see ROSCOP 3056

MARINE SEDIMENTATION RESEARCH GROUP
DEPARTMENT OF GEOLOGY
BRISTOL UNIVERSITY

CRUISE FR.3.85 14-29th March.1985

CRUISE REPORT

Area of Study :

The Western Approaches to the English Channel , south of the Scilly Isles.

Objectives of Study :

To examine the transitional sequence of bedforms occuring along a traverse from the South Western Approaches into the Western English Channel. Bedform distribution maps of the area show a central zone of sand patches with adjacent zones of rippled sand sheet to the West and large sand waves to the East. The upper and lower threshold conditions for the formation of these sand patches was examined by measuring the flow conditions close to the seabed using both recording and ultrasonic current meters and Bristol University's Velocity Gradient Units. Use was also made of sidescan sonar, sediment sampling, seabed photography and TV survey.

Cruise Objectives Achieved :

(i) Velocity Gradient Unit Stations ; Fig 1, Table A.

The first two stations occupied (CM1, CM2) were Velocity Gradient Unit deployments Each VGU frame was fitted with one vertically mounted time lapse cine camera and flash system and one shadow casting frame. The first, CM1 was fitted with a spine with 3 'Aanderaa' rotors at heights of 1.66m, 1.0m and 0.29m connected to a dedicated logger mounted on the frame The CM2 frame was fitted with a spine with five 'Draystoke' impellors mounted at heights of 0.14m, 0.29m, 0.40m, 0.50m and 1.6m, connected to a similar logging unit. An additional obliquely mounted cine camera system was fitted to this second frame.

Due to mechanical problems with the rotors and impellors fitted to the frames the data sets colected were incomplete. On CM1, of the three Aanderaa rotors two performed satisfactorily whilst the middle rotor at U100 produced only intermittent readings. On CM2, of the five impellors mounted on the frame, the 1.6m impellor worked only intermittently whilst the 0.29m impellor did not work initially but began to work intermittently towards the end of the deployment.

Above each VCU was mounted a single 'Aanderaa' recording current meter (RCM4).

(2) Single Line Current Meter Stations ; Fig 1, Table A.

Five deployments of single line current meter moorings were made at four sites. (CM3, CM4(CM7), CM5, CM6). Each freefall, accustic release current meter mooring carried one UCM2 mounted at a height of 1m and one 'Aanderaa' (RCM4) at a height of 2.5m.

The sampling rates for the RCM4 current meters were:

CM1 to CM7: Continuous count recorded at two minute intervals.

The sampling rates for the UCM2 current meters deployed on CM3, CM4, CM5, CM6 and CM7 were ;

CM3 + CM6: 16 instantaneous measurements made at one and a half second intervals in ten minute cycles

CM5: 200 instantaneous measurements made at one and a half second intervals at one hourly intervals.

CM4: 400 instantaneous measurements made at one and a half second intervals at one hourly intervals.

CM7: Continuous instantaneous measurements at one and a half second intervals for approximately twelve hours

In all, some 2067 hours of current metering data were collected.

(3) Sidescan Sonar ; Fig 2, Table B.

Two separate sidescan sonar survey lines were run across the study area using an 'EG-G 270' dual scan fish, covering some 120 miles of track.

(4) Sediment Samples ; Fig 1, Table B.

? 46 (47) surface sediment samples were retrieved at selected sites using a Shipek Grab. Seven of these were to relate specifically to the current metering stations or photographic stations concerned with the sand patch development study. The remaining forty samples were gathered to fill gaps in the sediment sample distribution grid produced by the Bristol group during its long term study of the sedimentology of the Celtic sea area.

(5) Stereo Photography ; Fig 1, Table C.

140 stereo seabed photographs were taken using a UNEL 35mm underwater camera system at nine stations.

(6) TV and Mono Photographic Stations; Fig 1, Table C.

A 'Benthos' mono TV system was deployed on four stations to give a visual bottom survey recorded on video. The TV rig was also fitted with a mono still camera operated from onboard ship. This allowed photographs to be taken on a more selective basis, in all around 520 photographs were taken.

PERSONNEL

PSO	:	D.Hamilton (Dr)
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TABLE 1 : Current Meter Stations.

TABLE 2 : Sediment Stations.

TABLE 3 : Photographic Stations.

TABLE 4 : Sidescan Sonar Tracks.

TIMETABLE : (14th - 29th MARCH 1985)

THURS 14th . Leave Falmouth

FRI 15th : Deployed CM1, CM2 and CM3.

SAT 16th : Bad weather, have to.

SUN 17th . Deployed CM6, CM5 and CM4. Shipek grabs and camera stations at CM6, CM5 and CM4. First sidescan survey begun 20.40

MON 18th . Sidescan survey completed at 10.00. Shipek and camera stations at end of survey line and on sites of CM1, CM2 and CM3. Further Shipek and camera stations occupied until 21.00 when bad weather forced a return to Falmouth.

TUES 19th : 09.00 docked in Falmouth to refuel and take on water. Left Falmouth 12.00. On arrival at field area grab sampling resumed.

WEDS 20th : Shipek grab sampling carried out until 00 00 when bad weather forced a return to Falmouth.

THURS 21st : Falmouth.

FRI 22nd . Falmouth.

SAT 23rd : Left Falmouth to recover CM4, arrived on station 10 30, recovered CM4 fitted new tape to VCM and redeployed rig as CM7 on same site as CM4. TV station.

SUN 24th : Two TV stations occupied. Sidescan deployed 15.00 hours.

MON 25th : Sidescan survey completed at 02.00 hours. Shipek grabs and camera stations occupied. TV station.

TUES 26th . Shipek grabs until recovery of CM6, CM5, CM7, CM3 and CM2.

WEDS 27th : Recovery of CM1 followed by shipek grab and camera stations.

THURS 28th : Shipek grab sampling until 02.00.Arrive Falmouth 09.00

FRI 29th : Depart Falmouth for Bristol

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TABLE A CURRENT METER STATIONS

METER TYPE	STATION No.	CM No.	LATITUDE	LONGTITUDE	DEPTH	DATE DEPLOYED	DATE RETRIEVED	HRS. DEPLOYMENT	SAMPLING RATE (int.)	NO. MEASUREMENTS	TIDES
V.G.U.	B3628	CM1	49°29'.08N	05°14.00'W	100m	15/3/85	27/3/85	285hrs.17min	2 mins.	8558	FLOOD
V.G.U.	B3629	CM2	49.30'.50N	05°25.0'W	96m	15/3/85	26/3/85	267hrs.18m.	2 mins	8019	FLOOD
RCM 4	B3628	CM1	49°29'.08N	05°14.0'W	100m	15/3/85	27/3/85	285hr.17m.	2 mins	8558	FLOOD
RCM4	B3629	CM2	49°30'.50N	05°25.0'W	96m	15/3/85	26/3/85	267hr.18m.	2 mins	8019	FLOOD
RCM4	B3630	CM3	49°.30'.0N	05°52.8'W	110m	15/3/85	26/3/85	258hr.20m.	2 mins	7750	FLOOD
RCM4	B3631	CM6	49°29'.08N	06°39.0'W	110m	17/3/85	26/3/85	216hr.41m.	2 mins	6500	EBB
RCM4	B3632	CM5	49°.30'.00N	06°29.0'W	110m	17/3/85	26/3/85	216hr.11m.	2 mins	6485	FLOOD
RCM4	B3633	CM4	49°.30'.50N	06°10'25W	110m	17/3/85	22/3/85	122hr.44m.	2 mins	3682	FLOOD
RCM5	B3661	CM7	49°.30'.60N	06°9.80W	108m	23/3/85	26/3/85	067hrs.20min	2 mins	2020	FLOOD
UCM2	B3630	CM3	49°30'.0N	05°52.8'W	110m	15/3/85	26/3/85	258hrs.20m.	for 24 secs 16 @ 1.5sec.every 10 mins	27,387	EBB
UCM2	B3631	CM6	49°29.08'N	06°39.0'W	110m	17/3/85	26/3/85	216hrs.41m.	24 secs every 10m. 16meas. 1.5 sec.int.	20,801	EBB
UCM2	B3632	CM5	49°30.00N	06°29'44W	110m	17/3/85	26/3/85	216hrs.11m.	200 @ 1.5sec int. = 5mins every hr.	30,000	FLOOD
UCM2	B3633	CM4	49°30'.50N	06°10'62W	110m	17/3/85	22/3/85	122hrs.44m.	400 @ 1.5sec int. = 10 mins every hr.	30.000	FLOOD
UCM2	B3661	CM7	49°30.60N	06°10'71W	108m	23/3/85	26/3/85	067hrs.20m.	CONTINUOUS SAMPLING	30,000	FLOOD
								T2867hr.42m.		157,779	

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TABLE B. SEDIMENT STATIONS PAGE 1

STATION No.	LATITUDE	LONGITUDE	DATE	DEPTH	No. ATTEMPTS
B3634	49°30.80'N	06°08.33'W	17/3/85	110 m	1
B3636	49°30.45'N	06°28.80'W	17/3/85	110 m	3
B3638(CM6)	49°30.40'N	06°39.00'W	17/3/85	110 m	1
B3640	49°30.10'N	05°03.27'W	18/3/85	95 m	1
B3642	49°29.71'N	05°14.28'W	18/3/85	100 m	1
B3644	49°29.84'N	05°25.0'W	18/3/85	110 m	2
B3646	49°27.85'N	05°55.60'W	18/3/85	105 m	1
B3647 ST.	49°29.25'N	05°42.12'W	18/3/85	105 m	5 COMP
				110 m	of 5
B3649	49°31.60'N	05°45.00'W	18/3/85	107 m	4
B3650	UNSUCCESSFUL	UNSUCCESSFUL			4
			SHIPEK	broken!	
B3651	49°19.50'N	04°57.26'W	19/3/85	98 m	1
B3652	49°19.30'N	05°13.60'W	19/3/85	102 m	8
B3653	49°19.55'N	05°20.40'W	19/3/85	103 m	4 COMP 2
B3654	49°19.43'N	05°28.46'W	19/3/85	105 m	4 COMP 3
B3655	49°19.40'N	05°35.65'W	19/3/85	105 m	3 COMP 3
B3656	49°19.70'N	05°42.91'W	19/3/85	100 m	4 COMP 4
B3657	49°19.60'N	05°57.50'W	20/3/85	110 m	1
B3658	49°20.10'N	06°05.10'W	20/3/85	110 m	1
B3659	49°18.00'N	06°35.40'W	20/3/85	123 m	6
B3660	49°28.90'N	06°27.40'W	20/3/85	110 m	12
B3665	49°30.50'N	06°06.70'W	25/3/85	120 m	2
B3666	49°34.80'N	07°29.30'W	25/3/85	135 m	1
B3667	49°34.60'N	07°38.0'W	25/3/85	135 m	3
B3668	49°45.34'N	07°37.0'W	25/3/85	135 m	3
B3669	49°49.60'N	07°46.00'W	25/3/85	130 m	5
B3670 ST. FIN.	44.80.0'N	07°20.00'W	25/3/85	116 m	7 COMP 7
B3671	49°39.90'N	07°01.00'W	26/3/85	112 m	2 COMP 2
B3672	49°44.70'N	06°51.75'W	26/3/85	92 m	4
B3673	49°39.97'N	06°50.55'W	26/3/85	106 m	2
B3676	49°39.47'N	06°33.50'W	26/3/85	98 m	1
B3677	49°30.12'N	06°27.73'W	26/3/85	104 m	1
B3678	49°20.20'N	06°35.00'W	26/3/85	112 m	1
B3679	49°43.20'N	05°59.00'W	26/3/85	108 m	1
B3681	49°20.10'N	05°22.80'W	27/3/85	100 m	1
B3682	49°35.0'N	05°57.50'W	27/3/85	100 m	1
B3683	49°40.40'N	05°57.69'W	27/3/85	95 m	3
B3684	49°40.56'N	05°42.75'W	27/3/85	90 m	1
B3685	49°40.30'N	05°27.50'W	27/3/85	91 m	2
B3686	49°40.49'N	05°19.67'W	27/3/85	90 m	1
B3687	49°40.50'N	05°12.86'W	27/3/85	90 m	2
B3688	49°44.80'N	05°12.84'W	27/3/85	90 m	3
B3689	49°49.95'N	05°43.0'W	27/3/85	84 m	1
B3690	49°50.00'N	05°27.5'W	27/3/85	83 m	1
B3691	49°50.40'N	05°13.29'W	28/3/85	85 m	1
B3692	49°49.90'N	05°05.00'W	28/3/85	83 m	1
B3693	49°49.90'N	04°57.50'W	28/3/85	80 m	1

Total: 46 Sediment Stations.

118 attempts made = average 2.51 attempts per successful sample.

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TABLE C — PHOTOGRAPHIC STATIONS — PAGE 1 of 2

NEGS.	TYPE	STATION NO.	LATITUDE	LONGTITUDE	DATE	DEPTH	No. FRAMES	TIDE
M101 S201	1	B3635 (CM4)	49°29.97N	06°07.0'W	17/3/85	110m	14	FLOOD
M102 S202	1	B3637 (CM5)	49°29.5'N	06°29.0'W	17/3/85	110 m	14	EBBING TO SOUTH
M103 S203	1	B3639 (CM6)	D.49°29.8'N U.49°28.6'N	06°38.7'W 06°40.20'W	17/3/85 17/3/85	110 m	15-16	EBBING TO S.W.
M104 S204	1	B3641	49°30.60'N	05°04.11'W	18/3/85	100 m	20	EBBING
M105 S205	1	B3643	49°30.25'N	05°14.30'W	18/3/85	100 m	20	FLOODING TO E.
M106 S206	1	B3645 ~1 mile N. CM2	49°30.30'N	05°25.0'W	18/3/85	110 m	20	FLOOD TO EAST
M107 S207	1	B3648	49°30.25'N	05°52.3'W	18/3/85	105-110m	13	EBB
M108 S208	1	B3674	49°28.70'N 49°29.67'N	06°37.0'W	25/3/85	115 m	16	FLOOD TO E.
M109 S209	1	B3680	49°37.60'N	05°13.2'W	27/3/85	100 m	15	EBB TO W.
	2	B3662	U.49°32.75'N D.49°30.85'N	06°11.09'W 06°09.74'W	23/3/85	108-110	117	FLOOD TO E.
	2	B3663	49°31.15'N	05°27.3'W	24/3/85	100 m	120	EBB SE TO SW
	2	B3675	49°28.5'N	06°40.0'W	25/3/85	112 m	83	EBB TO SW
	2	B3664	D.49°28.60'N U.49°29.17'N	05°14.69'W 05°15.37'W	24/3/85	100 m	~100?	EBB to W.

KEY TO TYPES:

1 35 mm Stereo Stills
2 35 mm Oblique Stills
3 T.V. - video tape
4 Super 8 Time lapse cine

D = DOWN POSITION

U = UP POSITION

TABLE C PHOTOGRAPHIC STATIONS

NEGS	TYPE	STATION NO.	LATITUDE	LONGITUDE	DATE	DEPTH	No. FRAMES	TIDE
	3	B3662	49°32.75'N 49°30.85'N	06°11.09'W 06°09.74'W	23/3/85	108- 110 m	1 Tape	FLOOD
	3	B3663	49°31.15'N	05°27.3'W	24/3/85	100 m	1 tape	EBB
	3	B3664	49°28.6'N 49°29.17'N	05°14.69'W 05°15.37'W	24/3/85	100 m	1 tape	EBB
	3	B3675	49°28.50'N	06°40.0'W	25/3/85	112 m	1 tape	
	4	B3628	49°29.08'N	05°14.0'W	15/3/85	100 m	3600	N/A
	4	B3629	49°30.5'N	05°25.0'W	15/3/85	96 m	vertical 3600	N/A
	4	B3629	49°30.5'N	05°25.0'W	15/3/85	96 m	oblique 3600	N/A

TOTALS:

35 mm stills; stereo: 148 frames

35 mm stills; oblique: ~520 frames

Super 8 cine: time lapse 10,800 frames

Video: 4 hrs of tape

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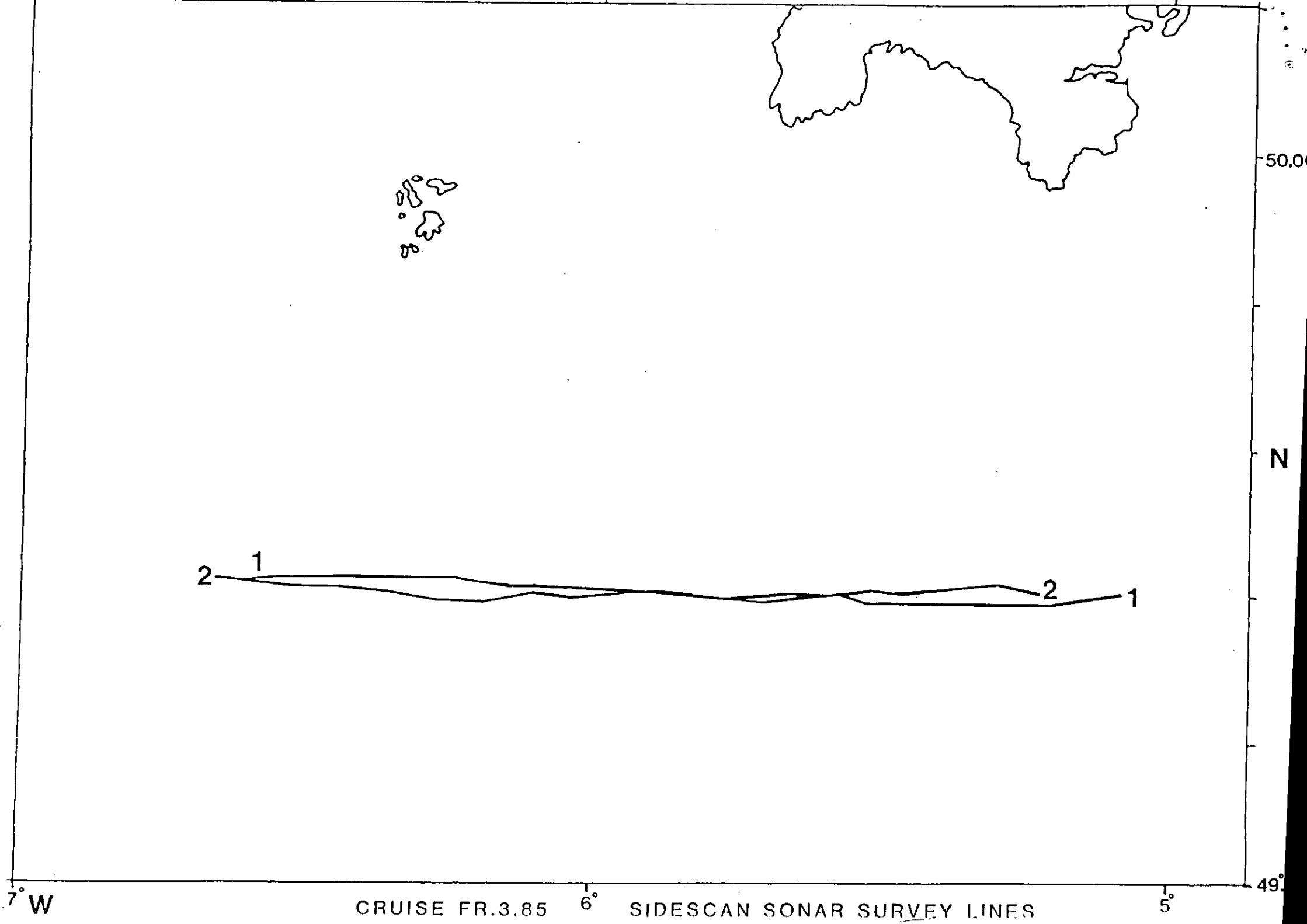
TABLE D SIDE-SCAN SONAR TRACKS PAGE 1 of 1.

TRACK NO.	STARTING LATITUDE	STARTING LONGTITUDE	END LATITUDE	END LONGTITUDE	DISTANCE nm
1 CM6 - CM1	49°30'.54'N	06°35'.54'W	49°29'.82.5'N	05°4'.76'W	~62 nm
2 CM1 - CM6	49°29'.54'N	05°13.0'W	49°29'.89'N	06°30'.63'W	~58 nm


50.0
N
2
1
2
1
49
7° W
CRUISE FR.3.85
6°
SIDESCAN SONAR SURVEY LINES
5°

STATION POSITIONS

CRUISE FR.3.85