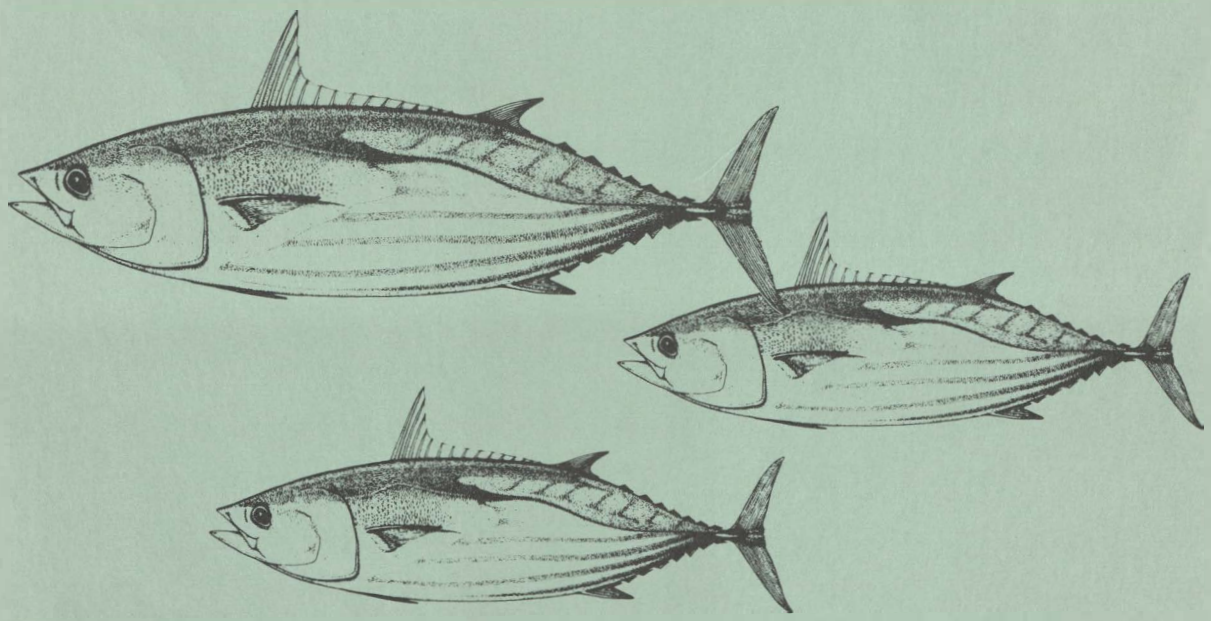
NOVEMBER 1975
No. 11

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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FISHING INFORMATION

NOVEMBER 1975 , No. 11

EDITOR: JAMES A. RENNER

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. This is a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this publication approved by the Office of Management and Budget, August 20, 1973; this approval expires June 1976.

Submitted for publication - December 24, 1975

CONTENTS

ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, 10, 11 and 15-day Supplement)

TECHNICAL EDITOR:
R. Allen
CARTOGRAPHY:
R. Allen, H. Orr

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Fisheries Research Board of Canada, Pacific Environment Institute, West Vancouver, British Columbia
by L.F. Giovando from observations by
T. Carr at Langara Island Light; D.M. Short at Cape St. James Light;
L. Collins at Kains Island Lightstation; I.G. McNeil at Amphitrite Point Light
Scripps Institution of Oceanography, La Jolla, California
Fishing Vessels, *Bold Contender, Cabrillo, Captain Joe Medina, Carol S., Christina C., Elsinore, Evelyn DaRosa, Frances Ann, Kathleen, Lucky Strike, Maria C.J., Marietta, Pan Pacific, Queen Mary, Raefello, Santa Rosa, Saratoga, Trinidad, Venturous, Westport*

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Californian* and *Hawaiian Queen* of Matson Navigation Co. The data are processed under supervision of D.R. McLain at the NMFS Pacific Environmental Group, Monterey, using computer facilities of the Fleet Numerical Weather Center. The project is partially supported by the National Science Foundation and the Office of Naval Research under Government NAonr-9-74.

Sea Surface Temperature and Environmental Conditions

N. CLARK AND F. MILLER

Eastern North Pacific

Seasonal cooling continued over the entire eastern North Pacific during November 1975. The largest decreases in sea surface temperature were in a region between 35°N and 50°N and 135°W and 170°W where temperatures dropped 5 to 7°F (2.8 to 3.9°C) from values in October.

The sea surface temperature anomaly pattern for November is similar to that of October and the one that has persisted over the eastern North Pacific since the beginning of 1975. A large area of 1 to 3°F (0.6 to 1.7°C) above-normal temperatures covered the central North Pacific; 1 to 3°F (0.6 to 1.7°C) below-normal temperatures occurred in the Gulf of Alaska, 3 to 5°F (1.7 to 2.8°C) below-normal temperatures were off the western coast of North America, and 1 to 3°F (0.6 to 1.7°C) below-normal temperatures occurred over a large area extending westward from Baja California to the Hawaiian Islands.

The greatest change in the anomaly pattern occurred in a region located between 35°N and 45°N and 140°W and 160°W where temperatures that were 1 to 3°F (0.6 to 1.7°C) above-normal dropped to 1 to 3°F (0.6 to 1.7°C) below-normal values.

Sea level pressures were above normal over the eastern North Pacific south of 45°N and below normal between 45°N and the Aleutian Islands and over the Gulf of Alaska. The resultant pressure gradients caused greater-than-normal west-to-southwesterly winds over the eastern North Pacific between 40°N and 55°N which, in turn, caused increased heat exchange between the ocean and atmosphere and further erosion of the north and northeast portions of the relatively warm water region in the central North Pacific.

Western North Pacific

The greatest change in the sea surface temperature anomaly pattern occurred in a region bounded by 20°N and 35°N and 150°E and 180° where temperatures that were 1 to 2°F (0.6 to 1.1°C) below normal or just slightly above increased to 1 to 3°F (0.6 to 1.7°C) above-normal values in November 1975. Farther to the north between 35°N and 45°N, the area of below-normal temperatures that persisted throughout the summer and early fall months continued to decrease in size and intensity, with small regions of above-normal temperatures appearing.

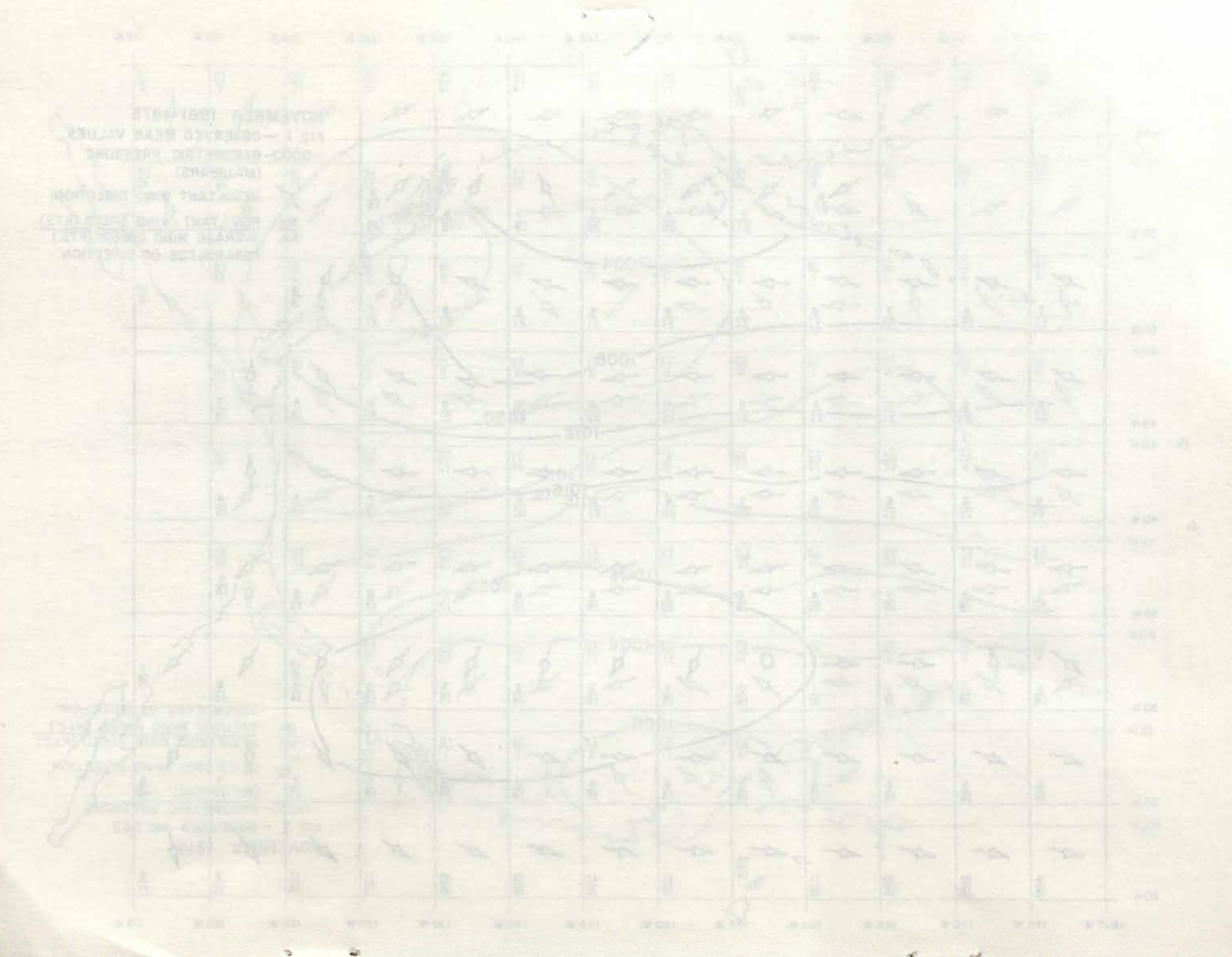
Other changes in the anomaly pattern occurred southwest of Honshu where 1 to 4°F (0.6 to 2.2°C) above-normal temperatures decreased to 1 to 2°F (0.6 to 1.1°C) below-normal values and in a region bounded by 20°N and 35°N and 135°E and 150°E where above-normal temperatures decreased to slightly below-normal values.

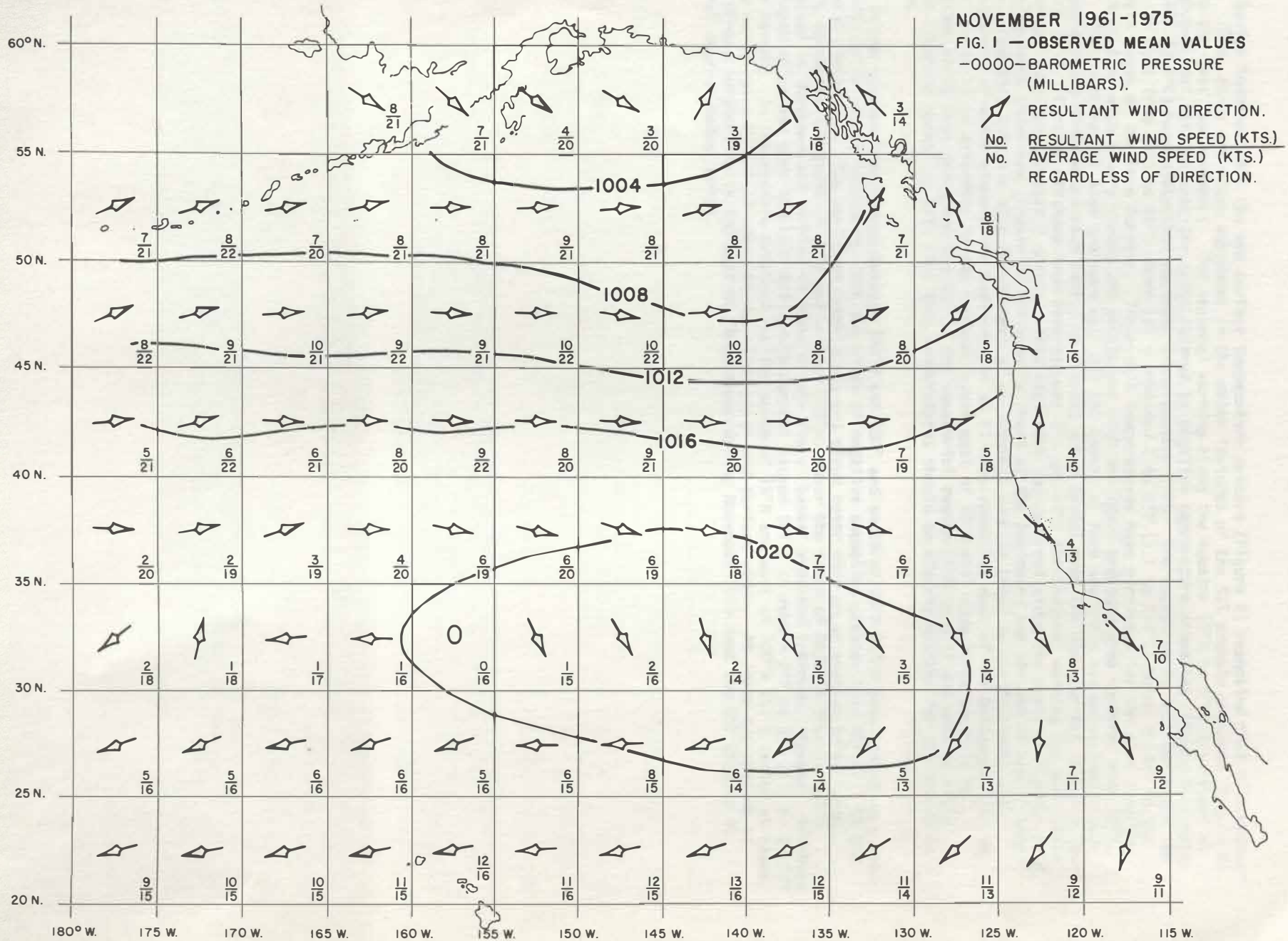
Eastern Tropical Pacific

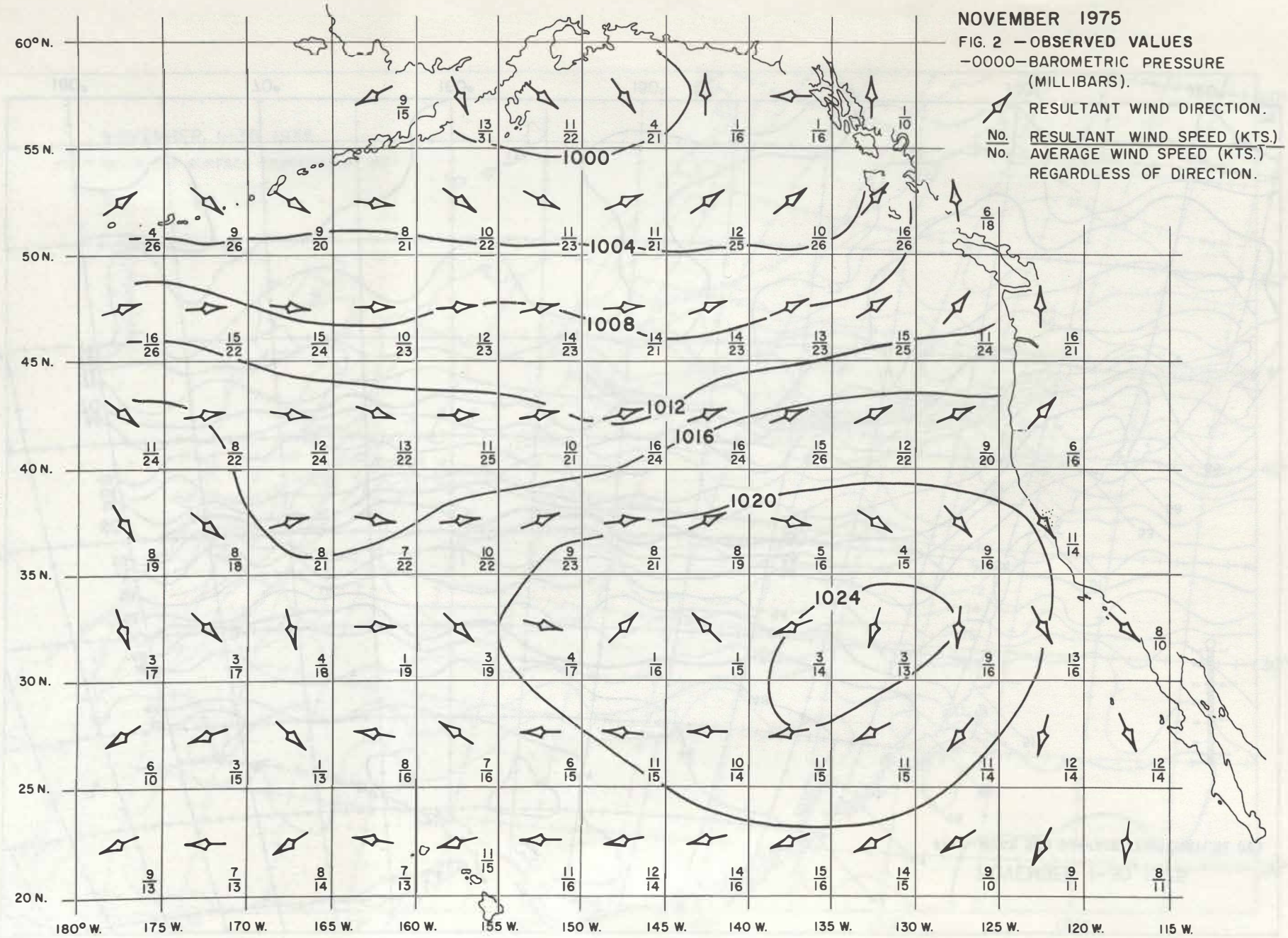
During November in the northern hemisphere sea surface temperatures normally decrease with the greatest seasonal decreases of 2 to 3°F (1.1 to 1.7°C) along the west coasts of Baja California and Mexico between 10°N and 30°N. In the southern hemisphere there is a seasonal warming trend with a maximum of 2 to 3°F (1.1 to 1.7°C) at the surface of the Peru Current from 5°N to 25°S. Elsewhere south of the equator there is normally a slight warming in the surface layers during November.

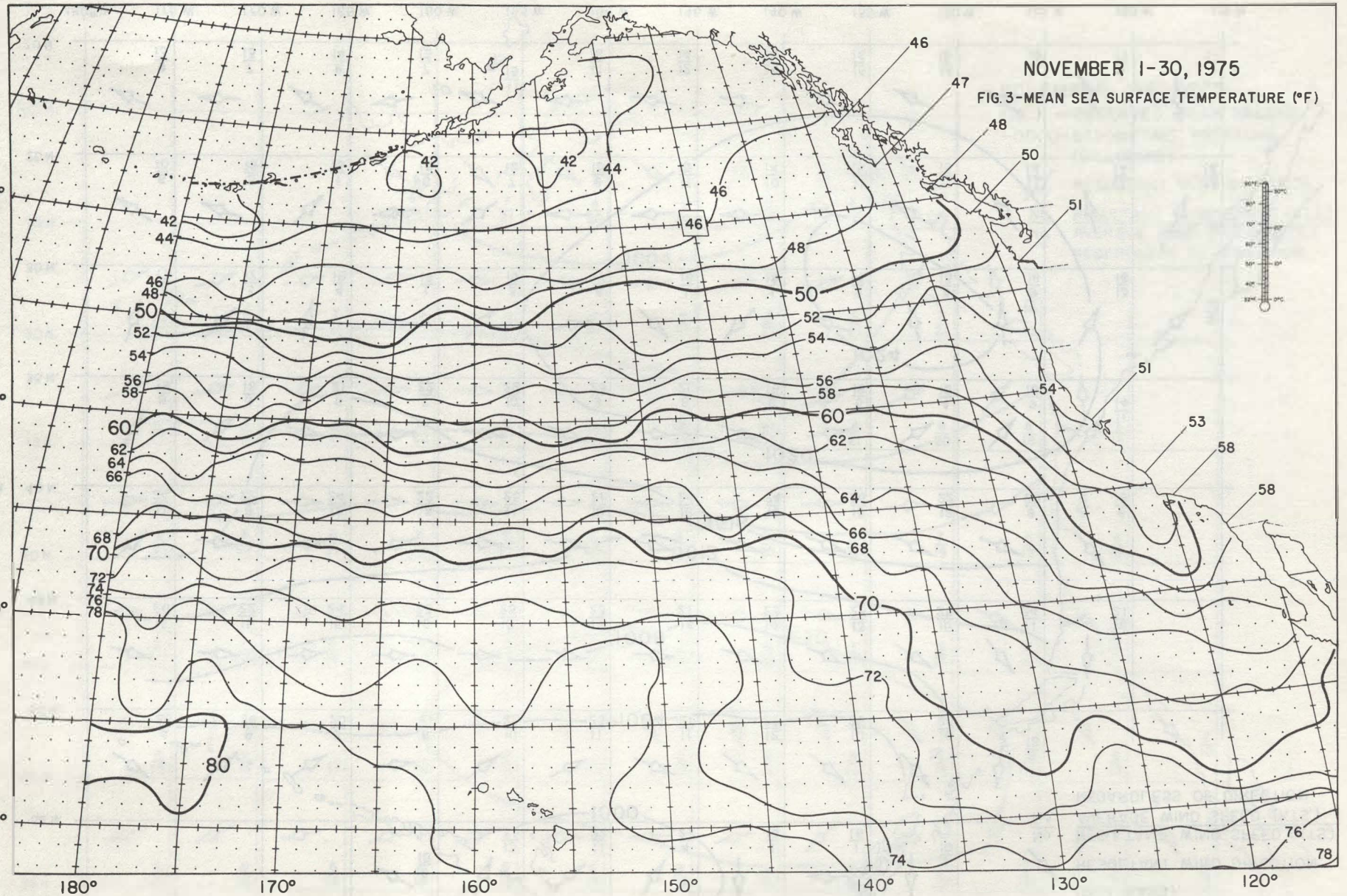
During November 1975 the sea surface temperature pattern (Figure 8) resembled that of November 1974. Thus, there was close agreement in the major features of the SST anomaly patterns (Figure 9) during the last two Novembers. The seasonal warming along the equator (5°N to 5°S) progressed at an above-normal rate because the areas covered by negative temperature anomalies (Figure 9) greater than 4°F (2.2°C) have diminished markedly since October 1975. One exception to this was along the coast of Peru from 10°S to 20°S where SST's remained 2 to 5°F (1.1 to 2.8°C) below normal in the offshore areas of the Peru Current. These cold temperatures have persisted for the past 3 months in association with a very strong and persistent high sea level pressure area centered near 30°S, 90°W. This subtropical high pressure cell off the coasts of Peru and Chile has maintained steady southeast trade winds which have been 3 to 7 knots above normal over the Peru Current region between 5°S and 25°S. Farther offshore from Peru between 5°S and 12°S the seasonal warming has been above the normal rate for the past 2 months. This condition has occurred along the coast of Ecuador also. These two warm anomalies (Figure 9) are usually found at the beginning and the end of non-El Niño years. However, they are also forerunners of an abnormal warming trend in the following late southern winter which signals the beginning of an El Niño condition east of the Galápagos Islands. It is too early to determine if the surface layers east of 90°W will show large positive SST anomalies early next year; but the SST in the equatorial region (5°N to 5°S) and west of 100°W are so close to normal at this time that temperatures should be closely watched for the next 3 to 4 months.

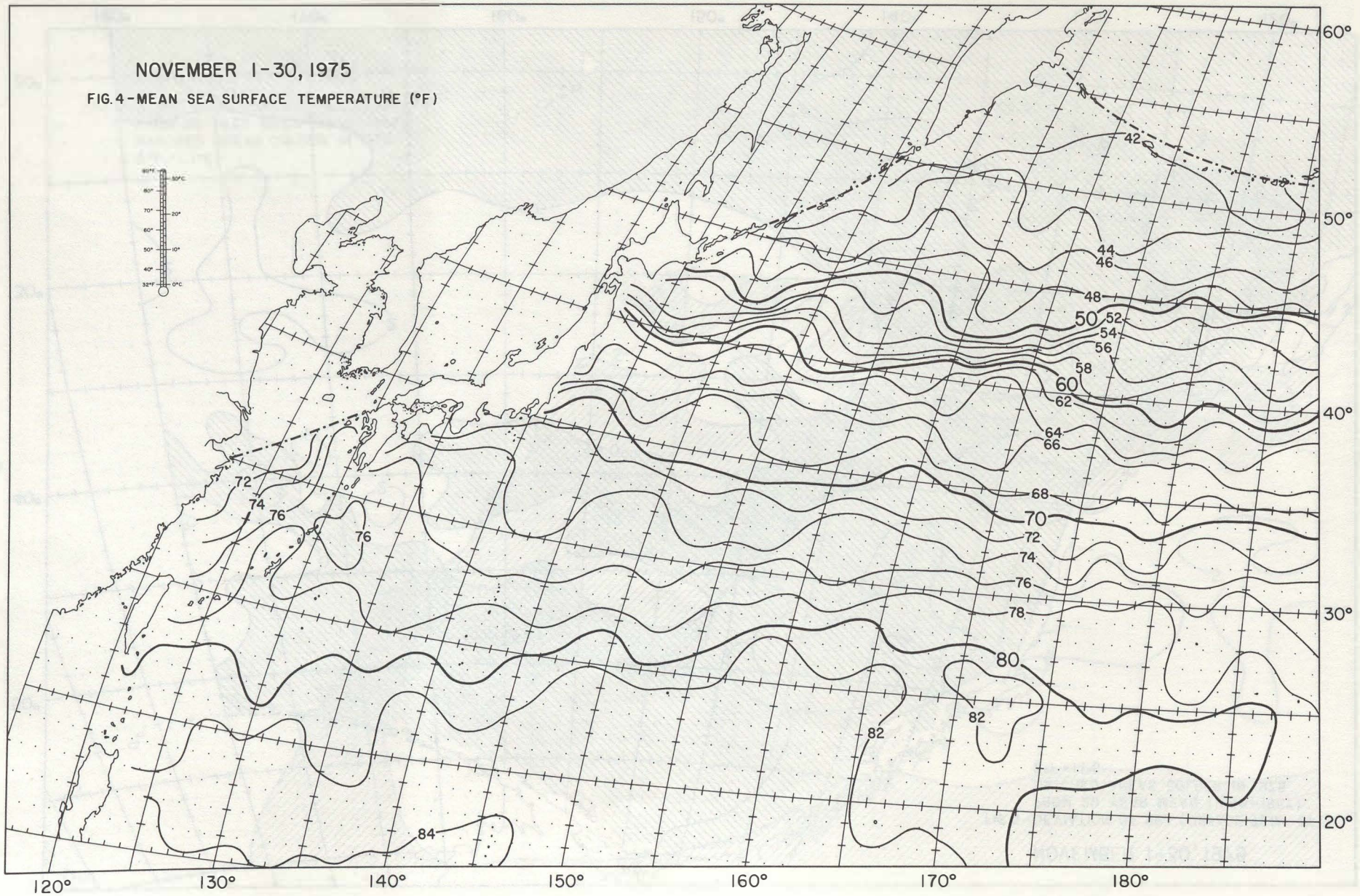
In the northern hemisphere between 120°W and 180° and south of 20°N SST's have cooled at a rate slightly below normal indicating that the areas of negative anomalies greater than 2°F (1.1°C) are somewhat diminished. The northeast trade winds and cloud cover were on an average below normal during November 1975 south of 20°N and west of 120°W. Near the coast of Baja California SST's increased in November and fishing in parts of the "local banks" area had improved. However, offshore a hundred miles and more the cold California Current caused SST's to remain 2°F to 4°F (1.1 to 2.2°C) below normal. In the eastern tropical Pacific south of 15°N and east of 100°W SST's cooled at rates above normal as a result of above-normal cloud cover and surface winds. At least two periods of very strong northerlies in the Gulf of Tehuantepec during November 1975 kept the SST (Figure 8) several degrees below normal.

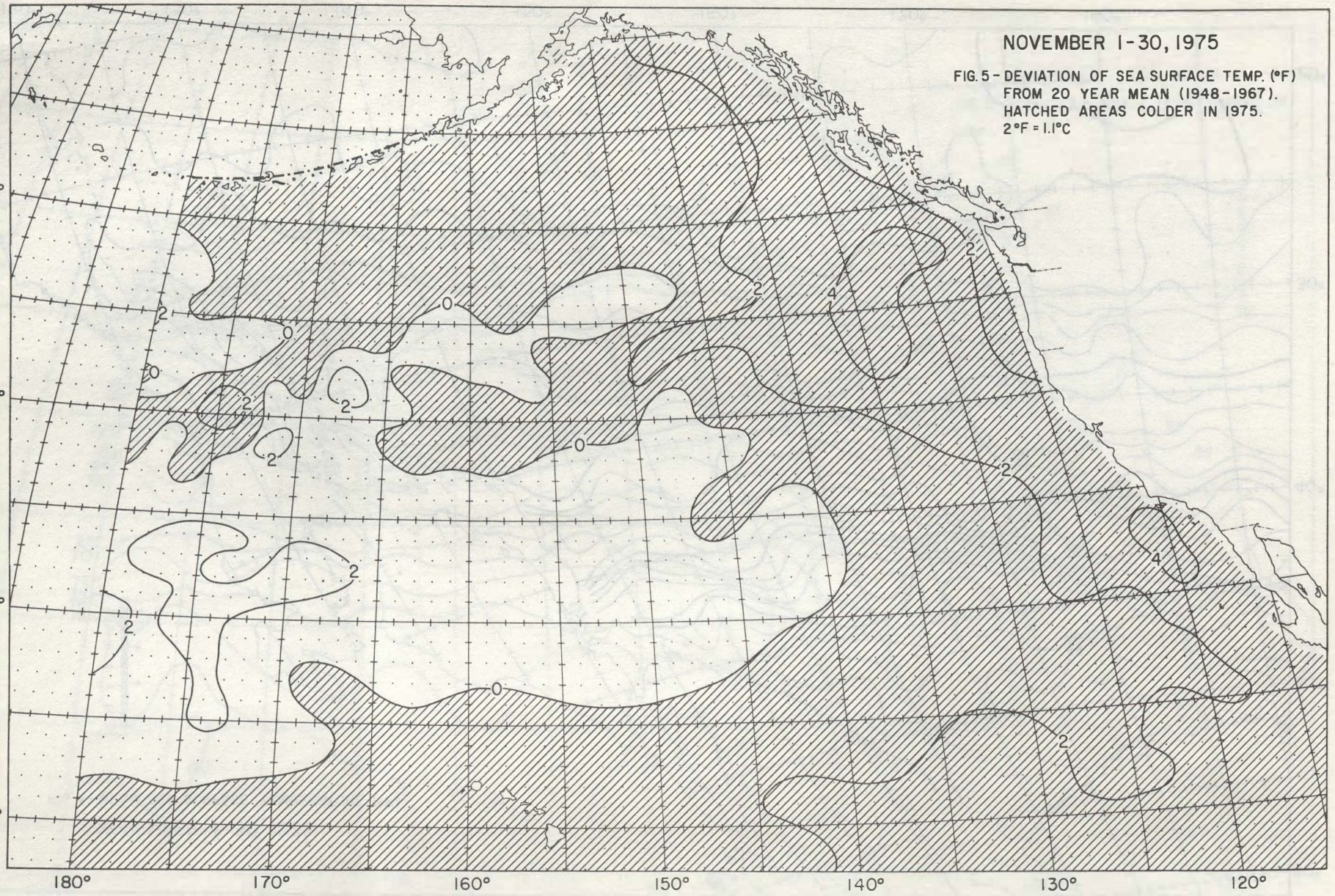


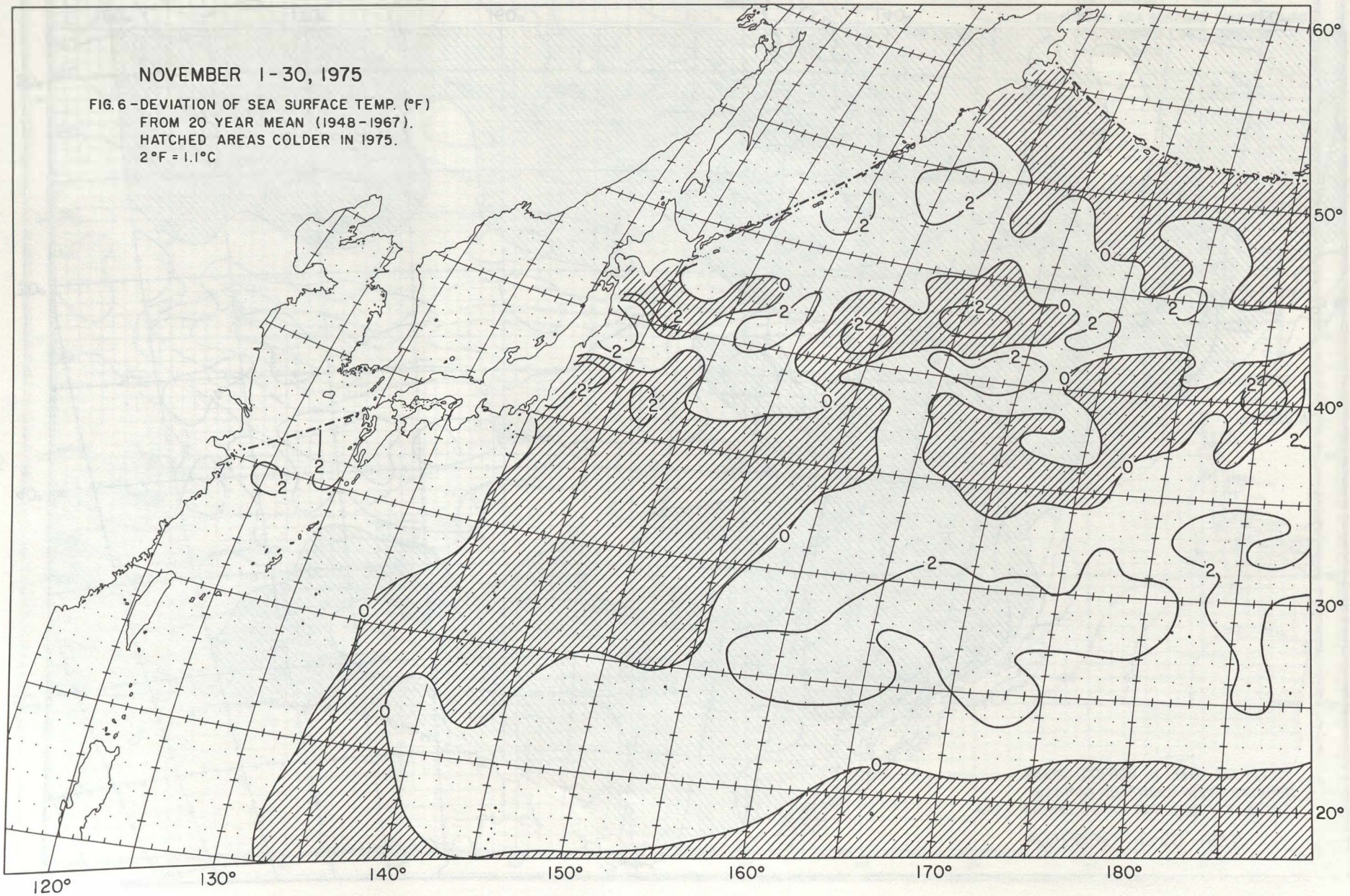

NOVEMBER 1961-1975
FIG. 1 —OBSERVED MEAN VALUES
-0000-BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

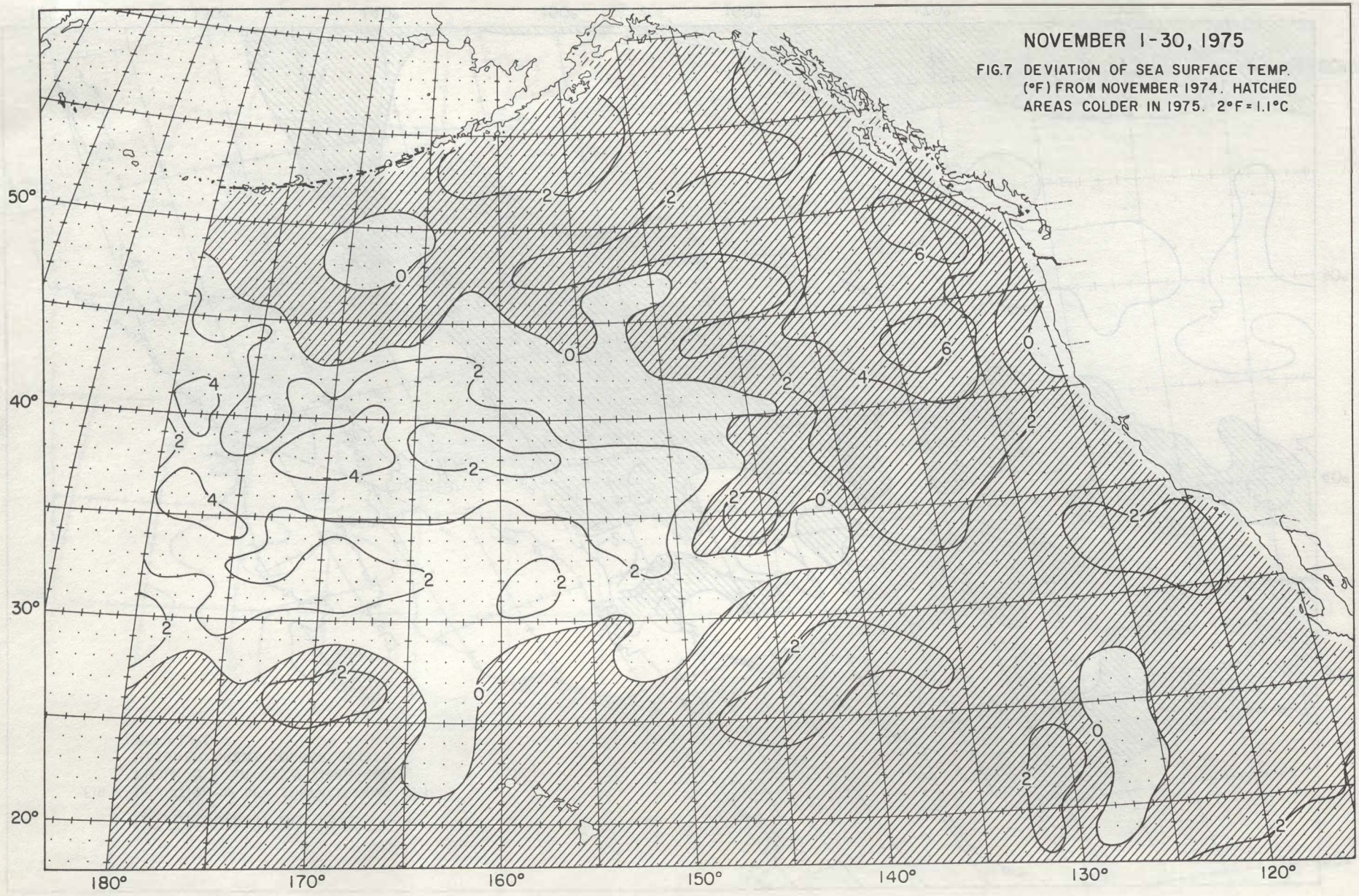

NOVEMBER 1975
FIG. 2 —OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. / No. RESULTANT WIND SPEED (KTS.) / AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1000
1004
1008
1012
1016
1020
1024
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

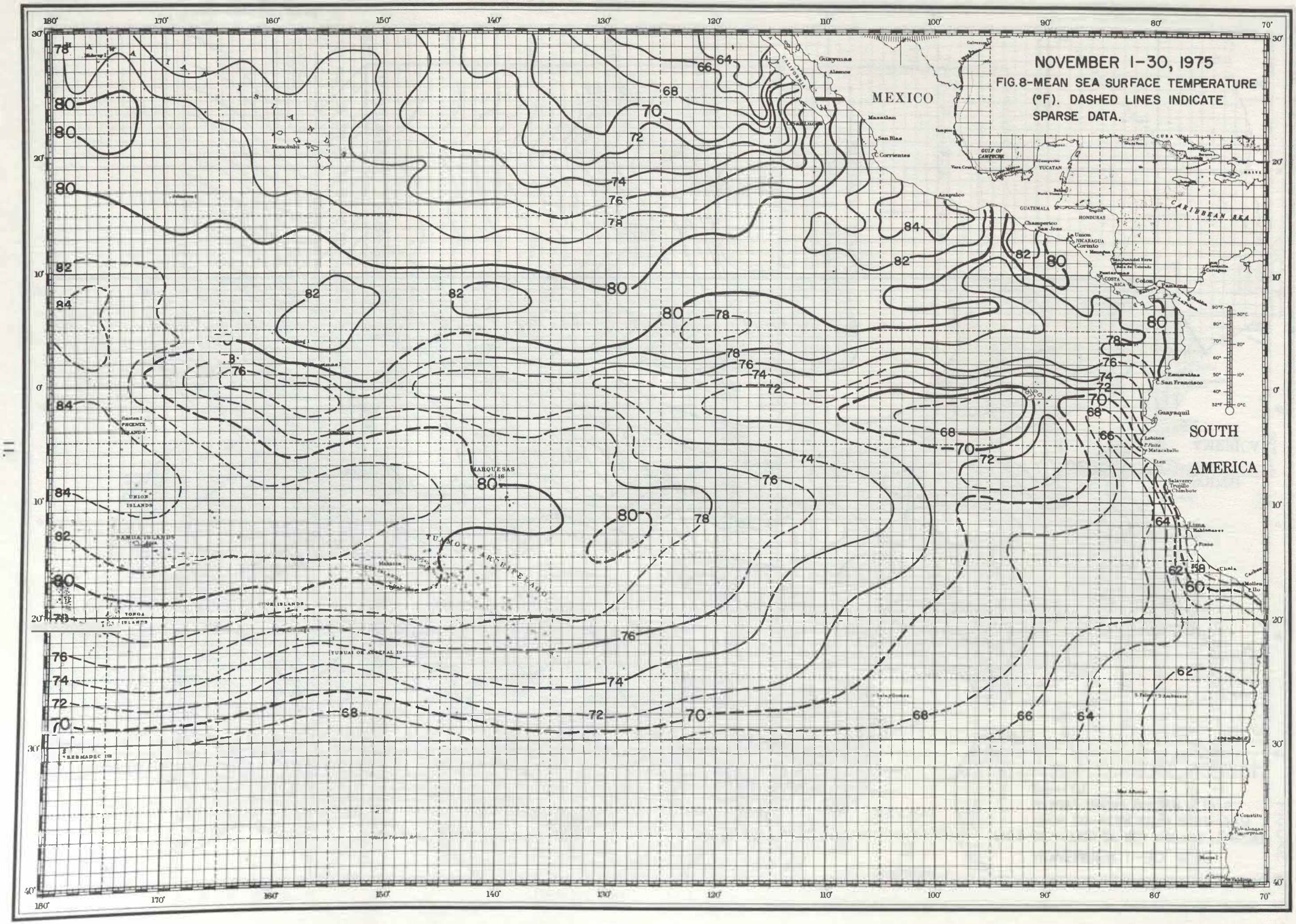

NOVEMBER 1-30, 1975
FIG. 3-MEAN SEA SURFACE TEMPERATURE (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
47
51
53


NOVEMBER 1-30, 1975
FIG. 4 - MEAN SEA SURFACE TEMPERATURE (°F)
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


NOVEMBER 1-30, 1975
FIG. 5 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20 YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1975. 2°F = 1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4


NOVEMBER 1-30, 1975
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM 20 YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1975. 2°F = 1.1°C
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
0
2


NOVEMBER 1-30, 1975
FIG.7 DEVIATION OF SEA SURFACE TEMP. (°F) FROM NOVEMBER 1974. HATCHED AREAS COLDER IN 1975. 2°F = 1.1°C
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
10.



NOVEMBER 1–30, 1975

FIG. 8–MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.

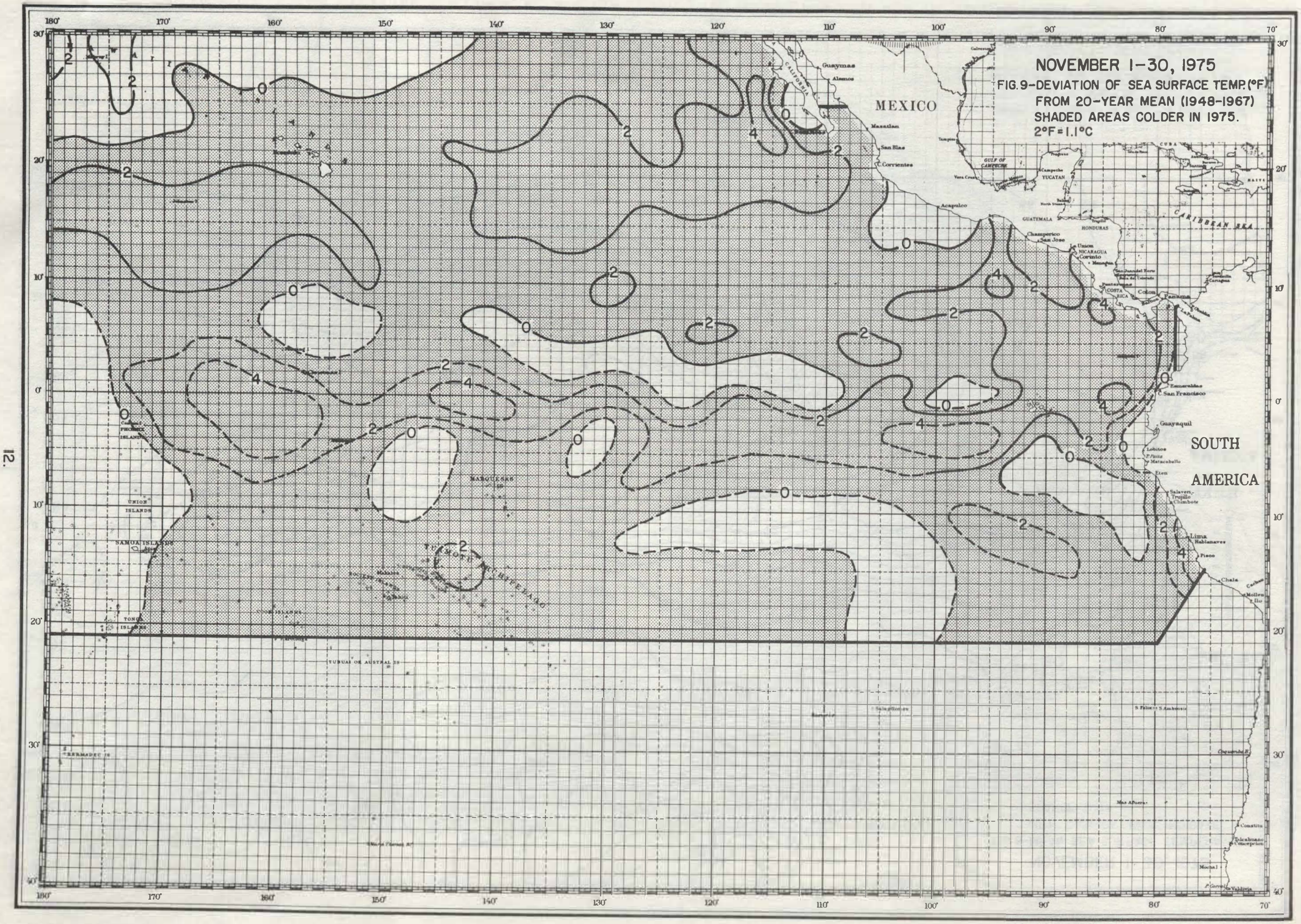
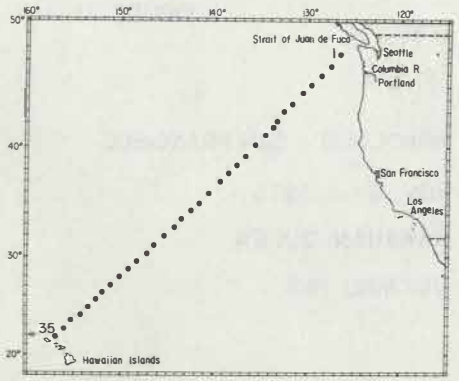
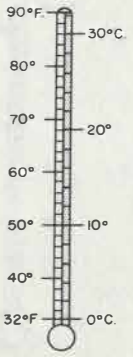

NOVEMBER 1-30, 1975
FIG. 9-DEVIATION OF SEA SURFACE TEMP. (°F)
FROM 20-YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1975.
2°F = 1.1°C
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
Guaymas
Mazatlan
San Blas
Acapulco
Guayaquil
Lima
MARQUESAS
SAMOA ISLANDS
UNION ISLANDS
COOK ISLANDS
TUBUAI OR AUSTRAL IS.

FIGURE 10





HONOLULU — SEATTLE
(Makapuu Pt. — St. of Juan de Fuca)

OCTOBER 23-29, 1975

CALIFORNIAN

VOYAGE 264

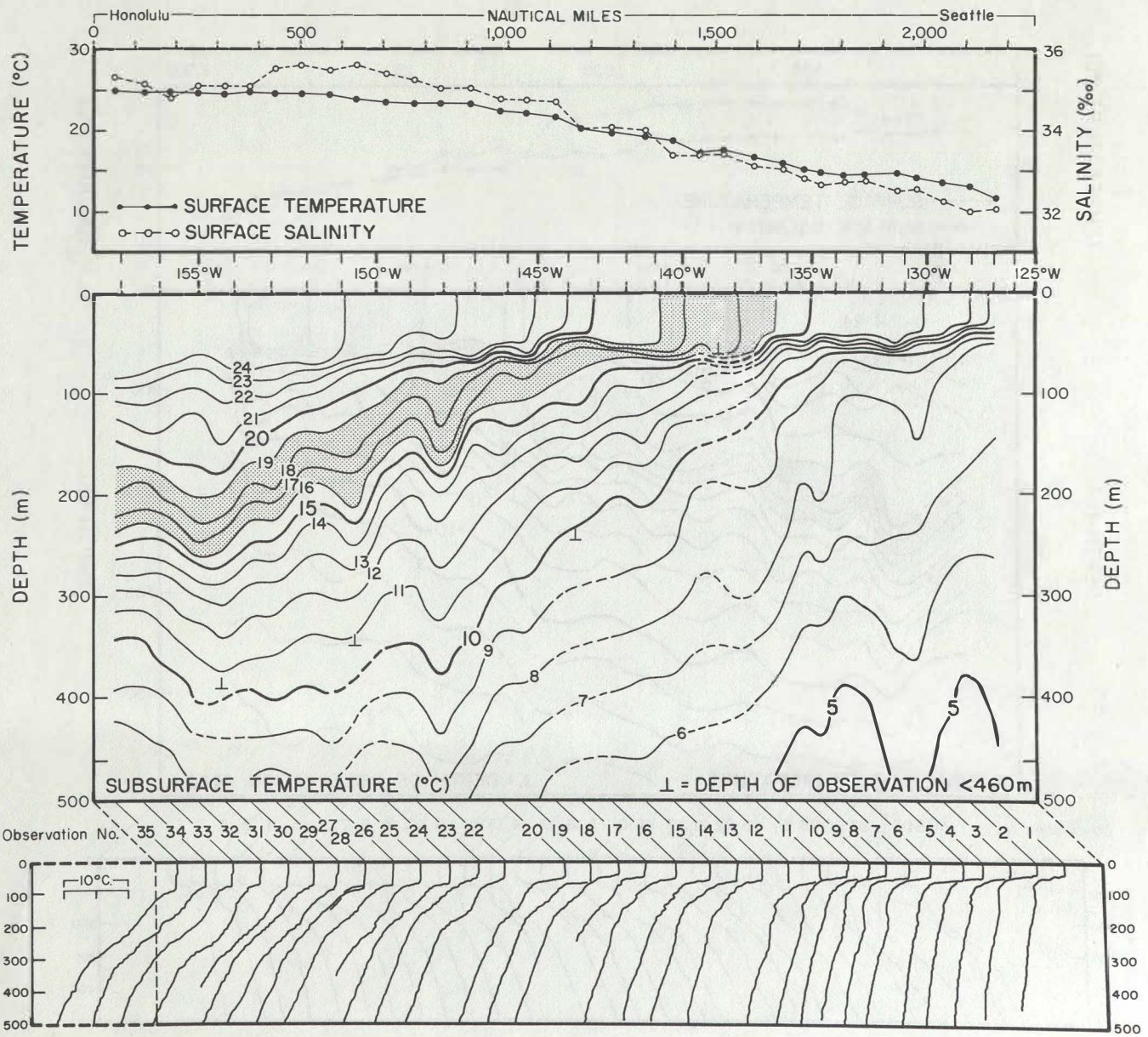
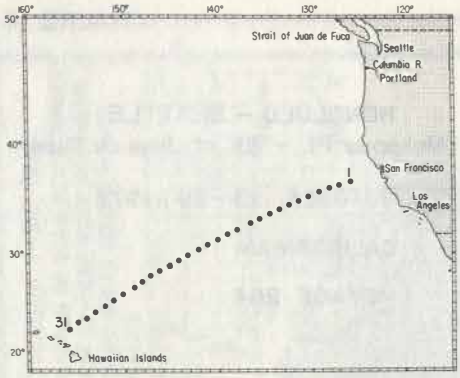
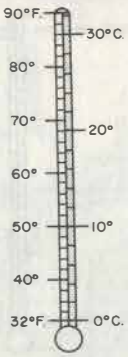


FIGURE 11





HONOLULU – SAN FRANCISCO

NOV. 6-11, 1975

HAWAIIAN QUEEN

VOYAGE 169