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SURFACE DRIFT SHEET MOVEMENTS OBSERVED IN THE INNER STRAIT OF JUAN DE FUCA, AUGUST 1978

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Laboratories
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SURFACE DRIFT SHEET MOVEMENTS OBSERVED IN THE INNER STRAIT OF JUAN DE FUCA, AUGUST 1978

J.M. Cox, C.C. Ebbesmeyer, and J.M. Helseth

Movements of 97 floatable, plastic drift sheets (1.83 x 1.83 x 0.0032 m) were observed in the Inner Strait of Juan de Fuca, Washington during 22-26 August 1978. The study area contains two major sills, numerous shallow banks, and passages to the Pacific Ocean, Strait of Georgia, and Puget Sound. Provided herein are positions, trajectories, and spatial vector diagrams of drift sheets observed using two small aircraft during daylight as weather permitted. Noted was a tendency for drift sheets to collect south of Victoria, and among patches of kelp, debris, and slicks; the largest patch moving east and west, one to two miles north of Dungeness Spit. 22 drift sheets were sighted on or near shore during, or shortly after completion of the field study.

1. INTRODUCTION

An oceanographic experiment was conducted in the Inner Strait of Juan de Fuca during 22-26 August 1978 (Figure 1). The experiment's purpose was to observe movement of surface drift sheets which approximate movement of potential oil slicks. Similar experiments were previously conducted in the Outer Strait of Juan de Fuca and in Port Angeles Harbor and vicinity (Ebbesmeyer et al., 1977, 1978).

The experiment is necessarily of an exploratory nature because: 1) a surface drifter which simulates oil slick movement cannot, at present, be designed with certainty because dependencies on currents, winds, and waves are poorly understood (Stolzenbach, et al., 1977); and 2) the present observations span brief temporal and spatial intervals which are too few to be considered as completely representative samples.

The present report is intended primarily as a summary of observations for later integration with results of other, simultaneous field studies.

2. EXPERIMENT DESCRIPTION

Several types of floatable drifters have been designed to simulate the movement of oil slicks. The designs include: 1) drift cards (e.g., Tomczak, 1964); 2) drift poles (e.g., Doebler, 1966); 3) remotely tracked buoys (e.g., Fingas, 1977); and 4) plastic sheets (e.g., Teeson et al., 1970).

Of these, the plastic sheet was selected because available plastics have specific gravities near that of some oils, and are manufactured in thickness (3.2 mm) close to that of some nearshore slicks ($\sim$1 mm; Teeson, 1970).

The drift sheets used in this experiment are flexible polyethylene foam measuring 1.83 x 1.83 x 0.0032 m, reinforced and weighted on bottom with venetian slats and steel disks, respectively; and painted on top with black alphameric codes superimposed on a fluorescent red background (see Figure 4 and Table 1). The present design is similar in shape to that previously used by Ebbesmeyer et al. (1977, 1978), but larger in size so as to be visible over greater distances, and weighted more heavily and evenly so as to counteract overturning by strong winds.

Upon release a drift sheet approximates the shape of the wavy sea surface (Figure 4). Formation of a thin layer of water on the sheet's topside occurs, and the drift sheet becomes waterlogged with time, both factors acting to increase the sheet's adherence to the water surface. However certain strong winds will partially overturn an aged drift sheet. Observations of folded drift sheets have been deleted as in previous reports.

A total of 97 drift sheets were deployed from a 34 ft boat (twin screw Tollycraft) during 22-26 August (Table 2). Positions of each drift sheet were determined using a positioning system manufactured by Motorola, Inc. (Mini-Ranger III System, abbreviated MRS). The MRS operates on the principle of pulse radar and uses a mobile transmitter within line-of-sight of two stationary transponders. The transmitter's position is displayed as ranges to the two transponders. Within the MRS' 74 km maximum range, the probable accuracy of an individual range measurement is about three meters (Motorola, Inc., 1974).

Due to the large size of the study area, two aircraft (Cessna models 172, 180) were used, each carrying a MRS transmitter. These were connected through inspection plates to antennae mounted on the aircrafts' bellies, and wired to MRS display consoles from which the two ranges were recorded manually. The two transmitters were used alternately to avoid erroneous ranges caused by simultaneous operation.

For this experiment the two transponders were located onshore at the following positions (see Figure 3): Range 1) 48° 08.2' N, 122° 50.2' W; Range 2) 48° 02.7' N, 123° 12.5' W.

Individual positions were determined geometrically given two ranges and aircraft altitude. With the aircraft suitably oriented above a drift sheet reasonably accurate positions could be obtained from 100-200 m altitude at speeds of 30-40 m/s. Twenty test runs over fixed objects gave a standard deviation in position of approximately 31 meters.

Each morning and afternoon drift sheets were deployed in varied patterns (Figure 8). Flights occurred during daylight as weather permitted. Initially the positions of each drift sheet were obtained several times per hour when patterns were fairly regular. As drift sheets dispersed, the frequency decreased. Moreover, a few drift sheets overturned during periods of strong winds; some were caught in tide rips and became folded and thus

unusable; and some were carried beyond the MRS range. Attempts were made each morning to locate drift sheets remaining from previous days.

Daily flights over the surrounding beaches were carried out to locate drift sheets on or near shore. Eight drift sheets accessible on shore were recovered and identified. The final nearshore flight was made 13 days (8 Sept. 1978) after the last drift sheet deployment on 26 August 1978. Fourteen drift sheets were located but no identification was possible because of weathering.

3. DATA REDUCTION AND PRESENTATION

The ranges, altitudes, and times of each drift sheet sighting were digitized, and the following computed (Plate 6): 1) latitude and longitude (degrees and minutes); 2) speed and direction (cm/sec; degrees True); and 3) speed components in a coordinate system reckoned positive toward true north and east. With a standard deviation in position of 31 meters and a typical time interval of one hour between consecutive positions, the estimated error for most drift sheet speeds is close to one cm/sec.

From these tabulations were obtained trajectories spanning up to four days for individual drift sheets (Plates 1 and 2 respectively); and spatial vector diagrams at hourly intervals (Plate 3). Trajectories are edited for clarity of presentation by removing drift sheets with movements similar to those shown. Times of spatial vector diagrams are shown in Figure 8.

Winds recorded at selected shore stations (Figure 3) have been tabulated in Plate 4 and displayed in Figure 6.

Tidal currents calculated for selected National Oceanic and Atmospheric Administration (1978) stations (Figure 3) have been tabulted in Plate 5 and displayed in Figure 6.

Sightings of drift sheets on or near shore have been tabulated in Table 3 and presented in Figure 7.

4. DISCUSSION

The Inner Strait of Juan de Fuca is the junction and primary mixing zone (see Figure 2) for:1) upwelled water from the Pacific Ocean via the Outer Strait of Juan de Fuca; 2) Strait of Georgia surface water via Haro and Rosario straits and San Juan Channel; and 3) Puget Sound surface water via Admiralty Inlet and Deception Pass. Winds and currents are quite inhomogeneous within the Inner Strait (see Figure 6; Plates 4 and 5). As an interpretive aid, the 30 fathom bathymetric contour which outlines major banks has been superimposed on trajectories and vector diagrams (Plates 1, 2, and 3). While a detailed interpretation of the complex movements is beyond the scope of this report, several tendencies were evident in the observations.

There was a tendency for drift sheets to collect among localized patches of kelp, debris, and slicks. Many drift sheets were relocated by following these patches. The most prominent patch occurred just north of Dungeness Spit. In it collected a total of approximately 10 drift sheets on the 24th of August; 11 on the 25th; and 20 on the 26th. Most of these were launched nearby but a few were released 6-7 miles away. This patch appeared to oscillate east and west for three days one to two miles offshore in an area centered north of Dungeness Spit. Collection and movement of the patch is illustrated in trajectories (as listed in captions) and spatial vector diagrams for 24-26 August 1978.

Drift sheets also collected south of Victoria. No drift sheets were deployed in this area, yet several quickly moved into it and remained there for several days (Plates 2a1; 2a2). Five of 22 drift sheets sighted on or near shore were spotted in this area.

Of 97 drift sheets launched, 22 were sighted on or near shore during or shortly after completion of the study (Figure 7; Table 3). Of these 68% were along the northern shoreline of the Inner Strait, 32% along the southern shoreline.

Noteworthy are the following:

1) Cleavage of four closely spaced drift sheets (X6, X7, X8, X9) occurred on 25 August, two moving northward, two moving southward (Plates 1d1, 2d1, 3d1-3d4).

2) On 26 August, drift sheet E4 was sighted at its initial position eight hours later (Plates 1e1, 3e1-3e4).

3) A large southerly component of movement can be seen in several drift sheet trajectories during 1300-1700, 25 August (Plates 1d2, 3d3-3d5).

5. ACKNOWLEDGEMENTS

This work was performed under Contract No. 03-78-B01-90 from NOAA, ERL, MESA Puget Sound Project, located at 7600 Sand Point Way NE, Seattle, Washington 98115.

The drift sheets were constructed by David W. Thomson and launched from the motor vessel 'Impulse', owned by Irl Green, skippered by David W. Thomson, and crewed by Laurence A. Hinchey and William E. Wiegand. Drift sheets were observed with the assistance of Eric J. Lindstrom from Cessna 172 and 180 aircrafts supplied by Richard N. Harvey of Snohomish Flying Service, Inc. and piloted by David L. Bell, Steven L. Knopp, Jonathan T. Salisbury, and Phillip L. Taylor. We are particularly grateful to the pilots for flying long hours of tight patterns at low altitudes. Donald R. Doyle, Linda D. Helseth, and David W. Thomson prepared Figures and Plates.

We are also grateful to Ronald Kopenski and R. Michael Reynolds for providing liaison with the MESA Puget Sound Project office and PMEL, respectively.

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Table 1. Materials list for drift sheet.

Item Description	Amount Used Per Drift Sheet	Mass/Drift Sheet (kg)	Dimensions	Remarks
Polyethylene foam	3.34 m^2	0.24	1.83 x 1.83 x 0.0032 m	Packaging material known as Ethafoam.
Flourescent Paint	0.23 liter	0.24		Hercules Orange-Red Screen Printing Ink Catalogue No. 1944.
Enamel Paint	0.06 liter	0.06		High Gloss Black Enamel.
Weights	3.18 kg	3.18	Diameter = 0.18 m Thickness =0.0012 m	Steel disks.
Underside Reinforcement	22.76 m	0.76	1.63 x 0.05 x 0.0006 m	Steel venetian blind slats.
Tape	33.37 m	0.11		Nashua brand filament tape.
Total		4.59		

Table 2. Summary of drift sheet observations.

Date	Number of Drift Sheets Launched	Number of Drift Sheets Tracked	(1) Time First Position Obtained (PDT)*	(2) Time Last Position Obtained (PDT)	(2) -(1) Hours	Number of Observations	Number of Sightings On or Near Shore
22 August	10	10	0937	2024	10.8	124	
23 August	3	11	0956	2019	10.7	67	
24 August	28	28	0701	1734	10.6	247	2
25 August	29	39	0651	2031	13.7	247	3
26 August	27	50	0632	1612	9.7	209	3
Total	97				55.5	894	8
Unidentified sightings on or near shore							14
Total sightings on or near shore							22

*PDT = Pacific Daylight Time

Table 3 . Summary of drift sheets observed on or near shore.

	Drift Sheet No.	Approximate Date/Time of Sighting (PDT)*	Approximate Position of Sighting Latitude	Longitude	Remarks
1.	C6	26 Aug./1515	48-08.5	123-24.7	On beach
2.	C9	26 Aug./1520	48-08.5	123-24.7	On beach
3.	H4	26 Aug./1500	48-10.5	123-09.1	On beach
4.	K7	26 Aug./1316	48-25.3	123.25.0	20' from shore in kelp
5.	N6	26 Aug./1543	48-25.5	122-54.4	
6.	N7	26 Aug./1412	48-26.7	122-54.7	
7.	N8	26 Aug./1409	48-25.1	122-54.3	
8.	Y2	25 Aug./1512	48-24.8	122-52.7	In kelp
9.	Unknown	8 Sept./1335	48-27.4	123-00.3	On beach
10.	"	8 Sept./1350	48-24.4	123-19.7	25' from shore in kelp
11.	"	8 Sept./1350	48-24.4	123-19.7	"
12.	"	8 Sept./1350	48-24.4	123-19.7	"
13.	"	8 Sept./1355	48-24.4	123-22.3	50 ' from shore
14.	"	8 Sept./1420	48-19.1	123-39.4	On beach
15.	"	8 Sept./1425	48-20.3	123-42.0	10' from shore
16.	"	8 Sept./1430	48-22.0	123-46.2	15' from shore
17.	"	8 Sept./1440	48-21.6	123-48.2	70' from shore in kelp
18.	"	8 Sept./1440	48-21.6	123-48.2	"
19.	"	8 Sept./1500	48-10.0	123-07.5	1 mi. from shore
20.	"	8 Sept./1500	48-10.0	123-07.5	"
21.	"	8 Sept./1530	48-07.5	122-51.1	On beach
22.	"	8 Sept./1600	48-10.6	122-48.7	

*PDT = Pacific Daylight Time

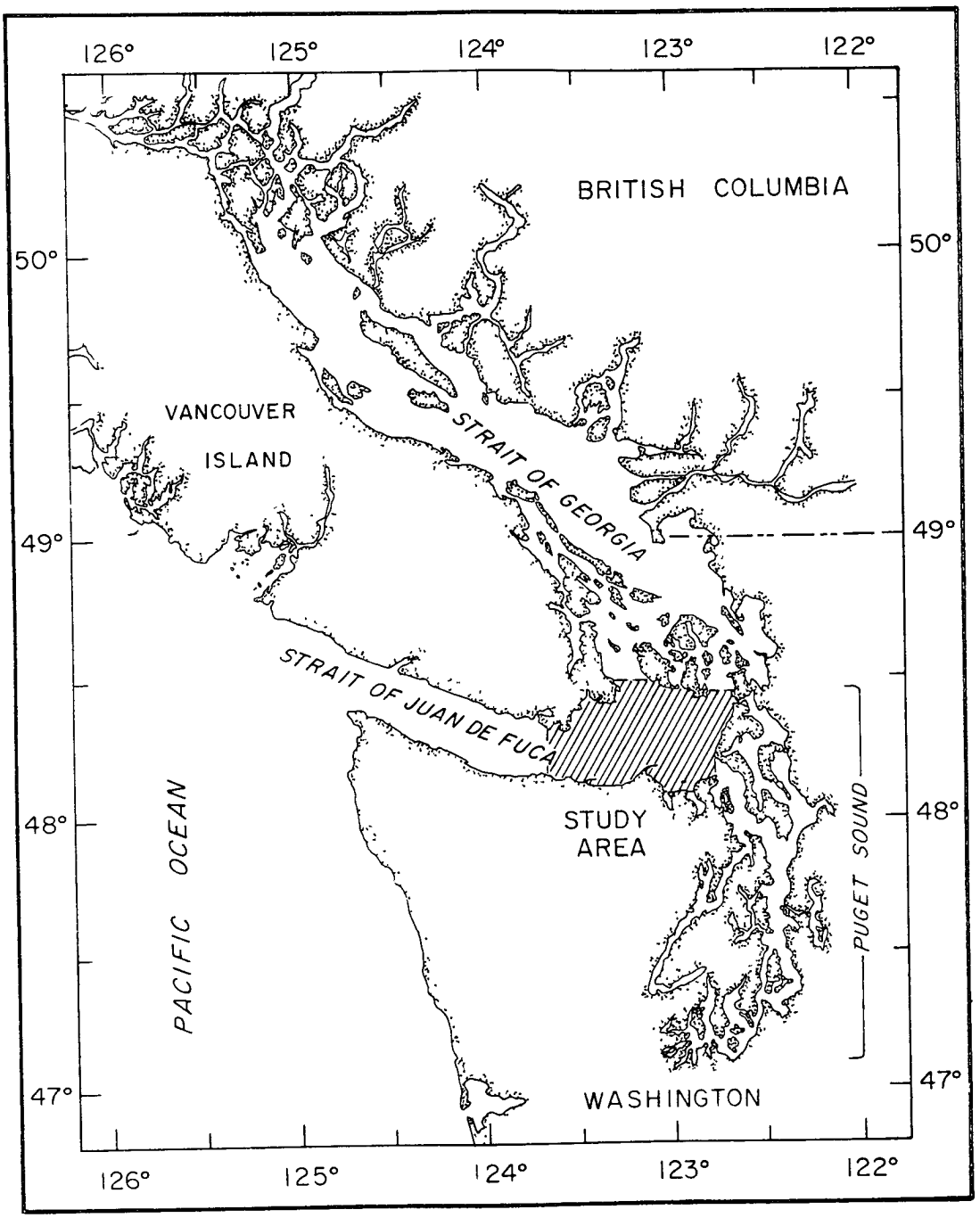


Figure 1. Study area (hatched) and approaches.

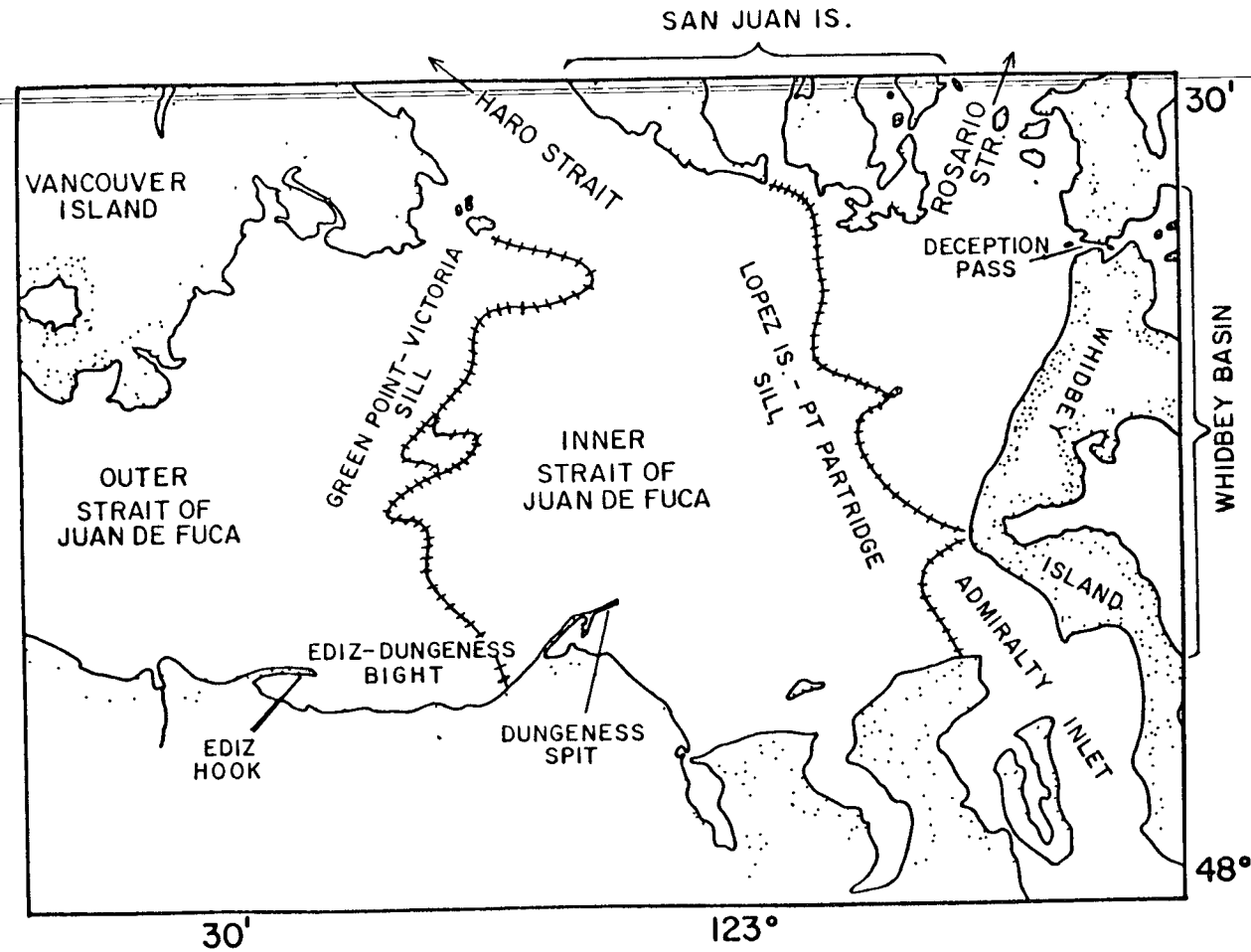


Figure 2. Study area, sills (ticks), and constrictions leading to the Strait of Georgia via Haro and Rosario Straits; Puget Sound via Deception Pass and Admiralty Inlet; and Outer Strait of Juan de Fuca.

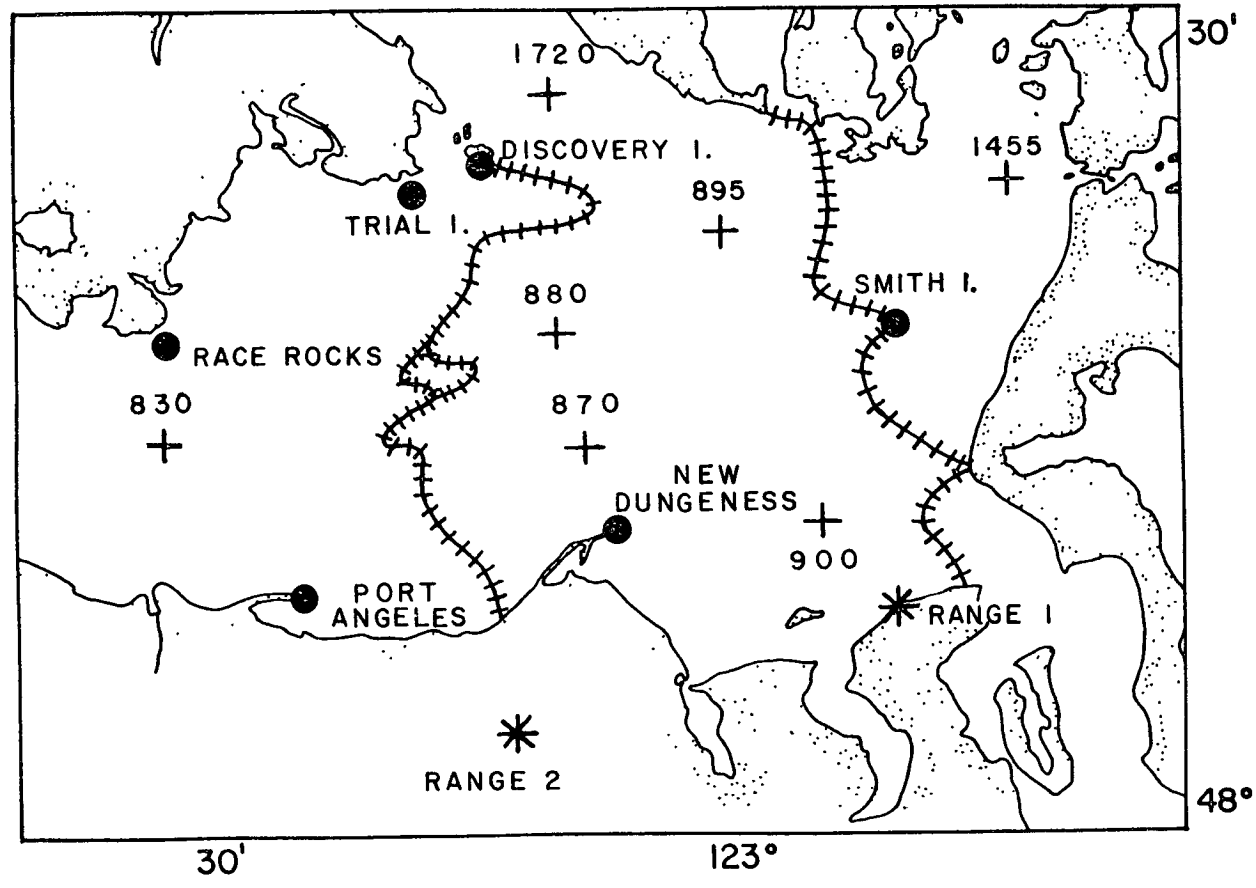
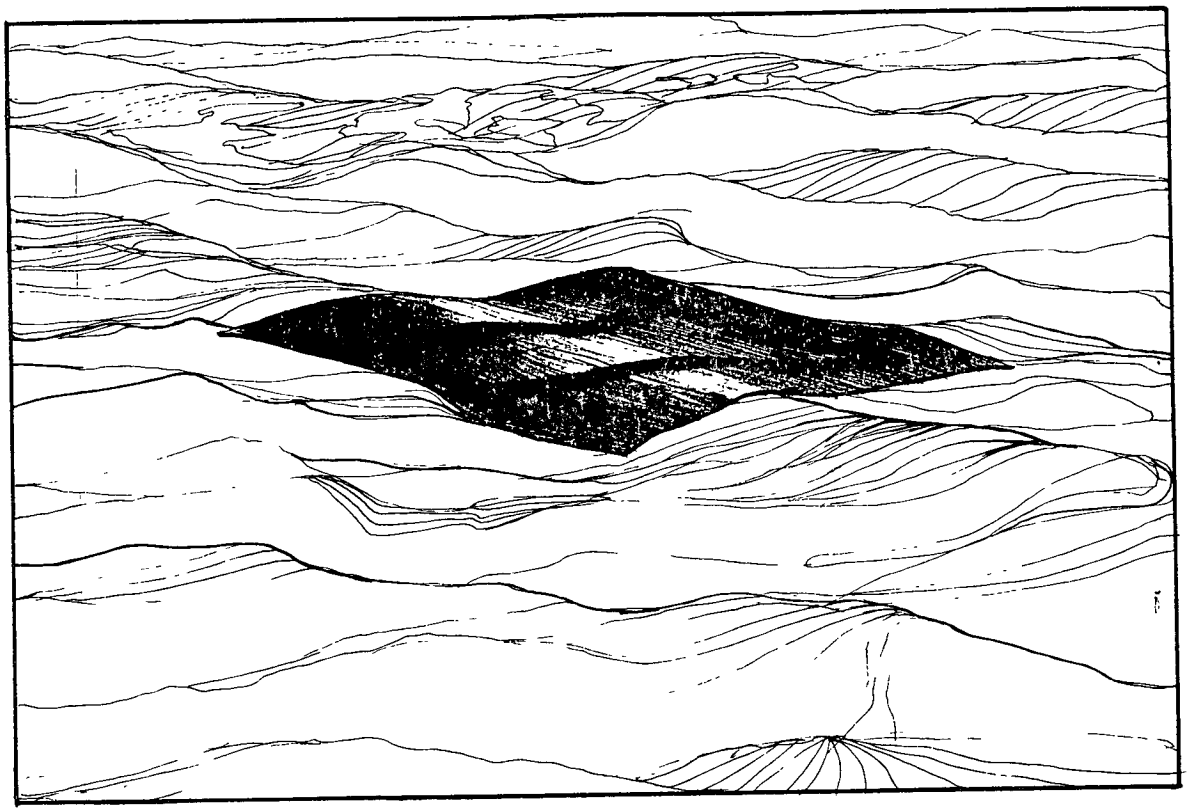


Figure 3. Locations of wind recordings (dots), predicted currents (crosses), and Mini-Ranger System transponders (asterisks). Numbers correspond to National Oceanic and Atmospheric Administration (1978) tidal current stations.



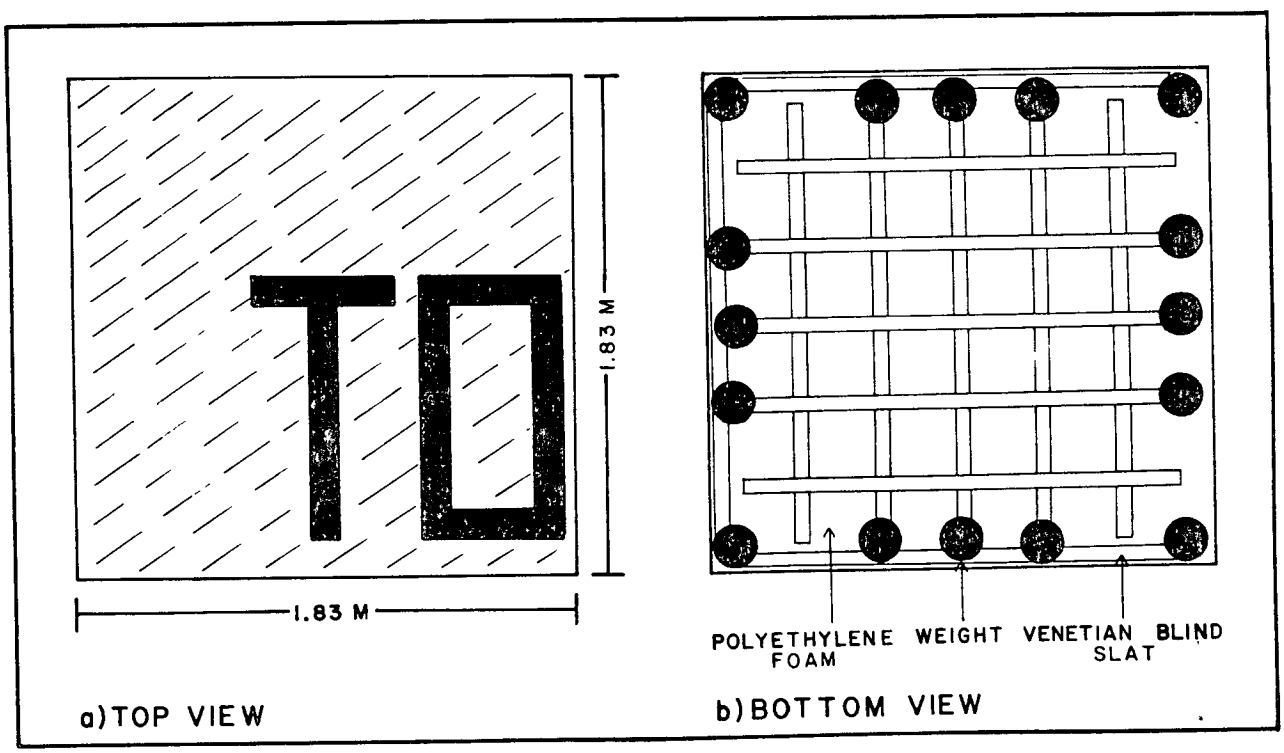


Figure 4. Top: Illustration of drift sheet; Bottom: Schematic of drift sheet, top (a) and bottom (b) views. 'T0' and 'T7' illustrate alphameric codes used to identify individual drift sheets.

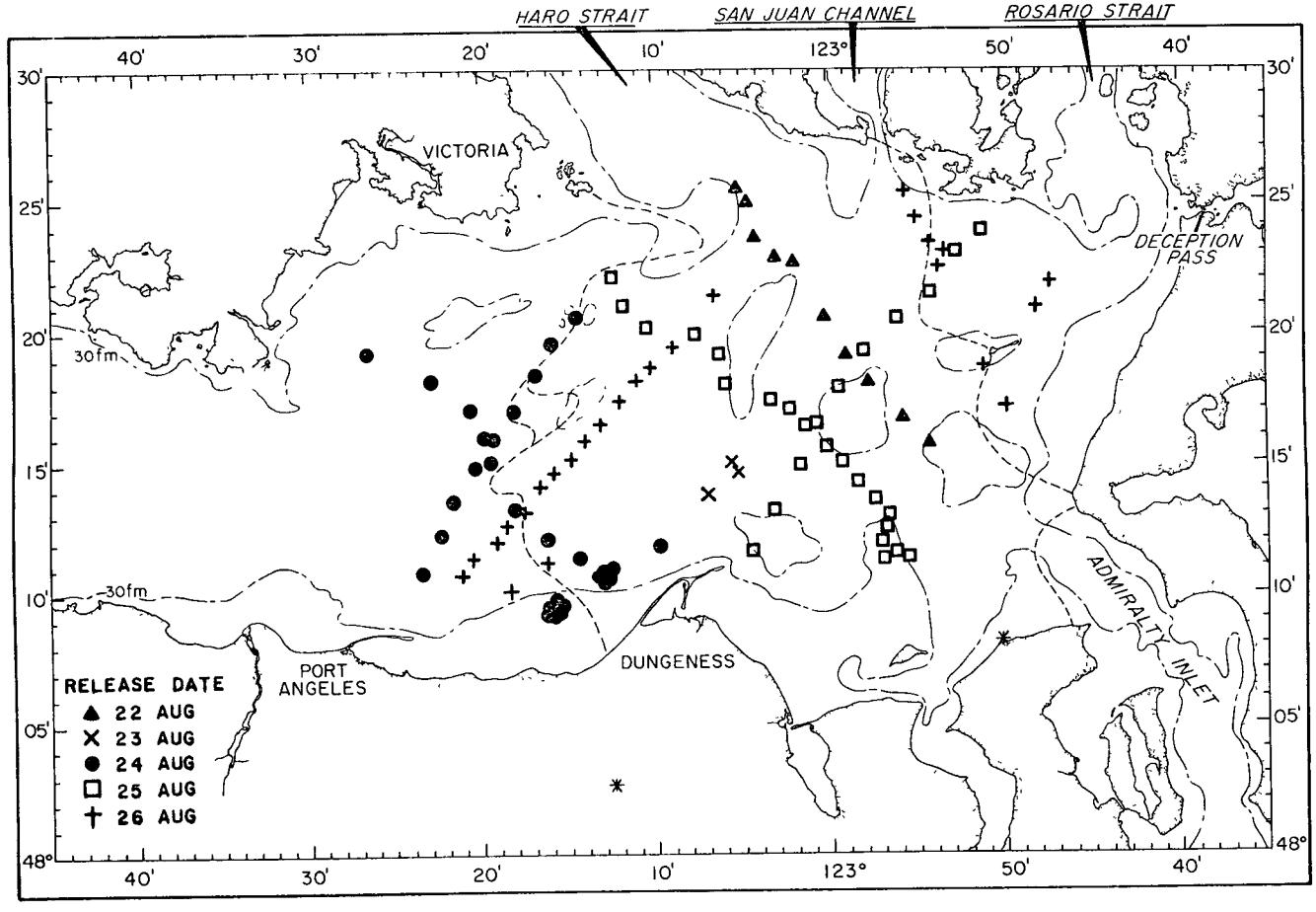


Figure 5. Initial sightings of drift sheets on day of launch. Shown also are 30 fathom contour, major sills (dashed), and Mini-Ranger transponder locations (asterisks).

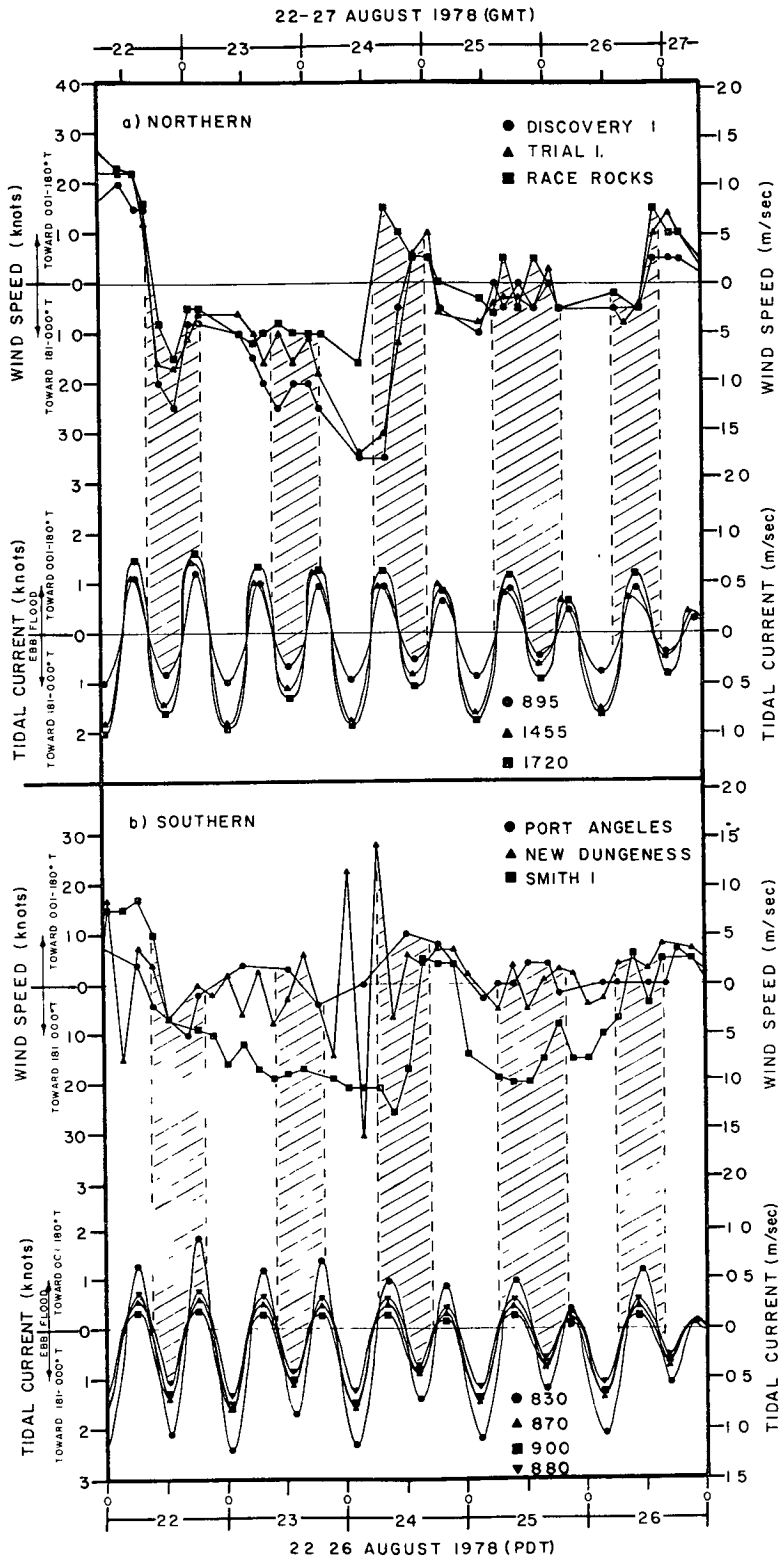


Figure 6. Top: Northern area winds observed at Discovery I. (●), Trial I. (▲), and Race Rocks (■); and currents predicted for stations 895 (●), 1455 (▲), and 1720 (■) by the National Oceanic and Atmospheric Administration (1978). Bottom: Southern area winds observed at Port Angeles (●), New Dungeness (▲), and Smith I. (■); and currents predicted for stations 830 (●), 870 (▲), 880 (▼), and 900 (■). See Figure 3 for station locations. Hatching denotes observational intervals.

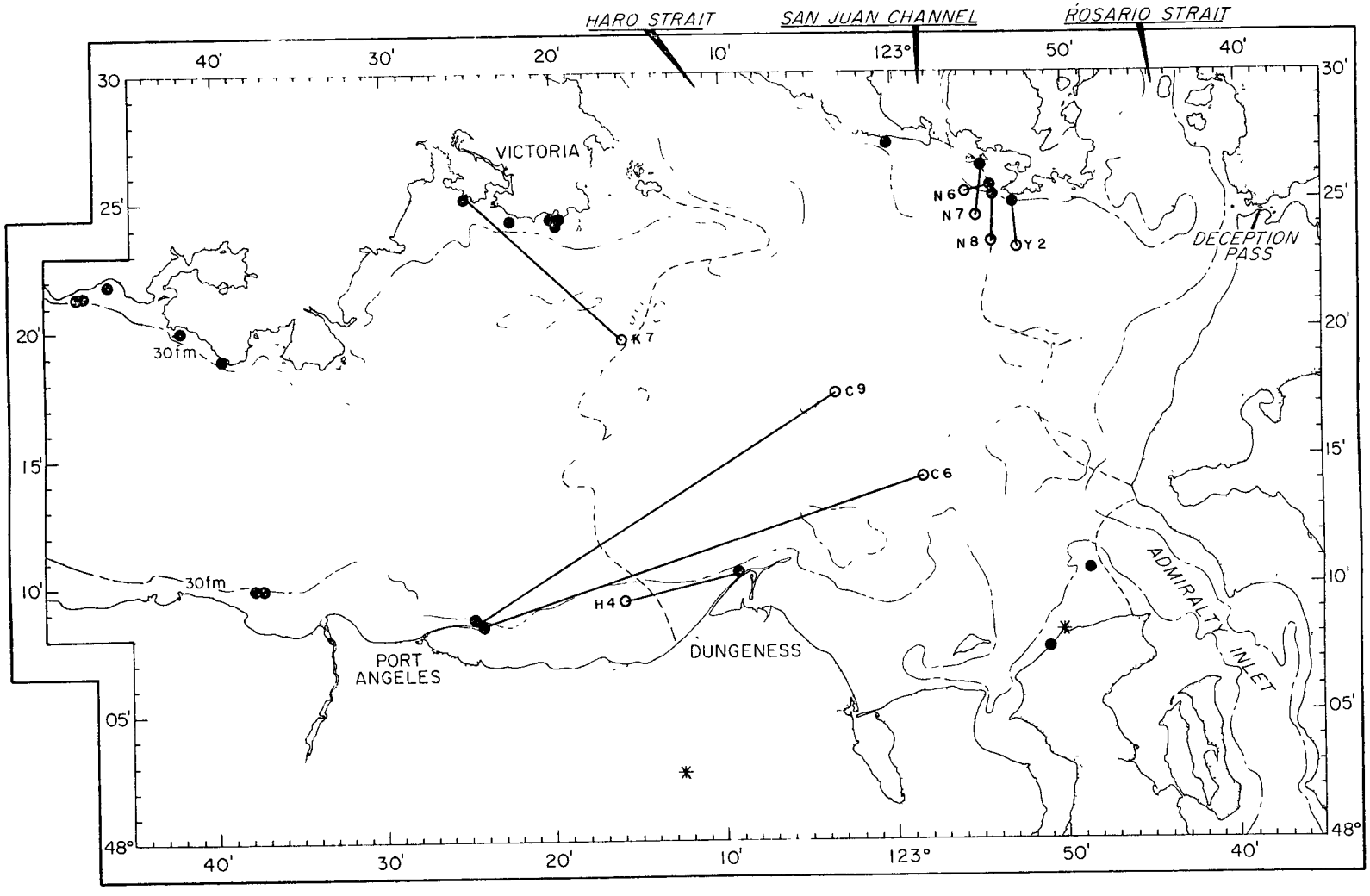


Figure 7. Sightings of drift sheets on or near shore (dots) relative to first sighted positions on day of launch (circles) if known. Labeled drift sheets were sighted on or near shore during the period of the study (see Table 3), whereas unidentified drift sheets were sighted during an overflight on 8 September 1978.

Plates 1a-1e. Selected trajectories on single days. Times (Pacific Daylight Time; + 7 time zone) of initial sightings (circles) are listed in Plates 6a-e by alphameric code. Hourly drift sheet positions are denoted by ticks on trajectories. Arrows show direction of movement and denote final sightings of the day. Letters a-e in plate code correspond to 22-26 August, respectively.

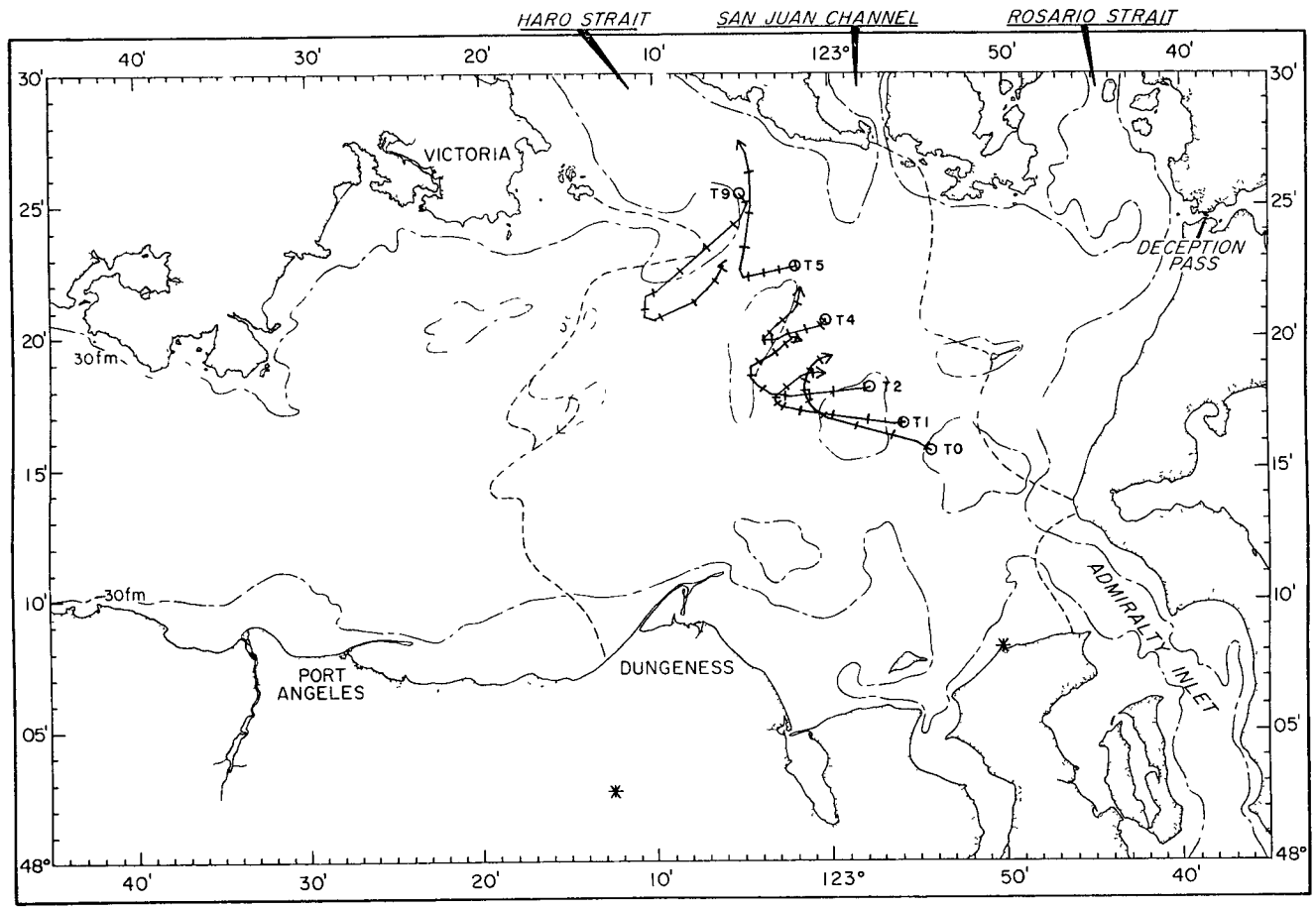


Plate 1a1. Selected trajectories, 22 August 1978.

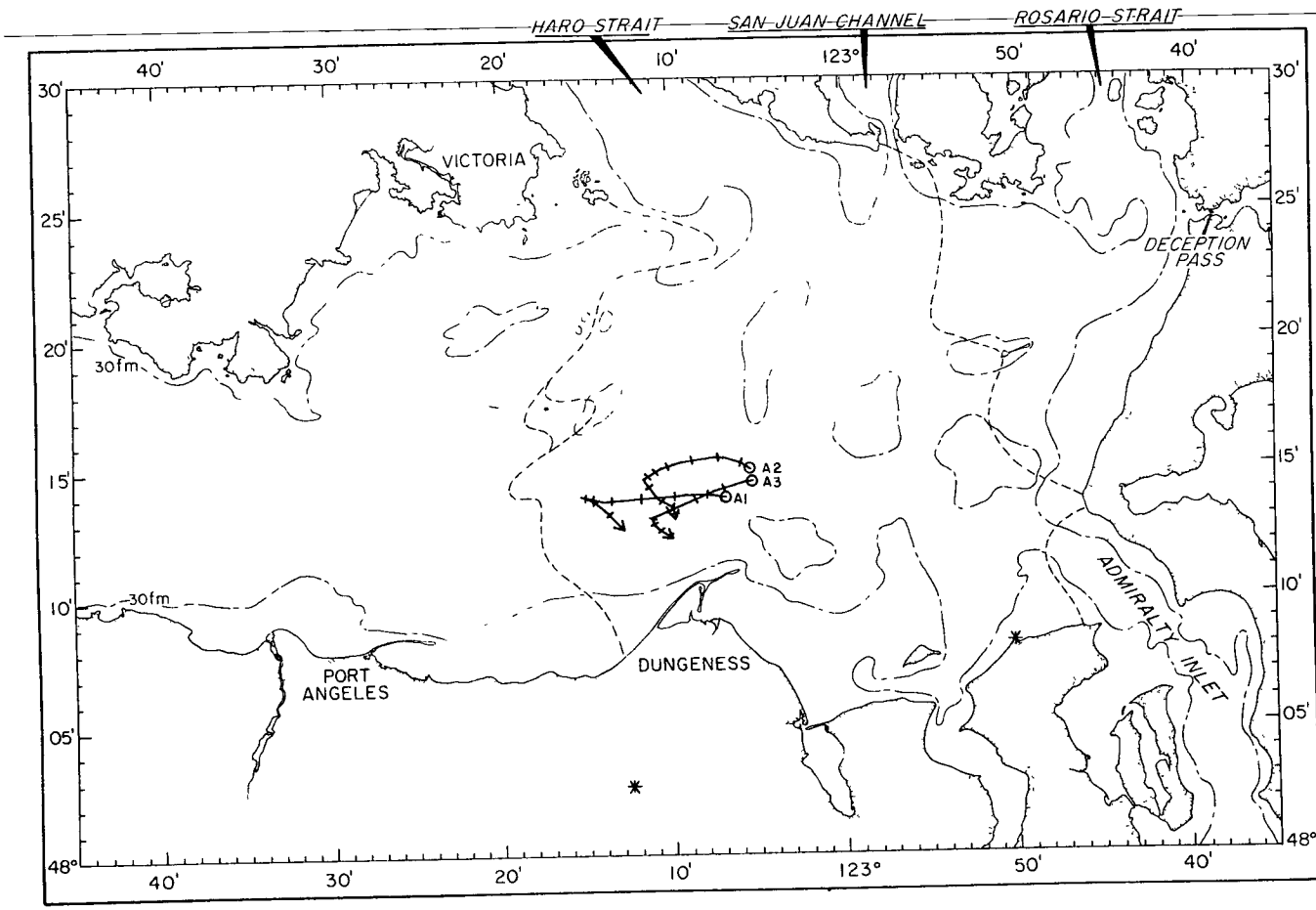


Plate 1b1. Selected trajectories, 23 August 1978.

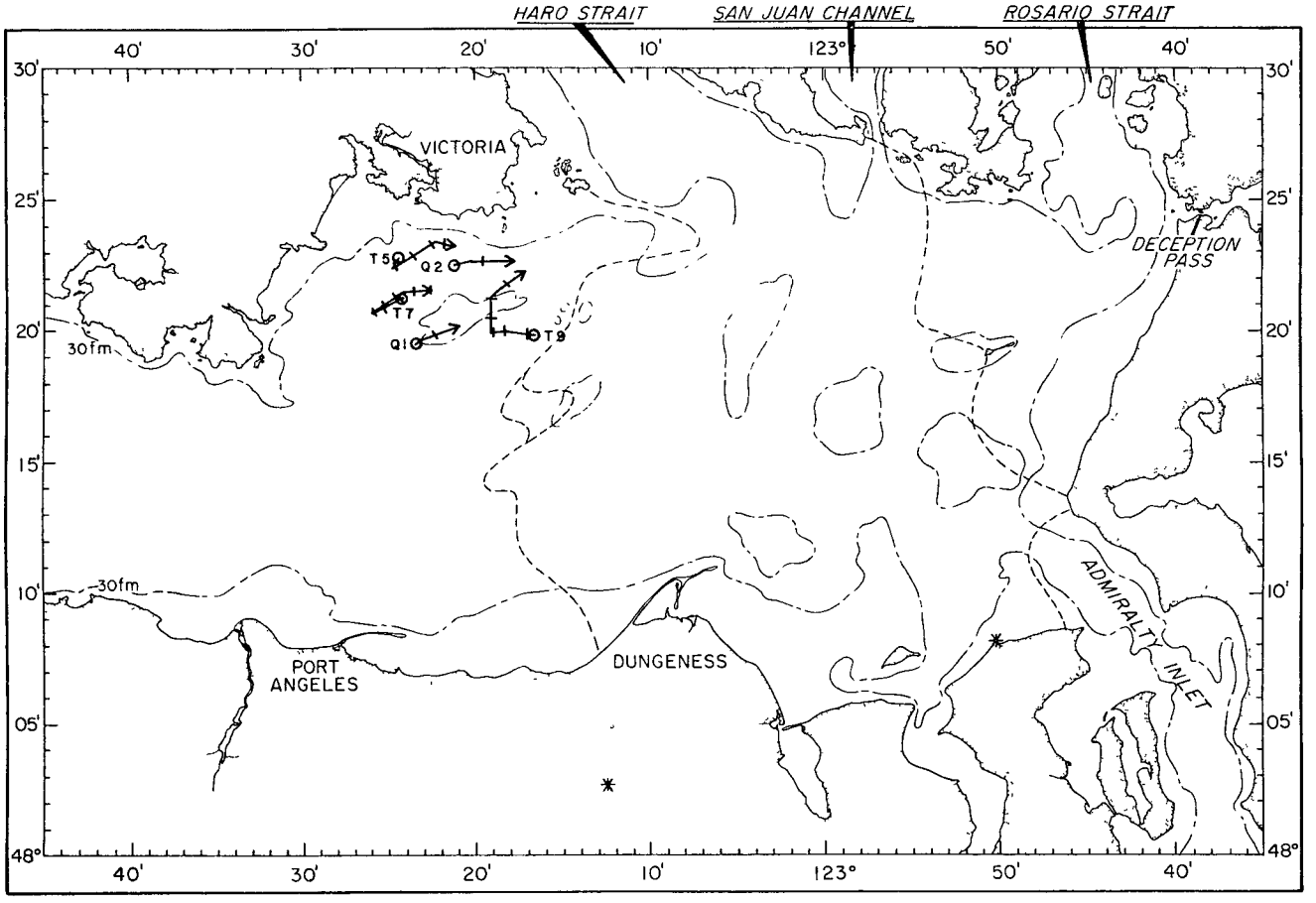


Plate 1b2. Selected trajectories, 23 August 1978.

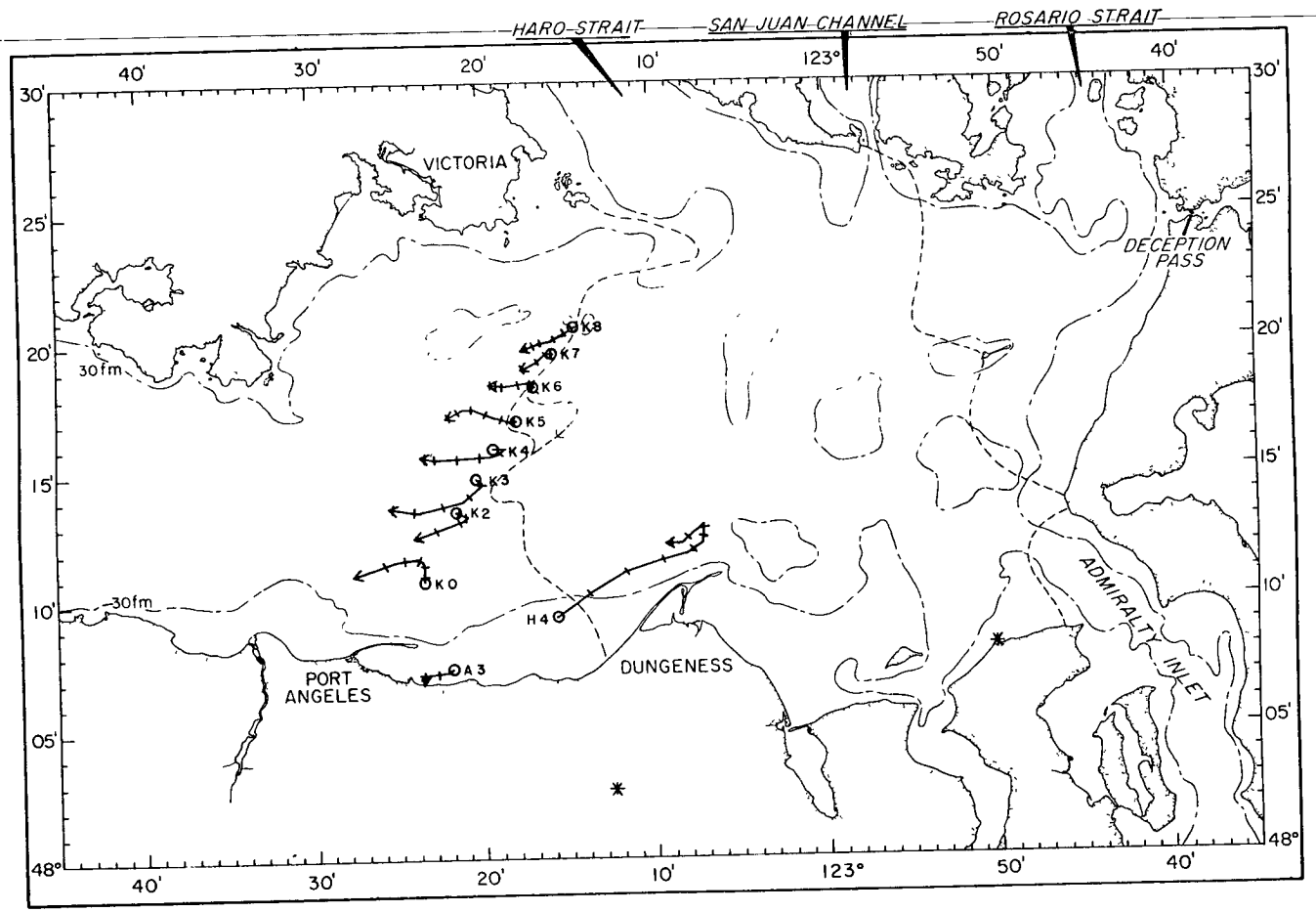


Plate 1c1. Selected trajectories, 24 August 1978.
H4 typical of patch movement.

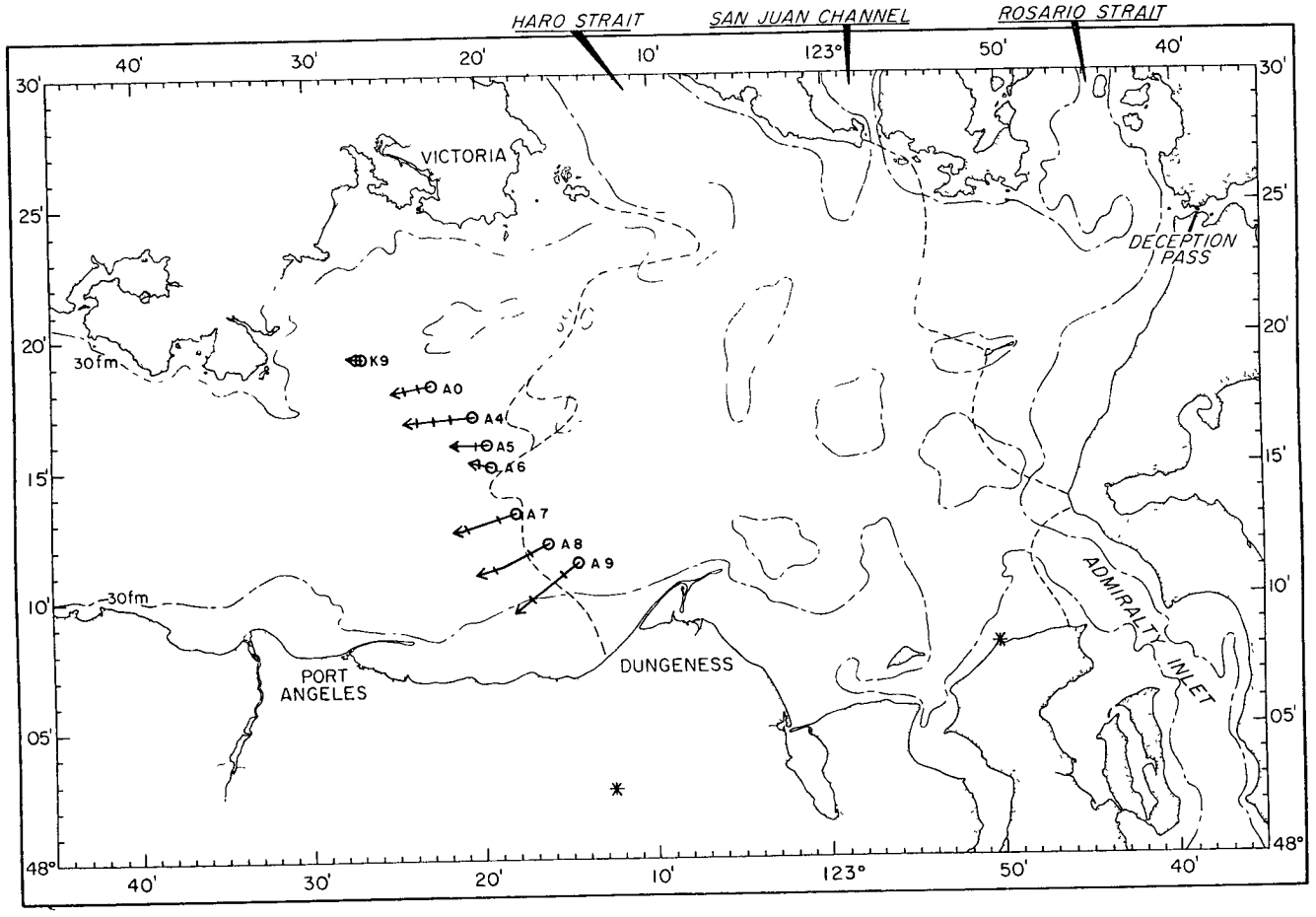


Plate 1c2. Selected trajectories, 24 August 1978.

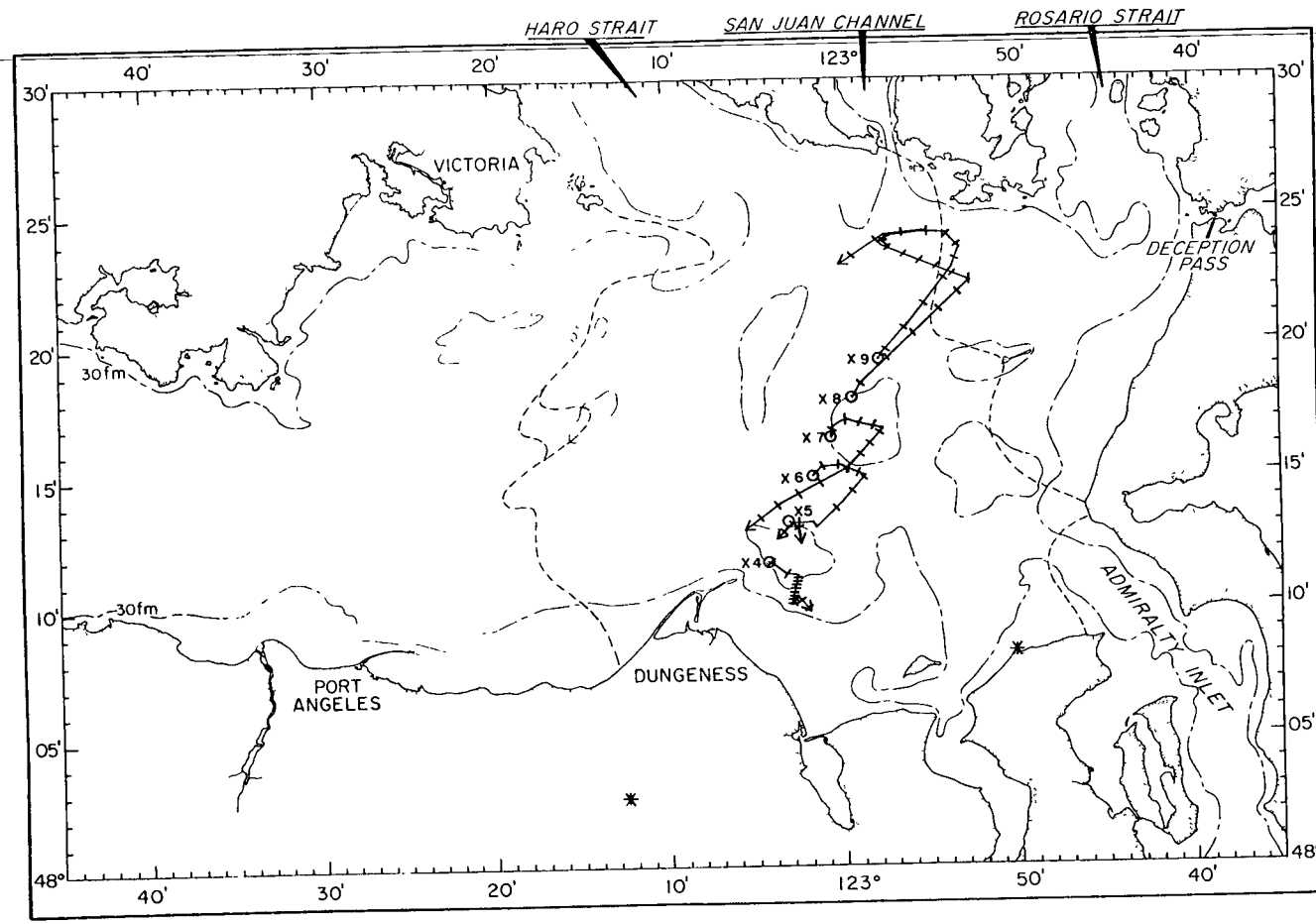


Plate 1d1. Selected trajectories, 25 August 1978.

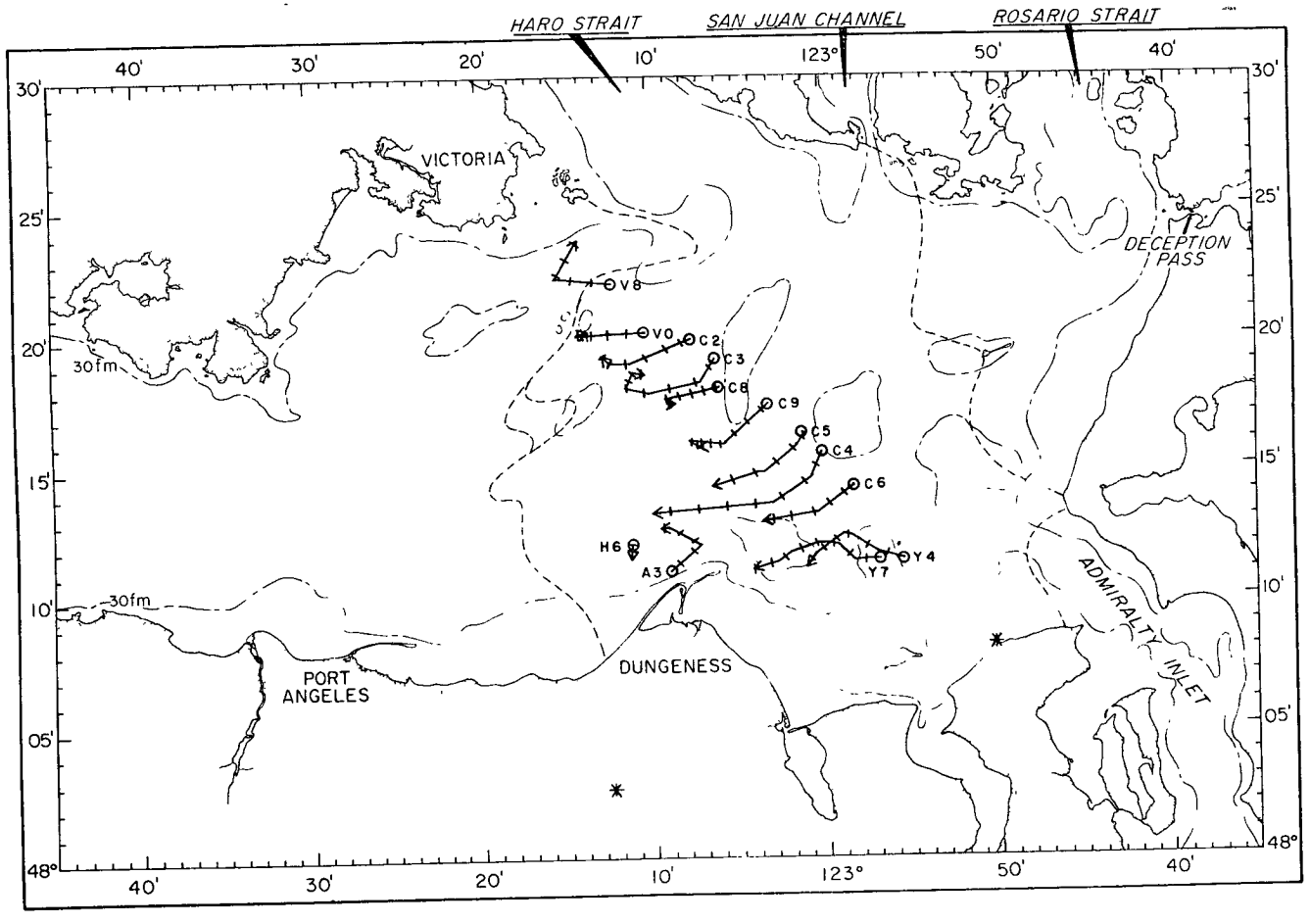


Plate 1d2. Selected trajectories, 25 August 1978.
H6, A3 typical of patch movement.

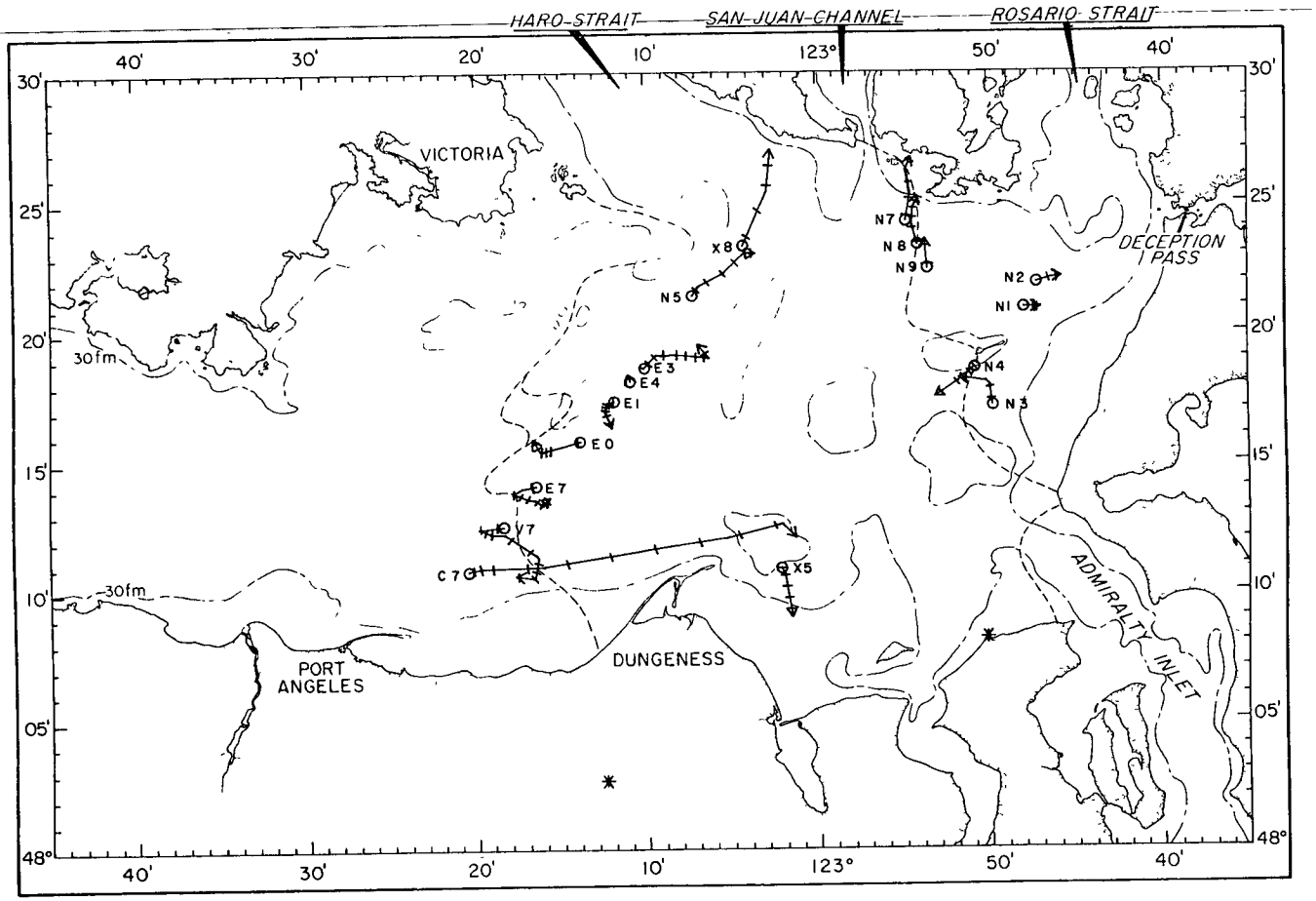


Plate 1e1. Selected trajectories, 26 August 1978.
C7 typical of patch movement.

Plates 2a-2e. Selected trajectories spanning more than one day. Times (Pacific Daylight Time; + 7 time zone) of initial sightings on day of launch (circles) are listed in Plates 6a-e by alphameric code. Hourly drift sheet positions are denoted by ticks on trajectories. Net movements during darkness of drift sheets are denoted by dashed lines. Solid and dotted trajectories indicate periods of frequent observation. Arrows show direction of movement and denote final sightings. Letters a-e in plate code correspond to 22-26 August, respectively.

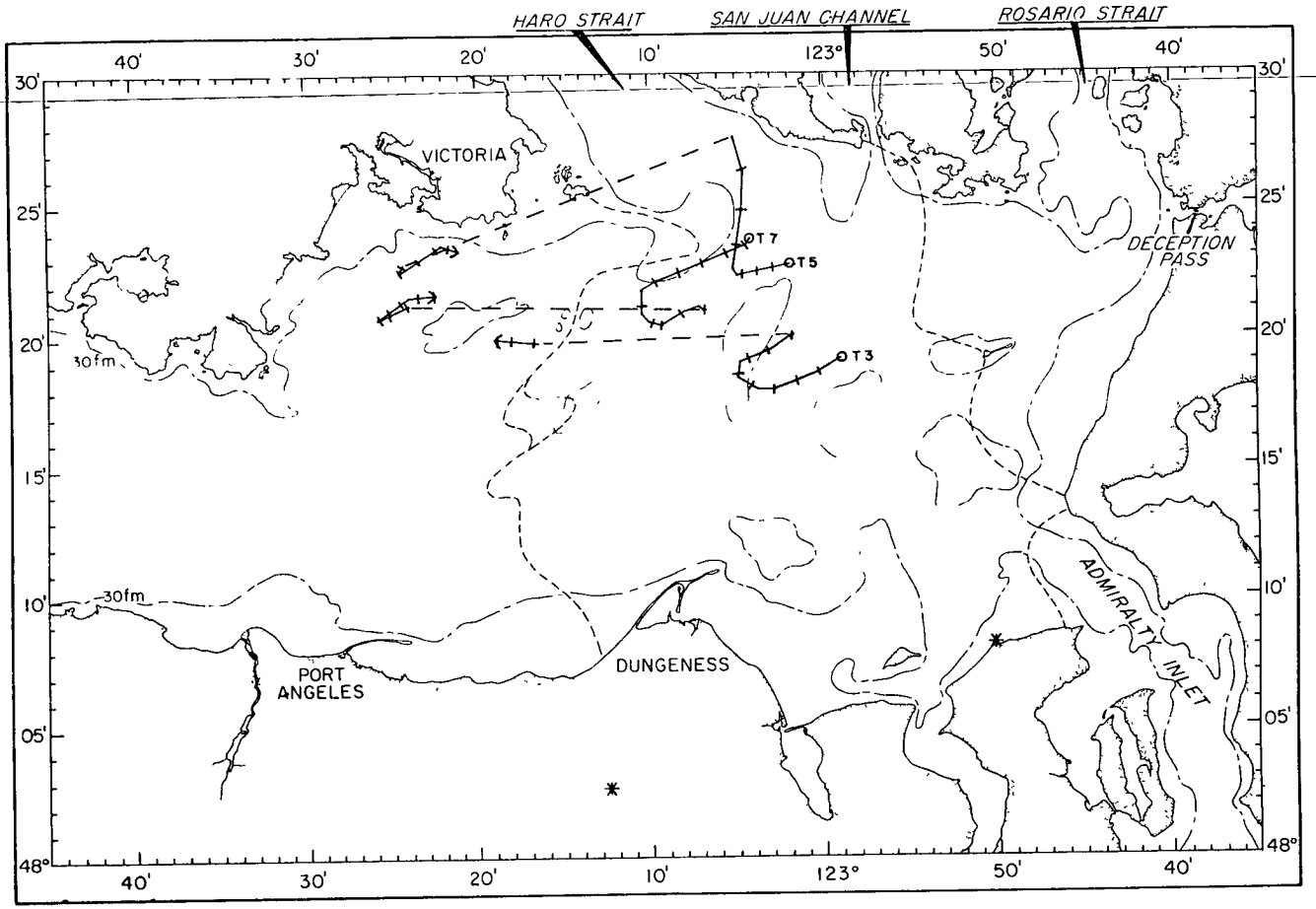


Plate 2a1. Selected trajectories beginning 22 August 1978.

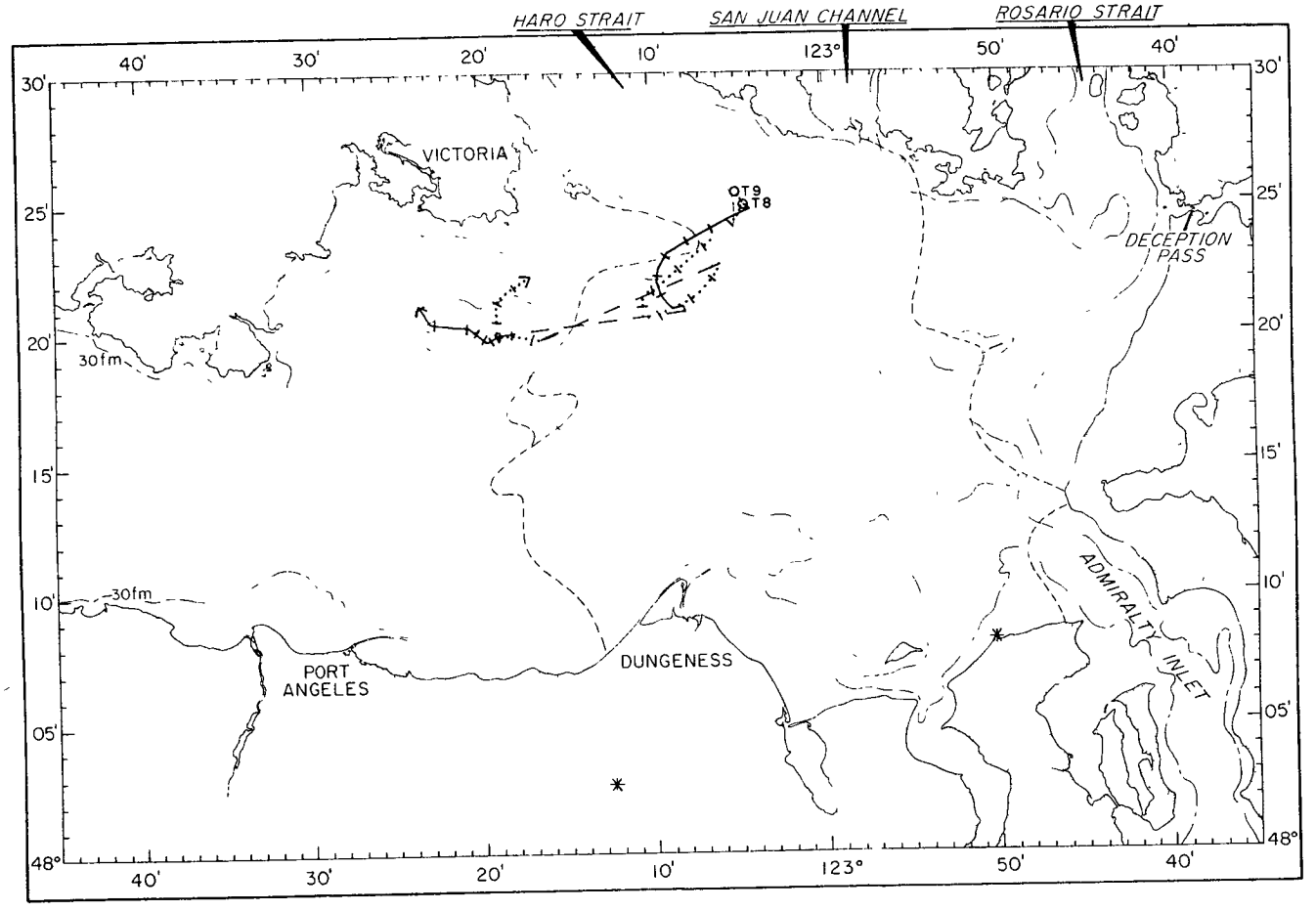


Plate 2a2. Selected trajectories beginning 22 August 1978.

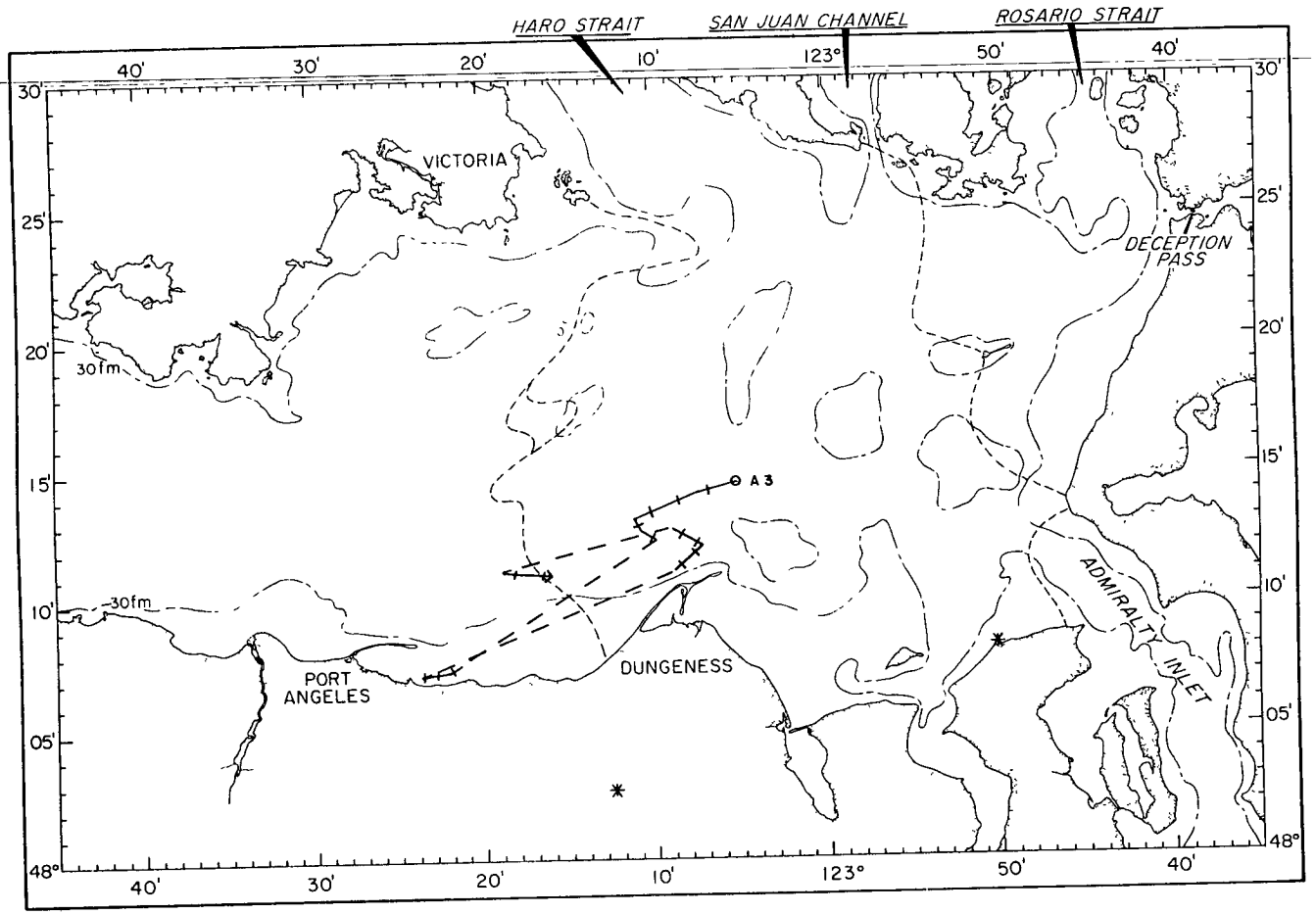


Plate 2b1. Selected trajectories beginning 23 August 1978.

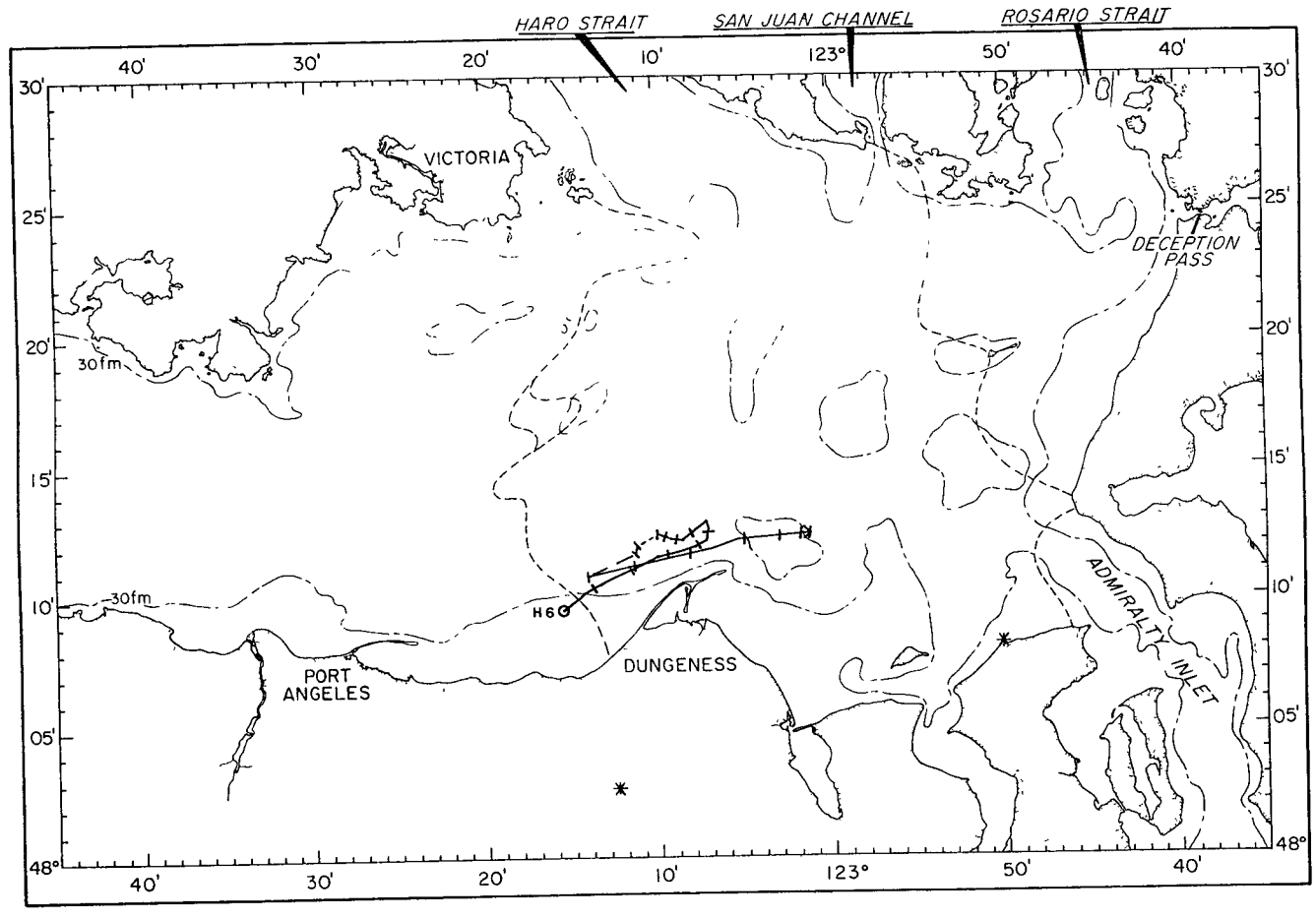


Plate 2c1. Selected trajectories beginning 24 August 1978. H6 tyical of patch movement.

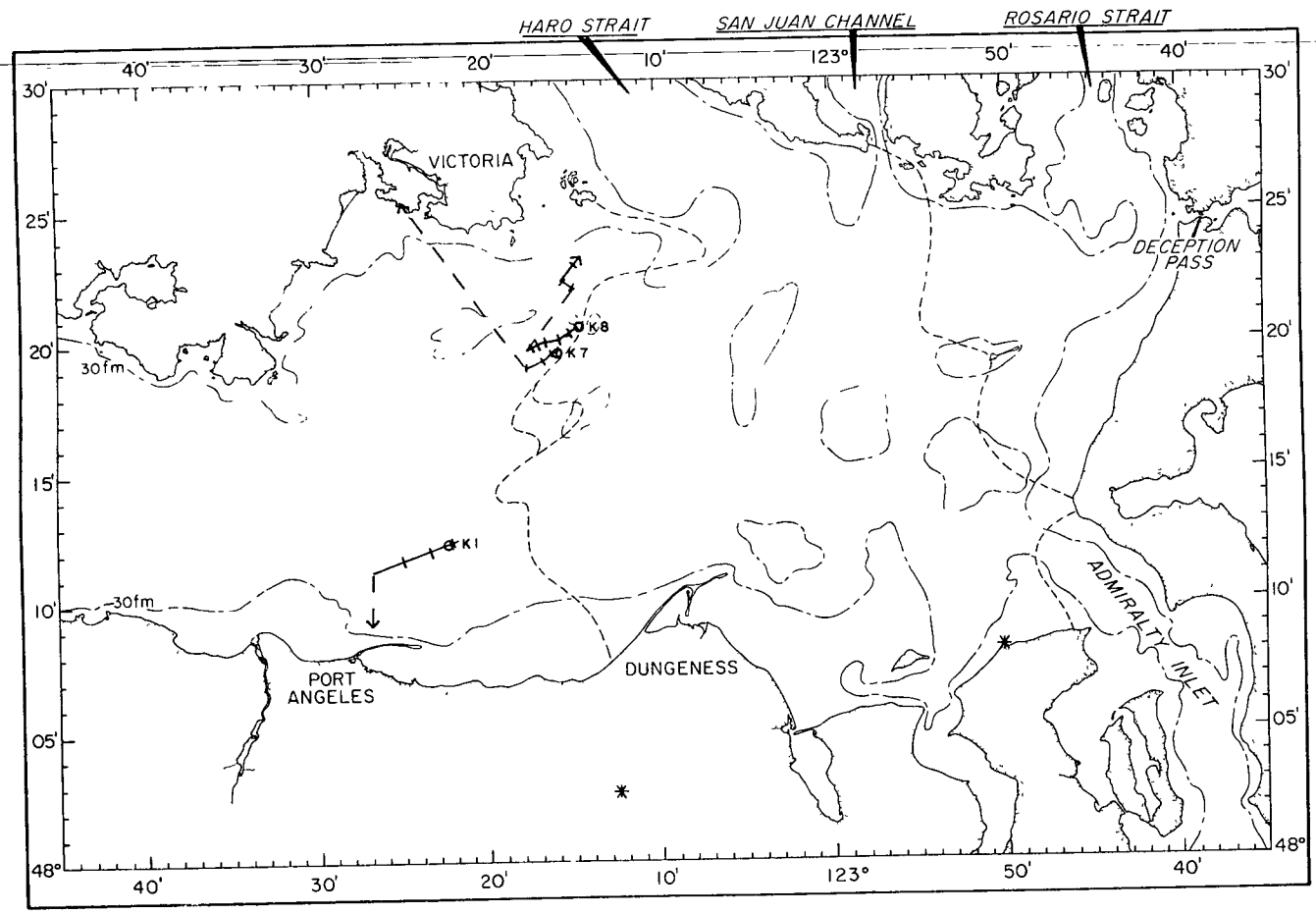


Plate 2c2. Selected trajectories beginning 24 August 1978.

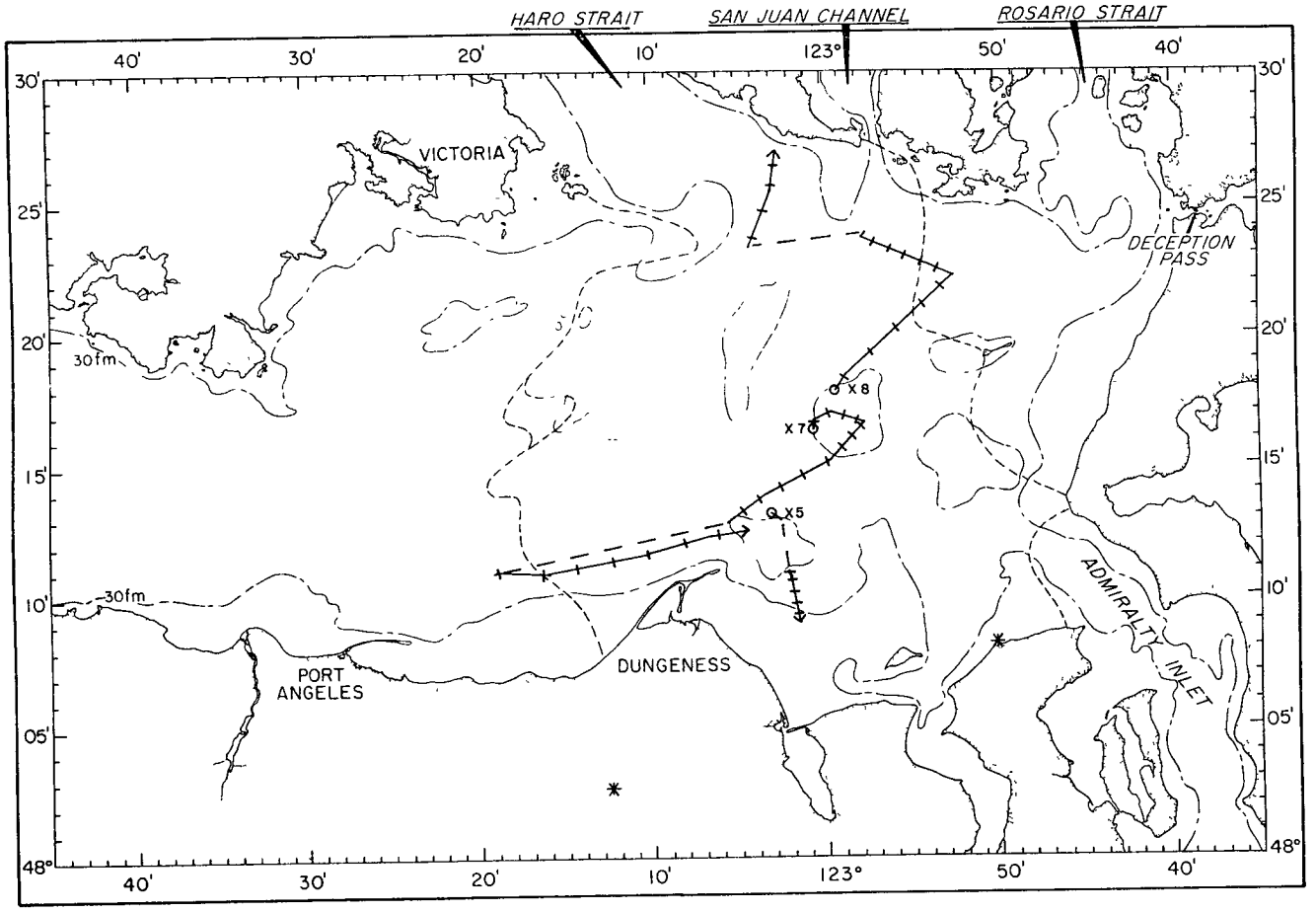


Plate 2d1. Selected trajectories beginning 25 August 1978. X7 second day movement typical of patch movement.

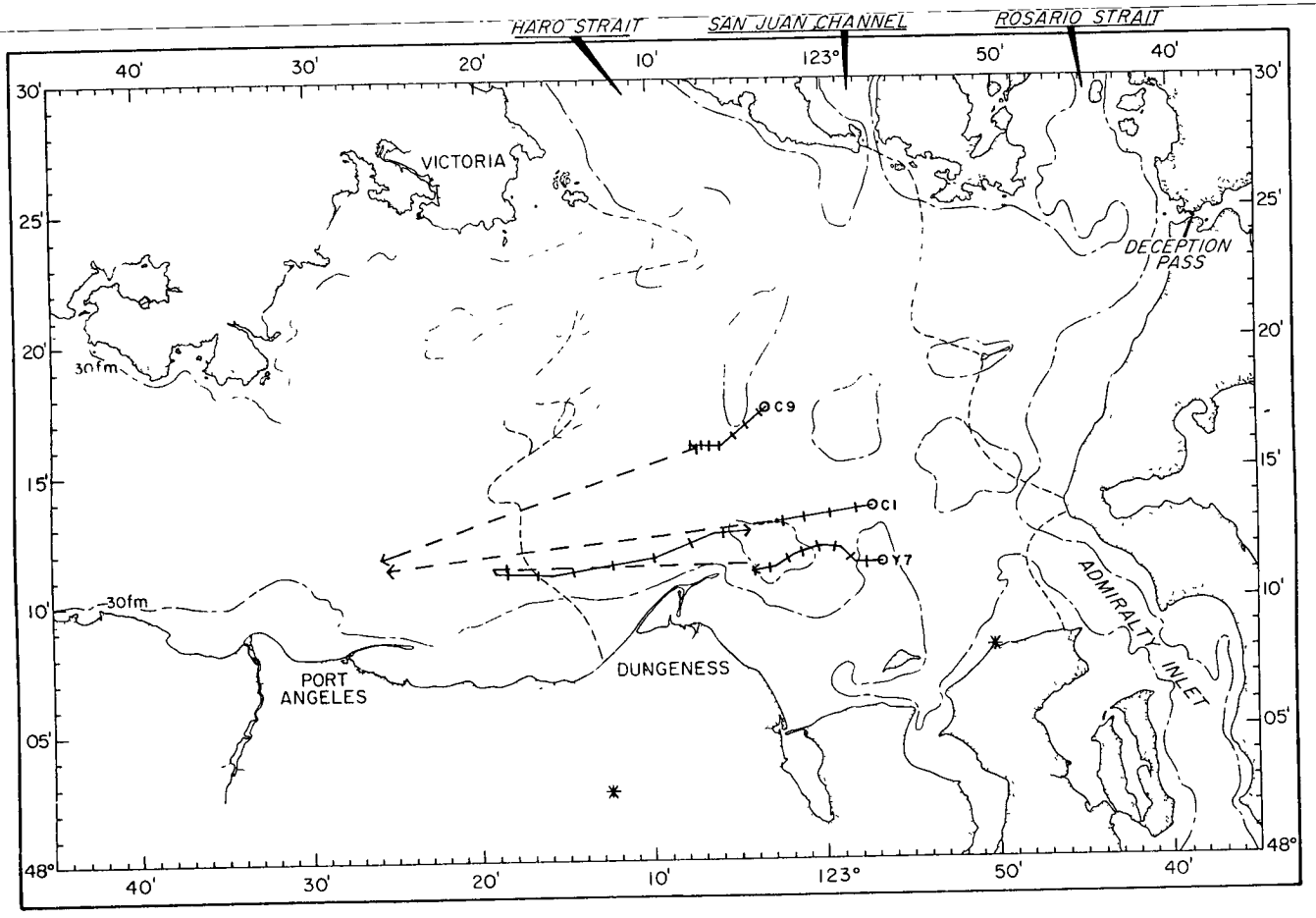


Plate 2d2. Selected trajectories beginning 25 August 1978. Y7 typical of patch movement.

Plates 3a-3e. Spatial vector diagrams. There is one plate at each hour (Pacific Daylight Time; + 7 time zone) during the observations. Drift sheet positions correspond to arrow bases. Speeds are scaled as shown on Plate 3a1. Selected wind observations and current predictions for each diagram are shown in Figure 8. For example, Plate 3a3 occurs at position a3 on Figure 8. Letters a-e correspond to 22-26 August, respectively.

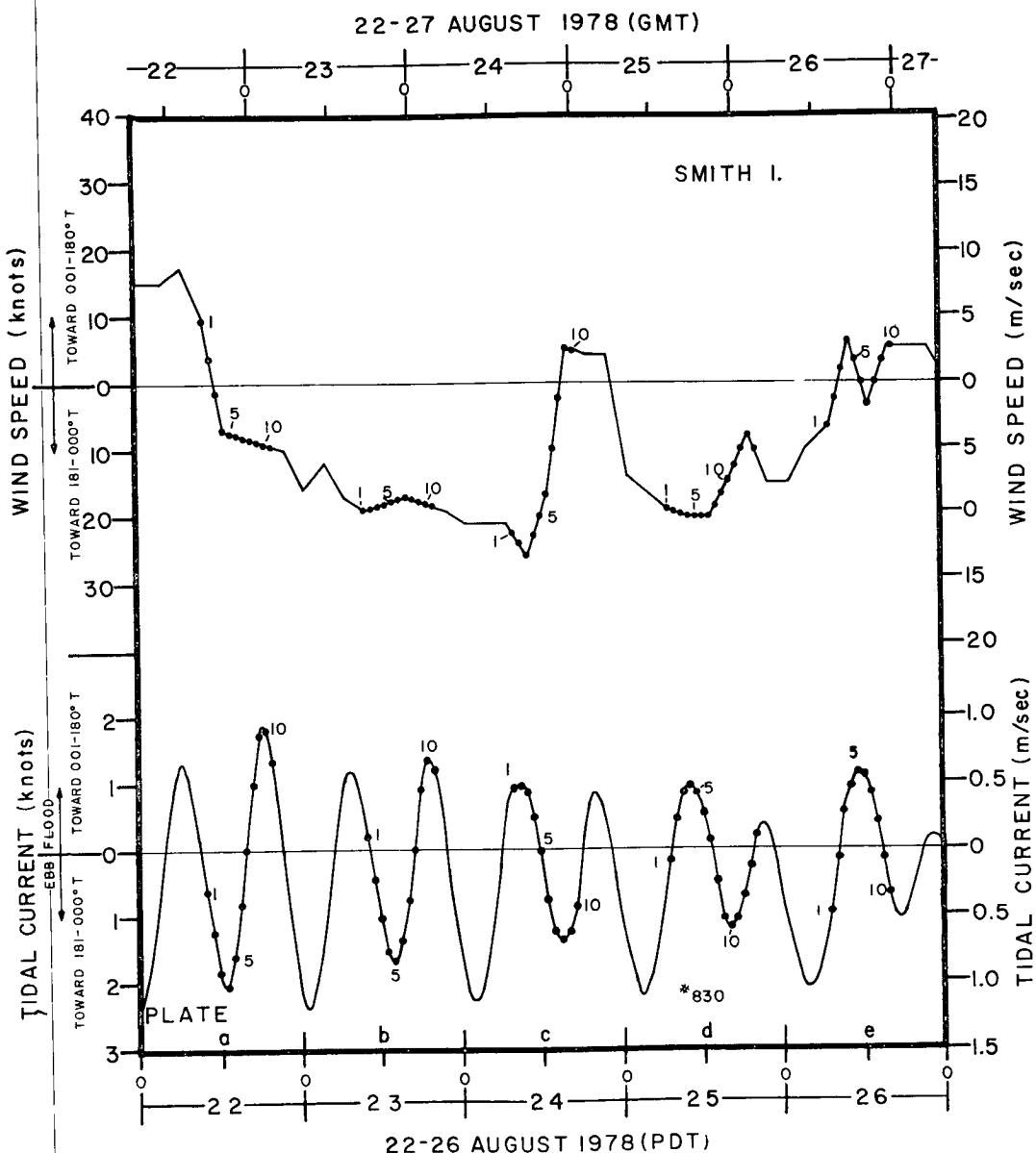


Figure 8. Times of spatial vector diagrams (dots) relative to winds observed at Smith I. (top) and currents predicted at station 830 (bottom). Plates a-e correspond to 22-26 August 1978, and last digit of Plate's code corresponds to hours (dots). For example on 22 August, a1 corresponds to Plate 3a1.

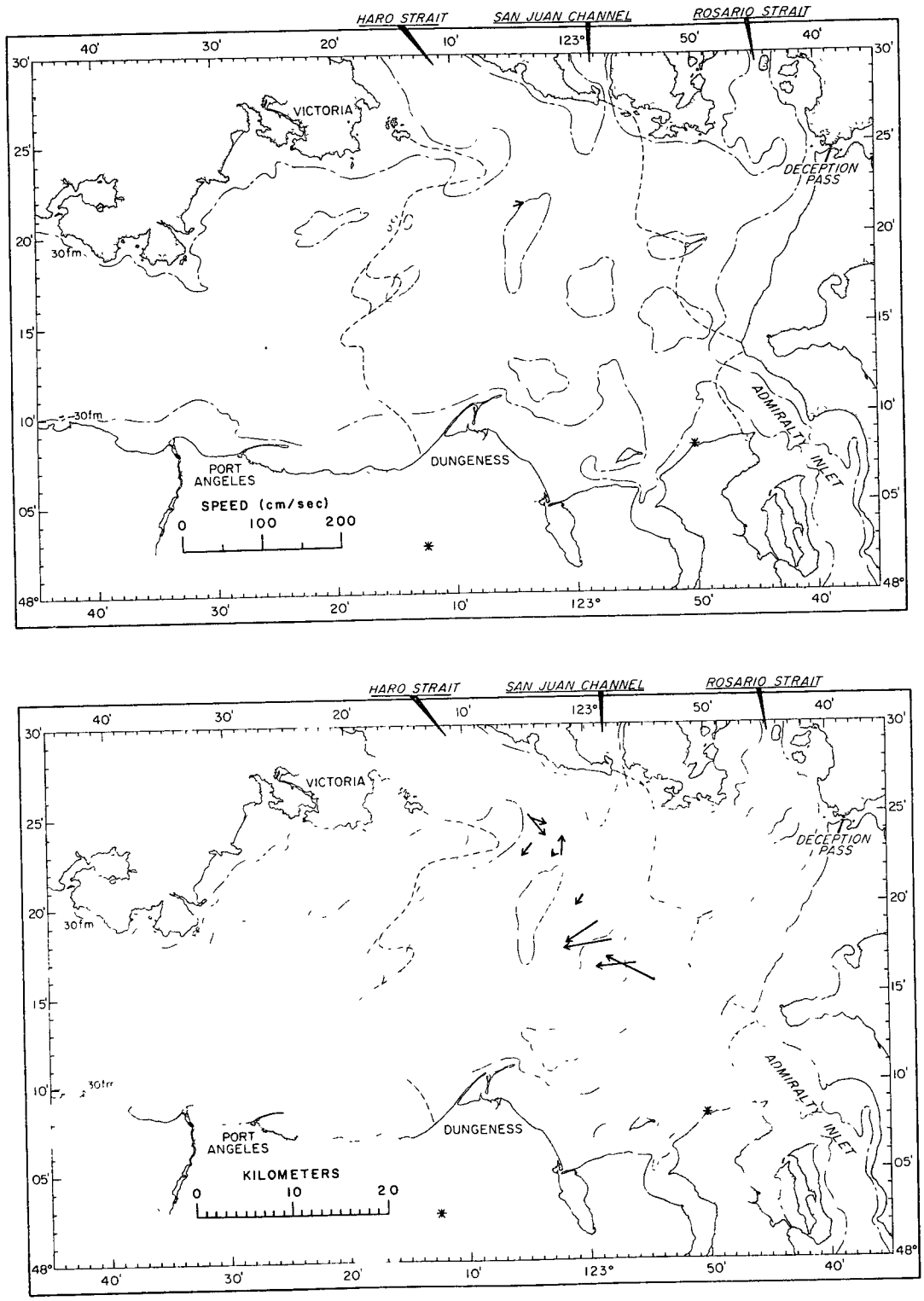
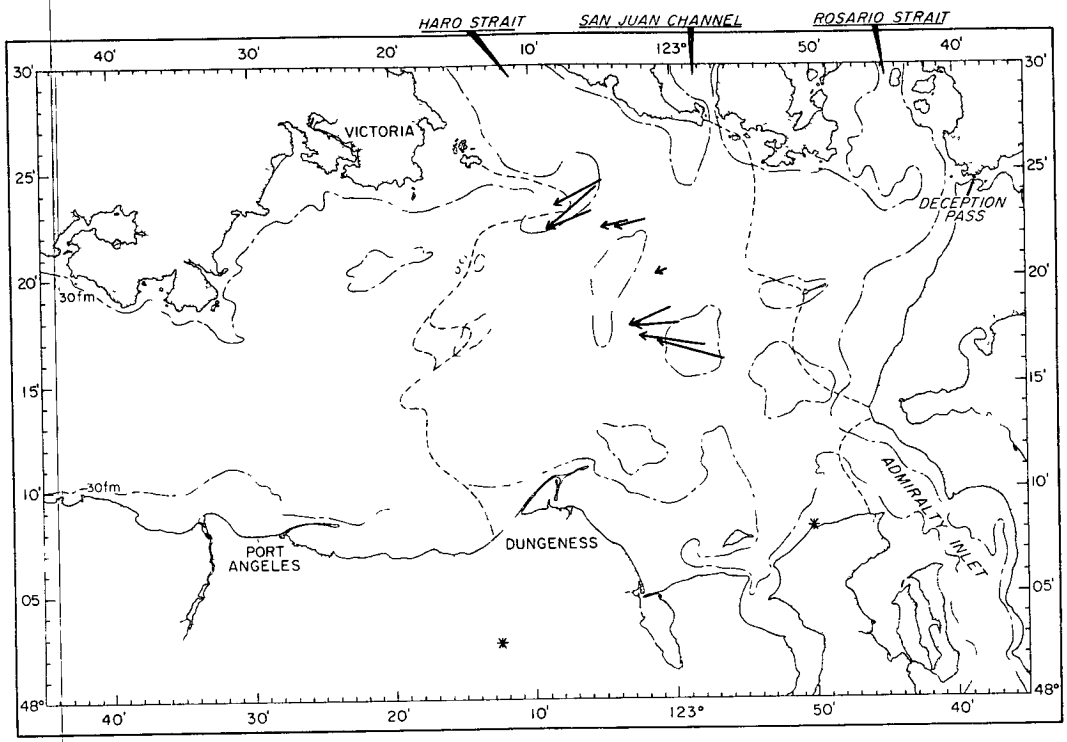


Plate 3a1. Spatial vector diagrams at 1000 (top) and 1100 (bottom), 22 August 1978.



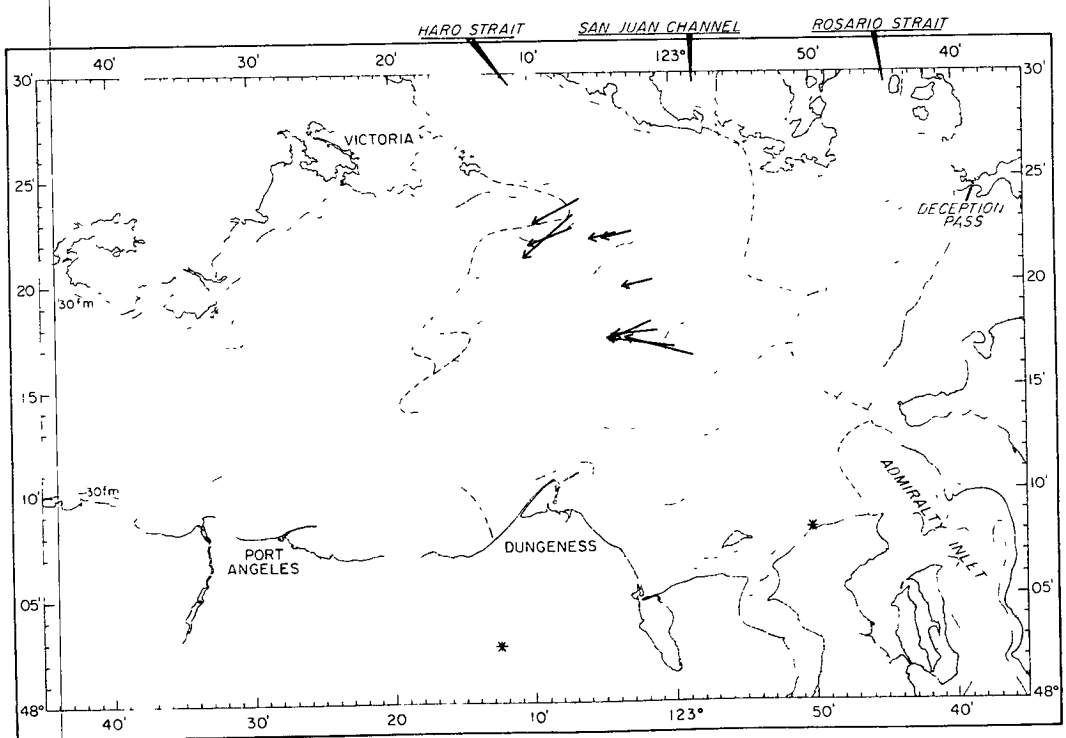


Plate 3a2. Spatial vector diagrams at 1200 (top) and 1300 (bottom), 22 August 1978.

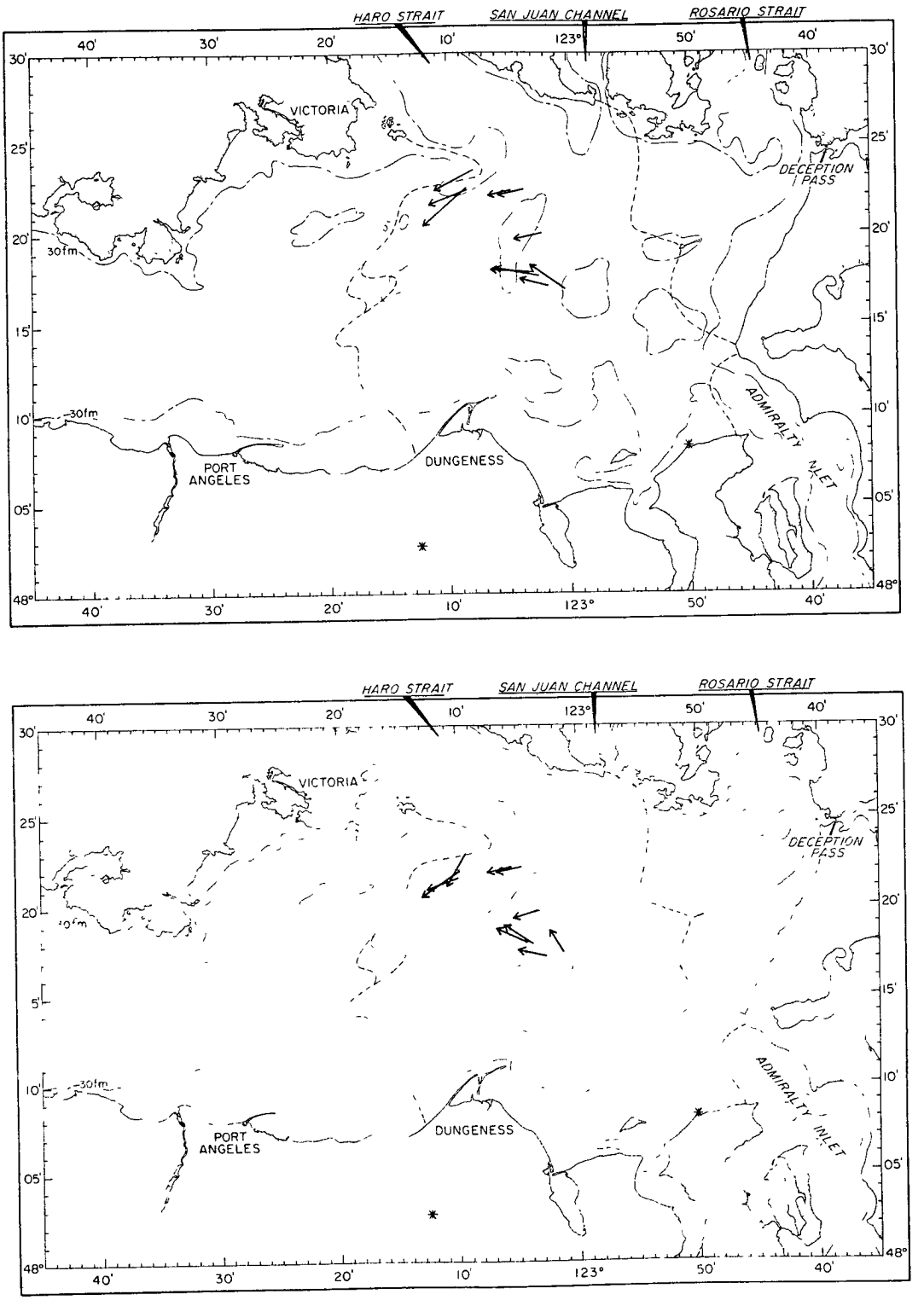


Plate 3a3. Spatial vector diagrams at 1400 (top) and 1500 (bottom), 22 August 1978.

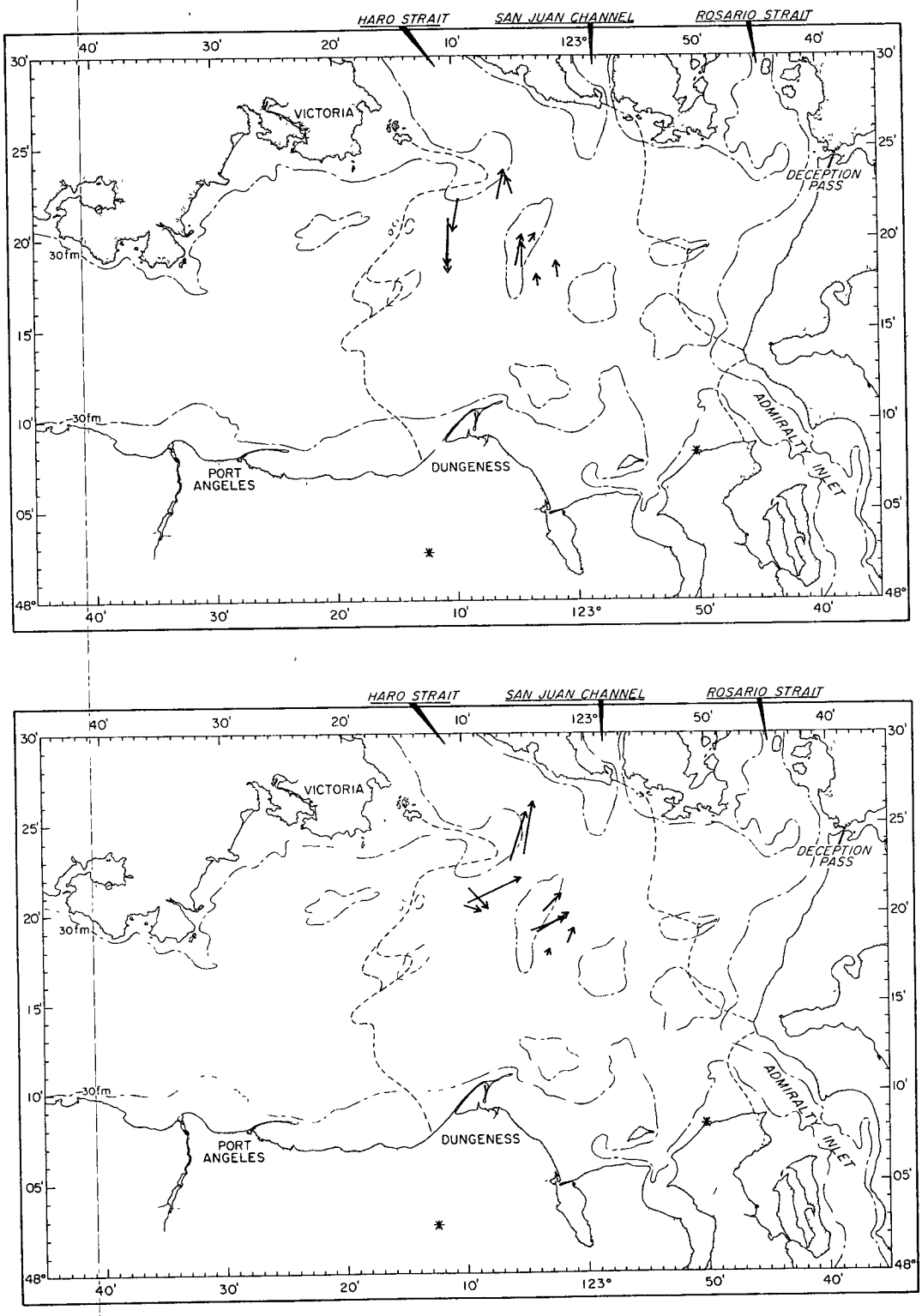


Plate 3a4. Spatial vector diagrams at 1600 (top) and 1700 (bottom), 22 August 1978.

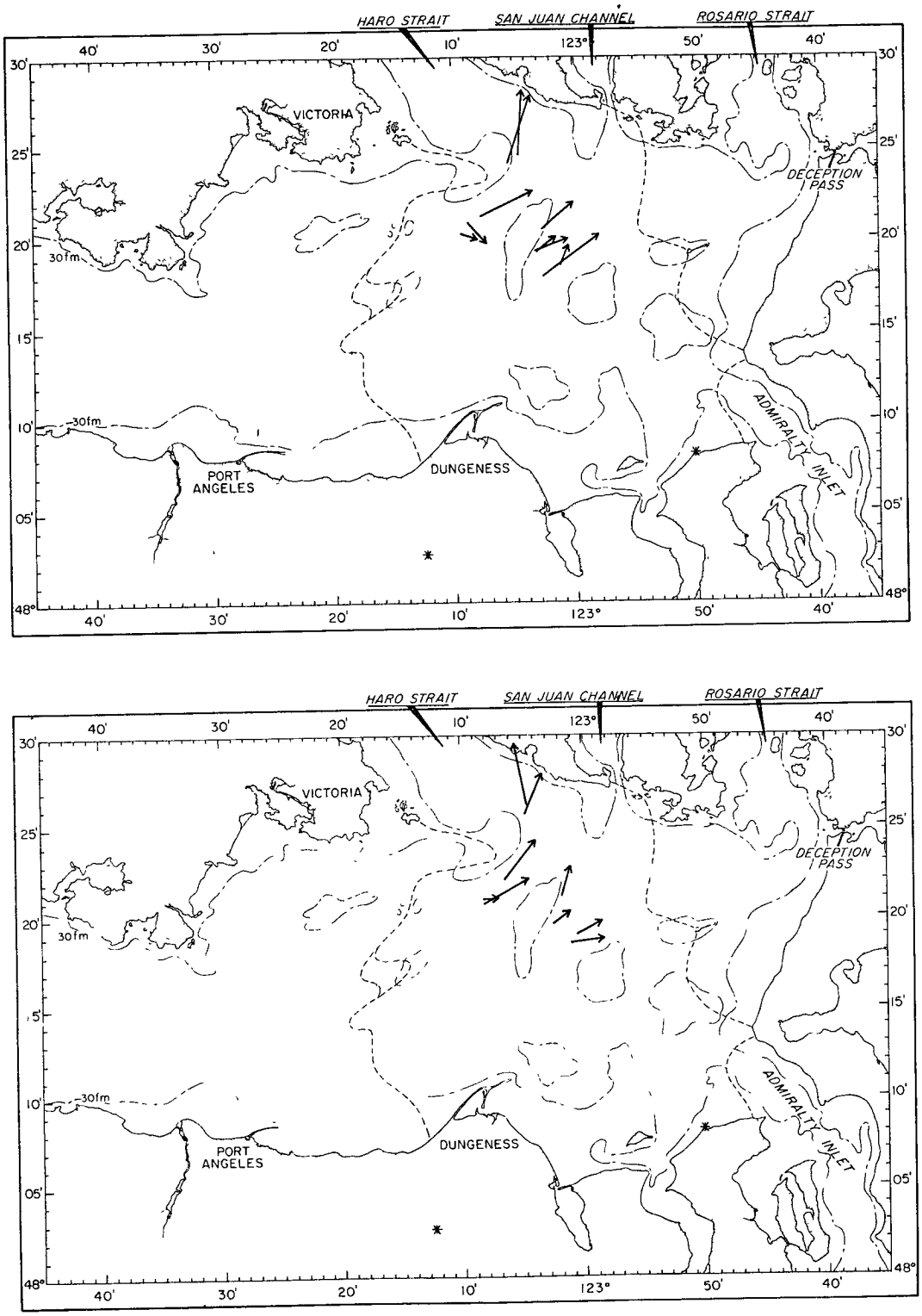


Plate 3a5. Spatial vector diagrams at 1800 (top) and 1900 (bottom), 22 August 1978.

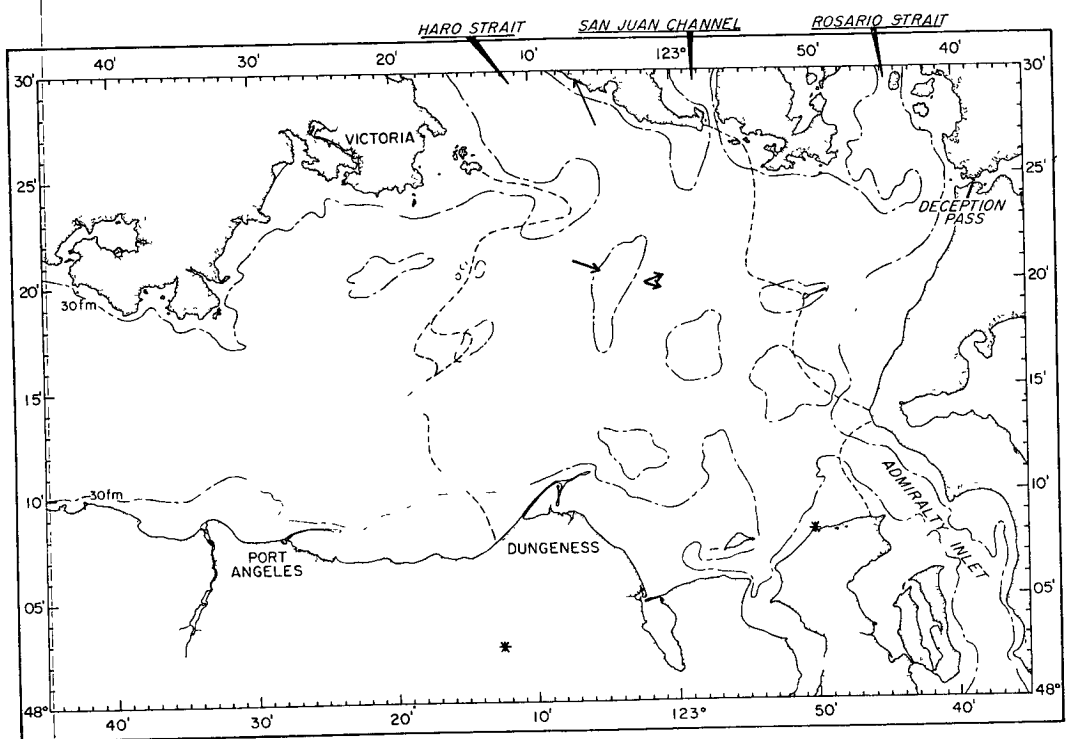


Plate 3a6. Spatial vector diagram at 2000, 22 August 1978.

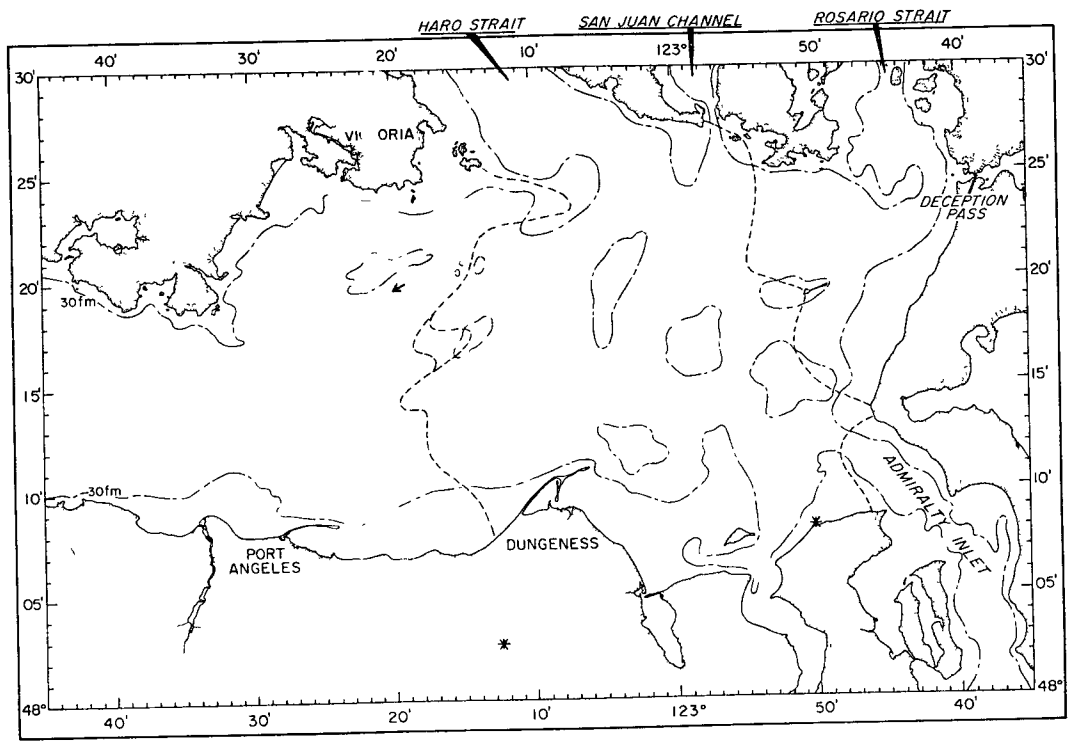


Plate 3b1. Spatial vector diagram at 1000, 23 August 1978.

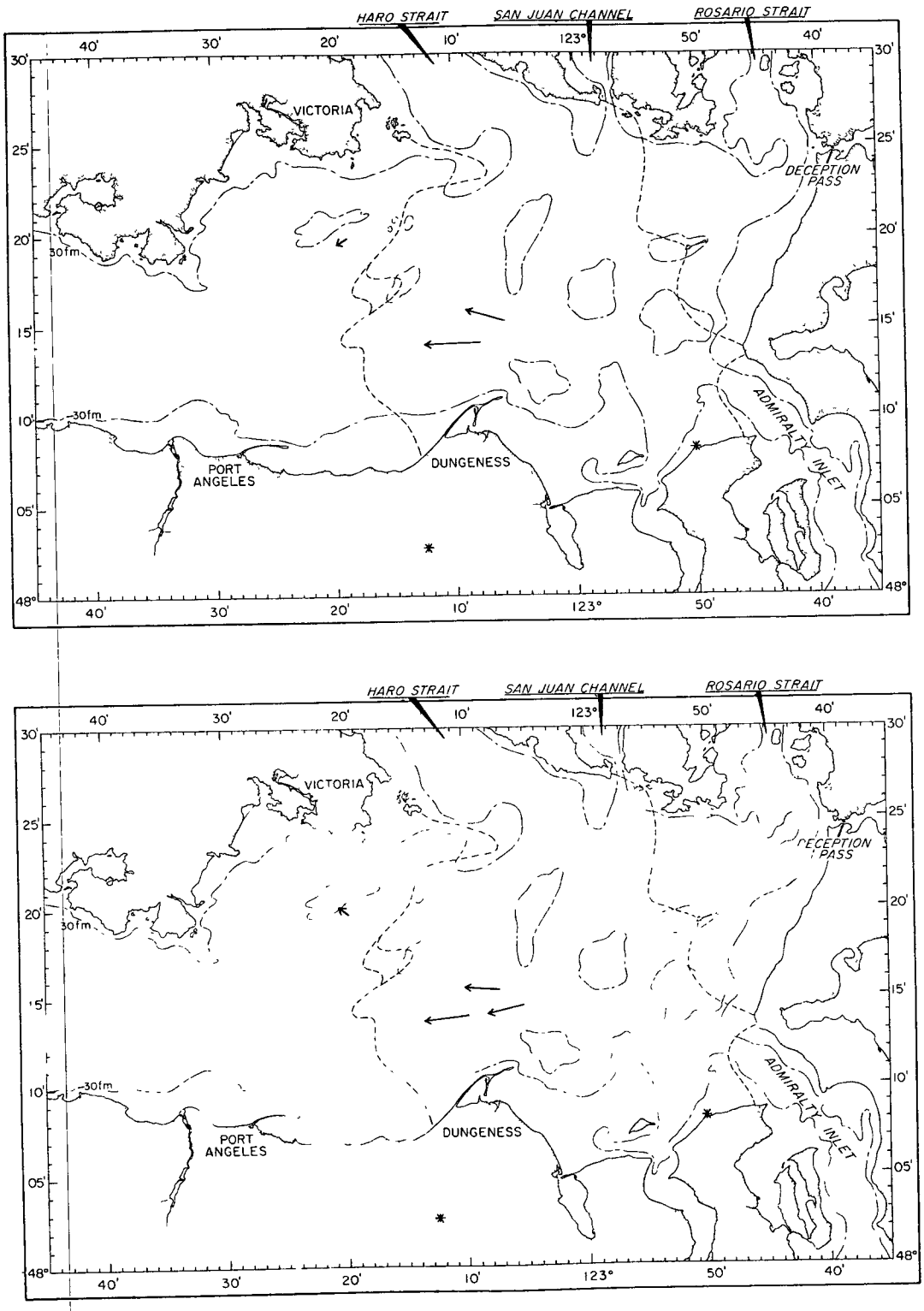


Plate 3b2. Spatial vector diagrams at 1100 (top) and 1200 (bottom), 23 August 1978.

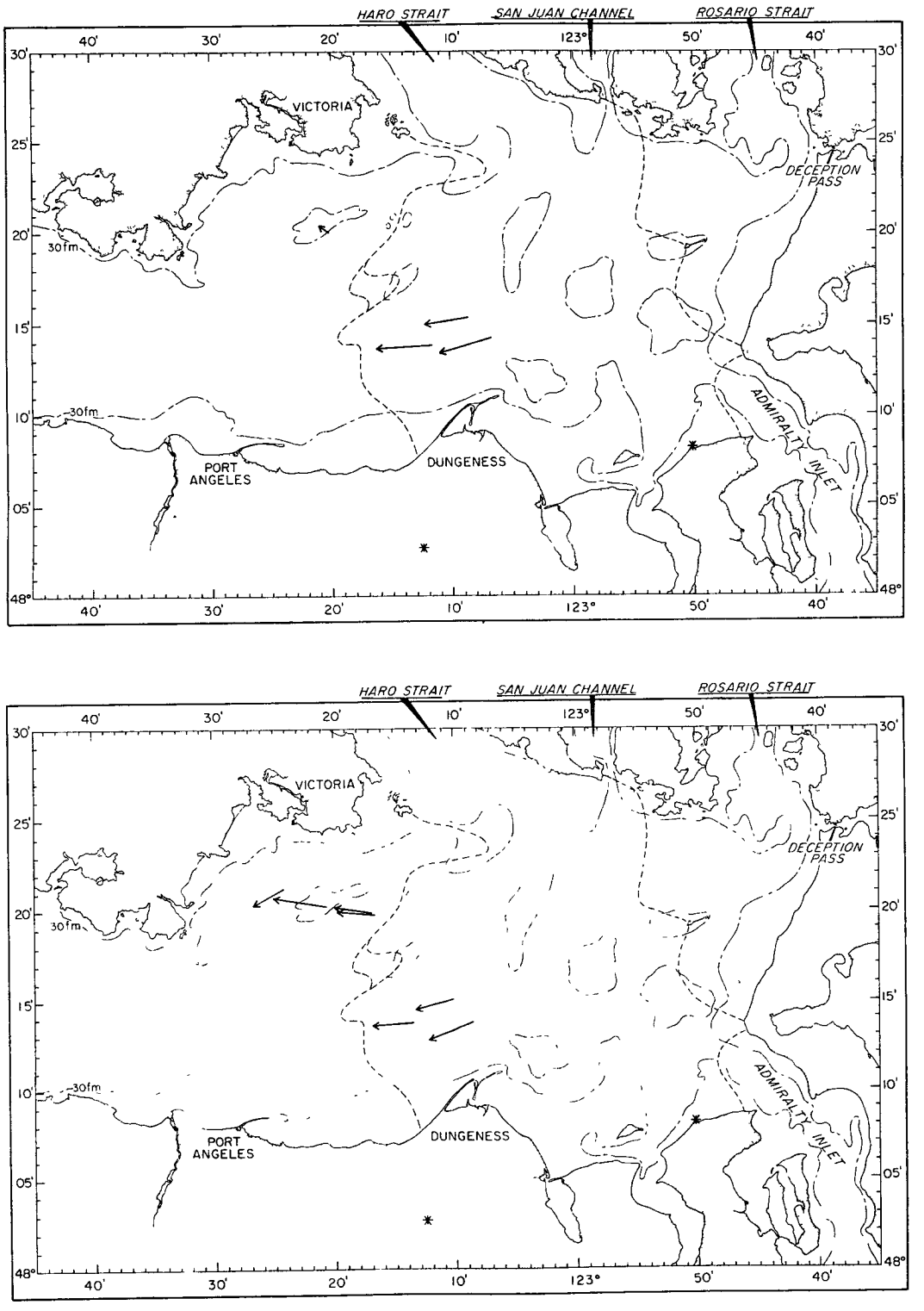
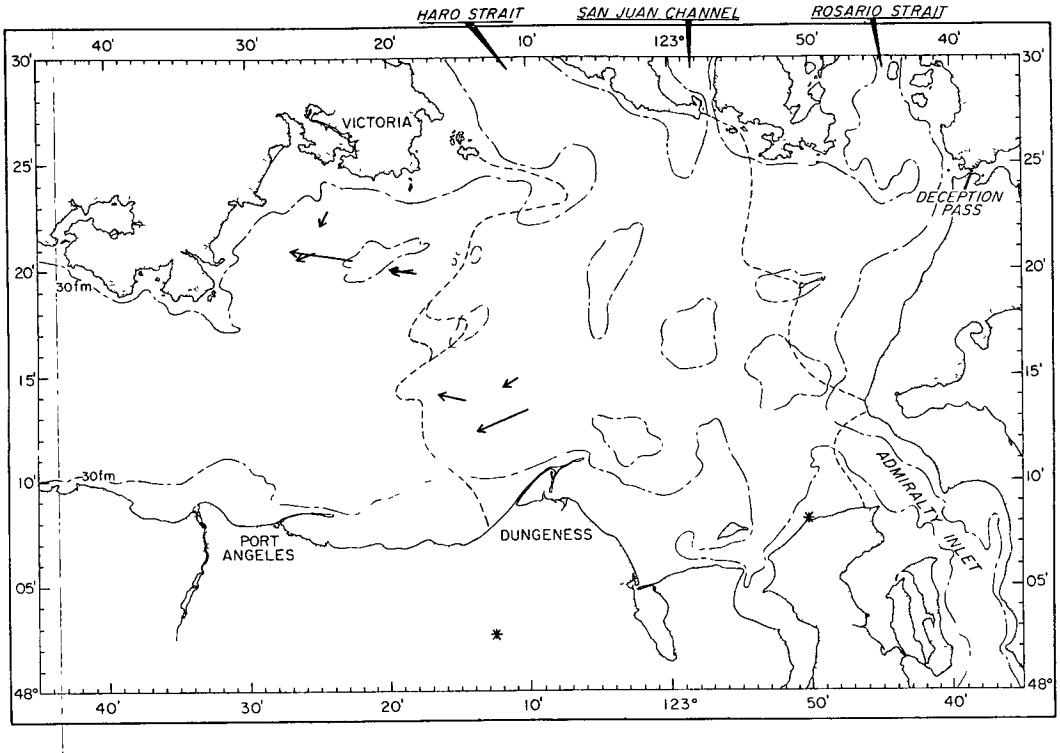


Plate 3b3. Spatial vector diagrams at 1300 (top) and 1400 (bottom), 23 August 1978.



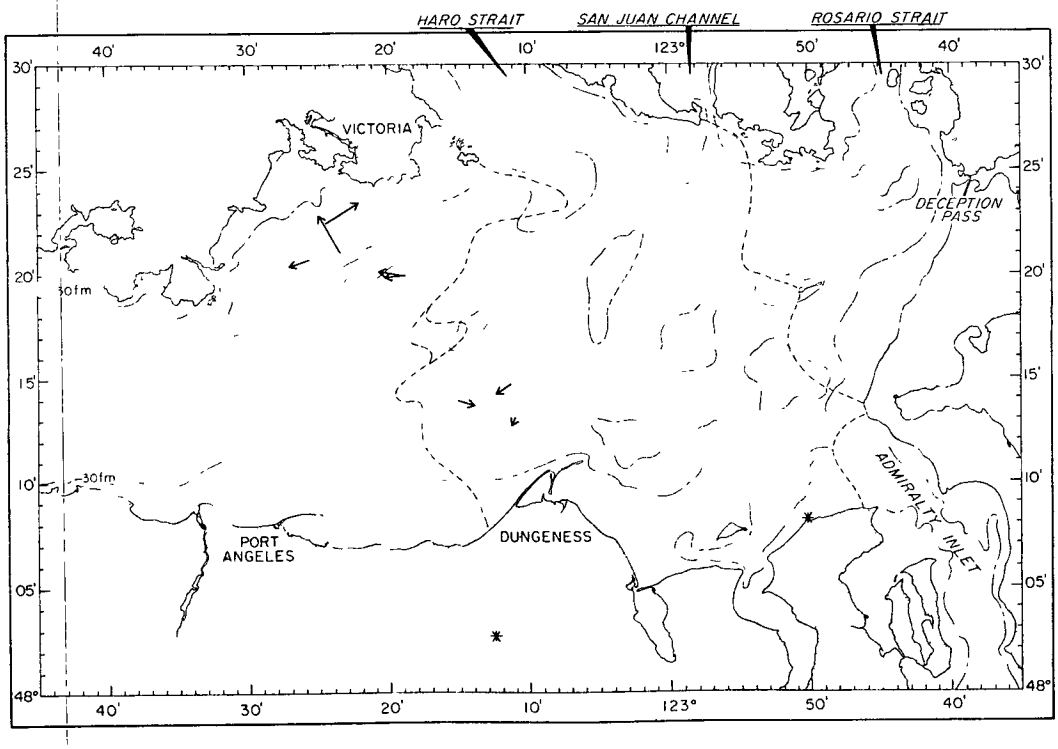


Plate 3b4. Spatial vector diagrams at 1500 (top) and 1600 (bottom), 23 August 1978.

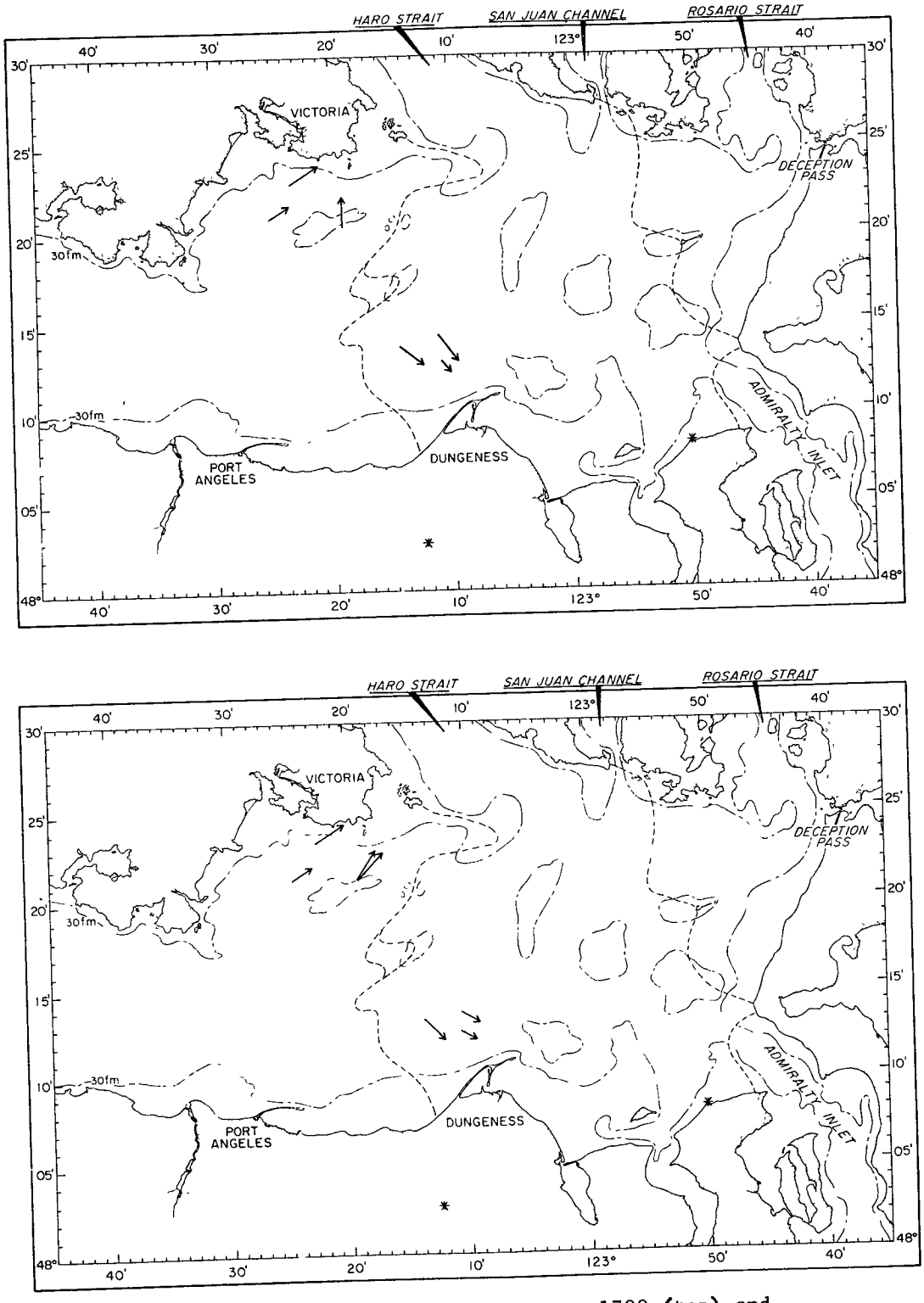


Plate 3b5. Spatial vector diagrams at 1700 (top) and 1800 (bottom), 23 August 1978.

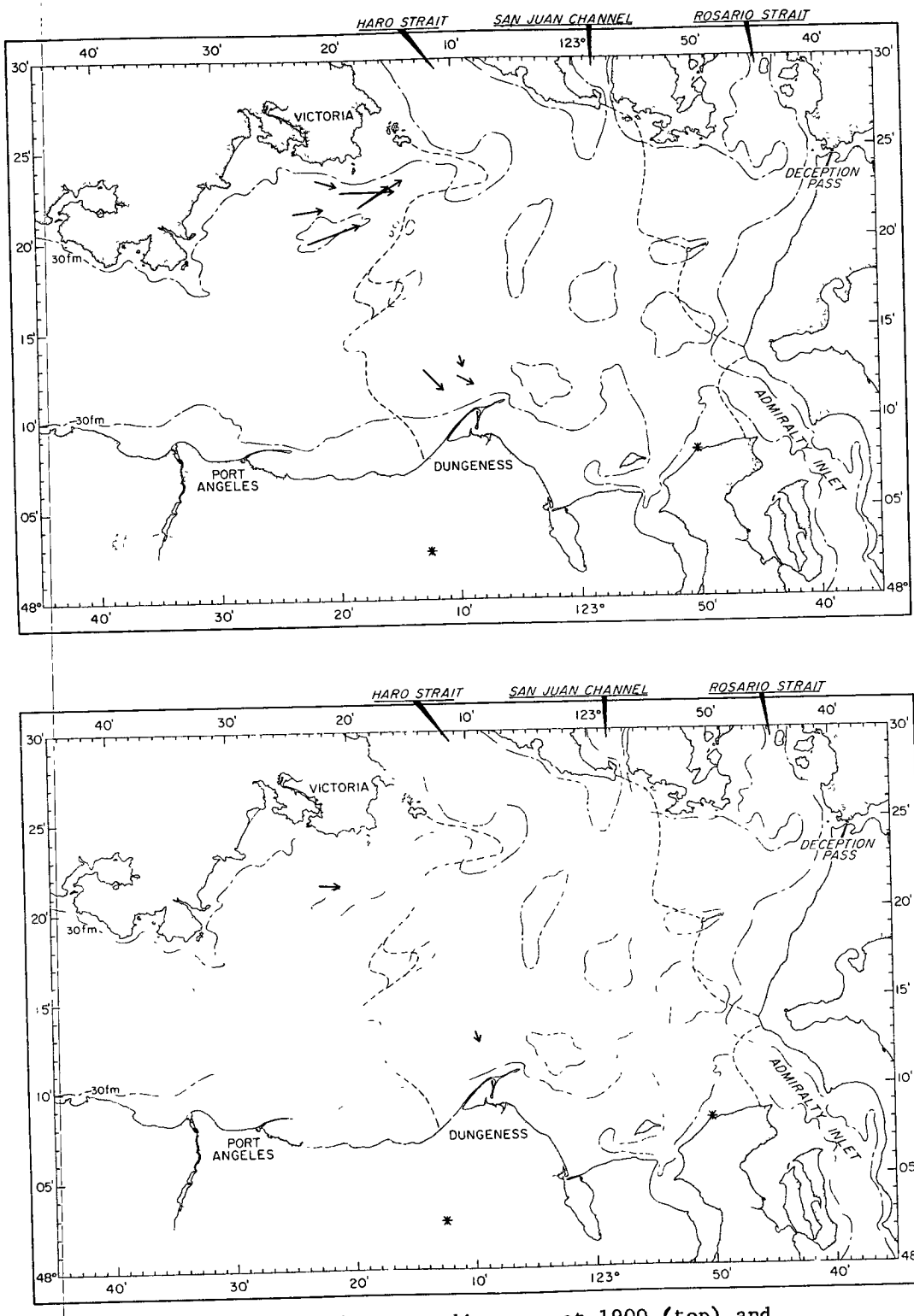


Plate 3b6. Spatial vector diagrams at 1900 (top) and 2000 (bottom), 23 August 1978.

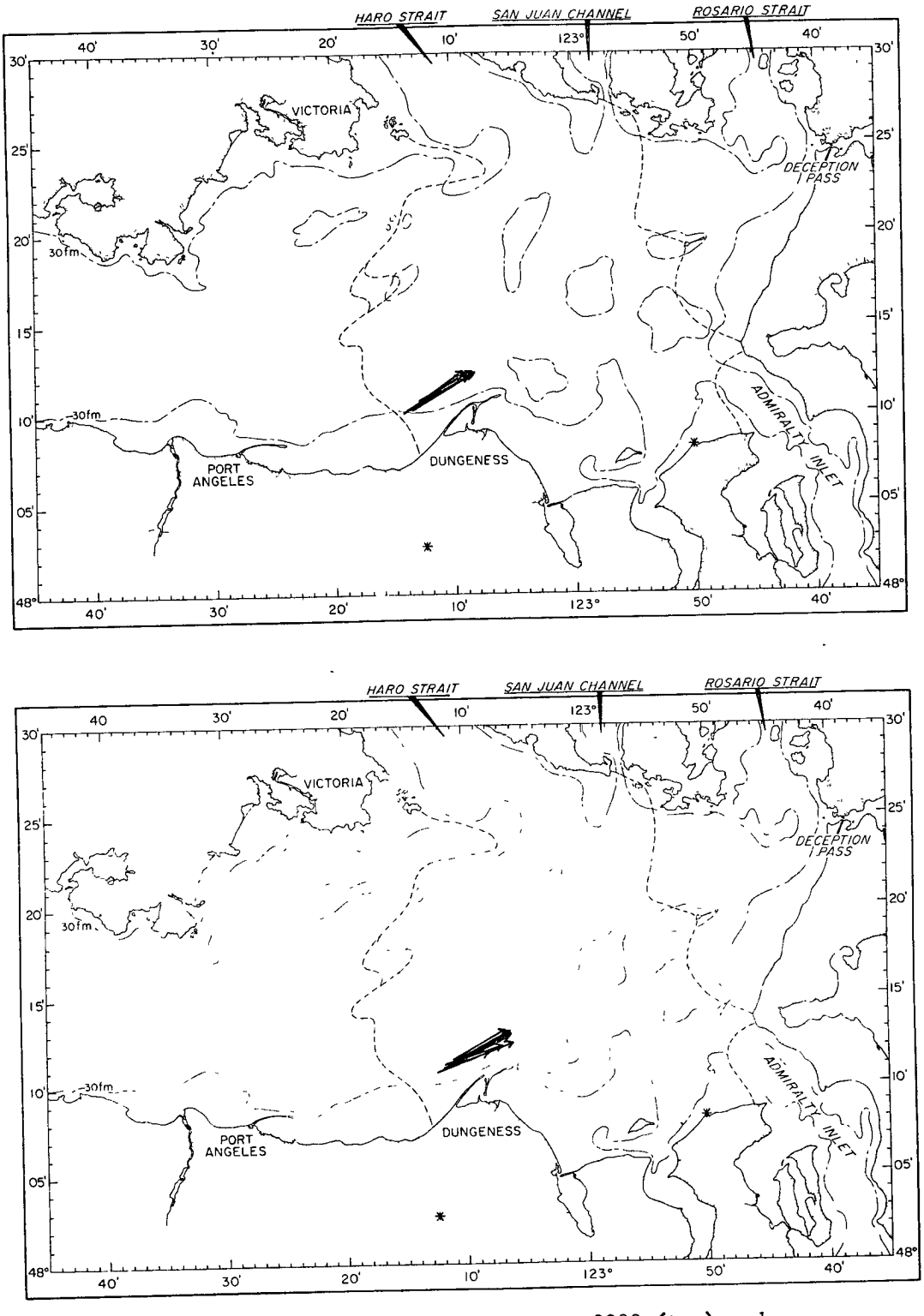


Plate 3c1. Spatial vector diagrams at 0800 (top) and 0900 (bottom), 24 August 1978.

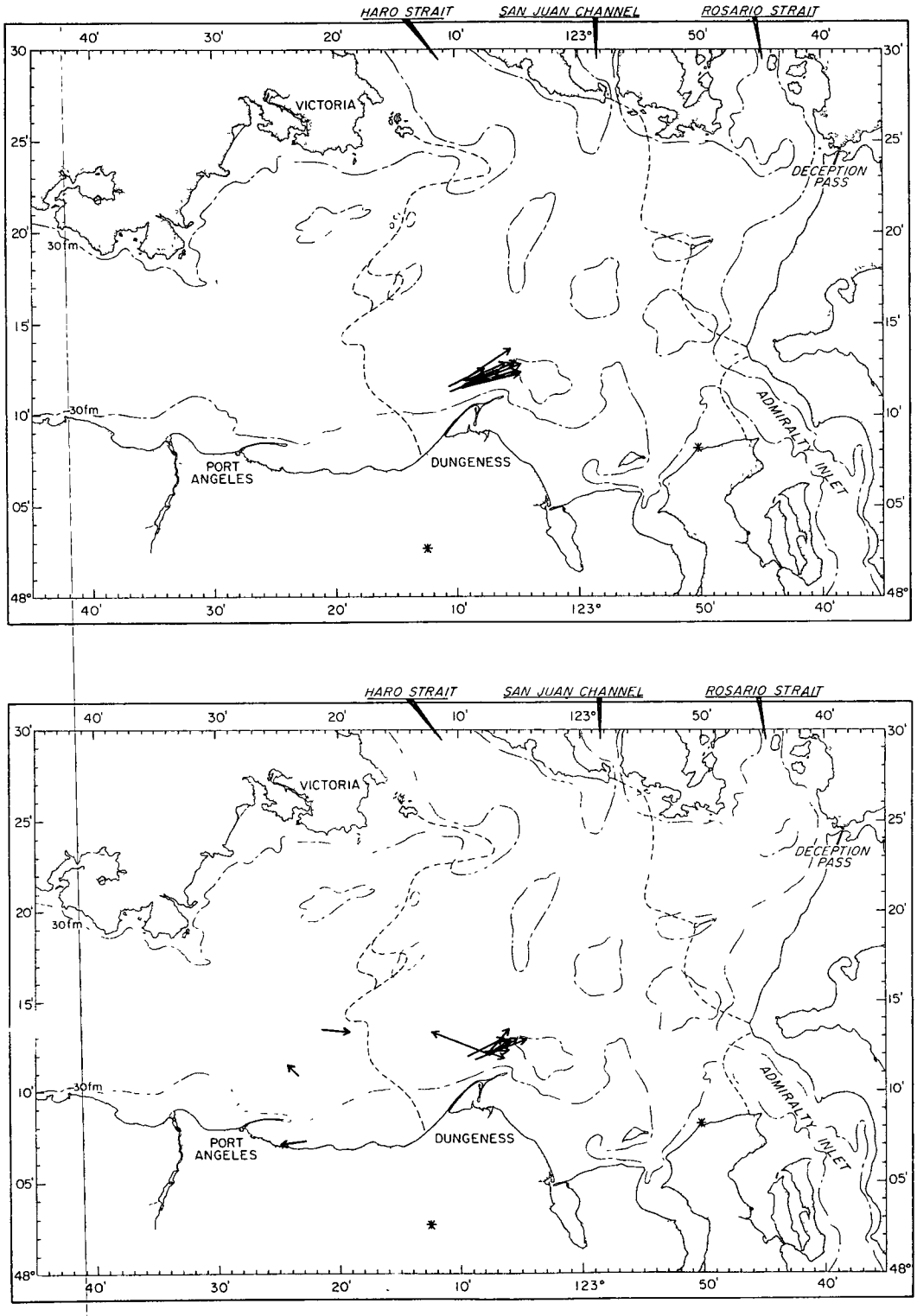


Plate 3c2. Spatial vector diagrams at 1000 (top) and 1100 (bottom), 24 August 1978.

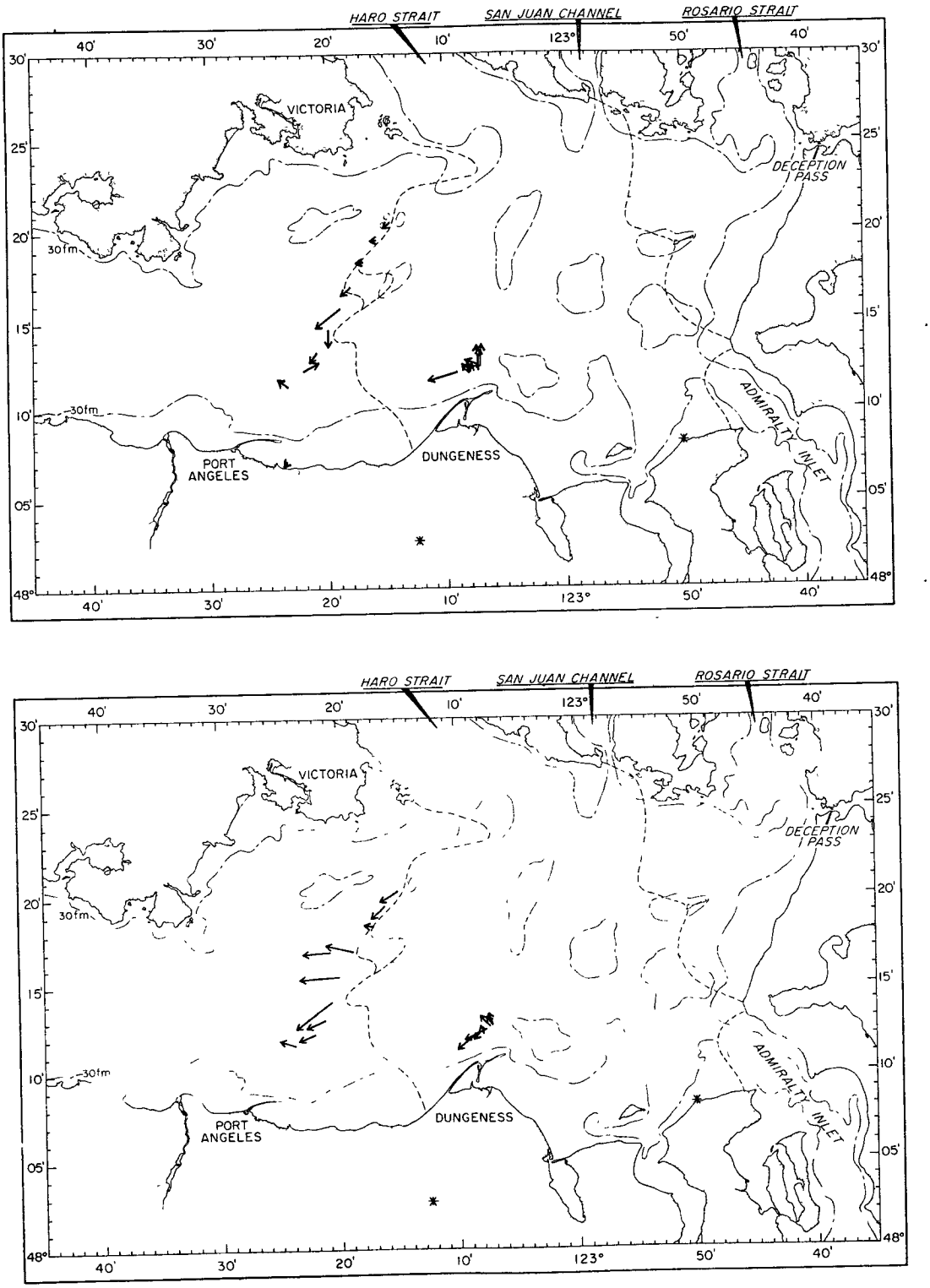


Plate 3c3. Spatial vector diagrams at 1200 (top) and 1300 (bottom), 24 August 1978.

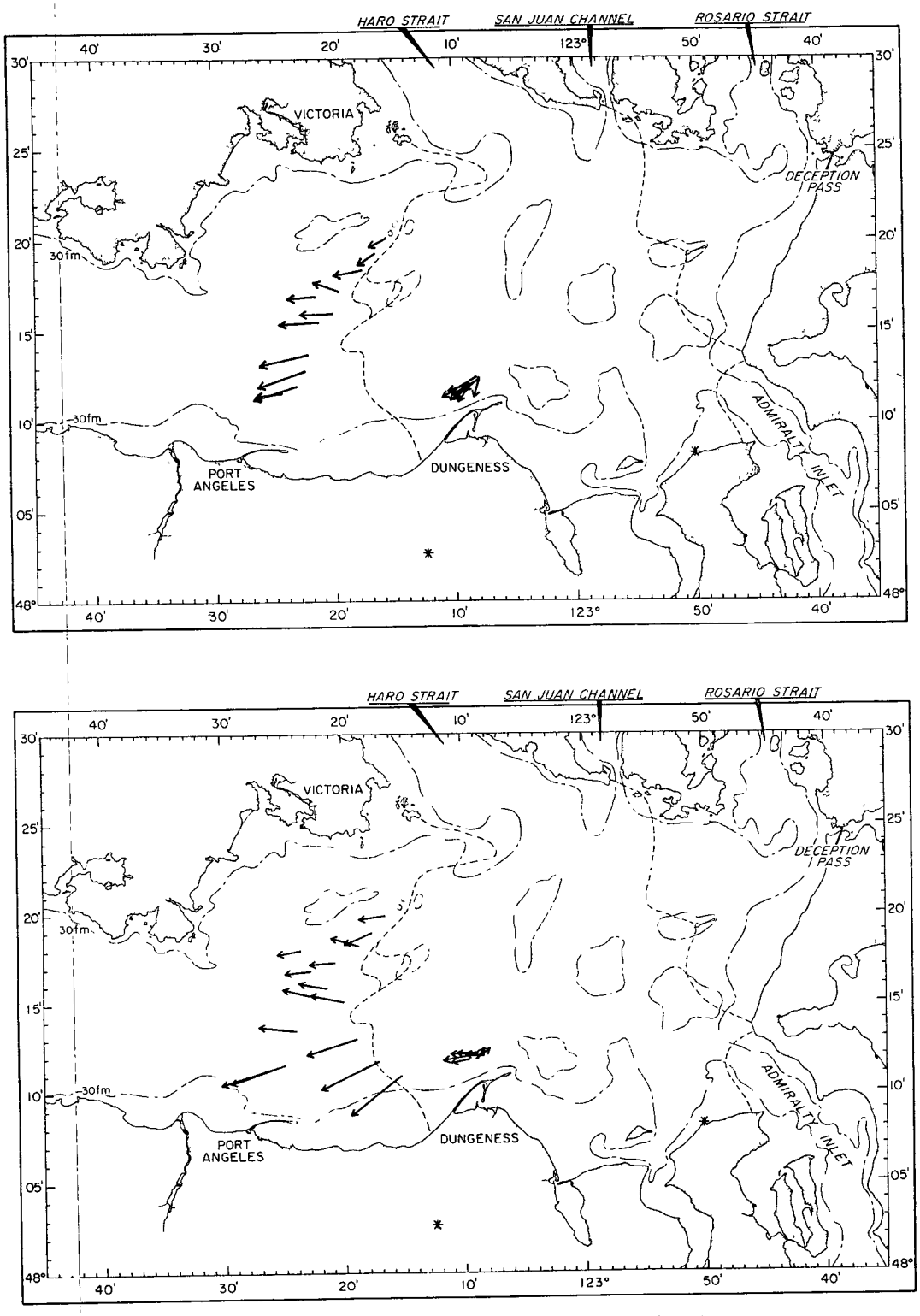


Plate 3c4. Spatial vector diagrams at 1400 (top) and 1500 (bottom), 24 August 1978.

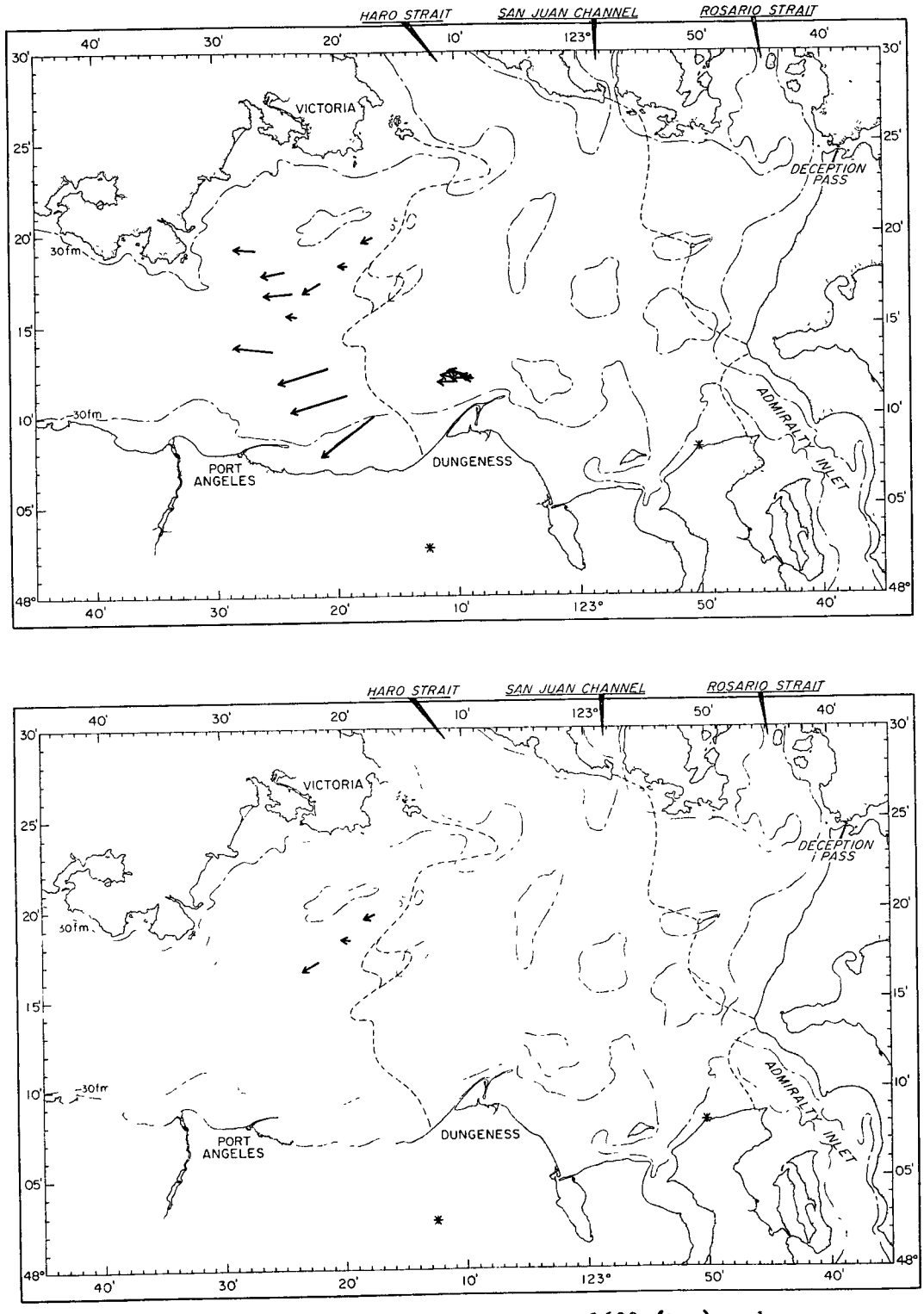
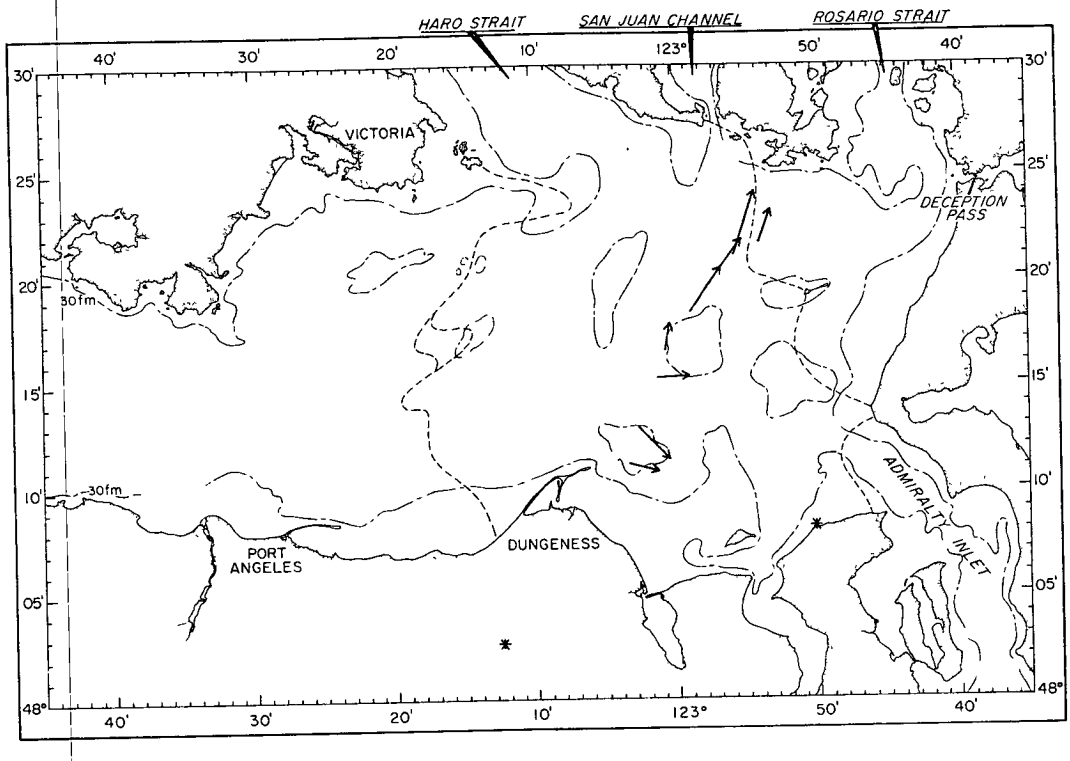


Plate 3c5. Spatial vector diagrams at 1600 (top) and 1700 (bottom), 24 August 1978.



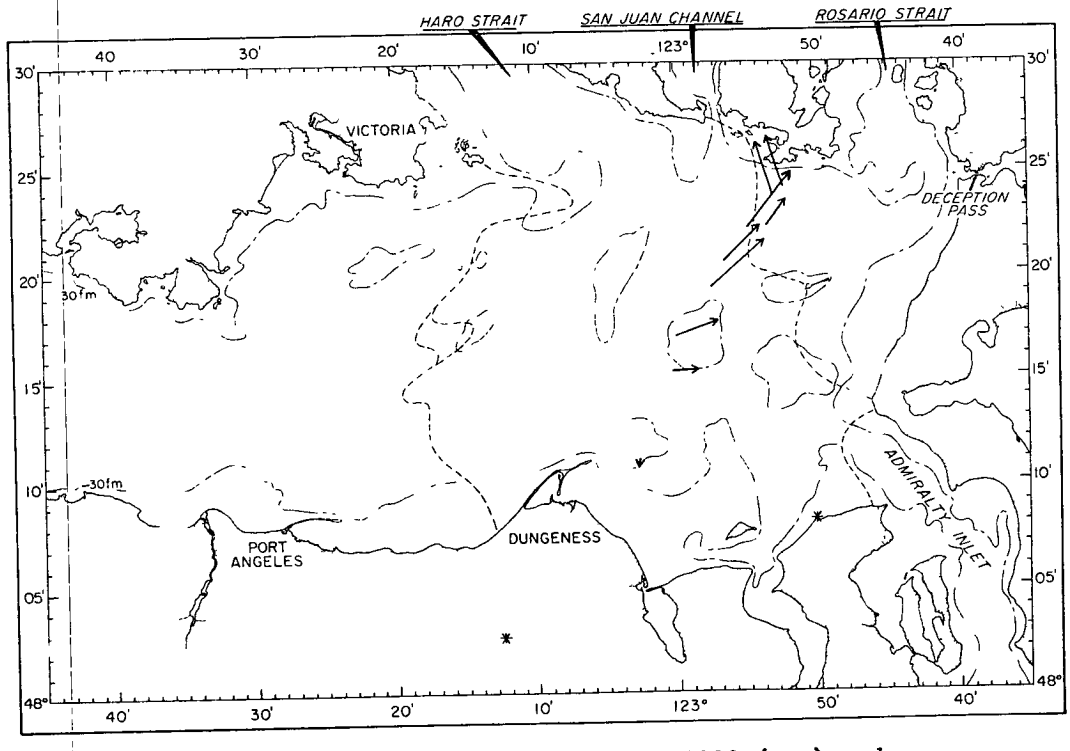


Plate 3d1. Spatial vector diagrams at 0800 (top) and 0900 (bottom), 25 August 1978.

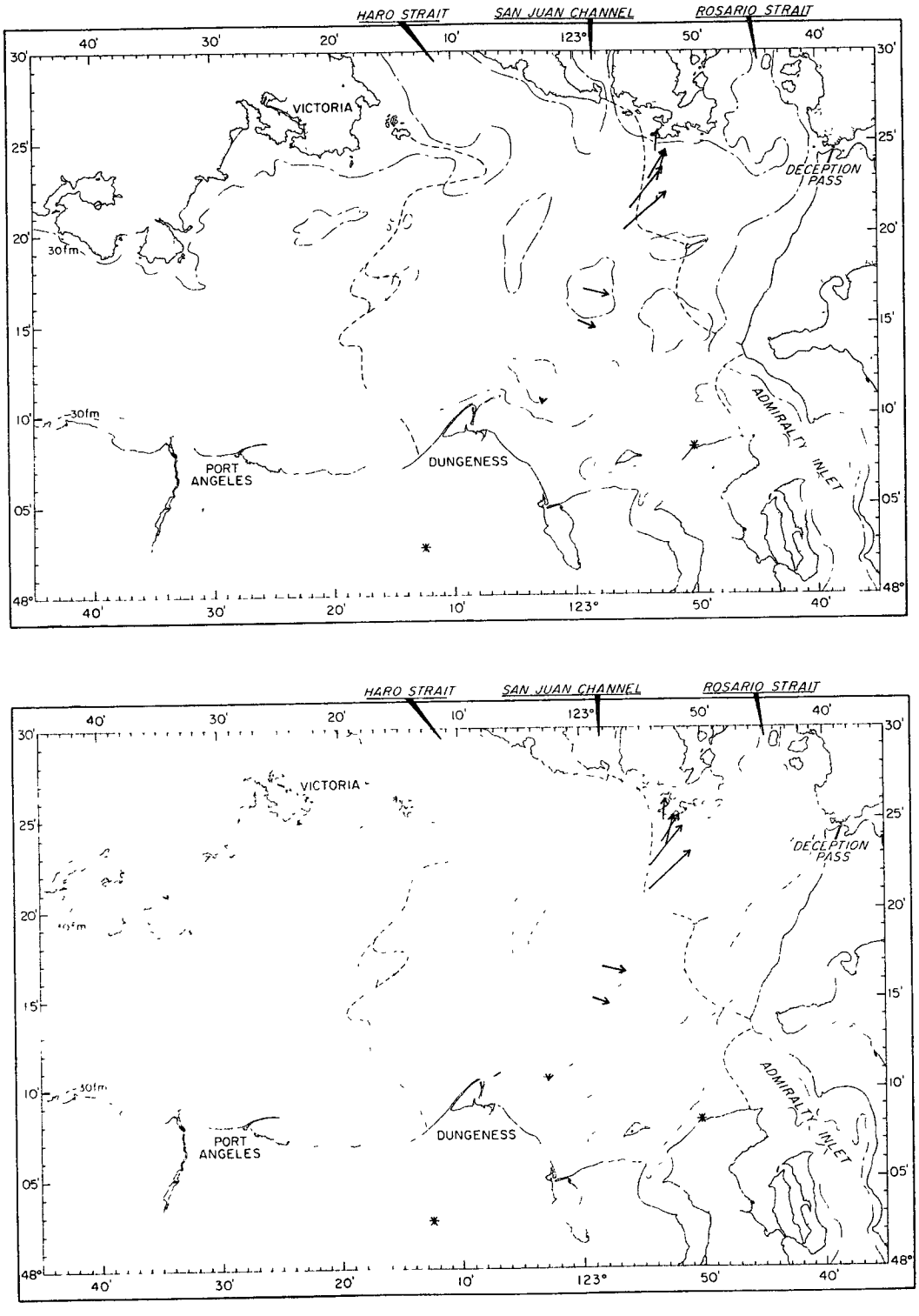


Plate 3d2. Spatial vector diagrams at 1000 (top) and 1100 (bottom), 25 August 1978.

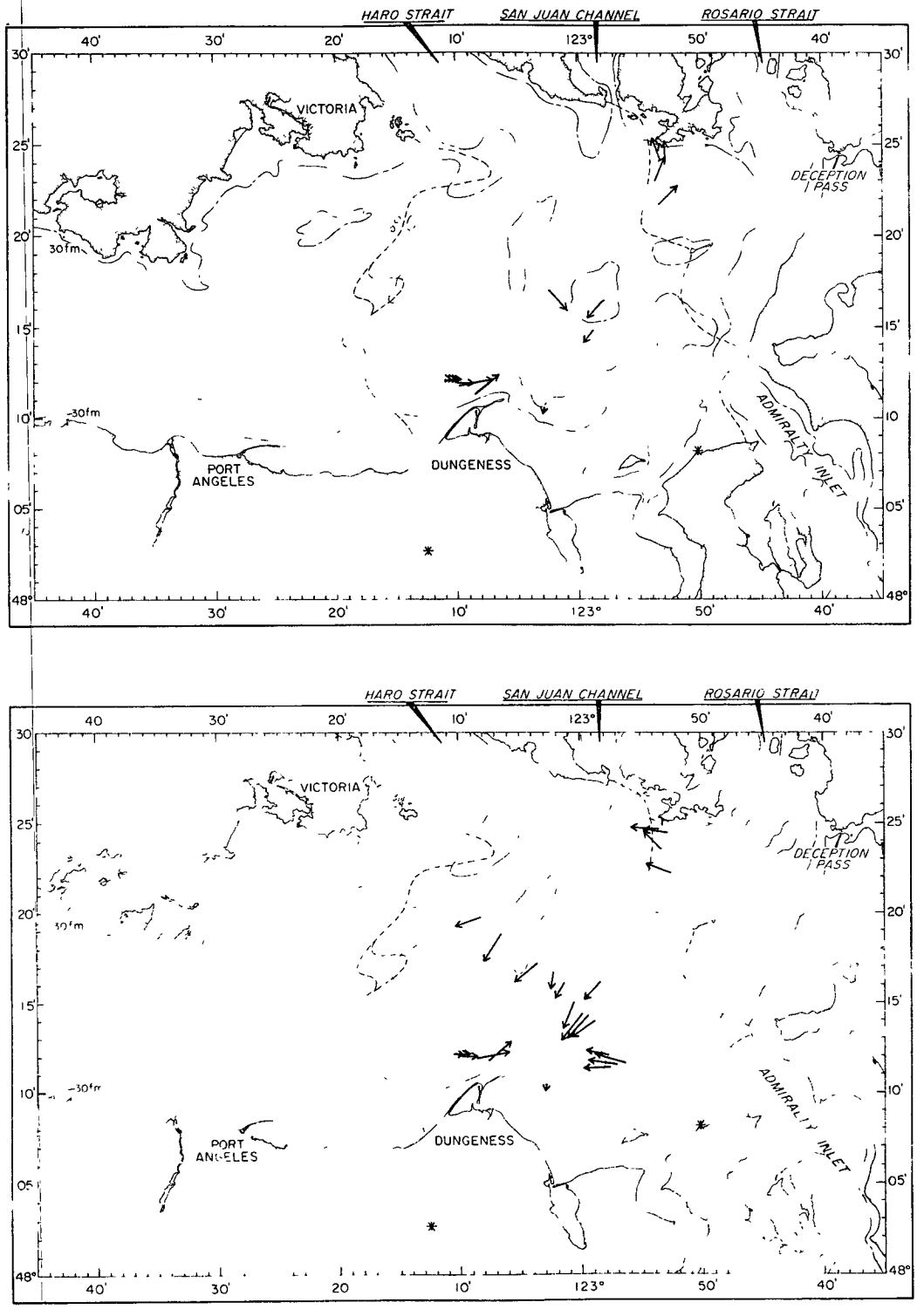


Plate 3d3. Spatial vector diagrams at 1200 (top) and 1300 (bottom), 25 August 1978.

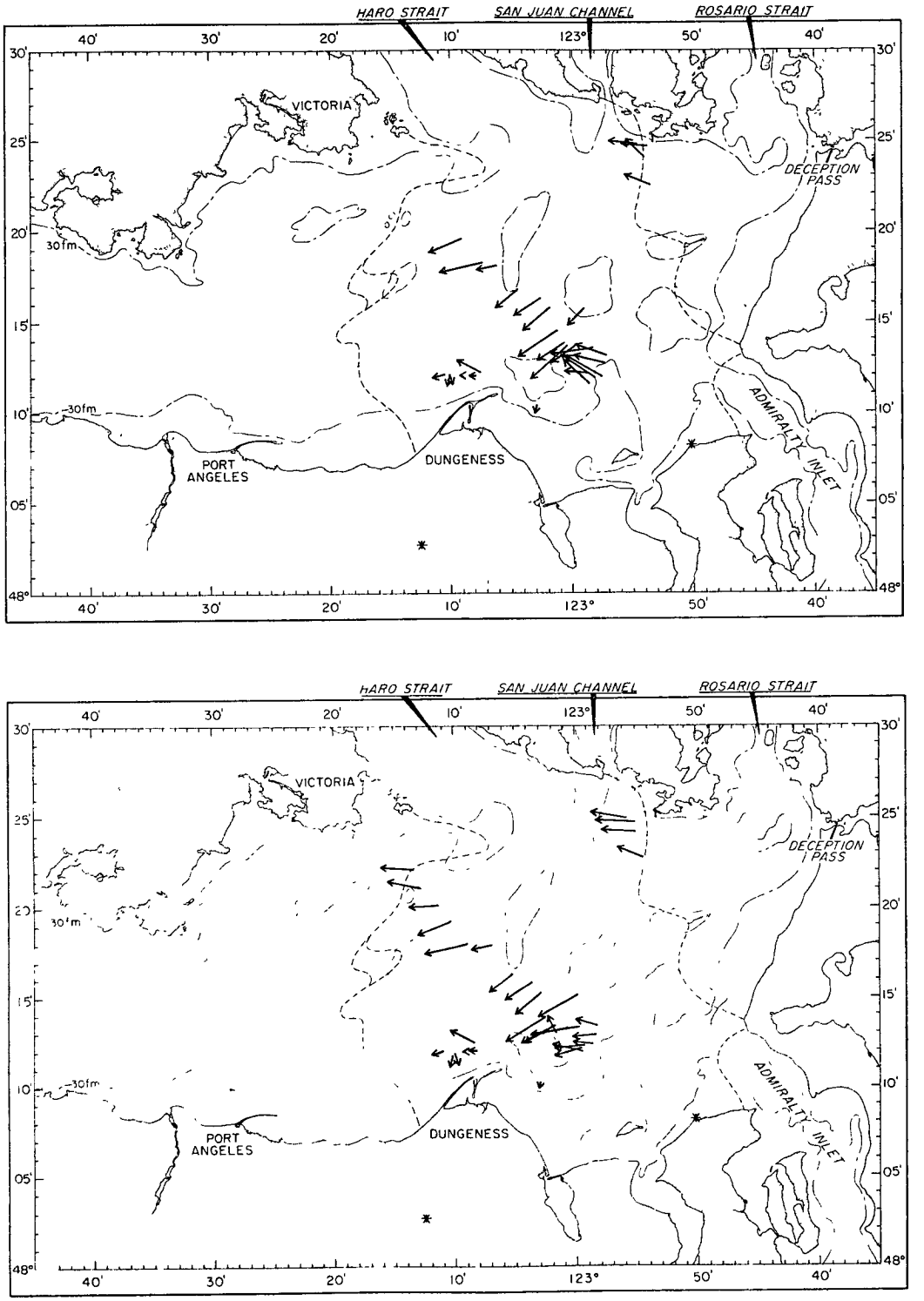


Plate 3d4. Spatial vector diagrams at 1400 (top) and 1500 (bottom), 25 August 1978.

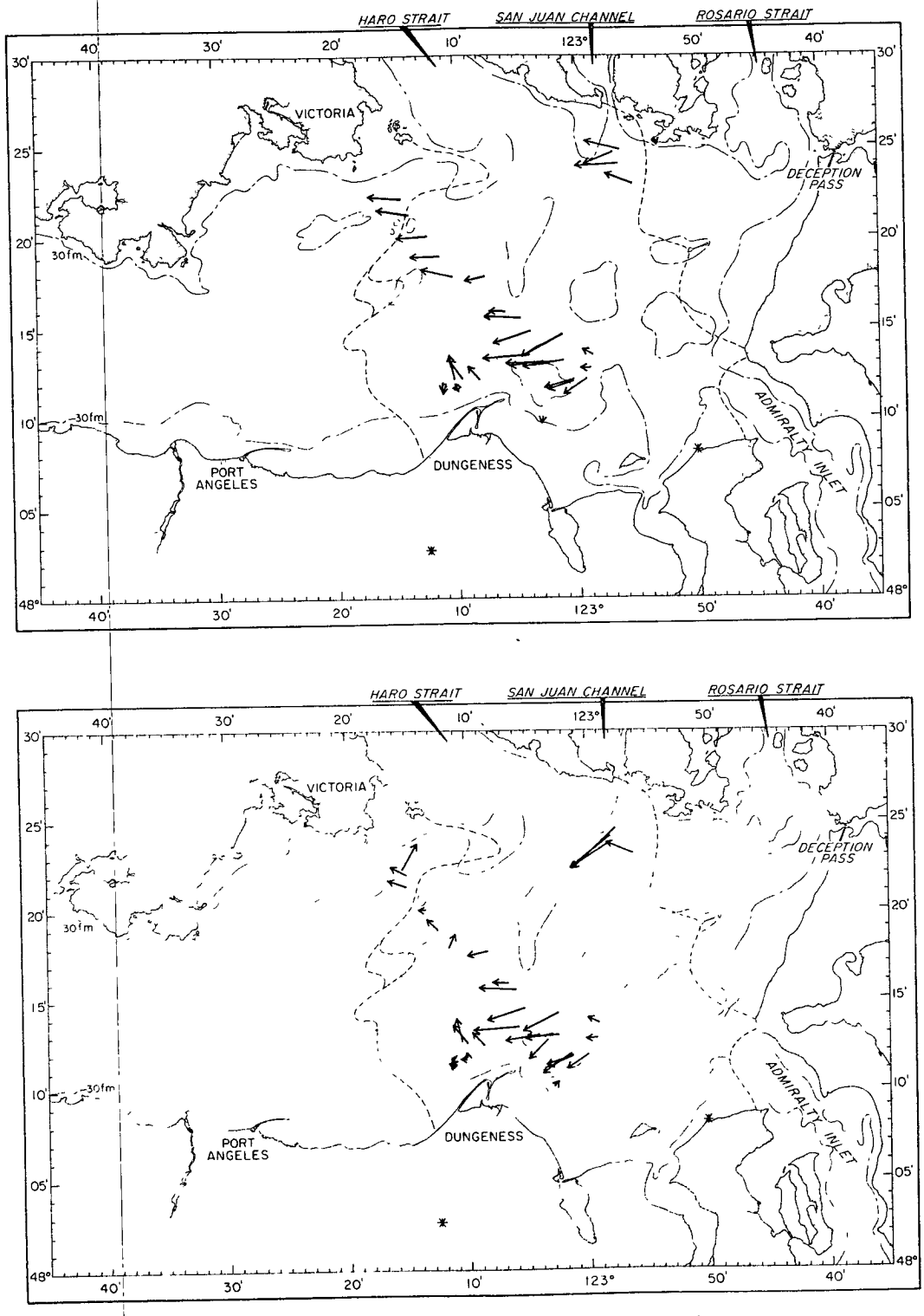


Plate 3d5. Spatial vector diagrams at 1600 (top) and 1700 (bottom), 25 August 1978.

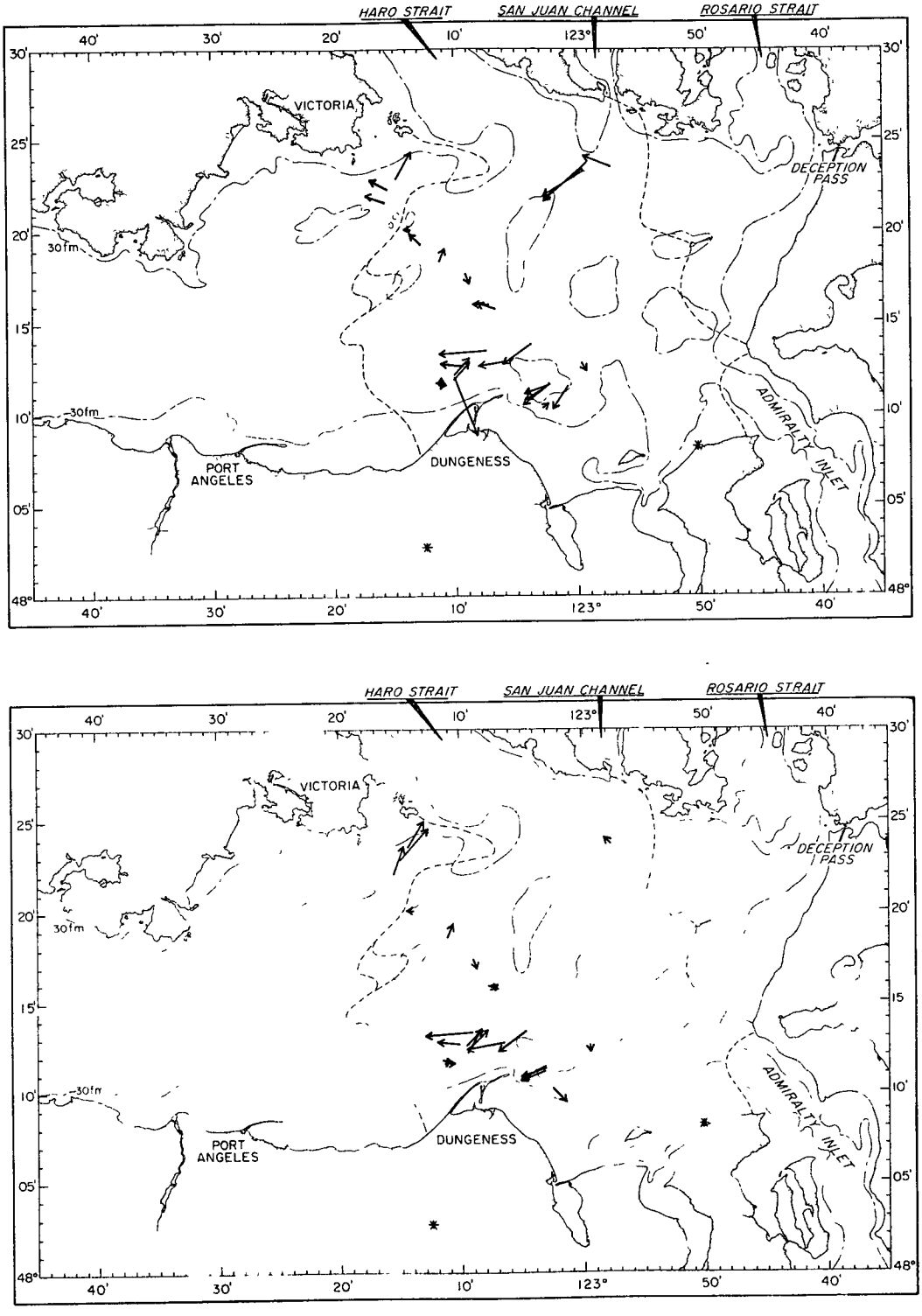


Plate 3d6. Spatial vector diagrams at 1800 (top) and 1900 (bottom), 25 August 1978.

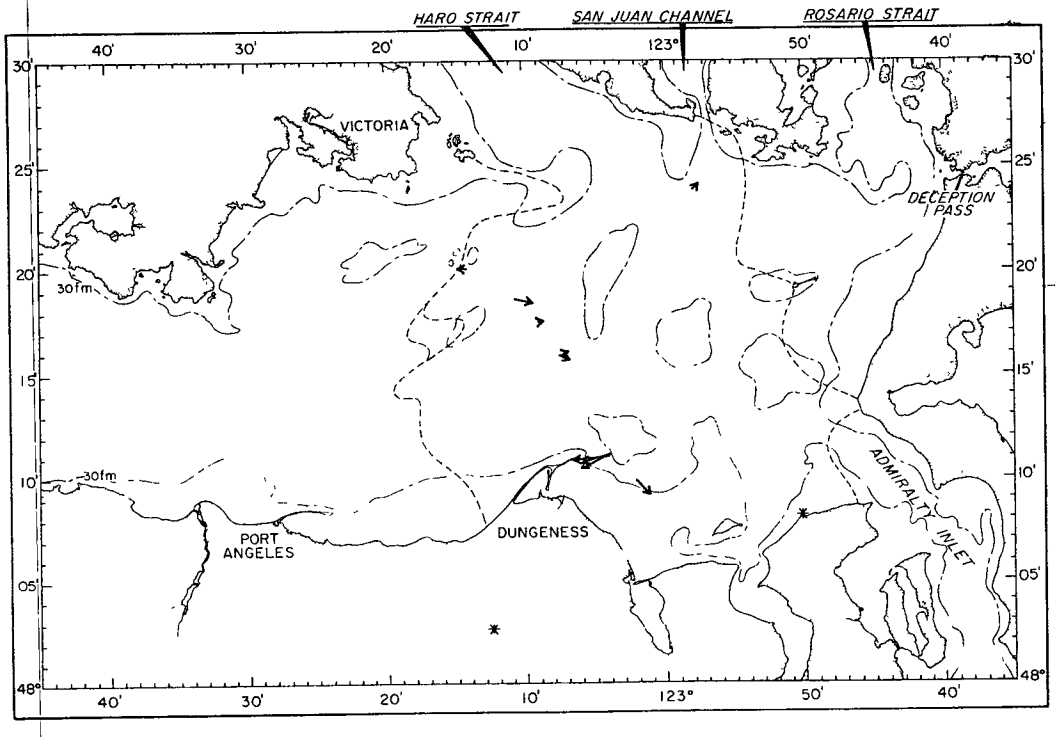


Plate 3d7. Spatial vector diagram at 2000, 25 August 1978.

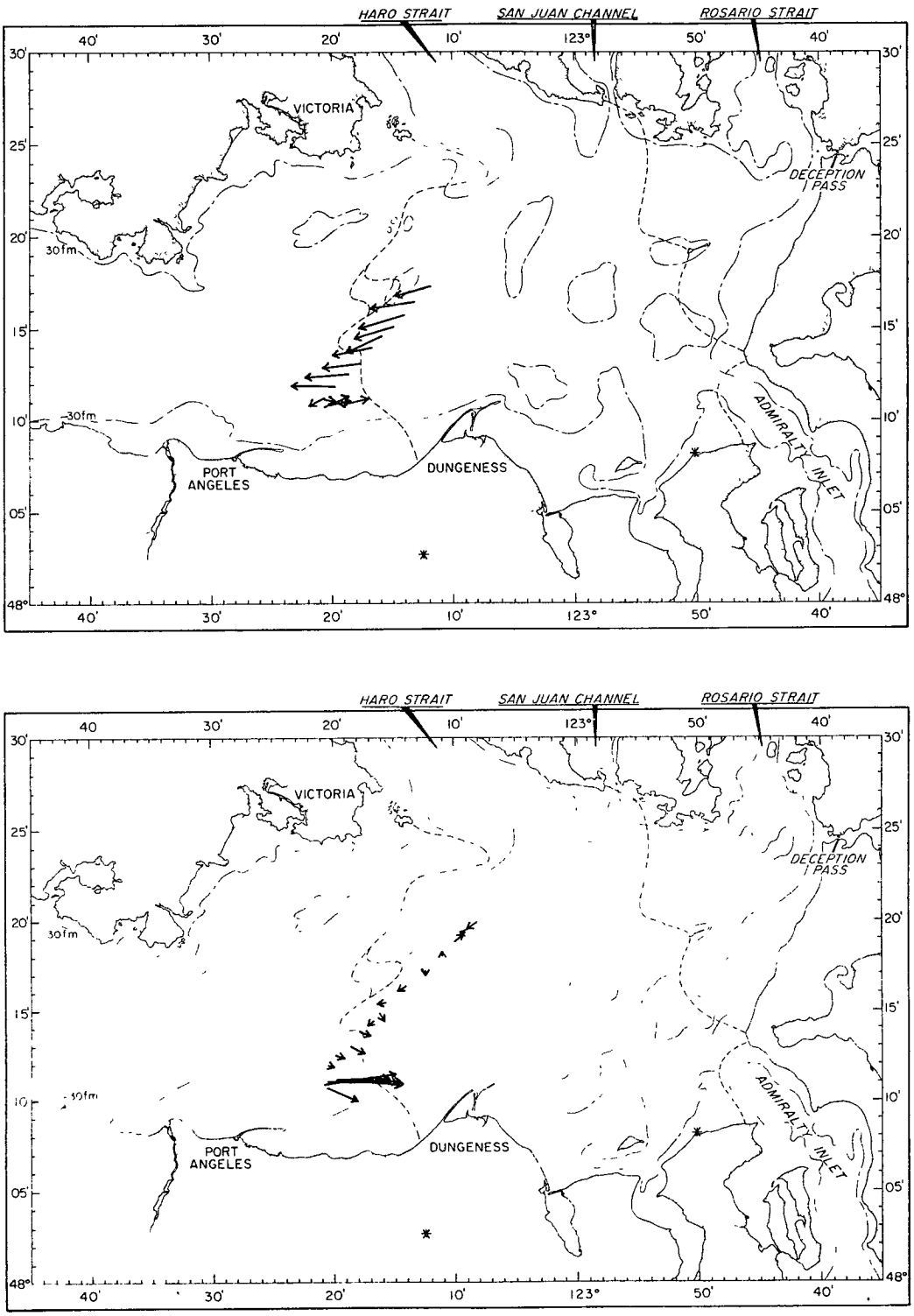


Plate 3e1. Spatial vector diagrams at 0700 (top) and 0800 (bottom), 26 August 1978.

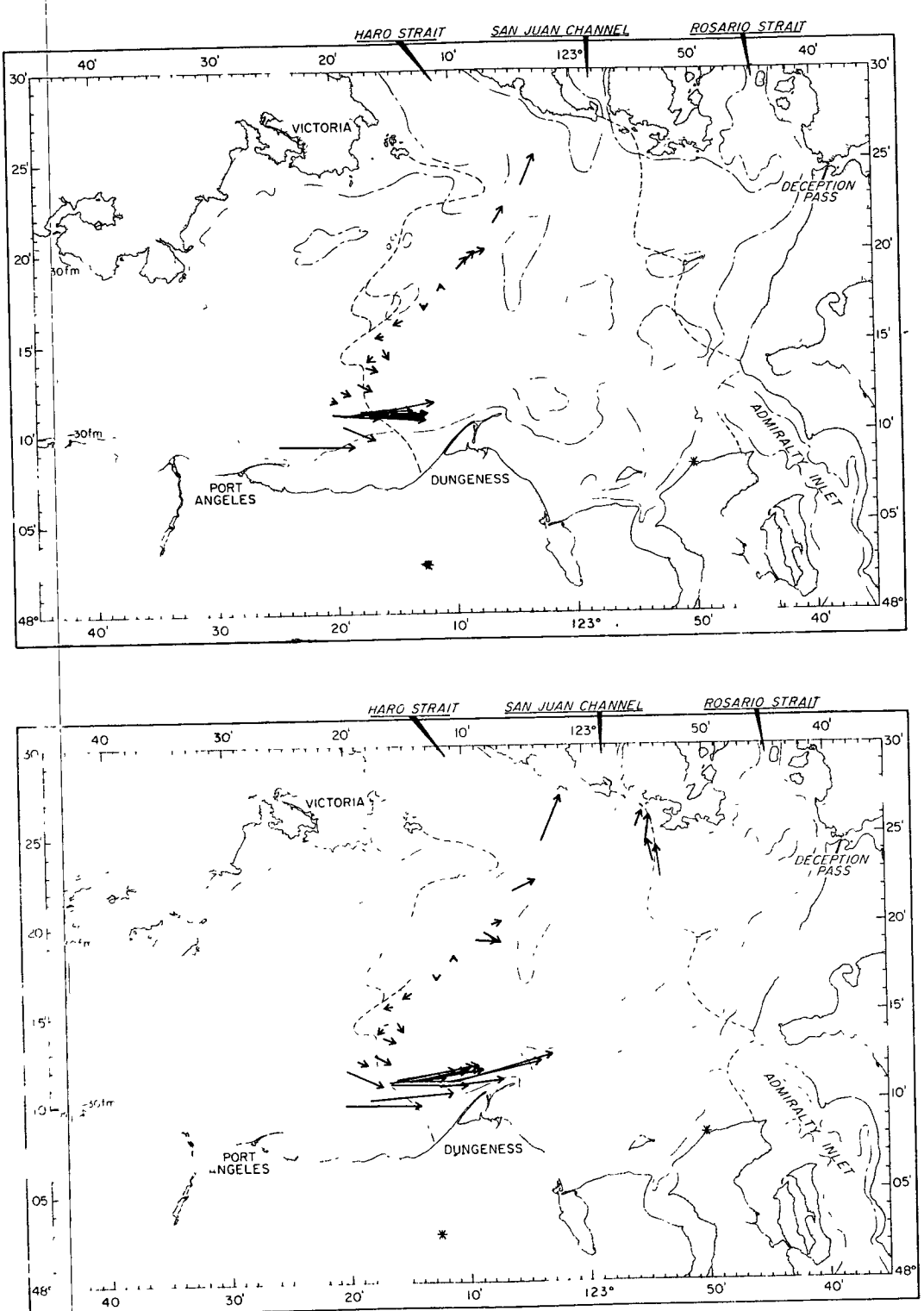


Plate 3e2. Spatial vector diagrams at 0900 (top) and 1000 (bottom), 26 August 1978.

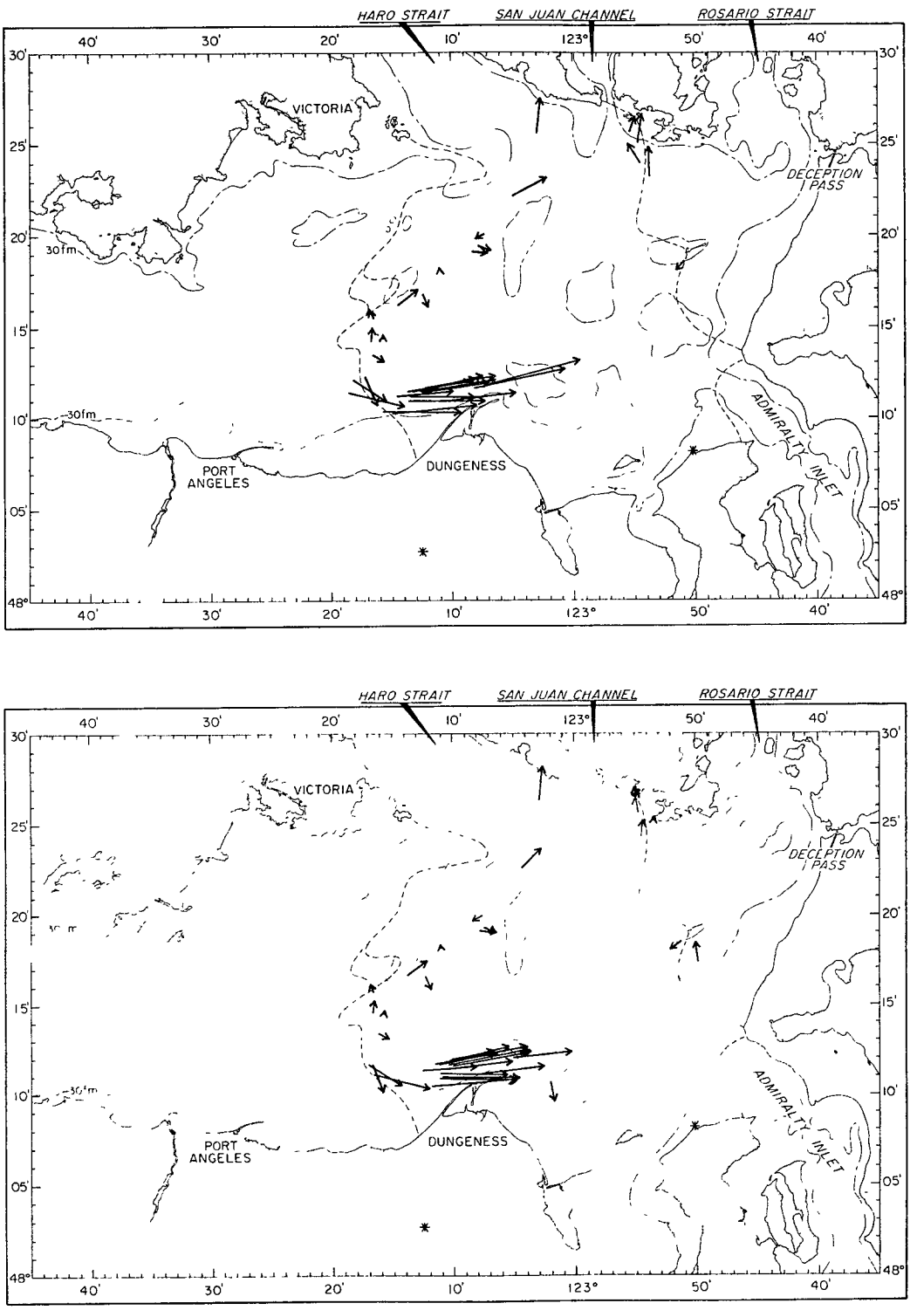


Plate 3e3. Spatial vector diagrams at 1100 (top) and 1200 (bottom), 26 August 1978.

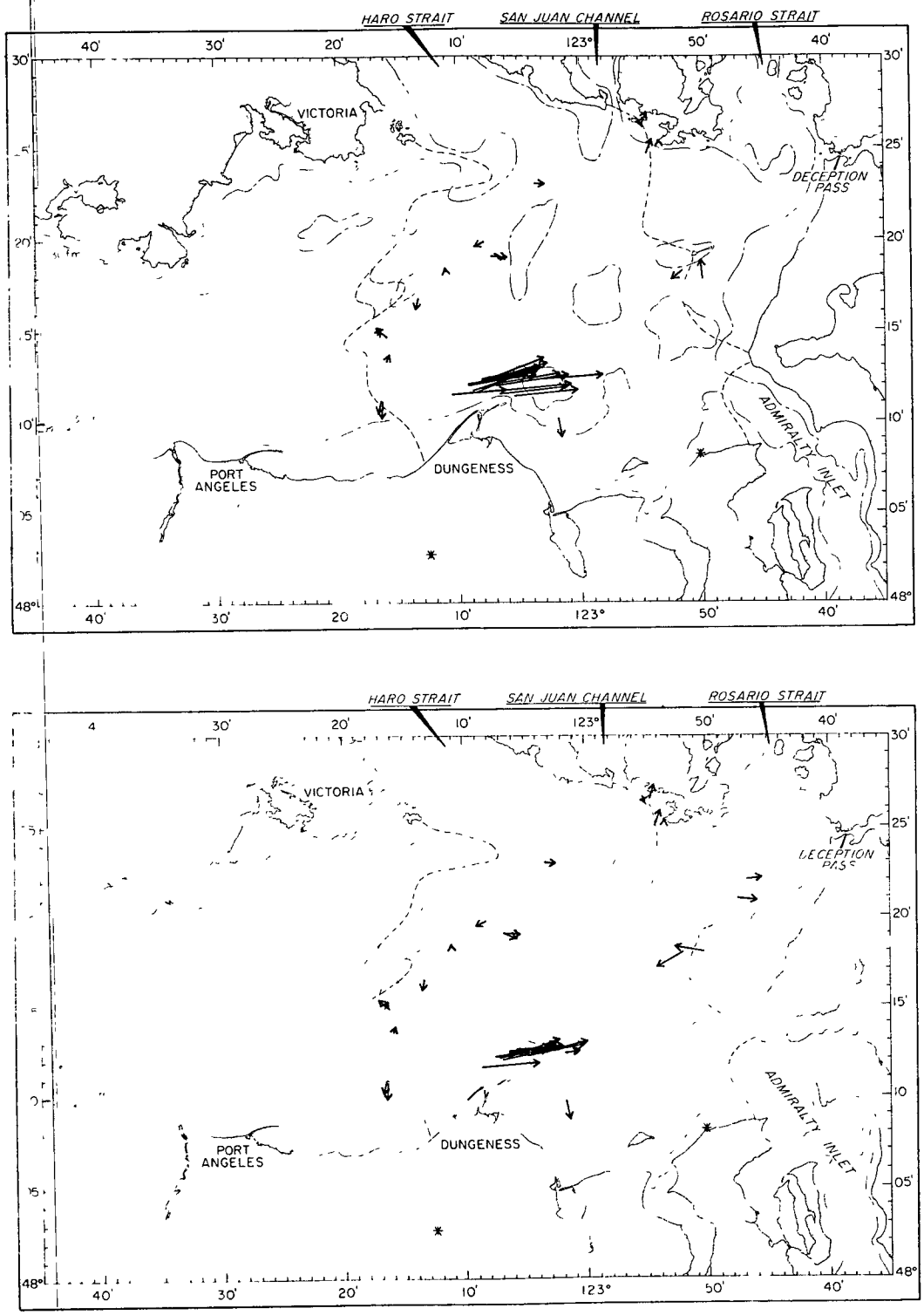


Plate 3e4. Spatial vector diagrams at 1300 (top) and 1400 (bottom), 26 August 1978.

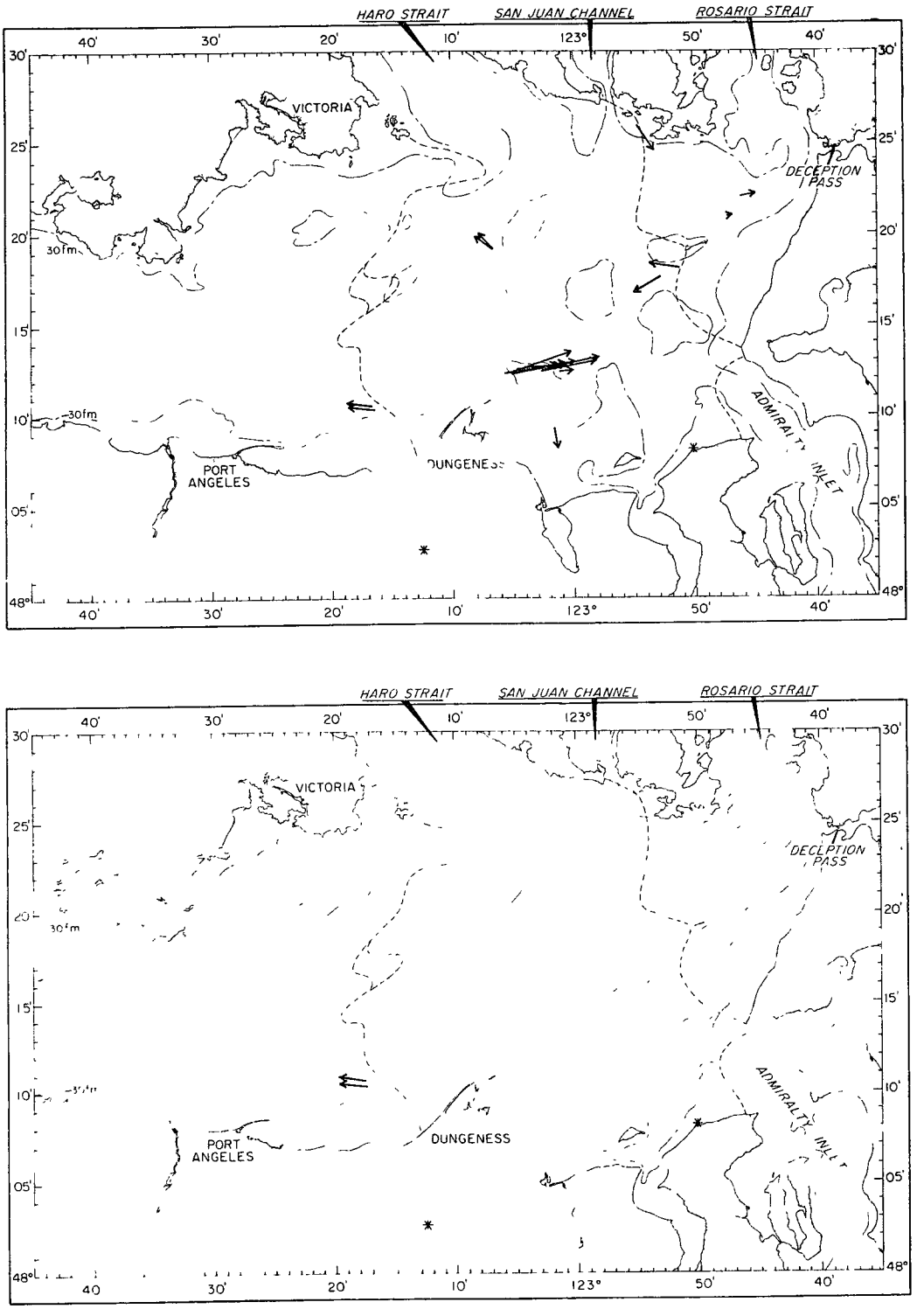


Plate 3e5. Spatial vector diagrams at 1500 (top) and 1600 (bottom), 26 August 1978.

Plates 4a-4e. Winds recorded at shore stations. Station locations are shown in Figure 3 and wind observations presented in Figure 7. Letters a-e in plate code correspond to 22-26 August, respectively.

Plate 4a. Summary of wind direction and speed recorded at shore based stations on 22 August 1978.
Example: NW 05 = 5 knots from Northwest.

Hour (PDT*)	Port Angeles	New Dungeness	Smith Is.	Discovery Is.	Trial	Race Rocks
1		SSW 17	W 15 G 27			
2						
3						
4		NE 15 G 19	W 15 G 27	SW 20	W 22	W 23
5						
6						
7	W 04	N 07	WNW 17 G 26	SW 15	W 22	W 22
8						
9				SW 15	SW 12	W 16
10	ENE 04	NNW 04	SSW 10			
11						
12				SE 20	SE 16	S 08
13		S 07	S 07			
14						
15				SE 25	SE 17	SE 15
16						
17	E 10					
18				SE 08	E 11	NE 05
19	ENE 02	light variable	E 09			
20				SE 08	NE 06	NE 05
21						
22		SE 02	SSE 10			
23						
24						

*PDT = Pacific Daylight Time

Plate 4b. Summary of wind direction and speed recorded at shore based stations on 23 August 1978.
Example: NW 05 = 5 knots from Northwest.

Hour (PDT*)	Port Angeles	New Dungeness	Smith Is.	Discovery Is.	Trial	Race Rocks
1		NW 02	S 16			
2						
3						
4	SSW 04	E 06	SSE 12 G 17	E 10	NE 06	E 10
5						
6						
7		NNW 03	SSE 17 G 25	NE 15	E 10	NE 12
8						
9				E 20	E 16	NE 10
10		NNE 08	S 19 G 26			
11						
12				E 25	E 10	NE 08
13	N 03	NE 03	SSE 18 G 27			
14						
15				SE 20	SE 16	NE 10
16		N 06 G 21	SSE 17 G 26			
17						
18				SE 20	E 11	NE 10
19	ENE 04					
20				SE 25	E 18	NE 10
21						
22		E 14 G 21	SSE 19 G 27			
23						
24						

*PDT = Pacific Daylight Time

Plate 4c. Summary of wind direction and speed recorded at shore based stations on 24 August 1978
Example: NW 05 = 5 knots from Northwest.

Hour (PDT*)	Port Angeles	New Dungeness	Smith Is.	Discovery Is.	Trial	Race Rocks
1		N 23 G 30	SSE 21 G 28			
2						
3						
4	Calm	E 31 G 40	SE 21 G 29	E 35	E 34 G 42	SE 16
5						
6						
7		W 28 G 36	SSE 21 G 28			
8						
9				E 35	SE 30	N 15
10		E 07 G 13	S 26 G 37			
11						
12				E 05	E 12	W 10
13	W 10	WNW 06 G 11	S 17 G 27			
14						
15				SW 05	SW 06	W 05
16		N 04	WNW 05			
17						
18				W 05	W 10	W 05
19	W 08	N 07	N 04			
20				E 05	NE 06	Calm
21						
22		NNW 07	WSW 04			
23						
24						

*PDT = Pacific Daylight Time

Plate 4d. Summary of wind direction and speed recorded at shore based stations on 25 August 1978
Example: NW 05 = 5 knots from Northwest.

Hour (PDT*)	Port Angeles	New Dungeness	Smith Is.	Discovery Is.	Trial	Race Rocks
1		W 02	S 14			
2						
3						
4	E 03			NE 10	NE 08	E 03
5						
6						
7	Calm	NNE 05	S 19 G 26	Calm	NE 04	NE 06
8						
9				E 05	NE 03	N 05
10	Calm	WNW 04	SSE 20 G 29			
11						
12				Calm	NE 03	SE 05
13	N 04	NNE 05	S 20 G 29			
14						
15				SE 05	E 05	W 05
16		N 01	S 15 G 21			
17	W 04					
18				Calm	W 03	Calm
19	S 02	N 03	S 08			
20				S 05	E 05	SE 05
21						
22		NW 02	S 15 G 21			
23						
24						

*PDT = Pacific Daylight Time

Plate 4e . Summary of wind direction and speed recorded at shore based stations on 26 August 1978.
Example: NW 05 = 5 knots from Northwest.

Hour (PDT*)	Port Angeles	New Dungeness	Smith Is.	Discovery Is.	Trial	Race Rocks
1		NE 04	SE 15			
2						
3						
4	Calm	NNE 03	S 10			
5						
6						
7	Calm	WNW 04	S 07	NE 05	NE 05	E 02
8						
9				E 05	E 08	NE 03
10		N 05	SSW 06			
11						
12				E 05	E 04	NE 05
13	Calm	N 03	NNE 04			
14						
15				SW 05	SW 10	W 15
16		N 08	WNW 05			
17	Calm					
18				SW 05	SW 14	W 10
19	W 07					
20				SW 05	SW 10	W 10
21						
22		N 07	NNW 05 G 10			
23						
24						

*PDT = Pacific Daylight Time

Plates 5a-5e. Currents predicted by the National Oceanic and Atmospheric Administration, 1978. Station locations are shown in Figure 3 and predicted currents presented in Figure 7. Letters a-e in plate code correspond to 22-26 August, respectively.

Plate 5. Summary of predicted currents during 22-26 August, 1978.

Date	STATION NO. 830 Slack Water Time (PDT)*	830 Maximum Current Time (PDT)	830 Maximum Current Vel. (knots)	870 Slack Water Time (PDT)	870 Maximum Current Time (PDT)	870 Maximum Current Vel. (knots)	880 Slack Water Time (PDT)	880 Maximum Current Time (PDT)	880 Maximum Current Vel. (knots)	895 Slack Water Time (PDT)	895 Maximum Current Time (PDT)	895 Maximum Current Vel. (knots)
22		0010	2.4E		0012	1.65E		0012	1.32E		0052	.99E
	0410	0625	1.3F	0352	0624	.57F	0412	0624	.76F	0447	0704	1.14F
	0905	1245	2.1E	0906	1228	1.35E	0926	1228	1.08E	1001	1308	.81E
	1555	1835	1.9F	1549	1836	.60F	1609	1836	.80F	1644	1916	1.20F
	2120			2119			2139			2214		
23		0100	2.4E		0057	1.60E		0057	1.28E		0137	.96E
	0510	0725	1.2F	0445	0719	.51F	0505	0719	.68F	0540	0759	1.02F
	1020	1345	1.7E	1007	1320	1.10E	1027	1320	.88E	1102	1400	.66E
	1655	1915	1.4F	1642	1919	.48F	1702	1919	.64F	1737	1959	.96F
	2145			2155			2215			2250		
24		0150	2.3E		0148	1.55E		0148	1.24E		0228	.93E
	0610	0835	1.0F	0542	0820	.48F	0602	0820	.64F	0637	0900	.96F
	1200	1445	1.4E	1113	1420	.90E	1133	1420	.72E	1208	1500	.54E
	1805	2005	0.9F	1743	2008	.33F	1803	2008	.44F	1838	2048	.66F
	2210			2232			2252			2327		
25		0250	2.2E		0240	1.45E		0240	1.16E		0320	.87E
	0715	1005	1.0F	0642	0925	.45F	0702	0925	.60F	0737	1005	.90F
	1320	1550	1.2E	1226	1530	.75E	1246	1530	.60E	1321	1610	.45E
	1930	2100	0.4F	1856	2109	.24F	1916	2109	.32F	1951	2149	.48F
	2220			2312			2332					
26		0350	2.1E		0338	1.35E		0338	1.08E	0007	0418	.81E
	0815	1130	1.2F	0744	1033	.45F	0804	1033	.60F	0839	1113	.90F
	1430	1705	1.1E	1341	1645	.70E	1401	1645	.56E	1436	1725	.42E
	* *	2105	* *	2019	2213	.15F	2039	2213	.20F	2114	2253	.30F
				0000			0020					

*Pacific Daylight Time

**Current Weak and Variable

Plate 5. Cont'd. Summary of predicted currents during 22-26 August, 1978

STATION NO.

Date	900 Slack Water Time (PDT)	900 Maximum Current Time (PDT)	900 Maximum Current Vel. (knots)	1455 Slack Water Time (PDT)	1455 Maximum Current Time (PDT)	1455 Maximum Current Vel. (knots)	1720 Slack Water Time (PDT)	1720 Maximum Current Time (PDT)	1720 Maximum Current Vel. (knots)
22		0007	1.65E		0028	1.82E		0052	1.98E
	0332	0619	.38F	0457	0615	1.12F	0437	0704	1.52F
	0811	1223	1.35E	0951	1237	1.40E	0951	1308	1.62E
	1529	1831	.40F	1640	1825	1.44F	1634	1916	1.60F
	2024			2210			2204		
23		0052	1.60E		0113	1.82E		0137	1.92E
	0425	0714	.34F	0551	0706	1.04F	0530	0759	1.36F
	0912	1315	1.10E	1049	1329	1.12E	1052	1400	1.32E
	1622	1914	.32F	1728	1908	1.20F	1727	1959	1.28F
	2100			2238			2240		
24		0143	1.55E		0203	1.75E		0228	1.86E
	0522	0815	.32F	0647	0755	.96F	0627	0900	1.28F
	1018	1415	.90E	1152	1431	.84E	1158	1500	1.08E
	1723	2003	.22F	1822	1953	.96F	1828	2048	.88F
	2137			2304			2317		
25		0235	1.45E		0300	1.61E		0320	1.74E
	0622	0920	.30F	0744	0850	.80F	0727	1005	1.20F
	1131	1525	.75E	1315	1541	.63E	1311	1610	.90E
	1836	2104	.16F	1925	2036	.64F	1941	2149	.64F
	2217			2329			2357		
26		0333	1.35E		0358	1.54E		0418	1.62E
	0724	1028	.30F	0844	0952	.72F	0829	1113	1.20F
	1246	1640	.70E	1501	1649	.49E	1426	1725	.84E
	1959	2208	.10F	2040	2127	.40F	2104	2253	.40F
	2305			2357					

Plates 6a-6e. Drift sheet positions and velocities. Drift sheets are listed by alphameric code and their positions shown in Pacific Daylight Time (PDT; + 7 time zone). Latitudes and longitudes were determined geometrically from ranges to two transponders and the altitude of the observation. The transponders were located at 48-08.2° N, 122-50.2° W (Range 1); and 48-02.7° N, 123-12.5° W (Range 2; see Figure 3). Velocities correspond to time and distance elapsed from previous observations. Speed components are reckoned positive toward true north and east. Letters a-e in plate code correspond to 22-26 August, respectively.

Plate 6a1

DATE - 22 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
T0	10	50	57	14754	32712	48 15.67	122 54.43				
T0	11	19	15	15646	32451	48 15.92	122 55.24	67.2	298.9	-58.8	32.5
T0	13	45	58	20327	30168	48 16.82	123 .27	73.4	285.1	-70.8	19.1
T0	14	28	43	21577	30294	48 17.22	123 1.14	51.0	304.4	-42.1	28.8
T0	15	11	53	22381	30728	48 17.60	123 1.47	31.3	329.3	-16.0	27.0
T0	15	44	19	22811	31017	48 17.82	123 1.61	22.9	336.5	-9.1	21.0
T0	16	33	1	23261	31467	48 18.10	123 1.66	18.1	353.5	-2.0	18.0
T0	17	45	0	23750	32364	48 18.56	123 1.41	20.9	20.2	7.2	19.6
T0	18	22	40	24024	32903	48 18.82	123 1.23	23.9	24.0	9.7	21.8
T0	18	48	50	24062	33429	48 19.02	123 .85	37.5	52.2	29.6	23.0
T0	19	16	25	24009	33889	48 19.16	123 .44	34.7	62.5	30.7	16.0
T0	19	46	35	23863	34185	48 19.22	123 .08	25.6	76.8	25.0	5.9
T1	10	52	22	17292	32941	48 16.67	122 55.97				
T1	11	16	16	17543	32466	48 16.64	122 56.53	48.9	265.3	-48.7	-4.0
T1	13	51	38	21956	29765	48 17.12	123 1.78	70.5	277.8	-69.9	9.6
T1	15	10	26	23295	29444	48 17.33	123 3.06	34.3	283.4	-33.3	8.0
T1	15	48	1	23535	29466	48 17.39	123 3.24	11.3	298.0	-9.9	5.3
T1	16	36	9	23824	29776	48 17.58	123 3.27	12.4	352.9	-1.5	12.3
T1	17	43	0	23997	30090	48 17.75	123 3.21	7.9	14.2	1.9	7.7
T1	18	24	20	23892	31903	48 18.43	123 1.87	84.0	53.0	67.1	50.6
T1	18	48	12	23715	32386	48 18.56	123 1.36	46.8	68.6	43.6	17.0
T1	19	17	17	23399	32782	48 18.61	123 .80	40.4	81.5	39.9	6.0
T1	19	42	30	23089	32891	48 18.57	123 .46	28.6	101.9	28.0	-5.9
T2	10	46	33	20586	33691	48 18.05	122 57.81				
T2	10	53	59	20643	33543	48 18.02	122 57.97	47.3	257.9	-46.2	-9.9
T2	11	59	6	21545	32081	48 17.85	122 59.83	59.5	261.9	-58.9	-8.4
T2	13	52	12	23255	30367	48 17.68	123 2.42	47.5	264.6	-47.3	-4.4
T2	14	35	4	24332	30040	48 17.80	123 3.52	53.8	279.3	-53.0	9.6
T2	15	14	4	25260	30239	48 18.08	123 4.17	40.9	302.8	-34.4	22.2
T2	15	49	35	26014	30603	48 18.39	123 4.57	35.4	318.1	-23.6	26.3
T2	16	37	32	26632	31414	48 18.85	123 4.56	29.6	.7	.3	29.6
T2	17	39	20	26287	32652	48 19.28	123 3.38	45.2	61.5	39.7	21.5
T2	18	19	50	26302	33250	48 19.51	123 2.94	29.5	51.0	22.2	18.0
T2	18	45	41	26299	33564	48 19.63	123 2.70	24.1	53.7	19.4	14.2
T2	19	14	59	26320	33945	48 19.78	123 2.42	25.1	51.5	19.6	15.6
T2	19	40	50	26315	34309	48 19.91	123 2.13	28.3	55.8	23.4	15.9
T2	20	22	15	26051	34357	48 19.87	123 1.85	14.2	104.4	13.7	-3.5

Plate 6a3

DATE - 22 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
T6	9	36	30	31516	38994	48 22.83	123 3.09				
T6	10	36	54	31431	39246	48 22.90	123 2.76	11.7	71.3	11.1	3.8
T6	11	2	9	31402	39193	48 22.87	123 2.78	3.6	207.2	-1.6	-3.2
T6	11	32	26	31200	38852	48 22.70	123 2.90	18.9	203.7	-7.6	-17.3
T6	15	56	43	32863	36724	48 22.15	123 6.49	28.8	257.0	-28.1	-6.5
T6	16	42	59	33522	37735	48 22.68	123 6.32	36.4	11.9	7.5	35.6
T6	17	57	30	35248	40594	48 24.16	123 5.59	64.4	18.3	20.2	61.1
T6	18	31	14	36386	42374	48 25.07	123 5.13	88.5	18.8	28.5	83.8
T6	18	57	45	37263	43531	48 25.69	123 4.95	72.7	10.6	13.4	71.5
T6	19	25	58	37829	44431	48 26.14	123 4.67	54.0	22.8	21.0	49.8
T6	19	59	28	38831	45400	48 26.70	123 4.82	52.3	349.4	-9.6	51.4
T7	10	19	6	33682	40043	48 23.66	123 4.40				
T7	10	25	1	33637	40012	48 23.64	123 4.38	12.8	148.1	6.7	-10.8
T7	11	3	41	33491	39592	48 23.45	123 4.62	20.0	219.7	-12.8	-15.4
T7	14	54	42	35440	36006	48 22.09	123 9.79	49.7	248.5	-46.2	-18.2
T7	15	34	7	35657	35183	48 21.69	123 10.65	54.9	235.2	-45.1	-31.4
T7	16	13	14	34591	33639	48 20.85	123 10.65	65.9	180.1	-.1	-65.9
T7	16	52	1	33724	33081	48 20.52	123 10.15	37.3	134.4	26.6	-26.1
T7	18	6	56	32881	32882	48 20.37	123 9.44	20.7	108.1	19.6	-6.4
T7	18	42	15	32673	33472	48 20.64	123 8.82	43.4	57.2	36.4	23.5
T7	19	11	5	32387	34147	48 20.93	123 8.04	63.8	60.8	55.7	31.1
T7	19	35	12	31991	34510	48 21.05	123 7.37	59.4	74.9	57.3	15.4
T7	20	10	25	31466	34416	48 20.94	123 6.92	28.2	110.1	26.5	-9.7
T8	10	21	3	35972	42241	48 24.95	123 4.78				
T8	11	5	42	35598	42173	48 24.85	123 4.43	17.8	111.5	16.6	-6.5
T8	11	42	16	35577	41773	48 24.69	123 4.81	25.4	237.6	-21.5	-13.6
T8	14	49	5	36407	38005	48 23.13	123 9.21	55.1	242.1	-48.7	-25.8
T8	15	27	42	36045	36988	48 22.61	123 9.66	48.0	209.7	-23.8	-41.7
T8	16	8	41	35447	35991	48 22.08	123 9.81	40.7	190.5	-7.4	-40.0
T8	16	48	42	34698	35115	48 21.60	123 9.69	37.8	170.5	6.3	-37.2
T8	18	5	20	33173	34077	48 20.97	123 8.88	33.2	139.3	21.6	-25.2
T8	18	40	20	32904	34248	48 21.03	123 8.48	24.1	78.1	23.5	4.9
T8	19	9	30	32724	34333	48 21.05	123 8.24	17.5	82.4	17.4	2.3
T8	19	33	45	32324	34035	48 20.87	123 8.06	27.9	146.3	15.5	-23.2

Plate 6b1

DATE - 23 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
A1	10	26	59	23390	21680	48 13.85	123 7.01				
A1	10	55	17	24506	21529	48 13.96	123 7.94	68.7	279.2	-67.8	11.0
A1	11	42	11	26258	21076	48 13.94	123 9.51	69.1	269.1	-69.1	-1.1
A1	12	9	16	27037	20834	48 13.88	123 10.23	55.5	263.3	-55.1	-6.5
A1	13	29	48	30034	20454	48 13.77	123 12.89	68.4	266.5	-68.3	-4.2
A1	14	22	4	31501	20441	48 13.71	123 14.18	51.1	265.8	-51.0	-3.7
A1	15	44	39	32897	20937	48 13.88	123 15.28	28.3	282.9	-27.6	6.3
A1	16	48	8	32214	20650	48 13.78	123 14.75	18.0	106.0	17.3	-4.9
A1	17	49	23	30920	19686	48 13.32	123 13.88	37.4	128.0	29.5	-23.0
A1	19	9	49	29424	18379	48 12.65	123 12.93	35.5	136.3	24.5	-25.7
A2	10	34	57	22796	24199	48 14.94	123 5.52				
A2	10	58	27	23513	24349	48 15.15	123 6.01	50.9	302.1	-43.1	27.0
A2	11	46	5	24885	24333	48 15.37	123 7.11	49.9	286.9	-47.8	14.5
A2	12	12	44	25496	24201	48 15.40	123 7.66	42.6	273.9	-42.5	2.9
A2	13	25	54	27339	23364	48 15.20	123 9.56	54.2	261.0	-53.6	-8.4
A2	14	18	2	28402	22772	48 14.97	123 10.70	47.1	253.5	-45.2	-13.4
A2	16	32	23	29173	21910	48 14.55	123 11.68	17.9	237.4	-15.1	-9.6
A2	17	45	14	27626	20542	48 13.77	123 10.82	41.2	143.7	24.4	-33.2
A2	18	57	16	26503	20099	48 13.46	123 10.02	26.3	120.2	22.7	-13.2
A2	20	19	3	26077	19490	48 13.11	123 9.86	13.9	162.4	4.2	-13.2
A3	11	59	30	22219	23453	48 14.48	123 5.41				
A3	12	18	44	22594	23160	48 14.42	123 5.82	45.2	257.2	-44.0	-10.0
A3	13	20	17	24263	21814	48 14.06	123 7.65	63.9	253.7	-61.3	-18.0
A3	15	32	16	27525	19249	48 13.09	123 11.11	58.9	247.2	-54.3	-22.8
A3	16	37	34	27568	18947	48 12.93	123 11.23	8.3	206.6	-3.7	-7.4
A3	17	47	44	26949	18415	48 12.62	123 10.86	17.6	141.4	11.0	-13.7
A3	19	13	37	25815	17990	48 12.31	123 10.04	22.5	119.4	19.6	-11.1
Q1	18	15	3	46268	33902	48 19.50	123 23.42				
Q1	18	34	57	46108	33997	48 19.63	123 23.18	31.7	52.2	25.0	19.5
Q1	19	43	49	44209	33960	48 20.15	123 21.01	69.4	70.2	65.3	23.5
Q2	18	7	51	46823	38189	48 22.48	123 21.30				
Q2	18	39	49	46006	38141	48 22.64	123 20.33	64.3	76.5	62.5	15.0
Q2	19	53	56	43618	37543	48 22.67	123 17.89	68.1	88.8	68.1	1.4

Plate 6c1.

DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
A0	14	7	20	44648	31392	48 18.17	123 22.93				
A0	16	51	2	46951	32187	48 17.90	123 25.13	28.2	259.9	-27.7	-4.9
A3	10	4	46	39637	14719	48 7.39	123 22.08				
A3	10	14	59	39777	14733	48 7.30	123 22.19	34.6	219.1	-21.8	-26.9
A3	11	55	39	41593	16128	48 7.17	123 23.65	30.2	262.7	-29.9	-3.8
A3	13	8	19	41760	16169	48 7.07	123 23.77	5.7	219.6	-3.6	-4.4
A4	12	39	50	41070	28237	48 16.98	123 20.56				
A4	16	46	42	45498	29977	48 16.75	123 24.54	33.5	265.1	-33.4	-2.9
A5	13	23	58	39330	25983	48 15.90	123 19.71				
A5	14	55	55	41308	26760	48 15.88	123 21.42	38.6	269.0	-38.6	-.6
A5	15	16	13	41726	27008	48 15.92	123 21.76	34.8	281.0	-34.1	6.6
A6	14	24	15	38446	24361	48 15.03	123 19.42				
A6	15	29	40	40051	25275	48 15.22	123 20.70	41.2	282.1	-40.3	8.6
A7	14	26	50	35902	20693	48 13.25	123 18.10				
A7	16	8	39	39305	21247	48 12.62	123 21.15	64.8	252.9	-61.9	-19.0
A7	16	35	30	39923	21499	48 12.57	123 21.67	41.0	261.2	-40.5	-6.3
A8	14	29	55	33185	17966	48 12.09	123 16.27				
A8	15	46	40	36062	17610	48 11.22	123 18.98	78.6	243.3	-70.3	-35.3
A8	16	31	10	37800	18050	48 10.99	123 20.36	71.7	253.4	-68.8	-20.5
A9	14	31	55	30769	16197	48 11.37	123 14.51				
A9	16	31	27	34837	14367	48 9.46	123 18.18	80.1	232.5	-63.5	-48.8

Plate 6c3.

DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E-W	N-S
H4	7	3	20	31901	12971	48 9.37	123 15.82				
H4	7	44	20	30346	13713	48 10.02	123 14.47	83.5	54.3	67.8	48.7
H4	8	23	50	28795	14616	48 10.62	123 13.09	86.1	57.1	72.3	46.8
H4	8	58	40	27356	15451	48 11.07	123 11.79	86.7	62.7	77.1	39.8
H4	9	20	10	26531	15852	48 11.24	123 11.06	75.0	70.3	70.6	25.3
H4	9	43	17	25525	16350	48 11.43	123 10.17	83.8	72.8	80.1	24.8
H4	10	11	39	24435	16876	48 11.58	123 9.20	72.2	76.7	70.3	16.6
H4	10	33	14	23720	17327	48 11.71	123 8.55	65.5	72.9	62.6	19.2
H4	10	50	34	23233	17740	48 11.85	123 8.08	61.1	66.6	56.0	24.3
H4	11	40	31	22586	18609	48 12.18	123 7.37	35.9	55.0	29.4	20.6
H4	12	34	0	22827	19523	48 12.69	123 7.30	29.4	5.4	2.8	29.2
H4	12	49	49	22837	19647	48 12.75	123 7.27	14.1	17.1	4.1	13.4
H4	12	50	47	22866	19647	48 12.76	123 7.29	25.2	288.4	-23.9	7.9
H4	13	10	30	22981	19710	48 12.81	123 7.36	10.8	318.3	-7.2	8.1
H4	13	27	50	23300	19348	48 12.68	123 7.71	47.7	241.4	-41.9	-22.8
H4	14	25	9	24035	18105	48 12.16	123 8.61	42.9	229.2	-32.5	-28.0
H4	15	19	15	24987	17839	48 12.15	123 9.42	31.0	268.5	-31.0	-.8
H5	7	7	3	31543	13156	48 9.54	123 15.51				
H5	9	2	48	26923	15587	48 11.12	123 11.42	84.4	60.0	73.1	42.2
H5	9	24	27	26040	16068	48 11.32	123 10.63	81.0	69.3	75.8	28.6
H5	9	55	50	24758	16891	48 11.63	123 9.45	83.2	68.8	77.6	30.1
H5	10	21	24	23880	17540	48 11.85	123 8.62	72.0	68.4	66.9	26.5
H5	10	37	12	23381	17904	48 11.96	123 8.15	65.3	70.6	61.6	21.7
H5	10	55	9	22984	18387	48 12.14	123 7.73	58.1	57.4	48.9	31.3
H5	11	25	30	22760	19010	48 12.42	123 7.39	36.4	39.1	22.9	28.2
H5	11	41	44	22739	19197	48 12.51	123 7.32	19.4	26.6	8.7	17.3
H5	12	38	0	23286	19223	48 12.62	123 7.73	16.2	291.3	-15.1	5.9
H5	13	18	20	23844	18405	48 12.29	123 8.39	41.8	233.0	-33.4	-25.2
H5	13	40	35	24223	17891	48 12.08	123 8.81	48.9	233.4	-39.2	-29.1
H5	14	28	48	24852	17473	48 11.94	123 9.40	26.8	251.0	-25.4	-8.7
H5	15	24	17	25544	17169	48 11.87	123 10.01	23.2	259.8	-22.8	-4.1
H5	16	45	27	26542	17026	48 11.86	123 10.85	21.3	269.5	-21.3	-.2

Plate 6c4.

DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
H6	7	5	44	31680	13052	48 9.46	123 15.63				
H6	7	46	55	30196	13946	48 10.16	123 14.33	84.1	51.1	65.5	52.8
H6	8	24	15	28664	14699	48 10.66	123 12.97	85.7	61.0	75.0	41.6
H6	9	0	6	27186	15502	48 11.09	123 11.65	84.7	64.6	76.5	36.4
H6	9	21	44	26285	15967	48 11.29	123 10.84	82.1	69.7	77.0	28.6
H6	9	44	25	25406	16504	48 11.50	123 10.04	78.4	68.7	73.1	28.5
H6	10	13	31	24378	17071	48 11.67	123 9.12	68.4	74.0	65.9	18.8
H6	10	38	26	23516	17647	48 11.85	123 8.32	69.6	71.9	66.2	21.6
H6	10	52	3	23058	17916	48 11.91	123 7.90	64.7	77.2	63.1	14.4
H6	11	23	50	22573	18506	48 12.13	123 7.38	39.7	58.0	33.7	21.1
H6	11	43	48	22549	18828	48 12.29	123 7.28	26.9	23.5	10.7	24.6
H6	12	33	16	22795	19576	48 12.71	123 7.26	26.4	2.3	1.1	26.4
H6	12	51	31	22867	19661	48 12.77	123 7.28	9.9	340.4	-3.3	9.3
H6	13	10	30	22981	19710	48 12.81	123 7.36	10.7	312.7	-7.9	7.3
H6	13	26	50	23239	19387	48 12.69	123 7.65	43.3	238.9	-37.0	-22.4
H6	14	25	9	24035	18105	48 12.16	123 8.61	44.1	230.5	-34.0	-28.1
H6	15	17	50	24822	17875	48 12.15	123 9.28	26.4	268.0	-26.4	-.9
H6	16	49	54	25946	17997	48 12.33	123 10.15	20.3	287.2	-19.4	6.0
H8	7	49	35	29157	14508	48 10.54	123 13.40				
H8	9	12	34	26102	16429	48 11.52	123 10.61	78.5	62.5	69.6	36.3
H8	9	35	58	25388	16861	48 11.68	123 9.96	61.8	69.5	57.9	21.6
H8	10	0	6	24666	17333	48 11.85	123 9.28	61.3	69.8	57.5	21.2
H8	10	27	15	23965	17936	48 12.06	123 8.60	57.9	64.7	52.3	24.7
H8	10	43	21	23613	18210	48 12.15	123 8.26	46.8	68.8	43.7	16.9
H8	11	5	5	23266	18349	48 12.17	123 7.95	28.9	85.6	28.8	2.2
H8	11	44	29	23468	18178	48 12.11	123 8.15	11.3	247.7	-10.4	-4.3
H8	12	40	37	23659	18447	48 12.28	123 8.23	9.7	342.5	-2.9	9.2
H8	12	56	6	23779	18442	48 12.30	123 8.33	13.0	284.0	-12.6	3.1
H8	13	20	3	23989	18225	48 12.22	123 8.54	21.5	241.2	-18.8	-10.4
H8	13	40	35	24223	17891	48 12.08	123 8.81	33.8	231.9	-26.6	-20.9
H8	14	21	57	24444	17310	48 11.81	123 9.12	25.4	217.2	-15.3	-20.2
H8	15	31	45	24278	17879	48 12.08	123 8.85	14.3	32.7	7.7	12.1
H8	16	38	33	24636	17786	48 12.08	123 9.16	9.4	269.5	-9.4	-.1

Plate 6c5.
DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
K0	10	39	43	41612	20184	48 10.75	123 23.48				
K0	10	58	7	41587	20395	48 10.94	123 23.43	31.7	10.9	6.0	31.1
K0	11	15	20	41731	20578	48 11.01	123 23.53	17.8	315.7	-12.4	12.7
K0	11	50	49	41704	20985	48 11.35	123 23.44	30.5	10.0	5.3	30.0
K0	12	1	28	41790	21080	48 11.39	123 23.51	15.2	306.7	-12.2	9.1
K0	12	23	0	41865	21329	48 11.55	123 23.53	23.3	353.8	-2.5	23.1
K0	13	15	11	42456	21847	48 11.65	123 23.99	19.2	289.2	-18.1	6.3
K0	14	42	48	43966	22729	48 11.53	123 25.25	30.0	261.3	-29.7	-4.5
K0	15	58	30	46823	24306	48 11.01	123 27.67	69.3	252.5	-66.1	-20.9
K1	11	0	16	40702	21440	48 12.20	123 22.42				
K1	11	17	59	40545	21394	48 12.23	123 22.28	17.2	69.6	16.1	6.0
K1	11	49	19	40403	21356	48 12.26	123 22.16	8.9	68.9	8.3	3.2
K1	12	6	11	40253	21335	48 12.31	123 22.02	19.0	62.2	16.8	8.9
K1	12	27	30	40204	21364	48 12.36	123 21.97	9.0	39.8	5.1	6.2
K1	13	13	25	40685	21467	48 12.23	123 22.40	21.4	245.8	-19.5	-8.8
K1	13	51	10	41574	21666	48 11.96	123 23.20	48.6	243.9	-43.7	-21.4
K1	14	42	30	43113	22343	48 11.70	123 24.52	55.5	253.4	-53.2	-15.9
K1	15	56	40	45944	23719	48 11.18	123 26.84	68.5	251.4	-64.9	-21.9
K2	10	52	48	40224	22887	48 13.47	123 21.62				
K2	11	2	18	40033	22778	48 13.46	123 21.46	33.9	94.6	33.8	-2.8
K2	11	19	15	39695	22428	48 13.33	123 21.23	36.9	129.7	28.4	-23.6
K2	11	43	33	39361	22234	48 13.31	123 20.96	23.1	96.5	23.0	-2.6
K2	12	5	5	39433	22160	48 13.23	123 21.05	14.0	217.3	-8.5	-11.2
K2	12	31	0	39475	22108	48 13.18	123 21.10	7.6	214.8	-4.3	-6.2
K2	13	18	8	40024	22198	48 13.04	123 21.60	23.8	247.8	-22.1	-9.0
K2	14	49	5	42846	23079	48 12.46	123 24.11	60.3	250.8	-57.0	-19.9
K3	11	10	14	39484	24351	48 14.75	123 20.45				
K3	11	20	45	39349	24136	48 14.64	123 20.39	34.1	159.2	12.1	-31.9
K3	11	42	15	39019	23995	48 14.64	123 20.11	26.8	90.4	26.8	-.2
K3	12	10	13	38920	23699	48 14.46	123 20.11	19.2	179.7	.1	-19.2
K3	12	34	35	39064	23596	48 14.35	123 20.28	20.5	226.0	-14.7	-14.2
K3	13	19	15	39967	23304	48 13.86	123 21.25	56.4	232.8	-44.9	-34.1
K3	14	51	5	42993	24432	48 13.47	123 23.91	61.3	257.8	-59.9	-13.0
K3	16	4	5	44988	25840	48 13.61	123 25.51	45.8	277.4	-45.4	5.2

Plate 6c6.
DATE - 24 AUGUST 1979

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
K4	11	5	1	38955	25823	48 15.88	123 19.39				
K4	11	12	33	38798	25824	48 15.92	123 19.23	46.2	70.5	43.6	15.4
K4	11	22	1	38592	25654	48 15.85	123 19.09	37.2	124.5	30.7	-21.1
K4	11	40	5	38158	25540	48 15.88	123 18.70	44.7	85.5	44.5	3.5
K4	12	11	32	38545	25307	48 15.64	123 19.18	39.1	233.1	-31.3	-23.5
K4	12	37	30	39061	25427	48 15.59	123 19.65	37.7	262.0	-37.4	-5.3
K4	13	22	45	40264	25821	48 15.53	123 20.71	48.8	265.3	-48.7	-4.0
K4	14	54	35	42667	26845	48 15.47	123 22.80	46.9	267.4	-46.9	-2.1
K4	15	19	52	43176	27197	48 15.54	123 23.19	33.6	284.8	-32.5	8.6
K4	16	41	6	43772	27556	48 15.58	123 23.68	12.5	276.3	-12.4	1.4
K5	11	14	3	38245	27237	48 16.95	123 18.08				
K5	11	23	11	38287	27277	48 16.97	123 18.11	8.3	316.1	-5.8	6.0
K5	11	38	33	38264	27308	48 16.99	123 18.07	6.9	46.2	5.0	4.8
K5	12	13	36	38395	27173	48 16.88	123 18.26	14.9	229.5	-11.4	-9.7
K5	12	46	50	39013	27535	48 16.99	123 19.73	31.1	289.8	-29.3	10.5
K5	13	27	48	39867	27992	48 17.11	123 19.41	35.3	284.7	-34.1	8.9
K5	14	57	20	41560	29066	48 17.43	123 20.70	31.6	290.0	-29.7	10.8
K5	15	38	32	42254	29305	48 17.40	123 21.33	31.7	266.5	-31.6	-1.9
K5	17	4	8	42962	29170	48 17.09	123 22.15	22.9	240.3	-19.9	-11.4
K6	11	17	2	38206	29312	48 18.26	123 17.04				
K6	11	25	2	38203	29355	48 18.29	123 17.02	12.2	31.5	6.3	10.4
K6	11	37	33	38186	29411	48 18.32	123 16.97	11.9	40.4	7.7	9.1
K6	12	16	13	38361	29457	48 18.33	123 17.13	8.4	272.6	-8.4	.4
K6	12	49	19	38476	29593	48 18.39	123 17.18	7.1	333.9	-3.1	6.3
K6	13	30	4	38710	29673	48 18.41	123 17.38	10.4	276.7	-10.3	1.2
K6	14	48	56	39994	29779	48 18.26	123 18.68	34.5	260.3	-34.0	-5.8
K6	15	4	0	40290	29944	48 18.31	123 18.91	33.2	287.9	-31.6	10.2
K6	17	10	17	41043	30242	48 18.35	123 19.57	10.7	275.3	-10.7	1.0
K7	11	26	39	38260	31442	48 19.55	123 15.92				
K7	11	36	0	38240	31465	48 19.56	123 15.89	9.3	56.1	7.7	5.2
K7	12	18	7	38368	31483	48 19.56	123 16.01	6.1	268.6	-6.2	-.2
K7	12	51	25	38599	31546	48 19.58	123 16.22	13.0	275.8	-13.0	1.3
K7	13	31	7	38721	31269	48 19.39	123 16.51	20.8	227.0	-15.2	-14.1
K7	14	14	12	38982	30979	48 19.19	123 16.96	26.0	234.8	-21.3	-15.0
K7	15	5	25	39634	30742	48 18.94	123 17.79	36.5	246.4	-33.4	-14.6

Plate 6c7.
DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
K8	11	29	38	38063	33174	48 20.58	123 14.64				
K8	12	19	17	38130	32991	48 20.47	123 14.83	10.5	229.2	-7.9	-6.8
K8	12	53	0	38292	32811	48 20.36	123 15.12	20.7	239.2	-17.8	-10.6
K8	13	32	0	38528	32564	48 20.19	123 15.53	25.3	239.1	-21.7	-13.0
K8	14	16	10	38833	32354	48 20.04	123 15.99	23.9	243.5	-21.4	-10.7
K8	15	7	20	39533	32327	48 19.95	123 16.76	31.8	259.8	-31.3	-5.7
K8	17	33	48	40199	32039	48 19.68	123 17.66	13.9	245.8	-12.7	-5.7
K9	15	47	58	49722	35257	48 19.20	123 26.73				
K9	16	58	12	50708	35849	48 19.24	123 27.58	25.0	273.4	-25.0	1.5
X1	7	53	20	28919	14684	48 10.65	123 13.19				
X1	9	13	54	25966	16486	48 11.54	123 10.49	77.1	63.8	69.2	34.0
X1	9	37	36	25212	16740	48 11.60	123 9.84	57.3	81.8	56.7	8.2
X1	10	1	31	24624	17459	48 11.91	123 9.22	66.5	53.4	53.4	39.7
X1	10	28	30	23900	18019	48 12.10	123 8.53	57.7	67.7	53.4	21.9
X1	10	44	40	23647	18296	48 12.20	123 8.26	39.2	59.6	33.8	19.9
X1	11	3	20	23355	18292	48 12.15	123 8.04	26.0	107.8	24.8	-8.0
X1	11	32	48	23401	18098	48 12.06	123 8.12	11.3	211.3	-5.9	-9.6
X1	11	36	37	23365	18121	48 12.07	123 8.09	18.7	75.0	18.1	4.9
X1	11	51	35	23355	18136	48 12.07	123 8.08	2.0	52.5	1.6	1.2
X1	12	36	49	23393	18398	48 12.21	123 8.04	9.7	10.0	1.7	9.6
X1	12	42	41	23395	18352	48 12.19	123 8.05	13.0	201.3	-4.7	-12.1
X1	13	16	40	23534	18526	48 12.30	123 8.11	10.8	339.5	-3.8	10.1
X1	13	36	40	23600	18525	48 12.31	123 8.17	5.5	285.5	-5.3	1.5
X1	14	23	8	23622	17946	48 12.02	123 8.33	20.8	200.4	-7.2	-19.5
X1	14	34	12	23706	17979	48 12.05	123 8.39	13.5	308.1	-10.6	8.3
X1	15	31	45	24278	17879	48 12.08	123 8.85	16.9	275.6	-16.8	1.6
X1	16	41	5	24854	17861	48 12.14	123 9.31	13.9	281.8	-13.6	2.8
X2	9	57	35	25320	17102	48 11.60	123 9.85				
X2	7	52	9	29053	17591	48 10.59	123 13.31	13.6	242.5	-12.0	-6.3
X2	11	30	34	24255	18079	48 12.18	123 8.79	48.3	62.3	42.8	22.4
X2	11	49	0	24528	17952	48 12.15	123 9.03	27.8	259.9	-27.4	-4.9
X2	12	44	56	25593	17354	48 11.96	123 10.01	37.8	253.8	-36.3	-10.6
X2	14	20	39	26360	16408	48 11.52	123 10.82	22.4	231.3	-17.5	-14.0

Plate 6c8.
DATE - 24 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
X3	7	54	25	28926	14692	48 10.65	123 13.19				
X3	9	9	37	26394	16464	48 11.56	123 10.84	74.6	60.2	64.7	37.1
X3	9	31	15	25721	16848	48 11.71	123 10.72	62.6	70.1	58.8	21.3
X3	9	58	48	24874	17289	48 11.85	123 9.46	59.7	74.4	57.5	16.0
X3	10	24	41	24212	17797	48 12.03	123 8.82	55.0	67.2	50.7	21.3
X3	10	41	53	23783	18010	48 12.08	123 8.44	47.1	79.4	46.3	8.7
X3	11	34	16	23307	18156	48 12.08	123 8.03	15.9	89.9	15.9	.0
X3	11	50	10	23515	18110	48 12.09	123 8.21	22.4	274.8	-22.3	1.9
X3	12	41	42	23835	18312	48 12.24	123 8.40	12.1	319.1	-7.9	9.1
X3	12	56	57	23944	18349	48 12.27	123 8.48	12.4	304.8	-10.2	7.1
X3	13	20	3	23989	18225	48 12.22	123 8.54	9.6	217.8	-5.9	-7.6
X3	13	40	35	24223	17891	48 12.08	123 8.81	33.8	231.9	-26.6	-20.9
X3	14	31	8	24731	17318	48 11.85	123 9.34	25.9	237.0	-21.7	-14.1
X3	15	31	45	24278	17879	48 12.08	123 8.85	20.3	54.4	16.5	11.8
X3	16	43	9	25185	17656	48 12.07	123 9.62	22.2	269.5	-22.2	-.2

Plate 6d1.

DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
A3	11	20	56	24049	15933	48 11.03	123 9.08				
A3	13	32	14	22414	18403	48 12.05	123 7.29	36.9	49.8	28.2	23.8
A3	15	41	52	24943	18945	48 12.71	123 9.10	33.0	298.7	-28.9	15.9
A3	15	54	3	25315	18860	48 12.71	123 9.42	54.1	269.8	-54.1	-.2
C0	11	58	16	22451	29269	48 17.05	123 2.49				
C0	12	8	33	22255	29194	48 16.98	123 2.39	31.7	138.0	21.2	-23.5
C0	13	45	1	21584	28123	48 16.38	123 2.53	19.3	188.9	-3.0	-19.1
C0	15	39	35	22308	25967	48 15.59	123 4.34	38.9	237.0	-32.6	-21.2
C0	15	52	13	22624	25621	48 15.55	123 4.71	61.2	260.5	-60.3	-10.1
C0	17	4	22	24257	25061	48 15.61	123 6.27	44.8	273.2	-44.7	2.5
C0	18	54	42	25629	25105	48 15.85	123 7.37	21.6	288.0	-20.5	6.7
C0	20	5	12	25578	25269	48 15.92	123 7.25	4.7	48.7	3.5	3.1
C1	13	21	50	13534	27398	48 13.60	122 57.49				
C1	16	11	30	16956	23516	48 13.16	123 1.65	51.3	260.9	-50.6	-8.1
C1	16	50	30	17710	22765	48 13.04	123 2.47	44.6	257.9	-43.6	-9.3
C1	17	7	22	18018	22556	48 13.03	123 2.76	36.1	267.8	-36.0	-1.4
C1	17	32	31	18280	22385	48 13.03	123 3.01	20.4	268.0	-20.3	-.7
C2	12	25	30	30917	32379	48 19.94	123 7.86				
C2	13	59	32	31739	31479	48 19.59	123 9.26	32.8	249.6	-30.7	-11.4
C2	15	45	30	33047	30230	48 19.03	123 11.31	43.2	248.0	-40.1	-16.2
C2	16	55	49	34209	30182	48 19.03	123 12.49	34.6	269.5	-34.6	-.3
C2	18	3	31	34942	30727	48 19.32	123 12.90	18.3	316.4	-12.7	13.3
C3	12	27	40	28663	31382	48 19.18	123 6.41				
C3	13	48	15	28295	29627	48 18.33	123 7.21	38.3	212.0	-20.3	-32.5
C3	13	54	34	28374	29517	48 18.29	123 7.35	49.3	246.4	-45.2	-19.7
C3	15	47	19	30496	28170	48 17.87	123 10.24	54.4	257.6	-53.1	-11.7
C3	16	56	55	32182	28397	48 18.05	123 11.52	38.7	282.1	-37.8	8.1
C3	19	3	49	32468	29520	48 18.65	123 11.17	15.6	21.7	5.8	14.5
C3	20	12	27	31794	29415	48 18.56	123 10.58	18.1	102.0	17.7	-3.8

Plate 6d2.
DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
C4	12	6	58	18640	28133	48 15.58	123 .36				
C4	12	15	25	18635	28032	48 15.54	123 .42	20.3	224.2	-14.2	-14.6
C4	13	42	28	17968	26219	48 14.62	123 1.00	35.2	203.0	-13.8	-32.4
C4	15	22	52	19088	23240	48 13.64	123 3.22	54.7	236.6	-45.6	-30.1
C4	19	34	21	26546	19769	48 13.29	123 10.16	57.2	265.7	-57.1	-4.3
C5	12	10	35	20649	28699	48 16.37	123 1.47				
C5	12	33	40	20467	28691	48 16.31	123 1.34	13.7	120.9	11.8	-7.0
C5	13	44	6	20203	27772	48 15.88	123 1.70	21.7	209.4	-10.7	-18.9
C5	15	38	48	20747	25062	48 14.88	123 3.57	43.1	231.3	-33.6	-26.9
C5	15	53	33	21126	24732	48 14.83	123 4.01	62.8	259.2	-61.7	-11.8
C5	17	52	33	23365	22635	48 14.31	123 6.63	47.4	253.7	-45.5	-13.3
C6	12	18	15	15250	27545	48 14.27	122 59.45				
C6	14	49	19	15989	24537	48 13.30	123 .55	34.8	235.5	-28.6	-19.7
C6	15	55	59	17353	23178	48 13.12	123 2.06	47.5	259.9	-46.8	-8.4
C6	16	12	22	17648	22942	48 13.10	123 2.35	37.8	264.0	-37.6	-3.9
C6	17	34	50	18958	21870	48 12.97	123 3.68	33.6	261.4	-33.2	-5.0
C7	12	4	10	16996	27930	48 14.99	122 59.35				
C7	13	40	35	16712	25482	48 13.94	123 .55	42.3	217.1	-25.5	-33.8
C7	14	50	33	17279	23949	48 13.45	123 1.67	39.4	237.0	-33.0	-21.5
C7	15	22	8	17730	23199	48 13.25	123 2.30	46.0	244.3	-41.5	-20.0
C7	19	53	5	23233	19248	48 12.62	123 7.69	41.7	260.2	-41.1	-7.1
C8	13	48	22	27001	29412	48 18.05	123 6.19				
C8	17	59	18	29399	27913	48 17.64	123 9.20	25.2	258.7	-24.7	-5.0
C8	19	0	49	29032	27516	48 17.41	123 9.08	12.1	161.2	3.9	-11.5
C8	20	8	34	28936	27583	48 17.44	123 8.96	3.9	74.0	3.7	1.1
C9	12	31	12	23751	29411	48 17.42	123 3.45				
C9	15	40	43	24372	25916	48 16.02	123 5.90	35.2	229.5	-26.7	-22.9
C9	15	51	9	24392	25668	48 15.91	123 6.08	46.7	230.1	-35.8	-30.0
C9	18	57	2	26276	25208	48 15.99	123 7.85	19.7	273.5	-19.7	1.2
C9	20	2	16	25923	25104	48 15.88	123 7.53	11.7	116.8	10.4	-5.3

Plate 6d3.

DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
H1	11	33	57	26788	17508	48 12.13	123 10.94				
H1	13	18	19	26169	17608	48 12.14	123 10.42	19.4	88.4	10.4	.3
H1	15	3	4	26915	17272	48 12.01	123 11.10	13.9	254.3	-13.4	-3.8
H1	17	23	7	27000	16432	48 11.57	123 11.33	10.3	200.0	-3.5	-9.7
H1	17	57	26	26941	16071	48 11.38	123 11.35	20.5	183.6	-1.3	-20.5
H1	19	46	45	26563	16455	48 11.56	123 10.98	8.4	54.0	6.8	4.9
H3	11	28	40	25972	17548	48 12.09	123 10.27				
H3	13	24	20	25851	17631	48 12.13	123 10.16	2.3	67.1	2.1	.9
H3	15	7	10	25924	16810	48 11.70	123 10.31	13.4	193.6	-3.1	-13.0
H3	17	15	43	26903	18909	48 12.87	123 10.69	29.0	347.9	-6.1	28.3
H3	18	7	53	25453	16872	48 11.69	123 10.00	75.0	158.7	27.3	-69.9
H3	19	38	0	24991	18594	48 12.54	123 9.24	33.9	31.4	17.6	28.9
H5	11	27	13	26033	16810	48 11.71	123 10.48				
H5	13	31	1	23250	18069	48 12.02	123 8.01	41.9	79.4	41.2	7.7
H5	15	15	33	23732	17920	48 12.02	123 8.42	8.1	269.9	-8.1	-.0
H5	15	56	14	23788	18202	48 12.18	123 8.39	11.7	6.5	1.3	11.6
H5	17	10	53	24556	18707	48 12.54	123 8.86	20.0	319.4	-13.0	15.2
H5	19	30	55	26742	18527	48 12.66	123 10.66	26.7	275.8	-26.5	2.7
H6	15	1	13	26952	17174	48 11.97	123 11.15				
H6	15	43	26	27219	17392	48 12.09	123 11.32	12.6	318.3	-8.4	9.4
H6	17	19	20	27117	16669	48 11.71	123 11.38	12.6	186.6	-1.4	-12.5
H6	17	21	46	27114	16689	48 11.72	123 11.38	14.2	22.9	5.5	13.1
H6	17	55	5	26999	16379	48 11.55	123 11.34	15.9	172.4	2.1	-15.7
H6	19	45	19	26863	16610	48 11.66	123 11.19	4.4	41.8	2.9	3.3
H8	11	25	51	25983	17286	48 11.96	123 10.34				
H8	13	28	14	24620	17608	48 11.98	123 9.19	19.5	88.1	19.5	.6
H8	15	14	1	24743	17565	48 11.98	123 9.29	2.1	264.2	-2.1	-.2
H8	15	53	26	25374	17718	48 12.13	123 9.76	27.0	295.8	-24.3	11.7
H8	17	16	0	26454	18705	48 12.74	123 10.38	27.6	325.6	-15.6	22.8
H8	17	56	15	26401	18719	48 12.74	123 10.33	2.4	83.4	2.4	.3

Plate 6d4.

DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
K8	16	48	22	40010	35878	48 22.03	123 14.92				
K8	18	10	56	41129	36533	48 22.33	123 15.72	22.9	299.6	-20.0	11.3
K8	19	15	57	41130	37899	48 23.14	123 14.68	50.5	40.9	33.1	38.2
V0	14	1	54	33600	32443	48 20.19	123 10.46				
V0	16	54	42	36351	32135	48 20.07	123 13.49	36.2	266.4	-36.2	-2.3
V0	20	17	19	37201	32238	48 20.09	123 14.31	8.4	272.6	-8.4	.4
V0	18	5	13	36822	32402	48 20.20	123 13.81	1.9	72.1	1.8	.6
V8	14	7	30	37651	35804	48 22.06	123 12.34				
V8	16	47	29	40867	36354	48 22.25	123 15.55	41.6	275.0	-41.4	3.6
V8	19	11	50	41507	38970	48 23.73	123 14.26	36.8	30.2	18.5	31.8
V9	14	4	15	35831	33835	48 20.99	123 11.81				
V9	16	51	33	39409	34751	48 21.41	123 15.05	40.7	281.0	-40.0	7.8
V9	18	9	20	40498	35253	48 21.62	123 15.92	24.6	289.8	-23.1	8.3
V9	19	9	34	40877	36369	48 22.26	123 15.55	34.9	21.3	12.7	32.5
X1	11	29	31	26471	17581	48 12.15	123 10.67				
X1	13	23	1	26046	17603	48 12.13	123 10.32	6.4	95.1	6.3	-.6
X1	15	5	4	25613	16980	48 11.77	123 10.11	11.8	158.9	4.3	-11.0
X1	15	8	16	25639	16972	48 11.76	123 10.13	14.8	262.0	-14.7	-2.1
X1	15	47	52	25537	16761	48 11.64	123 10.09	9.5	167.9	2.0	-9.3
X1	17	26	11	25955	16734	48 11.67	123 10.43	7.2	275.6	-7.1	.7
X1	18	7	1	25659	17323	48 11.95	123 10.07	28.1	40.5	18.3	21.4
X1	19	36	25	24877	18802	48 12.63	123 9.09	32.7	44.0	22.7	23.5
X2	15	5	42	26859	17247	48 12.00	123 11.06				
X2	19	43	39	27041	16658	48 11.70	123 11.32	3.9	210.8	-2.0	-3.4

Plate 6d5.
DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
X3	11	34	27	27143	17423	48 12.11	123 11.25				
X3	13	20	8	26023	17587	48 12.12	123 10.30	18.5	88.8	18.5	.4
X3	13	23	1	26046	17603	48 12.13	123 10.32	15.3	315.9	-10.6	11.0
X3	15	2	26	25685	17052	48 11.81	123 10.15	10.5	160.6	3.5	-9.9
X3	15	48	47	25745	16848	48 11.71	123 10.24	7.9	211.0	-4.0	-6.7
X3	17	25	24	25852	17078	48 11.84	123 10.28	4.2	348.9	-.8	4.1
X3	17	58	33	25746	17620	48 12.11	123 10.08	28.5	26.6	12.8	25.5
X3	19	34	58	25171	18964	48 12.75	123 9.28	26.6	39.9	17.0	20.4
X4	6	50	40	18857	19219	48 11.62	123 4.48				
X4	7	11	40	18405	19274	48 11.52	123 4.15	35.9	114.7	32.7	-15.0
X4	7	52	30	17434	19227	48 11.19	123 3.49	41.6	126.6	33.4	-24.7
X4	8	44	25	16521	19564	48 11.06	123 2.78	29.4	105.1	28.4	-7.7
X4	16	3	41	16435	17806	48 10.03	123 3.13	7.4	192.9	-1.7	-7.3
X4	18	31	7	16174	18418	48 10.29	123 2.82	6.9	38.1	4.3	5.5
X4	20	10	39	15081	18317	48 9.77	123 2.10	22.2	137.0	15.1	-16.2
X5	7	4	40	18654	22387	48 13.13	123 3.27				
X5	7	18	38	18641	22450	48 13.16	123 3.23	7.6	40.9	5.0	5.8
X5	7	55	40	18077	22404	48 12.98	123 2.86	25.5	126.1	20.6	-15.1
X5	8	2	55	17877	22352	48 12.89	123 2.75	48.1	136.7	33.0	-35.1
X5	8	45	45	17159	21529	48 12.28	123 2.57	44.9	169.2	8.4	-44.1
X6	7	7	15	19001	26069	48 14.86	123 1.80				
X6	7	20	50	19073	26300	48 14.97	123 1.72	28.6	22.9	11.1	26.3
X6	7	58	30	18989	26991	48 15.23	123 1.28	32.2	48.9	24.2	21.2
X6	9	2	45	18196	27690	48 15.27	123 .32	31.1	86.2	31.0	2.0
X6	11	42	12	16408	28144	48 14.88	122 58.83	20.8	111.8	19.3	-7.7
X6	12	5	51	16356	27893	48 14.77	122 58.95	17.7	216.7	-10.6	-14.2
X6	13	38	50	16252	25830	48 13.93	123 .06	37.1	221.7	-24.7	-27.7
X6	14	51	40	16764	23174	48 12.94	123 1.67	62.0	227.2	-45.4	-42.1
X6	15	24	41	17154	23375	48 13.15	123 1.84	22.6	331.6	-10.7	19.9
X6	15	36	40	17323	23149	48 13.10	123 2.05	38.7	249.6	-36.3	-13.5
X6	16	13	15	18302	22490	48 13.08	123 2.98	52.9	268.2	-52.8	-1.7
X6	17	9	1	18569	21423	48 12.65	123 3.57	32.5	222.3	-21.9	-24.0
X6	17	33	41	18800	20936	48 12.47	123 3.90	35.3	231.9	-27.8	-21.8

Plate 6d7.
DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
Y0	7	33	40	23849	38492	48 20.41	122 56.15				
Y0	8	21	50	25553	40530	48 21.48	122 55.61	72.3	18.6	23.0	68.6
Y0	9	19	5	27189	43078	48 22.59	122 54.36	74.6	37.1	45.0	59.5
Y0	11	19	15	29371	45986	48 23.91	122 53.11	40.3	32.3	21.5	34.1
Y0	12	49	25	30888	46978	48 24.70	122 53.52	28.7	340.4	-9.6	27.0
Y0	14	5	25	31295	46363	48 24.79	122 54.78	34.2	275.9	-34.0	3.5
Y0	15	9	20	31941	45886	48 24.96	122 56.11	43.7	280.7	-43.0	8.1
Y0	16	35	41	31621	44347	48 24.51	122 57.59	39.9	245.7	-35.5	-16.0
Y0	16	39	25	31529	44161	48 24.43	122 57.71	88.8	225.3	-63.1	-62.5
Y0	18	30	9	30247	40493	48 23.02	123 .32	62.5	231.1	-48.6	-39.3
Y1	7	41	0	25136	41408	48 21.47	122 54.25				
Y1	8	17	40	25810	42188	48 21.87	122 54.02	36.2	21.0	13.0	33.8
Y1	9	16	5	26638	43392	48 22.39	122 53.43	34.4	36.8	20.6	27.5
Y1	11	21	50	29184	46029	48 23.83	122 52.85	36.6	15.1	9.5	35.3
Y1	12	47	50	30491	47135	48 24.54	122 52.87	25.4	358.9	-.5	25.4
Y1	14	6	15	30857	46628	48 24.64	122 53.94	28.7	278.1	-28.4	4.1
Y1	15	9	51	31292	45843	48 24.70	122 55.43	48.2	273.2	-48.1	2.7
Y1	16	34	18	32321	45396	48 24.99	122 57.13	43.1	284.3	-41.8	10.6
Y1	18	29	20	30465	41045	48 23.25	122 59.98	69.0	227.5	-51.0	-46.6
Y2	8	25	0	27911	44979	48 23.14	122 52.81				
Y2	9	28	10	30055	46391	48 24.26	122 53.35	57.6	342.1	-17.7	54.8
Y2	11	17	40	31625	47844	48 25.13	122 53.23	24.5	5.0	2.1	24.4
Y2	15	12	14	31952	47993	48 25.29	122 53.41	2.7	322.9	-1.6	2.1
Y2	16	26	51	31814	47899	48 25.22	122 53.38	3.1	161.4	1.0	-3.0
Y3	8	28	8	29067	47106	48 23.86	122 51.30				
Y4	12	5	55	9037	26367	48 11.42	122 55.63				
Y4	13	36	30	10942	25221	48 11.74	122 57.22	37.9	286.7	-36.3	10.9
Y4	14	44	32	12980	24704	48 12.32	122 58.62	50.1	301.7	-42.6	26.3
Y4	15	31	35	13568	24317	48 12.37	122 59.15	23.5	277.7	-23.3	3.2
Y4	17	40	48	14595	21972	48 11.63	123 .75	31.1	235.5	-25.6	-17.6
Y4	18	33	36	14769	20904	48 11.14	123 1.23	34.1	213.1	-18.6	-28.6

Plate 6d8.

DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
Y5	12	4	35	9784	25829	48 11.51	122 56.30				
Y5	13	35	35	11529	24535	48 11.67	122 57.87	36.2	278.4	-35.8	5.3
Y5	14	43	23	13475	24153	48 12.26	122 59.17	47.8	304.0	-39.7	26.8
Y5	15	35	5	14370	23364	48 12.22	123 .06	35.7	266.7	-35.6	-2.1
Y5	15	58	19	14812	22967	48 12.19	123 .50	39.3	264.3	-39.2	-3.9
Y5	16	53	32	15699	21933	48 12.00	123 1.47	37.7	253.6	-36.2	-10.6
Y5	17	39	21	16324	20788	48 11.64	123 2.28	43.9	236.2	-36.4	-24.4
Y5	18	24	21	16786	19808	48 11.29	123 2.88	37.1	229.0	-28.0	-24.3
Y5	19	59	21	18175	18354	48 10.96	123 4.22	31.0	250.0	-29.1	-10.6
Y5	20	4	59	18302	18269	48 10.96	123 4.33	40.3	265.1	-40.2	-3.4
Y6	12	2	45	11211	25455	48 11.95	122 57.25				
Y6	13	33	5	12564	24641	48 12.13	122 58.41	27.3	283.1	-26.6	6.2
Y6	14	42	25	13642	23856	48 12.19	122 59.41	29.8	274.6	-29.7	2.4
Y6	15	26	28	14254	23100	48 12.06	123 .10	33.9	254.6	-32.7	-9.0
Y6	15	32	35	14271	23103	48 12.06	123 .11	5.0	321.5	-3.2	4.0
Y6	15	57	31	14797	22652	48 12.04	123 .62	42.3	265.6	-42.2	-3.2
Y6	16	55	22	15521	21761	48 11.86	123 1.42	30.1	251.3	-28.5	-9.7
Y6	17	38	27	16101	20977	48 11.66	123 2.07	34.1	245.8	-31.1	-14.0
Y6	18	21	18	16612	20171	48 11.42	123 2.66	33.6	238.6	-28.6	-17.5
Y6	20	3	20	18170	18660	48 11.12	123 4.14	31.4	253.5	-30.1	-8.9
Y7	12	3	35	10333	2'072	48 11.41	122 56.97				
Y7	13	39	45	11843	23665	48 11.39	122 58.44	31.7	268.4	-31.6	-.9
Y7	14	41	34	13356	23609	48 11.96	122 59.34	41.8	313.4	-30.4	28.7
Y7	15	26	28	14254	23100	48 12.06	123 .10	35.5	280.5	-34.9	6.5
Y7	15	32	35	14271	23103	48 12.06	123 .11	5.0	321.5	-3.2	4.0
Y7	15	57	31	14797	22652	48 12.04	123 .62	42.3	265.6	-42.2	-3.2
Y7	16	52	40	15509	21750	48 11.85	123 1.41	31.6	250.3	-29.7	-10.7
Y7	17	37	18	16123	21006	48 11.68	123 2.07	32.5	249.7	-30.5	-11.3
Y7	18	22	20	16656	20082	48 11.39	123 2.72	35.9	235.5	-29.6	-20.4
Y7	20	1	50	18153	18557	48 11.06	123 4.16	31.6	251.5	-30.0	-10.0

Plate 6d9.
DATE - 25 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
Y8	13	24	0	11557	26609	48 12.56	122 56.92				
Y8	14	45	24	13228	25669	48 12.82	122 58.28	38.5	285.1	-37.2	10.0
Y8	15	30	40	13775	25114	48 12.79	122 58.89	27.9	265.6	-27.8	-2.2
Y8	15	33	40	13765	25066	48 12.77	122 58.91	27.7	206.5	-12.4	-24.8
Y8	17	42	21	14602	24364	48 12.76	122 59.76	13.6	269.4	-13.6	-.1
Y8	18	47	58	14261	24247	48 12.59	122 59.60	9.5	149.0	4.9	-8.1
Y8	19	53	56	14072	24046	48 12.43	122 59.58	7.5	174.4	.7	-7.4
Y9	13	23	5	12038	27269	48 12.99	122 56.70				
Y9	14	46	10	13811	26391	48 13.32	122 58.24	40.1	287.9	-38.2	12.3
Y9	15	28	6	14431	26113	48 13.43	122 58.76	27.3	287.4	-26.0	8.2
Y9	17	43	16	15546	25874	48 13.72	122 59.59	14.2	297.4	-12.6	6.5

Plate 9e1

DATE - 26 AUGUST 1979

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
A3	7	39	0	35955	17399	48 11.11	123 18.82				
A3	9	15	19	32562	15878	48 10.96	123 16.08	58.9	94.8	58.7	-4.9
C1	8	40	53	44290	22701	48 11.30	123 25.56				
C7	6	36	53	38053	18131	48 10.88	123 20.57				
C7	7	36	30	37175	17789	48 10.97	123 19.84	25.9	79.4	25.4	4.8
C7	9	29	20	32618	15993	48 11.02	123 16.11	69.3	89.0	68.3	1.2
C7	13	36	12	20320	19400	48 12.10	123 5.47	90.2	81.4	89.2	13.6
C7	15	12	13	17115	22232	48 12.61	123 2.28	70.6	76.6	68.7	16.4
C7	15	50	33	15890	22124	48 12.16	123 1.52	54.7	131.2	41.2	-36.0
C9	8	37	43	44784	23551	48 11.74	123 25.87				
E0	6	53	11	32605	24288	48 15.80	123 14.04				
E0	7	58	25	34507	23940	48 15.47	123 15.77	57.1	253.8	-54.8	-15.9
E0	10	16	3	35165	23941	48 15.39	123 16.39	9.6	259.3	-9.4	-1.8
E0	10	45	20	35393	24163	48 15.49	123 16.53	14.5	318.8	-9.5	10.9
E0	12	23	24	35845	24761	48 15.79	123 16.74	10.4	335.3	-4.3	9.5
E1	6	56	50	32011	27064	48 17.34	123 12.05				
E1	7	19	41	32398	26899	48 17.25	123 12.50	42.0	253.9	-40.3	-11.7
E1	10	26	19	32181	26387	48 16.98	123 12.54	4.6	185.9	-.5	-4.6
E1	12	41	26	31221	25229	48 16.35	123 12.18	15.3	159.1	5.5	-14.3
E2	6	53	0	32428	25499	48 16.49	123 13.1?				
E2	7	21	44	33189	25418	48 16.42	123 13.93	54.4	262.0	-53.9	-7.6
E2	10	24	28	33890	24922	48 16.10	123 14.80	11.3	241.0	-9.9	-5.5
E2	10	47	5	33711	25050	48 16.18	123 14.58	23.4	59.9	20.3	11.7
E2	12	40	2	32916	26145	48 16.84	123 13.34	28.8	51.7	22.6	17.8
E2	14	40	41	32661	25229	48 16.34	123 13.51	13.1	192.8	-2.9	-12.8

Plate 6e2.

DATE - 26 AUGUST 1979

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
E3	7	17	47	31618	29606	48 18.65	123 10.30				
E3	9	32	33	31512	30685	48 19.18	123 9.54	16.8	43.5	11.6	12.2
E3	10	29	13	30802	30731	48 19.14	123 8.84	25.8	94.6	25.8	-2.0
E3	10	56	20	30459	30862	48 19.17	123 8.43	31.3	84.0	31.1	3.3
E3	14	32	6	28553	31068	48 19.03	123 6.52	18.4	96.6	18.2	-2.1
E3	15	55	45	29837	31822	48 19.55	123 7.21	25.6	318.6	-16.9	19.2
E4	7	18	31	31757	28476	48 18.08	123 11.07				
E4	14	37	6	32053	28867	48 18.29	123 11.14	1.5	348.4	-.3	1.5
E5	7	13	59	31300	32523	48 20.05	123 8.13				
E5	8	6	1	31377	32230	48 19.92	123 8.40	13.4	234.7	-10.9	-7.8
E5	8	24	26	31269	32192	48 19.89	123 8.32	10.1	119.0	8.9	-4.9
E5	10	59	1	30766	32748	48 20.09	123 7.45	12.3	71.0	11.6	4.0
E5	14	33	37	31178	31797	48 19.69	123 8.50	11.6	240.5	-10.1	-5.7
E6	7	16	27	31371	31137	48 19.39	123 9.12				
E6	8	6	52	31503	31138	48 19.40	123 9.25	5.2	278.2	-5.2	.8
E6	9	31	36	31427	31720	48 19.68	123 8.79	14.9	47.8	11.0	10.0
E6	10	29	45	30628	31404	48 19.45	123 8.24	23.3	121.7	19.8	-12.3
E6	10	57	29	30285	31458	48 19.43	123 7.88	27.0	93.2	26.9	-1.5
E6	14	32	6	28553	31068	48 19.03	123 6.52	14.3	114.3	13.0	-5.9
E6	15	56	52	29905	31647	48 19.48	123 7.39	26.8	307.7	-21.2	16.4
E7	6	49	49	34571	21653	48 14.09	123 16.60				
E7	7	24	55	35479	21720	48 13.98	123 17.43	49.5	258.6	-48.6	-9.8
E7	7	54	47	35971	21595	48 13.81	123 17.92	38.8	242.3	-34.3	-18.0
E7	10	11	11	34744	20867	48 13.59	123 16.99	15.0	109.4	14.2	-5.0
E7	10	41	42	34306	20671	48 13.54	123 16.64	24.0	101.5	23.5	-4.8
E7	12	17	55	33524	20103	48 13.31	123 16.08	14.0	121.0	12.0	-7.2
E7	14	12	3	33507	20528	48 13.57	123 15.95	7.3	18.8	2.3	6.9

Plate 6e3.

DATE - 26 AUGUST 1979

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
E8	6	47	37	35222	20296	48 13.15	123 17.57				
E8	7	25	55	36193	20537	48 13.08	123 18.41	45.3	263.7	-45.0	-4.9
E8	7	53	0	36536	20510	48 12.98	123 18.73	27.3	244.9	-24.7	-11.6
E8	10	40	39	34652	19081	48 12.51	123 17.34	19.3	117.1	17.1	-8.8
E8	12	13	55	33505	17060	48 11.50	123 16.72	36.2	157.4	13.9	-33.4
E8	12	29	10	33120	16643	48 11.32	123 16.45	51.2	135.3	36.1	-36.4
E8	14	57	41	32958	1 982	48 10.35	123 16.53	20.1	183.3	-1.2	-20.0
E8	16	11	15	34383	15639	48 10.42	123 17.68	32.3	275.4	-32.1	3.0
E9	6	51	40	34159	22576	48 14.70	123 15.93				
E9	7	24	11	34836	22370	48 14.49	123 16.63	48.9	245.4	-44.4	-20.4
E9	10	9	46	35253	21964	48 14.17	123 17.14	8.7	227.7	-6.4	-5.9
E9	10	42	39	34832	21978	48 14.25	123 16.74	25.9	73.8	24.9	7.2
E9	12	20	27	35044	22777	48 14.70	123 16.69	14.4	4.9	1.2	14.3
E9	12	34	27	35197	22947	48 14.78	123 16.77	21.9	324.3	-12.8	17.8
E9	14	43	45	35121	23282	48 15.00	123 16.59	5.9	30.2	3.0	5.1
H1	9	11	3	30156	14886	48 10.69	123 14.18				
H1	13	34	53	18460	19127	48 11.46	123 4.22	78.6	83.4	78.1	9.0
H2	11	56	43	26218	16362	48 11.49	123 10.72				
H3	11	57	43	25395	17278	48 11.90	123 9.87				
H6	9	10	2	30164	14973	48 10.74	123 14.18				
H6	11	25	31	21785	18201	48 11.82	123 6.87	114.3	77.6	111.6	24.6
H6	11	50	6	20360	19446	48 12.13	123 5.49	123.1	71.2	116.5	39.7
H6	13	29	50	16635	21956	48 12.33	123 2.07	71.1	85.2	70.8	5.9
H6	15	13	42	15808	22707	48 12.41	123 1.24	16.8	80.9	16.5	2.6
H8	9	47	30	33732	16334	48 11.01	123 17.03				
H8	12	8	47	25822	15422	48 10.96	123 10.56	94.6	90.6	94.6	-1.0
H8	13	46	16	21948	18648	48 12.08	123 6.88	85.8	65.7	78.2	35.4
H8	15	8	16	19480	20910	48 12.64	123 4.39	66.2	71.3	62.7	21.2
H8	15	49	13	18658	21020	48 12.48	123 3.78	33.5	112.1	31.0	-12.6
K1	8	31	32	45682	21511	48 9.11	123 26.95				

Plate 6e4.
DATE - 26 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
K7	13	15	56	53579	44615	48 25.32	123 24.99				
N1	13	5	13	23776	45187	48 20.96	122 48.23				
N1	14	1	1	23802	45664	48 20.92	122 47.59	23.5	94.8	23.5	-2.0
N1	15	29	9	23918	45922	48 20.96	122 47.35	5.8	75.8	5.7	1.4
N2	13	4	15	25545	47104	48 21.85	122 47.41				
N2	13	59	52	25864	47766	48 21.97	122 46.79	23.7	74.6	22.8	6.3
N2	15	33	7	26208	48552	48 22.06	122 46.00	17.8	80.1	17.6	3.1
N3	11	1	39	16479	38589	48 17.08	122 49.90				
N3	11	31	30	16587	38635	48 17.14	122 49.94	6.5	339.7	-2.2	6.1
N3	13	10	42	17943	39484	48 17.87	122 50.05	22.9	354.0	-2.4	22.8
N3	13	58	17	18224	39402	48 18.02	122 50.37	17.2	304.7	-14.1	9.8
N3	15	25	26	18645	38349	48 18.18	122 51.88	36.2	279.1	-35.7	5.7
N4	10	58	21	19353	39610	48 18.62	122 51.07				
N4	11	28	35	19164	39349	48 18.51	122 51.21	14.4	219.9	-9.2	-11.1
N4	13	56	53	18390	37979	48 18.03	122 52.07	15.6	230.4	-12.0	-9.9
N4	15	14	15	17766	36351	48 17.55	122 53.25	36.7	238.6	-31.3	-19.1
N5	8	27	2	32003	35229	48 21.37	123 6.82				
N5	9	28	58	32251	36009	48 21.75	123 6.45	22.6	33.2	12.4	18.9
N5	10	36	18	32004	36912	48 22.06	123 5.54	31.4	63.5	28.1	14.0
N5	11	3	15	31905	37326	48 22.25	123 4.99	47.2	61.6	41.5	22.5
N5	12	55	4	32284	39145	48 23.04	123 3.75	31.7	46.3	22.9	21.9
N5	14	26	7	31946	39269	48 23.02	123 3.28	10.7	94.2	10.7	-.8
N6	9	41	37	32484	46697	48 25.32	122 55.72				
N6	12	55	40	34258	48803	48 26.38	122 55.09	18.1	21.6	6.7	16.9
N6	14	14	2	34301	49748	48 26.38	122 55.21	3.3	275.4	-3.3	.3
N6	15	43	11	32565	47823	48 25.53	122 54.36	35.5	146.1	19.8	-29.5

Plate 6e5.
DATE - 26 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
N7	9	42	43	30455	45433	48 24.30	122 55.00				
N7	11	16	27	32321	47294	48 25.35	122 54.76	35.1	8.4	5.1	34.8
N7	12	51	14	34013	49667	48 26.26	122 54.97	29.8	351.2	-4.5	29.4
N7	14	12	29	34718	49484	48 26.67	122 54.73	16.8	21.0	6.0	15.7
N8	9	43	45	28570	44321	48 23.35	122 54.32				
N8	10	50	10	29657	45118	48 23.92	122 54.51	27.3	347.1	-6.1	26.6
N8	11	13	35	30025	45309	48 24.10	122 54.68	28.1	328.2	-14.8	23.9
N8	12	58	43	31129	46394	48 24.73	122 54.55	18.4	7.8	2.5	18.3
N8	14	8	56	31814	47179	48 25.13	122 54.33	18.8	20.5	6.6	17.6
N9	9	48	3	26826	43296	48 22.46	122 53.74				
N9	10	50	59	28269	44443	48 23.24	122 53.85	38.3	354.3	-3.8	38.1
N9	11	10	32	28839	44927	48 23.55	122 53.86	33.6	358.3	-1.0	33.5
V1	6	52	25	33356	23275	48 15.19	123 14.94				
V1	7	23	27	34046	23145	48 15.05	123 15.63	48.1	253.0	-46.0	-14.1
V1	7	57	38	34631	22954	48 14.87	123 16.24	40.5	246.0	-37.0	-16.5
V1	10	14	43	33835	21979	48 14.39	123 15.82	12.5	149.8	6.3	-10.8
V1	12	19	40	33868	22197	48 14.51	123 15.78	3.1	11.9	.6	3.1
V1	12	35	16	34011	22333	48 14.57	123 15.87	17.1	317.5	-11.6	12.6
V1	14	45	23	35213	23347	48 15.07	123 16.65	16.4	310.6	-12.4	10.7
V2	9	37	20	32773	16230	48 11.13	123 16.21				
V2	15	3	24	19913	20279	48 12.44	123 4.91	72.8	80.2	71.7	12.4
V2	15	49	13	18659	21020	48 12.48	123 3.78	51.2	87.4	51.1	2.3
V3	9	55	4	35214	15530	48 10.12	123 18.40				
V3	12	9	27	26765	14463	48 10.51	123 11.46	107.2	85.1	106.8	9.1
V4	6	35	56	38607	18176	48 10.68	123 21.06				
V4	7	35	24	37589	17958	48 10.94	123 20.18	33.2	66.5	30.5	13.2
V4	9	34	1	32556	15983	48 11.02	123 16.06	71.9	88.3	71.8	2.2

Plate 6e6.
DATE - 26 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
V5	6	32	5	36599	18970	48 11.96	123 19.12				
V5	7	29	56	38455	19864	48 11.95	123 20.65	54.4	270.0	-54.4	-.0
V5	9	59	49	37808	19355	48 11.83	123 20.15	7.3	110.5	6.8	-2.6
V5	10	36	6	36783	18500	48 11.59	123 19.38	48.7	115.1	44.1	-20.7
V5	12	15	47	32596	15996	48 11.02	123 16.10	70.3	104.4	68.1	-17.5
V6	6	44	13	38209	18827	48 11.31	123 20.61				
V6	7	34	6	38711	18885	48 11.16	123 21.05	20.9	241.9	-18.5	-9.8
V6	7	50	16	38393	18528	48 11.03	123 20.82	38.4	129.1	29.8	-24.2
V6	9	44	25	33816	16498	48 11.09	123 17.08	67.8	88.6	67.8	1.7
V6	14	59	8	21443	18044	48 11.66	123 6.65	68.7	85.3	68.5	5.6
V7	6	46	40	36128	19747	48 12.59	123 18.53				
V7	7	28	2	37359	20176	48 12.53	123 19.57	52.0	265.2	-51.9	-4.3
V7	7	53	4	37697	20242	48 12.47	123 19.87	25.7	253.4	-24.6	-7.3
V7	10	4	56	36775	19573	48 12.30	123 19.16	11.8	109.8	11.1	-4.0
V7	10	38	48	35949	19195	48 12.28	123 18.49	41.2	92.8	41.1	-2.0
V7	12	13	55	33505	17060	48 11.50	123 16.72	46.2	123.5	38.6	-25.5
V7	12	29	10	33120	16643	48 11.32	123 16.45	51.2	135.3	36.1	-36.4
V7	14	59	6	33245	15439	48 10.57	123 16.73	15.9	193.9	-3.8	-15.4
V7	16	12	0	34615	16131	48 10.67	123 17.82	31.3	278.2	-31.0	4.5
X1	7	30	59	38336	18725	48 11.19	123 20.74				
X1	9	51	7	32960	16309	48 11.16	123 16.28	65.8	90.6	65.8	-.6
X1	13	44	8	22984	18340	48 12.12	123 7.74	76.8	80.5	75.8	12.6
X1	15	2	13	20604	19797	48 12.37	123 5.56	58.7	80.2	57.8	10.0
X2	9	8	39	29405	14760	48 10.67	123 13.58				
X2	11	49	11	19456	20265	48 12.32	123 4.59	120.1	74.7	115.8	31.7
X2	15	49	13	18658	21020	48 12.48	123 3.78	7.3	73.8	7.0	2.0
X3	7	45	53	38337	18146	48 10.78	123 20.82				
X3	12	3	52	25174	17487	48 11.99	123 9.65	90.7	80.8	89.6	14.5
X3	13	37	48	21662	19731	48 12.57	123 6.36	75.0	75.2	72.5	19.2
X3	15	9	33	18814	21292	48 12.65	123 3.79	57.9	87.2	57.8	2.8

Plate 6e7.
DATE - 26 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
X5	11	18	39	15825	19665	48 10.87	123 2.29				
X5	11	46	27	15543	19555	48 10.70	123 2.13	22.1	147.9	11.7	-18.7
X5	15	39	36	14355	17727	48 9.01	123 1.68	22.8	170.0	4.0	-22.4
X6	6	37	27	38558	18869	48 11.21	123 20.92				
X6	7	31	59	38108	18564	48 11.17	123 20.56	13.8	99.4	13.6	-2.3
X6	9	39	51	33368	16562	48 11.22	123 16.68	62.8	88.8	62.8	1.3
X6	12	7	48	26248	15743	48 11.17	123 10.85	81.4	90.8	81.4	-1.1
X6	13	45	12	22315	18368	48 12.01	123 7.23	81.5	70.9	77.0	26.7
X6	15	49	13	18658	21020	48 12.49	123 3.78	58.7	78.6	57.5	11.6
X7	6	34	30	36606	17469	48 10.95	123 19.38				
X7	7	43	6	35524	17165	48 11.09	123 18.47	28.1	77.6	27.5	6.0
X7	9	15	19	32562	15878	48 10.96	123 16.08	53.7	94.5	53.5	-4.3
X7	12	0	10	25906	16735	48 11.66	123 10.39	72.6	79.5	71.4	13.2
X7	13	40	42	22134	19177	48 12.39	123 6.87	75.8	73.0	72.5	22.2
X7	15	5	20	19797	20594	48 12.57	123 4.72	52.9	82.7	52.5	6.7
X8	8	30	34	33208	39446	48 23.34	123 4.45				
X8	9	15	8	33823	40494	48 23.87	123 4.12	39.6	23.0	15.4	36.5
X8	10	30	50	35730	43593	48 25.41	123 3.09	61.7	23.8	24.9	56.4
X8	12	44	29	38288	46532	48 27.01	123 2.86	39.9	5.4	3.8	39.7
Y2	11	15	8	31827	47783	48 25.21	122 53.55				
Y2	14	16	15	31933	47881	48 25.27	122 53.54	1.0	3.5	.1	1.0
Y5	7	39	0	35955	17399	48 11.11	123 18.82				
Y5	9	15	19	32562	15878	48 10.96	123 16.08	58.9	94.8	58.7	-4.9
Y5	11	58	28	26395	16803	48 11.74	123 10.77	68.9	77.7	67.3	14.7
Y5	13	43	15	23099	18513	48 12.22	123 7.78	60.7	76.3	59.0	14.4
Y5	14	59	20	21089	19499	48 12.33	123 6.00	48.6	84.9	48.4	4.3

Plate 6e8.

DATE - 26 AUGUST 1978

DRIFT SHEET	TIME (PDT) HOUR	MIN	SEC	RANGE 1 (M)	RANGE 2 (M)	LATITUDE N	LONGITUDE W	SPEED (CM/SEC)	DIRECTION (DEG TRUE)	COMPONENTS (CM/SEC) E - W	N - S
Y6	7	39	0	35955	17399	48 11.11	123 18.82				
Y6	9	15	19	32562	15878	48 10.96	123 16.08	58.9	94.8	58.7	-4.9
Y6	13	39	48	22160	19275	48 12.44	123 6.86	74.2	76.5	72.1	17.3
Y6	15	6	16	19673	20721	48 12.60	123 4.59	54.6	84.0	54.3	5.7
Y6	15	49	13	18658	21020	48 12.48.	123 3.78	40.3	102.8	39.3	-8.9
Y7	6	33	5	36637	17923	48 11.25	123 19.34				
Y7	7	37	35	36460	17615	48 11.10	123 19.23	8.0	153.8	3.5	-7.2
Y7	9	27	7	32555	15950	48 11.00	123 16.07	59.8	92.6	59.7	-2.7
Y7	12	1	55	25426	16760	48 11.63	123 10.01	82.0	81.2	81.0	12.6
Y7	13	38	56	21899	19534	48 12.52	123 6.59	78.1	68.8	72.8	28.2
Y7	15	7	14	19599	20857	48 12.65	123 4.49	49.3	84.8	49.1	4.5
Y8	7	42	13	35704	17212	48 11.06	123 18.62				
Y8	9	13	0	32630	15943	48 10.99	123 16.13	56.8	92.7	56.7	-2.7
Y8	9	15	19	32562	15878	48 10.96	123 16.08	56.3	130.0	43.1	-36.2
Y8	13	37	5	20704	19416	48 12.20	123 5.74	83.0	79.8	81.7	14.6
Y8	15	11	14	17404	21972	48 12.57	123 2.57	70.7	80.0	69.6	12.2
Y8	15	50	33	15890	22124	48 12.16	123 1.52	64.2	120.2	55.5	-32.3
Y9	16	3	58	26955	17883	48 12.33	123 10.91				