ATTACHMENT

1. Components of Draft Final Report

The Government of Dominica has agreed and accepted in principle the components of the Draft Final Report proposed by the Team.

2. Japan's Grant Aid Programme

(1) The Government of Dominica has understood the system of Japanese Grant Aid explained by the Team.

(2) The Government of Dominica will take necessary measures, described in ANNEX, for smooth implementation of the Project on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

3. Further Schedule

The Team will make the final report in accordance with the confirmed items, and send it to the Government of Dominica by the end of November, 1993.

ANNEX: Necessary measures to be taken by the Government of Dominica in case Japan's Grant Aid is extended.

1. To secure the sites for the Project.

2. To clear and level the sites prior to commencement of the construction.

3. To supply fill and compact areas within the project site at the time shown on the implementation schedule.

4. To ensure the provision to the site for electricity, water, sewage and telecommunication and to provide drainage.

5. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement (B/A).

6 To exempt taxes and duties on all materials and equipment brought for the Project at the port of disembarkation.

7. To take necessary measures to assist in the customs clearance of the material and equipment brought in for the Project at the port of disembarkation.

8. To accord Japanese and other non-Dominican nationals whose services may be required in connection with the supply of the products and services under the verified contract such Work Permit, Residence Permits and Contractual Licences, as may be necessary for their entry into Dominica and stay therein for the performance of their work. And to provide Entry and Residence Permits to the spouses and children of the aforementioned personnel.

9. To exempt the personal effects of all staff of the project and their families from customs duties.

10. To maintain and use properly and effectively, the facilities and equipment under the verified contract.

11. To bear the cost of any additional works and equipment outside the scope of the Project as defined in the project document unless otherwise agreed by both parties.

12. To coordinate and solve any related matters which may arise with third parties and inhabitants living in the Project area during the implementation of the Project.

13. To assign necessary persons and budget for the Implementing Agency (i.e. FDD and DEXIA) to maintain and use properly and effectively the facilities and equipment.

APPENDIX 5 FISHERIES-RELATED DATA

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Operation Result of a New Type FRP Fishery Boat (1992)

Fishery method	No. of fishing operations (times)	Catch
Tuna long-line	87	4,593. kg
Nets	68	3,453. kg
Hand-line, bottom long-line	29	1,014. kg
Total	184	9,060. kg

(Units : EC $)

Sales	91,221.–
Expenditure	44,019.–
Fuel	(32,706.–)
Bait	(4,176.–)
Fishing gear	(7,137.–)
Balance	47,202.–
Boat owner	23,601.–
Crew (3 persons)	23,601.–

(Data from FDD)

Operational Result of an improved fishing boat (1992)

Fishery method	No. of fishing operations (times)	Catch
Nets	76	2,454. kg
Hand-line, bottom long-line, traps	39	903. kg
Trolling	48	2,454. kg
Total	163	2,454 kg

(Data from FDD)

APPENDIX 6 SURVEY RESULTS OF NATURAL CONDITION

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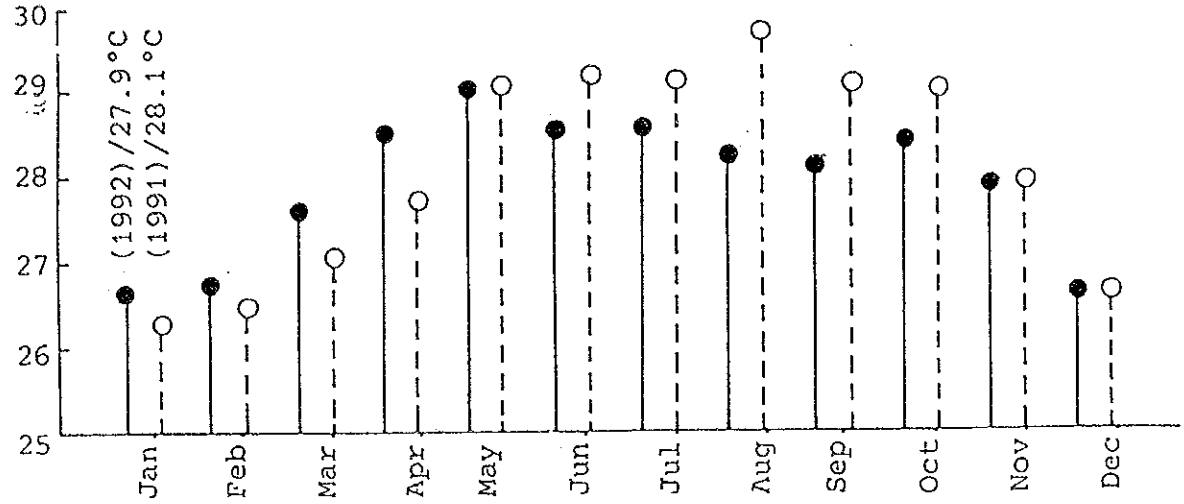
Fig. 1 : Monthly Average Temperature



(Source : Canefield Airport, Dominica)

Fig. 2 : Monthly Average Humidity

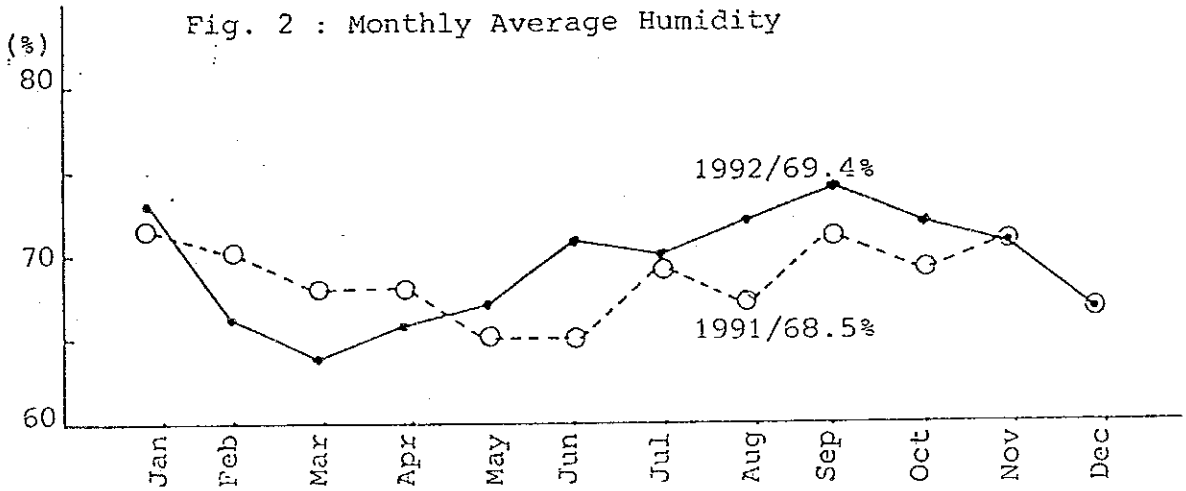


Fig. 3 : Monthly Total Rainfall

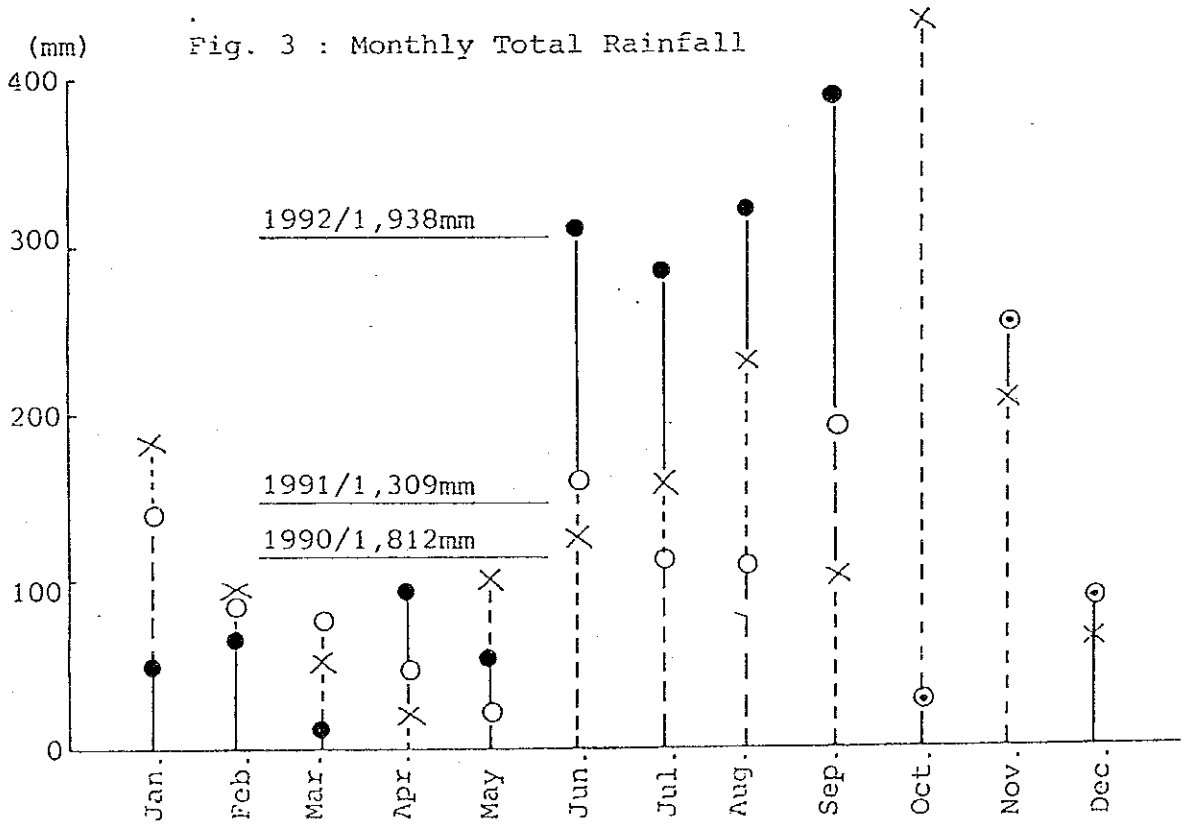


Fig. 4 : Daily Fluctuation of Temperature

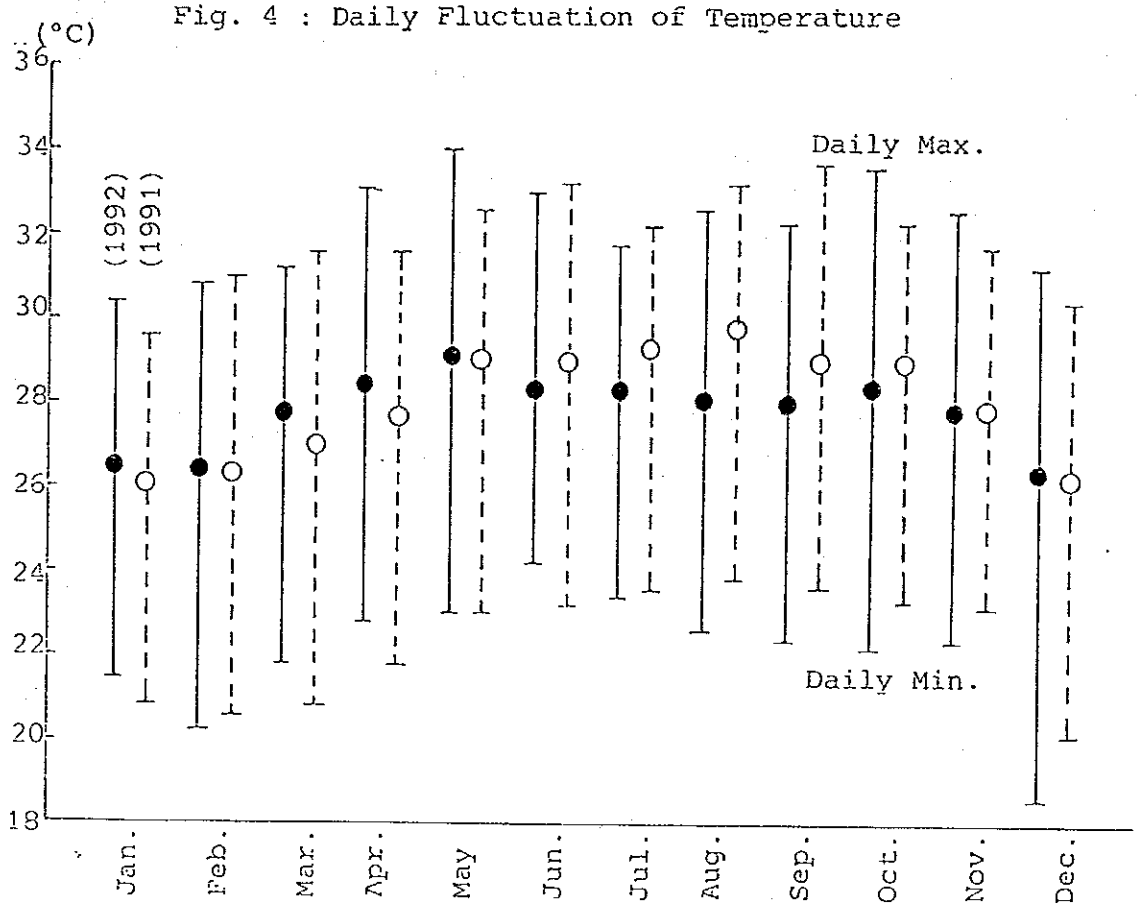
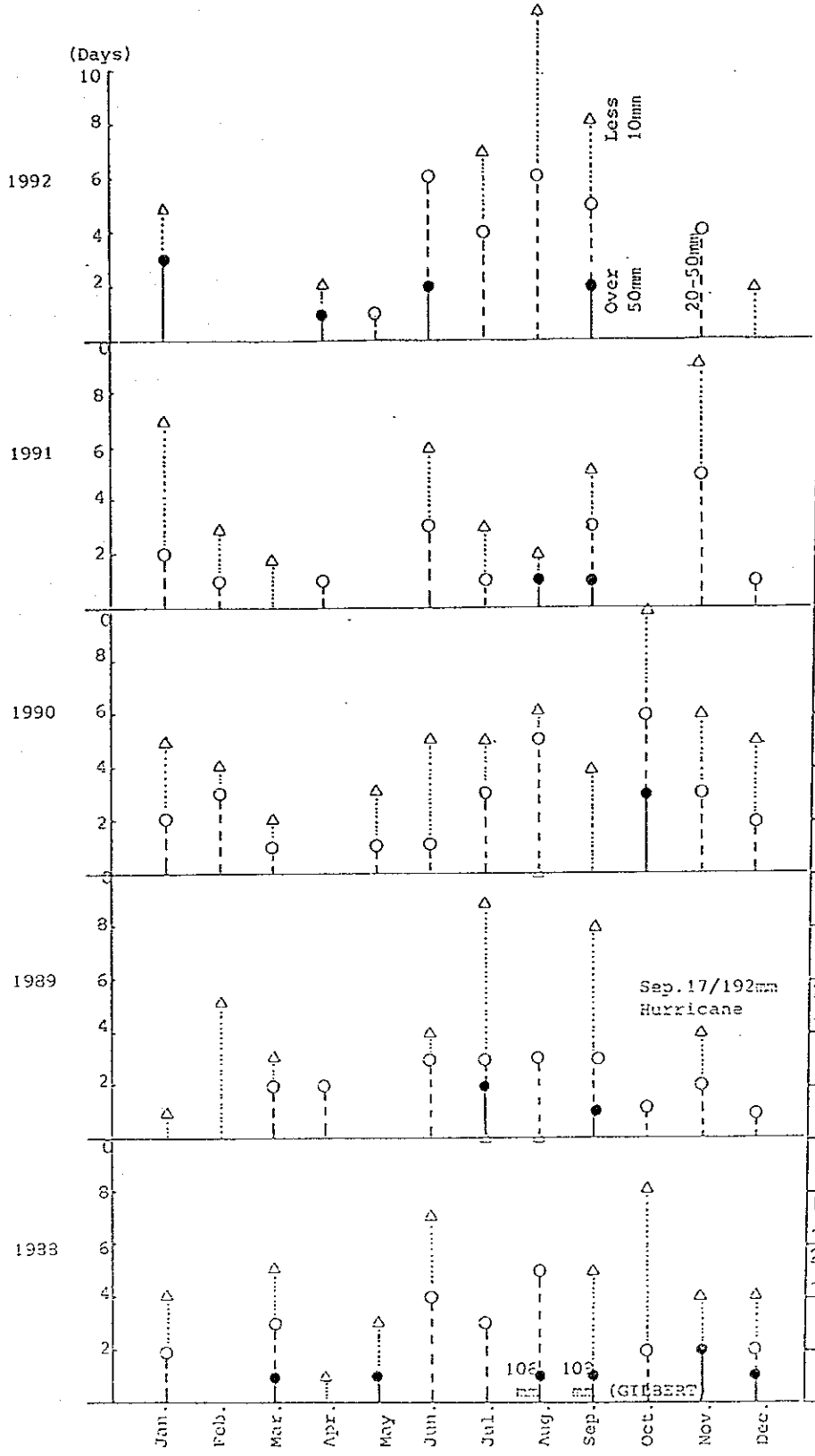


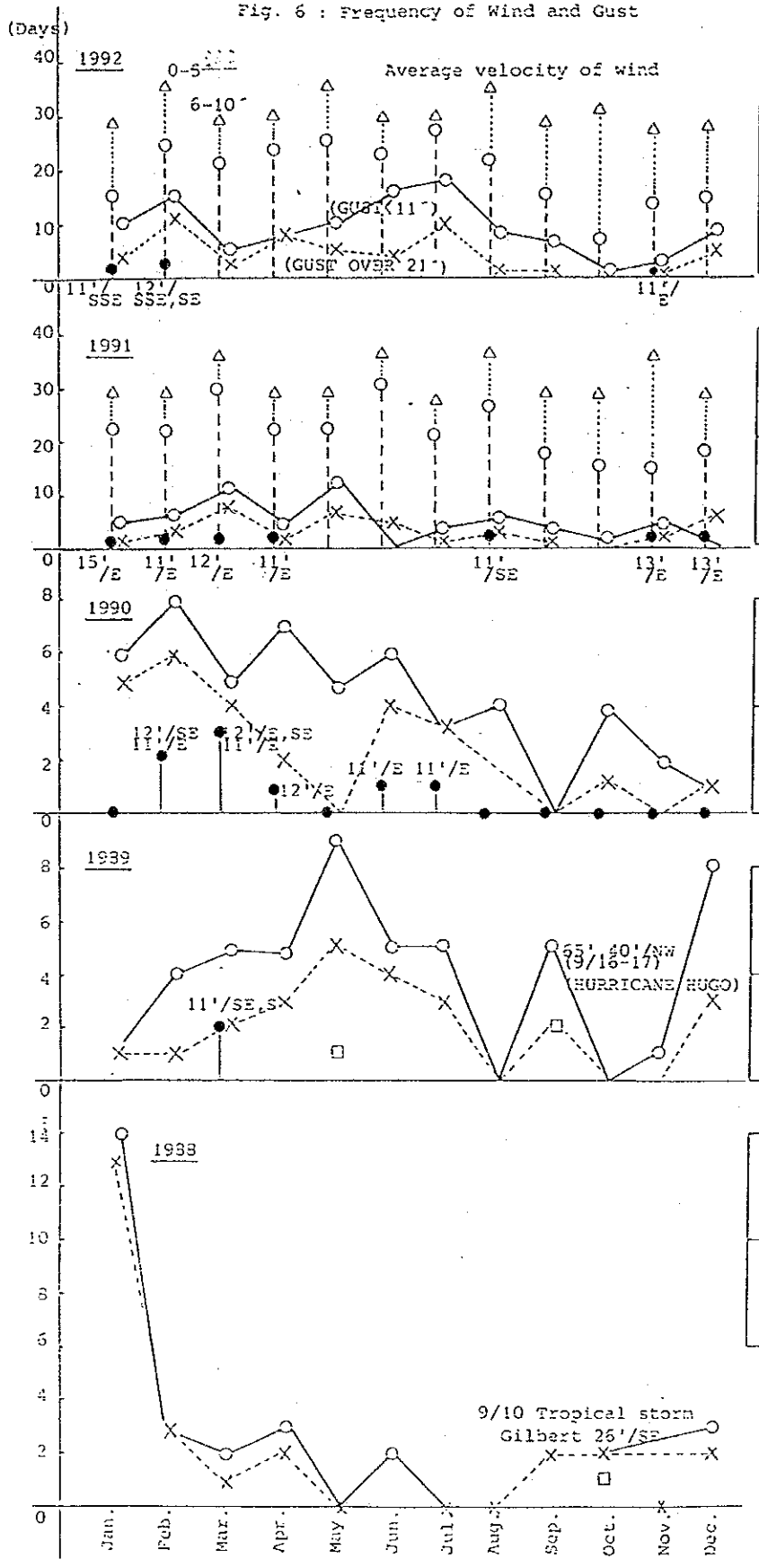
Fig. 5 ; Frequency of Rain Day



DAILY TOTAL

Less 10mm	323	87.1 %
10mm ~20mm	18	4.9 %
20mm ~50mm	25	6.7 %
Over 50mm	5	1.3 %
Total	371	100 %
Less 10mm	325	89.3 %
10mm ~20mm	21	5.8 %
20mm ~50mm	16	4.4 %
Over 50mm	2	0.5 %
Total	364	100 %
Less 10mm	309	84.9 %
10mm ~20mm	28	7.7 %
20mm ~50mm	24	6.6 %
Over 50mm	3	0.8 %
Total	364	100 %
Less 10mm	316	86.8 %
10mm ~20mm	28	7.7 %
20mm ~50mm	17	4.7 %
Over 50mm	3	0.8 %
Total	364	100 %
Less 10mm	303	83.2 %
10mm ~20mm	36	9.9 %
20mm ~50mm	18	4.9 %
Over 50mm	7	2.0 %
Total	364	100 %

Fig. 6 : Frequency of Wind and Gust



		(Days)	(%)
Average	Over 11'	4	1.1
	Over 6'	235	64.9
	0~5'	127	35.1
	Total	362	100
Gust	Over 31'	0	0
	Over 31'	58	52.7
	Over 11'	110	100
	Total	110	

Average	Over 11'	7	1.9
	Over 6'	255	70.2
	0~5'	108	29.8
	Total	363	100
Gust	Over 31'	0	0
	Over 21'	40	63.5
	Over 11'	64	100
	Total	64	

Average	Over 11'	8	2.2
	Total	364	100
Gust	Over 31'	1	
	Over 21'	26	51.0
	Over 11'	51	100
	Total	51	

Average	Over 11'	2	0.5
	Total	364	100
Gust	Over 31'	3	6.3
	Over 21'	24	50
	Over 11'	48	100
	Total	48	

	Over 11'	0	
Gust	Over 31'	1	
	Over 21'	25	78.1
	Over 11'	32	100
	Total	32	

Fig. 7 : Frequency of Wave Direction on Roseau Bayfront

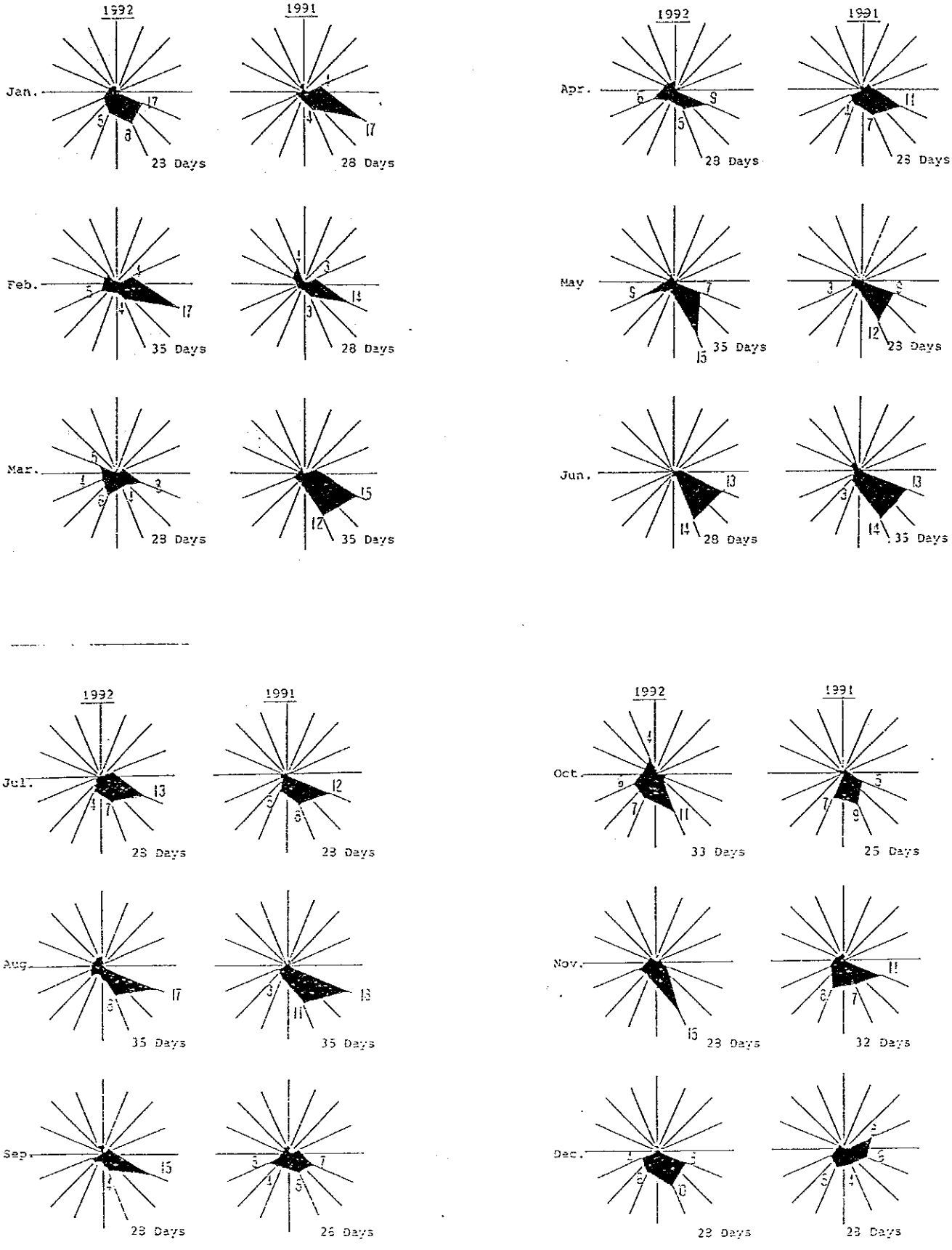
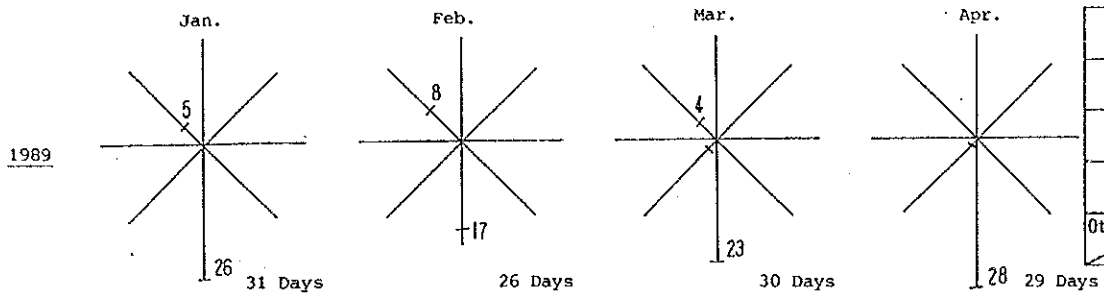
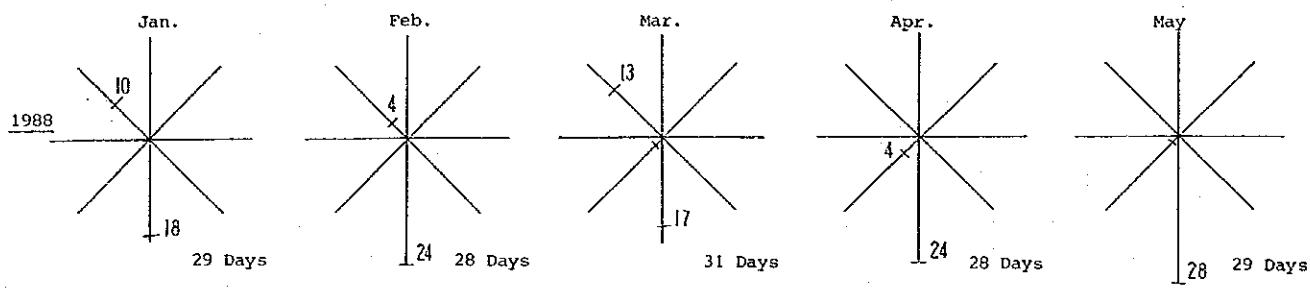
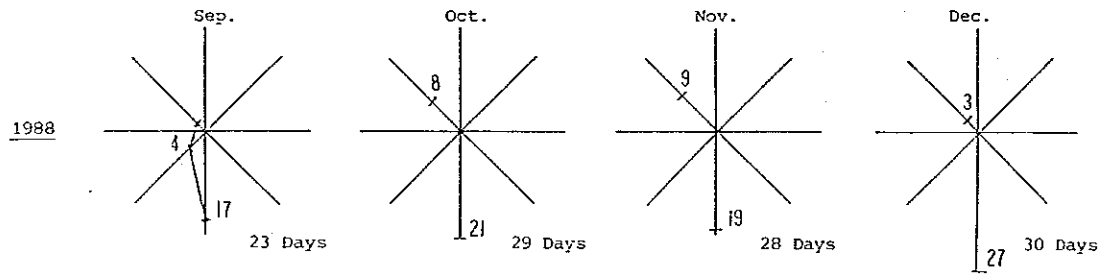


Fig. 8: Frequency of Wave Direction on Roseau



TOTAL N = 489DYS		
S	399	81.6 %
SW	21	4.3 %
NW	68	13.9 %
Other / Total	1 / 489	/ 100





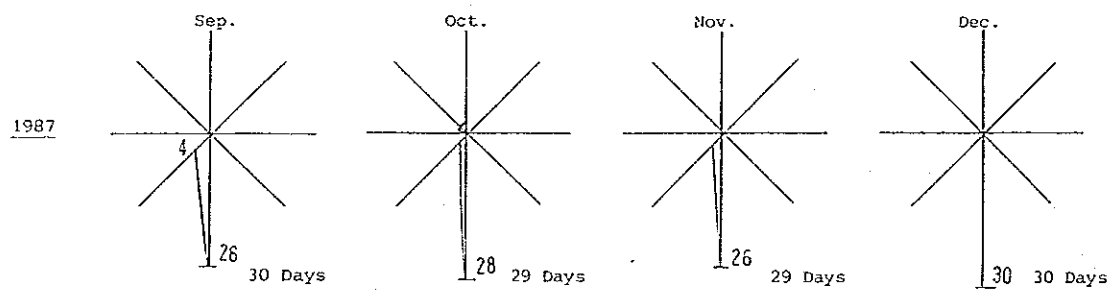
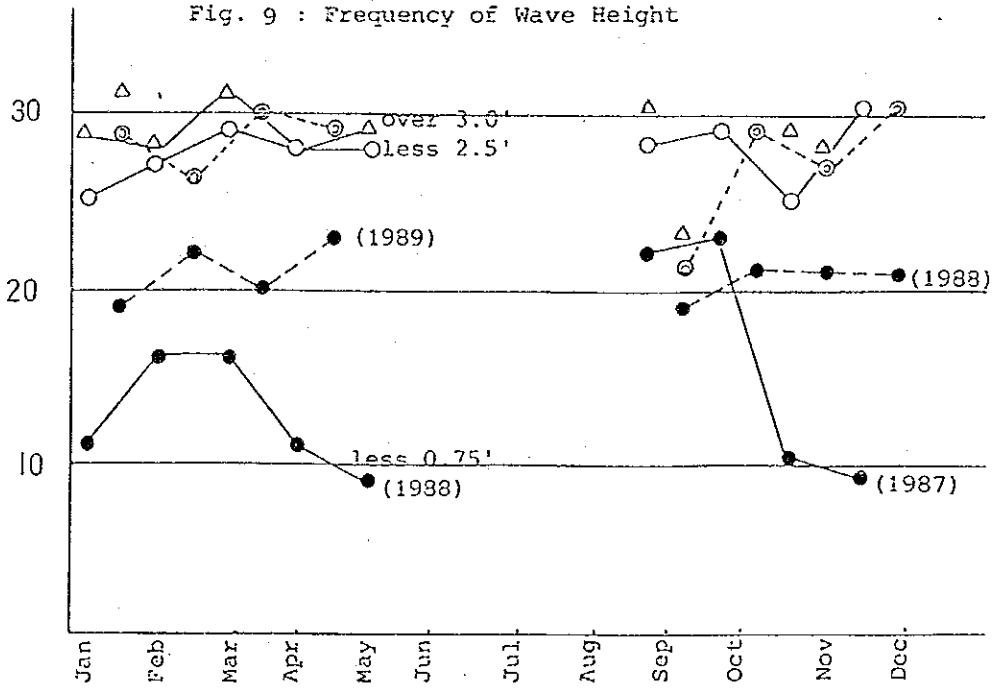


Fig. 9 : Frequency of Wave Height



N = 489 DYS		
Less 0.75′	293	59.9 %
Less 2.5′	470	96.1 %
Over 3′	19	3.9 %

Fig. 10 : Frequency of Wave Period

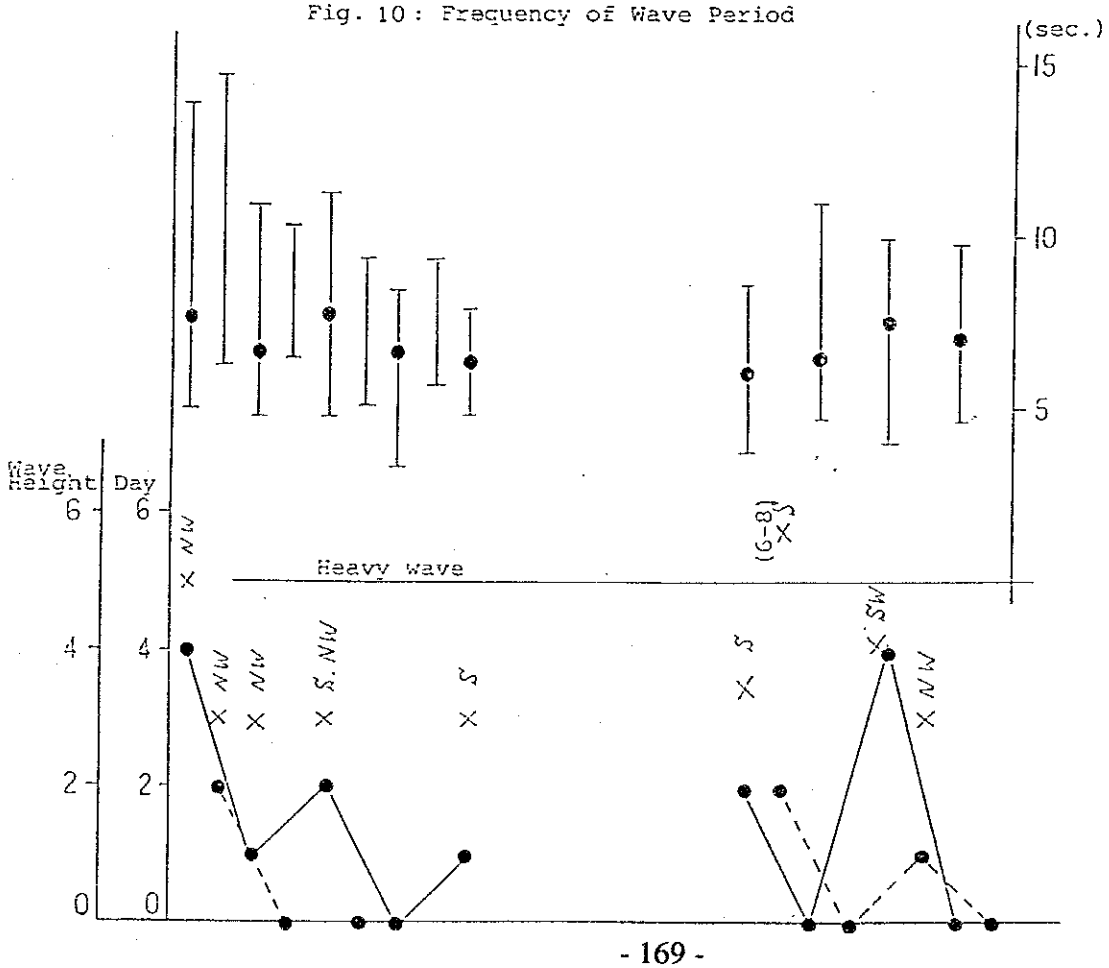


Fig. 11 : Typical Cross Section through Market Seawall

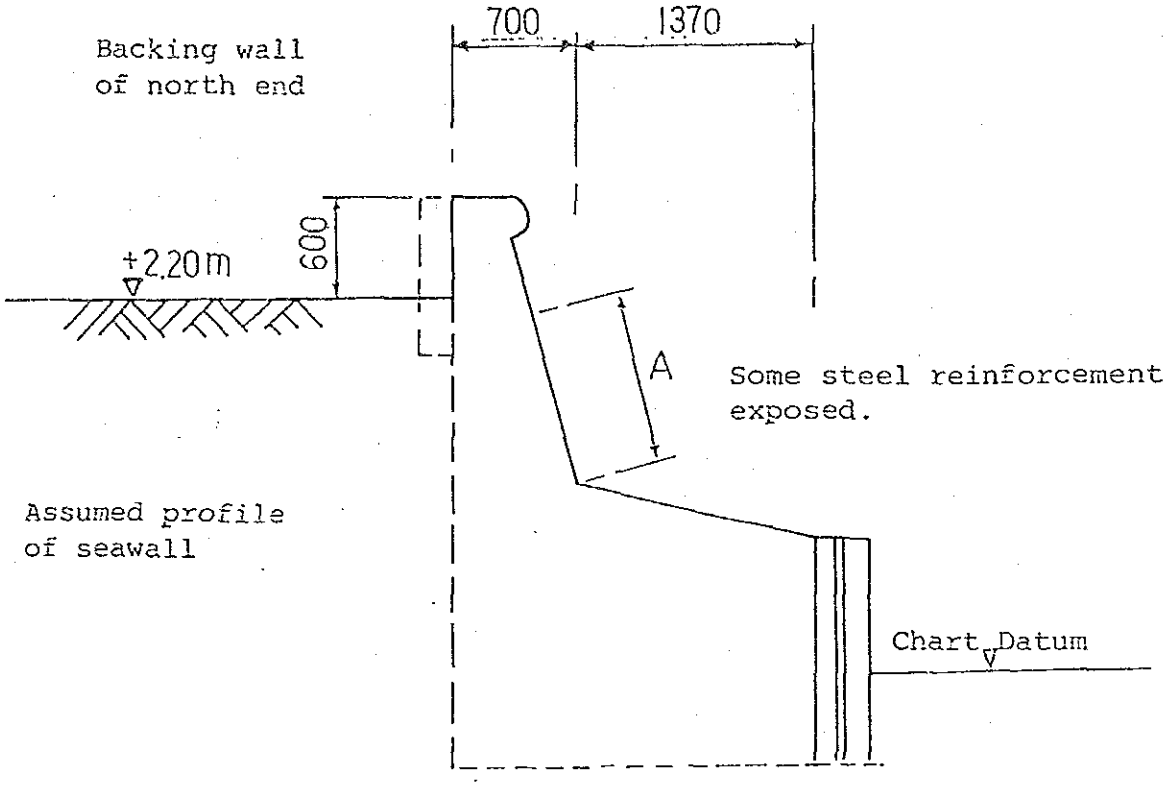
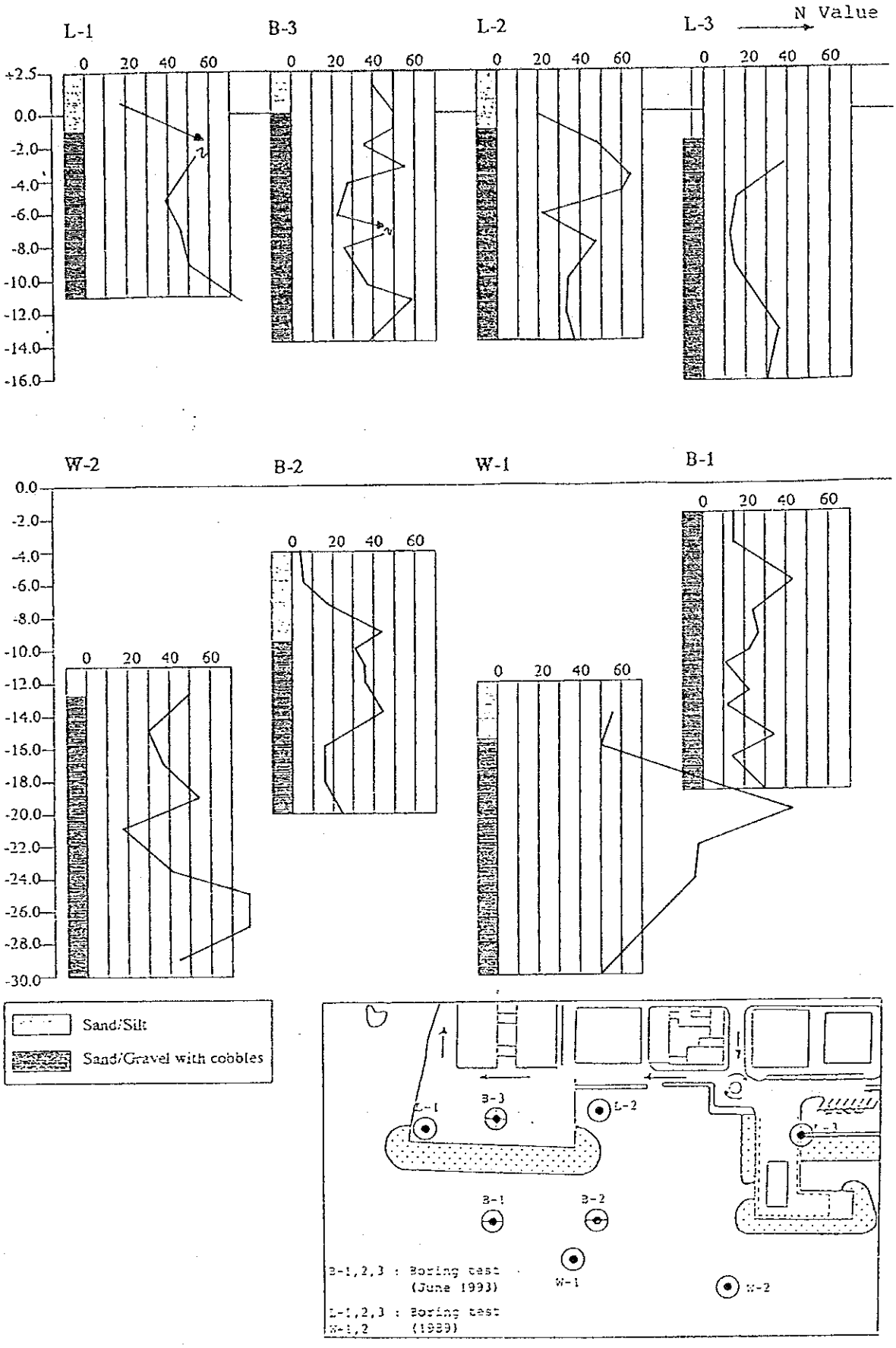


Fig. 12 : Borehole Profiles



Source : Boreholes L-1, L-2, L-3, W-1, W-2 records based on the survey made under Roseau Bayfront Study (1989)
Boreholes B-1, B-2, B-3 records based on the survey under the Basic Design Study of this Project (1993)

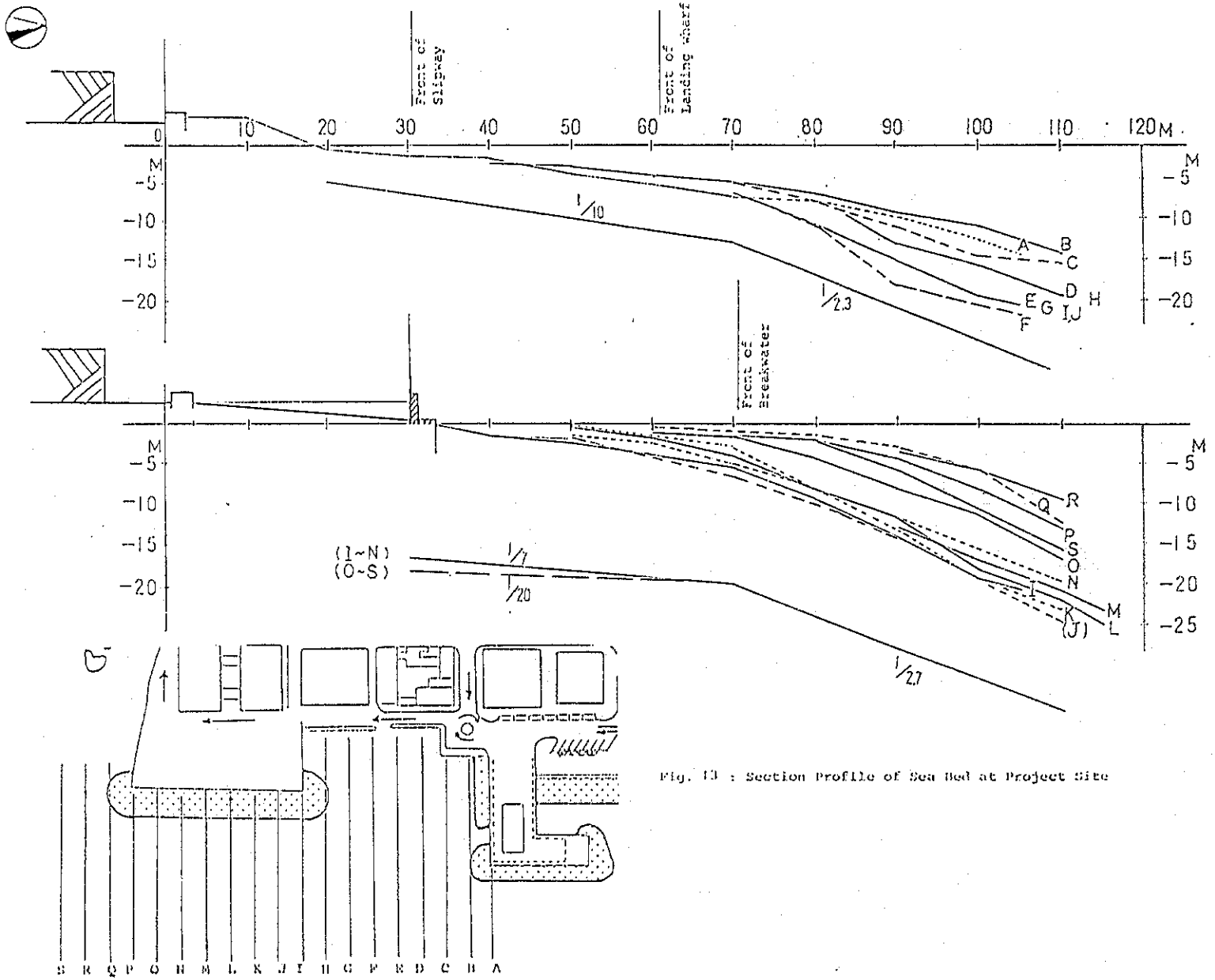


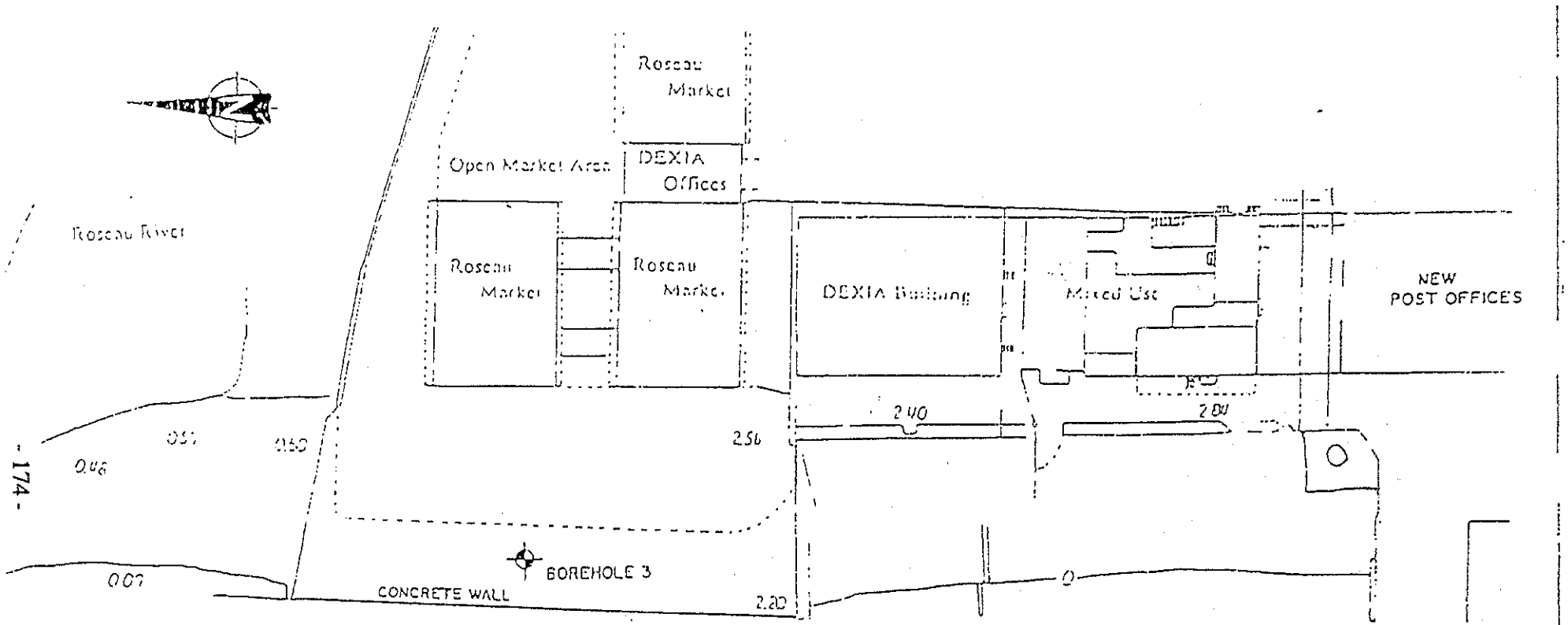
Fig. 13 : Section Profile of Sea Bed at Project Site

Table 1: Laboratory Test Results of Sand and Gravel

Boring	B-2	B-1	B-3
Sample	No.4	No.5	No.3
Depth	8.84m	8.17m	2.59m
Soil Composition	Sand 80% Gravel 20%	Sand 65% Gravel 35%	Sand 45% Gravel 55%
Specific Gravity	2.72	2.65	2.60
Water Absorption Capacity	(19%)	(14%)	(11%)
Bulk Relative Density (t/m^3)	1.75 - 1.90	1.75 - 1.90	1.75 - 1.90

Table 2: Laboratory Test Results of Sea Bed Sediments

Sample No.	1	2	3
Soil Composition	Sand 80% Gravel 20%	Sand 100%	Sand 95% Gravel 5%
Specific Gravity	2.75	2.77	2.77
Water Absorption Capacity	(19%)	(32%)	(22%)
Bulk Relative Density (t/m^3)	1.47 - 1.62	1.47 - 1.62	1.47 - 1.62



PREDOMINANTLY GRAVEL, COBBLES AND BOULDERS

BOREHOLE 1

APPROXIMATE LINE SEPARATING COARSE AND FINE SEA BED MATERIAL

SEA BED SEDIMENT SAMPLE 1

BOREHOLE 2

SEA BED SEDIMENT SAMPLE 3

PREDOMINANTLY SAND, SILT

SEA BED SEDIMENT SAMPLE 2

SPECIAL NOTE
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING REPORT

SCALE 1 : 1000

REFERENCE : PLAN SUPPLIED BY CONSULTING ENGINEERS PARTNERSHIP LTD.

Golder Associates Ltd.

SITE PLAN

FIGURE 2

Appendix 6-2 Current and tide survey result

1. Time-dependent change in observation data

The observation period at Roseau was for the approximately 48 hour period from 12:40 on June 14 to 14:20 on June 16 of this year (1993). During this period, the northwestern current dominated, though the southerly current was seen temporarily and the current velocity was about 10 cm/sec at the maximum. It does not have a close relationship to tidal factors and shows a complicated current condition for 1 ~ 3 hours. The tide mostly changes in tune with a semi-diurnal rhythm or a diurnal rhythm and the tidal range is about 30 cm. However, since observation took place during the neap tide, the values of the current and tide during the flood tide are greater than the values obtained during this observation period.

The observation period at Newtown was for the approximately 72 hour period from 15:10 on June 16 to 16:30 on June 19. However, tidal data is not available after 16:00 on June 18. The current is a round trip current that flows northwest and southeast. The period of the northeasterly current is longer than its counterpart and the average current of the northeasterly current can be recognized. The current velocity is for the most part 10 cm/sec or less which is a faint current, the same as that observed at Roseau. The tide changes mostly according to diurnal rhythms and the tidal range is about 40 cm. When looking at the relationship between currents and tides, the northwesterly current flows during high tide and the southeasterly current flows during low tide, and the current velocity tends to be faster during high tide than during low tide.

The harmonic resolution and calculation of the frequency of the occurrence of current direction/velocity for a day and night was observed at Roseau for the approximately 25 hour period from 14:30 on June 17 to 14:40 on June 15 and at Newtown for the approximately 25 hours from 14:30 on June 17 to 15:40 on June 18. Time-dependent change of each current and tide during those periods are indicated below.

2. Maximum current velocity

At Roseau, the northwesterly current is 18.8 cm/sec and the southerly current is 10.1 cm/sec while at Newtown the northwesterly current is 8.6 cm/sec and the east-southeasterly current is 7.0 cm/sec. This indicates that current velocity tends to be higher at Roseau.

3. Frequency of occurrence of current direction/velocity

At Roseau, 96% of measured current velocity is 10 cm/sec or less and northwesterly currents and southerly currents tend to be stronger than currents in other directions. The northwesterly and west-northwesterly currents dominate, with a frequency of 33.6% and 20.4%, respectively. For southerly currents, the south-southeasterly current occurs with the greatest frequency, at 10.5%, thus frequency of occurrence tends to incline to the south. At Newtown, all measured current velocity is 10 cm/sec or less and differences in current velocity in each direction are not significant. Northwesterly currents dominate, accounting for 44.1% of all measurements. Regarding southerly currents, the occurrence of east-southeasterly and southeasterly currents account for 13.2% and 11.2% of measured values, respectively, but the occurrence ratio is lower than that of northerly currents.

4. Twenty four hour harmonic resolution of current

When looking at elliptical elements of each diurnal rhythm tide group, semi-diurnal rhythm tide group and quarter-diurnal rhythm tide group, the semi-diurnal rhythm current group dominates at both observation points and the current velocity is 4.5 ~ 4.8 cm/sec, which is nearly the same at both points. Also, the average current is 2.0 ~ 2.4 cm/sec, indicating the same tendency. According to the elliptical current figure, the longer axis of the ellipse which is the dominant semi-diurnal rhythm tide is to the northwest and the shape of the ellipses is flat, indicating the form of the round trip current in the northwest and southwest directions. However, the average current in west-northeast ~ northwest direction exists, the period of the northwest side current direction becomes longer. This tendency is the same at both observation points.

Using the harmony constant of the tide at Woodbridge (15' - 19'N, 61' - 24'W) and assuming the amplitude ratio and delay angle difference of the harmony constant at each observation point is the same, the harmony constant of the 6 major tides were found by revision calculation and they are shown in the twenty four hour harmonic resolution result table below. At both points, the M2 tide of the diurnal rhythm element dominates and the long axis current velocity is about 4 5 cm/sec. Also, because of the relation to the delay angle of tide M2, the indication is that the northwesterly current becomes the strongest 3 ~ 4 hours before high tide.

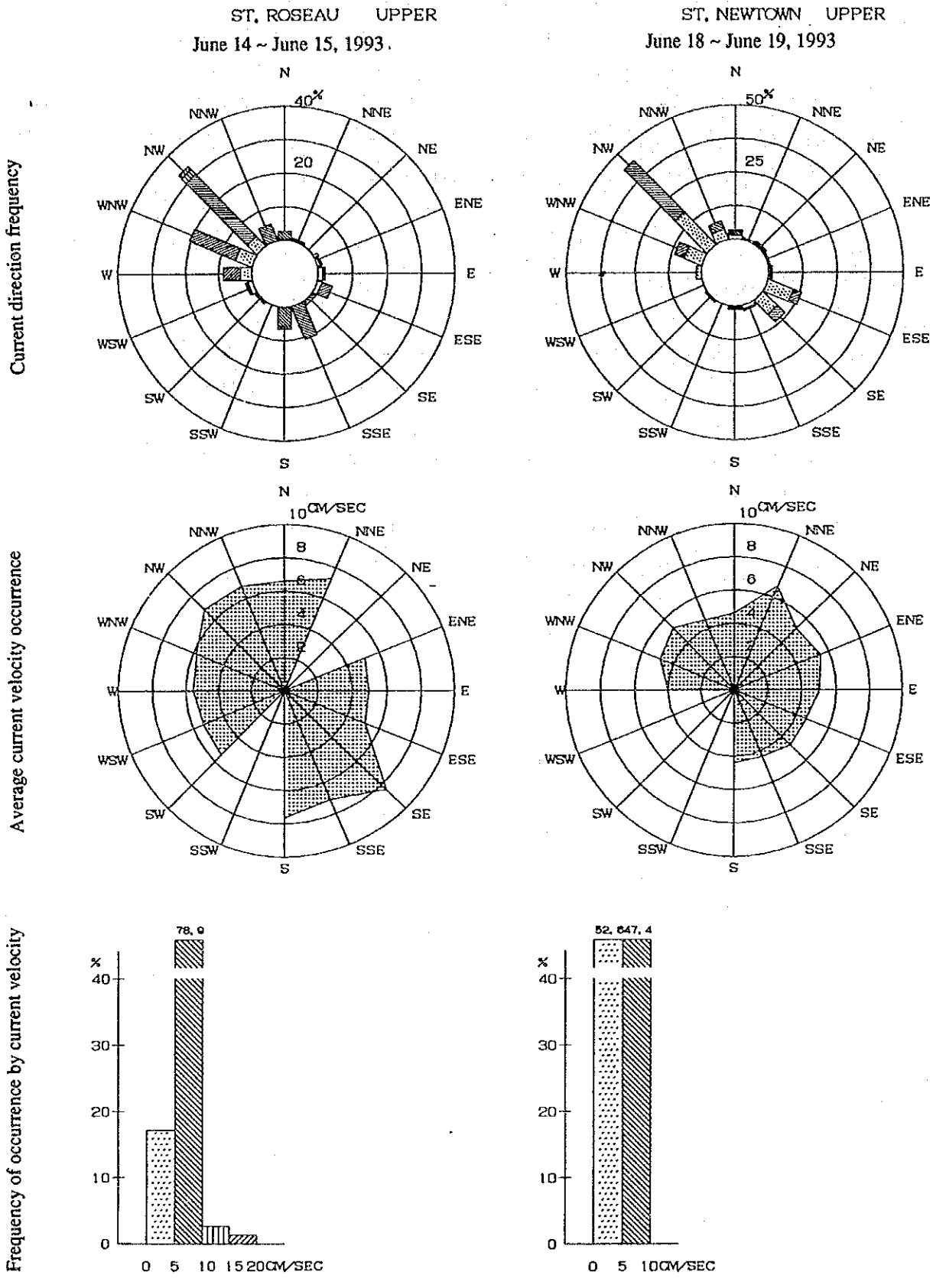
5. Twenty four hours harmonic resolution of tide

According to the harmony resolution of tide, at Roseau the amplitude of diurnal rhythm tide group is 9.4 cm and that of semi-diurnal rhythm tide group is 7.4 cm. Also, at Newtown the amplitude of the diurnal rhythm tide group is 15.2 cm and that of semi-diurnal rhythm tide group is 6.5 cm. The diurnal rhythm tide group is therefore greater at both points. In the same manner used for the current, the harmony constant of the 6 major tides were found by revision calculation using the tide harmony constant of Woodbridge.

At Roseau, the amplitude of the M2 tide of the semi-diurnal rhythm element is 8.0 cm, and the K1 and 01 tides of the diurnal rhythm element are 7.0 cm and 5.6 cm, respectively.

At Newtown, the amplitude of the M2 tide of semi-diurnal rhythm element is 6.2 cm, and the K1 and 01 tides of the diurnal rhythm element are 7.5 cm and 6.0 cm, respectively.

As explained above, the fluctuation tendency is different for currents and tides. Regarding currents, changes due to semi-diurnal rhythms represented mainly by M2 dominate. On the other hand, regarding tide the indication is that change occurs as a result of a mixture of the diurnal and semi-diurnal rhythm elements.

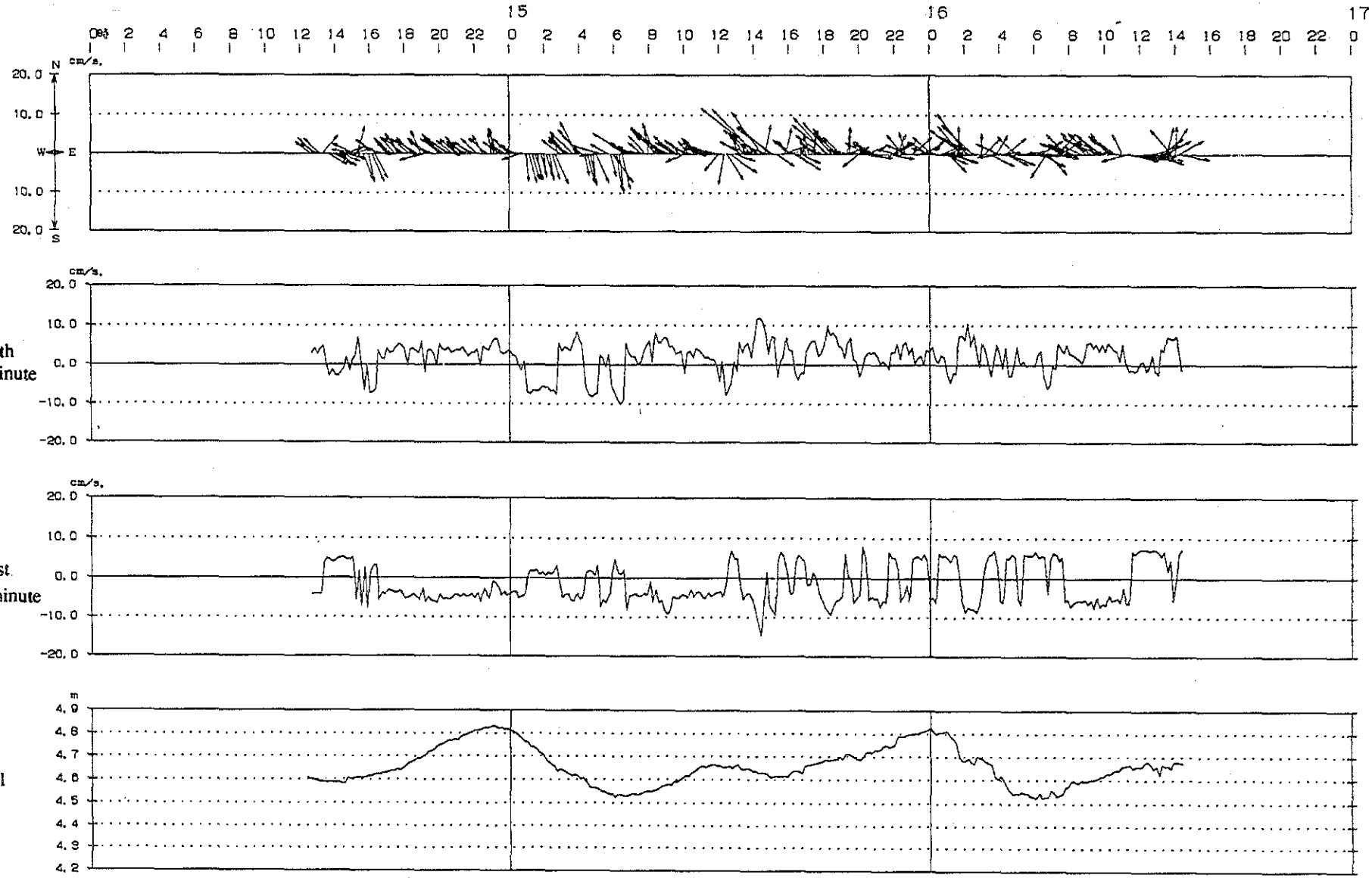


DOMINICA

Fig. Frequency of current situation

Area : DOMINICA Observation point: ROSEAU Observation: UPPER layer

June 14, 1993

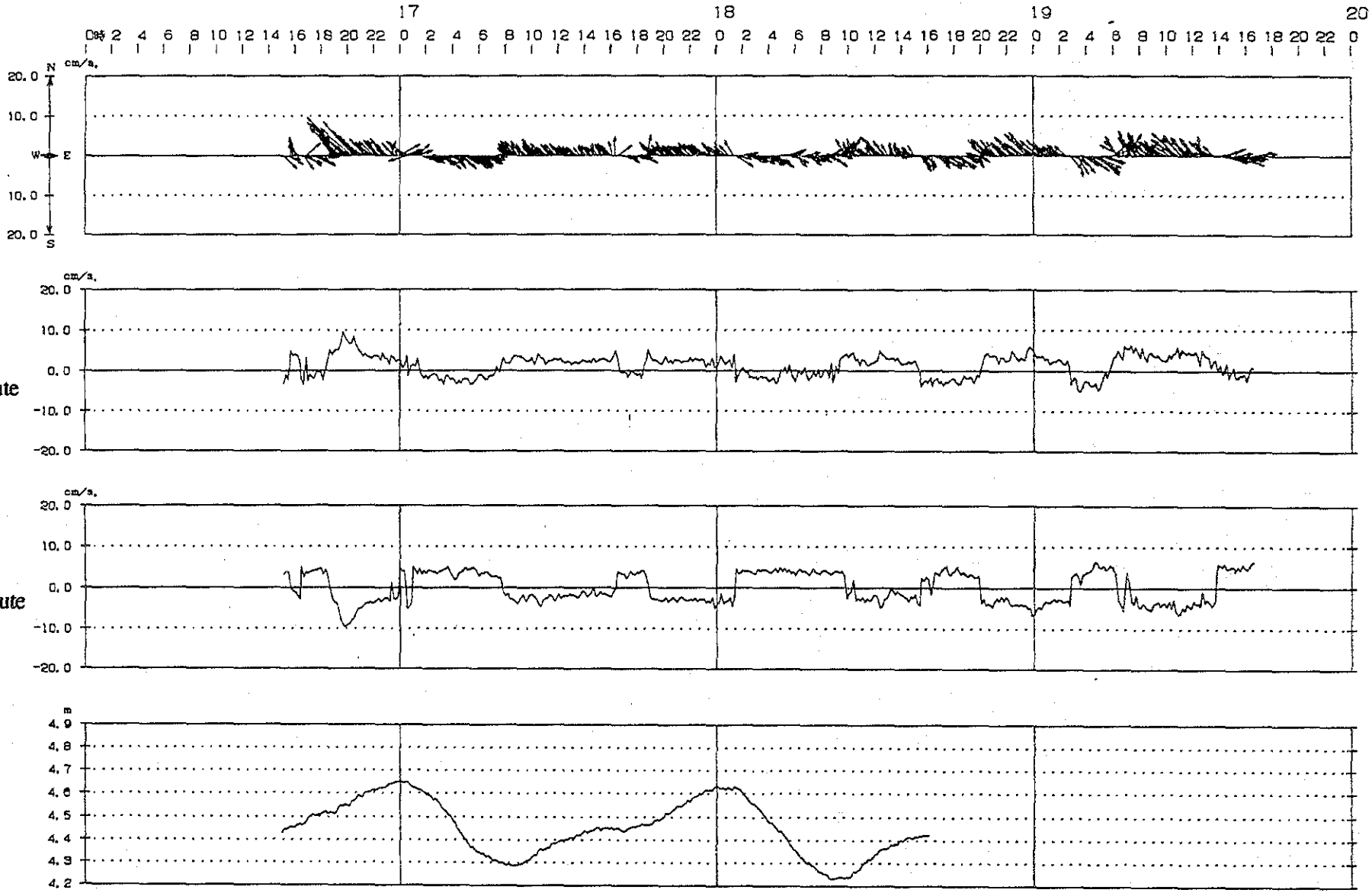


Time-dependent change of observation data

Area : DOMINICA
June 16, 1993

Observation point : NEWTOWN

Observation layer : UPPER



Time-dependent change of observation data