

M. I. A. S.  
28 NOV 1983  
(WORMLEY)

Whitethorn

August 10 - 23 1983

leg 8

C D R Evans

## Introduction

The objective of the leg was to complete the surface sediment sample grid on the Wight and Guernsey sheets and to drill eight chosen sites on the Dungeness Boulogne sheet. Both objectives were achieved with 269 shipek and gravity core stations being occupied and seven out of the eight drill sites completed.

## Personnel

C Evans	-	Chief Scientist
G Lott	-	Night Geologist
P Balson	-	Night Deck hand
C Graham	-	Bridge Supervisor
D Mills	-	Day Geologist
J Pheasant	-	Engineer
P Wiggins	-	Engineer
W Lonie	-	Engineer

## Ships Equipment

Two main problems were experienced. A fan in the engine room had burnt out towards the end of the previous leg and could not be repaired before sailing time on this leg. The vessel sailed with only one fan working with the result that a continuous pull of black smoke was emitted; the speed of the vessel was kept down to reduce this smoke and to minimize over-heating problems in the engine room. The vessel was running at a maximum of about 7 knots and often achieved less than 6 knots against the tide. A request to increase speed resulted in a marginal improvement. Consideration was given to bringing the vessel into port to fit the repaired fan and so improve the speed by a maximum of about 2 knots. It was not thought worthwhile so near the end of the contract when the maximum speed was rarely achieved between the closely spaced sites. It is also doubtful if Coe's would agree to take the vessel off charter for at least a day when the ship was working and sampling over 35 sites a day.

The other problem concerned the Decca. On Sunday, 14 August, the IB Chain was switched off for four hours; on restarting it worked off a reserve aerial and on reduced power. This caused no problems until the evening of 19 August when the ship was working at the limit of the chain in the western end of the Dover Straits separation zone. The Decca became unstable and finally refused to lock because of a series of thunder storms in the Channel. Operations were suspended for a few hours after unsuccessful attempts had been made to sample using radar ranging on buoys to fix the ship's position.

A fire alarm in the engine room caused by the release of a CO<sub>2</sub> cylinder caused some concern on 20 August because the engineers took about five minutes to locate the disconnecting switch. The ship performed in its usual manner: the crew were always helpful and knew their job. The catering staff were generally satisfactory. However, some details such as night shift meals, supplies of bed linen and towels and meal times need tightening up.

#### IGS Equipment

The shipek and gravity corer were used continuously from the 12 to 19 August with personnel working 12 hour shifts. One shipek was lost in 9 m of water in Poole Bay, the wire jumped the pulley, snagged and snapped on recovery. The gravity corer gave mixed results; samples were poor or non-existent in the coarse shell sand and gravel, but where rock was close to the surface the 4" barrels gave excellent results.

The damage rate of the barrels and cutters was low - about 2 per day, considering the size and abundance of flint pebbles on the sea bed. Rock barrels were used occasionally but the results were no better.

The drill was used on eight sites. Deployment was easy and there were only minor operational difficulties. Recovery varied; the sandstones and limestones cut to give good core with high recovery values; however, the speed of penetration and recovery from the mudstones and clays was not so good. Even where a tungsten carbide bit was used penetration in soft mudstone was slow. The gravel at sea bed was a problem, the drill cored a flint pebble at one site which wore away all the soft clay bedrock, elsewhere the drill by-passed the gravel to give good core.

### Daily Log

- 10 August - vessel in Shoreham 1200 hours
- 11 August - vessel in Shoreham
- 12 August - depart 0000 hours. Shipek and gravity coring commenced at 0400 hours, 35 sites completed
- 13 August - 39 sites completed
- 14 August - 30 sites completed. Decca down 1000-1400 hours. Boarded by Customs launch
- 15 August - 36 sites completed
- 16 August - 26 sites completed; some time taken on passage to Guernsey sheet
- 17 August - 32 sites completed
- 18 August - 23 sites completed, time taken on passage to Wight sheet
- 19 August - 29 sites completed, Decca not working 1600-2200 hours
- 20 August - 14 sites completed, drilling four sites 0800-2200 hours
- 21 August - Drilling 0620-1930 hours. Steam to Hull
- 22 August - Steam to Hull
- 23 August - Tied up in Hull 0700 hours

### Geology

#### Wight Sea Bed Sediments

The area is covered by a highly variable cover of coarse shelly gravel often flinty, which becomes sandier towards the coast. Around parts of the

coast the variability is great with muddy sand and gravel at adjacent sites. The thickness of the sediment was often less than half a meter and on occasions was so thin that repeated shipek attempts failed to provide more than a few pebbles.

### Solid Geology

The samples were occasionally checked against the solid map which was found to be substantially correct. Sub-samples were taken from the solid samples for micropal. examination.

### Guernsey Sea Bed Sediments

The sediments consisted of coarse well sorted carbonate sand and were more uniform than on the Wight sheet. The limited results from gravity coring in the area would suggest that the sediments are generally over half a metre thick.

### Dungeness-Boulogne

The drilled sites produced the expected lithologies and their usefulness lies in a full stratigraphic analysis and comparison with onshore sections. This was not attempted on the ship.

### Conclusions

As a sampling platform for the English Channel the vessel worked very well. A significant increase in speed (to Steelfish performance) would have increased productivity but the Whitethorn, at its best, cannot achieve these speeds or acceleration.

The catering and cleanliness standards of a vessel are to some extent a personal judgement. On this leg most of the IGS staff detected no significant deterioration from that operative during earlier legs. Others thought that the vessel was ready for the Board of Trade inspectors. My view is that the vessel was up to the usual Coe's/Whitethorn standard; there certainly were problems but these were minor. Catering could be improved and Coe's should be approached to discuss the matter for next year.

Chris Evans 7 Sept 1983

SHIP: WHITETERN DATES: 11<sup>th</sup> - 23<sup>rd</sup> August LEG NO. \_\_\_\_\_ SHEET NOS. \_\_\_\_\_

DATE	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>	19 <sup>th</sup>	20 <sup>th</sup>	21 <sup>st</sup>	22 <sup>nd</sup>	23 <sup>rd</sup>	TOTALS
Working Time	In Port	24												
	On passage		4.2			6.0		7.0			4.5	24	<del>24</del>	
	Traversing		15.4	19.0	20	19.9	14.6	19.7	14.5	14.6	11.1	8.1		156.7
	Anchoring									3.5	5.6			9.1
	On Station		4.4	5.0	4.0	4.1	3.6	4.3	2.5	3.3	9.4	5.8		46.4
Down Time	Weather								6.1					6.1
	SHIP													
	Propulsion													
	Power Supply													
	Anchoring													
	Handling Systems													
	IGS													
	Camera													
	Grab													
	Gravity Corer													
	Vibrocorer													
	Rock Drill													
	Other													
Winches														
Power Cables														
No. of Stations	Grab		35	39	30	36	26	32	23	29	14	5		269
	Rock Corer													
	Sediment Corer		35	39	30	36	26	32	23	29	9			256
	Vibrocorer													
	Drill									5	5			10
Other														

Complete to nearest 0.1 hour (6 min)

REMARKS

The downtime was due to thunderstorms causing the Decca to malfunction.