900803	19.08	74	01	76	07	03	4	227			9.54
01	03	900803	19.08	01	76	74	07	03	4	227			3.50
01	04	900803	19.08	01	76	74	07	03	4	227			1.91
01	05	900803	19.08	01	76	74	07	03	4	227			1.91

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	06	900803	19.08	07	22	75	07	02	4	227	13 37 n	117 20 w	3.18
01	07	900803	17.59	07	22	75	07	02	4	227			8.80
01	08	900803	17.59	22	75	07	07	02	4	227			12.90
01	09	900803	17.59	75	07	22	07	02	4	227			10.56
01	10	900803	17.59	74	01	76	07	01	4	227	13 24 n	117 35 w	4.69
02	01	900803	16.67	74	01	76	07	01	4	227	13 20 n	117 39 w	2.78
02	02	900803	16.67	01	76	74	07	01	4	227			11.11
02	03	900803	16.67	76	74	01	07	01	4	227			3.06
02	04	900803	16.67	76	74	01	07	01	4	227			3.89
02	05	900803	16.67	76	74	01	07	01	4	227			4.17
02	06	900803	16.67	22	75	07	07	01	5	227	13 10 n	117 50 w	11.95
02	07	900803	16.67	75	07	22	12	12	5	227			5.00
02	08	900803	16.67	75	07	22	12	12	5	120	13 04 n	117 58 w	5.28
02	09	900803	16.67	07	22	75	05	12	5	120			7.22
02	10	900803	16.67	07	22	75	05	01	5	120			3.89
02	11	900803	18.15	01	76	74	05	01	5	120	12 59 n	117 51 w	9.68
03	01	900803	18.33	76	74	01	05	01	5	120	12 55 n	117 43 w	9.17
03	02	900803	18.33	74	01	76	05	02	5	120			3.67
03	03	900803	18.33	75	01	22	05	02	5	120	12 51 n	117 37 w	1.22
03	04	900803	18.33	75	07	22	05	02	5	120			5.81
03	05	900803	18.33	07	22	75	05	02	5	120			3.97
04	01	900803	18.33	07	22	75	05	02	5	120	12 48 n	117 28 w	5.81
04	02	900803	18.33	01	76	74	05	02	5	120			9.17
04	03	900803	18.33	76	74	01	05	02	5	120			11.00
04	04	900803	18.33	74	01	76	05	03	5	120			2.75
04	05	900803	18.33	74	01	76	05	03	5	120			4.28
04	06	900803	18.33	74	01	76	05	03	5	120	12 39 n	117 11 w	0.31
01	01	900804	13.89	22	75	07			4	110	12 08 n	116 28 w	2.31
01	02	900804	13.89	22	75	07			4	110			3.94
01	03	900804	13.89	75	07	22			4	110			3.47
01	04	900804	13.89	75	07	22			4	110			1.16
01	05	900804	13.89	75	07	22			5	110	12 04 n	116 23 w	0.69
02	01	900804	18.52	07	22	76			5	110	12 03 n	116 20 w	1.54
03	01	900804	20.00	76	01	74			5	110	12 02 n	116 17 w	12.33
03	02	900804	20.00	01	74	76	11	02	4	110			9.00
04	01	900804	20.00	01	74	76	11	02	4	110	11 55 n	116 06 w	2.33
04	02	900804	20.00	07	75	22	11	02	4	110			1.33
04	03	900804	20.00	07	75	22	11	01	4	125	11 55 n	116 04 w	4.33
04	04	900804	20.00	07	75	22	11	01	4	125			7.33
04	05	900804	20.00	75	22	07	10	01	4	125			13.67
04	06	900804	20.00	22	07	75	10	01	4	125			4.33
04	07	900804	20.00	22	07	75	12	01	4	060			8.67
04	08	900804	20.00	76	01	74	10	12	4	120	11 48 n	115 47 w	14.00
04	09	900804	20.00	01	74	76	12	12	4	120			3.67
04	10	900804	20.00	01	74	76	12	12	4	120			1.67
05	01	900804	20.00	01	74	76	12	12	5	118	11 42 n	115 37 w	3.67
05	02	900804	20.00	74	76	01			5	118			5.00
05	03	900804	20.00	74	76	01	06	12	5	118			1.00
06	01	900804	18.89	74	76	01			5	118	11 39 n	115 30 w	3.15
06	02	900804	18.89	75	22	07			4	118	11 38 n	115 28 w	12.59
06	03	900804	18.89	22	07	75	05	02	4	118			4.72
06	04	900804	18.89	22	07	75	05	01	4	118			6.30
06	05	900804	18.89	22	07	75	05	01	4	118			1.89
06	06	900804	18.89	07	75	22	05	01	4	118			7.56

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
06	07	900804	18.89	07	75	22	05	02	4	118			4.72
06	08	900804	18.89	01	74	76	05	02	4	118	11 28 n	115 09 w	9.45
06	09	900804	18.89	01	74	76	05	02	4	118			4.09
07	01	900804	20.37	74	76	01			4	118	11 23 n	115 00 w	6.79
07	02	900804	20.37	75	22	07			3	118			6.79
07	03	900804	20.37	22	07	75			3	118	11 18 n	114 50 w	8.15
01	01	900805	20.19	76	74	01			2	120	10 34 n	113 37 w	2.69
02	01	900805	22.22	74	01	76			2	120	10 34 n	113 32 w	2.96
02	02	900805	22.22	74	01	76			3	120			5.93
02	03	900805	22.22	74	01	76			3	120			4.82
03	01	900805	22.59	75	07	22			2	125	10 39 n	113 23 w	8.28
04	01	900805	21.85	07	22	75			3	125	10 22 n	113 13 w	2.55
04	02	900805	21.85	07	22	75			3	125			5.10
04	03	900805	21.85	07	22	75			4	125			1.46
05	01	900805	23.15	01	76	74			4	125	10 12 n	112 56 w	8.87
06	01	900805	22.22	07	22	75	12	12	3	130	10 16 n	112 44 w	0.37
07	01	900805	22.22	22	75	07	12	12	3	132	10 15 n	112 39 w	10.74
07	02	900805	22.22	75	07	22	12	12	3	132			7.04
07	03	900805	22.22	07	22	75	12	12	3	132			2.22
07	04	900805	22.22	07	22	75	05	01	3	132			7.04
07	05	900805	22.22	01	76	74	05	01	3	132			12.22
08	01	900805	23.15	76	74	01	05	01	3	133	10 01 n	112 22 w	11.58
09	01	900805	23.15	22	75	07			3	150	10 00 n	112 13 w	5.02
09	02	900805	23.15	22	75	07			3	150	09 57 n	112 11 w	0.39
01	01	900806	21.85	22	75	07			5	160	08 04 n	111 09 w	9.47
01	02	900806	21.85	75	07	22			5	160	08 36 n	111 07 w	10.93
01	03	900806	21.85	07	22	75			5	146			5.46
01	04	900806	21.85	07	22	75	09	02	5	146			5.46
01	05	900806	21.85	01	76	74			5	146	08 27 n	111 02 w	14.93
02	01	900806	20.37	76	74	01			5	146	08 18 n	110 55 w	6.45
02	02	900806	20.37	76	74	01	09	02	5	146			2.72
02	03	900806	20.37	74	01	76	09	01	5	146			8.83
02	04	900806	20.37	75	07	22			5	146			3.06
03	01	900806	21.85	75	07	22			5	146	08 08 n	110 48 w	1.82
03	02	900806	21.85	75	07	22			5	146			4.73
04	01	900806	21.85	07	22	75			5	146	08 00 n	110 41 w	9.11
04	02	900806	21.85	07	22	75			6	146	07 56 n	110 38 w	0.36
01	01	900807	18.52	76	74	01			5	147	05 54 n	109 16 w	6.17
01	02	900807	18.52	76	74	01			5	147			0.93
02	01	900807	18.52	74	01	76			5	147	05 49 n	109 11 w	1.54
02	02	900807	18.52	74	01	76			5	150			5.25
02	03	900807	18.52	74	01	76			5	146			4.01
02	04	900807	18.52	01	76	74			5	146			5.25
02	05	900807	18.52	07	22	75			5	146	05 41 n	109 06 w	10.49
02	06	900807	18.52	07	22	75			5	146			2.47
02	07	900807	21.48	22	75	07			5	146			13.61
02	08	900807	21.48	75	07	22			5	146			1.43
02	09	900807	21.48	75	07	22	10	02	5	146			3.94
02	10	900807	21.48	75	07	22	10	01	6	146	05 29 n	108 56 w	0.72
03	01	900807	21.48	74	01	76	09	01	5	152	05 15 n	108 48 w	10.03
03	02	900807	21.48	01	76	74	08	01	5	152			6.80
03	03	900807	21.48	07	22	75	07	01	5	152	05 10 n	108 42 w	10.74
03	04	900807	21.48	07	22	75	06	12	5	155			4.30
03	05	900807	21.85	22	75	07	06	12	6	155			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	01	900807	21.85	22	75	07	05	01	5	155	05 00 n	108 35 w	7.28
04	02	900807	21.85	75	07	22	05	01	5	155			7.28
04	03	900807	21.85	74	01	76	05	01	5	155	04 55 n	108 32 w	15.30
04	04	900807	21.85	01	74	76	04	01	5	155			9.83
04	05	900807	21.85	01	74	76	04	01	4	155			5.10
04	06	900807	21.85	76	74	01			4	155			5.83
04	07	900807	21.85	76	74	01	04	02	5	155			7.65
04	08	900807	21.85	22	75	07	04	02	4	155	04 40 n	108 21 w	10.93
04	09	900807	21.85	75	07	22			5	155			8.38
04	10	900807	21.85	07	22	75			5	155			8.01
04	11	900807	21.85	01	76	74			5	155			9.83
04	12	900807	21.85	76	74	01			5	155			6.56
04	13	900807	21.85	76	74	01			5	287	04 24 n	108 11 w	2.55
04	14	900807	21.85	74	01	76			5	287			6.19
04	15	900807	21.85	74	01	76			5	287			0.36
01	01	900808	22.22	75	22	07			5	255	04 57 n	109 18 w	8.52
01	02	900808	22.22	75	22	07			5	265			2.96
01	03	900808	22.22	22	07	75			5	265			8.52
02	01	900808	22.22	07	75	22			5	265	04 56 n	109 31 w	5.19
02	02	900808	22.22	07	75	22	05	02	5	272			5.56
02	03	900808	22.22	01	74	76	05	02	5	272	04 56 n	109 25 w	11.48
02	04	900808	18.89	01	74	76	05	02	5	278			2.52
02	05	900808	18.89	74	76	01			5	278			11.65
03	01	900808	20.37	01	76	74	03	12	5	224	05 00 n	110 01 w	8.15
03	02	900808	20.37	01	76	74	02	01	5	282			1.70
03	03	900808	20.37	76	74	01	01	01	5	282	04 57 n	110 05 w	10.19
03	04	900808	20.37	74	01	76	01	01	5	282			10.87
03	05	900808	20.37	75	07	22	12	01	4	283	04 59 n	110 15 w	4.75
03	06	900808	20.37	75	07	22	12	01	4	283			1.36
03	07	900808	20.37	75	07	22	01	01	4	268			5.09
03	08	900808	20.37	75	07	22			4	268			1.70
03	09	900808	20.37	07	22	75			3	268			1.36
03	10	900808	20.37	07	22	75			3	280			12.22
03	11	900808	20.37	75	22	07			3	280			13.58
03	12	900808	20.37	76	74	01			3	280	05 03 n	110 36 w	1.36
04	01	900808	20.37	74	01	76	11	03	4	315	05 07 n	110 40 w	3.06
05	01	900808	20.74	75	07	22			3	315	05 08 n	110 42 w	2.42
05	02	900808	20.74	75	07	22	11	03	3	315			4.49
05	03	900808	20.74	75	07	22	12	03	3	288			0.69
05	04	900808	20.74	75	07	22	11	03	3	315			3.46
05	05	900808	20.74	07	22	75			3	315			2.77
05	06	900808	20.74	07	22	75			3	280	05 13 n	110 46 w	9.68
05	07	900808	20.74	07	22	75			3	280	05 15 n	110 52 w	0.35
01	01	900809	20.19	74	01	76			5	315	05 31 n	111 54 w	4.04
02	01	900809	20.19	01	76	74			5	277	05 36 n	112 00 w	10.09
02	02	900809	20.19	76	74	01	05	03	5	277			4.37
02	03	900809	20.19	76	74	01			5	277			4.04
02	04	900809	20.19	22	75	07			5	277	05 38 n	112 09 w	10.77
02	05	900809	20.19	22	75	07			5	281			3.36
02	06	900809	20.19	75	07	22			5	281			6.73
02	07	900809	20.19	75	07	22			5	288	05 40 n	112 20 w	6.06
02	08	900809	20.19	07	22	75			5	288			13.46
02	09	900809	20.19	01	76	74			5	288	05 43 n	112 30 w	10.43
03	01	900809	18.89	76	74	01	12	12	5	288	05 47 n	112 42 w	1.26

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	01	900809	20.19	22	75	07	12	12	5	288			12.45
04	02	900809	20.19	75	07	22	12	12	5	288			7.07
04	03	900809	20.19	75	07	22			5	288	05 52 n	112 54 w	3.70
05	01	900809	20.19	75	07	22			5	281			3.03
05	02	900809	20.19	74	01	76			5	280	05 57 n	112 56 w	15.81
05	03	900809	20.19	01	76	74			5	280			10.77
05	04	900809	20.19	76	74	01			5	280			13.46
05	05	900809	20.19	22	75	07			5	280	06 01 n	113 17 w	10.09
05	06	900809	20.19	75	07	22			5	280			1.68
05	07	900809	20.19	75	07	22			5	288			3.36
06	01	900809	20.56	74	01	76			5	280	06 06 n	113 27 w	10.28
06	02	900809	20.56	01	76	74			5	280			13.02
06	03	900809	20.56	01	76	74			5	280	06 09 n	113 39 w	0.34
01	01	900810	21.30	07	22	75			4	285	06 33 n	114 58 w	6.74
01	02	900810	21.30	07	22	75			5	285			2.84
01	03	900810	21.30	22	75	07			5	285			9.94
01	04	900810	21.30	75	07	22			5	285			8.87
01	05	900810	21.30	74	01	76			5	285	06 37 n	115 12 w	10.65
01	06	900810	21.30	74	01	76			5	287			3.55
01	07	900810	21.30	01	76	74			5	287			14.20
01	08	900810	21.30	76	74	01			5	287			9.94
02	01	900810	20.37	22	75	07			5	280	06 50 n	115 40 w	10.19
02	02	900810	20.37	75	07	22			5	280			7.81
02	03	900810	20.37	07	22	75			5	280			9.17
02	04	900810	20.37	01	76	74			5	280	06 53 n	115 52 w	2.04
03	01	900810	20.37	01	76	74			5	262	06 54 n	115 54 w	3.40
04	01	900810	20.37	76	74	01			4	284	06 55 n	116 05 w	7.13
05	01	900810	19.63	74	01	76			4	284	06 58 n	116 10 w	5.56
05	02	900810	19.63	75	07	22			4	284	06 56 n	116 12 w	12.43
05	03	900810	19.63	07	22	75			5	285			6.22
05	04	900810	19.63	07	22	75			4	285	07 01 n	116 23 w	4.25
06	01	900810	20.00	22	75	07			4	285	07 01 n	116 26 w	11.67
06	02	900810	20.00	22	75	07			4	285			1.67
06	03	900810	20.00	76	74	01			4	285	07 03 n	116 32 w	5.00
06	04	900810	20.00	76	74	01			5	286			4.33
06	05	900810	20.00	74	01	76			5	286			5.67
06	06	900810	20.00	74	01	76			5	286			3.33
06	07	900810	20.00	01	76	74			5	286			6.67
07	01	900810	19.26	75	07	22			5	288	07 08 n	116 52 w	11.88
07	02	900810	19.26	07	22	75			5	288			2.57
07	03	900810	19.26	07	22	75			5	288	07 11 n	117 00 w	0.32
01	01	900811	21.30	76	74	01			3	286	07 44 n	118 41 w	1.77
02	01	900811	21.30	22	75	07			4	302	07 53 n	118 57 w	3.19
02	02	900811	21.30	22	75	07			4	302			6.03
02	03	900811	21.30	75	07	22			4	302	07 56 n	119 01 w	5.68
02	04	900811	21.30	75	07	22			4	302			4.61
02	05	900811	21.30	07	22	75			4	300			10.65
02	06	900811	21.30	01	76	74			5	300	08 01 n	119 10 w	15.26
02	07	900811	21.30	76	74	01			5	300			6.03
02	08	900811	21.30	76	74	01			5	300	08 07 n	119 19 w	14.55
02	09	900811	21.30	74	01	76			5	300			7.10
02	10	900811	21.30	75	07	22			5	300	08 12 n	119 29 w	6.39
02	11	900811	19.45	75	07	22			4	300			5.83
03	01	900811	19.45	07	22	75			4	300	08 19 n	119 41 w	6.48

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	900811	19.45	07	22	75			5	301			1.30
03	03	900811	19.45	22	75	07			5	301			8.10
04	01	900811	19.63	74	01	76			5	301	08 28 n	119 56 w	3.27
04	02	900811	19.63	74	01	76			4	301			5.23
04	03	900811	19.63	01	76	74			4	301			8.18
04	04	900811	19.63	76	74	01			4	301	08 33 n	120 03 w	8.18
04	05	900811	19.63	22	75	07			4	301			8.18
05	01	900811	19.82	75	07	22			5	301	08 40 n	120 15 w	4.29
06	01	900811	19.82	74	01	76			5	301	08 46 n	120 23 w	4.29
07	01	900811	19.26	01	76	74			5	305	08 45 n	120 28 w	9.63
07	02	900811	19.26	01	76	74			5	305	08 48 n	120 32 w	0.32
01	01	900812	20.74	22	07	75			5	302	09 50 n	122 07 w	2.77
01	02	900812	20.74	22	07	75			5	302			2.42
02	01	900812	20.74	22	07	75			5	302	09 52 n	122 12 w	4.84
02	02	900812	20.74	76	01	74			5	302	09 53 n	122 14 w	5.53
03	01	900812	20.74	76	01	74	04	02	5	302			5.88
03	02	900812	20.74	01	74	76	04	02	5	302			4.84
03	03	900812	20.74	01	74	76	04	02	5	302			8.30
03	04	900812	20.74	74	76	01			5	302			13.83
03	05	900812	20.74	75	22	07			5	302	10 06 n	122 32 w	6.91
03	06	900812	20.74	75	22	07			5	302			6.91
03	07	900812	20.74	22	07	75			5	302			12.10
03	08	900812	20.74	22	07	75			5	302			2.42
03	09	900812	20.74	07	75	22			5	302			7.95
03	10	900812	20.74	07	75	22			4	302			1.38
03	11	900812	20.74	07	75	22			5	302			3.80
03	12	900812	20.74	01	74	76	04	01	5	302	10 18 n	122 50 w	4.15
03	13	900812	20.74	01	74	76			5	302			3.80
03	14	900812	20.74	01	74	76			5	297			5.88
03	15	900812	20.74	74	76	01			5	297			8.30
04	01	900812	20.74	76	01	74			5	297	10 32 n	123 00 w	2.42
05	01	900812	19.82	22	07	75			5	300	10 32 n	123 01 w	1.32
05	02	900812	19.82	22	07	75			5	210			4.62
05	03	900812	19.82	22	07	75			5	210			6.94
05	04	900812	19.82	07	75	22			5	210			1.32
05	05	900812	19.82	07	75	22			4	300			11.56
05	06	900812	19.82	75	22	07			4	300			13.21
05	07	900812	19.82	74	76	01			4	300	10 33 n	123 18 w	6.61
05	08	900812	19.82	76	01	74			4	300			6.94
05	09	900812	19.82	01	74	76			4	300			6.28
06	01	900812	18.89	07	22	01			4	300	10 42 n	123 32 w	1.89
06	02	900812	18.89	07	22	75			4	300			2.83
06	03	900812	18.89	07	22	75			4	300			4.41
06	04	900812	18.89	07	22	75			4	300	10 45 n	123 37 w	3.46
06	05	900812	18.89	22	75	07			4	300			2.52
07	01	900812	21.30	07	75	22			4	300			8.16
07	02	900812	21.30	07	75	22			4	300	10 52 n	123 49 w	0.35
01	01	900813	20.37	01	76	74	04	03	3	302	11 48 n	125 22 w	6.79
01	02	900813	20.37	76	74	01	04	03	3	302			5.09
02	01	900813	21.67	22	75	07	04	02	4	302	11 51 n	125 29 w	13.00
02	02	900813	21.67	75	07	22	04	02	4	302			5.06
02	03	900813	21.67	75	07	22	04	02	3	302			4.69
02	04	900813	21.67	75	07	22	05	02	3	302			2.53
02	05	900813	21.67	07	22	75	04	02	3	302			3.61

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	900813	21.67	07	22	75	04	02	4	302			9.03
02	07	900813	21.67	01	76	74	04	02	4	302	12 02 n	125 46 w	3.61
03	01	900813	20.56	01	76	74	04	02	4	302	12 03 n	125 49 w	3.43
03	02	900813	20.56	76	74	01	04	01	4	302			20.56
03	03	900813	20.56	74	01	76	04	01	4	302			6.85
03	04	900813	20.56	75	07	22	04	01	4	302	12 14 n	126 04 w	10.96
03	05	900813	20.56	75	07	22	12	12	4	302			2.74
03	06	900813	20.56	07	22	75	12	12	4	302			15.42
03	07	900813	20.56	22	75	07	12	12	4	302			11.99
03	08	900813	20.56	76	74	01	12	12	4	302	12 26 n	126 23 w	4.45
03	09	900813	22.22	76	74	01	12	12	4	302	12 27 n	126 25 w	10.00
03	10	900813	22.22	74	01	76	01	01	4	302			4.82
03	11	900813	22.22	74	01	76	01	01	4	302			10.00
03	12	900813	22.22	01	76	74	11	01	3	302			5.56
03	13	900813	20.37	01	76	74	11	01	3	302	12 36 n	126 40 w	1.70
04	01	900813	20.37	07	22	75	11	02	3	317	12 41 n	126 46 w	8.15
04	02	900813	20.37	22	75	07	11	02	3	317			5.09
04	03	900813	20.37	75	07	22	11	02	3	317			4.75
04	04	900813	20.37	74	01	76	11	02	3	317			7.47
05	01	900813	21.67	01	76	74	01	02	3	253	12 51 n	126 55 w	11.92
05	02	900813	21.67	76	74	01	01	03	3	253			14.45
05	03	900813	21.67	74	01	76	01	03	3	253	12 47 n	127 08 w	2.53
05	04	900813	21.67	74	01	76	11	03	3	315			2.89
06	01	900813	21.67	74	01	76	11	03	3	315			2.89
06	02	900813	21.67	74	01	76	11	03	3	315	12 47 n	127 14 w	0.36
01	01	900814	21.48	75	22	07			1	300	13 43 n	128 33 w	3.94
01	02	900814	21.48	75	22	07	05	03	1	300			8.24
01	03	900814	21.48	22	07	75	04	03	1	300			10.74
01	04	900814	21.48	22	07	75	04	02	1	300			2.51
01	05	900814	23.15	07	75	22	05	02	1	300			12.73
01	06	900814	23.15	01	74	76	05	02	2	300	13 52 n	128 50 w	8.10
01	07	900814	23.15	01	74	76	05	02	2	285			7.33
01	08	900814	23.15	74	76	01	05	02	2	285			6.94
02	01	900814	24.08	76	01	74	04	02	2	285	13 55 n	129 07 w	1.20
03	01	900814	23.15	22	07	75	04	01	2	320	13 57 n	129 09 w	15.43
03	02	900814	23.15	07	75	22	04	01	2	320			14.66
03	03	900814	23.15	75	22	07	04	01	2	320			10.42
04	01	900814	20.93	74	76	01	04	12	2	320	14 14 n	129 25 w	1.40
04	02	900814	20.93	74	76	01	03	12	2	340			6.63
04	03	900814	20.93	74	76	01	03	12	3	340			5.93
04	04	900814	20.93	76	01	74	03	12	3	340			8.72
04	05	900814	20.93	76	01	74	03	12	3	340	14 26 n	129 30 w	5.23
04	06	900814	20.93	01	74	76			3	340			4.88
04	07	900814	20.93	01	74	76			3	284			2.79
04	08	900814	20.93	01	74	76			3	284			1.05
04	09	900814	22.22	01	74	76			3	265			2.59
04	10	900814	22.22	01	74	76			3	265			3.33
04	11	900814	22.22	07	75	22			2	265	14 33 n	129 38 w	2.22
04	12	900814	22.22	07	75	22			2	265			7.04
04	13	900814	22.22	07	75	22	12	01	2	265			3.70
05	01	900814	22.22	75	22	07	12	01	1	265	14 32 n	129 46 w	12.59
06	01	900814	22.96	01	76	74	11	02	1	300	14 32 n	129 54 w	8.04
06	02	900814	22.96	76	74	01	11	02	1	300			13.78
06	03	900814	22.96	22	75	07	11	02	1	300			5.74

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	900814	20.37	75	07	22	11	03	1	315	14 37 n	130 11 w	12.90
07	02	900814	20.37	75	07	22	11	03	1	315	14 39 n	130 14 w	0.68
01	01	900815	22.04	74	01	76	08	03	3	199	15 29 n	131 46 w	9.18
01	02	900815	22.04	01	76	74	08	03	4	199	15 24 n	131 48 w	11.02
01	03	900815	22.04	76	74	01	08	03	4	199			11.02
01	04	900815	21.85	22	75	07	08	02	4	199	15 13 n	131 52 w	14.93
01	05	900815	21.85	75	07	22	08	02	4	199			14.20
01	06	900815	21.85	07	22	75	08	02	4	199			7.65
02	01	900815	18.52	01	76	74	08	01	4	199	14 49 n	131 02 w	9.26
02	02	900815	18.52	76	74	01	08	01	4	199	14 44 n	132 03 w	9.26
02	03	900815	18.52	74	01	76	08	01	4	199			9.57
02	04	900815	18.52	75	07	22	12	12	4	199	14 33 n	132 07 w	12.04
02	05	900815	18.52	07	22	75	12	12	4	199			12.35
02	06	900815	18.52	22	75	07	12	12	4	199			9.26
03	01	900815	18.52	76	74	01	03	01	4	190	14 13 n	132 17 w	9.88
03	02	900815	18.52	74	01	76	03	01	4	190			2.47
04	01	900815	20.37	74	01	76	03	01	4	190	14 05 n	132 19 w	7.81
04	02	900815	20.37	01	76	74	03	01	4	190			2.38
05	01	900815	20.37	01	76	74	03	02	4	190	13 56 n	132 21 w	2.04
06	01	900815	20.37	07	22	75	03	02	4	190	13 53 n	132 22 w	7.81
06	02	900815	20.37	22	75	07	03	02	4	190			7.81
06	03	900815	20.37	75	07	22	03	02	4	190	13 44 n	132 24 w	1.02
07	01	900815	20.37	74	01	76	03	02	3	190	13 42 n	132 26 w	6.11
07	02	900815	20.37	74	01	76	03	02	4	190			3.73
08	01	900815	20.37	01	76	74	03	03	4	190	13 36 n	132 25 w	1.36
08	02	900815	20.37	01	76	74	03	03	4	205			6.79
08	03	900815	20.37	76	74	01	03	03	4	205			5.09
08	04	900815	20.37	76	74	01			4	205	13 30 n	132 27 w	0.34
01	01	900816	23.15	22	75	07			3	199	11 38 n	133 07 w	7.33
01	02	900816	23.15	75	07	22			3	199			7.33
01	03	900816	23.15	07	22	75			3	199			6.17
02	01	900816	23.15	01	76	74			3	199	11 28 n	133 11 w	1.16
03	01	900816	23.15	76	74	01			3	196	11 28 n	133 14 w	7.33
04	01	900816	23.15	74	01	76			2	195	11 21 n	133 16 w	8.10
05	01	900816	23.15	75	07	22			1	192	11 07 n	133 23 w	3.09
05	02	900816	23.15	75	07	22			2	192			1.54
05	03	900816	22.22	75	07	22			2	192			6.30
05	04	900816	22.22	07	22	75			2	192			2.22
05	05	900816	22.22	07	22	75	08	01	2	192			6.67
05	06	900816	22.22	74	76	84	09	12	1	192	10 57 n	133 25 w	3.70
05	07	900816	22.22	74	76	01	09	12	2	192			8.52
05	08	900816	22.22	74	76	01	12	12	2	199			1.11
06	01	900816	22.22	76	01	74	12	12	2	198	10 49 n	133 27 w	8.15
06	02	900816	22.22	01	74	76	12	12	3	198			20.00
06	03	900816	22.22	07	75	22	03	01	2	198	10 34 n	133 31 w	5.56
07	01	900816	22.22	07	75	22	03	01	2	198	10 30 n	133 32 w	2.59
07	02	900816	22.22	07	75	22	03	01	2	198			4.44
07	03	900816	22.22	75	22	07	03	01	2	198			9.26
07	04	900816	22.22	75	22	07	03	01	2	203			5.56
07	05	900816	22.22	22	07	75	03	01	2	203			7.41
07	06	900816	22.22	22	07	75	03	02	2	203			7.41
07	07	900816	22.22	76	01	74	02	02	3	203	10 10 n	133 39 w	10.00
07	08	900816	22.22	01	74	76	02	02	3	203			9.26
07	09	900816	22.22	74	76	01	02	02	3	203			8.89

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
07	10	900816	22.22	75	22	07	03	02	3	203			7.04
07	11	900816	22.22	75	22	07	03	02	3	203	09 51 n	133 45 w	4.07
07	12	900816	22.22	22	07	75			3	203			11.11
07	13	900816	22.22	77	75	22			2	203			6.67
08	01	900816	22.22	07	75	22			2	201	09 40 n	133 49 w	1.85
01	01	900817	19.63	75	22	07			3	200	07 38 n	134 28 w	2.62
01	02	900817	19.63	75	22	07			4	200			8.51
01	03	900817	19.63	22	07	75			4	200			3.27
01	04	900817	19.63	22	07	75			5	200			4.91
01	05	900817	19.63	22	07	75	08	02	5	200			5.56
01	06	900817	19.63	77	75	22			5	200			11.12
01	07	900817	19.63	77	75	22			5	185			1.31
01	08	900817	19.63	01	74	76			5	185	07 19 n	134 34 w	13.09
01	09	900817	19.63	74	76	01			5	185			1.96
02	01	900817	19.63	74	76	01			5	185	07 09 n	134 33 w	9.82
02	02	900817	19.63	76	01	74			5	189			5.56
02	03	900817	19.63	76	01	74			5	189	07 11 n	134 34 w	0.33
01	01	900818	21.85	75	07	22	03	03	5	348	07 04 n	135 13 w	7.28
01	02	900818	21.85	07	22	75	03	03	5	348			7.28
01	03	900818	21.85	22	75	07	03	03	5	348			7.28
01	04	900818	21.85	76	74	01	03	03	5	345	07 16 n	135 15 w	14.57
01	05	900818	21.85	74	01	76	03	02	5	345			16.39
01	06	900818	21.85	01	76	74	03	02	5	345			3.64
01	07	900818	21.85	01	76	74	03	02	5	347			9.11
01	08	900818	21.85	07	22	75	03	02	5	347	07 32 n	135 21 w	14.57
01	09	900818	21.85	22	75	07	03	02	5	347			15.30
01	10	900818	21.85	75	07	22	03	01	5	347			13.84
01	11	900818	21.48	74	01	76	03	01	5	347	08 00 n	135 26 w	8.59
01	12	900818	21.48	74	01	76	12	12	5	320			5.73
01	13	900818	21.48	01	76	74	03	12	5	320			4.30
01	14	900818	21.48	01	76	74	10	12	5	351			10.03
01	15	900818	21.48	76	74	01	10	12	5	351			10.03
02	01	900818	21.30	22	75	07	10	01	5	351	08 26 n	135 34 w	3.55
02	02	900818	21.30	22	75	07			5	351			7.81
02	03	900818	21.30	75	07	22	10	01	5	351			12.07
02	04	900818	21.30	07	22	75	10	01	5	351			6.03
03	01	900818	22.22	01	76	74			5	351	08 48 n	135 38 w	11.11
03	02	900818	22.22	76	74	01			5	351			9.63
03	03	900818	22.22	22	75	07			5	351			3.70
03	04	900818	22.22	22	75	07			5	351			4.07
03	05	900818	22.22	22	75	07			5	331			5.19
03	06	900818	22.22	75	07	22			5	331			3.33
03	07	900818	22.22	75	07	22			5	351	09 07 n	135 41 w	9.26
03	08	900818	22.22	07	22	75			5	351			5.56
04	01	900818	22.22	07	22	75			5	351			0.37
04	02	900818	22.22	07	22	75			5	351	09 15 n	135 42 w	0.37
01	01	900819	20.00	74	01	76			4	347	11 00 n	136 04 w	10.00
01	02	900819	20.00	01	76	74			4	347			7.33
02	01	900819	21.11	07	22	75			4	347	11 09 n	136 07 w	11.61
02	02	900819	21.11	22	75	07			4	347			12.67
02	03	900819	21.11	75	07	22	03	02	4	347			9.50
03	01	900819	21.30	74	01	76	03	02	4	347	11 27 n	136 12 w	9.23
03	02	900819	21.30	74	01	76	03	02	4	348			3.55
03	03	900819	21.30	01	76	74	03	01	4	348			2.13

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	900819	20.93	01	76	74	03	01	4	348	11 38 n	136 13 w	5.58
04	02	900819	20.93	76	74	01	03	01	4	348			9.77
05	01	900819	18.52	22	75	07	12	12	4	342	11 55 n	136 07 w	2.16
05	02	900819	18.52	22	75	07	12	12	4	325			5.56
05	03	900819	18.52	75	07	22	12	12	4	325			3.70
05	04	900819	18.52	75	07	22	12	12	4	300			1.54
05	05	900819	18.52	07	22	75	12	12	4	270			6.79
05	06	900819	18.52	01	76	74	12	01	5	270			5.56
05	07	900819	18.52	01	76	74	10	01	5	348	12 01 n	136 18 w	6.17
05	08	900819	18.52	76	74	01	10	01	5	348			12.35
05	09	900819	18.52	74	01	76	10	01	5	348			10.80
05	10	900819	18.52	74	01	76	01	02	5	230			1.54
05	11	900819	18.52	75	07	22	01	02	5	230	12 15 n	136 21 w	6.17
05	12	900819	13.89	07	22	75	01	02	5	230	12 10 n	136 24 w	6.94
05	13	900819	13.89	07	22	75	02	02	5	230	12 10 n	136 27 w	2.55
06	01	900819	13.89	01	76	74	01	02	5	228	12 09 n	136 32 w	9.72
07	01	900819	13.89	76	74	01			5	228	12 04 n	136 36 w	3.94
07	02	900819	13.89	76	74	01			5	228	12 03 n	136 37 w	0.23
01	01	900820	20.19	22	75	07			3	207	11 03 n	137 30 w	3.03
01	02	900820	20.19	22	75	07			5	207			9.08
01	03	900820	20.19	75	07	22			5	207			2.69
01	04	900820	20.19	75	07	22			5	207			3.36
02	01	900820	20.37	07	22	75			3	207	10 52 n	137 36 w	5.09
03	01	900820	20.37	07	22	75			3	207	10 49 n	137 38 w	3.06
04	01	900820	20.19	74	01	76			3	207	10 41 n	137 42 w	2.69
04	02	900820	20.19	74	01	76			5	207			7.40
04	03	900820	20.19	01	76	74			5	207	10 36 n	137 44 w	10.09
04	04	900820	20.19	76	74	01			5	207			10.09
04	05	900820	20.19	22	75	07			4	207	10 27 n	137 49 w	8.41
04	06	900820	20.19	22	75	07	08	01	4	207			5.72
04	07	900820	20.19	75	07	22	08	01	5	207			12.78
04	08	900820	20.19	07	22	75	12	12	5	207			4.37
05	01	900820	17.59	07	22	75	12	12	5	205	10 11 n	137 58 w	4.11
05	02	900820	17.59	01	76	74	12	12	5	205	10 09 n	138 00 w	11.73
05	03	900820	17.59	76	74	01	12	12	5	205			11.73
05	04	900820	17.59	74	01	76	03	01	5	203	09 55 n	138 05 w	6.74
05	05	900820	17.59	74	01	76	03	01	6	203	09 45 n	138 11 w	0.29
06	01	900820	18.52	75	22	07			5	203	09 56 n	138 11 w	8.03
06	02	900820	18.52	75	22	07			5	203			1.23
06	03	900820	18.52	22	07	75	02	01	5	203			1.23
07	01	900820	18.52	22	07	75			5	203	09 34 n	138 18 w	4.63
07	02	900820	18.52	76	01	74			5	203	09 31 n	138 19 w	7.72
07	03	900820	18.52	76	01	74			5	203	09 27 n	138 21 w	0.31
01	01	900821	19.45	74	01	76	04	03	5	317	07 53 n	139 22 w	3.24
02	01	900821	21.48	74	01	76	04	03	5	317	07 57 n	139 24 w	2.86
02	02	900821	21.48	01	76	74			5	317			10.74
02	03	900821	21.48	76	74	01			5	317			5.01
03	01	900821	21.48	76	74	01			5	321	08 06 n	139 33 w	1.79
03	02	900821	21.48	22	75	07			5	321			14.68
03	03	900821	21.48	75	07	22	04	02	5	321			13.96
03	04	900821	21.48	07	22	75	04	02	5	321			6.09
03	05	900821	21.48	07	22	75	04	01	5	321			8.24
03	06	900821	21.48	01	76	74	04	01	5	321	08 25 n	139 47 w	14.32
03	07	900821	21.48	76	74	01	04	01	5	321			7.16

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	08	900821	21.48	76	74	01	04	01	5	319			7.16
03	09	900821	21.48	74	01	76	04	01	5	319			15.04
03	10	900821	21.48	75	07	22	12	12	5	319	08 43 n	140 02 w	13.61
03	11	900821	21.48	07	22	75	12	12	5	319			2.51
03	12	900821	21.48	07	22	75	12	12	5	318			4.30
04	01	900821	21.48	07	22	75	12	01	5	318	08 53 n	140 10 w	1.79
04	02	900821	21.48	07	22	75	12	01	5	318	08 54 n	140 11 w	0.36
01	01	900822	21.67	07	22	99			3	317	10 12 n	141 17 w	1.44
01	02	900822	21.67	07	22	99			4	317			6.14
01	03	900822	21.67	07	22	75			4	317			1.81
01	04	900822	21.67	22	75	07			4	317	10 15 n	141 19 w	1.81
01	05	900822	21.67	22	75	07			4	321			9.75
01	06	900822	21.67	75	07	22			3	321			5.78
01	07	900822	21.67	75	07	22			3	321			2.89
01	08	900822	21.67	75	07	22			2	321			1.81
01	09	900822	21.67	74	01	76	04	02	2	321	10 24 n	141 28 w	5.78
02	01	900822	21.67	74	01	76	04	02	3	320	10 29 n	141 32 w	1.44
03	01	900822	22.04	01	76	74	04	02	3	320	10 30 n	141 33 w	8.08
03	02	900822	22.04	01	76	74	04	02	3	323	10 33 n	141 36 w	6.61
03	03	900822	22.04	76	74	01			3	323			10.28
04	01	900822	22.04	22	75	07			2	323	10 44 n	141 44 w	9.55
04	02	900822	22.04	22	75	07			2	323			4.04
04	03	900822	22.04	75	07	22	04	01	2	323			7.35
05	01	900822	22.04	75	07	22	04	01	2	323	10 53 n	141 52 w	4.04
05	02	900822	22.04	07	22	75			2	323			12.86
05	03	900822	22.04	01	76	74			3	323	11 01 n	141 57 w	14.69
05	04	900822	22.04	76	74	01			3	323			7.35
05	05	900822	22.04	76	74	01			3	321	11 10 n	142 04 w	2.57
06	01	900822	21.67	75	07	22			2	315	11 19 n	142 03 w	3.97
06	02	900822	21.67	75	07	22			3	315			1.81
06	03	900822	21.67	75	07	22			3	315			4.33
06	04	900822	21.67	75	07	22			3	315			3.61
06	05	900822	21.67	07	22	75			3	315			8.31
06	06	900822	21.67	07	22	75	11	02	3	315			5.78
06	07	900822	21.67	22	75	07	11	02	2	315			5.06
06	08	900822	21.67	22	75	07	11	02	3	315			0.72
07	01	900822	21.67	76	74	01	10	02	3	327	11 30 n	142 22 w	1.44
08	01	900822	21.85	76	74	01			3	327	11 32 n	142 24 w	2.19
08	02	900822	21.85	76	74	01	10	02	3	327	11 33 n	142 24 w	6.19
08	03	900822	21.85	22	75	07	10	02	2	327			11.29
08	04	900822	21.85	75	07	22	10	03	2	327			7.65
09	01	900822	21.85	07	22	75			1	327	11 43 n	142 32 w	6.19
09	02	900822	21.85	07	22	75			1	327	11 46 n	142 34 w	0.36
01	01	900823	21.85	01	76	74	04	03	1	303	12 50 n	143 53 w	10.93
01	02	900823	21.85	76	74	01	04	03	1	303	12 53 n	143 58 w	1.82
01	03	900823	21.85	76	74	01	04	03	1	305			1.82
01	04	900823	21.85	76	74	01			2	305			7.28
01	05	900823	21.85	74	01	76			2	305			6.92
01	06	900823	21.85	74	01	76	04	02	2	305			4.01
01	07	900823	21.85	75	07	22	04	02	2	305	12 59 n	144 08 w	12.02
02	01	900823	23.15	07	22	75	05	02	2	305			10.03
02	02	900823	23.15	22	75	07	05	01	2	305			10.42
02	03	900823	23.15	76	74	01	04	01	1	305	13 09 n	144 23 w	12.73
02	04	900823	23.15	74	01	76	04	01	1	305			6.17

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	01	900823	23.15	75	07	22	12	12	1	305	13 15 n	144 34 w	12.35
03	02	900823	23.15	07	22	75	12	12	1	305	13 18 n	144 39 w	7.72
04	01	900823	22.59	22	75	07	12	12	2	305	13 22 n	144 42 w	5.65
04	02	900823	22.59	22	75	07			2	305			6.78
04	03	900823	22.59	76	74	01	11	01	1	305	13 24 n	144 47 w	7.53
05	01	900823	23.15	74	01	76	11	02	2	306	13 29 n	144 56 w	6.56
06	01	900823	23.15	75	22	07	11	02	2	306	13 30 n	144 58 w	8.49
06	02	900823	23.15	22	07	75	11	02	2	306			8.87
06	03	900823	23.15	07	75	22	11	02	2	306			8.49
06	04	900823	23.15	01	74	76	11	02	2	306			3.47
06	05	900823	23.15	01	74	76	11	02	3	306	13 41 n	145 14 w	7.72
06	06	900823	23.15	01	74	76	11	03	3	306			4.24
06	07	900823	23.15	74	76	01	11	03	2	306			14.28
06	08	900823	23.15	76	01	74	11	03	2	306			10.80
06	09	900823	23.15	76	01	74			2	306	13 51 n	145 29 w	0.39
01	01	900824	20.74	22	75	07			4	302	15 09 n	147 27 w	3.11
02	01	900824	21.85	22	75	07			4	302	15 10 n	147 29 w	5.10
02	02	900824	21.85	75	07	22			4	302			5.10
02	03	900824	21.85	75	07	22			5	302			5.46
02	04	900824	21.85	07	22	75			5	302			7.28
02	05	900824	21.85	07	22	75			5	302			2.19
03	01	900824	21.85	74	01	76			5	302	15 19 n	147 44 w	1.82
04	01	900824	21.85	01	76	74			5	302	15 23 n	147 51 w	11.29
04	02	900824	21.85	76	74	01			5	302			10.93
04	03	900824	21.85	22	75	07			5	302	15 28 n	148 01 w	14.93
04	04	900824	21.85	75	07	22			5	302			12.38
04	05	900824	21.85	75	07	22			5	302	15 36 n	148 14 w	0.36
01	01	900825	23.15	74	01	76	04	03	5	302	17 39 n	151 28 w	11.57
01	02	900825	23.15	01	76	74	04	03	5	302			11.58
01	03	900825	23.15	07	22	75	04	02	5	302	17 45 n	151 39 w	15.43
01	04	900825	23.15	22	75	07	04	02	5	302			15.82
01	05	900825	23.15	75	07	22	05	02	5	302			10.42
01	06	900825	23.15	75	07	22	05	02	5	302			1.93
01	07	900825	23.15	75	07	22			5	302			1.93
02	01	900825	21.48	74	01	76			5	302	17 57 n	152 00 w	13.25
02	02	900825	21.48	01	76	74	05	01	5	302			7.16
02	03	900825	21.48	01	76	74	05	01	5	306	18 03 n	152 10 w	3.58
02	04	900825	21.48	01	76	74	05	01	5	304			1.79
02	05	900825	21.48	01	76	74	05	01	5	304	18 04 n	152 12 w	5.37
02	06	900825	21.48	76	74	01	05	01	5	304			10.74
02	07	900825	21.48	22	75	07	05	01	5	304	18 09 n	152 20 w	14.68
03	01	900825	18.52	84	07	22	12	12	5	304	18 15 n	152 28 w	3.09
03	02	900825	18.52	75	07	22	12	12	5	304			7.41
03	03	900825	18.52	07	22	75	12	12	5	304			9.88
03	04	900825	18.52	01	76	74	12	12	5	304	18 21 n	152 39 w	9.26
03	05	900825	18.52	01	76	74	12	12	5	302			3.09
03	06	900825	18.52	76	74	01	11	01	5	302			12.35
03	07	900825	18.52	74	01	76	11	01	5	302			4.01
03	08	900825	18.52	74	01	76	11	01	5	302	18 36 n	153 04 w	8.64
03	09	900825	18.52	75	07	22	11	01	5	302	18 33 n	152 58 w	2.47
03	10	900825	18.52	75	07	22	11	01	5	302			4.94
03	11	900825	18.52	07	22	75	11	02	5	302			7.72
03	12	900825	18.52	22	75	07	11	02	5	302			8.64
03	13	900825	18.52	76	74	01	11	02	5	302	18 41 n	153 12 w	12.96

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	14	900825	18.52	74	01	76	11	02	5	302	18 47 n	153 19 w	8.33
03	15	900825	18.52	74	01	76	11	03	5	302	18 47 n	153 23 w	0.31
01	01	900831	18.52	75	07	83	12	12	2	135	19 44 n	154 56 w	7.72
01	02	900831	18.52	74	01	76	12	12	3	135	19 40 n	154 53 w	12.96
01	03	900831	18.52	01	76	74	02	01	3	132			11.73
01	04	900831	18.52	76	74	01	04	01	3	132			12.35
01	05	900831	18.52	07	83	75	04	01	3	132	19 25 n	154 37 w	12.35
01	06	900831	18.52	83	75	07	04	01	3	132			12.35
01	07	900831	18.52	75	07	83	04	02	3	132			12.35
01	08	900831	18.52	74	01	76	04	02	3	132	19 12 n	154 22 w	7.72
01	09	900831	18.52	01	76	74	04	02	3	132			7.72
01	10	900831	18.52	76	74	01	04	02	3	132			7.72
01	11	900831	18.52	83	75	07	05	02	3	132			9.26
01	12	900831	18.52	75	07	83	05	03	3	132			9.26
01	13	900831	18.52	07	83	75	05	03	3	132			4.63
01	14	900831	18.52	07	83	75	05	03	3	130			2.78
01	15	900831	18.52	07	83	75	05	03	3	130	18 53 n	154 01 w	0.31
01	01	900901	18.52	01	76	74	10	03	3	136	17 28 n	152 35 w	2.47
01	02	900901	18.52	01	76	74	10	03	4	136			3.70
01	03	900901	18.52	01	76	74	10	03	4	136			6.17
01	04	900901	18.52	76	74	01	10	03	4	136			5.25
01	05	900901	18.52	76	74	01	10	03	4	136			2.16
01	06	900901	18.52	76	74	01	10	03	4	136			11.11
01	07	900901	18.52	74	01	76	10	03	4	136			6.17
01	08	900901	18.52	75	07	83	10	02	4	136	17 15 n	152 21 w	3.09
02	01	900901	16.85	83	07	85	10	02	4	136	17 14 n	152 20 w	8.71
03	01	900901	18.33	76	07	83	11	02	4	136	17 09 n	152 15 w	4.58
03	02	900901	18.33	76	07	83	11	02	4	133			3.97
03	03	900901	18.33	01	83	76	11	01	4	133			12.22
03	04	900901	18.89	74	76	01	11	01	5	133	17 01 n	152 07 w	12.59
03	05	900901	18.89	07	01	74	11	01	5	133			12.59
03	06	900901	18.89	83	74	07	12	01	5	133			12.59
03	07	900901	18.89	76	83	85	12	12	5	133	16 47 n	151 51 w	4.72
03	08	900901	18.89	76	07	83	12	12	5	133			7.87
03	09	900901	18.89	01	83	76	12	12	5	133			5.04
04	01	900901	18.52	01	83	76	03	01	5	133	16 42 n	151 43 w	4.63
04	02	900901	18.52	74	76	01	04	01	5	133			3.09
04	03	900901	18.52	74	76	01	04	01	5	133			1.85
05	01	900901	18.52	74	76	01			5	133	16 37 n	151 39 w	6.17
05	02	900901	18.52	07	01	74	04	01	5	135	16 35 n	151 36 w	12.35
05	03	900901	18.52	83	74	07	04	01	5	135			12.35
05	04	900901	18.52	76	07	83	04	02	5	135			12.35
05	05	900901	18.52	01	83	76	04	02	5	135	16 20 n	151 21 w	4.94
05	06	900901	18.52	01	83	76	04	02	5	135			7.41
05	07	900901	18.52	74	76	01	04	02	5	135			3.09
05	08	900901	18.52	01	76	99	04	02	5	135			5.56
05	09	900901	18.52	74	83	01	04	02	5	135			3.70
05	10	900901	18.52	07	01	74	04	03	4	135			12.35
05	11	900901	18.52	83	74	07	05	03	4	135			5.25
05	12	900901	18.52	83	74	07	05	03	4	135	16 03 n	151 04 w	0.31
01	01	900902	18.52	76	07	83	10	03	3	132	14 43 n	149 44 w	3.09
01	02	900902	18.52	83	07	75	10	03	3	132			1.85
02	01	900902	18.52	83	07	75	10	03	4	132	14 42 n	149 43 w	7.72
02	02	900902	18.52	07	75	83	10	03	4	132			12.66

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	900902	18.52	76	83	07	10	02	4	132			10.49
02	04	900902	18.52	74	07	76	11	02	4	132	14 30 n	149 30 w	12.35
02	05	900902	18.52	01	76	74	11	02	4	132			6.17
02	06	900902	18.52	01	76	74	11	02	3	132			6.17
02	07	900902	18.52	83	74	01	11	01	3	132			4.94
02	08	900902	18.52	83	74	01	11	01	3	135			7.41
02	09	900902	18.52	07	01	83	11	01	3	135	14 17 n	149 15 w	12.96
02	10	900902	18.52	76	83	07	11	01	3	135			14.82
02	11	900902	18.52	74	01	85	12	12	3	135			6.17
02	12	900902	18.52	74	07	76	12	12	3	135			3.09
02	13	900902	18.52	01	76	74	12	12	3	135	14 02 n	149 01 w	12.35
02	14	900902	18.52	83	74	01	03	12	3	135			12.35
02	15	900902	18.52	07	01	83	03	01	3	135			3.09
02	16	900902	18.52	07	01	83	03	01	3	133			9.26
02	17	900902	18.52	76	83	07	04	01	3	133	13 48 n	148 47 w	12.35
02	18	900902	18.52	74	07	76	04	01	3	133			12.35
02	19	900902	18.52	01	76	74	04	02	3	133			4.32
02	20	900902	18.52	01	76	74	05	02	3	103			4.01
03	01	900902	18.52	83	74	01	04	02	3	136	13 36 n	148 32 w	13.27
03	02	900902	18.52	07	01	83	04	02	3	136			6.17
04	01	900902	18.52	07	01	83	05	03	3	136			3.09
04	02	900902	18.52	76	83	07	05	03	3	136			6.17
04	03	900902	18.52	76	83	07	05	03	3	136	13 21 n	148 18 w	0.31
01	01	900903	18.33	74	01	76	10	03	4	135	12 07 n	147 01 w	8.56
01	02	900903	18.33	01	76	74	10	03	5	135			7.95
01	03	900903	18.33	76	74	01	10	03	5	135			7.03
02	01	900903	17.96	83	75	07	10	02	5	132	11 53 n	146 54 w	8.08
02	02	900903	17.96	75	07	83			5	132			5.99
02	03	900903	17.96	75	07	83	11	02	5	132			1.80
02	04	900903	17.96	07	83	75	11	02	5	132			7.19
02	05	900903	17.96	01	76	74	11	01	5	132	11 44 n	146 44 w	11.98
03	01	900903	18.71	07	83	75	01	12	5	132	11 28 n	146 26 w	9.04
03	02	900903	18.71	83	75	07			5	132			8.42
03	03	900903	18.71	75	07	83	03	01	5	132			9.35
03	04	900903	18.71	74	01	76	03	01	5	132	11 19 n	146 15 w	12.47
03	05	900903	18.71	01	76	74	04	01	5	132			12.47
03	06	900903	18.71	76	74	01	04	01	5	132			9.04
04	01	900903	18.89	83	75	07			5	132	11 05 n	145 58 w	3.15
04	02	900903	18.89	83	75	07			5	132	10 59 n	145 51 w	4.72
04	03	900903	18.89	75	07	83			5	132			4.72
05	01	900903	19.45	75	07	83			5	132			4.86
05	02	900903	19.45	74	01	76			5	132			10.70
05	03	900903	19.45	74	01	76			5	132			3.24
05	04	900903	19.45	74	01	76			6	132	10 53 n	145 46 w	0.32
01	01	900904	21.30	07	01	83			4	134	09 24 n	144 19 w	17.04
01	02	900904	21.30	74	83	07	10	03	3	134			3.19
01	03	900904	21.30	74	83	07	10	03	4	134			3.19
02	01	900904	20.74	01	74	76			3	138	09 11 n	144 01 w	5.19
02	02	900904	20.74	01	74	76			3	138			2.42
02	03	900904	20.74	01	74	76			3	158			0.69
03	01	900904	21.30	07	83	75			2	170	09 00 n	143 51 w	12.42
03	02	900904	21.30	83	75	07			2	135			11.71
03	03	900904	21.30	75	07	83			2	135			5.68
03	04	900904	21.30	75	07	83			2	135			3.55

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	900904	21.30	74	01	76	12	12	2	135	08 45 n	143 40 w	13.84
04	02	900904	21.30	01	76	74	12	12	2	135			4.26
04	03	900904	21.30	01	76	74			3	135			2.84
04	04	900904	21.30	01	76	74			2	135			6.03
04	05	900904	21.30	76	74	01			2	135			8.16
04	06	900904	21.30	76	74	01			2	135			3.55
05	01	900904	21.11	83	75	07			2	135	08 25 n	143 19 w	3.87
05	02	900904	21.11	83	75	07			2	135			5.28
05	03	900904	21.11	75	07	83			2	135			11.96
06	01	900904	20.93	07	83	75			2	136	08 17 n	143 10 w	5.58
06	02	900904	20.93	07	83	75			3	136			1.40
06	03	900904	20.93	01	76	74			3	136			8.72
06	04	900904	20.93	76	74	01			3	136			5.23
07	01	900904	21.11	74	01	76			3	136	08 06 n	142 59 w	5.98
07	02	900904	21.11	75	07	83			2	136			8.09
07	03	900904	21.11	07	83	75			2	136			4.57
08	01	900904	21.11	07	83	75			3	138	07 58 n	142 52 w	2.46
08	02	900904	21.11	07	83	75			3	138	07 57 n	142 51 w	0.35
01	01	900905	20.56	01	76	74			3	142	06 36 n	141 30 w	3.43
01	02	900905	20.56	01	76	74	10	03	4	142			9.25
01	03	900905	20.56	76	74	01	10	03	4	145			9.59
02	01	900905	21.30	83	75	07	10	02	4	148	06 27 n	141 24 w	1.77
02	02	900905	21.30	83	75	07	10	02	4	139			8.52
02	03	900905	21.30	07	75	99	10	02	4	139			3.90
02	04	900905	21.30	75	07	83	10	02	4	139			2.48
02	05	900905	21.30	75	76	83	10	02	4	139			3.90
02	06	900905	21.30	75	07	83			4	139			9.58
02	07	900905	21.30	07	83	75	10	02	4	139			1.77
02	08	900905	21.30	07	22	75	10	02	4	139			1.06
02	09	900905	21.30	07	22	75	10	02	4	141			3.90
02	10	900905	21.30	07	22	75	10	01	4	141			5.68
02	11	900905	21.30	01	76	74	10	01	4	141	06 10 n	141 07 w	17.04
02	12	900905	21.30	76	74	01	11	01	5	141			11.36
02	13	900905	21.30	74	01	76	11	01	5	141			14.20
02	14	900905	21.30	75	07	22	12	12	5	141	05 53 n	140 52 w	14.20
02	15	900905	21.30	07	22	75	12	12	5	141			3.55
02	16	900905	21.30	07	22	75	12	12	5	141			9.23
02	17	900905	21.30	07	22	75	12	12	5	135			1.42
02	18	900905	21.30	83	75	07	05	01	5	135			14.20
02	19	900905	21.30	76	74	01	05	01	5	135	05 35 n	140 37 w	14.20
02	20	900905	21.30	74	01	76	05	01	5	135			3.55
03	01	900905	20.74	74	01	76	05	01	5	140	05 30 n	140 27 w	5.53
03	02	900905	20.74	01	76	74	04	01	5	140			13.14
03	03	900905	20.74	07	22	75	04	02	5	140	05 24 n	140 20 w	10.37
03	04	900905	20.74	22	75	07	04	02	5	140			5.19
03	05	900905	20.74	22	75	07	04	02	5	140			2.77
03	06	900905	20.74	75	07	22	04	02	5	140			7.61
03	07	900905	20.74	74	01	76	04	02	5	140			8.30
03	08	900905	20.74	74	01	76	04	03	5	145			2.07
03	09	900905	20.74	01	76	74	04	03	5	145			8.99
03	10	900905	20.74	01	76	74	04	03	5	145	05 05 n	140 03 w	0.35
01	01	900906	20.74	22	75	07			3	090	05 03 n	138 24 w	8.64
02	01	900906	20.37	75	07	22			3	100			3.40
02	02	900906	20.37	75	07	22	11	02	4	100			9.85

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
02	03	900906	20.37	74	01	76	11	02	5	100	05 03 n	138 14 w	13.58
02	04	900906	20.37	01	76	74	11	02	5	100			2.38
02	05	900906	20.37	01	76	74	12	02	5	072			11.88
02	06	900906	20.37	76	74	01	12	02	5	072			12.90
02	07	900906	20.37	22	75	07	12	01	5	072	05 05 n	137 53 w	10.19
02	08	900906	20.37	22	75	07	12	01	5	072			3.73
02	09	900906	20.37	75	07	22	12	01	5	072			7.13
02	10	900906	20.37	75	07	22	12	01	5	100			5.77
03	01	900906	20.37	07	22	75	12	12	5	100	05 08 n	137 38 w	5.09
03	02	900906	20.37	07	22	75	12	12	5	100			5.09
03	03	900906	20.37	01	76	74	12	12	5	100	05 07 n	137 33 w	13.58
03	04	900906	20.37	76	74	01	12	12	5	100			6.79
03	05	900906	20.37	76	74	01	05	01	5	090			6.79
03	06	900906	20.37	74	01	76	06	01	4	090			13.92
03	07	900906	20.37	75	07	22	06	01	4	090			12.22
04	01	900906	20.37	07	22	75	06	01	4	090	05 06 n	137 04 w	13.58
04	02	900906	20.37	22	75	07	06	02	4	090			13.58
04	03	900906	20.37	76	74	07	06	02	4	090	05 06 n	136 50 w	10.19
04	04	900906	20.37	76	74	07	06	02	4	088			3.40
04	05	900906	20.37	74	07	76	06	02	4	088			2.04
04	06	900906	20.37	74	01	76	06	02	4	088			9.85
04	07	900906	20.37	75	07	22	06	03	4	088			7.81
04	08	900906	20.37	07	22	75	06	03	4	088			7.47
04	09	900906	20.37	07	22	75	06	03	4	086			2.72
04	10	900906	20.37	07	22	75			4	086	05 07 n	136 27 w	0.34
01	01	900907	20.74	76	74	01			2	088	05 12 n	134 49 w	4.84
02	01	900907	19.63	22	75	07	11	02	3	123	05 19 n	134 47 w	8.51
02	02	900907	19.63	75	07	22	11	01	3	123			5.89
02	03	900907	19.63	07	22	75	11	01	3	123			6.54
02	04	900907	19.63	01	76	74	12	01	3	088	05 13 n	134 38 w	4.58
03	01	900907	16.85	01	76	74	12	01	3	096	05 16 n	134 35 w	1.97
03	02	900907	16.85	76	74	01	12	01	3	096			3.09
03	03	900907	16.85	76	74	01	12	01	4	096			8.15
03	04	900907	16.85	74	01	76	12	12	4	096			7.86
04	01	900907	16.67	74	01	76	12	12	4	096	05 15 n	134 23 w	1.94
04	02	900907	16.67	75	07	22	12	12	4	096			10.83
04	03	900907	16.67	07	22	75	05	12	4	096			5.00
04	04	900907	16.67	07	22	75	05	01	4	096	05 15 n	134 13 w	6.11
04	05	900907	16.67	22	75	07	06	01	4	096			11.11
04	06	900907	16.67	76	74	01	06	01	4	096	05 15 n	134 03 w	11.11
04	07	900907	16.67	74	01	76	06	02	4	096			6.95
05	01	900907	19.45	74	01	76	06	02	4	096	05 14 n	133 52 w	3.89
05	02	900907	19.45	01	76	74	06	02	4	096			9.72
05	03	900907	19.45	07	22	75	06	02	3	092	05 14 n	133 45 w	7.13
05	04	900907	19.45	07	22	75	06	02	4	092			0.97
05	05	900907	19.45	22	75	07	06	02	4	092			1.62
05	06	900907	19.45	22	75	07	06	02	4	090			6.81
05	07	900907	19.45	75	07	22	06	03	4	090			2.92
05	08	900907	19.45	75	07	22	06	03	4	088	05 14 n	133 35 w	4.86
05	09	900907	19.45	74	01	76	06	03	4	088			9.72
05	10	900907	19.45	01	76	74	06	03	4	088			3.24
05	11	900907	19.45	01	76	74	06	03	4	088	05 14 n	133 25 w	0.32
01	01	900908	20.19	22	75	07			4	094	05 21 n	131 42 w	9.42
01	02	900908	20.19	75	07	22			4	094			7.74

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	900908	20.19	75	07	22			5	047			1.68
01	04	900908	20.19	07	22	75			5	047			7.07
02	01	900908	20.56	01	76	74	01	02	5	065	05 27 n	131 33 w	3.43
02	02	900908	20.56	76	74	01	01	02	5	065			13.70
02	03	900908	20.56	74	01	76	01	02	5	065			14.39
02	04	900908	20.56	75	07	22	01	01	5	065	05 35 n	131 18 w	1.03
02	05	900908	20.56	75	07	22	02	01	5	046			11.99
02	06	900908	20.56	07	22	75	01	01	5	046			13.70
02	07	900908	20.56	22	75	07	02	01	5	046			13.70
02	08	900908	20.56	76	74	01	02	01	5	046	05 50 n	131 03 w	13.70
02	09	900908	20.56	74	01	76	12	12	5	046			1.71
03	01	900908	20.56	75	07	22	07	01	5	046	06 11 n	130 41 w	4.45
03	02	900908	20.56	75	07	22	08	01	5	036			4.45
03	03	900908	20.56	07	22	75	08	01	5	036			7.54
03	04	900908	20.56	22	75	07	08	01	5	036			5.48
04	01	900908	21.30	22	75	07	08	02	5	036	06 22 n	130 34 w	2.13
04	02	900908	21.30	76	74	01	08	02	5	036			13.49
05	01	900908	21.30	22	75	07	08	02	5	036	06 35 n	130 25 w	3.19
05	02	900908	21.30	22	75	07	08	02	5	036			6.03
05	03	900908	21.30	75	07	22	08	03	5	036			11.00
06	01	900908	21.67	07	22	75	08	03	5	036	06 19 n	130 36 w	3.25
06	02	900908	21.67	07	22	75	08	03	5	036	06 47 n	130 17 w	0.36
01	01	900909	21.48	76	74	01			5	044	07 53 n	128 56 w	10.38
01	02	900909	21.48	74	01	76			5	044			9.67
01	03	900909	21.48	01	76	74			5	044			7.16
01	04	900909	21.48	01	76	74			5	132			3.58
01	05	900909	20.37	07	22	75			5	132	08 03 n	128 34 w	6.45
01	06	900909	20.37	07	22	75			5	132			8.15
01	07	900909	20.37	22	75	07	11	02	5	132			12.90
01	08	900909	20.37	75	07	22	11	02	5	138			13.24
01	09	900909	20.37	74	01	76	11	01	5	138	07 51 n	128 27 w	11.88
01	10	900909	19.45	74	01	76	11	01	5	142			1.62
01	11	900909	19.45	01	76	74	11	01	5	142			4.86
02	01	900909	19.08	76	74	01	11	01	5	142	07 43 n	128 20 w	7.31
02	02	900909	19.08	22	75	07	12	12	5	142	07 40 n	128 17 w	6.36
02	03	900909	19.08	22	74	07	12	12	5	142			6.68
02	04	900909	19.08	75	07	22	12	12	5	142			12.72
02	05	900909	19.08	07	22	75	03	01	5	142			9.22
02	06	900909	19.08	07	22	75	04	01	5	142			3.82
02	07	900909	19.08	01	76	74	04	01	5	142			4.77
03	01	900909	20.00	76	74	01	04	01	5	142	07 21 n	127 54 w	6.67
03	02	900909	20.00	74	01	76	04	02	5	142			13.67
03	03	900909	20.00	75	07	22	04	02	5	142	07 13 n	127 46 w	6.33
03	04	900909	20.00	07	22	75	04	02	5	142			6.67
03	05	900909	20.00	22	75	07	04	02	5	142			1.67
04	01	900909	20.37	76	74	01	04	03	5	142	07 02 n	127 35 w	8.83
04	02	900909	20.37	74	01	76	04	03	5	142			8.49
04	03	900909	20.37	74	01	76	04	03	5	142	06 56 n	127 29 w	0.34
01	01	900910	20.37	75	07	22			4	137	05 42 n	126 09 w	3.06
01	02	900910	20.37	75	07	22	10	03	4	137			4.41
01	03	900910	20.37	75	07	22			3	137			5.09
01	04	900910	20.37	07	22	75			4	137			6.45
01	05	900910	20.37	07	22	75	10	03	4	137			6.79
02	01	900910	19.26	07	22	75	10	02	4	137	05 23 n	126 01 w	1.93

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	02	900910	19.26	01	76	74	10	02	5	137	05 32 n	126 00 w	10.27
02	03	900910	19.26	01	76	74	10	02	5	134			2.57
02	04	900910	19.26	76	74	01	10	02	5	134			12.84
02	05	900910	19.26	74	01	76	11	02	5	134			12.84
03	01	900910	19.08	75	07	22	11	01	5	134	05 17 n	125 43 w	9.54
03	02	900910	19.08	07	22	75	11	01	5	134			2.86
03	03	900910	19.08	07	22	75	11	01	5	134			9.86
03	04	900910	19.08	22	75	07	11	01	5	132			8.90
04	01	900910	18.15	76	74	01	12	12	5	132	05 07 n	125 30 w	12.70
04	02	900910	18.15	74	01	76	12	12	5	132			10.28
04	03	900910	18.15	74	01	76	04	01	5	138			1.81
04	04	900910	18.15	01	76	74	04	01	5	138			12.10
04	05	900910	18.15	07	22	75	04	01	5	138			6.35
05	01	900910	18.15	07	22	75	04	01	5	138	04 51 n	125 10 w	4.54
05	02	900910	18.15	22	75	07	04	01	5	138			12.40
05	03	900910	18.15	75	07	22	04	02	5	138			11.80
05	04	900910	18.15	74	01	76	04	02	5	138	04 40 n	124 59 w	7.56
05	05	900910	18.15	01	76	74	05	02	5	138			5.44
06	01	900910	18.71	07	22	75	04	02	5	138	04 34 n	124 54 w	3.43
06	02	900910	18.71	07	22	75	04	03	5	138			3.12
06	03	900910	18.71	22	75	07	04	03	4	138			6.24
06	04	900910	18.71	75	07	22	04	03	4	138			5.61
06	05	900910	18.71	75	07	22	04	03	4	138	04 26 n	124 46 w	0.31
01	01	900911	18.52	74	01	76			4	126	03 22 n	123 38 w	1.85
01	02	900911	18.52	74	01	76	11	03	5	126			10.80
01	03	900911	18.15	01	76	74	11	03	5	126			3.02
01	04	900911	18.15	01	76	74	11	03	5	124			8.47
01	05	900911	18.15	76	74	01	11	02	5	124			8.17
01	06	900911	18.15	22	75	07	11	02	5	124	03 11 n	123 25 w	12.40
01	07	900911	18.15	75	07	22	11	02	5	124			11.80
01	08	900911	18.15	07	22	75	11	01	5	124			12.10
01	09	900911	18.15	01	76	74	11	01	5	124	03 00 n	123 11 w	12.10
01	10	900911	18.15	76	74	01	11	01	5	124			4.84
01	11	900911	18.15	76	74	01	11	01	5	134			6.65
02	01	900911	16.67	74	01	76	12	12	5	142	02 53 n	123 01 w	7.50
02	02	900911	16.67	75	07	22	12	12	5	142	02 49 n	122 59 w	0.56
03	01	900911	16.67	75	07	22	12	12	5	142	02 49 n	122 59 w	3.06
04	01	900911	18.15	75	07	22	12	12	5	130	02 46 n	122 58 w	1.21
04	02	900911	18.15	07	22	75	12	12	5	130			5.44
04	03	900911	18.15	07	22	75	04	12	5	130			3.63
04	04	900911	18.15	07	22	75	07	01	5	076			9.07
04	05	900911	18.15	22	75	07	07	01	5	076			6.05
04	06	900911	18.15	76	74	01	06	01	5	076			3.63
05	01	900911	19.45	76	74	01	06	01	5	082	02 48 n	122 43 w	6.48
05	02	900911	19.45	74	01	76	06	01	4	082			4.54
05	03	900911	19.45	74	01	76			4	082			2.92
05	04	900911	19.45	74	01	76			4	082			2.27
05	05	900911	19.45	74	01	76	06	02	4	090			3.24
05	06	900911	19.45	01	76	74	06	02	4	090			2.27
06	01	900911	17.59	01	76	74			5	090	02 50 n	122 34 w	2.93
06	02	900911	17.59	07	22	75			4	090			2.35
06	03	900911	17.59	07	22	75	06	02	4	090			4.98
06	04	900911	17.59	22	75	07	06	02	4	090			7.62
06	05	900911	17.59	75	07	22	06	02	4	090			3.23

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	06	900911	17.59	75	07	22	06	03	3	090	02 53 n	122 24 w	3.81
06	07	900911	17.59	74	01	76	06	03	4	090			7.04
06	08	900911	17.59	74	01	76	06	03	4	095			1.76
06	09	900911	17.59	01	76	74	06	03	4	095			5.86
06	10	900911	17.59	01	76	74	06	03	4	095	02 56 n	122 14 w	0.29
01	01	900912	18.52	22	07	75			3	082	03 11 n	120 52 w	3.70
01	02	900912	18.52	22	07	75	12	03	3	070			5.56
02	01	900912	18.15	22	07	75	12	03	3	070	03 14 n	120 45 w	1.81
02	02	900912	18.15	07	75	22	12	03	3	070			13.31
02	03	900912	18.15	75	22	07	01	02	3	070			1.51
02	04	900912	18.15	75	22	07	11	02	3	105	03 18 n	120 40 w	5.44
03	01	900912	16.67	74	01	76	11	02	4	105	03 19 n	120 34 w	6.95
03	02	900912	16.67	01	76	74	12	02	4	105	03 18 n	120 30 w	8.33
03	03	900912	16.67	76	74	01	12	01	5	070			8.33
03	04	900912	16.67	22	75	07	12	01	4	070	03 18 n	120 21 w	11.67
03	05	900912	16.67	75	07	22	01	01	4	070			5.83
03	06	900912	16.67	75	07	22	12	12	4	070			3.33
03	07	900912	16.67	75	07	22	12	12	5	070			1.39
03	08	900912	16.67	07	22	75	12	12	5	070			2.78
03	09	900912	16.67	07	22	75	12	12	5	076			8.33
03	10	900912	16.67	01	76	74	12	12	5	076	03 26 n	120 03 w	9.45
03	11	900912	16.67	01	76	74	12	12	5	080			2.78
03	12	900912	16.67	76	74	01	12	12	5	080			10.00
03	13	900912	16.67	74	01	76	06	01	4	080			11.11
03	14	900912	16.67	75	07	22	06	01	4	080			4.17
04	01	900912	16.67	75	07	22	06	01	4	080	03 32 n	119 41 w	3.89
05	01	900912	17.59	07	22	75	06	02	4	080	03 33 n	119 39 w	7.92
06	01	900912	18.15	22	75	07			4	080	03 34 n	119 33 w	5.44
06	02	900912	18.15	22	75	07	06	02	4	080			2.42
06	03	900912	18.15	22	75	07	06	02	5	080			3.02
06	04	900912	18.15	76	74	01	06	02	5	080	03 35 n	119 27 w	8.47
06	05	900912	18.15	74	01	76	06	02	5	080			4.54
07	01	900912	18.33	74	01	76	06	03	5	072	03 34 n	119 18 w	4.28
07	02	900912	18.33	75	07	22	06	03	5	072			5.50
07	03	900912	18.33	07	22	75	06	03	5	072			3.06
07	04	900912	18.33	07	22	75	06	03	5	072	03 36 n	119 11 w	0.31
01	01	900913	21.11	76	74	01	12	03	5	100	03 24 n	117 28 w	9.15
01	02	900913	21.11	74	01	76	12	03	5	100			4.57
01	03	900913	19.82	74	01	76	12	03	5	103			3.30
01	04	900913	19.82	01	76	74	12	03	5	103			3.30
01	05	900913	19.82	01	76	74			5	094			3.30
01	06	900913	19.82	07	22	75			5	094	03 21 n	117 06 w	3.30
01	07	900913	19.82	07	22	75	11	02	5	104			4.62
01	08	900913	19.82	07	22	75	11	02	5	104			5.28
01	09	900913	19.82	22	75	07	11	02	5	104			7.27
01	10	900913	19.82	22	75	07	01	02	5	070	03 21 n	117 16 w	6.61
01	11	900913	19.82	75	07	22	01	02	5	070			10.57
01	12	900913	19.82	75	07	22	11	02	5	107			1.98
01	13	900913	19.82	74	01	76			5	107	03 21 n	116 55 w	13.21
01	14	900913	19.82	01	76	74	11	01	5	107			13.21
01	15	900913	19.82	76	74	01	12	01	5	107			13.21
01	16	900913	19.82	22	75	07	12	12	5	107	03 14 n	116 35 w	5.61
01	17	900913	19.82	22	75	07			5	107			7.27
01	18	900913	20.37	75	07	22			5	113			6.45

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	900913	20.37	75	07	22			4	113			1.70
01	20	900913	20.37	75	07	22	12	12	5	113			5.77
01	21	900913	20.37	07	22	75	12	12	5	113			2.38
01	22	900913	20.37	07	22	75	05	12	5	113			11.20
01	23	900913	20.37	01	76	74			5	113	03 06 n	116 15 w	13.58
01	24	900913	20.37	76	74	01	05	01	5	113			13.58
01	25	900913	20.37	74	01	76	05	02	5	113			8.49
01	26	900913	20.37	74	01	76	05	02	5	118			5.43
01	27	900913	18.52	75	07	22	05	02	4	118	02 59 n	115 54 w	7.41
01	28	900913	18.52	07	22	75			4	125			4.63
01	29	900913	18.52	07	22	75			4	116			4.32
01	30	900913	18.52	22	75	07			4	116			6.48
01	31	900913	18.52	76	74	01			5	116			10.19
01	32	900913	18.52	74	01	76	05	03	5	116			8.33
01	33	900913	18.52	01	76	74			5	116			5.25
01	34	900913	18.52	01	76	74			5	116	02 48 n	115 29 w	0.31
01	01	900914	15.74	74	01	76	11	02	5	102	02 23 n	113 39 w	7.61
01	02	900914	15.74	01	76	74	11	02	5	102			6.56
01	03	900914	15.74	07	22	75	11	01	5	102			7.35
01	04	900914	15.74	07	22	75	12	01	5	102			3.15
01	05	900914	15.74	22	75	07	12	01	5	102			5.25
01	06	900914	15.74	22	75	07			5	102	02 00 n	113 12 w	0.26
02	01	900914	16.67	22	75	01	12	12	5	102	02 21 n	113 10 w	2.50
02	02	900914	16.67	76	74	01	12	12	5	102	02 21 n	113 08 w	11.11
02	03	900914	16.67	74	01	76	12	12	5	102			11.11
02	04	900914	16.67	01	76	74	05	01	5	102			11.11
02	05	900914	16.67	07	22	75	05	01	5	102	02 18 n	112 50 w	11.11
02	06	900914	16.67	22	75	07	06	01	5	102			4.17
03	01	900914	17.59	22	75	07	06	01	5	102	02 17 n	112 42 w	6.45
03	02	900914	17.59	75	07	22	06	02	5	102			11.14
03	03	900914	17.59	74	01	76	06	02	5	102	02 15 n	112 33 w	7.33
03	04	900914	17.59	01	76	74	05	02	5	102			7.33
03	05	900914	17.59	76	74	01	05	02	5	102			7.33
03	06	900914	17.59	22	75	07	06	02	5	102			7.62
03	07	900914	17.59	75	07	22	06	03	5	102			7.04
03	08	900914	17.59	07	22	75	06	03	5	102			3.81
03	09	900914	17.59	07	22	75	06	03	5	102	02 12 n	112 11 w	0.29
01	01	900915	17.59	01	76	74	11	03	5	101	02 02 n	110 42 w	3.81
02	01	900915	15.56	01	76	74	11	03	5	101			3.89
02	02	900915	15.56	76	74	01	11	03	5	101	02 01 n	110 37 w	7.78
02	03	900915	15.56	74	01	76			5	101			2.07
03	01	900915	15.56	74	01	76	11	02	5	101	02 01 n	110 31 w	2.85
04	01	900915	15.56	75	07	22	12	02	5	100	02 03 n	110 27 w	3.11
04	02	900915	15.56	75	07	22	12	02	4	100			2.07
04	03	900915	15.56	75	07	22			4	100			1.04
04	04	900915	15.56	07	22	75			4	100			1.56
05	01	900915	15.56	07	22	75			4	100	02 02 n	110 21 w	2.33
05	02	900915	15.56	22	75	07	12	01	4	100			2.85
05	03	900915	15.56	22	75	07	12	01	5	100			3.63
05	04	900915	15.56	76	74	01	12	01	5	100	02 02 n	110 17 w	1.81
06	01	900915	15.56	76	74	01	12	01	5	091	01 59 n	110 17 w	4.41
06	02	900915	15.56	74	01	76	12	01	5	091			1.81
06	03	900915	15.56	74	01	76			5	091			1.81
07	01	900915	14.82	74	07	22	05	01	5	100			1.98

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	900915	14.82	74	22	75	05	01	5	100			1.98
07	03	900915	14.82	75	07	22	05	01	6	100	02 00 n	110 05 w	0.25
08	01	900915	14.82	75	07	22			5	105	01 57 n	109 48 w	3.21
08	02	900915	14.82	75	07	22			5	105			2.47
08	03	900915	14.82	07	22	75			5	105			1.23
08	04	900915	14.82	07	22	75			5	105	01 56 n	109 44 w	0.25
01	01	900916	18.71	07	22	75			5	088	01 40 n	108 09 w	9.35
01	02	900916	18.71	22	75	07			5	088			8.73
01	03	900916	18.71	22	75	07			5	038			3.43
01	04	900916	18.71	75	07	22			5	038			3.12
01	05	900916	18.71	75	07	22	02	02	5	038			9.04
01	06	900916	18.71	74	01	76	02	02	5	038	01 47 n	107 56 w	10.91
01	07	900916	18.71	74	01	76	02	02	5	045			1.56
01	08	900916	18.71	01	76	74	01	02	5	045			4.99
02	01	900916	18.71	07	22	75	01	01	5	045			5.92
02	02	900916	18.71	07	22	75	01	01	5	045	02 05 n	107 41 w	0.31
01	01	900917	20.37	76	74	01			5	105	03 26 n	105 27 w	5.77
01	02	900917	20.37	74	01	76			5	105			4.75
01	03	900917	20.37	74	01	76	11	03	5	105			2.04
01	04	900917	20.37	01	76	74	11	03	5	105			1.70
02	01	900917	15.74	07	22	75	05	02	5	110	03 10 n	103 51 w	3.41
02	02	900917	15.74	07	22	75	05	02	5	116			2.36
02	03	900917	15.74	22	75	07	05	02	5	116			5.25
02	04	900917	15.74	75	07	22	05	02	5	116			5.25
02	05	900917	15.74	74	01	76	04	02	5	130			3.94
02	06	900917	15.74	74	01	76			5	150			2.89
02	07	900917	15.74	74	01	76			5	150			1.05
02	08	900917	15.74	01	76	74			5	150			9.45
02	09	900917	15.74	76	74	01			5	150			2.89
02	10	900917	15.74	76	74	01			5	150	02 57 n	103 35 w	0.26
01	01	900918	18.89	22	75	07			5	142	01 34 n	102 48 w	5.04
01	02	900918	18.89	22	75	07			5	146			3.15
01	03	900918	18.89	75	07	22			5	146			7.87
01	04	900918	18.89	07	22	75			5	146			5.67
01	05	900918	18.89	07	22	75	10	02	5	146			1.26
01	06	900918	18.89	01	76	74	10	02	5	146	01 23 n	102 42 w	9.45
01	07	900918	18.89	01	76	74	10	02	5	146			4.72
01	08	900918	18.89	76	74	01	10	02	5	146			11.02
01	09	900918	18.89	74	01	76	10	02	5	146			5.35
02	01	900918	18.89	74	01	76	10	01	5	146	01 08 n	102 34 w	4.09
02	02	900918	18.89	75	07	22	10	01	5	146			11.65
02	03	900918	18.89	07	22	75	10	01	5	146			12.59
02	04	900918	18.89	22	75	07	10	01	5	146			6.30
02	05	900918	18.89	22	75	07			5	140			6.30
02	06	900918	18.89	76	74	01	12	12	5	140	00 48 n	102 23 w	4.41
02	07	900918	18.89	76	74	01	12	12	5	140			0.94
03	01	900918	17.59	76	74	01	12	12	5	140	00 45 n	102 20 w	4.69
03	02	900918	17.59	74	01	76	12	12	5	140			11.73
03	03	900918	17.59	01	76	74	12	12	5	140			2.35
03	04	900918	17.59	01	76	74	12	12	5	143			9.38
03	05	900918	17.59	07	22	75			4	143	00 31 n	102 11 w	5.57
03	06	900918	17.59	07	22	75			4	143			3.23
03	07	900918	17.59	07	22	75			4	143			2.93
03	08	900918	17.59	22	75	07	04	01	4	143			2.05

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	09	900918	17.59	22	75	07	04	01	4	143			3.23
04	01	900918	18.52	75	07	22	04	02	4	150	00 20 n	102 05 w	4.94
05	01	900918	18.52	74	01	76	04	02	4	150	00 16 n	102 03 w	1.85
06	01	900918	18.52	01	76	74	03	02	4	180	00 15 n	101 59 w	0.62
07	01	900918	18.52	01	76	74			4	191	00 18 n	101 59 w	4.63
08	01	900918	18.52	07	22	75			3	105	00 13 n	102 01 w	4.01
09	01	900918	18.52	22	75	07			3	085	00 13 n	101 59 w	1.23
09	02	900918	18.52	22	75	07			3	085	00 13 n	101 58 w	0.31
01	01	900919	18.52	76	74	07			3	084	00 30 n	100 14 w	7.72
01	02	900919	18.52	76	74	07	12	03	3	084			1.54
01	03	900919	18.52	74	07	76	12	03	3	075			1.23
02	01	900919	18.52	07	76	74	12	03	4	075	00 30 n	100 06 w	4.94
03	01	900919	18.52	22	75	83	12	02	3	075	00 27 n	100 58 w	1.54
04	01	900919	20.37	75	07	22	01	02	4	073	00 28 n	099 56 w	3.40
04	02	900919	20.37	75	07	22	01	02	4	073			3.73
04	03	900919	20.37	75	07	22	01	02	4	073			1.02
04	04	900919	20.37	07	22	75	01	01	4	073			7.47
04	05	900919	20.37	01	76	74	01	01	4	073			13.58
04	06	900919	20.37	76	74	01	01	01	4	073			6.79
04	07	900919	20.37	76	74	01	12	01	4	087	00 36 n	099 38 w	4.07
05	01	900919	20.37	74	01	76	12	01	3	087	00 39 n	099 33 w	0.34
06	01	900919	20.37	75	07	22	12	12	4	087	00 35 n	099 34 w	13.92
06	02	900919	20.37	07	22	75	12	12	4	087			1.70
07	01	900919	19.45	07	22	75	12	12	4	085	00 39 n	099 23 w	6.16
07	02	900919	19.45	22	75	07	12	12	4	085			0.97
08	01	900919	19.45	22	75	07	12	12	4	085	00 43 n	099 18 w	5.51
08	02	900919	19.45	22	74	01	06	01	4	085			1.62
09	01	900919	18.52	76	74	01	06	01	3	085	00 42 n	099 13 w	7.72
09	02	900919	18.52	74	01	76	06	01	3	085			1.54
09	03	900919	18.52	74	01	76	06	01	3	088			0.31
10	01	900919	18.89	74	01	76	06	01	3	090	00 44 n	099 08 w	7.87
11	01	900919	18.89	75	07	22			3	085	00 44 n	098 58 w	6.93
11	02	900919	18.89	75	07	22			3	085			1.26
11	03	900919	18.89	07	22	75			3	085			7.24
11	04	900919	18.89	22	75	07			3	085			6.93
12	01	900919	18.89	76	74	01			4	089	00 51 n	098 42 w	3.78
12	02	900919	18.89	76	74	01			4	089	00 51 n	098 39 w	0.31
01	01	900920	18.52	22	75	07			4	074	01 03 n	097 05 w	8.95
01	02	900920	18.52	75	07	22			4	074			2.47
01	03	900920	18.52	75	07	22			4	074			1.85
02	01	900920	18.52	75	07	22			4	074	01 06 n	096 58 w	3.40
02	02	900920	19.45	07	22	75			4	084			8.10
02	03	900920	19.45	07	76	74			4	084	01 07 n	096 52 w	6.81
02	04	900920	19.45	01	76	74			4	084			4.21
02	05	900920	19.45	01	76	74			4	080			1.94
02	06	900920	19.45	76	74	01	12	02	4	080			3.57
02	07	900920	19.45	76	74	01	12	02	4	080			3.57
03	01	900920	19.45	74	01	76	12	01	4	074	01 08 n	096 37 w	1.94
04	01	900920	18.52	75	07	22	01	01	5	075	01 04 n	096 34 w	7.41
04	02	900920	18.52	75	07	22	01	01	5	075			3.09
05	01	900920	17.96	07	22	75			5	075	01 06 n	096 26 w	1.50
06	01	900920	18.52	07	22	75			4	075			2.16
06	02	900920	18.52	01	76	74			4	075	01 09 n	096 17 w	3.70
07	01	900920	20.37	76	74	01			4	068	01 09 n	096 07 w	10.53

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	900920	20.37	74	01	76			4	068			1.36
08	01	900920	19.08	74	01	76			4	068	01 12 n	096 00 w	2.86
08	02	900920	19.08	74	01	76			4	068			2.54
08	03	900920	19.08	75	07	22			5	068			12.08
08	04	900920	19.08	07	22	75			5	068			2.86
08	05	900920	19.08	07	22	75			5	068			2.23
09	01	900920	19.08	07	22	75			5	068	01 18 n	095 48 w	2.86
09	02	900920	19.08	07	22	75			5	086			3.18
09	03	900920	19.08	22	75	07			4	086			4.13
10	01	900920	18.89	76	74	01			4	085	01 20 n	095 38 w	6.93
10	02	900920	18.89	74	01	76			4	085			8.82
10	03	900920	18.89	01	76	74			4	085			6.61
10	04	900920	18.89	07	22	75			4	085			7.24
11	01	900920	18.89	07	22	75			4	085			0.63
11	02	900920	18.89	22	75	07			4	085			3.78
11	03	900920	18.89	22	75	07			4	085	01 23 n	095 19 w	0.31
01	01	900921	20.37	76	74	01			5	143	01 14 n	093 46 w	7.47
01	02	900921	20.37	76	74	01			5	143			4.07
01	03	900921	20.37	74	01	76			4	143			5.43
01	04	900921	20.37	74	01	76			4	149			3.73
01	05	900921	20.37	74	01	76			4	149			1.02
02	01	900921	20.74	01	76	74			5	149	01 03 n	093 38 w	4.84
03	01	900921	20.74	07	22	75			4	149	00 59 n	093 36 w	2.42
04	01	900921	20.74	07	22	75			4	149	00 56 n	093 34 w	1.38
04	02	900921	20.74	07	22	75			5	149			5.53
04	03	900921	20.74	22	75	07			5	149			4.84
04	04	900921	20.74	22	75	07	10	02	5	149			2.07
05	01	900921	20.74	22	75	07			5	149	00 50 n	093 29 w	3.46
05	02	900921	20.74	75	07	22	01	01	5	149			7.26
06	01	900921	20.37	75	07	22			5	149	00 43 n	093 27 w	1.02
06	02	900921	20.37	74	01	76			4	149			5.43
07	01	900921	20.37	01	76	74			4	149	00 39 n	093 19 w	4.75
08	01	900921	18.52	76	74	01			4	155	00 37 n	093 18 w	7.10
08	02	900921	18.52	76	74	01			5	155			4.32
08	03	900921	18.52	22	75	07			4	155	00 31 n	093 15 w	12.96
08	04	900921	18.52	75	07	22			4	155			11.73
08	05	900921	18.52	07	22	75			4	155			3.09
08	06	900921	18.52	07	22	75			5	155			5.56
09	01	900921	20.93	01	76	74			5	155	00 13 n	093 05 w	3.84
10	01	900921	20.93	01	76	74			5	155	00 09 n	093 03 w	1.74
10	02	900921	20.93	76	74	01			5	155			13.95
10	03	900921	20.93	74	01	76	04	02	4	155			2.79
11	01	900921	22.22	74	01	76			4	149	00 01 s	093 00 w	3.70
11	02	900921	22.22	75	07	22			4	149			3.33
11	03	900921	22.22	75	07	22	04	02	4	149			5.56
11	04	900921	22.22	07	22	75			4	149			1.48
12	01	900921	22.22	07	22	75			4	149	00 09 s	092 55 w	1.11
13	01	900921	21.67	01	76	74	04	03	4	149			7.95
13	02	900921	21.67	01	76	74	04	03	4	149	00 20 s	092 52 w	0.36
01	01	900922	19.82	01	22	07			2	149	01 27 s	092 10 w	7.60
02	01	900922	20.37	22	75	07			2	149	01 45 s	091 58 w	5.09
03	01	900922	20.37	22	07	75	12	12	2	092	01 48 s	091 54 w	5.09
04	01	900922	18.52	22	07	75			2	092	01 49 s	091 49 w	5.25
04	02	900922	18.52	76	01	74			2	092			8.95

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	01	900922	18.52	74	01	76	12	12	4	092	01 50 s	091 39 w	2.47
06	01	900922	18.52	74	01	76	06	01	4	092	01 50 s	091 36 w	4.01
06	02	900922	18.52	74	76	01	06	01	4	092			1.54
07	01	900922	19.82	75	07	22	06	01	4	092	01 51 s	091 29 w	0.99
08	01	900922	19.82	07	22	75	06	01	4	092	01 52 s	091 25 w	6.61
09	01	900922	19.82	22	75	07	06	02	4	092	01 54 s	091 20 w	9.58
09	02	900922	19.82	22	75	07			4	092			4.29
10	01	900922	19.82	76	74	01			4	079	01 54 s	091 12 w	0.99
11	01	900922	19.82	74	01	76	07	02	3	079	01 52 s	091 07 w	1.65
12	01	900922	19.82	75	07	22			3	090	01 47 s	091 03 w	1.32
12	02	900922	19.82	75	07	22			3	090			3.30
12	03	900922	19.82	75	07	22			3	090	01 47 s	091 01 w	7.60
01	01	900923	14.82	74	01	76			4	073	01 56 s	089 23 w	2.22
02	01	900923	14.82	01	76	74			4	073	01 46 s	089 20 w	1.73
02	02	900923	14.82	01	76	74			4	127			0.74
03	01	900923	19.45	76	74	01	11	02	4	129	01 47 s	089 16 w	6.16
04	01	900923	19.45	22	75	07			4	129	01 49 s	089 13 w	4.86
05	01	900923	20.00	22	75	07			4	129	01 52 s	089 10 w	5.33
05	02	900923	20.00	75	07	22			4	129			5.67
05	03	900923	20.00	75	07	22	12	02	4	092	01 55 s	089 06 w	1.00
05	04	900923	20.00	75	07	22	12	02	4	092			3.00
05	05	900923	20.00	75	07	22	12	02	4	092			3.00
05	06	900923	20.00	07	22	75			3	092			13.00
05	07	900923	20.00	01	76	74			3	092	01 55 s	088 55 w	5.00
05	08	900923	20.00	01	76	74			3	092			8.33
05	09	900923	20.00	76	74	01			3	092			13.33
05	10	900923	20.00	74	01	76			4	092			3.33
05	11	900923	20.00	74	01	76			4	094	01 55 s	088 41 w	10.00
05	12	900923	20.00	75	07	22			4	094	01 55 s	088 35 w	10.67
05	13	900923	20.00	75	07	22	12	12	5	094			2.67
05	14	900923	20.00	07	22	75			4	094			3.33
05	15	900923	20.00	07	22	75	06	01	4	094			3.33
05	16	900923	20.00	07	22	75			5	097	01 55 s	088 26 w	10.00
05	17	900923	20.00	22	75	07			5	097			10.00
05	18	900923	20.00	76	74	01			4	097	01 56 s	088 15 w	13.33
05	19	900923	20.00	74	01	76			4	097			10.00
05	20	900923	20.00	74	01	76			4	100			3.33
05	21	900923	20.00	01	76	74			4	100			11.67
06	01	900923	18.15	07	22	75			3	100	01 57 s	087 55 w	6.35
06	02	900923	18.15	22	75	07			3	100			5.44
06	03	900923	18.15	75	07	22			3	100			5.14
07	01	900923	18.15	74	01	76			4	100	01 58 s	087 41 w	4.54
07	02	900923	18.15	74	01	76			4	100	01 59 s	087 38 w	0.30
01	01	900924	20.37	75	22	07			4	059	01 05 s	086 12 w	14.94
01	02	900924	20.37	22	07	75			4	059			7.13
01	03	900924	20.37	22	07	75			3	059			7.13
01	04	900924	20.37	07	75	22			3	059			8.49
01	05	900924	20.37	07	75	22			4	059			6.45
01	06	900924	20.37	01	76	74			4	059	00 50 s	085 53 w	6.79
01	07	900924	20.37	01	76	74			4	059			6.79
01	08	900924	20.37	76	74	01			3	059			6.79
01	09	900924	20.37	76	74	01			3	059			4.07
01	10	900924	20.37	76	74	01			3	059			9.51
01	11	900924	20.37	74	01	76			3	059			2.72

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	900924	20.37	74	01	76			3	059	00 38 s	085 38 w	3.06
02	02	900924	20.37	75	07	22			3	059			2.72
02	03	900924	20.37	75	07	22			4	059			8.49
02	04	900924	20.37	75	01	22			4	059			1.70
02	05	900924	20.37	07	22	75			4	059			8.83
03	01	900924	20.00	22	75	07			4	060	00 23 s	085 24 w	5.00
03	02	900924	20.00	76	74	01			4	060	00 21 s	085 21 w	13.33
03	03	900924	20.00	74	01	76			4	060			6.67
03	04	900924	20.00	74	01	76			4	063			5.00
04	01	900924	20.74	01	76	74			4	063	00 15 s	085 01 w	3.46
04	02	900924	20.74	01	76	74	07	01	4	063			2.77
04	03	900924	20.74	07	22	75	07	01	4	063			12.79
04	04	900924	20.74	22	75	07	07	02	4	063			10.37
04	05	900924	20.74	22	75	07	07	02	4	058			3.46
04	06	900924	20.74	75	07	22	07	02	4	058			13.83
04	07	900924	20.74	74	01	76	07	02	5	058	00 01 s	084 50 w	3.46
05	01	900924	21.30	01	76	01			5	308	00 00 n	084 47 w	6.03
05	02	900924	21.30	76	74	01			5	308			5.32
05	03	900924	21.30	22	75	07			4	308			3.55
05	04	900924	21.30	22	75	07			4	308	00 05 n	084 54 w	0.35
01	01	900925	22.22	01	76	74			5	304	00 44 n	085 59 w	18.89
01	02	900925	22.22	76	74	01			5	304			14.82
01	03	900925	22.22	74	01	76			5	304			14.82
01	04	900925	22.22	75	07	22			5	304	00 59 n	086 20 w	14.82
01	05	900925	22.22	07	22	75			5	304			14.82
01	06	900925	22.22	22	75	07			5	304			14.82
01	07	900925	22.22	76	74	01			5	304	01 10 n	086 31 w	4.07
02	01	900925	22.22	76	74	01			5	301	01 13 n	086 41 w	1.85
03	01	900925	22.22	74	01	76			5	301	01 14 n	086 44 w	1.85
04	01	900925	20.93	74	01	76			5	301	01 16 n	086 46 w	6.28
04	02	900925	20.93	01	76	74			5	301			5.23
04	03	900925	20.93	01	76	74			5	301			4.88
04	04	900925	20.93	01	76	74			5	301			3.84
04	05	900925	20.93	07	22	75			5	301	01 21 n	086 55 w	12.21
04	06	900925	20.93	07	22	75			5	298			1.74
04	07	900925	20.93	22	75	07			5	298			13.95
04	08	900925	20.93	75	07	22			5	298			13.95
04	09	900925	20.93	74	01	76			5	296	01 33 n	087 15 w	0.70
05	01	900925	20.93	74	01	76			5	296	01 33 n	087 15 w	9.77
05	02	900925	20.93	01	76	74			5	296			13.95
05	03	900925	20.93	76	74	01			5	296			11.51
05	04	900925	20.93	76	74	01			5	302			2.44
05	05	900925	20.93	22	75	07			5	302	01 42 n	087 34 w	3.49
05	06	900925	20.93	22	07	85			5	302			5.23
05	07	900925	20.93	75	07	22			5	302			8.72
05	08	900925	20.93	07	22	75			5	302			8.72
05	09	900925	20.93	01	76	74			5	302			10.12
05	10	900925	20.93	01	76	74			5	302	01 54 n	087 50 w	0.35
01	01	900926	16.67	22	75	07			5	304	02 10 n	088 16 w	3.33
02	01	900926	22.22	74	01	76			5	027	02 33 n	088 28 w	4.44
02	02	900926	22.22	74	01	76			5	042			5.93
02	03	900926	22.22	75	07	22			5	042			14.08
02	04	900926	22.22	07	22	75			5	042			1.11
02	05	900926	22.22	07	22	75			5	025			4.82

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	900926	22.22	07	22	75	03	12	5	025			9.26
02	07	900926	22.22	22	75	07	12	12	5	025			3.33
02	08	900926	22.22	22	75	07	12	12	5	022			11.11
02	09	900926	22.22	76	74	01	12	12	5	022	02 57 n	088 12 w	14.82
02	10	900926	22.22	74	01	76	12	12	5	022			5.56
03	01	900926	22.22	75	07	22			5	022	03 52 n	087 48 w	5.93
01	01	900927	20.37	01	76	74			5	027	04 38 n	087 24 w	5.09
01	02	900927	20.37	01	76	74			5	030			1.02
02	01	900927	18.52	01	76	74			5	030	04 42 n	087 20 w	4.01
02	02	900927	18.52	76	74	01			5	030			8.03
03	01	900927	18.52	74	01	76			5	030	04 49 n	087 17 w	2.16
04	01	900927	19.45	07	22	75			5	030	04 55 n	087 13 w	11.67
04	02	900927	19.45	22	75	07			5	030			2.27
05	01	900927	19.45	22	75	07			5	030			2.27
05	02	900927	19.45	75	07	22			5	030			3.24
05	03	900927	19.45	75	07	22			5	017			9.72
05	04	900927	19.45	75	07	22			5	017	05 11 n	087 07 w	0.32
01	01	900928	18.52	22	75	07			5	014	06 26 n	086 32 w	5.25
01	02	900928	18.52	22	75	07			4	014			2.16
01	03	900928	18.52	22	75	07			4	020			7.10
01	04	900928	18.52	75	07	22			4	020			2.16
02	01	900928	18.52	75	07	22			4	020	06 38 n	086 29 w	3.09
03	01	900928	18.52	07	22	75	02	02	4	026	06 42 n	086 26 w	2.78
03	02	900928	18.52	07	22	75	02	02	4	026			2.16
04	01	900928	20.37	07	22	75			4	026	06 47 n	086 24 w	2.04
05	01	900928	20.37	01	76	74			4	026	06 49 n	086 23 w	5.09
06	01	900928	22.22	76	74	01			4	026	06 53 n	086 17 w	7.41
06	02	900928	22.22	76	74	01			4	026			2.96
06	03	900928	22.22	74	01	76			4	026			15.93
06	04	900928	22.22	75	07	22			4	026			4.07
07	01	900928	22.22	75	07	22			4	026	07 10 n	086 09 w	4.07
07	02	900928	22.22	07	22	75			4	026			2.96
08	01	900928	22.22	07	22	75			4	023	07 14 n	086 07 w	9.26
08	02	900928	21.85	22	75	07			4	023			10.93
08	03	900928	21.85	22	75	07	12	12	4	023			3.64
08	04	900928	21.85	76	74	01	12	12	4	023	07 25 n	086 02 w	3.28
09	01	900928	21.85	76	74	01			4	023	07 30 n	086 01 w	6.56
10	01	900928	21.30	74	01	76			4	023	07 33 n	086 00 w	5.68
11	01	900928	21.30	74	01	76			4	023	07 36 n	086 56 w	0.71
12	01	900928	22.22	76	74	01			4	020	08 08 n	085 36 w	4.44
12	02	900928	22.22	76	74	01			4	020	08 10 n	085 36 w	0.00
01	01	901005	20.00	77	55	71			3	188	07 59 n	084 59 w	1.67
01	02	901005	20.00	77	55	71			4	188			7.33
01	03	901005	20.00	55	71	77			4	188			2.33
02	01	901005	19.08	71	77	55	09	02	4	188	07 48 n	085 02 w	2.23
02	02	901005	19.08	71	77	55	09	02	4	188			3.82
02	03	901005	19.08	69	67	56	09	02	4	188	07 45 n	085 02 w	12.72
02	04	901005	19.08	67	56	69	09	02	4	188			12.72
02	05	901005	19.08	56	69	67	09	02	4	188			12.72
02	06	901005	19.08	77	55	71	09	01	4	188	07 25 n	085 06 w	5.40
02	07	901005	19.08	77	55	71	09	01	4	188			7.31
02	08	901005	19.08	55	71	77	10	01	4	188			8.58
03	01	901005	19.08	71	77	55	11	01	4	188	07 13 n	085 05 w	6.04
03	02	901005	19.08	71	77	55			4	188			6.36

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	901005	19.08	69	67	56			4	188	07 07 n	085 06 w	4.77
04	01	901005	18.89	69	67	56			4	188	07 03 n	085 07 w	1.26
05	01	901005	18.89	67	56	69			5	190	07 01 n	085 04 w	1.89
06	01	901005	18.89	77	55	71			4	194	06 49 n	085 08 w	1.26
07	01	901005	16.67	55	71	77			4	194	06 44 n	085 10 w	4.17
07	02	901005	16.67	55	71	77	02	02	4	194			2.22
07	03	901005	16.67	55	71	77			4	194	06 41 n	085 11 w	4.72
07	04	901005	16.67	71	77	55			4	194			1.11
07	05	901005	16.67	71	77	55			4	194	06 37 n	085 12 w	0.28
01	01	901007	18.52	71	77	55			5	278	03 00 n	086 36 w	6.17
01	02	901007	18.52	71	77	55			5	278	03 00 n	086 40 w	3.09
01	03	901007	18.52	77	55	71			5	278			8.64
01	04	901007	18.52	55	71	77			5	278			1.85
01	05	901007	18.52	55	71	77	06	02	5	278			2.47
01	06	901007	18.52	55	71	77	06	02	5	278			3.40
01	07	901007	18.52	56	69	67	06	02	5	278	03 01 n	086 50 w	5.25
01	08	901007	18.52	56	69	67			5	278			7.10
01	09	901007	18.52	69	67	56			5	278			1.54
01	10	901007	18.52	69	67	56	06	02	5	278			4.63
01	11	901007	18.52	69	67	56			5	278	03 03 n	087 00 w	3.70
02	01	901007	18.52	67	56	69			5	278	03 02 n	087 03 w	5.25
02	02	901007	18.52	67	56	69	06	02	5	278			1.85
02	03	901007	18.52	67	56	69			5	278			5.25
02	04	901007	18.52	71	77	55			5	278	03 03 n	087 10 w	12.35
02	05	901007	18.52	77	55	71			5	278			1.85
03	01	901007	18.52	77	55	71			5	278	03 04 n	087 20 w	6.17
03	02	901007	18.52	55	71	77	06	01	5	278			4.63
03	03	901007	18.52	55	71	77			5	278			7.72
03	04	901007	18.52	56	69	67			5	278	03 07 n	087 30 w	2.78
04	01	901007	18.52	56	69	67	12	12	5	278	03 07 n	087 33 w	1.23
04	02	901007	18.52	56	69	67	12	12	5	276	03 07 n	087 34 w	5.86
04	03	901007	18.52	69	67	56			5	276			9.26
04	04	901007	18.52	69	67	56			5	276			3.09
04	05	901007	18.52	67	56	69			5	276			3.09
04	06	901007	18.52	67	56	69	11	01	5	278	03 09 n	087 46 w	9.26
04	07	901007	18.52	71	77	55	11	01	5	278	03 09 n	087 51 w	12.35
04	08	901007	18.52	77	55	71	11	01	5	278			12.35
04	09	901007	18.52	55	71	77	11	02	5	278	03 11 n	088 04 w	3.09
05	01	901007	18.52	56	69	67	11	02	5	278	03 13 n	088 08 w	6.17
05	02	901007	18.52	56	69	67			5	278			0.62
05	03	901007	18.52	69	67	56			5	278	03 13 n	088 11 w	2.47
06	01	901007	18.52	69	67	56			5	278	03 14 n	088 14 w	1.85
07	01	901007	18.52	67	56	69	12	02	5	278	03 15 n	088 15 w	3.09
07	02	901007	18.52	71	77	55	12	03	5	278			2.78
07	03	901007	18.52	71	77	55			5	278			1.85
07	04	901007	18.52	71	77	55			5	273	03 16 n	088 19 w	3.09
07	05	901007	18.52	77	55	71			5	273			1.85
07	06	901007	18.52	77	55	71			5	273			2.78
07	07	901007	18.52	77	55	71	12	03	5	273			3.40
07	08	901007	18.52	55	71	77			5	273			7.41
07	09	901007	18.52	55	71	77			5	273	03 17 n	088 30 w	0.31
01	01	901008	18.52	67	56	69			4	024	03 45 n	089 52 w	4.94
02	01	901008	18.52	56	69	67			4	024	03 50 n	089 50 w	1.54
02	02	901008	18.52	56	69	67	02	03	4	024			6.79

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	901008	18.52	55	71	77			4	024	03 54 n	089 48 w	12.35
02	04	901008	18.52	71	77	55			4	024			1.85
02	05	901008	18.52	71	77	55	02	02	4	024	04 03 n	089 44 w	0.93
03	01	901008	20.37	71	77	55	02	02	4	024	04 03 n	089 44 w	3.06
03	02	901008	20.37	71	77	55	02	02	4	024			5.43
03	03	901008	20.37	77	55	71	02	02	4	024			13.58
03	04	901008	20.37	67	56	69	03	01	5	024	04 15 n	089 39 w	8.49
04	01	901008	21.30	56	69	67	02	01	5	026	04 23 n	089 36 w	5.68
05	01	901008	21.30	56	69	67			5	028	04 28 n	089 35 w	2.84
05	02	901008	21.30	69	67	56			5	028	04 30 n	089 34 w	11.71
05	03	901008	21.30	55	71	77			4	028	04 34 n	089 32 w	18.10
05	04	901008	21.30	71	77	55			4	028			1.77
06	01	901008	22.04	77	55	71			4	028	04 49 n	089 26 w	4.04
06	02	901008	22.04	77	55	71	07	12	4	028			1.10
06	03	901008	22.04	77	55	71	04	01	4	060	04 52 n	089 24 w	8.08
06	04	901008	22.04	67	56	69	04	01	5	060	04 54 n	089 21 w	12.12
06	05	901008	22.04	67	56	69	08	01	5	012	04 57 n	089 16 w	2.57
06	06	901008	22.04	56	69	67	08	01	5	012			14.69
06	07	901008	22.04	69	67	56	08	01	5	012			6.24
06	08	901008	22.04	69	67	56			5	024			3.31
06	09	901008	22.04	69	67	56			4	055	05 11 n	089 11 w	5.14
06	10	901008	22.04	55	71	77			4	055	05 12 n	089 09 w	4.04
06	11	901008	22.04	55	71	77			4	055			5.14
06	12	901008	22.04	71	77	55			4	055			2.57
07	01	901008	17.59	77	55	71			5	055	05 19 n	090 00 w	3.52
07	02	901008	17.59	77	55	71			5	000	05 20 n	088 58 w	2.05
07	03	901008	17.59	67	56	69			5	000			1.17
08	01	901008	17.59	56	69	67			4	000	05 28 n	089 00 w	1.76
08	02	901008	17.59	56	69	67			4	000	05 30 n	089 00 w	0.29
01	01	901009	18.52	77	55	71			4	000	07 13 n	088 20 w	0.62
01	02	901009	18.52	77	55	71			4	024			4.63
01	03	901009	18.52	77	55	71			4	024			1.54
01	04	901009	18.52	55	71	77			4	024			2.47
02	01	901009	18.52	55	71	77			4	024	07 19 n	088 17 w	1.54
03	01	901009	18.52	69	67	56			4	024	07 23 n	088 17 w	7.41
04	01	901009	18.52	67	56	69			4	024	07 28 n	088 11 w	3.09
05	01	901009	20.00	67	56	69			4	024	07 31 n	088 10 w	4.00
05	02	901009	20.00	56	69	67	02	02	4	024	07 32 n	088 09 w	10.00
05	03	901009	20.00	77	55	71	02	02	4	024	07 37 n	088 06 w	11.33
05	04	901009	20.00	77	55	71	03	02	4	021	07 42 n	088 04 w	2.00
05	05	901009	20.00	55	71	77	03	01	4	021			2.67
06	01	901009	19.26	55	71	77	03	01	4	024	07 49 n	088 03 w	1.61
06	02	901009	19.26	71	77	55	03	01	4	024			8.03
07	01	901009	18.52	69	67	56	04	01	4	024	07 57 n	088 00 w	11.73
07	02	901009	18.52	67	56	69	04	01	4	024			12.96
07	03	901009	18.52	56	69	67	06	01	4	024			10.80
07	04	901009	18.52	77	55	71	07	01	4	024	08 15 n	087 50 w	8.03
08	01	901009	20.56	77	55	71			4	024	08 21 n	087 47 w	1.37
08	02	901009	20.56	55	71	77	07	01	4	024			13.70
08	03	901009	20.56	71	77	55			4	024	08 28 n	087 43 w	10.96
08	04	901009	20.56	71	77	55	08	02	4	024			2.74
08	05	901009	20.56	69	67	56	08	02	4	024	08 34 n	087 40 w	2.40
08	06	901009	20.56	69	67	56	08	02	4	015	08 35 n	087 39 w	6.17
08	07	901009	20.56	67	56	69	08	02	4	015			9.25

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
08	08	901009	20.56	56	69	67	08	02	4	015			7.88
08	09	901009	20.56	77	55	71	08	02	4	015			8.57
08	10	901009	20.56	55	71	77	08	03	4	015			8.57
08	11	901009	20.56	71	77	55			4	015	08 55 n	087 33 w	8.57
08	12	901009	20.56	71	77	55			4	015	09 00 n	087 31 w	0.34
01	01	901010	20.00	56	69	67	06	03	3	258	09 47 n	088 01 w	3.67
01	02	901010	20.00	56	69	67	08	03	3	225	09 46 n	088 03 w	3.00
01	03	901010	20.00	69	67	56			3	225			1.67
01	04	901010	20.00	69	67	56	08	03	3	225			3.67
01	05	901010	20.00	69	67	56	06	03	3	263	09 43 n	088 06 w	1.33
01	06	901010	20.00	67	56	69	06	03	3	263			6.67
01	07	901010	20.00	71	77	55	06	02	3	263	09 42 n	088 11 w	13.33
01	08	901010	20.00	77	55	71	07	02	3	263			13.33
01	09	901010	20.00	55	71	77	07	02	4	263			13.33
01	10	901010	20.00	56	69	67	07	02	4	263	09 39 n	088 32 w	13.33
01	11	901010	20.00	69	67	56	07	01	4	263			3.33
02	01	901010	19.82	69	67	56	07	01	4	266	09 38 n	088 42 w	2.97
02	02	901010	19.82	67	56	69	07	01	4	266			13.21
02	03	901010	19.82	71	77	55	08	01	4	266	09 37 n	088 51 w	14.20
03	01	901010	19.26	77	55	71	10	01	4	274	09 32 n	088 57 w	7.70
03	02	901010	19.26	55	71	77	11	01	4	274			7.38
03	03	901010	19.26	56	69	67	11	01	4	274	09 32 n	089 06 w	12.84
03	04	901010	19.26	69	67	56	11	01	4	274			6.42
03	05	901010	19.26	69	67	56	11	02	4	274	09 32 n	089 14 w	6.42
03	06	901010	19.26	67	56	69	11	02	4	274			12.84
03	07	901010	19.26	71	77	55	11	02	4	274	09 33 n	089 26 w	8.03
03	08	901010	19.26	77	55	71	11	02	4	274			3.85
04	01	901010	17.59	55	71	77	11	02	4	275	09 36 n	089 35 w	5.86
04	02	901010	17.59	56	69	67	11	03	4	275			3.81
05	01	901010	17.59	69	67	56	01	03	4	220	09 35 n	089 41 w	7.33
05	02	901010	17.59	67	56	69	01	03	4	220			2.05
05	03	901010	17.59	67	56	69			4	260	09 30 n	089 45 w	4.98
05	04	901010	17.59	67	56	69			4	260	09 30 n	089 48 w	0.29
01	01	901011	18.71	55	71	81			4	230	08 44 n	091 24 w	6.86
01	02	901011	18.71	71	81	55			4	230			2.81
01	03	901011	18.71	71	81	55	08	03	4	230			4.05
01	04	901011	18.71	81	55	71	08	03	4	230			4.36
01	05	901011	18.71	81	55	71			4	230			2.49
01	06	901011	18.71	67	56	69			4	230	08 37 n	091 33 w	1.56
02	01	901011	19.08	56	69	67			4	232	08 28 n	091 42 w	3.50
02	02	901011	19.08	56	69	67			4	232			4.45
02	03	901011	19.08	69	67	56			3	232	08 25 n	091 46 w	4.13
02	04	901011	19.08	69	67	56			3	232			3.82
02	05	901011	19.08	55	71	81			4	232	08 23 n	091 48 w	9.54
02	06	901011	19.08	55	71	81	08	01	4	232	08 19 n	091 52 w	3.18
02	07	901011	19.08	71	81	55	08	01	4	232	08 18 n	091 53 w	1.59
03	01	901011	19.08	81	55	71			4	232	08 17 n	091 59 w	4.13
03	02	901011	19.08	71	55	81	10	01	4	232	08 15 n	092 00 w	5.40
04	01	901011	16.67	67	56	69			4	232	08 09 n	092 04 w	6.67
04	02	901011	16.67	56	69	67	11	01	4	232			4.44
04	03	901011	16.67	56	69	67	12	01	5	239	08 04 n	092 09 w	1.11
04	04	901011	16.67	69	67	56	12	01	5	239			5.00
04	05	901011	16.67	69	67	56	11	01	5	260	08 02 n	092 11 w	0.56
04	06	901011	16.67	55	71	81			4	260	08 02 n	092 12 w	2.78

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	07	901011	16.67	55	71	81			4	289	08 02 n	092 13 w	3.33
04	08	901011	16.67	55	71	81	12	01	5	237	08 02 n	092 15 w	5.00
04	09	901011	16.67	71	81	55			5	237			4.17
04	10	901011	16.67	71	81	55			4	237			1.39
04	11	901011	16.67	71	81	55			4	237	07 58 n	092 20 w	2.50
04	12	901011	16.67	71	81	55	12	01	4	237			1.67
04	13	901011	16.67	71	81	55			4	237			1.39
04	14	901011	16.67	81	55	71			4	237			8.89
05	01	901011	16.67	67	56	69			4	237	07 50 n	092 28 w	3.89
06	01	901011	16.67	56	69	67			4	237	07 49 n	092 31 w	3.89
06	02	901011	16.67	56	69	67			4	237			2.22
06	03	901011	16.67	69	67	56			4	237			3.06
06	04	901011	16.67	69	67	56			4	237			2.78
06	05	901011	16.67	55	71	81			4	237			1.11
07	01	901011	16.67	55	71	81			4	237	07 42 n	092 37 w	2.22
08	01	901011	16.67	71	81	55			5	237	07 38 n	092 42 w	2.22
08	02	901011	16.67	71	81	55			5	237			1.11
01	01	901012	18.52	69	67	56	07	03	5	245	06 46 n	093 43 w	5.56
01	02	901012	18.52	69	67	56	07	03	4	245	06 45 n	093 46 w	2.16
01	03	901012	18.52	67	56	69	07	03	4	245			3.09
01	04	901012	18.52	67	56	69	08	03	4	230	06 44 n	093 48 w	4.01
01	05	901012	18.52	77	55	71	08	02	5	230	06 42 n	093 50 w	12.35
01	06	901012	18.52	55	71	77	08	02	5	230			6.17
01	07	901012	18.52	55	71	77	08	02	5	238	06 34 n	093 56 w	6.17
01	08	901012	18.52	71	77	55	07	02	5	238	06 32 n	093 59 w	10.80
02	01	901012	18.89	69	67	56	08	01	5	238	06 28 n	094 05 w	8.50
02	02	901012	18.89	69	67	56			5	238			2.83
02	03	901012	18.89	67	56	69			5	238			5.98
02	04	901012	18.89	67	56	69	08	01	5	238			5.35
02	05	901012	18.89	56	69	67	08	01	5	238			1.26
02	06	901012	18.89	56	69	67	08	01	5	234	06 21 n	094 16 w	9.13
02	07	901012	18.89	77	55	71	09	01	4	234	06 17 n	094 20 w	5.04
03	01	901012	19.08	77	55	71	10	01	5	234	06 14 n	094 21 w	2.54
03	02	901012	19.08	55	71	77	11	01	5	234			12.72
03	03	901012	19.08	71	77	55	12	01	5	234	06 09 n	094 28 w	12.40
04	01	901012	19.63	69	67	56	12	01	4	234	06 04 n	094 35 w	12.11
04	02	901012	19.63	67	56	69	12	01	4	234			6.22
05	01	901012	20.74	67	56	69	01	01	4	234	05 57 n	094 43 w	2.07
05	02	901012	20.74	56	69	67	01	02	4	234			12.79
05	03	901012	20.74	77	55	71	01	02	4	214	05 52 n	094 50 w	8.64
05	04	901012	20.74	55	71	77	01	02	4	214			3.11
06	01	901012	20.74	71	77	55	01	02	4	214	05 43 n	094 53 w	2.42
06	02	901012	20.74	71	77	55			4	214	05 42 n	094 54 w	3.46
06	03	901012	20.74	69	67	56	01	02	4	214			3.46
06	04	901012	20.74	69	67	56			4	214			7.95
06	05	901012	20.74	67	56	69			4	214			10.72
06	06	901012	20.74	56	69	67			4	214			10.37
06	07	901012	20.74	56	69	67			4	214	05 26 n	095 04 w	0.35
01	01	901013	20.37	71	77	55			3	202	03 43 n	095 46 w	0.34
02	01	901013	20.37	71	77	55			3	199	03 42 n	095 47 w	5.09
02	02	901013	20.37	77	55	71			4	199			7.81
02	03	901013	20.37	56	69	67			4	199	03 36 n	095 49 w	13.58
02	04	901013	20.37	69	67	56			4	199			13.58
02	05	901013	20.37	67	56	69			4	199			2.04

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	01	901013	20.37	67	56	69	09	02	4	199	03 20 n	095 56 w	7.81
03	02	901013	20.37	71	77	55	09	02	4	199	03 16 n	095 57 w	7.81
04	01	901013	20.37	77	55	71			4	199	03 12 n	095 56 w	1.02
05	01	901013	20.37	77	55	71			4	204	03 09 n	095 56 w	4.07
06	01	901013	20.37	55	71	77	10	01	4	204	03 04 n	095 58 w	2.72
06	02	901013	20.37	55	71	77			4	204	03 03 n	095 59 w	3.40
06	03	901013	20.37	56	69	67			4	204	03 01 n	095 59 w	3.40
07	01	901013	22.22	56	69	67			4	204	02 57 n	096 01 w	7.41
07	02	901013	22.22	69	67	56	11	12	4	204			14.82
07	03	901013	22.22	67	56	69			3	204			4.07
07	04	901013	22.22	67	56	69			3	234	02 45 n	096 07 w	4.07
07	05	901013	22.22	67	56	69			3	234			2.96
07	06	901013	22.22	67	56	69			2	234			3.70
07	07	901013	22.22	71	77	55			2	234	02 42 n	096 11 w	4.07
07	08	901013	22.22	71	77	55			3	234			10.74
07	09	901013	22.22	77	55	71			3	234			14.82
07	10	901013	22.22	55	71	77			3	234			14.82
07	11	901013	22.22	56	69	67	01	02	3	234	02 28 n	096 31 w	9.26
07	12	901013	22.22	69	67	56			4	234			9.26
07	13	901013	22.22	67	56	69			4	234			9.26
07	14	901013	22.22	71	77	55			4	234			2.96
08	01	901013	21.85	71	77	55			4	234	02 16 n	096 48 w	1.82
08	02	901013	21.85	77	55	71			4	234			13.11
08	03	901013	21.85	55	71	77			4	234	02 11 n	096 56 w	12.02
08	04	901013	21.85	55	71	77			4	234	02 08 n	097 01 w	0.36
01	01	901014	22.22	67	56	69			4	218	00 53 n	098 49 w	2.96
02	01	901014	22.22	56	69	67			4	215	00 50 n	098 57 w	1.85
03	01	901014	22.22	56	69	67			4	230	00 48 n	099 00 w	1.48
03	02	901014	22.22	69	67	56			4	230			7.78
03	03	901014	22.22	55	71	77			4	230	00 46 n	099 05 w	2.22
03	04	901014	22.22	55	71	77			4	225	00 46 n	099 06 w	12.59
03	05	901014	22.22	71	77	55	08	02	4	220	00 42 n	099 12 w	14.82
03	06	901014	22.22	77	55	71	08	02	4	220			14.82
03	07	901014	22.22	67	56	69	08	01	4	220	00 32 n	099 24 w	10.74
04	01	901014	21.11	56	69	67	09	01	4	220	00 27 n	099 31 w	6.69
04	02	901014	21.11	56	69	67	09	01	4	217	00 25 n	099 34 w	5.98
04	03	901014	21.11	69	67	56	09	01	4	217			2.11
04	04	901014	21.11	69	67	56	09	12	4	217	00 22 n	099 37 w	5.28
04	05	901014	21.11	69	67	56	10	12	4	217			5.28
04	06	901014	21.11	55	71	77	11	12	4	217	00 17 n	099 41 w	7.39
05	01	901014	20.37	71	77	55	01	01	4	214	00 11 n	099 46 w	8.49
06	01	901014	20.37	77	55	71	12	01	4	253	00 04 n	099 50 w	4.07
07	01	901014	20.37	67	56	69	12	01	4	240	00 02 n	099 54 w	3.73
08	01	901014	20.37	56	69	67	01	02	4	230	00 00 s	100 02 w	9.51
08	02	901014	20.37	69	67	56	01	02	4	230			4.41
09	01	901014	20.37	55	71	77	01	02	4	230	00 06 s	100 11 w	7.81
09	02	901014	20.37	71	77	55	01	02	4	230	00 09 s	100 15 w	2.38
10	01	901014	16.67	77	55	71	02	02	4	180	00 11 s	100 16 w	0.56
11	01	901014	16.67	67	56	69	03	03	4	180	00 15 s	100 17 w	4.17
11	02	901014	16.67	67	56	69	01	03	4	230	00 17 s	100 17 w	3.89
11	03	901014	16.67	56	69	67	01	03	3	230	00 19 s	100 20 w	6.67
11	04	901014	16.67	56	69	67	01	03	3	230	00 21 s	100 23 w	0.28
01	01	901015	22.22	77	55	71			2	235	01 24 s	101 56 w	11.11
01	02	901015	22.22	55	71	77			2	235	01 28 s	102 00 w	1.85

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
02	01	901015	21.48	71	77	55			2	235	01 29 s	102 07 w	8.95
02	02	901015	21.48	69	67	56			2	235	01 32 s	102 10 w	14.32
02	03	901015	21.48	67	56	69			2	235			8.95
02	04	901015	21.48	67	56	69	07	02	2	235	01 39 s	102 21 w	5.37
02	05	901015	21.48	56	69	67	07	02	2	235			3.58
02	06	901015	21.48	56	69	67	07	02	3	235			10.74
02	07	901015	21.48	77	55	71	08	02	3	235	01 46 s	102 29 w	14.32
02	08	901015	21.48	55	71	77	08	01	3	235			9.67
02	09	901015	21.48	55	71	77	08	01	3	235			4.65
02	10	901015	21.48	71	77	55			3	235			3.58
02	11	901015	21.48	71	77	55	08	01	4	235	01 56 s	102 43 w	10.74
02	12	901015	21.48	69	67	56	09	12	4	235	01 59 s	102 48 w	2.86
02	13	901015	21.48	69	67	56			4	235			2.86
03	01	901015	21.30	67	56	69			4	231	02 01 s	102 55 w	14.20
03	02	901015	21.30	56	69	67	12	01	4	231			13.49
04	01	901015	21.30	77	55	71			4	231	02 12 s	103 09 w	9.94
05	01	901015	20.37	55	71	77			4	231	02 16 s	103 15 w	11.20
05	02	901015	20.37	71	77	55			4	231			10.19
05	03	901015	20.37	71	77	55	01	02	4	231			1.70
05	04	901015	20.37	69	67	56			4	231	02 24 s	103 26 w	2.38
06	01	901015	21.30	67	56	69			4	235	02 24 s	103 29 w	7.45
07	01	901015	21.85	67	56	69			4	231	02 27 s	103 33 w	5.46
07	02	901015	21.85	77	55	71			4	231			10.20
07	03	901015	21.85	55	71	77			4	231			7.28
07	04	901015	21.85	55	71	77			4	220	02 34 s	103 42 w	1.46
07	05	901015	21.85	71	77	55			4	220			11.66
07	06	901015	21.85	71	77	55			4	220	02 40 s	103 47 w	0.36
01	01	901016	21.30	56	69	67	08	03	5	235	03 49 s	105 18 w	7.10
01	02	901016	21.30	69	67	56	08	03	5	235			7.10
01	03	901016	21.30	67	56	69	08	03	5	235			7.10
01	04	901016	21.30	71	77	55	08	02	5	235	03 56 s	105 28 w	4.61
01	05	901016	21.30	71	77	55	06	02	5	265	03 57 s	105 30 w	7.81
02	01	901016	21.30	77	55	71	06	02	5	265	03 58 s	105 33 w	13.84
02	02	901016	21.30	55	71	77	06	01	5	265			2.84
03	01	901016	22.22	56	69	67	09	01	5	205	04 01 s	105 48 w	13.70
03	02	901016	22.22	69	67	56	09	01	5	205			14.82
03	03	901016	22.22	67	56	69	09	01	5	205			13.70
03	04	901016	22.22	71	77	55	09	12	5	231	04 19 s	105 57 w	7.41
03	05	901016	22.22	77	55	71	09	12	5	231			7.41
03	06	901016	22.22	55	71	77	12	12	5	231			5.56
04	01	901016	16.67	56	69	67	01	01	5	228	04 34 s	106 14 w	5.56
04	02	901016	16.67	69	67	56	01	01	5	228	04 37 s	106 17 w	5.56
04	03	901016	16.67	67	56	69	01	01	5	228			5.56
05	01	901016	21.30	71	77	55	01	02	5	228	04 47 s	106 28 w	7.81
05	02	901016	21.30	77	55	71	01	02	5	228			8.16
06	01	901016	13.70	55	71	77	10	02	5	320	04 51 s	106 35 w	5.48
06	02	901016	13.70	56	69	67	10	02	5	320			6.85
06	03	901016	13.70	69	67	56	10	03	5	320	04 46 s	106 39 w	2.28
01	01	901017	18.52	55	71	77			5	080	05 57 s	107 56 w	8.03
01	02	901017	18.52	71	77	55			5	080			4.63
01	03	901017	18.52	71	77	55			5	080	05 55 s	107 49 w	1.23
01	04	901017	18.52	77	55	71			5	080			0.93
02	01	901017	18.89	55	71	77	01	01	5	080	05 47 s	107 14 w	6.61
02	02	901017	18.89	55	71	77			5	080	05 46 s	107 11 w	1.57

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	901017	18.89	71	77	55			5	077	05 46 s	107 10 w	3.15
03	01	901017	18.52	67	56	69			5	080	05 43 s	107 06 w	6.17
03	02	901017	18.52	56	69	67			5	080	05 42 s	107 02 w	3.70
03	03	901017	18.52	56	69	67	01	12	5	080			2.47
03	04	901017	18.52	69	67	56	12	12	5	080			6.17
04	01	901017	18.52	55	71	77	05	12	5	080	05 39 s	106 48 w	4.94
04	02	901017	18.52	55	71	77			5	077	05 38 s	106 44 w	7.41
04	03	901017	18.52	71	77	55			4	077			12.35
04	04	901017	18.52	77	55	71			4	077			12.35
04	05	901017	18.52	67	56	69			5	077	05 32 s	106 28 w	7.72
04	06	901017	18.52	56	69	67	06	02	5	077			7.72
04	07	901017	18.52	69	67	56	06	02	5	077	05 30 s	106 19 w	7.72
04	08	901017	18.52	55	71	77	06	02	5	077			10.80
04	09	901017	18.52	71	77	55			5	077			6.17
04	10	901017	18.52	71	77	55	06	03	5	077			5.25
05	01	901017	18.52	77	55	71			5	077			3.70
05	02	901017	18.52	77	55	71			5	077	05 25 s	106 01 w	0.31
01	01	901018	18.52	69	67	56	01	03	5	076	04 56 s	104 28 w	6.79
01	02	901018	18.52	67	56	69	01	03	5	076			7.10
01	03	901018	18.52	56	69	67	01	03	5	076			6.48
01	04	901018	18.52	77	55	71	01	02	5	076	04 52 s	104 19 w	1.85
01	05	901018	18.52	77	55	71	01	02	5	079	04 51 s	104 17 w	4.32
01	06	901018	18.52	55	71	77	01	02	5	079			6.17
01	07	901018	18.52	71	77	55			5	079			6.17
02	01	901018	18.71	69	67	56	12	01	5	082	04 46 s	103 59 w	6.24
02	02	901018	18.71	67	56	69	12	01	5	082			6.24
02	03	901018	18.71	56	69	67	12	01	5	082			6.24
03	01	901018	17.96	69	67	56	06	01	5	078	04 34 s	103 11 w	5.99
03	02	901018	17.96	67	56	69	06	01	5	078			5.99
03	03	901018	17.96	56	69	67	06	02	5	078			5.99
03	04	901018	17.96	77	55	71	06	02	5	078	04 30 s	103 01 w	7.49
03	05	901018	17.96	55	71	77	06	02	5	078			7.49
03	06	901018	17.96	71	77	55	06	02	5	078			2.40
04	01	901018	18.15	69	67	56	06	02	5	078	04 25 s	102 51 w	3.63
04	02	901018	18.15	69	67	56	06	03	5	078	04 24 s	102 49 w	3.33
04	03	901018	18.15	69	67	56	06	03	5	080	04 24 s	102 47 w	0.91
04	04	901018	18.15	67	56	69	06	03	5	080			7.56
04	05	901018	18.15	56	69	67	06	03	5	080			8.47
04	06	901018	18.15	56	69	67	06	03	5	080	04 21 s	102 38 w	0.30
01	01	901019	18.52	71	77	55			3	075	03 58 s	101 09 w	3.40
01	02	901019	18.52	71	77	55			3	075	03 58 s	101 06 w	1.23
02	01	901019	18.52	71	77	55			3	075	03 57 s	101 05 w	1.85
02	02	901019	18.52	77	55	71			4	075	03 57 s	101 04 w	9.57
02	03	901019	18.52	55	71	77			4	075	03 55 s	100 59 w	4.01
02	04	901019	18.52	55	71	77			3	075			4.63
02	05	901019	18.52	56	69	67	01	02	4	075	03 54 s	100 55 w	12.35
02	06	901019	18.52	69	67	56	01	02	4	075	03 52 s	100 48 w	1.23
03	01	901019	18.52	69	67	56			4	075	03 49 s	100 46 w	0.93
03	02	901019	18.52	67	56	69			4	075			1.85
03	03	901019	18.52	67	56	69			4	075			3.09
04	01	901019	18.52	67	56	69			3	075	03 47 s	100 41 w	2.16
04	02	901019	18.52	71	77	55	01	02	3	075	03 47 s	100 40 w	2.47
04	03	901019	18.52	71	77	55			3	079	03 46 s	100 39 w	4.63
05	01	901019	18.52	71	77	55	01	01	3	079	03 46 s	100 36 w	1.85

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
06	01	901019	18.52	77	55	71	01	01	4	080	03 44 s	100 30 w	4.32
07	01	901019	18.52	55	71	77	01	01	4	080	03 42 s	100 25 w	2.78
07	02	901019	18.52	56	69	67	01	01	4	080	03 42 s	100 24 w	9.26
07	03	901019	18.52	56	69	67	12	12	4	080	03 41 s	100 19 w	3.09
07	04	901019	18.52	69	67	56	12	12	4	080			3.09
07	05	901019	18.52	69	67	56	12	12	4	080			3.09
07	06	901019	18.52	69	67	56	04	12	4	080	03 40 s	100 14 w	1.54
08	01	901019	18.52	67	56	69			4	080	03 39 s	100 10 w	4.63
08	02	901019	18.52	67	56	69			4	080			2.78
09	01	901019	18.52	71	77	55	06	01	4	080	03 38 s	100 06 w	7.72
09	02	901019	18.52	71	77	55	06	01	4	080			1.85
09	03	901019	18.52	77	55	71			4	080	03 37 s	100 01 w	0.93
10	01	901019	18.15	77	55	71	06	01	4	080	03 36 s	099 59 w	2.72
10	02	901019	18.15	77	55	71	06	01	4	080			3.33
10	03	901019	18.15	55	71	77	06	01	4	080	03 35 s	099 57 w	9.07
10	04	901019	18.15	56	69	67	06	02	4	080	03 34 s	099 52 w	6.35
10	05	901019	18.15	56	69	67	06	02	4	080			1.21
10	06	901019	18.15	69	67	56	06	02	4	080			3.93
10	07	901019	18.15	69	67	56			4	080			2.42
10	08	901019	18.15	69	67	56	06	02	3	080	03 32 s	099 45 w	1.21
10	09	901019	18.15	67	56	69	06	02	3	080			7.56
10	10	901019	18.15	71	77	55	06	02	4	080			4.54
10	11	901019	18.15	71	77	55			4	080	03 30 s	099 38 w	1.51
11	01	901019	18.15	77	55	71			4	080	03 28 s	099 33 w	7.56
11	02	901019	18.15	77	55	71			4	080	03 27 s	099 30 w	0.30
01	01	901020	19.63	67	56	69			3	074	03 01 s	098 01 w	9.82
01	02	901020	19.63	56	69	67			3	074	02 59 s	097 56 w	4.25
01	03	901020	19.63	56	69	67			4	074			5.56
01	04	901020	19.63	69	67	56			4	074	02 58 s	097 52 w	2.94
01	05	901020	19.63	69	67	56			4	074			2.62
01	06	901020	19.63	69	67	56			4	074			4.25
01	07	901020	19.63	55	71	77			4	074	02 56 s	097 47 w	3.93
01	08	901020	19.63	55	71	77	01	02	4	074	02 55 s	097 45 w	1.96
01	09	901020	19.63	55	71	77			4	074			5.89
01	10	901020	19.63	55	71	77			4	074			1.31
01	11	901020	19.63	71	77	55			4	074			4.25
01	12	901020	19.63	71	77	55	01	02	4	074			2.29
01	13	901020	19.63	71	77	55	01	02	4	074	02 52 s	097 37 w	1.64
01	14	901020	19.63	71	77	55			4	077	02 52 s	097 36 w	1.96
01	15	901020	19.63	71	77	55	01	02	4	077			2.94
01	16	901020	19.63	77	55	71	01	02	4	077			13.09
01	17	901020	19.63	67	56	69			4	077	02 50 s	097 26 w	9.82
01	18	901020	19.63	67	56	69			4	077	02 48 s	097 21 w	3.27
01	19	901020	19.63	56	69	67			4	077			1.31
02	01	901020	19.63	69	67	56			4	080	02 44 s	097 12 w	7.53
02	02	901020	19.63	55	71	77			4	080	02 43 s	097 07 w	8.18
02	03	901020	19.63	55	71	77	02	12	4	080			3.27
02	04	901020	19.63	55	71	77			4	080			1.64
02	05	901020	19.63	71	77	55			4	080			4.91
02	06	901020	19.63	71	77	55	04	01	4	080	02 41 s	096 57 w	6.22
02	07	901020	19.63	71	77	55	04	01	4	080			1.96
02	08	901020	19.63	77	55	71	05	01	4	080			3.27
03	01	901020	18.89	77	55	71			4	074	02 41 s	096 50 w	4.09
03	02	901020	18.89	67	56	69	06	01	4	074	02 40 s	096 48 w	12.59

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	901020	18.89	56	69	67	06	01	4	074			3.78
03	04	901020	18.89	56	69	67			4	074			4.41
03	05	901020	18.89	56	69	67	06	01	4	074			4.41
03	06	901020	18.89	69	67	56	06	02	4	074			12.59
03	07	901020	18.89	55	71	77	06	02	4	074	02 33 s	096 27 w	4.72
03	08	901020	18.89	55	71	77	06	02	4	074			2.83
04	01	901020	20.37	71	77	55	06	02	4	080	02 31 s	096 23 w	4.07
04	02	901020	20.37	71	77	55	06	02	4	080			4.07
04	03	901020	20.37	77	55	71	06	02	4	080			7.81
04	04	901020	20.37	67	56	69	06	03	4	080	02 29 s	096 15 w	6.79
04	05	901020	20.37	56	69	67	06	03	4	080			2.04
04	06	901020	20.37	56	69	67			4	080			6.45
04	07	901020	20.37	56	69	67			4	080	02 27 s	096 08 w	0.34
01	01	901021	20.00	77	55	71			4	164	03 28 s	095 42 w	7.00
01	02	901021	20.00	55	71	77			4	164			4.00
01	03	901021	20.00	55	71	77	10	03	4	164	03 33 s	095 42 w	2.67
01	04	901021	20.00	71	77	55	10	03	4	164			3.33
01	05	901021	20.00	71	77	55			4	164			1.67
01	06	901021	20.00	71	77	55	10	03	4	164	03 38 s	095 41 w	1.67
02	01	901021	20.00	69	67	56			4	164	03 40 s	095 40 w	5.67
03	01	901021	19.26	69	67	56			4	164	03 43 s	095 42 w	0.96
03	02	901021	19.26	69	67	56	10	02	4	164			3.21
03	03	901021	19.26	77	55	71	10	02	4	160	03 46 s	095 42 w	3.85
03	04	901021	19.26	77	55	71	10	02	4	160			3.21
03	05	901021	19.26	77	55	71			4	160			1.61
04	01	901021	19.26	77	55	71	10	02	4	160	03 51 s	095 40 w	2.25
04	02	901021	19.26	55	71	77	10	01	4	160			7.38
05	01	901021	18.89	55	71	77	11	01	5	160	03 58 s	095 38 w	2.52
05	02	901021	18.89	71	77	55	11	01	5	160			3.15
05	03	901021	18.89	71	77	55			5	160	04 01 s	095 38 w	2.20
05	04	901021	18.89	71	77	55	11	01	5	160			7.24
05	05	901021	18.89	69	67	56	11	01	5	160	04 06 s	095 36 w	4.72
05	06	901021	18.89	69	67	56	11	01	5	160			7.87
05	07	901021	18.89	67	56	69	12	01	5	160			10.39
05	08	901021	18.89	67	56	69	12	01	5	160	04 19 s	095 33 w	2.20
05	09	901021	18.89	56	69	67	12	12	4	160			12.59
05	10	901021	18.89	77	55	71	02	01	4	166	04 27 s	095 31 w	12.59
05	11	901021	18.89	55	71	77			4	166			2.20
05	12	901021	18.89	55	71	77	03	01	4	166			5.04
06	01	901021	18.89	55	71	77	03	01	4	166	04 38 s	095 29 w	2.20
06	02	901021	18.89	55	71	77			4	166			1.57
07	01	901021	20.19	71	77	55			4	166	04 41 s	095 28 w	3.36
07	02	901021	20.19	71	77	55	03	01	4	166			8.41
07	03	901021	20.19	69	67	56	03	02	4	166	04 47 s	095 27 w	6.73
07	04	901021	20.19	67	56	69	03	02	4	166			5.38
08	01	901021	21.11	77	55	71			4	166	05 02 s	095 26 w	10.56
08	02	901021	21.11	55	71	77			4	166	05 07 s	095 25 w	10.56
08	03	901021	21.11	71	77	55			4	166	05 12 s	095 24 w	7.04
08	04	901021	21.11	71	77	55			4	166	05 16 s	095 23 w	0.35
01	01	901022	18.71	56	69	67			5	168	06 37 s	095 10 w	6.86
01	02	901022	18.71	56	69	67			5	168	06 41 s	095 09 w	0.94
01	03	901022	18.71	69	67	56			5	168			7.79
01	04	901022	18.71	71	77	55			5	168	06 46 s	095 09 w	4.68
02	01	901022	19.45	71	77	55			5	168	06 50 s	095 08 w	1.62

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
02	02	901022	19.45	71	77	55	10	02	5	168			3.24
02	03	901022	19.45	77	55	71			5	171	06 52 s	095 08 w	6.81
02	04	901022	19.45	77	55	71			5	171	06 56 s	095 07 w	1.30
03	01	901022	20.37	77	55	71			5	171	06 59 s	095 07 w	1.36
03	02	901022	20.37	55	71	77			4	171			8.49
03	03	901022	20.37	55	71	77			5	171			5.09
03	04	901022	20.37	56	69	67			5	171	07 07 s	095 06 w	13.58
03	05	901022	20.37	69	67	56			5	171			13.58
03	06	901022	20.37	67	56	69			5	171			13.58
03	07	901022	20.37	71	77	55			5	171	07 27 s	095 03 w	13.58
03	08	901022	20.37	77	55	71	01	12	5	171			13.58
03	09	901022	20.37	55	71	77	01	12	5	171			8.49
03	10	901022	20.37	55	71	77			5	171			5.09
03	11	901022	20.37	56	69	67			5	171	07 47 s	095 00 w	13.58
03	12	901022	20.37	69	67	56	03	01	5	171			2.04
04	01	901022	18.89	69	67	56	03	01	5	171	07 55 s	094 58 w	5.35
04	02	901022	18.89	67	56	69	03	01	5	171			12.59
04	03	901022	18.89	71	77	55	03	02	5	171	08 06 s	094 57 w	9.45
04	04	901022	18.89	77	55	71	03	02	5	169	08 10 s	094 56 w	6.30
04	05	901022	18.89	55	71	77	03	02	5	169			7.87
04	06	901022	18.89	56	69	67	03	02	5	169			6.30
04	07	901022	18.89	69	67	56			5	169			5.04
05	01	901022	18.89	67	56	69			5	169	08 26 s	094 55 w	6.30
05	02	901022	18.89	67	56	69			5	169	08 29 s	094 54 w	0.31
01	01	901023	20.37	55	71	77			4	048	09 44 s	094 21 w	8.15
01	02	901023	20.37	71	77	55			4	048			7.13
01	03	901023	20.37	77	55	71			4	048			4.75
02	01	901023	19.45	67	56	69			4	048	09 34 s	094 09 w	1.62
03	01	901023	19.26	56	69	67			4	048	09 32 s	094 05 w	9.63
04	01	901023	18.52	55	71	77			4	044	09 25 s	093 55 w	10.80
04	02	901023	18.52	71	77	55			4	044			4.94
05	01	901023	20.74	71	77	55			4	044	09 16 s	093 47 w	3.46
05	02	901023	20.74	77	55	71			4	044			12.10
05	03	901023	20.74	67	56	69			4	044	09 10 s	093 42 w	7.26
06	01	901023	19.45	56	69	67			4	040	09 07 s	093 37 w	9.40
06	02	901023	19.45	56	69	67	12	12	4	040			1.62
06	03	901023	19.45	69	67	56	12	12	4	040			11.34
06	04	901023	19.45	55	71	77	12	12	4	048	08 57 s	093 30 w	12.96
06	05	901023	19.45	71	77	55	07	01	4	048			11.02
07	01	901023	20.19	77	55	71			4	048	08 46 s	093 17 w	7.74
07	02	901023	20.19	56	67	69			4	048	08 43 s	093 14 w	8.41
07	03	901023	20.19	56	69	67			4	048			8.41
07	04	901023	20.19	69	67	56			4	048			8.41
07	05	901023	20.19	55	71	77			4	048			10.09
07	06	901023	20.19	71	77	55			4	048			5.05
07	07	901023	20.19	71	77	55			4	048	08 28 s	092 58 w	5.72
07	08	901023	20.19	77	55	71			4	048			10.09
07	09	901023	20.19	77	55	71			4	048	08 22 s	092 52 w	0.34
01	01	901024	19.82	69	67	56			4	052	07 15 s	091 36 w	7.27
01	02	901024	19.82	67	56	69			4	052			6.61
01	03	901024	19.82	56	69	67			4	052			6.61
01	04	901024	19.82	77	55	71			4	052	07 08 s	091 28 w	13.21
01	05	901024	19.82	55	71	77			4	052			5.94
01	06	901024	19.82	55	71	77			4	052	07 01 s	091 20 w	7.27

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	901024	19.82	71	77	55			3	052			9.91
01	08	901024	19.82	71	77	55			4	052			3.30
01	09	901024	19.82	69	67	56			4	052	06 54 s	091 12 w	9.91
01	10	901024	19.82	69	67	56	02	01	4	052	06 50 s	091 08 w	3.30
01	11	901024	19.82	67	56	69	02	01	4	052			3.30
01	12	901024	19.82	67	56	69			4	052			4.29
01	13	901024	19.82	67	56	69			4	050	06 47 s	091 04 w	5.61
01	14	901024	19.82	56	69	67			4	050			13.21
01	15	901024	19.82	77	55	71			3	050	06 40 s	090 56 w	7.27
01	16	901024	19.82	77	55	71	02	12	4	050			5.94
01	17	901024	19.82	55	71	77	12	12	4	050			13.21
01	18	901024	19.82	71	77	55	06	12	4	050			10.90
01	19	901024	19.82	71	77	55			4	050			2.31
01	20	901024	19.82	69	67	56			4	042	06 26 s	090 40 w	2.97
01	21	901024	19.82	69	67	56	07	01	4	042			10.24
01	22	901024	19.82	67	56	69	07	01	4	042			7.60
01	23	901024	19.82	67	56	69	07	01	3	048	06 17 s	090 34 w	5.61
01	24	901024	19.82	56	69	67	07	01	3	048			13.21
01	25	901024	19.82	77	55	71	07	02	4	048	06 09 s	090 26 w	8.26
01	26	901024	19.82	55	71	77	07	02	4	048			8.26
01	27	901024	19.82	71	77	55	07	02	4	048			8.26
01	28	901024	19.82	69	67	56	07	02	4	048			9.91
01	29	901024	19.82	67	56	69	07	03	4	048			9.91
01	30	901024	19.82	56	69	67	07	03	4	048			8.92
01	31	901024	19.82	56	69	67	07	03	4	048	05 49 s	090 05 w	0.33
01	01	901025	19.45	71	77	55			4	050	04 42 s	088 46 w	0.97
01	02	901025	19.45	71	77	55			4	047	04 42 s	088 46 w	5.83
02	01	901025	20.37	77	55	71			4	047	04 37 s	088 39 w	7.47
02	02	901025	20.37	56	69	67			4	047	04 34 s	088 36 w	12.56
02	03	901025	20.37	56	69	67			4	047			1.02
02	04	901025	20.37	69	67	56			4	047			13.58
02	05	901025	20.37	67	56	69			4	047			13.58
02	06	901025	20.37	71	77	55			4	047	04 18 s	088 20 w	2.04
03	01	901025	20.00	71	77	55			4	044	04 18 s	088 18 w	7.67
03	02	901025	20.00	77	55	71			4	044			6.33
04	01	901025	18.52	77	55	71			4	042	04 12 s	088 11 w	1.54
04	02	901025	18.52	77	55	71	02	01	4	042			2.47
04	03	901025	18.52	55	71	77	02	01	4	042			6.17
04	04	901025	18.52	55	71	77			4	042			4.63
04	05	901025	18.52	55	71	77	03	01	4	042			1.54
04	06	901025	18.52	56	69	67	03	01	4	042	04 05 s	088 05 w	7.10
05	01	901025	19.08	56	69	67	12	12	4	042	04 00 s	088 01 w	1.59
05	02	901025	19.08	69	67	56	12	12	4	042			12.72
05	03	901025	19.08	67	56	69			4	042			12.72
05	04	901025	19.08	71	77	55			4	042	03 49 s	087 51 w	12.72
05	05	901025	19.08	77	55	71			4	042			8.27
05	06	901025	19.08	77	55	71			4	049	03 40 s	087 44 w	4.45
05	07	901025	19.08	55	71	77			4	049	03 38 s	087 42 w	7.95
05	08	901025	19.08	55	71	77			4	049			4.45
06	01	901025	18.52	56	69	67			4	049	03 32 s	087 36 w	6.48
06	02	901025	18.52	69	67	56			4	049	03 29 s	087 33 w	7.10
06	03	901025	18.52	67	56	69			4	049			6.48
06	04	901025	18.52	71	77	55			4	049			8.03
06	05	901025	18.52	77	55	71			4	049	03 22 s	087 25 w	7.72

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	06	901025	18.52	55	71	77			3	049			8.64
06	07	901025	18.52	55	71	77			3	049	03 15 s	087 18 w	0.31
01	01	901026	20.00	67	56	69			4	052	02 12 s	087 00 w	6.67
02	01	901026	19.63	56	69	67			4	052	02 09 s	086 56 w	8.18
02	02	901026	19.63	69	67	56			4	052			4.58
02	03	901026	19.63	69	67	56			4	052			3.27
02	04	901026	19.63	55	71	77			4	052	02 03 s	085 50 w	2.62
03	01	901026	19.45	55	71	77			4	052	02 00 s	085 44 w	1.94
03	02	901026	19.45	71	77	55			4	052			12.96
03	03	901026	19.45	77	55	71	02	02	4	052			6.48
03	04	901026	19.45	77	55	71			4	055	01 52 s	085 36 w	3.89
04	01	901026	20.37	67	56	69			4	051	01 49 s	085 29 w	8.49
05	01	901026	20.37	56	69	67			5	090	01 41 s	085 24 w	3.73
06	01	901026	19.63	69	67	56	01	01	5	090	01 40 s	085 21 w	1.64
06	02	901026	19.63	69	67	56			5	090			3.27
07	01	901026	19.63	55	71	77			5	090	01 40 s	085 18 w	1.31
07	02	901026	19.63	55	71	77			5	127			9.82
07	03	901026	19.63	71	77	55			5	127			6.54
07	04	901026	19.63	71	77	55	03	01	5	127	01 45 s	085 10 w	4.25
07	05	901026	19.63	71	77	55	02	01	5	154	01 46 s	085 09 w	2.29
07	06	901026	19.63	77	55	71	02	01	5	154			5.89
07	07	901026	19.63	77	55	71			5	154			3.93
07	08	901026	19.63	77	55	71	03	01	5	154			3.27
07	09	901026	19.63	67	56	69	03	01	5	157	01 53 s	085 05 w	13.09
07	10	901026	19.63	56	69	67	03	01	5	157			5.23
07	11	901026	19.63	56	69	67			5	157			5.89
07	12	901026	19.63	56	69	67	03	02	5	157			1.96
07	13	901026	19.63	69	67	56	03	02	5	157			1.31
07	14	901026	19.63	69	67	56			5	157			1.64
08	01	901026	19.63	69	67	56			5	179	02 07 s	084 59 w	6.22
08	02	901026	19.63	55	71	77	03	02	5	179	02 10 s	084 59 w	4.58
08	03	901026	19.63	55	71	77			5	179			3.60
08	04	901026	19.63	71	77	55			5	179	02 14 s	084 59 w	5.23
08	05	901026	19.63	71	77	55	02	02	5	179			3.27
08	06	901026	19.63	77	55	71	02	02	5	179			7.85
08	07	901026	19.63	67	56	69	02	03	5	179			6.54
08	08	901026	19.63	56	69	67	02	03	5	179			6.22
08	09	901026	19.63	56	69	67	02	03	5	179	02 29 s	084 59 w	0.33
01	01	901027	18.52	69	67	56	10	02	5	178	04 32 s	084 58 w	2.47
02	01	901027	18.52	69	67	56	10	02	5	178	04 34 s	084 58 w	2.78
02	02	901027	18.52	67	56	69	10	02	5	178			5.25
02	03	901027	18.52	56	69	67	10	02	5	178			6.79
03	01	901027	20.00	77	55	71	10	01	5	178	04 58 s	084 57 w	9.67
03	02	901027	20.00	55	71	77	12	12	5	178	05 02 s	084 57 w	6.00
04	01	901027	19.45	69	67	56	12	12	5	178	05 08 s	084 57 w	12.96
04	02	901027	19.45	67	56	69	12	12	5	178			6.48
04	03	901027	19.45	67	56	69	12	12	4	178	05 18 s	084 56 w	6.48
04	04	901027	19.45	56	69	67	02	01	4	178			5.51
04	05	901027	19.45	56	69	67			4	178	05 25 s	084 56 w	0.97
05	01	901027	18.89	56	69	67			4	178	05 26 s	084 56 w	4.41
05	02	901027	18.89	77	55	71			4	178	05 29 s	084 56 w	5.35
06	01	901027	18.89	77	55	71			4	178	05 32 s	084 56 w	1.26
07	01	901027	19.26	55	71	77	03	01	4	178	05 36 s	084 55 w	12.20
07	02	901027	19.26	71	77	55			4	178			12.52

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	901027	19.26	69	67	56			4	178	05 49 s	084 55 w	8.03
07	04	901027	19.26	67	56	69			4	178			4.49
08	01	901027	19.45	56	69	67			4	179	05 58 s	084 55 w	8.10
08	02	901027	19.45	77	55	71			4	179			6.48
08	03	901027	19.45	55	71	77			4	179			6.48
08	04	901027	19.45	71	77	55			4	179			1.62
08	05	901027	19.45	71	77	55			4	179	06 11 s	084 56 w	4.86
08	06	901027	19.45	71	77	55			4	179	06 14 s	084 56 w	0.32
01	01	901028	20.37	56	69	67			4	187	08 05 s	084 49 w	10.19
01	02	901028	20.37	69	67	56			4	187	08 10 s	084 49 w	10.19
01	03	901028	20.37	67	56	69			4	187	08 15 s	084 49 w	5.09
01	04	901028	20.37	67	56	69			4	181	08 19 s	084 50 w	3.06
02	01	901028	20.37	71	77	55			3	181	08 21 s	084 50 w	10.19
02	02	901028	20.37	71	77	55			4	181	08 26 s	084 49 w	3.40
02	03	901028	20.37	77	55	71			4	181			8.15
02	04	901028	20.37	77	55	71			4	183	08 33 s	084 49 w	5.43
02	05	901028	20.37	55	71	77			4	183			13.58
02	06	901028	20.37	56	69	67			4	183	08 43 s	084 49 w	5.09
03	01	901028	20.37	69	67	56			4	183	08 49 s	084 50 w	7.81
04	01	901028	19.63	67	56	69			4	183	08 54 s	084 50 w	13.41
04	02	901028	19.63	71	77	55			4	183	09 01 s	084 50 w	8.18
04	03	901028	19.63	71	77	55			3	183			4.91
04	04	901028	19.63	77	55	71			3	183			13.09
04	05	901028	19.63	55	71	77			3	183			3.27
04	06	901028	19.63	55	71	77			3	177	09 17 s	084 51 w	9.82
04	07	901028	19.63	56	69	67			3	177	09 23 s	084 51 w	10.47
04	08	901028	19.63	56	69	67			4	177	09 28 s	084 50 w	2.62
04	09	901028	19.63	69	67	56			4	177			13.09
04	10	901028	19.63	67	56	69			4	177			13.09
04	11	901028	19.63	71	77	55			4	177	09 44 s	084 49 w	7.85
04	12	901028	19.63	77	55	71			4	177			1.31
05	01	901028	19.63	77	55	71			4	177	09 50 s	084 48 w	3.93
06	01	901028	19.63	56	69	67			4	177	10 00 s	084 48 w	6.54
06	02	901028	19.63	69	67	56			4	177			6.54
06	03	901028	19.63	67	56	69	03	03	4	177			3.60
06	04	901028	19.63	67	56	69	03	03	4	177	10 09 s	084 48 w	0.33
01	01	901029	20.56	55	71	77			3	040	11 06 s	084 40 w	3.43
02	01	901029	21.30	55	71	77			3	040	11 03 s	084 38 w	11.00
02	02	901029	21.30	71	77	55			3	040			1.77
02	03	901029	21.30	71	77	55			3	018	10 57 s	084 34 w	3.55
03	01	901029	20.74	67	56	69			2	020	10 49 s	084 33 w	13.83
03	02	901029	20.74	56	69	67			2	020	10 42 s	084 31 w	13.83
03	03	901029	20.74	69	67	56			3	020			5.19
03	04	901029	20.74	69	67	56			3	023	10 32 s	084 28 w	8.64
03	05	901029	20.74	55	71	77			3	023	10 27 s	084 26 w	10.37
04	01	901029	20.74	55	71	77	02	01	3	023	10 21 s	084 24 w	1.38
04	02	901029	20.74	71	77	55			2	023			3.46
04	03	901029	20.74	71	77	55	02	01	2	023			7.61
04	04	901029	20.74	71	77	55	02	01	3	023			2.77
04	05	901029	20.74	77	55	71	02	01	3	023			8.99
05	01	901029	19.82	67	56	69	12	12	3	023	09 55 s	084 17 w	7.60
05	02	901029	19.82	56	69	67	08	01	3	027	09 51 s	084 15 w	9.91
05	03	901029	19.82	55	71	77	08	01	2	027	09 46 s	084 13 w	13.21
05	04	901029	19.82	71	77	55	08	01	2	027			13.21

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	05	901029	19.82	77	55	71			2	027			4.95
05	06	901029	19.82	77	55	71	08	02	2	027			8.26
05	07	901029	19.82	67	56	69	08	02	3	027	09 25 s	084 04 w	8.26
05	08	901029	19.82	56	69	67	08	02	3	027			4.62
05	09	901029	19.82	56	69	67	08	02	3	021	09 19 s	084 02 w	3.63
05	10	901029	19.82	69	67	56	08	02	3	021	09 18 s	084 01 w	5.61
06	01	901029	20.56	55	71	77	08	03	3	025	09 10 s	084 01 w	12.68
06	02	901029	20.56	55	71	77	08	03	3	025	09 04 s	083 58 w	0.34
01	01	901030	18.89	69	67	56			3	016	07 57 s	083 34 w	4.09
02	01	901030	22.96	69	67	56			3	016	07 53 s	083 32 w	3.44
02	02	901030	22.96	67	56	69			3	016			12.63
02	03	901030	22.96	56	69	67			3	016			13.01
02	04	901030	22.96	77	55	71			3	016	07 38 s	083 28 w	5.74
03	01	901030	22.22	77	55	71			3	016	07 32 s	083 26 w	2.22
04	01	901030	22.22	55	71	77			4	016	07 28 s	083 26 w	4.82
04	02	901030	22.22	55	71	77	03	02	4	016			5.93
04	03	901030	22.22	71	77	55	02	02	4	020	07 23 s	083 25 w	9.63
04	04	901030	22.22	69	67	56	03	01	4	020	07 17 s	083 23 w	10.00
05	01	901030	22.22	67	56	69	03	01	4	020	07 10 s	083 19 w	12.96
05	02	901030	22.22	56	69	67	03	01	4	020			6.67
06	01	901030	20.37	77	55	71	03	12	3	020	06 58 s	083 15 w	1.36
07	01	901030	20.37	77	55	71			3	020	06 56 s	083 12 w	8.15
07	02	901030	20.37	55	71	77			3	020			5.43
08	01	901030	22.04	55	71	77			3	018	06 48 s	083 10 w	3.67
08	02	901030	22.04	71	77	55	08	01	3	018			3.67
08	03	901030	22.04	71	77	55			3	018			3.31
08	04	901030	22.04	71	77	55	08	01	3	005	06 42 s	083 09 w	3.31
09	01	901030	21.30	69	67	56			3	020	06 38 s	083 10 w	4.26
10	01	901030	21.30	69	67	56			3	020	06 36 s	083 09 w	1.77
11	01	901030	21.48	67	56	69			3	020	06 35 s	083 08 w	12.89
11	02	901030	21.48	56	69	67			3	020			14.32
12	01	901030	21.30	77	55	71			4	021	06 17 s	083 04 w	9.94
12	02	901030	21.30	55	71	77			4	021			2.84
13	01	901030	20.56	55	71	77			4	024	06 08 s	083 03 w	2.40
13	02	901030	20.56	69	67	56			4	024			6.85
13	03	901030	20.56	67	56	69			4	024			6.85
13	04	901030	20.56	56	69	67			4	024			5.14
13	05	901030	20.56	56	69	67			4	024	05 57 s	082 59 w	0.34
01	01	901031	20.74	71	77	55			4	018	05 35 s	082 53 w	12.45
01	02	901031	20.74	77	55	71			4	018			12.79
01	03	901031	20.74	55	71	77			4	018	05 21 s	082 50 w	2.77
01	04	901031	20.74	55	71	77			4	018	05 20 s	082 49 w	4.84
01	05	901031	20.74	55	71	77			4	025	05 16 s	082 48 w	4.84
01	06	901031	20.74	56	69	67			4	025	05 14 s	082 48 w	1.73
02	01	901031	20.74	56	69	67			4	025	05 12 s	082 46 w	10.37
02	02	901031	20.74	69	67	56			4	025			4.84
03	01	901031	20.37	69	67	56			4	025	05 04 s	082 44 w	1.70
04	01	901031	20.37	67	56	69			4	025	04 57 s	082 41 w	6.11
04	02	901031	20.37	71	77	55			4	025	04 54 s	082 40 w	7.81
05	01	901031	20.37	77	55	71			4	025	04 48 s	082 38 w	2.38
06	01	901031	19.45	56	69	67			4	020	04 44 s	082 34 w	4.86
07	01	901031	19.45	56	69	67			4	020	04 42 s	082 33 w	1.62
07	02	901031	19.45	69	67	56			4	020			1.94
08	01	901031	19.45	71	77	55			4	020	04 36 s	082 32 w	6.48

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
09	01	901031	19.63	77	55	71			4	020	04 31 s	082 30 w	13.41
09	02	901031	19.63	55	71	77			4	020			7.53
10	01	901031	19.63	56	69	67			4	020	04 15 s	082 25 w	6.54
10	02	901031	19.63	69	67	56			4	020			6.22
10	03	901031	19.63	71	77	55			4	020			6.87
10	04	901031	19.63	77	55	71			4	020			3.60
10	05	901031	19.63	77	55	71			4	020	04 03 s	082 22 w	0.33
01	01	901101	22.59	67	56	69			4	020	02 53 s	081 27 w	8.28
02	01	901101	22.59	67	56	69			4	020	02 48 s	081 25 w	1.51
03	01	901101	20.37	56	69	67			4	000	02 48 s	081 22 w	10.87
03	02	901101	20.37	55	71	77			4	000	02 42 s	081 22 w	10.19
03	03	901101	20.37	71	77	55			4	005	02 37 s	081 22 w	16.98
03	04	901101	20.37	77	55	71			4	005			13.58
03	05	901101	20.37	67	56	69			4	005	02 19 s	081 21 w	13.58
03	06	901101	20.37	56	69	67			4	005			9.17
03	07	901101	20.37	56	69	67			4	015	02 07 s	081 20 w	4.41
03	08	901101	20.37	69	67	56			4	015			2.72
04	01	901101	21.11	69	67	56			4	016	02 03 s	081 18 w	9.85
04	02	901101	21.11	55	71	77			4	016	01 57 s	081 17 w	2.82
04	03	901101	21.11	55	71	77			4	150	01 56 s	081 16 w	2.11
04	04	901101	21.11	55	71	77			4	161	01 57 s	081 16 w	9.15
04	05	901101	21.11	71	77	55			4	161			10.56
04	06	901101	21.11	71	77	55			4	172	02 07 s	081 11 w	3.52
04	07	901101	21.11	77	55	71			4	172			5.63
05	01	901101	21.30	77	55	71			4	172	02 12 s	081 09 w	3.55
05	02	901101	21.30	67	55	69			4	172	02 14 s	081 08 w	11.36
05	03	901101	21.30	67	55	69			4	153	02 20 s	081 07 w	2.84
05	04	901101	21.30	56	69	67			4	150			14.20
05	05	901101	21.30	69	67	56			4	153			3.55
06	01	901101	21.30	69	67	56			4	153	02 31 s	081 01 w	9.23
06	02	901101	21.30	55	71	77			4	153	02 36 s	080 59 w	8.87
06	03	901101	21.30	71	77	55			4	153			8.87
06	04	901101	21.30	77	55	71			4	153			8.87
06	05	901101	21.30	67	56	69			4	153	02 48 s	080 52 w	7.10
06	06	901101	21.30	56	69	67			4	153			6.74
06	07	901101	21.30	56	69	67			4	153	02 56 s	080 47 w	0.35
01	01	901108	20.00	77	55	71			5	240	03 36 s	081 30 w	4.00
01	02	901108	20.00	77	55	71	08	03	5	240			8.33
01	03	901108	20.00	55	71	77	08	03	5	240			7.33
01	04	901108	20.00	55	71	77	08	03	5	246	03 40 s	081 39 w	5.33
01	05	901108	20.00	71	77	55	07	02	5	246			12.00
01	06	901108	20.00	56	67	69	07	02	5	246	03 43 s	081 48 w	6.67
01	07	901108	20.00	67	69	56	07	02	5	246			6.67
01	08	901108	20.00	69	56	67	07	02	5	246			6.67
02	01	901108	20.00	77	55	71			5	246	03 49 s	082 09 w	6.67
02	02	901108	20.00	55	71	77	08	01	5	246			6.67
02	03	901108	20.00	71	77	55	08	01	5	246			6.67
03	01	901108	20.37	56	67	69	11	01	5	246	03 56 s	082 31 w	6.79
03	02	901108	20.37	67	69	56	11	01	5	246	03 57 s	082 35 w	6.79
03	03	901108	20.37	69	56	67	11	01	5	246			6.79
04	01	901108	20.37	77	55	71	12	02	4	243	04 07 s	083 01 w	2.04
04	02	901108	20.37	77	55	71	12	02	4	246	04 08 s	083 02 w	4.75
04	03	901108	20.37	55	71	77	12	02	4	246			5.09
04	04	901108	20.37	55	71	77			4	246			1.70

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
04	05	901108	20.37	71	77	55			4	246			2.04
04	06	901108	20.37	71	77	55	12	02	4	246			1.36
05	01	901108	20.37	71	77	55	12	02	4	246	04 11 s	083 09 w	1.70
05	02	901108	20.37	56	67	69	12	02	4	246	04 11 s	083 10 w	7.13
05	03	901108	20.37	56	67	69	01	02	4	231	04 13 s	083 14 w	1.36
06	01	901108	20.37	77	55	71	01	03	4	231	04 16 s	083 21 w	6.79
06	02	901108	20.37	77	55	71	01	03	4	231	04 18 s	083 24 w	0.34
01	01	901109	20.37	69	56	67	08	03	4	214	05 33 s	084 44 w	0.34
02	01	901109	20.37	69	56	67	08	03	4	214	05 34 s	084 45 w	7.47
02	02	901109	20.37	56	67	69	08	03	4	214			9.85
02	03	901109	20.37	67	69	56			4	214	05 41 s	084 50 w	4.07
02	04	901109	20.37	67	69	56	08	02	4	214			5.09
02	05	901109	20.37	71	77	55	08	02	4	214	05 46 s	084 54 w	4.41
03	01	901109	20.37	69	99	67	09	01	4	214	05 50 s	085 00 w	10.53
04	01	901109	20.37	99	67	69	09	01	4	214	05 56 s	085 03 w	11.54
04	02	901109	20.37	67	69	99	09	01	4	214			9.85
05	01	901109	20.37	71	77	55	11	12	4	213	06 08 s	085 13 w	11.88
05	02	901109	20.37	77	55	71	12	01	4	213			4.41
06	01	901109	20.37	77	55	71	01	01	4	213	06 17 s	085 17 w	3.73
06	02	901109	20.37	55	71	77	01	01	4	213	06 20 s	085 19 w	11.20
06	03	901109	20.37	69	56	67	01	01	4	213	06 24 s	085 22 w	13.58
06	04	901109	20.37	56	67	69	01	02	4	213			4.07
06	05	901109	20.37	56	67	69	01	02	4	218	06 33 s	085 28 w	9.51
06	06	901109	20.37	67	69	56			4	218			7.47
07	01	901109	20.37	71	77	55			4	218	06 40 s	085 36 w	3.73
07	02	901109	20.37	71	77	55	01	02	4	218	06 42 s	085 37 w	4.75
07	03	901109	20.37	77	55	71			4	218			2.38
07	04	901109	20.37	77	55	71	01	02	4	218	06 45 s	085 40 w	6.45
07	05	901109	20.37	55	71	77	01	02	4	218			8.15
07	06	901109	20.37	69	56	67	01	02	4	218			5.43
07	07	901109	20.37	69	56	67	01	03	4	218	06 54 s	085 47 w	3.06
07	08	901109	20.37	56	67	69	01	03	4	218			9.51
07	09	901109	20.37	67	69	56	01	03	4	218			1.70
07	10	901109	20.37	67	69	56			4	218			3.40
07	11	901109	20.37	67	69	56			4	218	07 02 s	085 53 w	0.34
01	01	901110	20.00	55	71	77			4	218	08 28 s	087 00 w	10.00
01	02	901110	20.00	71	77	55			4	218	08 32 s	087 03 w	10.00
01	03	901110	20.00	77	55	71			4	218	08 37 s	087 07 w	10.00
01	04	901110	20.00	67	69	56			4	218	08 41 s	087 10 w	13.33
01	05	901110	20.00	69	56	67			4	218			6.67
01	06	901110	20.00	69	56	67	08	02	4	218	08 50 s	087 17 w	6.67
01	07	901110	20.00	56	67	69	08	02	4	218	08 52 s	087 19 w	6.00
01	08	901110	20.00	56	67	69			4	218	08 54 s	087 21 w	7.33
01	09	901110	20.00	55	71	77			4	218	08 58 s	087 24 w	13.33
01	10	901110	20.00	71	77	55			4	218			13.33
01	11	901110	20.00	77	55	71	09	01	4	218			13.33
01	12	901110	20.00	67	69	56			4	218	09 14 s	087 39 w	5.00
02	01	901110	20.56	69	56	67			4	206	09 21 s	087 49 w	8.22
02	02	901110	20.56	56	67	69			4	206			7.88
02	03	901110	20.56	55	71	77			4	206	09 29 s	087 52 w	2.74
02	04	901110	20.56	55	71	77	01	01	5	206			10.96
02	05	901110	20.56	71	77	55	01	02	5	206			10.96
02	06	901110	20.56	71	77	55			4	206			2.74
02	07	901110	20.56	77	55	71	01	02	4	218	09 42 s	087 59 w	2.06

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	901110	20.56	77	55	71			4	218			2.06
03	01	901110	20.37	77	55	71			4	218	09 43 s	088 02 w	3.40
03	02	901110	20.37	67	69	56	01	02	5	218			5.09
03	03	901110	20.37	67	69	56			5	218	09 46 s	088 04 w	3.40
03	04	901110	20.37	69	56	67			5	218			3.73
03	05	901110	20.37	69	56	67	01	02	5	218			4.75
03	06	901110	20.37	56	67	69			5	218			4.07
03	07	901110	20.37	56	67	69			5	212	09 53 s	088 10 w	1.70
03	08	901110	20.37	56	67	69			5	212			1.36
03	09	901110	20.37	56	67	69	01	02	5	212			1.36
03	10	901110	20.37	55	71	77	01	02	5	212			3.06
04	01	901110	20.37	55	71	77			5	212	09 58 s	088 14 w	3.06
05	01	901110	20.37	71	77	55	01	03	4	212	10 02 s	088 16 w	3.06
05	02	901110	20.37	71	77	55			4	212			1.70
05	03	901110	20.37	71	77	55	01	03	4	212			3.40
05	04	901110	20.37	71	77	55	01	03	4	212	10 06 s	088 19 w	0.34
01	01	901111	21.30	56	67	69			5	230	11 30 s	089 24 w	6.03
01	02	901111	21.30	56	67	69			5	337			3.55
01	03	901111	21.30	67	69	56			5	337			10.29
01	04	901111	21.30	69	56	67			5	337	11 26 s	089 29 w	9.58
01	05	901111	21.30	77	55	71			4	337	11 21 s	089 31 w	14.20
01	06	901111	21.30	55	71	77			4	337			9.58
01	07	901111	21.30	55	71	77	04	02	4	337			4.61
01	08	901111	21.30	71	77	55	04	02	4	337			6.39
01	09	901111	21.30	71	77	55			4	337			7.81
01	10	901111	21.30	56	67	69			4	337	11 00 s	089 41 w	10.65
01	11	901111	21.30	56	67	69	04	01	4	337	10 55 s	089 43 w	3.55
01	12	901111	21.30	67	69	56	04	01	4	337			14.20
01	13	901111	21.30	69	56	67			4	337			4.26
01	14	901111	21.30	69	56	67			4	339	10 45 s	089 47 w	9.94
01	15	901111	20.93	77	55	71			4	339	10 40 s	089 50 w	13.95
01	16	901111	20.93	55	71	77			4	339			13.95
01	17	901111	20.93	71	77	55			4	339			8.72
01	18	901111	20.93	71	77	55	09	12	4	339			3.14
01	19	901111	20.93	71	77	55			4	339			2.09
01	20	901111	20.93	56	67	69			4	339	10 19 s	089 59 w	11.51
01	21	901111	20.93	56	67	69			4	341	10 13 s	090 02 w	2.44
01	22	901111	20.93	67	69	56	09	01	4	341			6.98
01	23	901111	20.93	67	69	56			4	341	10 08 s	090 03 w	6.98
01	24	901111	20.93	69	56	67			4	341			13.95
01	25	901111	20.93	77	55	71			4	341	09 58 s	090 08 w	1.74
01	26	901111	20.93	77	55	71	09	02	4	341			6.63
01	27	901111	20.93	55	71	77	09	02	4	341			7.32
02	01	901111	20.93	56	67	69			4	341	09 42 s	090 14 w	8.72
02	02	901111	20.93	67	69	56			4	341			6.98
03	01	901111	20.93	69	56	67			4	341	09 33 s	090 18 w	6.98
03	02	901111	20.93	69	56	67			4	341	09 29 s	090 19 w	0.35
01	01	901112	21.30	71	77	55			4	335	07 54 s	090 59 w	9.58
02	01	901112	21.30	77	55	71			4	336	07 49 s	091 03 w	8.87
02	02	901112	21.30	55	71	77			4	336			7.10
02	03	901112	21.30	69	56	67	04	02	4	341	07 42 s	091 07 w	9.94
02	04	901112	21.30	69	56	67			4	341	07 36 s	091 09 w	4.26
02	05	901112	21.30	56	67	69			4	341			14.20
02	06	901112	21.30	67	69	56			4	341			14.20

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	07	901112	21.30	71	77	55			4	341	07 21 s	091 15 w	10.65
02	08	901112	21.30	71	77	55			4	343	07 15 s	091 17 w	3.55
02	09	901112	21.30	77	55	71			4	343			14.55
02	10	901112	21.30	55	71	77			4	343			4.61
02	11	901112	21.30	55	71	77	04	12	4	343			9.23
02	12	901112	21.30	69	56	67	04	12	4	343	07 00 s	091 23 w	14.20
02	13	901112	21.30	56	67	69	12	12	4	343			4.61
03	01	901112	21.30	56	67	69	12	12	4	339	06 49 s	091 27 w	1.77
03	02	901112	21.30	67	69	56	08	12	4	339			9.58
04	01	901112	21.30	71	77	55	09	01	4	336	06 41 s	091 28 w	13.13
04	02	901112	21.30	77	55	71	09	01	4	336			2.48
05	01	901112	21.11	77	55	71	09	01	4	336	06 32 s	091 31 w	7.74
05	02	901112	21.11	55	71	77	09	01	4	336			13.72
05	03	901112	21.11	69	56	67	09	02	4	336	06 22 s	091 36 w	8.80
05	04	901112	21.11	56	67	69	09	02	4	336	06 17 s	091 39 w	8.80
05	05	901112	21.11	67	69	56			4	336			7.04
05	06	901112	21.11	67	69	56	09	02	4	336			1.76
05	07	901112	21.11	71	77	55	09	02	4	336			12.32
05	08	901112	21.11	77	55	71	09	02	4	336			12.32
05	09	901112	21.11	55	71	77	09	03	4	336	05 56 s	091 48 w	12.32
05	10	901112	21.11	55	71	77			4	336	05 51 s	091 51 w	0.35
01	01	901113	19.26	67	69	56			4	253	04 44 s	092 44 w	7.70
01	02	901113	19.26	67	69	56			4	250	04 45 s	092 48 w	4.49
01	03	901113	19.26	69	56	67			4	250			12.20
01	04	901113	19.26	56	67	69			4	250			3.21
02	01	901113	19.45	55	71	77			4	258	04 55 s	093 00 w	11.34
02	02	901113	19.45	71	77	55			4	258			3.24
02	03	901113	19.45	71	77	55	07	01	4	258	04 56 s	093 08 w	3.24
02	04	901113	19.45	71	77	55	07	01	5	258			5.19
02	05	901113	19.45	77	55	71	07	01	4	258			11.02
02	06	901113	19.45	67	69	56	07	01	5	258	04 59 s	093 17 w	4.86
02	07	901113	19.45	67	69	56			5	258			7.45
03	01	901113	19.45	69	56	67			5	258	05 00 s	093 25 w	3.57
03	02	901113	19.45	69	56	67			5	258			2.27
03	03	901113	19.45	69	56	67	08	01	5	258	05 01 s	093 27 w	5.51
03	04	901113	19.45	56	67	69	08	01	5	258			12.96
03	05	901113	19.45	55	71	77	10	12	5	258	05 02 s	093 37 w	11.34
03	06	901113	19.82	55	71	77	11	12	5	249	05 03 s	093 43 w	1.65
03	07	901113	19.82	71	77	55			5	249			3.63
03	08	901113	19.82	71	77	55	11	01	5	249			6.94
03	09	901113	19.82	71	77	55			5	249			2.64
03	10	901113	19.82	77	55	71			4	249			5.28
03	11	901113	19.82	77	55	71			4	249			7.93
03	12	901113	19.82	67	69	56			4	249	05 08 s	093 57 w	13.21
03	13	901113	19.82	69	56	67			4	249			13.21
03	14	901113	19.82	56	67	69			4	249			10.24
04	01	901113	19.63	55	71	77			4	248	05 16 s	094 19 w	1.96
04	02	901113	19.63	55	71	77	12	02	4	248			6.22
04	03	901113	19.63	71	77	55	10	03	4	320	05 17 s	094 23 w	5.23
04	04	901113	19.63	71	77	55	10	03	4	320	05 15 s	094 25 w	0.33
01	01	901114	19.45	77	55	71			4	253	05 57 s	096 08 w	12.96
01	02	901114	19.45	55	71	77	07	03	4	253			7.13
01	03	901114	19.45	55	71	77			4	253	06 01 s	096 19 w	5.83
01	04	901114	19.45	71	77	55			4	253			3.89

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
01	05	901114	19.45	71	77	55			4	205	06 03 s	096 24 w	6.81
01	06	901114	19.45	71	77	55	09	02	5	205			2.27
01	07	901114	19.45	56	67	69	09	02	5	205	06 08 s	096 27 w	1.62
01	08	901114	19.45	56	67	69	05	02	5	310	06 08 s	096 27 w	11.34
01	09	901114	19.45	67	69	56	05	02	5	310			7.78
02	01	901114	20.00	77	55	71	09	01	4	200	05 58 s	096 40 w	13.00
02	02	901114	20.00	55	71	77	09	01	4	200			8.33
03	01	901114	19.26	71	77	55			4	315	06 08 s	096 49 w	5.46
03	02	901114	19.26	56	67	69			4	315	06 06 s	096 52 w	4.82
04	01	901114	19.26	56	67	69	12	01	4	200	06 03 s	096 54 w	3.85
04	02	901114	19.26	67	69	56	12	01	4	200			6.42
04	03	901114	19.26	67	69	56	01	01	5	200	06 09 s	096 56 w	6.42
04	04	901114	19.26	69	56	67	01	01	5	200			3.21
05	01	901114	19.45	77	55	71	12	01	5	250	06 14 s	097 04 w	12.96
05	02	901114	19.45	55	71	77	12	01	5	250			1.62
05	03	901114	19.45	55	71	77	11	02	5	280	06 17 s	097 12 w	11.34
05	04	901114	19.45	71	77	55	11	02	5	280			3.89
05	05	901114	19.45	71	77	55	01	02	5	220	06 16 s	097 21 w	2.27
05	06	901114	19.45	71	77	55			5	220			6.81
05	07	901114	19.45	56	67	69			5	220	06 19 s	097 25 w	2.59
05	08	901114	19.45	56	67	69	01	02	5	220			3.57
05	09	901114	19.45	56	67	69			5	195	06 22 s	097 27 w	1.94
05	10	901114	19.45	67	69	56			5	195			8.10
05	11	901114	19.45	69	56	67			5	195			4.54
05	12	901114	19.45	69	56	67	02	03	5	195			2.27
05	13	901114	19.45	69	56	67	11	03	5	280	06 31 s	097 31 w	1.30
05	14	901114	19.45	77	55	71	11	03	5	280			8.10
05	15	901114	19.45	55	71	77	11	03	5	280			8.10
05	16	901114	19.45	71	77	55	11	03	5	280			1.30
06	01	901114	20.37	71	77	55	11	03	5	280	06 30 s	097 43 w	3.73
06	02	901114	20.37	71	77	55			5	280	06 30 s	097 45 w	0.34
01	01	901115	20.56	69	56	67			5	265	07 05 s	099 19 w	8.91
01	02	901115	20.56	56	67	69			5	265			7.20
01	03	901115	20.56	67	69	56			5	265	07 06 s	099 28 w	11.31
01	04	901115	20.56	71	77	55			5	265	07 06 s	099 34 w	4.80
01	05	901115	20.56	71	77	55	07	02	5	265			5.48
01	06	901115	20.56	71	77	55			5	265	07 07 s	099 39 w	3.43
01	07	901115	20.56	77	55	71			5	265			11.99
01	08	901115	20.56	77	55	71			5	265			1.71
01	09	901115	20.56	55	71	77			5	265			4.11
01	10	901115	20.56	55	71	77			5	195	07 09 s	099 50 w	6.17
01	11	901115	20.56	55	71	77	10	01	5	195			1.71
01	12	901115	20.56	55	71	77	08	01	5	250	07 13 s	099 52 w	1.71
01	13	901115	22.59	69	56	67	07	01	5	250	07 13 s	099 52 w	15.06
01	14	901115	22.59	56	67	69	07	01	5	250			4.52
01	15	901115	22.59	56	67	69			5	250	07 17 s	100 03 w	1.13
02	01	901115	20.37	71	77	55	10	12	5	250	07 23 s	100 15 w	6.79
02	02	901115	20.37	77	55	71	10	12	5	250			6.11
02	03	901115	20.37	55	71	77	12	01	5	250			7.47
03	01	901115	22.22	69	56	67	12	01	5	250	07 32 s	100 37 w	6.30
04	01	901115	23.15	56	67	69			5	250	07 34 s	100 41 w	6.56
04	02	901115	23.15	67	69	56			5	250			3.86
04	03	901115	23.15	67	69	56	12	01	5	250			3.86
05	01	901115	18.52	71	77	55			5	247	07 35 s	100 59 w	4.01

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	901115	20.00	77	55	71	11	02	5	290	07 40 s	101 02 w	11.00
06	02	901115	20.00	69	56	67	11	03	5	290	07 38 s	101 08 w	8.33
06	03	901115	20.00	56	67	69	11	03	5	290			8.00
07	01	901115	19.82	67	69	56			5	250	07 37 s	101 16 w	2.97
07	02	901115	19.82	67	69	56			5	250	07 38 s	101 18 w	0.33
01	01	901116	20.37	55	71	77			4	333	06 27 s	102 51 w	2.04
02	01	901116	20.37	71	77	55			4	333	06 21 s	102 51 w	5.09
02	02	901116	20.37	71	77	55	04	02	4	333			3.40
02	03	901116	20.37	77	55	71	04	02	4	333			8.49
02	04	901116	20.37	67	69	56			4	333	06 14 s	102 55 w	8.49
02	05	901116	20.37	67	69	56	04	02	4	333			5.09
02	06	901116	20.37	69	56	67	04	02	4	333			12.56
03	01	901116	20.37	55	71	77	05	01	4	328	05 59 s	103 01 w	12.56
03	02	901116	20.37	71	77	55	05	01	4	328			13.24
03	03	901116	20.37	77	55	71	05	01	4	328			12.22
03	04	901116	20.37	67	69	56	06	01	4	328	05 41 s	103 12 w	13.58
03	05	901116	20.37	69	56	67	12	12	4	328			6.79
04	01	901116	20.37	69	56	67	12	12	4	328	05 30 s	103 19 w	1.36
05	01	901116	20.74	56	67	69	12	12	4	333	05 29 s	103 20 w	4.49
05	02	901116	20.74	56	67	69			4	333			6.22
05	03	901116	20.74	56	67	69	12	12	4	333			1.73
05	04	901116	20.74	55	71	77	09	01	4	333	05 23 s	103 23 w	13.83
05	05	901116	20.74	71	77	55	09	01	4	333			8.64
05	06	901116	20.74	71	77	55	09	01	4	336	05 13 s	103 30 w	5.19
05	07	901116	20.74	77	55	71	09	01	4	336	05 10 s	103 31 w	6.91
06	01	901116	20.74	77	55	71	09	02	4	336	05 06 s	103 33 w	4.15
06	02	901116	20.74	67	69	56	09	02	4	336	05 04 s	103 34 w	4.49
07	01	901116	22.04	69	56	67			4	344	04 58 s	103 39 w	7.35
07	02	901116	22.04	55	71	77			4	344			11.02
07	03	901116	22.04	71	77	55			4	344			5.51
07	04	901116	22.04	71	77	55			4	344	04 47 s	103 43 w	5.51
07	05	901116	22.04	77	55	71			4	344			2.20
07	06	901116	22.04	77	55	71			4	344			3.31
07	07	901116	22.04	77	55	71			4	344	04 41 s	103 45 w	0.37
01	01	901117	20.37	56	67	69			3	341	03 04 s	104 35 w	8.49
01	02	901117	20.37	67	69	56			4	341			8.15
01	03	901117	20.37	69	56	67			4	341			8.15
01	04	901117	20.37	77	55	71			4	341	02 52 s	104 40 w	9.17
02	01	901117	20.37	55	71	77			4	335	02 41 s	104 46 w	4.41
03	01	901117	20.37	71	77	55			4	335	02 39 s	104 48 w	5.09
04	01	901117	20.37	56	67	69			4	335	02 37 s	104 53 w	6.79
04	02	901117	20.37	56	67	69	05	01	4	335			2.38
04	03	901117	20.37	56	67	69	05	01	4	341	02 33 s	104 55 w	2.72
04	04	901117	20.37	67	69	56	05	01	4	341			6.79
05	01	901117	20.37	67	69	56	05	01	4	341	02 28 s	104 57 w	4.07
05	02	901117	20.37	69	56	67	05	01	4	341			13.58
05	03	901117	20.37	77	55	71	05	01	4	341	02 19 s	105 01 w	13.58
05	04	901117	20.37	55	71	77	07	12	4	341			6.79
05	05	901117	20.37	55	71	77	10	01	4	280	02 09 s	105 11 w	6.79
05	06	901117	20.37	71	77	55	10	01	4	280			11.88
06	01	901117	22.22	56	67	69	11	01	4	280	02 08 s	105 16 w	12.96
06	02	901117	22.22	67	69	56	11	01	4	280			14.82
06	03	901117	22.22	69	56	67	11	02	4	280			14.82
06	04	901117	22.22	77	55	71			4	280	02 06 s	105 39 w	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
06	05	901117	22.22	55	71	77			4	280			5.93
06	06	901117	22.22	55	71	77	11	02	4	280			3.33
06	07	901117	22.22	71	77	55			4	280			3.70
06	08	901117	22.22	71	77	55			4	284	02 05 s	105 50 w	5.56
06	09	901117	22.22	56	67	69			4	284			9.26
06	10	901117	22.22	67	69	56			4	284			4.44
07	01	901117	22.22	69	56	67			4	284	02 01 s	106 01 w	8.52
07	02	901117	22.22	69	56	67			4	284	02 00 s	106 06 w	0.37
01	01	901118	20.37	71	77	55			4	284	01 40 s	107 54 w	7.47
01	02	901118	20.37	77	55	71			4	284			6.79
01	03	901118	20.37	55	71	77			4	284			6.45
01	04	901118	20.37	69	56	67			4	284	01 38 s	108 06 w	13.58
01	05	901118	20.37	56	67	69			4	284			13.58
01	06	901118	20.37	67	69	56			4	284			3.40
01	07	901118	20.00	67	69	56			4	206	01 35 s	108 21 w	10.00
01	08	901118	20.00	71	77	55	09	02	4	206	01 39 s	108 23 w	11.33
02	01	901118	19.82	77	55	71	10	01	4	206	01 45 s	108 27 w	8.59
02	02	901118	19.82	55	71	77	10	01	4	206			7.60
02	03	901118	19.82	69	56	67	11	01	4	206	01 53 s	108 30 w	13.21
02	04	901118	19.82	56	67	69	11	01	4	206			13.21
02	05	901118	19.82	67	69	56	12	01	4	206			8.26
03	01	901118	19.82	71	77	55	01	01	4	210	02 13 s	108 38 w	0.66
04	01	901118	20.37	77	55	71	01	01	4	210	02 16 s	108 38 w	12.22
04	02	901118	20.37	55	71	77	01	02	4	210			11.54
04	03	901118	20.37	69	56	67	01	02	4	210	02 27 s	108 44 w	7.81
04	04	901118	20.37	56	67	69	01	02	4	210			7.47
05	01	901118	20.37	71	77	55			4	202	02 31 s	108 54 w	6.45
05	02	901118	20.37	71	77	55	02	03	4	202	02 33 s	108 56 w	2.72
05	03	901118	20.37	77	55	71	02	03	4	202			8.15
05	04	901118	20.37	77	55	71	02	03	4	191	02 39 s	108 58 w	1.02
05	05	901118	20.37	55	71	77	02	03	4	191			7.47
05	06	901118	20.37	55	71	77	02	03	4	191	02 43 s	108 59 w	0.34
01	01	901119	20.19	67	69	56			5	205	04 17 s	109 41 w	2.02
01	02	901119	20.19	67	69	56			5	205			6.06
01	03	901119	20.19	67	69	56			5	203	04 20 s	109 43 w	4.71
01	04	901119	20.19	69	56	67			5	203			10.77
01	05	901119	20.19	69	56	67			4	203	04 28 s	109 47 w	2.02
01	06	901119	20.19	56	67	69			4	203			5.38
01	07	901119	20.19	56	67	69	09	02	4	203			7.40
01	08	901119	20.19	55	71	77			4	198	04 35 s	109 50 w	6.73
01	09	901119	20.19	55	71	77	09	02	4	198			6.73
01	10	901119	20.19	71	77	55	09	02	4	198			7.40
01	11	901119	20.19	71	77	55	09	02	4	195	04 45 s	109 55 w	3.03
01	12	901119	20.19	71	77	55			4	195	04 47 s	109 55 w	4.04
01	13	901119	20.19	77	55	71			4	195			12.45
01	14	901119	20.19	67	69	56			4	215	04 55 s	109 58 w	4.04
02	01	901119	22.22	67	69	56			4	281	04 59 s	110 05 w	12.59
02	02	901119	22.22	69	56	67			4	281	04 58 s	110 11 w	5.56
02	03	901119	22.22	69	56	67			4	281			7.04
02	04	901119	22.22	56	67	69			4	281			12.59
02	05	901119	22.22	55	71	77			4	281	04 56 s	110 25 w	9.26
02	06	901119	22.22	71	77	55			4	281			9.26
02	07	901119	22.22	77	55	71			4	281	04 54 s	110 35 w	9.26
02	08	901119	22.22	67	69	56			4	281			7.41

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	09	901119	22.22	69	56	67			4	281			7.41
02	10	901119	22.22	56	67	69	11	03	4	281			4.44
02	11	901119	22.22	56	67	69	11	03	4	281	04 51 s	110 51 w	0.37
01	01	901120	22.59	77	55	71			4	285	04 29 s	112 44 w	13.93
01	02	901120	22.59	55	71	77			4	285	04 27 s	112 51 w	14.69
01	03	901120	22.59	71	77	55			4	285			13.18
01	04	901120	22.59	56	67	69			4	285	04 23 s	113 06 w	4.52
01	05	901120	22.59	56	67	69			4	285	04 23 s	113 08 w	10.54
01	06	901120	22.59	67	69	56			4	285			15.06
01	07	901120	22.59	69	56	67			4	285			15.06
01	08	901120	22.59	77	55	71			4	281	04 18 s	113 29 w	9.79
01	09	901120	22.59	77	55	71	07	01	4	281			5.27
01	10	901120	22.59	55	71	77			4	281			9.79
01	11	901120	22.59	55	71	77			4	281			5.27
01	12	901120	22.59	71	77	55			4	281			9.41
01	13	901120	22.59	71	77	55			4	281			5.65
01	14	901120	22.59	56	67	69			4	281	04 14 s	113 53 w	13.18
01	15	901120	22.59	56	67	69	12	12	4	281			1.88
01	16	901120	22.59	67	69	56	10	01	4	281			7.53
01	17	901120	22.59	67	69	56			4	281	04 12 s	114 04 w	7.53
01	18	901120	22.59	69	56	67			4	281			7.53
01	19	901120	22.59	69	56	67			4	284	04 11 s	114 12 w	7.53
01	20	901120	22.59	77	55	71	11	01	4	284	04 10 s	114 16 w	15.44
01	21	901120	22.59	55	71	77	11	01	4	284			14.69
01	22	901120	22.59	71	77	55	11	02	4	284			3.01
02	01	901120	23.15	56	67	69	11	02	4	284	04 04 s	114 38 w	11.19
02	02	901120	23.15	67	69	56	11	02	4	284	04 03 s	114 44 w	8.10
02	03	901120	23.15	69	56	67	11	02	4	284			9.65
02	04	901120	23.15	77	55	71	11	02	5	284			10.03
02	05	901120	23.15	55	71	77	11	03	5	284			8.49
02	06	901120	23.15	71	77	55	11	03	5	284	04 01 s	115 02 w	11.57
02	07	901120	23.15	71	77	55			5	284	04 00 s	115 10 w	0.39
01	01	901121	21.30	69	56	67			5	290	03 38 s	116 56 w	9.58
01	02	901121	21.30	56	67	69			5	290			9.94
01	03	901121	21.30	67	69	56	06	02	5	290	03 36 s	117 06 w	6.39
01	04	901121	21.30	67	69	56			5	290	03 35 s	117 10 w	3.55
01	05	901121	21.30	71	77	55			4	290	03 34 s	117 12 w	6.03
01	06	901121	21.30	71	77	55			4	290			5.68
01	07	901121	21.30	71	77	55			4	288	03 33 s	117 17 w	2.48
01	08	901121	21.30	77	55	71			4	288			14.91
01	09	901121	21.30	55	71	77	06	02	4	288			10.29
01	10	901121	21.30	55	71	77			4	288			3.19
01	11	901121	21.30	69	56	67	06	01	4	288	03 29 s	117 34 w	10.65
01	12	901121	21.30	69	56	67	06	01	4	285	03 28 s	117 39 w	3.55
01	13	901121	21.30	56	67	69	06	01	4	285			12.42
02	01	901121	21.30	67	69	56	07	01	4	285	03 25 s	117 50 w	7.45
03	01	901121	21.85	71	77	55			5	285	03 24 s	117 55 w	15.30
03	02	901121	21.85	77	55	71	10	01	5	285	03 23 s	118 03 w	14.57
03	03	901121	21.85	55	71	77	10	12	5	285			14.57
03	04	901121	21.85	69	56	67	11	01	5	285	03 20 s	118 18 w	14.57
03	05	901121	21.85	56	67	69	11	01	5	285			14.57
03	06	901121	21.85	67	69	56	11	02	5	285			14.57
03	07	901121	21.85	71	77	55	11	02	4	285	03 17 s	118 41 w	9.11
03	08	901121	21.85	77	55	71	11	02	4	285			9.11

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	09	901121	21.85	55	71	77	11	02	4	285			9.11
03	10	901121	21.85	69	56	67	11	02	4	285	03 14 s	118 55 w	10.93
03	11	901121	21.85	56	67	69	11	03	4	285			10.93
03	12	901121	21.85	67	69	56	11	03	4	285			10.56
03	13	901121	21.85	67	69	56	11	03	4	285	03 11 s	119 12 w	0.36
01	01	901122	22.22	55	71	77			4	279	02 54 s	121 04 w	4.44
02	01	901122	22.22	67	69	56			4	280	02 47 s	121 11 w	5.93
03	01	901122	22.22	69	56	67			4	280	02 49 s	121 20 w	13.33
03	02	901122	22.22	56	67	69			4	280			13.33
03	03	901122	22.22	55	71	77			4	280	02 47 s	121 34 w	14.82
03	04	901122	22.22	71	77	55			4	280			10.00
03	05	901122	22.22	71	77	55	07	01	4	280			4.82
03	06	901122	22.22	77	55	71	07	01	4	280			14.82
03	07	901122	22.22	67	69	56	08	01	4	280	02 44 s	121 58 w	14.82
03	08	901122	22.22	69	56	67	09	01	4	280			14.82
03	09	901122	22.22	56	67	69	10	01	4	280			8.15
04	01	901122	22.04	56	67	69	10	01	4	280	02 42 s	122 19 w	4.41
04	02	901122	22.04	55	71	77	10	01	4	280	02 41 s	122 21 w	14.69
04	03	901122	22.04	71	77	55	11	01	4	280			14.69
04	04	901122	22.04	77	55	71	11	02	4	280			14.69
04	05	901122	22.04	67	69	56	11	02	4	280	02 38 s	122 47 w	9.18
04	06	901122	22.04	69	56	67	11	02	4	280			9.18
04	07	901122	22.04	56	67	69	11	02	4	280			9.18
04	08	901122	22.04	55	71	77	11	02	4	280			12.86
04	09	901122	22.04	71	77	55	11	02	4	280			4.04
04	10	901122	22.04	71	77	55			4	280	02 35 s	123 09 w	6.61
04	11	901122	22.04	71	77	55	11	03	4	280			2.94
04	12	901122	22.04	77	55	71	11	03	4	280	02 34 s	123 16 w	11.39
04	13	901122	22.04	77	55	71	11	03	4	280	02 33 s	123 21 w	0.37
01	01	901123	22.22	56	67	69	07	03	4	277	02 16 s	125 18 w	13.70
01	02	901123	22.22	67	69	56	07	03	4	277			13.70
01	03	901123	22.22	69	56	67	07	02	4	277			4.82
01	04	901123	22.22	69	56	67	07	02	4	277			8.52
01	05	901123	22.22	77	55	71	07	02	4	277	02 13 s	125 40 w	5.93
01	06	901123	22.22	77	55	71	06	02	4	280	02 13 s	125 43 w	8.89
01	07	901123	22.22	55	71	77	06	02	4	280			14.82
01	08	901123	22.22	71	77	55	07	02	4	280			14.82
01	09	901123	22.22	56	67	69	07	01	4	280	02 09 s	126 03 w	14.82
01	10	901123	22.22	67	69	56	07	01	4	280			14.82
01	11	901123	22.22	69	56	67	08	01	4	280			14.82
01	12	901123	22.22	77	55	71	09	01	4	280	02 05 s	126 26 w	14.82
01	13	901123	22.22	55	71	77	10	01	4	280			7.41
02	01	901123	23.71	55	71	77	10	01	4	280	02 02 s	126 38 w	1.98
02	02	901123	23.71	71	77	55	11	01	4	280			15.80
02	03	901123	23.71	56	67	69	11	01	4	280	02 01 s	126 47 w	15.80
02	04	901123	23.71	67	69	56	11	01	4	280			2.77
02	05	901123	23.71	67	69	56	06	01	4	051	01 59 s	126 55 w	13.04
02	06	901123	19.45	69	56	67	06	01	4	051			12.96
02	07	901123	19.45	77	55	71	06	02	4	051	01 50 s	126 47 w	8.10
02	08	901123	19.45	55	71	77	07	02	4	051			1.94
02	09	901123	19.45	55	71	77	07	02	4	053	01 46 s	126 44 w	6.16
02	10	901123	19.45	71	77	55	07	02	4	053			8.10
02	11	901123	19.45	56	67	69	07	03	4	053			6.48
02	12	901123	19.45	67	69	56	07	03	4	053			1.30

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
02	13	901123	19.45	67	69	56	06	03	4	058	01 37 s	126 35 w	5.19
02	14	901123	19.45	69	56	67	06	03	4	058			4.86
02	15	901123	19.45	69	56	67	06	03	4	058	01 33 s	126 31 w	0.32
01	01	901124	19.26	71	77	55			5	069	00 37 s	125 06 w	12.84
01	02	901124	19.26	77	55	71			5	069			3.85
02	01	901124	19.26	77	55	71			4	069	00 33 s	124 57 w	1.28
03	01	901124	19.63	55	71	77	02	02	4	062	00 32 s	124 54 w	7.20
03	02	901124	19.63	69	56	67	02	02	4	062	00 30 s	124 50 w	13.09
03	03	901124	19.63	56	67	69	02	02	4	062			13.09
03	04	901124	19.63	67	69	56			4	062			7.85
04	01	901124	19.26	67	69	56			5	062	00 19 s	124 34 w	1.93
04	02	901124	19.26	71	77	55			5	062	00 18 s	124 34 w	5.14
05	01	901124	20.37	71	77	55	08	02	5	000	00 11 s	124 26 w	7.81
05	02	901124	20.37	77	55	71	08	02	5	000			7.13
05	03	901124	20.37	55	71	77	08	02	5	000			6.79
05	04	901124	20.37	69	56	67	08	02	5	000	00 00 n	124 28 w	8.49
05	05	901124	20.37	56	67	69	08	02	5	000			8.49
05	06	901124	20.37	67	69	56	08	03	5	000			8.49
05	07	901124	20.37	71	77	55	08	03	5	000			8.49
05	08	901124	20.37	77	55	71	08	03	4	010	00 18 n	124 30 w	8.83
05	09	901124	20.37	77	55	71	08	03	4	010	00 23 n	124 29 w	0.34
01	01	901125	20.37	67	69	56			4	010	01 46 n	124 21 w	11.54
01	02	901125	20.37	69	56	67			4	010			11.54
01	03	901125	20.37	56	67	69			4	010			8.83
01	04	901125	20.37	56	67	69	03	02	4	010			2.72
01	05	901125	20.37	55	71	77	03	02	4	010	02 04 n	124 21 w	6.79
01	06	901125	20.37	55	71	77			4	010			6.79
01	07	901125	20.37	71	77	55			4	010			2.04
01	08	901125	20.37	71	77	55			5	010			8.49
01	09	901125	20.37	71	77	55	03	02	5	010			3.06
01	10	901125	20.37	77	55	71			5	010			3.06
01	11	901125	20.37	77	55	71	03	02	5	010	02 20 n	124 20 w	10.53
01	12	901125	20.37	67	69	56	04	01	5	010	02 25 n	124 20 w	13.58
01	13	901125	20.37	69	56	67	04	01	5	010			1.70
01	14	901125	20.37	69	56	67	04	01	5	012	02 33 n	124 19 w	11.88
01	15	901125	20.37	56	67	69	05	01	5	012			13.58
01	16	901125	20.37	55	71	77	05	01	5	012	02 46 n	124 18 w	13.58
01	17	901125	20.37	71	77	55	06	01	5	012			13.58
01	18	901125	20.37	77	55	71			5	012			13.58
01	19	901125	20.37	67	69	56	07	01	5	012	03 07 n	124 16 w	8.49
01	20	901125	20.37	67	69	56			5	012			5.09
01	21	901125	20.37	69	56	67			5	012			13.58
01	22	901125	20.37	56	67	69	08	01	5	012			5.09
01	23	901125	20.37	56	67	69			5	012	03 26 n	124 15 w	5.43
02	01	901125	20.37	55	71	77			4	012	03 29 n	124 15 w	6.45
02	02	901125	20.37	71	77	55			5	012			6.79
03	01	901125	20.37	67	69	56			4	020	03 40 n	124 21 w	2.38
03	02	901125	20.37	67	69	56			4	020			3.40
03	03	901125	20.37	67	69	56			4	020	03 44 n	124 20 w	0.34
01	01	901126	19.63	77	55	71			4	007	05 07 n	124 11 w	6.54
01	02	901126	19.63	77	55	71			3	010	05 10 n	124 11 w	0.33
02	01	901126	18.89	55	71	77			3	020	05 18 n	124 17 w	7.24
02	02	901126	18.89	56	67	69	03	02	3	020	05 22 n	124 16 w	11.02
02	03	901126	18.89	56	67	69			3	020			1.57

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	04	901126	18.89	67	69	56			3	020			5.67
03	01	901126	19.63	69	56	67			2	025	05 37 n	124 15 w	4.58
03	02	901126	19.63	69	56	67			3	025			4.58
03	03	901126	19.63	77	55	71			3	025	05 41 n	124 13 w	3.60
03	04	901126	19.63	77	55	71			4	025			5.23
03	05	901126	19.63	77	55	71			4	025	05 46 n	124 12 w	4.25
03	06	901126	19.63	55	71	77			4	025			4.25
03	07	901126	19.63	55	71	77	04	01	4	025			8.83
03	08	901126	19.63	71	77	55	04	01	4	025			1.64
03	09	901126	19.63	71	77	55	05	01	4	008	05 55 n	124 08 w	11.45
03	10	901126	19.63	56	67	69	06	01	3	008	06 02 n	124 07 w	8.83
04	01	901126	20.00	67	69	56	08	01	3	352	06 14 n	124 03 w	11.33
04	02	901126	20.00	77	55	71	08	01	3	352	06 21 n	124 04 w	7.33
05	01	901126	20.37	55	71	77	08	02	3	005	06 26 n	124 05 w	3.73
06	01	901126	20.37	56	67	69	08	03	2	005	06 38 n	124 06 w	4.07
06	02	901126	20.37	77	55	71	08	03	1	005			9.51
06	03	901126	20.37	77	55	71	08	03	1	005	06 45 n	124 05 w	0.34
01	01	901127	20.37	69	56	67			2	021	08 01 n	124 00 w	4.41
01	02	901127	20.37	69	56	67	03	03	2	021			6.11
01	03	901127	20.37	56	67	69	03	03	2	017	08 06 n	123 57 w	10.19
01	04	901127	20.37	67	69	56	03	02	2	017	08 11 n	123 55 w	10.19
01	05	901127	20.37	71	77	55	03	02	2	017	08 16 n	123 53 w	5.77
01	06	901127	20.37	71	77	55	03	02	3	017			2.04
01	07	901127	20.37	71	77	55			3	017			2.38
01	08	901127	20.37	71	77	55	03	02	4	017	08 21 n	123 51 w	1.36
01	09	901127	20.37	71	77	55			4	017	08 22 n	123 51 w	2.04
01	10	901127	20.37	77	55	71			4	017			13.92
01	11	901127	20.37	55	71	77	04	02	4	017			12.22
01	12	901127	20.37	55	71	77	04	02	4	017			1.02
01	13	901127	20.37	69	56	67	04	02	3	017	08 37 n	123 45 w	3.40
01	14	901127	20.37	69	56	67			3	017			8.15
02	01	901127	20.37	56	67	69			3	017	08 44 n	123 42 w	3.06
02	02	901127	20.37	56	67	69	05	01	3	017	08 45 n	123 42 w	10.19
02	03	901127	20.37	67	69	56	05	01	3	017			2.38
02	04	901127	20.37	67	69	56	05	01	2	017	08 52 n	123 39 w	3.40
03	01	901127	20.37	71	77	55	06	01	1	017	08 56 n	123 34 w	2.38
03	02	901127	20.37	71	77	55			1	017			1.36
04	01	901127	20.37	71	77	55			1	017	08 59 n	123 31 w	1.02
05	01	901127	20.37	77	55	71	06	01	4	017	09 05 n	123 32 w	8.83
05	02	901127	20.37	77	71	55			4	017	09 09 n	123 30 w	8.49
05	03	901127	20.37	69	56	67			4	017	09 14 n	123 29 w	13.58
05	04	901127	20.37	56	67	69	07	02	4	017			2.04
05	05	901127	20.37	56	67	69			4	017			3.40
06	01	901127	20.00	56	67	69			4	017	09 25 n	123 25 w	4.33
06	02	901127	20.00	67	69	56			4	017			13.33
06	03	901127	20.00	71	77	55	07	02	4	017	09 34 n	123 22 w	8.33
06	04	901127	20.00	77	55	71			4	017			1.67
06	05	901127	20.00	77	55	71			4	017	09 40 n	123 20 w	6.67
06	06	901127	20.00	55	71	77			4	017			1.67
07	01	901127	20.00	55	71	77			4	017	09 44 n	123 19 w	3.33
07	02	901127	20.00	55	71	77			4	017	09 46 n	123 19 w	0.33
01	01	901128	20.37	55	71	77			3	026	11 14 n	122 48 w	5.09
01	02	901128	20.37	55	71	77			3	026			3.40
01	03	901128	20.37	55	71	77	03	03	4	026			3.40

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
01	04	901128	20.37	71	77	55	03	03	4	026			11.88
01	05	901128	20.37	77	55	71	03	03	4	026			11.88
01	06	901128	20.37	67	69	56	03	02	4	026	11 32 n	122 40 w	3.40
01	07	901128	20.37	67	69	56	03	02	4	026			10.19
01	08	901128	20.37	69	56	67	03	02	4	026			13.58
01	09	901128	20.37	56	67	69	03	02	4	026			6.79
01	10	901128	20.37	56	67	69	03	02	4	024	11 49 n	122 32 w	6.79
01	11	901128	20.37	55	71	77	03	02	4	024	11 52 n	122 31 w	6.79
01	12	901128	20.37	55	71	77			4	024	11 56 n	122 30 w	5.09
02	01	901128	20.37	71	77	55	04	01	4	026	12 00 n	122 30 w	10.19
02	02	901128	20.37	71	77	55	04	01	5	026			2.38
02	03	901128	20.37	77	55	71	04	01	4	026			3.40
02	04	901128	20.37	77	55	71	04	01	5	026			8.49
02	05	901128	20.37	67	69	56	05	01	5	026	12 12 n	122 25 w	13.58
02	06	901128	20.37	69	56	67	05	01	5	026			13.58
02	07	901128	20.37	56	67	69	06	01	4	026			13.58
02	08	901128	20.37	55	71	77	06	01	4	026	12 31 n	122 17 w	8.49
02	09	901128	20.37	55	71	77	07	02	5	026	12 35 n	122 15 w	3.73
02	10	901128	20.37	55	71	77	07	02	5	026			1.36
02	11	901128	20.37	71	77	55	07	02	5	026			6.79
02	12	901128	20.37	71	77	55	07	02	4	026	12 41 n	122 13 w	6.79
02	13	901128	20.37	77	55	71	07	02	4	026			13.58
02	14	901128	20.37	67	69	56	07	02	4	026	12 50 n	122 09 w	8.49
02	15	901128	20.37	69	56	67	07	02	4	026			5.43
02	16	901128	20.37	69	56	67	07	03	4	026			3.06
02	17	901128	20.37	56	67	69	07	03	4	026			1.70
02	18	901128	14.82	56	67	69	07	03	4	026	12 59 n	122 05 w	4.94
02	19	901128	20.00	55	71	77	07	03	4	026	13 02 n	122 04 w	5.67
02	20	901128	20.00	55	71	77	07	03	4	026	13 05 n	122 03 w	0.33
01	01	901129	20.37	56	67	69	02	03	5	055	14 53 n	121 05 w	6.79
01	02	901129	20.37	67	69	56	02	02	5	055			5.77
02	01	901129	20.37	69	56	67	02	02	5	055	14 52 n	120 59 w	2.38
02	02	901129	20.37	69	56	67	02	02	5	055	14 58 n	120 58 w	0.34
01	01	901130	19.45	77	55	71			4	056	17 00 n	118 25 w	11.67
01	02	901130	19.45	55	71	77			4	056			6.48
01	03	901130	19.45	55	71	77	02	03	4	056			2.59
01	04	901130	19.45	55	71	77	02	03	4	056			4.21
01	05	901130	19.45	71	77	55	02	03	5	056			0.65
01	06	901130	19.45	71	77	55	02	03	5	051	17 07 n	118 13 w	9.72
01	07	901130	19.45	56	67	69	02	02	5	051	17 10 n	118 09 w	6.48
01	08	901130	19.45	67	69	56	03	02	5	051			6.48
01	09	901130	19.45	69	56	67	03	02	5	051			6.48
02	01	901130	19.45	77	55	71	03	02	5	054	17 24 n	117 53 w	0.97
03	01	901130	20.00	55	71	77	03	02	5	054	17 26 n	117 50 w	10.00
03	02	901130	20.00	71	77	55	04	01	5	054	17 29 n	117 45 w	10.00
03	03	901130	20.00	56	67	69	05	01	5	054	17 33 n	117 41 w	3.67
04	01	901130	20.37	67	69	56	05	01	5	054	17 35 n	117 38 w	6.79
04	02	901130	20.37	69	56	67	05	01	5	054			4.07
05	01	901130	20.37	69	56	67	06	02	5	054	17 39 n	117 31 w	3.06
05	02	901130	20.37	77	55	71	06	02	4	044	17 40 n	117 30 w	13.58
05	03	901130	20.37	55	71	77	06	02	4	044			9.17
05	04	901130	20.37	55	71	77	06	02	4	044			4.41
05	05	901130	20.37	71	77	55			4	044			11.88
05	06	901130	20.37	71	77	55	06	02	4	044			1.70

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
05	07	901130	20.37	56	67	69	07	03	4	044	17 54 n	117 15 w	6.11
06	01	901130	20.37	67	69	56	07	03	4	044	17 56 n	117 11 w	8.83
06	02	901130	20.37	67	69	56	07	03	4	044	18 00 n	117 07 w	0.34
01	01	901201	21.30	69	56	67			2	058	18 54 n	116 03 w	8.52
01	02	901201	21.30	69	56	67			3	060	18 56 n	115 59 w	4.97
01	03	901201	21.30	56	67	69			3	060			13.13
01	04	901201	21.30	67	69	56			3	060			9.23
01	05	901201	21.30	67	69	56	02	02	3	060			3.55
01	06	901201	21.30	71	77	55	02	02	4	060	19 06 n	115 45 w	14.20
01	07	901201	21.30	77	55	71	02	02	4	060			1.77
01	08	901201	21.30	77	55	71	02	02	4	055	19 10 n	115 38 w	3.55
01	09	901201	21.30	77	55	71			4	055			8.87
01	10	901201	21.30	55	71	77			4	055			3.55
01	11	901201	21.30	55	71	77	03	02	4	055	19 16 n	115 31 w	3.55
01	12	901201	21.30	55	71	77			4	055			7.10
01	13	901201	21.30	69	56	67	03	02	4	055	19 19 n	115 27 w	14.20
01	14	901201	21.30	56	67	69	04	01	4	055			4.26
01	15	901201	21.30	56	67	69			4	055			9.94
01	16	901201	21.30	67	69	56			4	055			14.20
01	17	901201	21.30	71	77	55			4	055	19 33 n	115 08 w	6.74
01	18	901201	21.30	71	77	55	05	02	4	055			2.13
01	19	901201	21.30	71	77	55			3	055			5.32
01	20	901201	21.30	77	55	71			4	055			7.10
01	21	901201	21.30	77	55	71	05	02	4	055	19 39 n	114 58 w	7.10
01	22	901201	21.30	55	71	77			4	055			8.87
01	23	901201	21.30	55	71	77	08	02	4	343	19 44 n	114 51 w	5.32
01	24	901201	21.30	69	56	67	08	02	3	343	19 46 n	114 52 w	14.20
01	25	901201	21.30	56	67	69	08	02	3	343			14.20
01	26	901201	21.30	67	69	56			4	343			14.20
01	27	901201	21.30	71	77	55			4	343	20 07 n	115 00 w	1.77
01	28	901201	21.30	71	77	55			4	343	20 08 n	115 00 w	0.35
01	01	901202	20.00	55	71	77	04	03	4	343	21 30 n	115 25 w	8.67
01	02	901202	20.00	55	71	77	04	03	5	343			3.33
01	03	901202	20.00	71	77	55	04	03	5	343			2.67
02	01	901202	19.45	55	71	77	06	02	5	343	21 58 n	115 34 w	6.48
02	02	901202	19.45	71	77	55	06	02	5	343			6.81
02	03	901202	19.45	77	55	71	06	02	5	343			5.51
02	04	901202	19.45	77	55	71	06	02	5	347	22 07 n	115 38 w	0.65
03	01	901202	19.63	67	69	56	07	02	5	347	22 18 n	115 42 w	6.54
03	02	901202	19.63	69	56	67	07	02	5	347			6.54
03	03	901202	19.63	56	67	69	07	02	5	347			6.54
04	01	901202	19.63	55	71	77	08	02	5	347	22 39 n	115 49 w	11.45
04	02	901202	19.63	71	77	55	08	02	5	347	22 45 n	115 58 w	12.11
04	03	901202	19.63	77	55	71			5	347			11.45
04	04	901202	19.63	67	69	56	08	03	5	347	22 57 n	115 55 w	6.54
04	05	901202	19.63	69	56	67	08	03	5	347			6.87
04	06	901202	19.63	69	56	67	08	03	5	347	23 04 n	115 57 w	0.33
01	01	901203	19.63	56	67	69	04	03	5	346	24 12 n	116 19 w	10.14
01	02	901203	19.63	67	69	56	04	03	5	346			10.80
01	03	901203	19.63	69	56	67	04	03	5	346	24 23 n	116 23 w	4.25
01	04	901203	19.63	69	56	67	04	02	5	346			6.54
01	05	901203	19.63	77	55	71	04	02	5	346	24 28 n	116 24 w	13.09
01	06	901203	19.63	55	71	77	05	02	5	346			13.09
01	07	901203	19.63	71	77	55	05	02	5	346			4.58

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	901203	19.63	71	77	55	05	02	5	344	24 44 n	116 29 w	8.51
01	09	901203	19.63	56	67	69	06	02	5	344	24 49 n	116 31 w	6.54
01	10	901203	19.63	67	69	56	06	02	5	344			2.62
02	01	901203	19.63	69	56	67	06	02	5	344	24 55 n	116 28 w	4.25
02	02	901203	19.63	69	56	67	06	02	5	338	24 57 n	116 28 w	2.29
03	01	901203	19.63	77	55	71	07	02	5	338	25 06 n	116 34 w	0.33
04	01	901203	19.82	55	71	77	07	02	5	338	25 11 n	116 33 w	6.61
04	02	901203	19.82	71	77	55	08	02	5	338	25 14 n	116 34 w	6.61
05	01	901203	19.82	56	67	69	08	02	5	338	25 27 n	116 41 w	6.61
05	02	901203	19.82	67	69	56	08	02	5	338			6.61
05	03	901203	19.82	69	56	67	08	02	5	338	25 33 n	116 44 w	9.91
05	04	901203	19.82	56	67	69	09	03	4	338	25 38 n	116 47 w	9.91
05	05	901203	19.82	77	55	71	09	03	4	338	25 43 n	116 49 w	8.92
05	06	901203	19.82	55	71	77	09	03	4	338	25 47 n	116 52 w	7.27
05	07	901203	19.82	55	71	77	09	03	4	338	25 50 n	116 54 w	0.33
01	01	901204	20.00	71	77	55	04	03	3	341	27 56 n	117 43 w	4.33
02	01	901204	20.00	77	55	71	04	03	4	344	27 57 n	117 46 w	6.00
02	02	901204	20.00	77	55	71	04	03	4	344	28 00 n	117 48 w	3.33
02	03	901204	20.00	55	71	77	05	03	4	344	28 02 n	117 48 w	9.33
02	04	901204	20.00	55	71	77	05	03	4	344	28 07 n	117 50 w	0.33
01	01	901205	12.96	56			06	02	3	005			4.32
01	02	901205	12.96	67			06	02	3	005	30 32 n	117 24 w	11.88
01	03	901205	12.96	55			07	02	3	005	30 38 n	117 24 w	12.96
01	04	901205	12.96	71			07	02	4	005	30 45 n	117 23 w	11.88
02	01	901205	13.15	77	99		07	02	4	005	30 52 n	117 22 w	13.15
02	02	901205	13.15	77	99		07	02	4	005	30 59 n	117 21 w	0.22

Table 3. Marine mammal sightings, classified by species code, encountered in the eastern tropical Pacific during July 28 through December 6, 1990.

Sightings by Species

species: UNID. SMALL 7-9FT BLACK WHALE (FERESA/PEPONOCEPHALA) species code: 1

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900914	01	06	01			5	22	2.2	02 22 n	113 12 w	7.0	32.0	20.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900731	04	04	03			1	22	1.9	21 17 n	119 04 w	100.0	41.0	36.0
900731	07	01	05	12	12	1	75	1.9	21 08 n	119 01 w	100.0	78.0	66.0
900731	11	01	09	03	01	2	07	3.2	20 40 n	118 47 w	100.0	42.0	37.0
900731	14	01	14	04	02	2	01	2.7	20 20 n	118 41 w	100.0	19.0	15.0
900731	16	01	16	04	02	2	07	1.7	20 09 n	118 39 w	100.0	78.0	69.0
900804	03	01	01			5	01	0.7	12 01 n	116 13 w	100.0	33.0	25.0
900804	07	03	03			3	07	0.3	11 18 n	114 50 w	100.0	40.0	20.0
900805	06	01	04	12	12	3	07	0.7	10 16 n	112 44 w	100.0	65.0	27.0
900805	08	01	06	05	01	3	76	5.6	09 58 n	112 18 w	4.5	178.0	135.0
900809	02	09	02			5	76	3.4	05 45 n	112 36 w	15.7	158.0	80.0
900810	06	06	03			5	01	0.7	07 07 n	116 46 w	76.7	400.0	265.0
900813	03	13	03	11	01	3	01	0.5	12 36 n	126 40 w	40.0	78.0	63.0
900813	05	04	05	11	03	3	74	1.6	12 48 n	127 10 w	100.0	62.0	51.0
900814	01	08	01	05	02	2	74	2.5	13 56 n	129 01 w	51.2	261.0	221.0
900815	01	06	01	08	02	4	22	0.7	14 55 n	131 58 w	7.7	165.0	123.0
900815	02	06	02	12	12	4	75	0.3	14 13 n	132 14 w	15.0	168.0	115.0
900904			03			3	76	1.1	09 07 n	143 57 w	81.6	130.0	87.0
900905	01	03	01	10	03	4	74	4.1	06 27 n	141 22 w	100.0	45.0	36.0
900915	03	01	02	11	02	5	74	5.9	02 01 n	110 29 w	19.8	362.0	278.0
900918	03	09	04	04	01	4	75	4.7	00 24 n	102 06 w	100.0	430.0	321.0
900919	02	01	03	12	03	4	76	5.0	00 30 n	100 05 w	100.0	583.0	462.0
900919	05	01	10	12	01	3	01	5.9	00 39 n	099 33 w	100.0	215.0	186.0
900919	10	01	17	06	01	3	01	4.3	00 45 n	099 03 w	100.0	572.0	486.0
900920	03	01	03	12	01	4	01	3.1	01 08 n	096 36 w	100.0	68.0	52.0
900921	06	02	04			4	74	2.9	00 41 n	093 25 w	76.7	207.0	175.0
900923	02	02	05			4	01	2.8	01 50 s	089 18 w	100.0	280.0	225.0
901008	03	04	04	03	01	5	67	0.0	04 15 n	089 39 w	100.0	34.0	28.0
901013	03	02	04	09	02	4	71	5.4	03 12 n	095 59 w	23.3	235.0	217.0
901014	01	01	01			4	56	4.8	00 52 n	098 50 w	100.0	95.0	77.0
901014	05	01	05	01	01	4	71	2.7	00 08 n	099 49 w	100.0	382.0	347.0
901014	07	01	06	12	01	4	56	1.4	00 01 n	099 56 w	100.0	203.0	183.0
901020	02	08	06	05	01	4	55	1.7	02 39 s	096 51 w	100.0	98.0	83.0
901029	04	05	03	02	01	3	55	1.7	10 09 s	084 19 w	100.0	464.0	411.0
901110	01	12	03			4	67	0.5	09 16 s	087 40 w	100.0	343.0	267.0
901112	02	13	02	12	12	4	56	0.0	06 50 s	091 26 w	81.7	7.0	5.0
901114	02	02	02	09	01	4	55	0.3	06 09 s	096 44 w	30.0	92.0	67.0
901117	01	04	02			4	55	1.2	02 49 s	104 42 w	94.0	235.0	188.0
901122	01	01	01			4	71	1.9	02 54 s	121 06 w	100.0	105.0	83.0
901127	02	04	04	05	01	2	69	4.1	08 54 n	123 39 w	96.0	427.0	348.0
901203	03	01	02	07	02	5	55	4.9	25 06 n	116 34 w	100.0	108.0	98.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900819	04	02	05	03	01	4	74	7.5	11 45 n	136 14 w	46.7	37.0	16.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900805	08	01	06	05	01	3	76	5.6	09 58 n	112 18 w	70.5	178.0	135.0
900808	02	05	02			5	74	0.4	04 59 n	109 52 w	100.0	35.0	20.0
900809	02	09	02			5	76	3.4	05 45 n	112 36 w	11.0	158.0	80.0
900810	06	06	03			5	01	0.7	07 07 n	116 46 w	23.3	400.0	265.0
900813	03	13	03	11	01	3	01	0.5	12 36 n	126 40 w	26.7	78.0	63.0
900915	03	01	02	11	02	5	74	5.9	02 01 n	110 29 w	0.2	362.0	278.0
900928	01	04	01			4	07	0.3	06 36 n	086 29 w	100.0	162.0	125.0
901005	03	03	03			4	67	0.6	07 04 n	085 07 w	100.0	95.0	82.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900814	01	08	01	05	02	2	74	2.5	13 56 n	129 01 w	23.7	261.0	221.0
900815	01	06	01	08	02	4	22	0.7	14 55 n	131 58 w	75.7	165.0	123.0
900815	02	06	02	12	12	4	75	0.3	14 13 n	132 14 w	51.7	168.0	115.0
900815	04	02	04	03	01	4	76	0.4	14 02 n	132 20 w	67.0	3.0	3.0
900815	07	02	06	03	02	4	74	6.8	13 36 n	132 27 w	100.0	112.0	95.0
900903	01	03	01	10	03	5	76	0.5	11 57 n	146 52 w	100.0	37.0	31.0
900904			03			3	76	1.1	09 07 n	143 57 w	18.4	130.0	87.0
900904	01	03	01	10	03	4	74	1.5	09 15 n	144 10 w	100.0	103.0	55.0
900921	06	02	04			4	74	2.9	00 41 n	093 25 w	23.2	207.0	175.0
901013	01	01	01			3	55	0.0	03 43 n	095 46 w	100.0	16.0	12.0
901013	03	02	04	09	02	4	71	5.4	03 12 n	095 59 w	76.7	235.0	217.0
901023	02	01	02			4	67	0.5	09 33 s	094 09 w	50.0	370.0	337.0
901023	03	01	03			4	56	1.7	09 28 s	094 01 w	100.0	1708.0	1533.0
901117	01	04	02			4	55	1.2	02 49 s	104 42 w	6.0	235.0	188.0
901122	02	01	02			4	67	1.3	02 46 s	121 14 w	100.0	230.0	187.0
901127	02	04	04	05	01	2	69	4.1	08 54 n	123 39 w	4.0	427.0	348.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900730	03	38	01	04	02	1	01	0.3	23 47 n	120 04 w	100.0	12.0	10.0
900731	01	07	01			3	22	3.2	21 47 n	119 15 w	100.0	117.0	99.0
900731	08	01	06	12	12	1	76	2.5	21 01 n	118 58 w	100.0	121.0	109.0
900731	12	03	10	04	01	2	07	1.8	20 30 n	118 41 w	100.0	15.0	11.0
900731	15	01	15	04	02	2	76	3.9	20 18 n	118 40 w	100.0	52.0	43.0
900801	01	02	01	08	03	2	74	2.9	18 30 n	118 45 w	100.0	18.0	15.0
900805	05	01	03			4	01	5.4	10 09 n	112 52 w	100.0	22.0	16.0
900809	01	01	01			5	74	0.3	05 31 n	111 54 w	100.0	37.0	11.0
900809	02	09	02			5	76	3.4	05 45 n	112 36 w	73.3	158.0	80.0
900809	04	03	04			5	07	3.3	05 52 n	112 56 w	100.0	30.0	7.0
900810	01	08	01			5	74	5.0	06 44 n	115 32 w	100.0	70.0	43.0
900812	03	15	01			5	74	5.2	10 25 n	123 01 w	100.0	5.0	5.0
900813	06	01	06	11	03	3	74	1.1	12 47 n	127 14 w	100.0	122.0	99.0
900814	06	03	05	11	02	1	22	5.8	14 40 n	130 07 w	100.0	60.0	39.0
900816	04	01	04			2	01	7.0	11 18 n	133 16 w	67.7	125.0	95.0
900816	08	01	12			2	75	0.0	09 39 n	133 49 w	100.0	102.0	80.0
900817	01	09	01			5	74	0.6	07 01 n	134 34 w	100.0	111.0	89.0
900818	01	15	01	10	12	5	76	0.4	08 19 n	135 32 w	100.0	35.0	14.0
900818	02	04	02	10	01	5	07	0.8	08 42 n	135 36 w	100.0	40.0	27.0
900821	01	01	01	04	03	5	01	1.6	07 55 n	139 23 w	100.0	25.0	18.0
900823	05	01	04	11	02	2	76	0.0	13 30 n	144 58 w	62.0	5.0	4.0
900908	01	04	01			5	07	6.4	05 24 n	131 30 w	100.0	37.0	28.0
900908	04	02	02	08	02	5	74	2.2	06 18 n	130 37 w	100.0	37.0	19.0
900912	01	02	01	12	03	3	07	0.1	03 13 n	120 48 w	100.0	15.0	7.0
900912	03	14	04	06	01	4	75	0.1	03 32 n	119 42 w	100.0	13.0	10.0
900918			14			3	22	0.0	00 14 n	101 56 w	100.0	43.0	35.0
900918	05	01	06	04	02	4	74	6.8	00 15 n	102 02 w	100.0	48.0	40.0
900918	07	01	08			4	76	1.6	00 17 n	101 59 w	100.0	44.0	34.0
900918	08	01	10			3	07	5.5	00 10 n	101 59 w	100.0	44.0	30.0
900919	01	03	02	12	03	3	07	2.6	00 32 n	100 08 w	100.0	43.0	36.0
900919	03	01	05	12	02	3	75	0.1	00 27 n	099 58 w	68.7	102.0	87.0
900919	09	03	15	06	01	3	74	1.8	00 43 n	099 08 w	100.0	16.0	13.0
900919	11	04	18			3	22	1.4	00 46 n	098 49 w	100.0	48.0	35.0
900920	02	07	02	12	02	4	76	1.6	01 08 n	096 41 w	100.0	298.0	250.0
900920	06	02	06			4	76	1.8	01 10 n	096 15 w	100.0	35.0	26.0
900920	09	03	07			4	75	1.3	01 19 n	095 43 w	100.0	88.0	51.0
900921	08	06	06			5	07	2.2	00 15 n	093 07 w	100.0	72.0	53.0
900921	11	04	07			4	22	0.3	00 07 s	092 56 w	100.0	85.0	67.0
900922			17			2	76	1.1	01 54 s	091 11 w	100.0	63.0	48.0
900922	07	01	13	06	01	4	75	0.6	01 51 s	091 29 w	62.3	412.0	303.0
900922	08	01	15	06	01	4	22	5.6	01 52 s	091 22 w	100.0	69.0	53.0
900925	01	07	02			5	74	1.3	01 12 n	086 41 w	100.0	47.0	37.0
900926			04			6	99	0.0	03 32 n	087 56 w	100.0	3.0	3.0
900927	01	02	01			5	01	1.3	04 41 n	087 22 w	100.0	36.0	27.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900928			09			5	99	0.0	08 12 n	085 35 w	100.0	10.0	8.0
900928	04	01	03			4	07	0.9	06 48 n	086 23 w	100.0	31.0	23.0
900928	08	04	06	12	12	4	76	1.0	07 27 n	086 01 w	100.0	30.0	25.0
901007	04	08	02	11	01	5	55	2.1	03 11 n	088 05 w	100.0	48.0	42.0
901008	04	01	06	02	01	5	56	1.2	04 24 n	089 36 w	100.0	35.0	28.0
901008	07	03	08			5	67	4.0	05 22 n	088 58 w	100.0	33.0	23.0
901010	04	02	05	11	03	4	56	1.0	09 36 n	089 40 w	100.0	43.0	35.0
901012	01	08	01	07	02	5	77	0.5	06 29 n	094 03 w	100.0	43.0	33.0
901013	02	05	03			4	56	2.4	03 21 n	095 54 w	100.0	12.0	9.0
901014	02	01	02			4	69	1.2	00 49 n	098 58 w	100.0	25.0	19.0
901014	04	06	04	11	12	4	55	0.2	00 16 n	099 42 w	100.0	193.0	177.0
901014	11	03	09	01	03	3	67	2.2	00 21 s	100 23 w	100.0	34.0	28.0
901015	01	02	01			2	71	1.6	01 28 s	102 01 w	100.0	15.0	13.0
901015	02	13	02			4	67	2.5	02 01 s	102 50 w	100.0	38.0	32.0
901016	02	02	02	06	01	5	71	0.7	03 59 s	105 42 w	100.0	12.0	8.0
901017	02	03	01			5	71	0.8	05 44 s	107 09 w	100.0	10.0	8.0
901020	01	19	02			4	56	4.3	02 47 s	097 19 w	100.0	128.0	113.0
901021	07	04	06	03	02	4	56	0.8	04 53 s	095 26 w	100.0	27.0	21.0
901023	01	03	01			4	77	1.5	09 37 s	094 13 w	100.0	208.0	178.0
901023	02	01	02			4	67	0.5	09 33 s	094 09 w	50.0	370.0	337.0
901025	01	02	01			4	71	0.0	04 40 s	088 43 w	100.0	0.0*	4.0
901025	02	06	02			4	71	0.2	04 18 s	088 19 w	100.0	8.0	7.0
901026	04	01	03			4	67	4.1	01 46 s	085 26 w	100.0	33.0	22.0
901109	04	02	03	09	01	4	69	5.5	06 04 s	085 08 w	100.0	162.0	147.0
901112	03	02	03	08	12	4	69	1.9	06 43 s	091 29 w	100.0	30.0	22.0
901113	01	04	01			4	56	3.5	04 49 s	092 58 w	100.0	101.0	85.0
901113	04	03	05	10	03	4	71	0.9	05 15 s	094 25 w	100.0	57.0	40.0
901114	01	09	01	05	02	5	69	0.3	06 02 s	096 36 w	100.0	63.0	50.0
901114	04	04	04	01	01	5	56	2.3	06 14 s	096 58 w	100.0	133.0	93.0
901116	01	01	01			4	71	0.5	06 26 s	102 52 w	100.0	18.0	16.0
901120	01	22	01	11	02	4	77	0.3	04 07 s	114 35 w	100.0	73.0	57.0
901126	01	02	01			3	77	2.5	05 10 n	124 11 w	100.0	138.0	103.0
901126	02	04	03			3	69	0.3	05 30 n	124 14 w	100.0	61.0	48.0
901126	03	10	04	06	01	3	67	1.7	06 07 n	124 06 w	100.0	100.0	77.0
901127	04	01	05			1	71	1.0	08 59 n	123 31 w	100.0	73.0	67.0
901130	05	07	04	07	03	4	67	1.7	17 56 n	117 12 w	100.0	0.0*	2.0
901203	01	10	01	06	02	5	69	4.1	24 53 n	116 32 w	100.0	302.0	257.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900805	07	05	05	05	01	3	01	0.7	10 02 n	112 23 w	100.0	6.0	6.0
900812	04	01	02			5	76	1.4	10 33 n	123 01 w	100.0	2.0	2.0
900910	05	05	05	05	02	5	01	0.0	04 36 n	124 54 w	35.7	12.0	9.0
900927	04	02	03			5	22	0.7	05 02 n	087 09 w	100.0	16.0	15.0
901011	06	05	05			4	55	0.0	07 43 n	092 37 w	100.0	16.0	11.0
901012	03	03	03	12	01	5	77	0.4	06 04 n	094 34 w	100.0	17.0	16.0
901112	04	02	04	09	01	4	55	1.8	06 34 s	091 31 w	100.0	10.0	9.0
901118	03	01	05	01	01	4	77	1.0	02 13 s	108 38 w	100.0	127.0	98.0

Table 3. (continued)

Sightings by Species

species: "SHORT-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS OFFSHORE)

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
900803	02	11	01	05	01	5	76	0.2	12 57 n	117 47 w	100.0	165.0	136.0
900921	05	02	03	01	01	5	07	0.2	00 45 n	093 27 w	100.0	113.0	77.0
900921	12	01	08			4	22	4.7	00 10 s	092 54 w	100.0	517.0	442.0
900922			08	12	12	2	83	0.4	01 48 s	091 53 w	100.0	407.0	320.0
900922			12			4	01	0.0	01 52 s	091 31 w	100.0	87.0	57.0
900922	01	01	03			2	01	0.0	01 31 s	092 08 w	100.0	205.0	145.0
900922	07	01	13	06	01	4	75	0.6	01 51 s	091 29 w	4.3	412.0	303.0
900922	10	01	16			4	76	3.1	01 54 s	091 11 w	100.0	277.0	218.0
900922	11	01	18	07	02	3	74	5.5	01 52 s	091 06 w	100.0	737.0	600.0
900922	12	02	19			3	07	1.5	01 47 s	091 01 w	100.0	177.0	83.0
900923	01	01	01			4	74	5.1	01 55 s	089 21 w	100.0	1367.0	1033.0
900928			08			3	76	3.0	08 04 n	085 41 w	100.0	673.0	583.0
901009	05	05	03	03	01	4	55	2.6	07 45 n	088 03 w	100.0	313.0	303.0
901009	06	02	04	03	01	4	71	3.0	07 54 n	088 00 w	100.0	90.0	80.0
901009	07	04	06	07	01	4	55	0.1	08 20 n	087 50 w	100.0	120.0	108.0
901011	02	06	02	08	01	4	71	0.4	08 18 n	091 53 w	100.0	83.0	68.0
901026	08	08	07	02	03	5	56	0.1	02 29 s	084 59 w	100.0	1050.0	867.0
901029	02	03	02			3	71	1.5	10 55 s	084 33 w	100.0	940.0	843.0
901101	02	01	02			4	56	6.3	02 47 s	081 25 w	100.0	500.0	448.0
901109	06	06	05			4	69	4.5	06 40 s	085 34 w	100.0	553.0	500.0
901109	07	10	07			4	67	0.4	07 02 s	085 53 w	100.0	243.0	203.0
901204			02	07	02	4	55	1.1	28 41 n	118 09 w	100.0	275.0	240.0
901204	01	01	01	04	03	3	71	2.2	27 58 n	117 44 w	100.0	203.0	190.0
901205			01	06	02	3	56	0.2	30 30 n	117 25 w	100.0	250.0	200.0
901205			02	07	02	4	99	1.9	30 59 n	117 21 w	100.0	675.0	600.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900731	10	02	08	03	01	2	75	0.4	20 44 n	118 48 w	100.0	19.0	15.0
900731	13	01	12	03	02	2	01	3.9	20 24 n	118 41 w	100.0	21.0	16.0
900816	02	01	02			3	76	3.3	11 28 n	133 11 w	95.0	35.0	28.0
900816	04	01	04			2	01	7.0	11 18 n	133 16 w	32.3	125.0	95.0
900816	05	08	08	12	12	2	76	1.4	10 49 n	133 26 w	100.0	2.0	2.0
900819	01	02	01			4	01	0.6	11 08 n	136 07 w	12.5	15.0	10.0
900822	05	05	03			3	74	8.5	11 11 n	142 05 w	25.0	37.0	31.0
900822	06	08	04	11	02	3	22	3.6	11 32 n	142 16 w	20.4	13.0	10.0
900823	05	01	04	11	02	2	76	0.0	13 30 n	144 58 w	13.0	5.0	4.0
900914	01	06	01			5	22	2.2	02 22 n	113 12 w	24.3	32.0	20.0
900919	06	02	11	12	12	4	07	2.2	00 37 n	099 25 w	38.3	147.0	123.0
900922	04	02	09			2	01	0.3	01 50 s	091 41 w	23.7	45.0	35.0
901015	05	04	04			4	67	2.1	02 25 s	103 26 w	25.0	42.0	33.0
901019	05	01	03	01	01	3	71	5.1	03 46 s	100 35 w	28.3	40.0	29.0
901027	05	02	05			4	55	1.0	05 31 s	084 56 w	100.0	13.0	11.0
901028	02	06	02			4	69	2.6	08 46 s	084 49 w	58.3	205.0	167.0
901029	01	01	01			3	55	0.4	11 05 s	084 40 w	33.3	63.0	55.0
901030	04	04	05	03	01	4	67	1.7	07 12 s	083 22 w	100.0	26.0	21.0
901030	06	01	08	03	12	3	55	5.6	06 57 s	083 14 w	100.0	38.0	30.0
901031			06			4	77	1.5	04 46 s	082 37 w	23.3	28.0	25.0
901031	07	02	08			4	69	2.5	04 40 s	082 32 w	85.0	117.0	95.0
901031	08	01	09			4	71	0.0	04 35 s	082 31 w	56.7	24.0	20.0
901031	10	03	12			4	71	2.6	04 06 s	082 23 w	100.0	15.0	12.0
901031	10	04	13			4	77	3.7	04 03 s	082 22 w	100.0	53.0	51.0
901101	04	07	03			4	55	1.1	02 09 s	081 11 w	100.0	75.0	53.0
901101	05	05	04			4	69	0.2	02 30 s	081 02 w	100.0	3.0	3.0
901108	05	02	03	12	02	4	67	6.7	04 12 s	083 13 w	19.8	190.0	169.0
901109	03	01	02	09	01	4	69	3.4	05 51 s	085 01 w	50.0	25.0	20.0
901116	02	06	02	04	02	4	56	5.0	06 01 s	103 02 w	9.3	390.0	352.0
901117	06	10	07			4	69	4.7	02 03 s	106 00 w	60.0	35.0	25.0

Table 3. (continued)

Sightings by Species

species: RISSO'S DOLPHIN (GRAMPUS GRISEUS)

species code: 21

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900910	05	05	05	05	02	5	01	0.0	04 36 n	124 54 w	31.0	12.0	9.0
900911	05	06	07	06	02	4	76	2.2	02 51 n	122 33 w	100.0	5.0	4.0
900919	07	02	12	12	12	4	22	0.1	00 39 n	099 20 w	100.0	14.0	11.0
901015	03	02	03	12	01	4	56	0.2	02 10 s	103 07 w	100.0	9.0	6.0
901018	03	06	02	06	02	5	71	2.3	04 27 s	102 52 w	100.0	12.0	5.0
901025	03	02	03			4	55	0.7	04 12 s	088 12 w	100.0	12.0	10.0
901028	02	06	02			4	69	2.6	08 46 s	084 49 w	41.7	205.0	167.0
901028	03	01	03			4	69	1.1	08 53 s	084 50 w	100.0	16.0	10.0
901030	01	01	01			3	67	1.3	07 54 s	083 33 w	100.0	7.0	7.0
901030	05	02	06	03	01	4	69	0.3	07 00 s	083 16 w	100.0	19.0	16.0
901030	08	04	12	08	01	3	71	4.4	06 40 s	083 09 w	100.0	12.0	10.0
901030	10	01	13			3	67	2.0	06 35 s	083 09 w	100.0	13.0	10.0
901030	11	02	15			3	56	1.1	06 25 s	083 05 w	100.0	12.0	8.0
901030	12	02	18			4	71	0.0	06 11 s	083 02 w	82.5	28.0	17.0
901031	01	01	01			4	71	0.1	05 32 s	082 53 w	100.0	7.0	4.0
901031	01	05	02			4	55	0.9	05 16 s	082 48 w	100.0	12.0	10.0
901031	01	05	03			4	71	2.4	05 15 s	082 48 w	100.0	0.0*	153.0
901109	01	01	01	08	03	4	69	0.3	05 33 s	084 44 w	100.0	12.0	12.0
901110	01	07	01	08	02	4	56	0.9	08 54 s	087 21 w	100.0	6.0	5.0
901110	02	08	05			4	55	1.2	09 44 s	088 01 w	100.0	10.0	8.0
901118	01	05	02			4	67	1.8	01 36 s	108 16 w	100.0	10.0	8.0
901127	02	01	03			3	56	1.3	08 45 n	123 42 w	100.0	8.0	6.0
901203			03	08	02	5	56	0.1	25 24 n	116 40 w	100.0	11.0	10.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900907	01	01	01			2	76	1.4	05 12 n	134 47 w	80.8	1017.0	847.0
900912	02	04	03	11	02	3	75	3.0	03 17 n	120 38 w	33.0	1175.0	903.0
901116	02	06	02	04	02	4	56	5.0	06 01 s	103 02 w	85.3	390.0	352.0

Table 3. (continued)

Sightings by Species

species: MELON-HEADED WHALE (PEPONOCEPHALA ELECTRA)

species code: 31

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900907	01	01	01			2	76	1.4	05 12 n	134 47 w	19.2	1017.0	847.0
900912	02	04	03	11	02	3	75	3.0	03 17 n	120 38 w	0.3	1175.0	903.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900823			01	04	02	2	99	0.0	12 03 n	144 13 w	100.0	8.0	7.0
900906	01	01	01			3	22	0.5	05 03 n	138 20 w	100.0	24.0	21.0
900924			04			5	01	0.0	00 00 s	084 43 w	100.0	5.0	3.0
901124	02	01	03			4	55	0.9	00 33 s	124 57 w	100.0	53.0	50.0

Table 3. (continued)

Sightings by Species

species: FALSE KILLER WHALE (PSEUDORCA CRASSIDENS) species code: 33

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900822	06	08	04	11	02	3	22	3.6	11 32 n	142 16 w	79.6	13.0	10.0
900909	01	11	01	11	01	5	76	0.0	07 45 n	128 20 w	100.0	8.0	6.0
901016	06	02	04	10	02	5	56	2.5	04 46 s	106 39 w	100.0	19.0	14.0
901118	01	08	03	09	02	4	77	0.1	01 45 s	108 26 w	100.0	5.0	4.0
901126	05	01	05	08	02	3	55	1.4	06 27 n	124 05 w	100.0	33.0	26.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900918			05	04	01	4	22	5.7	00 24 n	102 06 w	100.0	5.0	5.0
900918	09	01	12			3	22	2.9	00 13 n	101 58 w	100.0	15.0	9.0
900919	06	02	11	12	12	4	07	2.2	00 37 n	099 25 w	61.7	147.0	123.0
900922			01			3	76	0.2	01 23 s	092 11 w	100.0	9.0	7.0
900922	04	02	09			2	01	0.3	01 50 s	091 41 w	76.3	45.0	35.0
901014	08	02	07	01	02	4	67	1.6	00 05 s	100 09 w	100.0	17.0	14.0
901015	05	04	04			4	67	2.1	02 25 s	103 26 w	75.0	42.0	33.0
901018	03	04	01	06	02	5	71	1.6	04 30 s	102 59 w	100.0	0.0*	4.0
901019	05	01	03	01	01	3	71	5.1	03 46 s	100 35 w	71.7	40.0	29.0
901020			01	01	02	4	99	0.6	02 51 s	097 32 w	100.0	0.0*	4.0
901021	05	12	05	03	01	4	55	0.9	04 37 s	095 29 w	100.0	0.0*	16.0
901026	06	02	05			5	67	1.2	01 40 s	085 18 w	100.0	11.0	9.0
901027	01	01	01	10	02	5	69	0.1	04 33 s	084 58 w	100.0	14.0	11.0
901029	01	01	01			3	55	0.4	11 05 s	084 40 w	33.3	63.0	55.0
901031			06			4	77	1.5	04 46 s	082 37 w	43.3	28.0	25.0
901031	07	02	08			4	69	2.5	04 40 s	082 32 w	15.0	117.0	95.0
901031	08	01	09			4	71	0.0	04 35 s	082 31 w	43.3	24.0	20.0
901031	09	01	10			4	77	1.6	04 24 s	082 28 w	100.0	9.0	8.0
901108	05	02	03	12	02	4	67	6.7	04 12 s	083 13 w	13.0	190.0	169.0
901109	03	01	02	09	01	4	69	3.4	05 51 s	085 01 w	50.0	25.0	20.0
901114	03	02	03			4	67	1.8	06 04 s	096 54 w	100.0	11.0	10.0
901116	02	06	02	04	02	4	56	5.0	06 01 s	103 02 w	5.3	390.0	352.0
901117	06	10	07			4	69	4.7	02 03 s	106 00 w	40.0	35.0	25.0
901118	01	03	01			4	71	1.0	01 38 s	108 04 w	100.0	6.0	5.0
901123	01	13	01	10	01	4	71	0.4	02 03 s	126 37 w	80.0	40.0	32.0
901124	01	01	01			5	77	0.1	00 36 s	125 03 w	100.0	11.0	10.0
901124	01	01	02			5	77	0.4	00 35 s	125 01 w	100.0	7.0	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
900803	03	05	02	05	02	5	07	2.2	12 48 n	117 31 w	100.0	8.0	6.0
900808	03	12	03			3	74	0.1	05 03 n	110 37 w	100.0	33.0	26.0
900813	02	07	02	04	02	4	76	0.2	12 03 n	125 48 w	100.0	10.0	9.0
900816	07	10	11	03	02	3	22	5.0	09 51 n	133 45 w	100.0	7.0	5.0
900819	01	02	01			4	01	0.6	11 08 n	136 07 w	62.5	15.0	10.0
900822	05	05	03			3	74	8.5	11 11 n	142 05 w	50.0	37.0	31.0
900823	06	07	05	11	03	2	76	7.8	13 45 n	145 21 w	100.0	10.0	5.0
900914	01	06	01			5	22	2.2	02 22 n	113 12 w	35.3	32.0	20.0
900928	02	01	02			4	07	2.1	06 40 n	086 28 w	100.0	23.0	15.0
901009	03	01	02			4	56	0.1	07 28 n	088 13 w	100.0	25.0	21.0
901010	01	11	02	07	01	4	67	0.6	09 38 n	088 41 w	100.0	27.0	24.0
901031	04	02	04			4	71	0.7	04 50 s	082 38 w	100.0	23.0	20.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900815	06	03	05	03	02	4	07	3.7	13 44 n	132 24 w	100.0	8.0	6.0
900816			05			3	99	2.2	11 16 n	133 20 w	100.0	2.0	2.0
900924	03	04	03			4	01	1.5	00 15 s	085 10 w	100.0	5.0	4.0
901008	01	01	01			4	56	0.6	03 48 n	089 51 w	100.0	3.0	3.0
901113	03	14	04			4	56	1.1	05 15 s	094 16 w	100.0	14.0	12.0
901115	05	01	01			5	71	3.7	07 37 s	101 01 w	30.0	4.0	3.0
901118	02	05	04	12	01	4	69	0.4	02 07 s	108 36 w	100.0	7.0	6.0
901130	02	01	01	03	02	5	55	1.0	17 25 n	117 52 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900804			02	10	01	5	99	6.4	11 46 n	115 52 w	100.0	3.0	2.0
900922			04			3	22	3.1	01 35 s	092 05 w	100.0	1.0	1.0
900922			05			3	99	1.8	01 45 s	092 59 w	100.0	1.0	1.0
900922	01	01	02			2	01	1.8	01 30 s	092 08 w	100.0	2.0	2.0
900922	02	01	06			2	07	3.5	01 46 s	091 58 w	100.0	5.0	5.0
900923	03	01	07	11	02	4	74	0.9	01 49 s	089 15 w	100.0	1.0	1.0
900927	02	02	02			5	74	2.9	04 39 n	087 23 w	100.0	4.0	4.0
901010	01	09	01	07	02	4	71	5.7	09 40 n	088 26 w	100.0	4.0	4.0
901013	02	01	02			3	77	5.6	03 41 n	095 47 w	100.0	6.0	6.0
901014	03	07	03	08	01	4	56	0.8	00 29 n	099 28 w	100.0	1.0	1.0
901023	05	03	05			4	67	4.1	09 09 s	093 41 w	100.0	3.0	3.0
901027	06	01	06			4	77	3.6	05 34 s	084 56 w	100.0	7.0	6.0
901027	08	02	07			4	55	2.9	06 04 s	084 56 w	100.0	12.0	11.0
901029	05	09	06	08	02	3	56	4.0	09 18 s	084 01 w	100.0	15.0	12.0
901029	06	01	07	08	03	3	71	3.7	09 05 s	083 59 w	100.0	2.0	2.0
901030	03	01	04			3	71	1.7	07 31 s	083 26 w	100.0	26.0	23.0
901108	05	02	03	12	02	4	67	6.7	04 12 s	083 13 w	0.5	190.0	169.0
901201	01	26	01			4	67	4.3	20 06 n	114 59 w	18.3	9.0	7.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
901126	06	02	07	08	03	1	77	0.6	06 45 n	124 15 w	100.0	3.0	3.0

Table 3. (continued)

Sightings by Species

species: BEAKED WHALE (ZIPHIID) species code: 49

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900731	02	02	02	09	02	2	76	6.8	21 31 n	119 10 w	100.0	2.0	2.0
900918	03	06	03			4	22	2.2	00 28 n	102 09 w	100.0	3.0	3.0
901023	06	01	07			4	69	1.4	09 05 s	093 36 w	100.0	1.0	1.0
901027	04	03	03	12	12	4	56	2.3	05 20 s	084 56 w	100.0	2.0	2.0
901028	01	04	01			4	56	0.1	08 20 s	084 50 w	100.0	2.0	2.0
901031	06	01	07			4	67	0.2	04 42 s	082 34 w	100.0	1.0	1.0
901114	05	16	06	11	03	5	71	0.9	06 29 s	097 42 w	100.0	2.0	2.0
901125	01	01	01			4	69	0.7	01 49 n	124 21 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900809	03	01	03	12	12	5	74	0.7	05 47 n	112 42 w	100.0	2.0	2.0
900907	03	04	03	12	12	4	74	1.0	05 15 n	134 26 w	100.0	1.0	1.0
900907	03	04	04	12	12	4	76	0.0	05 15 n	134 23 w	100.0	3.0	3.0
900923	05	21	09			4	01	2.2	01 57 s	087 56 w	100.0	2.0	2.0
900924	01	11	01			3	01	0.6	00 38 s	085 38 w	100.0	2.0	2.0
900925	01	01	01			5	01	1.0	00 48 n	086 05 w	100.0	2.0	2.0
900928	06	04	05			4	07	0.0	07 08 n	086 10 w	100.0	1.0	1.0
901019	07	02	04	01	01	4	69	0.1	03 42 s	100 23 w	100.0	2.0	2.0
901020	02	01	03			4	69	0.2	02 43 s	097 07 w	100.0	1.0	1.0
901021	05	09	03	12	12	4	67	0.1	04 25 s	095 32 w	100.0	1.0	1.0
901108	03	01	01	11	01	5	56	0.5	03 57 s	082 34 w	100.0	3.0	3.0
901113	02	05	03	07	01	4	55	0.7	04 58 s	093 15 w	100.0	1.0	1.0
901121	01	13	01	06	01	4	67	0.8	03 26 s	117 48 w	100.0	4.0	3.0

Table 3. (continued)

Sightings by Species

species: BLAINVILLE'S BEAKED WHALE (MESOPLODON DENSIROSTRIS) species code: 59

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
900921	07	01	05			4	01	5.0	00 37 n	093 18 w	100.0	4.0	4.0
901121	02	01	02	07	01	4	69	0.4	03 25 s	117 54 w	100.0	4.0	4.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900808			04			3	01	0.2	05 02 n	110 36 w	100.0	3.0	3.0
900808	01	03	01			5	22	0.2	04 56 n	109 28 w	100.0	1.0	1.0
900816	06	02	09	12	12	3	74	0.1	10 39 n	133 29 w	100.0	1.0	1.0
900823	03	02	03	12	12	1	75	0.2	13 20 n	144 42 w	100.0	3.0	2.0
900904	03	01	04			2	07	0.0	08 58 n	143 51 w	100.0	1.0	1.0
900904	04	01	07	12	12	2	01	0.7	08 42 n	143 36 w	100.0	1.0	1.0
900906	03	07	03	06	01	4	75	0.5	05 06 n	137 05 w	100.0	2.0	1.0
900910	03	04	03	11	01	5	22	0.9	05 07 n	125 30 w	100.0	3.0	3.0
900919	08	02	14	06	01	4	22	0.9	00 41 n	099 15 w	100.0	2.0	2.0
900920	01	03	01			4	07	0.1	01 06 n	096 58 w	100.0	2.0	2.0
900926			03	12	12	5	99	0.0	03 07 n	088 08 w	100.0	2.0	2.0
901009	07	02	05	04	01	4	67	0.7	08 07 n	087 55 w	100.0	2.0	1.0
901029	05	07	05	08	02	3	56	0.4	09 25 s	084 04 w	100.0	3.0	2.0
901030			11			3	71	0.0	06 48 s	083 10 w	100.0	3.0	3.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900813	01	02	01	04	03	3	01	1.3	11 52 n	125 27 w	100.0	1.0	1.0
900813	04	04	04	11	02	3	76	3.5	12 49 n	126 54 w	100.0	1.0	1.0
900910			06	05	02	5	01	0.9	04 36 n	124 53 w	100.0	1.0	1.0
900911	03	01	04	12	12	5	07	4.6	02 48 n	122 58 w	33.5	2.0	2.0
900911	04	02	05	12	12	5	07	4.1	02 44 n	122 55 w	50.0	2.0	2.0
900918			07	03	02	4	01	0.0	00 15 n	102 00 w	100.0	1.0	1.0
900918			09			3	07	1.2	00 14 n	102 00 w	100.0	1.0	1.0
900920	04	01	05	01	01	5	07	3.9	01 05 n	096 31 w	100.0	3.0	3.0
900923			02			4	74	0.0	01 53 s	089 21 w	100.0	2.0	2.0
900923	02	02	04			4	76	1.3	01 49 s	089 18 w	100.0	1.0	1.0
901008	02	03	03			4	71	3.0	03 59 n	089 46 w	100.0	1.0	1.0
901009			07	07	01	4	99	0.9	08 28 n	087 43 w	100.0	0.0*	0.0*
901010			03	08	01	4	99	5.9	09 37 n	088 59 w	100.0	1.0	1.0
901016			01	06	02	5	99	0.2	03 58 s	105 34 w	100.0	1.0	1.0
901016	03	05	03	09	12	5	71	0.1	04 24 s	106 02 w	100.0	1.0	1.0
901017	04	02	02			5	71	2.8	05 37 s	106 43 w	100.0	1.0	1.0
901017	04	09	04			5	55	1.2	05 27 s	106 09 w	100.0	1.0	1.0
901017	04	10	05	06	03	5	71	3.1	05 26 s	106 05 w	100.0	1.0	1.0
901019	02	06	01	01	02	4	67	0.0	03 52 s	100 48 w	100.0	1.0	1.0
901020	03	01	07			4	71	0.7	02 41 s	096 49 w	100.0	1.0	1.0
901026	08	03	06			5	71	0.3	02 14 s	084 59 w	100.0	1.0	1.0
901029	05	03	04	08	01	2	71	5.8	09 42 s	084 11 w	100.0	1.0	1.0
901113			02			4	71	0.0	04 52 s	092 59 w	100.0	1.0	1.0
901117	02	01	03			4	71	0.7	02 41 s	104 46 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: MINKE WHALE (B.ACUTOROSTRATA) species code: 71

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
901108	06	01	04	01	03	4	71	1.0	04 17 s	083 22 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

species: BRYDE'S WHALE (B. EDENI)

species code: 72

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900731			11	04	01	1	07	2.2	20 28 n	118 41 w	100.0	2.0	2.0
900801	02	14	03	02	01	2	74	2.2	17 14 n	119 09 w	100.0	1.0	1.0
900815	03	02	03	03	01	4	76	0.1	14 05 n	132 19 w	100.0	1.0	1.0
900816	05	02	06			2	22	0.0	11 04 n	133 23 w	100.0	1.0	1.0
900911	01	11	02	11	01	5	01	0.2	02 53 n	123 02 w	100.0	1.0	1.0
900911	02	01	03	12	12	5	01	0.9	02 52 n	123 01 w	100.0	2.0	2.0
901014	09	02	08	01	02	4	71	0.3	00 09 s	100 15 w	100.0	2.0	2.0
901021	01	06	01	10	03	4	71	0.0	03 38 s	095 41 w	100.0	2.0	2.0
901030			07			4	67	1.1	06 59 s	083 15 w	100.0	1.0	1.0
901030	07	02	10			3	55	0.3	06 49 s	083 10 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900922	03	01	07	12	12	2	22	0.7	01 48 s	091 53 w	100.0	1.0	1.0
900922	06	02	11	06	01	4	76	3.3	01 50 s	091 32 w	100.0	2.0	2.0
901011	03	02	04	10	01	4	55	0.7	08 13 n	092 03 w	100.0	1.0	1.0
901019	08	02	05			4	69	0.3	03 38 s	100 06 w	100.0	1.0	1.0
901021	02	01	02			4	56	0.9	03 43 s	095 39 w	100.0	2.0	2.0
901023	05	03	06			4	56	1.0	09 07 s	093 40 w	100.0	1.0	1.0
901202	01	03	01	04	03	5	55	0.2	21 38 n	115 28 w	100.0	3.0	2.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900923			08	11	01	4	99	0.0	01 49 s	089 15 w	100.0	1.0	1.0
901031			14			4	71	0.2	04 03 s	082 22 w	100.0	1.0	1.0
901031	05	01	05			4	55	3.1	04 47 s	082 38 w	100.0	4.0	4.0
901031	09	02	11			4	71	0.7	04 20 s	082 27 w	100.0	2.0	2.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900801	03	02	04	03	01	3	76	0.2	17 07 n	119 10 w	100.0	2.0	2.0
900801	04	04	05	03	02	4	07	4.0	16 54 n	119 13 w	100.0	2.0	2.0
900801	05	01	06	03	02	4	07	0.3	16 46 n	119 17 w	100.0	1.0	1.0
900805	01	01	01			2	76	3.3	10 34 n	113 36 w	100.0	3.0	3.0
900805	05	01	02			4	01	3.3	10 09 n	112 52 w	100.0	250.0	5.0
900808	04	01	05	11	03	4	76	0.3	05 07 n	110 41 w	100.0	2.0	2.0
900809	05	07	05			5	22	3.0	06 03 n	113 25 w	100.0	0.0*	2.0
900814	03	03	02	04	01	2	07	0.6	14 14 n	129 24 w	100.0	2.0	1.0
900816	01	03	01			3	22	2.2	11 28 n	133 11 w	100.0	7.0	5.0
900816	02	01	02			3	76	3.3	11 28 n	133 11 w	5.0	35.0	28.0
900816	03	01	03			3	74	1.2	11 24 n	133 15 w	100.0	5.0	3.0
900816	06	03	10	03	01	2	07	0.0	10 31 n	133 32 w	100.0	4.0	4.0
900818	03	08	03			5	22	2.9	09 15 n	135 42 w	100.0	10.0	10.0
900819	03	03	04	03	01	4	76	4.0	11 35 n	136 14 w	100.0	1.0	1.0
900819	04	02	05	03	01	4	74	7.5	11 45 n	136 14 w	20.0	37.0	16.0
900821	02	03	02			5	76	1.3	08 04 n	139 30 w	100.0	3.0	3.0
900822	01	09	01	04	02	2	74	1.3	10 27 n	141 30 w	100.0	0.0*	1.0
900822	02	01	02	04	02	3	01	6.1	10 29 n	141 32 w	100.0	5.0	4.0
900823			02	05	02	2	84	0.0	13 05 n	144 18 w	100.0	1.0	1.0
900823	06	08	06	11	03	2	01	2.2	13 47 n	145 23 w	100.0	5.0	3.0
900825			02	05	01	5	84	0.2	18 09 n	152 20 w	100.0	1.0	1.0
900901	03	09	01	12	12	5	76	0.0	16 41 n	151 44 w	100.0	3.0	3.0
900902			01	10	03	3	99	1.0	14 42 n	149 42 w	100.0	3.0	2.0
900902			02	10	02	4	85	0.0	14 32 n	149 32 w	100.0	2.0	2.0
900904	02	03	02			3	01	3.3	09 08 n	143 58 w	100.0	6.0	3.0
900904	03	04	06			2	07	0.1	08 47 n	143 42 w	100.0	3.0	3.0
900904	07	03	08			2	07	0.7	07 58 n	142 52 w	100.0	5.0	4.0
900905	02	20	02	05	01	5	74	1.8	05 29 n	140 29 w	100.0	10.0	3.0
900906	02	10	02	12	01	5	75	0.5	05 08 n	137 39 w	100.0	1.0	1.0
900907	02	01	02	11	02	3	07	0.2	05 18 n	134 46 w	100.0	2.0	2.0
900909	02	06	02	04	01	5	07	1.8	07 26 n	128 02 w	100.0	7.0	2.0
900910	02	05	02	11	02	5	01	1.3	05 18 n	125 45 w	100.0	5.0	1.0
900911	04	06	06	06	01	5	76	0.0	02 47 n	122 45 w	100.0	2.0	2.0
900912	06	05	06	06	02	5	01	7.5	03 36 n	119 20 w	100.0	10.0	2.0
900915	01	01	01	11	03	5	76	0.6	02 02 n	110 41 w	100.0	1.0	1.0
900915	05	04	03	12	01	5	74	6.4	02 02 n	110 17 w	100.0	0.0*	1.0
900919			04			4	76	0.0	00 29 n	100 02 w	100.0	10.0	5.0
900919			08	01	01	4	99	0.1	00 36 n	099 38 w	100.0	1.0	1.0
900919	03	01	05	12	02	3	75	0.1	00 27 n	099 58 w	31.3	102.0	87.0
900919	04	07	09	12	01	4	76	1.9	00 37 n	099 36 w	100.0	5.0	3.0
900919	08	01	13	12	12	4	22	3.8	00 41 n	099 15 w	100.0	1.0	1.0
900919	10	01	16	06	01	3	74	8.8	00 44 n	099 07 w	100.0	30.0	10.0
900920			04	11	01	4	01	0.0	01 06 n	096 35 w	100.0	2.0	2.0
900921			09			4	22	0.4	00 15 s	092 56 w	100.0	75.0	4.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN species code: 77

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900921	04	04	02	10	02	5	22	1.8	00 50 n	093 31 w	100.0	1.0	1.0
900923			03			4	01	0.0	01 53 s	089 21 w	100.0	187.0	77.0
900924	02	05	02			4	07	3.9	00 30 s	085 27 w	100.0	13.0	6.0
900925	03	01	04			5	76	0.6	01 14 n	086 45 w	100.0	4.0	2.0
900926			05			6	99	0.3	03 42 n	087 52 w	100.0	7.0	5.0
900928	05	01	04			4	76	2.5	06 54 n	086 20 w	100.0	10.0	3.0
900928	10	01	07			4	01	4.0	07 36 n	085 58 w	100.0	3.0	1.0
901005	02	08	02	10	01	4	55	3.2	07 14 n	085 07 w	100.0	0.0*	3.0
901005	04	01	04			4	69	3.3	07 02 n	085 07 w	100.0	30.0	10.0
901008	02	03	02			4	55	0.2	03 55 n	089 48 w	100.0	0.0*	2.0
901008	05	04	07			4	71	4.3	04 44 n	089 27 w	100.0	0.0*	2.0
901008	08	01	09			4	56	1.5	05 30 n	089 00 w	100.0	0.0*	10.0
901009	02	01	01			4	55	2.1	07 20 n	088 16 w	100.0	10.0	5.0
901010	03	08	04	11	02	4	71	1.8	09 34 n	089 33 w	100.0	0.0*	1.0
901011	08	02	06			5	71	0.1	07 36 n	092 43 w	100.0	0.0*	3.0
901012	02	07	02	09	01	4	77	0.6	06 16 n	094 22 w	100.0	2.0	2.0
901012	05	04	04	01	02	4	55	2.0	05 47 n	094 53 w	100.0	0.0*	4.0
901013	06	01	06	10	01	4	71	6.5	03 04 n	095 58 w	100.0	0.0*	3.0
901013	07	14	07			4	55	0.3	02 18 n	096 46 w	100.0	0.0*	5.0
901020	02	05	04			4	77	6.8	02 41 s	096 58 w	100.0	1.0	1.0
901022	01	04	01			5	71	0.1	06 48 s	095 08 w	100.0	0.0*	2.0
901023	04	02	04			4	71	0.0	09 18 s	093 49 w	100.0	0.0*	3.0
901023	06	05	08	07	01	4	71	0.9	08 48 s	093 20 w	100.0	0.0*	1.0
901025	04	06	04	03	01	4	69	0.1	04 02 s	088 02 w	100.0	1.0	1.0
901025	05	08	05			4	55	1.1	03 35 s	087 38 w	100.0	0.0*	1.0
901026	02	04	01			4	71	3.0	02 02 s	085 48 w	100.0	0.0*	2.0
901026	03	04	02			4	55	3.4	01 50 s	085 34 w	100.0	0.0*	2.0
901028	06	03	06	03	03	4	56	0.6	10 09 s	084 48 w	100.0	0.0*	5.0
901030			14			3	67	5.9	06 33 s	083 07 w	100.0	0.0*	5.0
901030	02	03	02			3	56	7.7	07 42 s	083 29 w	100.0	0.0*	200.0
901030	02	04	03			3	77	0.0	07 35 s	083 27 w	100.0	10.0	9.0
901030	12	02	18			4	71	0.0	06 11 s	083 02 w	17.5	28.0	17.0
901109	07	08	06	01	03	4	56	6.7	06 59 s	085 50 w	100.0	0.0*	4.0
901112	02	13	02	12	12	4	56	0.0	06 50 s	091 26 w	18.3	7.0	5.0
901114	02	02	02	09	01	4	55	0.3	06 09 s	096 44 w	3.3	92.0	67.0
901114	05	03	05	11	02	5	71	8.0	06 17 s	097 14 w	100.0	0.0*	1.0
901115	05	01	01			5	71	3.7	07 37 s	101 01 w	3.3	4.0	3.0
901116	03	05	03	12	12	4	69	0.2	05 32 s	103 18 w	100.0	1.0	1.0
901117	01	03	01			4	56	5.6	02 55 s	104 39 w	100.0	0.0*	75.0
901117	03	01	04			4	71	3.5	02 36 s	104 49 w	100.0	0.0*	2.0
901117	04	04	05	05	01	4	69	0.6	02 29 s	104 57 w	100.0	1.0	1.0
901117	05	06	06	10	01	4	77	0.8	02 09 s	105 16 w	100.0	12.0	10.0
901121	03	12	03	11	03	4	67	0.3	03 12 s	119 09 w	100.0	218.0	150.0
901122	04	12	03	11	03	4	55	1.0	02 33 s	123 21 w	100.0	150.0	75.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED DOLPHIN — species code: 77

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
901123	01	13	01	10	01	4	71	0.4	02 03 s	126 37 w	20.0	40.0	32.0
901125	01	23	02			5	67	0.2	03 26 n	124 15 w	100.0	0.0*	4.0
901126			06	08	03	1	78	0.4	06 41 n	124 05 w	100.0	1.0	1.0
901126	02	01	02			3	71	0.1	05 21 n	124 16 w	100.0	0.0*	3.0
901129	01	02	01	02	02	5	69	0.7	14 57 n	121 01 w	100.0	20.0	10.0
901201	01	26	01			4	67	4.3	20 06 n	114 59 w	48.3	9.0	7.0

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
900731	09	02	07	12	12	3	74	1.6	20 52 n	118 53 w	100.0	2.0	2.0
900814	04	13	03	12	01	2	07	3.5	14 21 n	129 29 w	100.0	3.0	3.0
900816	05	04	07			2	22	2.3	11 00 n	133 24 w	100.0	1.0	1.0
900904	03	03	05			2	07	0.5	08 50 n	143 45 w	100.0	1.0	1.0
900925	04	09	05			5	01	0.9	01 33 n	087 15 w	100.0	2.0	2.0
900926			01			6	99	0.2	02 15 n	088 22 w	100.0	1.0	1.0
901013	06	01	05	10	01	4	71	5.2	03 04 n	095 58 w	100.0	1.0	1.0
901028	04	12	05			4	77	0.7	09 49 s	084 49 w	100.0	1.0	1.0
901030			16			3	99	0.1	06 24 s	083 04 w	100.0	0.0*	1.0
901127			01	03	03	2	99	0.0	08 06 n	123 57 w	100.0	1.0	1.0
901127	01	04	02	03	02	2	69	6.2	08 12 n	123 55 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED LARGE WHALE — species code: 79

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900911	01	02	01	11	03	5	74	0.6	03 19 n	123 35 w	100.0	1.0	1.0
900918			11			3	07	0.0	00 11 n	101 59 w	100.0	1.0	1.0
900919	04	02	06	01	02	4	07	5.9	00 30 n	099 52 w	100.0	1.0	1.0
900919	12	01	19			4	76	0.4	00 51 n	098 39 w	100.0	2.0	2.0
900920	10	04	08			4	22	0.5	01 22 n	095 22 w	100.0	1.0	1.0
901007	01	11	01			5	69	2.8	03 03 n	087 01 w	100.0	8.0	6.0
901008	03	04	05	03	01	5	67	5.2	04 16 n	089 39 w	100.0	1.0	1.0
901011			03			4	81	0.1	08 17 n	091 54 w	100.0	1.0	1.0
901011	01	06	01			4	67	0.4	08 36 n	091 33 w	100.0	1.0	1.0
901017	04	07	03	06	02	5	69	4.9	05 29 s	106 18 w	100.0	1.0	1.0
901022	04	07	03			5	67	3.2	08 24 s	094 54 w	100.0	2.0	2.0
901026	05	01	04			5	56	2.0	01 41 s	085 22 w	100.0	1.0	1.0
901028	04	04	04			3	55	4.9	09 10 s	084 51 w	100.0	1.0	1.0
901110	01	09	02			4	55	4.1	08 59 s	087 25 w	100.0	1.0	1.0
901116	05	07	04	09	01	4	77	3.3	05 10 s	103 31 w	100.0	1.0	1.0
901118	04	01	06	01	01	4	55	6.9	02 19 s	108 39 w	100.0	1.0	1.0
901124	03	03	04	02	02	4	56	0.7	00 23 s	124 40 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED KOGIA (KOGIA SP.?) species code: 80

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900814	06	01	04	11	02	1	76	1.1	14 33 n	129 55 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

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

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
901101	06	05	05			4	67	1.4	02 53 s	080 49 w	100.0	217.0	170.0

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
900731	06	01	04	12	12	1	22	4.4	21 10 n	119 02 w	100.0	0.0*	0.0*
900802	02	06	01	11	12	4	74	1.2	15 10 n	117 35 w	100.0	0.0*	2.0
900825			01	05	01	5	99	0.0	18 04 n	152 12 w	100.0	2.0	2.0
900912	04	01	05	06	01	4	75	0.0	03 33 n	119 39 w	100.0	1.0	1.0
900914	02	06	02	06	01	5	75	0.6	02 17 n	112 42 w	100.0	2.0	1.0
900922	05	01	10	12	12	4	74	0.5	01 50 s	091 39 w	100.0	8.0	6.0
901022	03	12	02	03	01	5	56	0.1	07 53 s	094 59 w	100.0	2.0	2.0
901027	03	02	02	12	12	5	55	1.2	05 06 s	084 57 w	100.0	1.0	1.0
901027	04	05	04			4	69	0.4	05 25 s	084 56 w	100.0	2.0	2.0
901030	07	01	09			3	55	0.3	06 52 s	083 11 w	100.0	1.0	1.0
901030	11	02	17			3	69	0.1	06 23 s	083 04 w	100.0	0.0*	2.0
901101	01	01	01			4	56	0.1	02 49 s	081 25 w	100.0	1.0	1.0
901108	04	06	02	12	02	4	55	0.2	04 11 s	083 09 w	100.0	1.0	1.0
901109	05	02	04	12	01	4	77	0.8	06 16 s	085 18 w	100.0	2.0	2.0
901110			04			4	69	0.1	09 21 s	087 45 w	100.0	2.0	2.0
901112	01	01	01			4	71	2.0	07 50 s	091 02 w	100.0	1.0	1.0
901119	02	07	01			4	55	0.1	04 53 s	110 39 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: UNIDENTIFIED WHALE

species code: 98

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900731			13	04	02	2	76	0.3	20 22 n	118 41 w	100.0	2.0	2.0
900801			02	08	02	2	99	3.0	18 20 n	118 46 w	100.0	1.0	1.0
900810			02			5	76	0.4	06 45 n	115 33 w	100.0	2.0	1.0
900815	04	02	04	03	01	4	76	0.4	14 02 n	132 20 w	33.0	3.0	3.0
900819	02	02	02			4	22	3.6	11 19 n	136 10 w	100.0	1.0	1.0
900819	02	03	03	03	02	4	75	1.4	11 25 n	136 11 w	100.0	1.0	1.0
900819	05	02	06	12	12	4	75	3.8	11 57 n	136 08 w	100.0	1.0	1.0
900912			02			3	75	0.0	03 13 n	120 48 w	100.0	1.0	1.0
900918			13				22	0.0	00 13 n	101 57 w	100.0	1.0	1.0
900918	01	04	01			5	22	0.7	01 25 n	102 43 w	100.0	2.0	1.0
900921			01			4	99	5.1	01 08 n	093 41 w	100.0	1.0	1.0
900922	08	01	14	06	01	4	75	0.0	01 52 s	091 23 w	100.0	1.0	1.0
900923	03	01	06	11	02	4	74	2.7	01 48 s	089 15 w	100.0	1.0	1.0
900925	02	01	03			5	76	4.4	01 14 n	086 42 w	100.0	1.0	1.0
900926	02	03	02			5	07	7.4	02 40 n	088 23 w	100.0	3.0	2.0
901005	02	05	01	09	02	4	69	2.3	07 31 n	085 05 w	100.0	1.0	1.0
901021	05	10	04	02	01	4	77	0.0	04 28 s	095 31 w	100.0	1.0	1.0
901124			05			5	99	2.4	00 18 s	124 32 w	100.0	1.0	1.0

Table 3. (continued)

Sightings by Species

species: SEI/BRYDE'S WHALE (BALAENOPTERA EDENI/BOREALIS) species code: 99

date yrmody	series	leg	sight number	sun position horz.	sun position vert.	beauf. number	detected by	perp. dist.(km)	latitude deg min	longitude deg min	proportion (% of school)	mean school size est best	mean school size est low
900910	01	05	01	10	03	4	75	0.2	05 33 n	126 01 w	100.0	1.0	1.0
900910	04	05	04	04	01	5	07	0.9	04 51 n	125 11 w	100.0	1.0	1.0
900911	03	01	04	12	12	5	07	4.6	02 48 n	122 58 w	16.5	2.0	2.0
900911	04	02	05	12	12	5	07	4.1	02 44 n	122 55 w	50.0	2.0	2.0
900916			01	08	01	6	07	0.1	02 37 n	107 15 w	100.0	1.0	1.0
900918	01	09	02	10	02	5	01	1.1	01 11 n	102 35 w	100.0	3.0	3.0
900919	01	01	01			3	74	2.0	00 31 n	100 10 w	100.0	3.0	3.0
900919	04	04	07	01	01	4	07	2.6	00 31 n	099 49 w	100.0	2.0	2.0
901019	04	03	02			3	55	0.2	03 46 s	100 36 w	100.0	2.0	2.0
901020	02	06	05	04	01	4	55	0.1	02 41 s	096 56 w	100.0	1.0	1.0
901116	06	02	05	09	02	4	67	2.0	05 02 s	103 35 w	100.0	6.0	6.0
901118	05	05	07	02	03	4	71	0.3	02 43 s	108 59 w	100.0	1.0	1.0
901128	01	12	01			4	71	0.9	11 56 n	122 30 w	100.0	1.0	1.0
901130	03	03	02	05	01	5	69	0.4	17 34 n	117 39 w	100.0	1.0	1.0
901130	04	02	03	05	01	5	56	2.0	17 38 n	117 33 w	100.0	2.0	2.0

Table 4. Marine mammal school size estimates for each observer, classified by species code, for all sightings encountered in the eastern tropical Pacific during July - September (Part A) and October - December (Part B), 1990.

A: Sightings encountered July 28 through September 29, 1990.

			obs 1		obs 7		obs 22		obs 74		obs 75		obs 76		obs 83	
	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	1: UNID. SMALL 7-9FT BLACK WHALE															
	900914	01					21	1			16	20				
species	2: OFFSHORE SPOTTED DOLPHIN															
	900731	03			45	100	38	100			35	100	45	100		
	900731	05	110	100	80	100	62	100			68	100	70	100		
	900731	09			45	100	49	100			33	100	40	100		
	900731	14	24	100					25	100			9	100		
	900731	16			85	100	84	100			65	100				
	900804	01	30	100					35	100			35	100		
	900804	03			90	100	15	100			15	100				
	900805	04			95	100	35	100								
	900805	06	170	3					410	10			95	5		
	900809	02	85	5					350	35			40	7		
	900810	03	375	80					425	70			400	80		
	900813	03	80	65			80	30	130	65			60	80		
	900813	05	37	100	50	100			105	100			55	100		
	900814	01	230	55					440	70			260	80		
	900815	01	90	1	260	8	120	15	320	20			140	2		
	900815	02			160	15	145	30								
	900905	01	35	100					60	100			40	100		
	900915	02											600	99		
	900918	04	380	100	550	100	440	100			350	100				
	900919	03			550	100	415	100	650	100	650	100	650	100		
	900919	10	230	100	200	100			340	100	125	100	180	100		
	900919	17	350	100			660	100	1050	100	350	100	450	100		
	900920	03	75	100					45	100			85	100		
	900921	04	185	55			80	92	340	80			225	80		
	900923	05	275	100					325	100			240	100		
species	3: SPINNER DOLPHIN															
	900819	05			80	90	25	50								
species	10: EASTERN SPINNER DOLPHIN															
	900805	06	170	97					410	90			95	95		
	900808	02	18	100	80	100			25	100			16	100		
	900809	02	85	5					350	25			40	3		
	900810	03	375	20					425	30			400	20		
	900813	03	80	35			80	70	130	35			60	20		
	900915	02											600	1		
	900928	01			230	100	130	100			125	100				
species	11: WHITEBELLY SPINNER DOLPHIN															
	900814	01	230	45					440	30			260	20		
	900815	01	90	99	260	92	120	85	320	80			140	98		
	900815	02			160	85	145	70								
	900815	04											3	67		

Table 4A. (continued)

date	sight no.	obs 1 best est.	obs 1 pct	obs 7 best est.	obs 7 pct	obs 22 best est.	obs 22 pct	obs 74 best est.	obs 74 pct	obs 75 best est.	obs 75 pct	obs 76 best est.	obs 76 pct	obs 83 best est.	obs 83 pct
species 11: WHITEBELLY SPINNER DOLPHIN															
900815	06	100	100					165	100			70	100		
900903	01	20	100	50	100			45	100	30	100	40	100		
900904	01			90	100			160	100					60	100
900921	04	185	45			80	8	340	20			225	20		
species 13: STRIPED DOLPHIN															
900730	01	9	100					18	100			9	100		
900731	01	135	100	85	100	78	100	270	100	66	100	70	100		
900731	06	130	100	75	100			220	100			60	100		
900731	10			18	100	15	100			10	100	17	100		
900731	15			65	100	42	100			50	100				
900801	01	24	100	18	100			16	100			13	100		
900805	03	20	100					30	100			16	100		
900809	01	15	100					80	100			15	100		
900809	02	85	90					350	40			40	90		
900809	04			25	100	35	100								
900810	01	50	100					120	100			40	100		
900812	01	5	100					6	100			5	100		
900813	06	120	100			50	100	240	100			80	100		
900814	05			130	100	40	100			10	100				
900816	04	110	65					190	63			75	75		
900816	12			150	100	75	100			80	100				
900817	01	100	100	120	100			115	100			110	100		
900818	01							60	100			10	100		
900818	02			50	100	30	100								
900821	01	25	100												
900823	04	7	98					4	75			4	75		
900908	01	30	100	40	100							40	100		
900908	02	25	100					60	100			25	100		
900912	01			25	100	15	100			4	100				
900912	04			18	100	16	100			12	100	7	100		
900918	06	50	100					55	100			40	100		
900918	08	35	100			27	100	45	100	80	100	35	100		
900918	10			85	100	28	100			20	100				
900919	02			50	100			60	100			18	100		
900919	05			95	80	120	92			90	34				
900919	15	18	100					18	100			11	100		
900919	18	40	100					60	100			45	100		
900920	02	260	100					185	100			450	100		
900920	06	35	100					45	100			25	100		
900920	07			150	100	65	100			50	100				
900921	06			80	100	60	100					75	100		
900921	07			95	100	85	100			75	100				
900922	13			260	92	475	95								
900922	15			75	100	62	100			70	100				
900925	02	55	100					45	100			40	100		
900927	01	45	100					32	100			30	100		
900928	03	45	100	45	100	14	100	30	100	30	100	25	100		
900928	06	35	100					25	100			30	100		

Table 4A. (continued)

	date	sight no.	obs 1 best est.	obs 1 pct	obs 7 best est.	obs 7 pct	obs 22 best est.	obs 22 pct	obs 74 best est.	obs 74 pct	obs 75 best est.	obs 75 pct	obs 76 best est.	obs 76 pct	obs 83 best est.	obs 83 pct
species 15: ROUGH-TOOTHED DOLPHIN																
	900805	05	7	100					6	100			6	100		
	900812	02	2	100					2	100			2	100		
	900910	05							10	37			10	70		
	900927	03			25	100	18	100			6	100				
species 17: "SHORT-SNOUTED WHITEBELLY"																
	900803	01			210	100			320	100	50	100	80	100		
	900921	03			190	100	85	100			65	100				
	900921	08	380	100	650	100	750	100	475	100	500	100	350	100		
	900922	03	350	100	190	100	75	100								
	900922	13			260	8	475	5								
	900922	16	130	100					450	100			250	100		
	900922	18	900	100					750	100	400	100	900	100		
	900922	19			380	100	100	100			50	100				
	900923	01	1200	100					900	100			2000	100		
species 18: BOTTLENOSED DOLPHIN																
	900731	08			25	100	16	100			15	100				
	900731	12	18	100					25	100						
	900816	02	35	97					40	88			30	100		
	900816	04	110	35					190	37			75	25		
	900816	08											2	100		
	900819	01	28	5			10	20	20	25						
	900822	03	60	30					36	50			31	20		
	900822	04	16	5	14	20	12	25	11	27			12	25		
	900823	04	7	2					4	25			4	25		
	900914	01					21	33			16	40				
	900919	11			300	20	85	45			55	50				
	900922	09	80	25					28	21			28	25		
species 21: RISSO'S DOLPHIN																
	900910	05							10	63			10	30		
	900911	07	5	100					5	100			5	100		
	900919	12	14	100	20	100	13	100			9	100				
species 26: FRASER'S DOLPHIN																
	900907	01	650	65	1400	85	1550	93	1500	73	480	94	525	75		
	900912	03			1500	99	1600	99								
species 31: MELON-HEADED WHALE																
	900907	01	650	35	1400	15	1550	7	1500	27	480	6	525	25		
	900912	03			1500	1	1600	1								
species 32: PYGMY KILLER WHALE																
	900906	01			40	100	15	100			16	100				
species 33: FALSE KILLER WHALE																
	900822	04	16	95	14	80	12	75	11	73			12	75		
	900909	01	18	100					5	100			2	100		

Table 4A. (continued)

	date	sight no.	obs 1 best est.	obs 1 pct	obs 7 best est.	obs 7 pct	obs 22 best est.	obs 22 pct	obs 74 best est.	obs 74 pct	obs 75 best est.	obs 75 pct	obs 76 best est.	obs 76 pct	obs 83 best est.	obs 83 pct
species 34: PILOT WHALE																
	900918	12			15	100	14	100								
	900919	11			300	80	85	55			55	50				
	900922	09	80	75					28	79			28	75		
species 36: SHORT-FINNED PILOT WHALE																
	900803	02			12	100	3	100								
	900808	03	48	100					24	100			26	100		
	900813	02	16	100					3	100			11	100		
	900816	11					7	100								
	900819	01	28	95			10	80	20	75						
	900822	03	60	70					36	50			31	80		
	900823	05											10	100		
	900914	01					21	66			16	40				
	900928	02			40	100	18	100			12	100				
species 37: KILLER WHALE																
	900815	05	8	100	10	100	6	100			6	100	8	100		
	900924	03	5	100	5	100	5	100	5	100	5	100	5	100		
species 46: SPERM WHALE																
	900922	02	2	100			1	100								
	900922	06	5	100	6	100	5	100								
	900923	07							1	100						
	900927	02	4	100					4	100			5	100		
species 49: BEAKED WHALE																
	900731	02											2	100		
	900918	03					3	100								
species 51: UNID. MESOPLODONT																
	900809	03	2	100	2	100			2	100			2	100		
	900907	03							1	100						
	900907	04							3	100			3	100		
	900923	09	2	100												
	900924	01	2	100					2	100						
	900925	01	2	100					2	100			2	100		
	900928	05			1	100										
species 59: BLAINVILLE'S BEAKED WHALE																
	900921	05	4	100					4	100						
species 61: CUVIER'S BEAKED WHALE																
	900808	01					1	100								
	900816	09											1	100		
	900823	03			3	100	3	100			2	100				
	900904	04			1	100							1	100	1	100
	900904	07	1	100									1	100		
	900906	03			2	100	2	100			1	100				
	900910	03			4	100	1	100								
	900919	14	1	100	2	100	2	100					2	100		

Table 4A. (continued)

date	sight no.	obs 1 best est.	obs 1 pct	obs 7 best est.	obs 7 pct	obs 22 best est.	obs 22 pct	obs 74 best est.	obs 74 pct	obs 75 best est.	obs 75 pct	obs 76 best est.	obs 76 pct	obs 83 best est.	obs 83 pct
species 61: CUVIER'S BEAKED WHALE															
900920	01			2	100										
species 70: RORQUAL															
900813	01	1	100	1	100			1	100			1	100		
900813	04	1	100	1	100			1	100			1	100		
900911	04			3	67										
900911	05			2	50										
900920	05			3	100										
900923	04											1	100		
species 72: BRYDE'S WHALE															
900801	03	1	100	1	100			1	100	1	100	1	100		
900815	03											1	100		
900816	06			1	100	1	100			1	100				
900911	02	1	100					1	100			1	100		
900911	03	2	100	2	100	1	100	2	100	1	100	2	100		
species 75: BLUE WHALE															
900922	07			1	100	1	100								
900922	11	1	100	2	100	1	100	2	100			2	100		
species 77: UNIDENTIFIED DOLPHIN															
900801	04							2	100			2	100		
900801	05			2	100										
900801	06			1	100										
900805	01											3	100		
900805	02							250	100						
900808	05											2	100		
900814	02			2	100										
900816	01					7	100								
900816	02	35	3					40	12						
900816	03							5	100						
900816	10			4	100										
900818	03					10	100								
900819	04											1	100		
900819	05			80	10	25	50								
900821	02											3	100		
900822	02	5	100												
900823	06	5	100												
900901	01	3	100									3	100	3	100
900904	02											6	100		
900904	06			3	100										
900904	08			5	100										
900905	02							10	100						
900906	02									1	100				
900907	02			2	100										
900909	02	16	100	2	100							2	100		
900910	02	5	100												
900911	06											2	100		
900912	06	10	100												

Table 4A. (continued)

	date	sight no.	obs 1 best est.	obs 1 pct	obs 7 best est.	obs 7 pct	obs 22 best est.	obs 22 pct	obs 74 best est.	obs 74 pct	obs 75 best est.	obs 75 pct	obs 76 best est.	obs 76 pct	obs 83 best est.	obs 83 pct
species 77: UNIDENTIFIED DOLPHIN																
	900915	01											1	100		
	900919	05			95	20	120	8			90	66				
	900919	09											5	100		
	900919	13					1	100								
	900919	16							30	100						
	900921	02					1	100								
	900924	02			20	100	15	100			5	100				
	900925	04	5	100									2	100		
	900928	04	10	100									10	100		
	900928	07	5	100									1	100		
species 78: UNIDENTIFIED SMALL WHALE																
	900731	07							2	100						
	900814	03			3	100										
	900816	07					1	100								
	900904	05			1	100										
	900925	05	2	100												
species 79: UNIDENTIFIED LARGE WHALE																
	900911	01							1	100			1	100		
	900919	06			1	100										
	900919	19											2	100		
	900920	08					1	100								
species 80: UNIDENTIFIED KOGIA																
	900814	04											1	100		
species 96: UNIDENTIFIED CETACEAN																
	900912	05									1	100				
	900914	02									2	100				
	900922	10							8	100						
species 98: UNIDENTIFIED WHALE																
	900815	04											3	33		
	900819	02					1	100								
	900819	03									1	100				
	900819	06									1	100				
	900918	01	2	100			1	100								
	900922	14									1	100				
	900923	06							1	100						
	900925	03											1	100		
	900926	02			3	100										
species 99: SEI/BRYDE'S WHALE																
	900910	01	1	100	1	100	1	100			1	100	1	100		
	900910	04			1	100										
	900911	04			3	33										
	900911	05			2	50										
	900918	02	3	100	3	100			3	100			3	100		
	900919	01			3	100			3	100			3	100		

Table 4A. (continued)

		obs 1		obs 7		obs 22		obs 74		obs 75		obs 76		obs 83	
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 99: SEI/BRYDE'S WHALE															
900919	07	1	100	2	100										

Table 4B. Sightings encountered October 4 through December 6, 1990.

	date	sight no.	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 67 best est.	obs 67 pct	obs 69 best est.	obs 69 pct	obs 71 best est.	obs 71 pct	obs 77 best est.	obs 77 pct	obs 81 best est.	obs 81 pct
species 2: OFFSHORE SPOTTED DOLPHIN																
	901008	04			50	100	25	100	27	100						
	901013	04	350	20							80	30	275	20		
	901014	01			150	100	85	100	50	100						
	901014	05	610	100							260	100	275	100		
	901014	06			220	100	250	100	140	100						
	901020	06	95	100							80	100	120	100		
	901029	03	515	100	600	100	480	100	260	100						
	901110	03			400	100	450	100	180	100						
	901112	02			4	75	12	90	5	80						
	901114	02	75	90												
	901117	02	325	97							130	95	250	90		
	901122	01	200	100							45	100	70	100		
	901127	04			500	97	360	95	420	96						
	901203	02	50	100							75	100	200	100		
species 10: EASTERN SPINNER DOLPHIN																
	901005	03			140	100	75	100	70	100						
species 11: WHITEBELLY SPINNER DOLPHIN																
	901013	01	12	100									20	100		
	901013	04	350	80							80	70	275	80		
	901023	02			500	60	380	40	230	50						
	901023	03			2000	100	1875	100	1250	100						
	901117	02	325	3							130	5	250	10		
	901122	02			250	100	300	100	140	100						
	901127	04			500	3	360	5	420	4						
species 13: STRIPED DOLPHIN																
	901007	02	45	100							30	100	70	100		
	901008	06			35	100	40	100	30	100						
	901008	08			30	100	40	100	30	100						
	901010	05			60	100	30	100	40	100						
	901012	01	45	100							20	100	65	100		
	901013	03			15	100	10	100	12	100						
	901014	02			30	100	20	100	25	100						
	901014	04	245	100							85	100	250	100		
	901014	09			50	100	25	100	26	100						
	901015	01	17	100							15	100	12	100		
	901015	02			35	100	40	100	40	100						
	901016	02	15	100							15	100	7	100		
	901017	01	15	100							12	100	2	100		
	901020	02			130	100	135	100	120	100						
	901021	06			20	100	20	100	40	100						
	901023	01			300	100	165	100	160	100						
	901023	02			500	40	380	60	230	50						
	901025	02	7	100							5	100	13	100		

Table 4B. (continued)

date	sight no.	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 67 best est.	obs 67 pct	obs 69 best est.	obs 69 pct	obs 71 best est.	obs 71 pct	obs 77 best est.	obs 77 pct	obs 81 best est.	obs 81 pct
species 13: STRIPED DOLPHIN															
901026	03			30	100	25	100	45	100						
901109	03	190	100							145	100	150	100		
901112	03			50	100	27	100	14	100						
901113	01	50	100	100	100	75	100	180	100						
901113	05			60	100	75	100	35	100						
901114	01			60	100	85	100	45	100						
901114	04			150	100	175	100	75	100						
901116	01	20	100							14	100	20	100		
901120	01	45	100							45	100	130	100		
901126	01	115	100							100	100	200	100		
901126	03			100	100	50	100	34	100						
901126	04			120	100	110	100	70	100						
901127	05	70	100							69	100	80	100		
901203	01			350	100	275	100	280	100						
species 15: ROUGH-TOOTHED DOLPHIN															
901011	05	16	100							12	100			20	100
901012	03			15	100							20	100		
901112	04	9	100							12	100	10	100		
901118	05	50	100							150	100	180	100		
species 17: "SHORT-SNOUTED WHITEBELLY"															
901009	03	570	100							170	100	200	100		
901009	04									90	100				
901009	06	190	100							100	100	70	100		
901011	02	130	100							80	100			40	100
901026	07			1100	100	650	100	1400	100						
901029	02	1020	100							500	100	1300	100		
901101	02			500	100	450	100	550	100						
901109	05			450	100	570	100	640	100						
901109	07			250	100	240	100	240	100						
901204	01	300	100							160	100	150	100		
species 18: BOTTLENOSED DOLPHIN															
901015	04					45	20	40	30						
901019	03	20	20							60	40	40	25		
901027	05	14	100							9	100	15	100		
901028	02			100	60	275	55	240	60						
901029	01	40	40							70	60				
901030	05			40	100	20	100	18	100						
901030	08	32	100							45	100				
901031	08					115	80	120	90						
901031	09	30	70							20	40	22	60		
901031	12									15	100				
901031	13	36	100							22	100	100	100		
901101	03	50	100							25	100	150	100		
901101	04							3	100						
901108	03									190	80				
901109	02							25	50						
901116	02			500	10	350	12	320	6						

Table 4B. (continued)

	date	sight no.	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 67 best est.	obs 67 pct	obs 69 best est.	obs 69 pct	obs 71 best est.	obs 71 pct	obs 77 best est.	obs 77 pct	obs 81 best est.	obs 81 pct
species 18: BOTTLENOSED DOLPHIN																
	901117	07							35	60						
species 21: RISSO'S DOLPHIN																
	901015	03			12	100			5	100						
	901018	02									12	100				
	901025	03	12	100												
	901028	02			100	40	275	45	240	40						
	901028	03					8	100	25	100						
	901030	01			6	100	9	100	7	100						
	901030	06			30	100	15	100	12	100						
	901030	12									15	100	10	100		
	901030	13			12	100	11	100	16	100						
	901030	15			12	100										
	901030	18									42	75	15	90		
	901031	01									10	100	4	100		
	901031	02	12	100												
	901109	01							12	100						
	901110	01			6	100										
	901110	05	10	100							10	100	9	100		
	901118	02					10	100								
	901127	03			8	100										
species 26: FRASER'S DOLPHIN																
	901116	02			500	85	350	85	320	86						
species 32: PYGMY KILLER WHALE																
	901124	03	50	100							35	100	75	100		
species 33: FALSE KILLER WHALE																
	901016	04			18	100	20	100	20	100						
	901118	03	7	100							6	100	2	100		
	901126	05			50	100	35	100			15	100				
species 34: PILOT WHALE																
	901014	07			17	100	16	100	18	100						
	901015	04					45	80	40	70						
	901019	03	20	80							60	60	40	75		
	901026	05			10	100	10	100	13	100						
	901027	01					12	100	16	100						
	901029	01	40	60							70	40				
	901031	08					115	20	120	10						
	901031	09	30	30							20	60	22	40		
	901031	10											9	100		
	901108	03									190	18				
	901109	02							25	50						
	901114	03			12	100	11	100								
	901116	02			500	5	350	3	320	8						
	901117	07							35	40						
	901118	01									6	100				
	901123	01	30	80							50	80				

Table 4B. (continued)

	date	sight no.	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 67 best est.	obs 67 pct	obs 69 best est.	obs 69 pct	obs 71 best est.	obs 71 pct	obs 77 best est.	obs 77 pct	obs 81 best est.	obs 81 pct
species 34: PILOT WHALE																
	901124	01	10	100							15	100	9	100		
	901124	02											7	100		
species 36: SHORT-FINNED PILOT WHALE																
	901009	02			35	100	18	100	21	100						
	901010	02			35	100	23	100	24	100						
	901031	04	28	100							20	100	22	100		
species 37: KILLER WHALE																
	901008	01			3	100	4	100	3	100						
	901113	04			18	100	11	100	14	100						
	901115	01									6	90				
	901118	04	6	100					7	100	7	100				
	901130	01	2	100							2	100	2	100		
species 46: SPERM WHALE																
	901010	01									4	100				
	901013	02											6	100		
	901014	03			1	100	1	100	1	100						
	901023	05					3	100								
	901027	06	6	100							10	100	5	100		
	901027	07	12	100												
	901029	06			25	100							5	100		
	901029	07									2	100				
	901030	04	26	100							30	100	22	100		
	901108	03									190	2				
	901201	01									14	25	9	30		
species 48: DWARF SPERM WHALE																
	901126	07	3	100							3	100	3	100		
species 49: BEAKED WHALE																
	901023	07							1	100						
	901027	03			2	100										
	901028	01			2	100	2	100	2	100						
	901031	07					1	100								
	901114	06									2	100				
	901125	01							2	100						
species 51: UNID. MESOPLODONT																
	901019	04							2	100						
	901020	03					1	100	1	100						
	901021	03					1	100								
	901108	01			3	100										
	901113	03	1	100												
	901121	01					4	100								
species 59: BLAINVILLE'S BEAKED WHALE																
	901121	02							4	100						

Table 4B. (continued)

	date	sight no.	obs 55 best est.	obs 55 pct	obs 56 best est.	obs 56 pct	obs 67 best est.	obs 67 pct	obs 69 best est.	obs 69 pct	obs 71 best est.	obs 71 pct	obs 77 best est.	obs 77 pct	obs 81 best est.	obs 81 pct
species 61: CUVIER'S BEAKED WHALE																
	901009	05					2	100								
	901029	05			3	100										
species 70: RORQUAL																
	901008	03									1	100				
	901016	03									1	100				
	901017	02									1	100				
	901017	04	1	100							1	100				
	901017	05									1	100				
	901019	01					1	100								
	901020	07									1	100				
	901026	06									1	100				
	901029	04									1	100				
	901117	03									1	100				
species 71: MINKE WHALE																
	901108	04	2	100							2	100	2	100		
species 72: BRYDE'S WHALE																
	901014	08	2	100							2	100	3	100		
	901021	01	2	100	2	100	2	100	2	100	2	100				
	901030	10	1	100							1	100	1	100		
species 75: BLUE WHALE																
	901011	04	1	100							1	100			1	100
	901019	05	1	100					1	100	1	100				
	901021	02	2	100	2	100					2	100				
	901023	06			1	100	1	100	1	100						
	901202	01	2	100					4	100	2	100	2	100		
species 76: HUMPBACK WHALE																
	901031	05	5	100							3	100	5	100		
	901031	11	2	100							2	100	2	100		
species 77: UNIDENTIFIED DOLPHIN																
	901005	04							30	100						
	901009	01	10	100												
	901012	02											2	100		
	901020	04											1	100		
	901025	04							1	100						
	901030	03	10	100									10	100		
	901030	18									42	25	15	10		
	901112	02			4	25	12	10	5	20						
	901114	02	75	10												
	901115	01									6	10				
	901116	03							1	100						
	901117	05							1	100						
	901117	06									10	100	15	100		
	901121	03			200	100	375	100	80	100						
	901122	03	150	100												

Table 4B. (continued)

		obs 55		obs 56		obs 67		obs 69		obs 71		obs 77		obs 81	
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 77: UNIDENTIFIED DOLPHIN															
901123	01	30	20							50	20				
901129	01							20	100						
901201	01									14	75	9	70		
species 78: UNIDENTIFIED SMALL WHALE															
901013	05									1	100				
901028	05											1	100		
901127	02							1	100						
species 79: UNIDENTIFIED LARGE WHALE															
901007	01							8	100						
901008	05					1	100								
901011	01					1	100								
901017	03							1	100						
901022	03			2	100	3	100	2	100						
901026	04			1	100										
901028	04	1	100												
901110	02	1	100												
901116	04											1	100		
901118	06	1	100												
901124	04			1	100										
species 90: SPOTTED DOLPHIN															
901101	05			200	100	320	100	130	100						
species 96: UNIDENTIFIED CETACEAN															
901022	02			2	100	2	100	2	100						
901027	02	1	100												
901027	04							2	100						
901030	09	1	100												
901101	01			1	100										
901108	02	1	100												
901109	04											2	100		
901112	01									1	100				
901119	01	1	100												
species 98: UNIDENTIFIED WHALE															
901005	01							1	100						
901021	04											1	100		
species 99: SEI/BRYDE'S WHALE															
901019	02	2	100												
901020	05	1	100												
901116	05			7	100	7	100	5	100						
901118	07									1	100				
901128	01	1	100							1	100				
901130	02			1	100	1	100	1	100						
901130	03			2	100	2	100	2	100						

Table 5. Summary of marine mammal sightings encountered in the eastern tropical Pacific during July 28 through December 6, 1990.

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	40	25	15	123.09(40)	192.84(40)	152.02(40)
SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	3	1	0	1	7.47(1)	70.98(1)	17.28(1)
EASTERN SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	10	8	3	5	51.26(8)	98.66(8)	68.70(8)
WHITEBELLY SPINNER DOLPHIN (STENELLA LONGIROSTRIS)	11	16	6	10	158.54(16)	222.34(16)	184.37(16)
STRIPED DOLPHIN (S. COERULEOALBA)	13	81	75	6	50.61(81)	92.11(79)	66.08(79)
ROUGH-TOOTHED DOLPHIN (STENO BREDANENSIS)	15	8	7	1	20.03(8)	30.59(8)	24.79(8)
"SHORT-SNOUTED WHITEBELLY" (DELPHINUS DELPHIS OFFSHORE)	17	25	24	1	334.28(25)	515.55(25)	401.51(25)
BOTTLENOSED DOLPHIN (TURSIOPS TRUNCATUS)	18	30	10	20	22.15(30)	33.79(30)	27.24(30)
RISSO'S DOLPHIN (GRAMPUS GRISEUS)	21	23	20	3	17.37(23)	19.11(22)	14.51(22)
FRASER'S DOLPHIN (LAGENODELPHIS HOSEI)	26	3	0	3	427.54(3)	625.79(3)	514.05(3)
UNIDENTIFIED DOLPHIN	77	94	85	9	9.30(94)	63.66(67)	18.40(67)
SPOTTED DOLPHIN (STENELLA ATTENUATA)	90	1	1	0	170.00(1)	367.00(1)	217.00(1)

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)
UNID. SMALL 7-9FT BLACK WHALE (FERESA/PEPONOCEPHALA)	1	1	0	1	1.40(1)	3.50(1)	2.24(1)
MELON-HEADED WHALE (PEPONOCEPHALA ELECTRA)	31	2	0	2	82.67(2)	123.11(2)	99.39(2)
PYGMY KILLER WHALE (FERESA ATTENUATA)	32	4	4	0	20.25(4)	28.50(4)	22.50(4)
FALSE KILLER WHALE (PSEUDORCA CRASSIDENS)	33	5	4	1	11.59(5)	21.67(5)	15.07(5)
PILOT WHALE (GLOBICEPHALA SP.)	34	27	14	13	15.02(27)	25.40(24)	19.38(24)
SHORT-FINNED PILOT WHALE (GLOBICEPHALA MACRORHYNCHUS)	36	12	9	3	13.32(12)	21.86(12)	17.10(12)
KILLER WHALE (ORCINUS ORCA)	37	8	7	1	4.49(8)	6.26(8)	5.27(8)
SPERM WHALE (PHYSETER MACROCEPHALUS)	46	18	16	2	4.78(18)	7.02(18)	5.31(18)
DWARF SPERM WHALE (KOGIA SIMUS)	48	1	1	0	3.00(1)	3.00(1)	3.00(1)
BEAKED WHALE (ZIPHIID)	49	8	8	0	1.87(8)	2.12(8)	1.87(8)
UNID. MESOPLODONT (MESOPLODON SP.)	51	13	13	0	1.85(13)	2.15(13)	1.92(13)
BLAINVILLE'S BEAKED WHALE (MESOPLODON DENSIROSTRIS)	59	2	2	0	4.00(2)	4.50(2)	4.00(2)
CUVIER'S BEAKED WHALE (ZIPHIUS CAVIROSTRIS)	61	14	14	0	1.79(14)	2.07(14)	2.07(14)
RORQUAL (BALAENOPTERA SP.)	70	24	22	2	1.12(23)	1.39(23)	1.12(23)
MINKE WHALE (B.ACUTOROSTRATA)	71	1	1	0	2.00(1)	2.00(1)	2.00(1)
BRYDE'S WHALE (B. EDENI)	72	10	10	0	1.40(10)	1.40(10)	1.40(10)
BLUE WHALE (B. MUSCULUS)	75	7	7	0	1.43(7)	1.57(7)	1.57(7)
HUMPBACK WHALE (MEGAPTERA NOVAEANGLIAE)	76	4	4	0	2.00(4)	2.25(4)	2.00(4)
UNIDENTIFIED SMALL WHALE	78	11	11	0	1.36(11)	1.40(10)	1.40(10)
UNIDENTIFIED LARGE WHALE	79	17	17	0	1.41(17)	2.18(17)	1.53(17)
UNIDENTIFIED KOGIA (KOGIA SP.?)	80	1	1	0	1.00(1)	1.00(1)	1.00(1)
UNIDENTIFIED CETACEAN	96	17	17	0	1.75(16)	2.86(14)	1.93(14)
UNIDENTIFIED WHALE	98	18	17	1	1.11(18)	1.44(18)	1.28(18)
SEI/BRYDE'S WHALE	99	15	13	2	1.76(15)	2.03(15)	1.76(15)

Table 6. Summary of distance searched, dolphin schools detected, and rates of encountering dolphins by observers aboard the McArthur in the eastern tropical Pacific during July 28 through December 6, 1990.

	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	17819	100	272	100	15.26	2.32	105
Inshore	3036	17	60	22	19.76	15.40	21
Middle	3667	21	61	22	16.64	17.19	26
West	4684	26	59	22	12.60	3.16	29
South	6432	36	92	34	14.30	6.34	35
Sea State Conditions							
Calm	1097	6	29	11	26.43	42.38	17
Rough	16722	94	243	89	14.53	2.21	104
Visibility Conditions							
Good	13697	77	192	71	14.02	2.15	103
Poor	4122	23	80	29	19.41	10.78	85
Observers[3]							
1	3931	22	25	9	6.36	2.90	51
7	4288	24	26	10	6.06	1.57	51
22	4087	23	17	6	4.16	1.80	49
55	4922	28	27	10	5.49	1.00	53
56	4674	26	23	8	4.92	0.85	53
67	4688	26	22	8	4.69	1.06	53
69	4688	26	19	7	4.05	1.10	53
71	4908	28	36	13	7.33	1.88	53
74	3952	22	27	10	6.83	1.92	51
75	4234	24	11	4	2.60	0.69	51
76	3945	22	28	10	7.10	2.23	51
77	4846	27	11	4	2.27	0.65	54

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[4]							
Team 1	3905	22	77	28	19.72	10.66	51
Team 2	4261	24	56	21	13.14	7.85	51
Team 3	4922	28	74	27	15.03	4.67	53
Team 4	4674	26	64	24	13.69	4.52	53

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

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

[3]Observers 81 and 83 searched 82 km and 197 km of trackline, respectively, while substituting for sick personnel.

[4]Team 1 members were observers 1,74,76; Team 2 members were observers 7,22,75; Team 3 members were observers 55,71,77; and Team 4 members were observers 56,67,69. 57km of trackline was searched when either both or neither of the team leaders were on duty and is not used for team analysis.

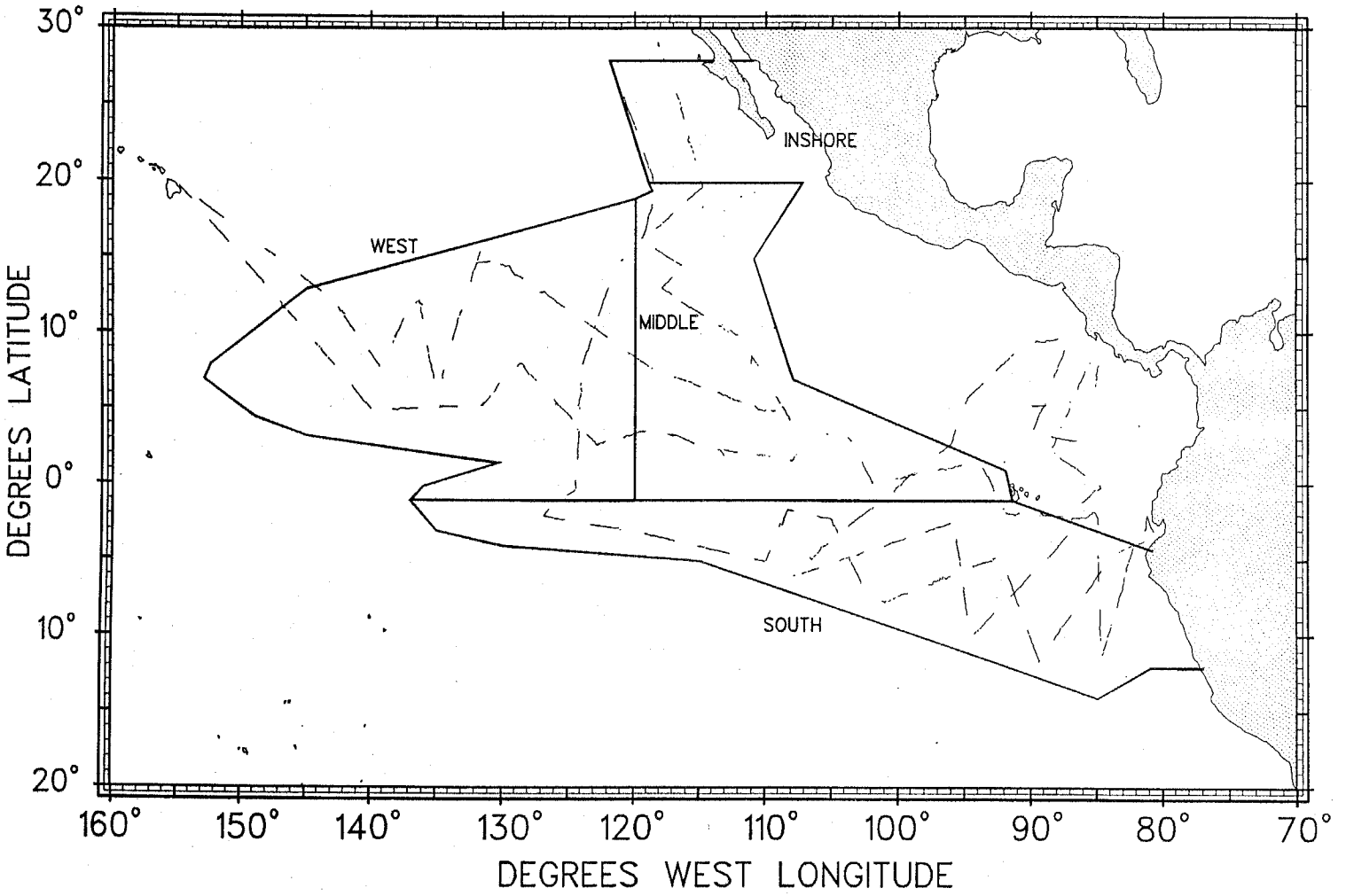


Figure 1. Tracklines surveyed by the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

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 °T	VESSEL SPEED KTS & 10ths	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 DIRECTION °T	SWELL DIRECTION °T	SWELL HEIGHT FEET	VIS.	TIME			LATITUDE	N / S	LONGITUDE	E / W	LEFT BINO.	RIGHT BINO.	REC		

11 13 15 19 22 23 24 26 28 31 34 36 38 42 45 48 52 53 58 59 61 63 65 66

ENDING CODES

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

FOG/RAIN CODES

1 = NO FOG OR RAIN
2 = FOG
3 = RAIN
4 = FOG AND RAIN
5 = HAZY, BUT NO FOG OR RAIN

NOTES:

NOAA FORM 88-209 (6/90)

Figure 2. Research ship marine mammal daily effort record.

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	Y/N BIRDS	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 PROPORTIONS: 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

SP 1 SP 2 SP 3 SP 4

OBSERVER 2

OBS. CODE	SCHOOL SIZE ESTIMATE: BEST	HIGH	LOW	SPECIES PROPORTIONS: 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

SP 1 SP 2 SP 3 SP 4

OBSERVER 3

OBS. CODE	SCHOOL SIZE ESTIMATE: BEST	CARD #	HIGH	LOW	SPECIES PROPORTIONS: 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

SP 1 SP 2 SP 3 SP 4

OBSERVER 4

OBS. CODE	SCHOOL SIZE ESTIMATE: BEST	HIGH	LOW	SPECIES PROPORTIONS: 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

SP 1 SP 2 SP 3 SP 4

OBSERVER 5

OBS. CODE	SCHOOL SIZE ESTIMATE: BEST	HIGH	LOW	SPECIES PROPORTIONS: 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

SP 1 SP 2 SP 3 SP 4

OBSERVER 6

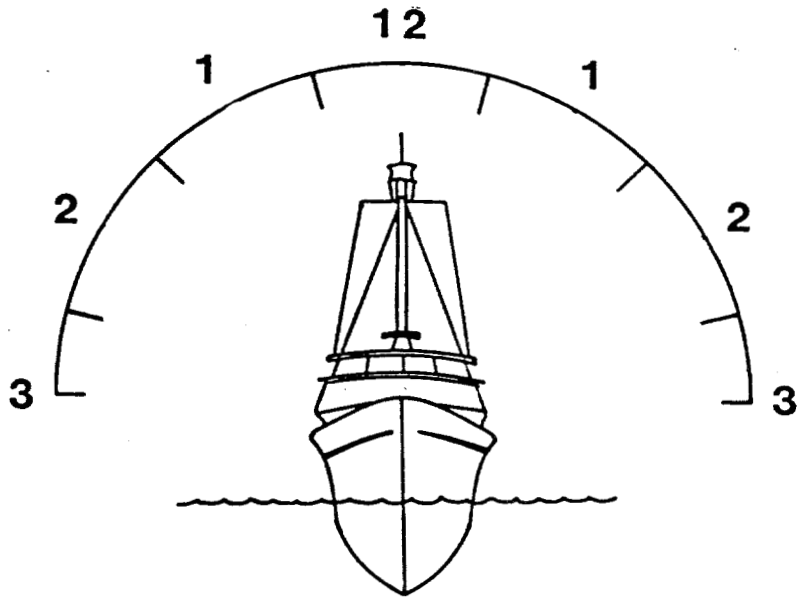
OBS. CODE	SCHOOL SIZE ESTIMATE: BEST	HIGH	LOW	SPECIES PROPORTIONS: SPECIES 1 %	SP 1 CODE	SPECIES 2 %	SP 2 CODE	CARD #	SPECIES 3 %	SP 3 CODE	SPECIES 4 %	SP 4 CODE
								0 5				
55	57	61	65	69	72	74	77 78 17		19	22	24	27

SP 1 SP 2 SP 3 SP 4

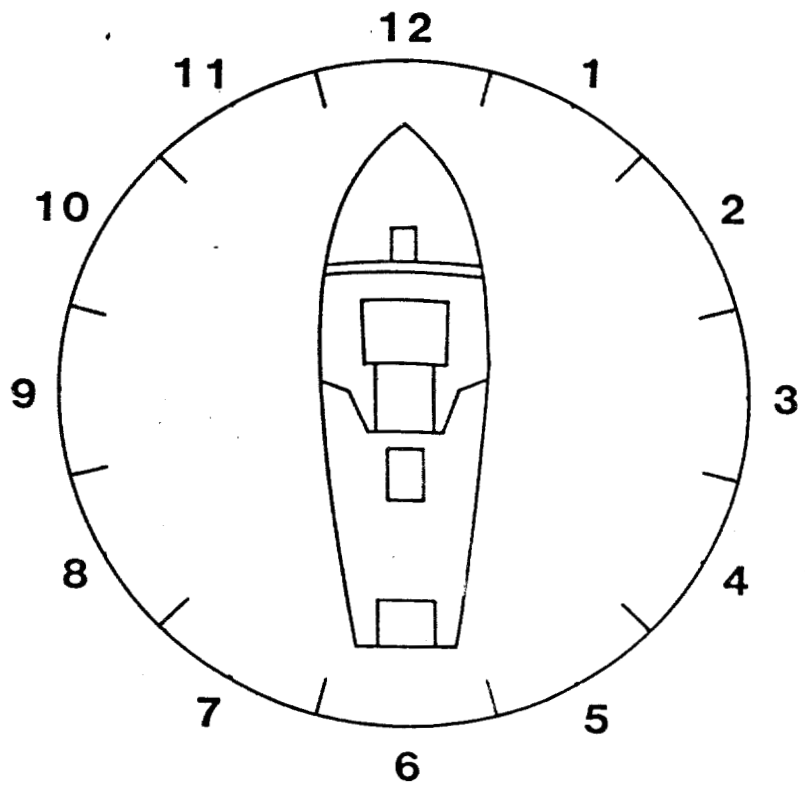
RC 1	RC 2	RC 3	RC 4	RC 5	RC 6
29	30	31	32	33	34

Figure 3. Research ship marine mammal sighting record.

NOAA FORM 88-207 (6/90)



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

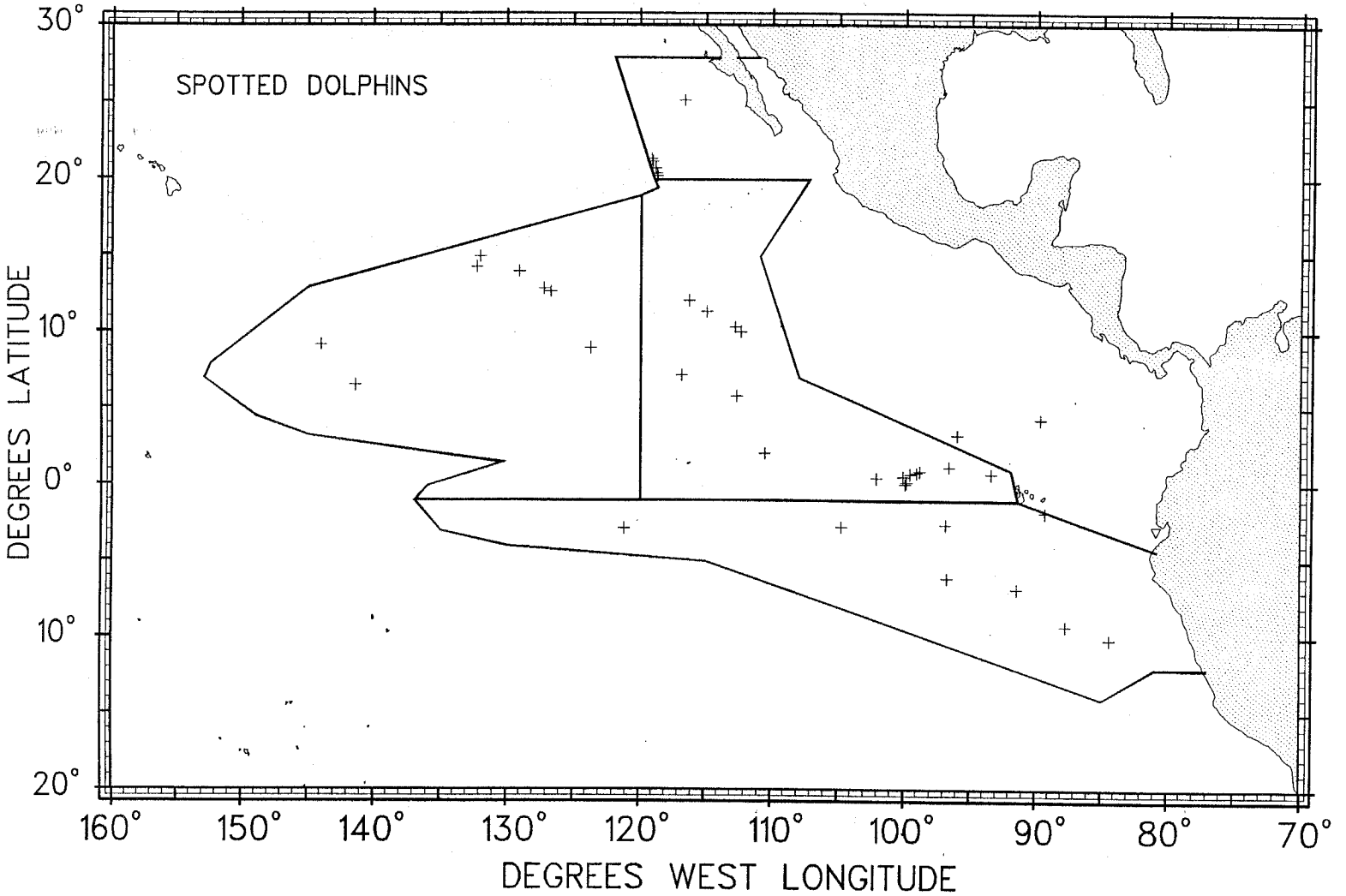


Figure 6. Offshore (+) and unidentified (▽) spotted dolphins detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

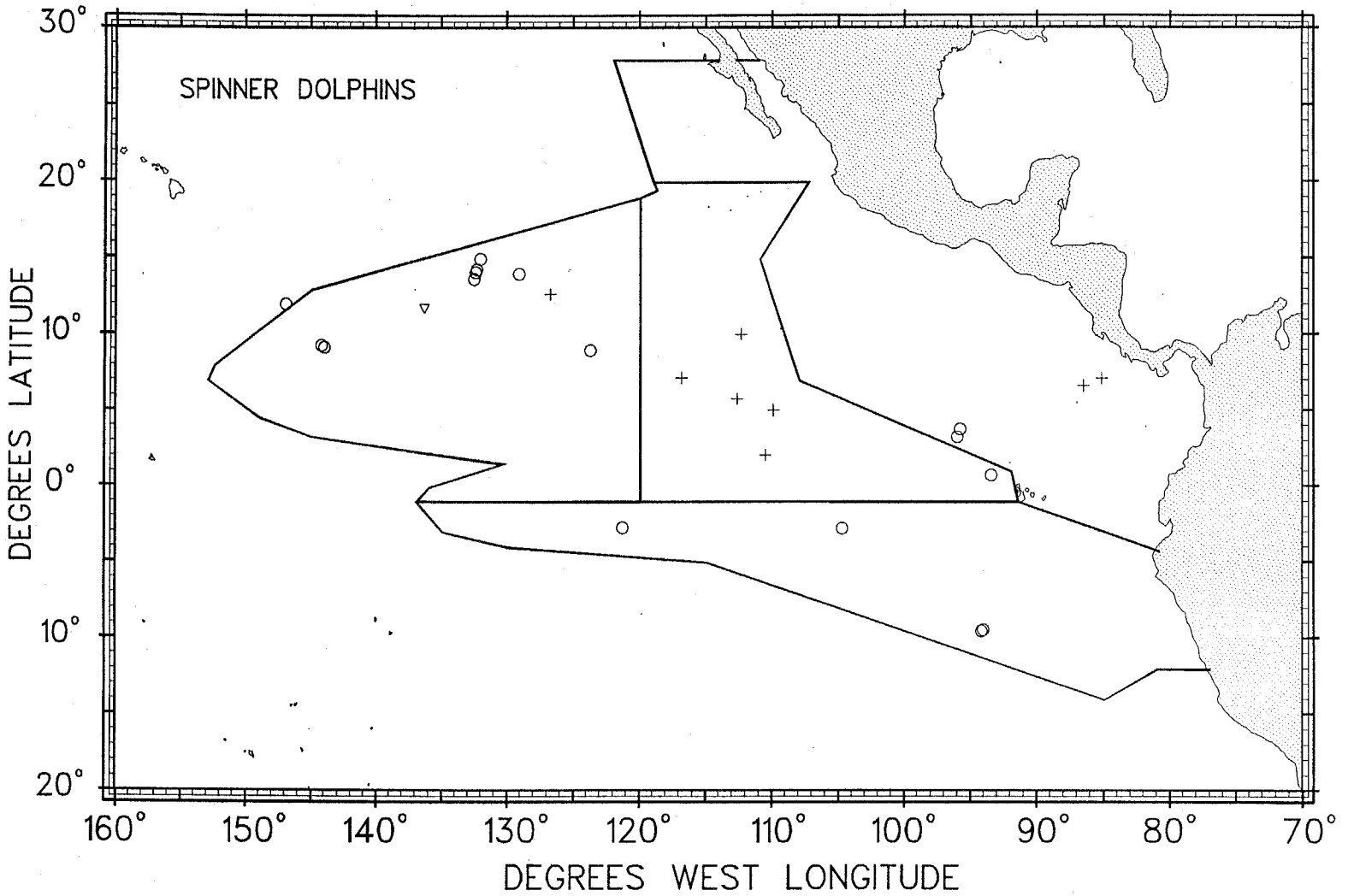


Figure 7. Eastern (+), whitebelly (o) and unidentified (▽) spinner dolphins detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

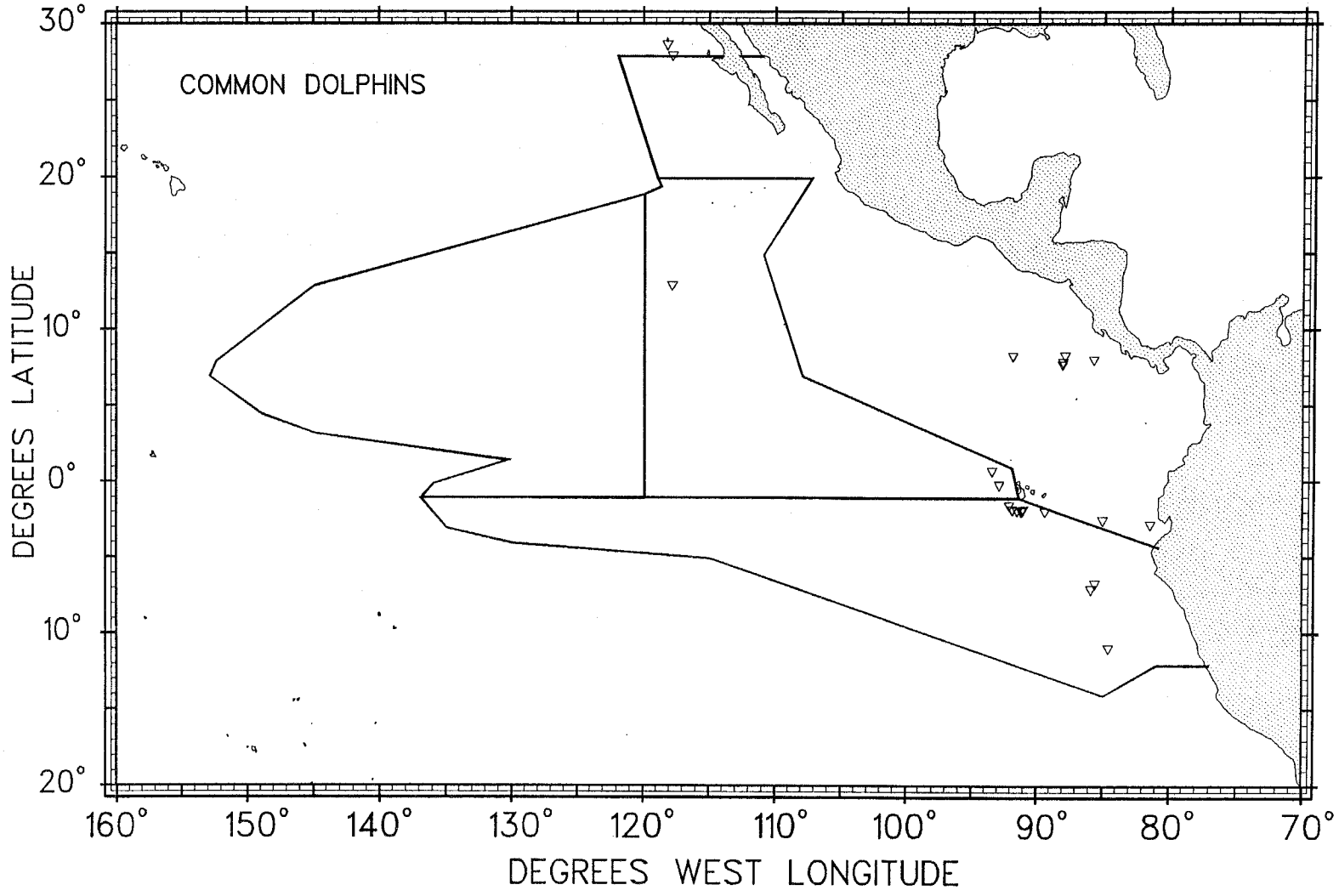


Figure 8. Offshore common dolphins (▽) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

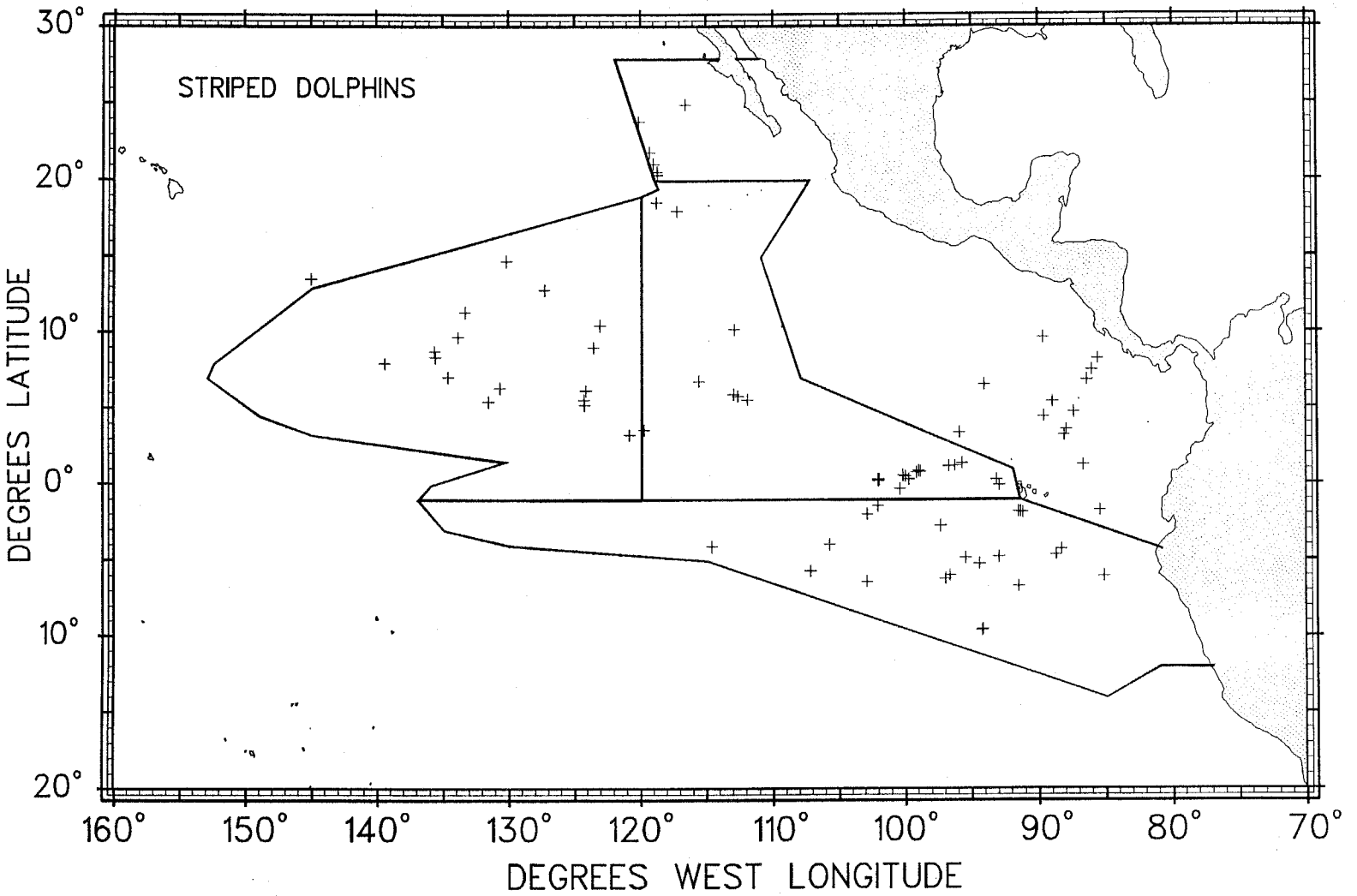


Figure 9. Striped dolphins (+) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

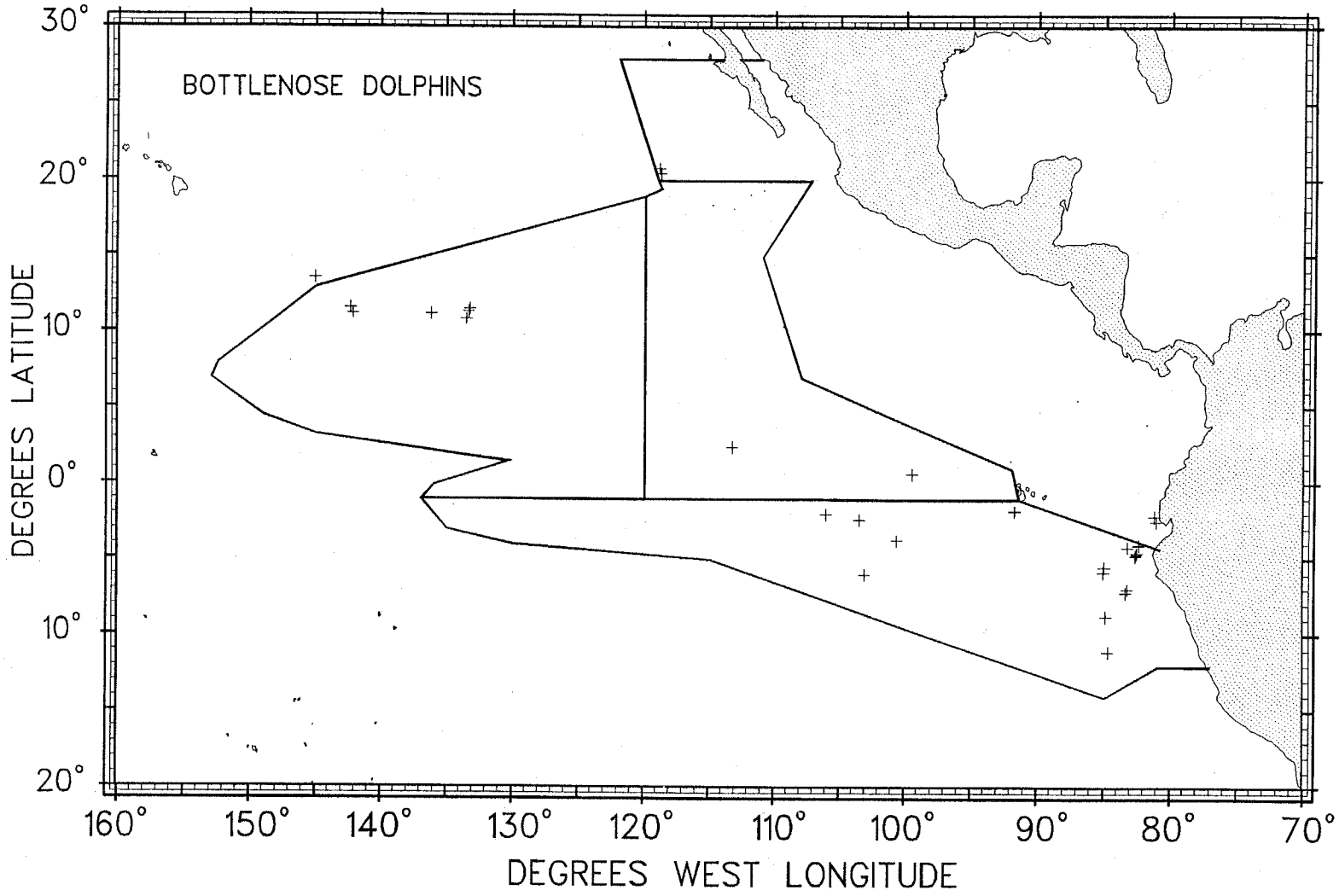


Figure 10. Bottlenose dolphins (+) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

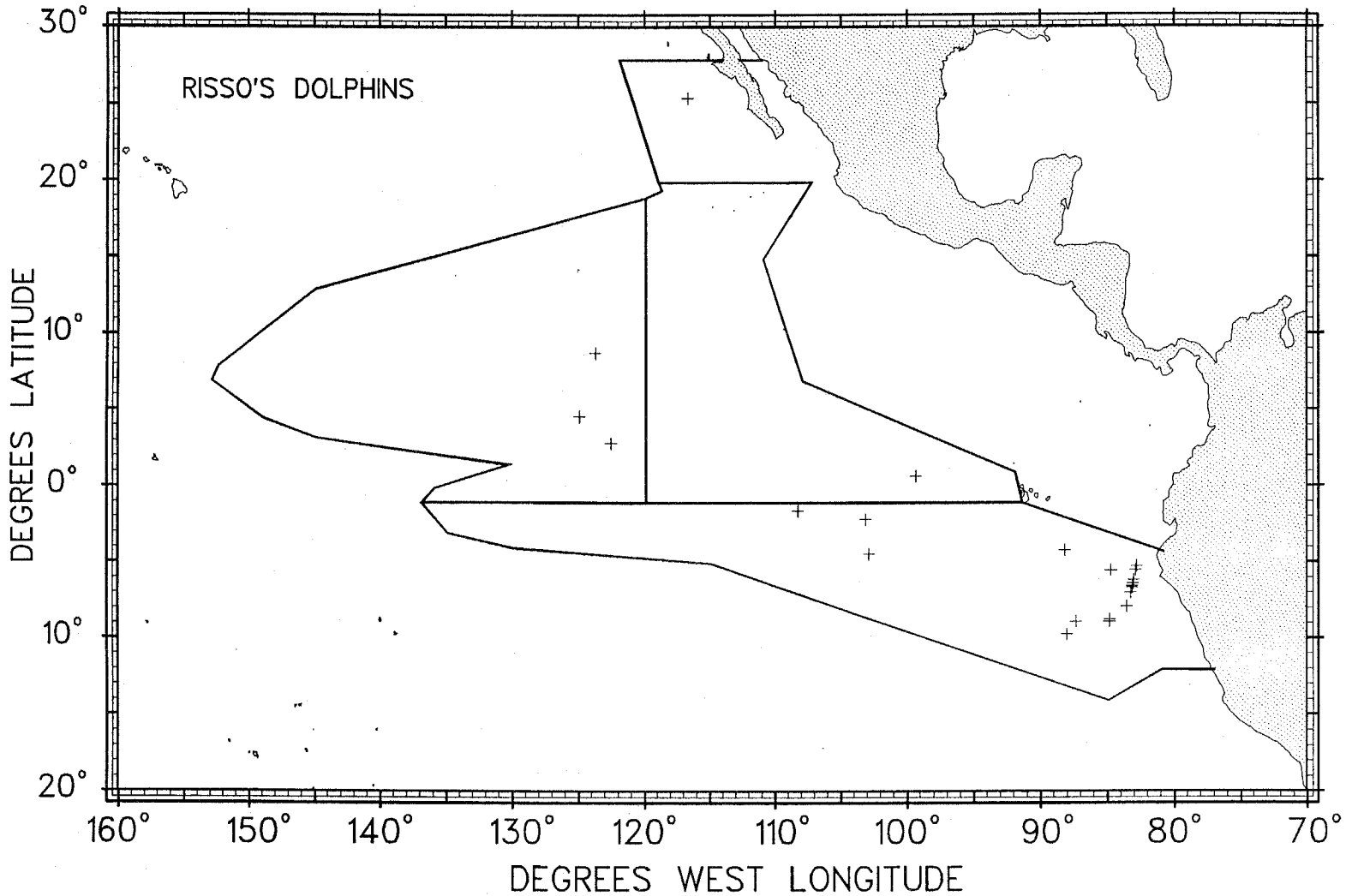


Figure 11. Risso's dolphins (+) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

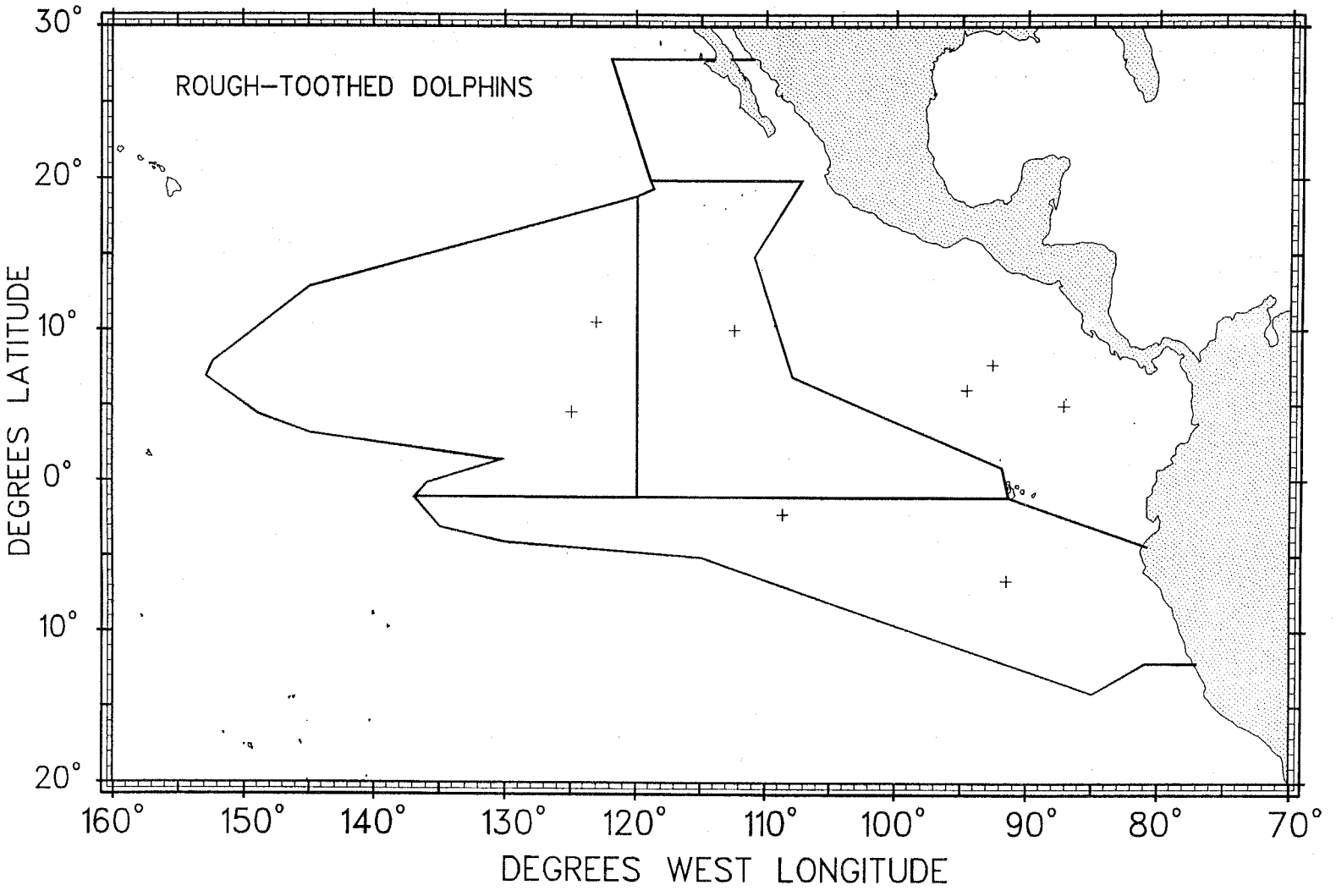


Figure 12. Rough-toothed dolphins (+) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

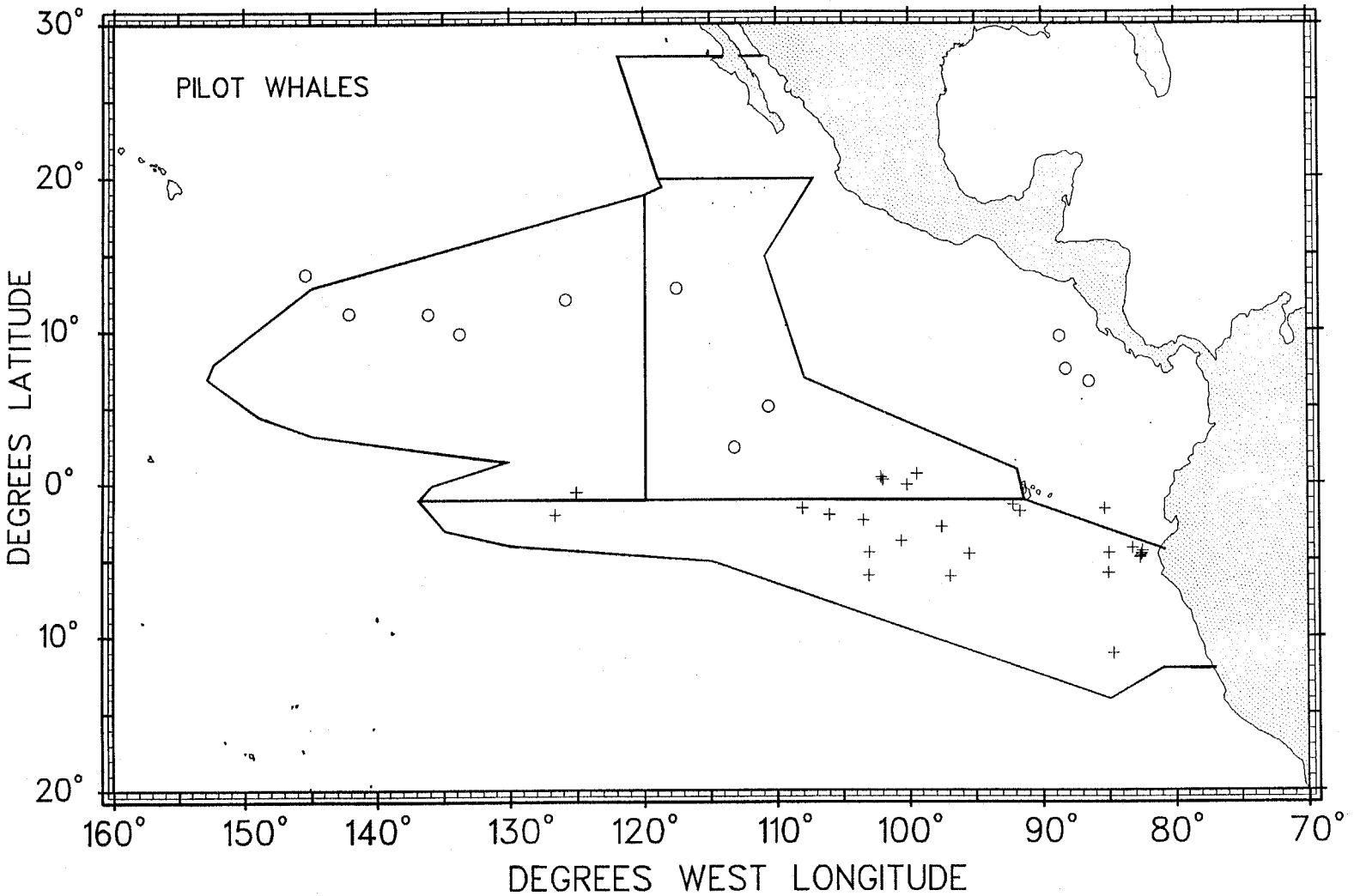


Figure 13. Unidentified (+) and short-finned (o) pilot whales detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

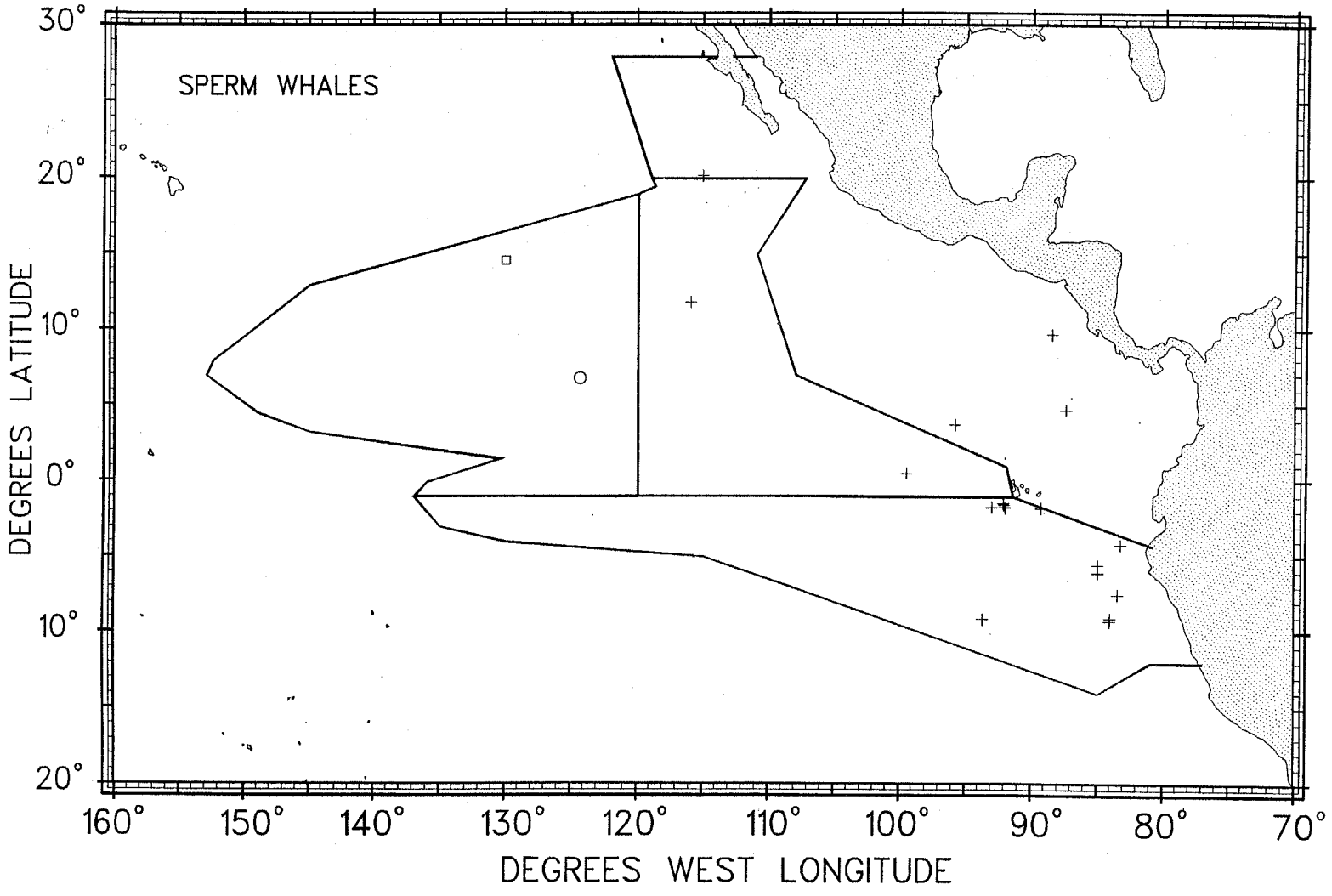


Figure 14. Sperm (+), dwarf sperm (o) and unidentified sperm (dwarf/pygmy; □) whales detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

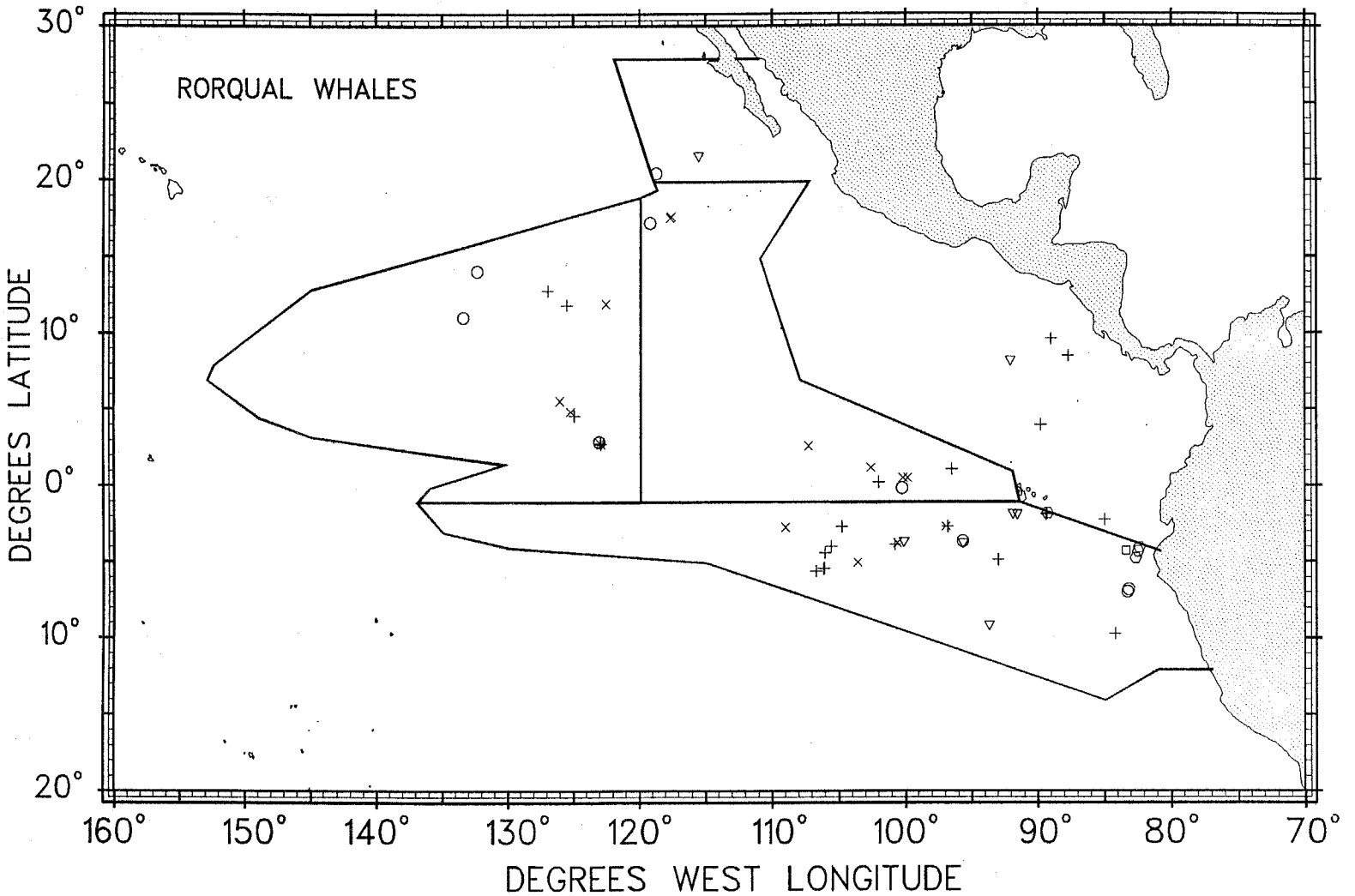


Figure 15. Unidentified rorqual (+), Bryde's (o), blue (▽), minke (□), humpback (o) and unidentified (sei/Bryde's; x) whales detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

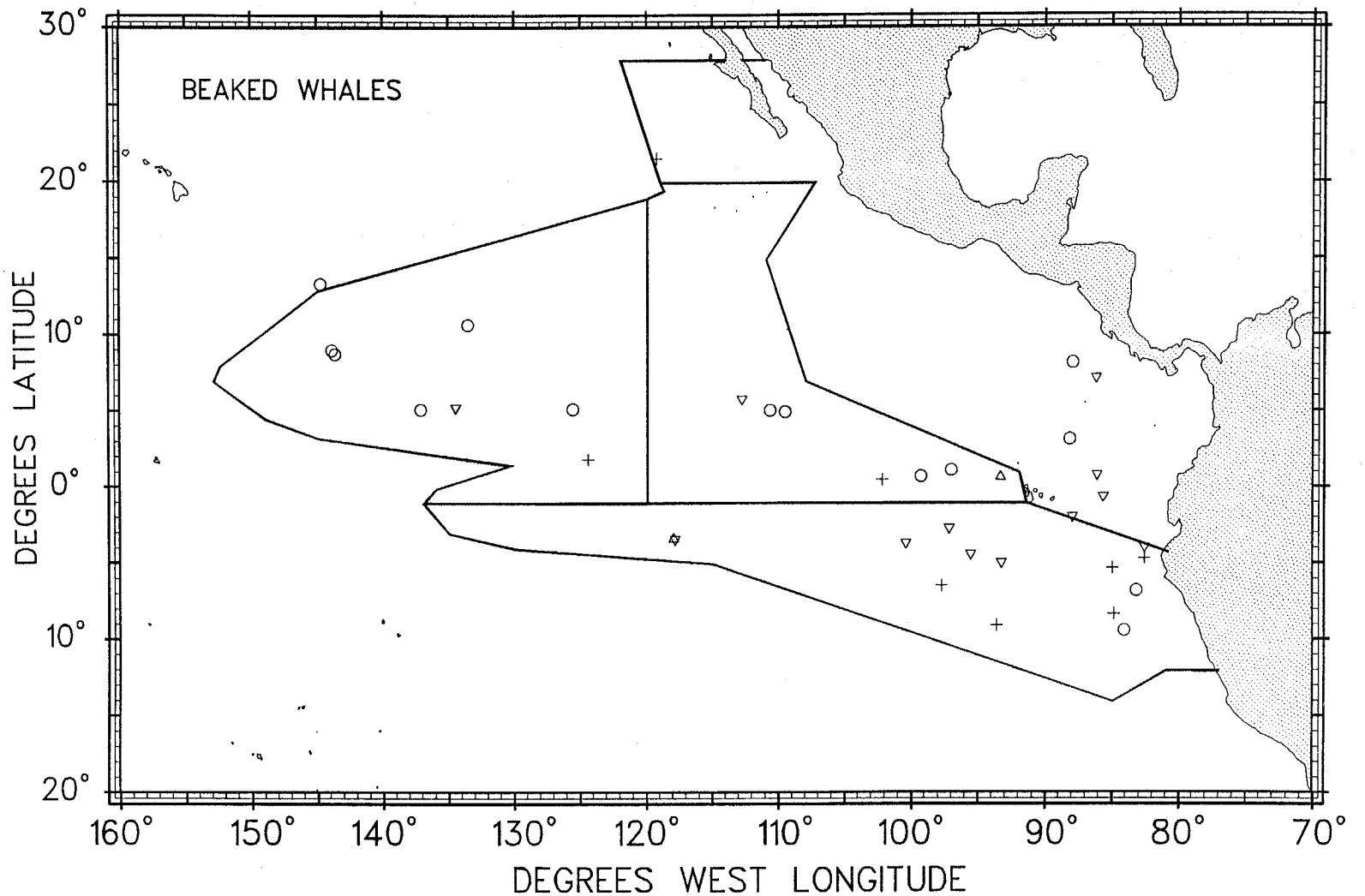


Figure 16. Unidentified beaked (+), Cuvier's beaked (o), unidentified mesoplodon (▽) and Blaineville's beaked (△) whales detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

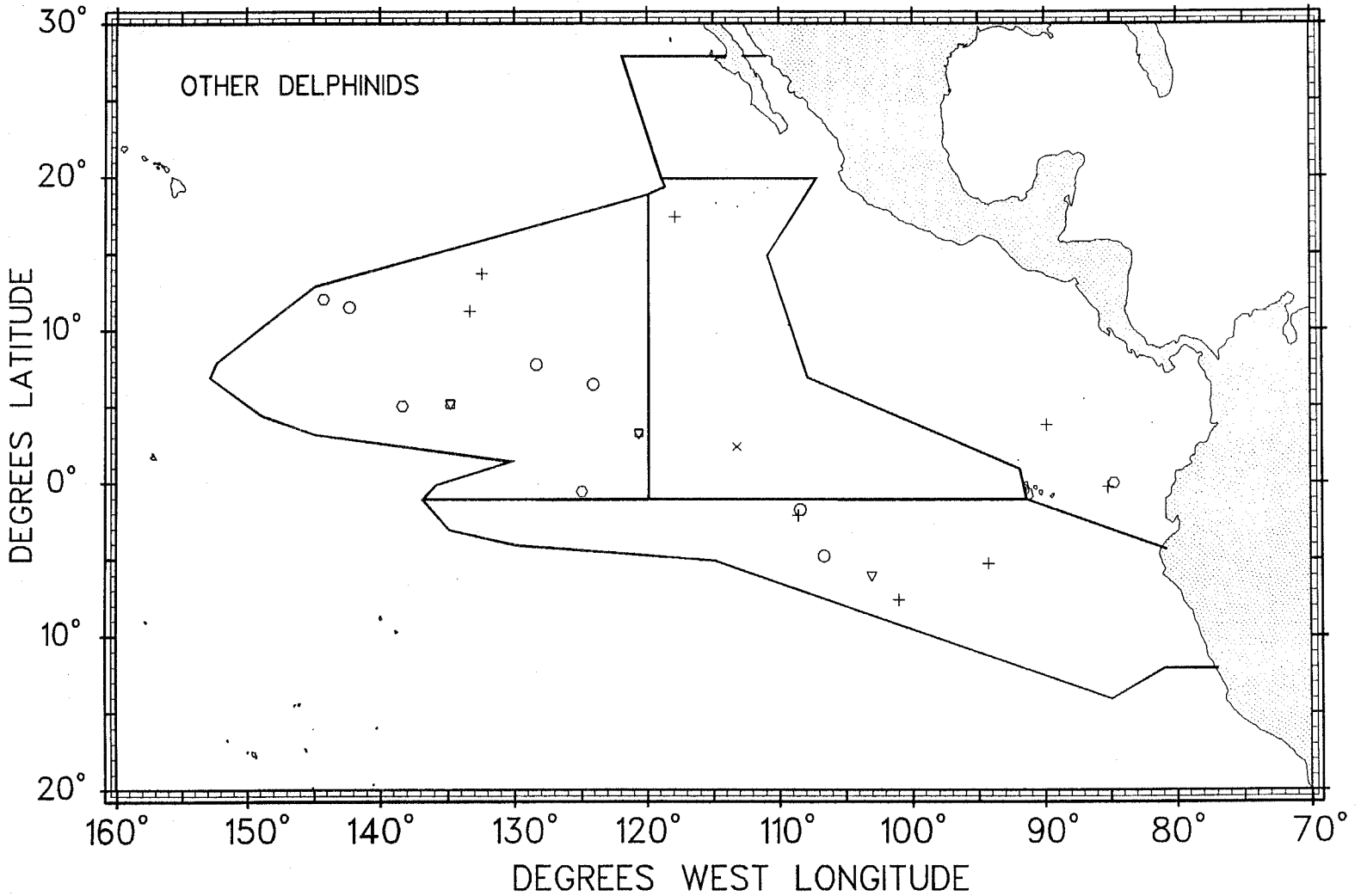


Figure 17. Killer (+) and false killer (o) whales, Fraser's dolphins (▽) and melon-headed (□), pygmy killer (o) and unidentified (melon-headed/pygmy killer; x) whales detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

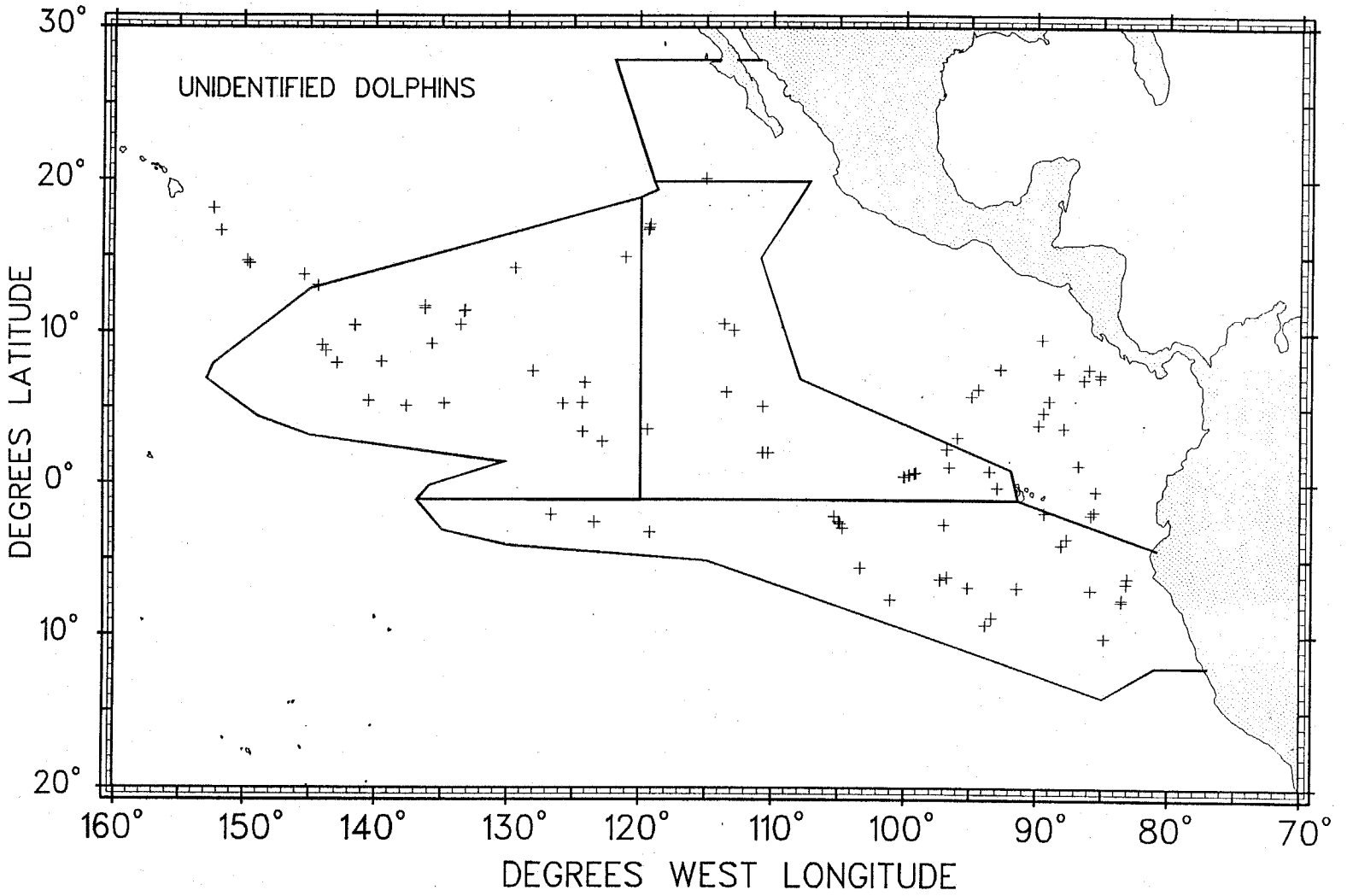


Figure 18. Unidentified dolphins (+) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

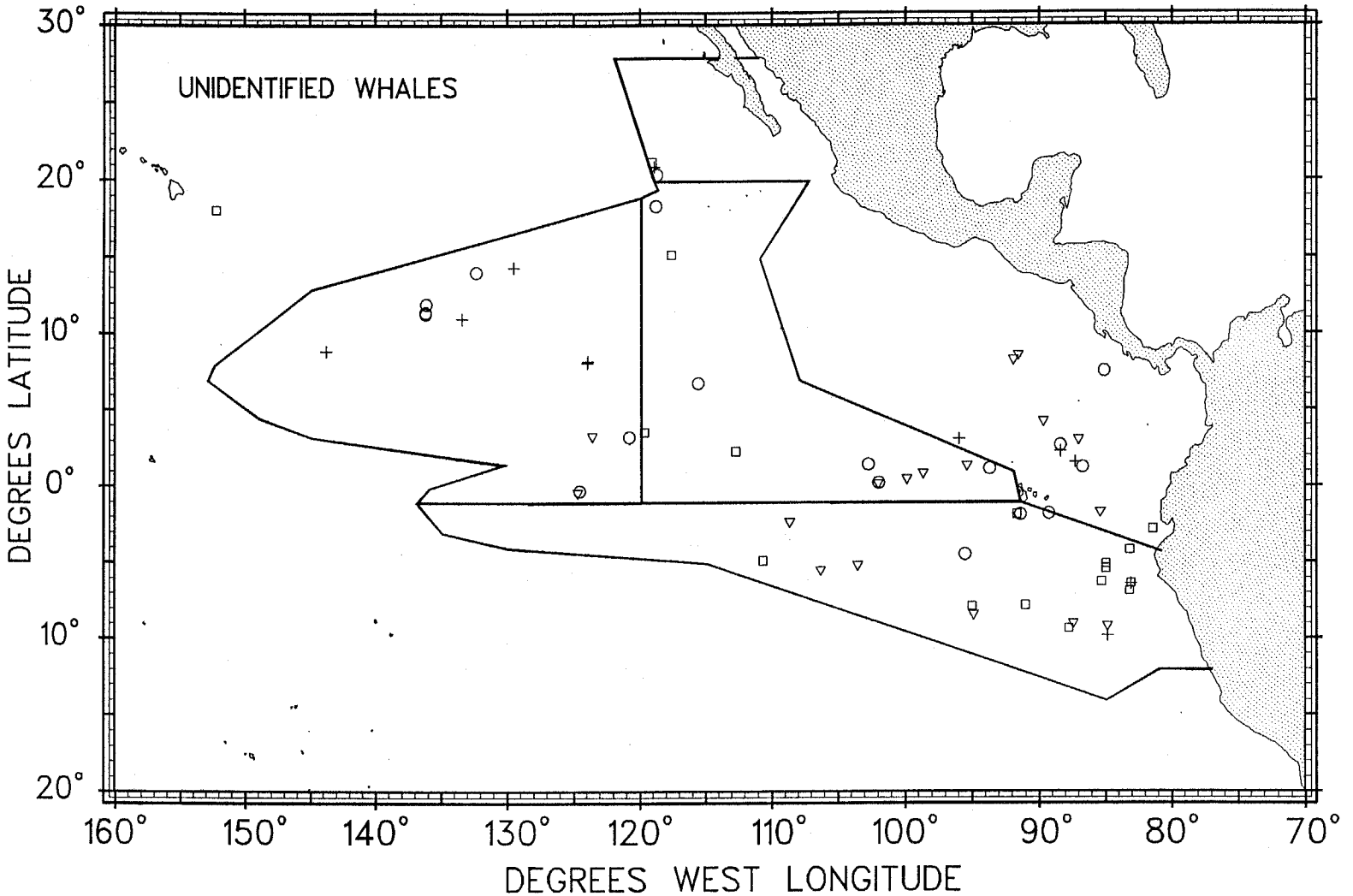


Figure 19. Unidentified small whales (+), unidentified whales (o), unidentified large whales (▽) and unidentified cetaceans (□) detected from aboard the NOAA Ship McArthur from July 28 through December 6, 1990, in the eastern tropical Pacific.

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