

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD  
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1992 RESEARCH VESSEL PROGRAMME

REPORT : RV CORYSTES, CRUISE 3A

STAFF:        S J Malcolm (SIC)  
               D S Kirkwood  
               J A Durance  
               R Laslett        21-26 February  
               A J Baxter  
               D B Sivyer  
               J Taylor        14-21 February

DURATION: Sailed 1830h 14 February 1992 (overall cruise 3 14 February-16 March)  
               Docked 1530h 26 February 1992

LOCALITY: North Sea, Wash, Humber

AIMS:

1. To identify and quantify the fate of river-borne nutrients entering the Wash and Humber estuary, examining nutrient distributions and critical processes from the river inputs through to the North Sea in subtidal sediments and the overlying water.
2. To measure factors affecting benthic nutrient recycling in subtidal sediments in the North Sea, in collaboration with the Netherlands Benthic Links and Sinks (BELS) programme.
3. To collect, test and use a new box corer from Den Helder, Netherlands.
4. To conduct trials of a new Acoustic Doppler Current Profiler.
5. To deliver samples for MAST 051 programme to Den Helder (for attention of Rijkwaterstaat).

NARRATIVE : (all times GMT)

CORYSTES left Lowestoft at 1830h on Friday 14 February 1992 en route to Den Helder docking at 0730h to collect the new NIOZ standard box corer. CORYSTES then undertook water sampling at stations of the JoNuS North Sea grid over a period of two days.

The box corer was tested in the Thames estuary and used at sites BELS1 and BELS2 to collect samples for sediment process studies. A Kaston core was collected for a collaborative study (AEP2/AEP4) on the flux of metals to sediments in the Outer Silver Pit.

Surface water samples were collected on passage to the Humber and CORYSTES entered the Humber on the morning of Thursday 20 February 1992 and anchored at North Killingholme. Water samples were collected by CORYSTES and additional water samples, from a transect of the Humber, taken aboard from the NRA survey vessel 'Sea Vigil'. Samples were collected on the morning of 21 February 1992 for sediment process study as well as a Kaston core to examine the history of input of nutrients to this site.

Jenny Taylor went ashore via the ships searider and was replaced by Rebecca Laslett. CORYSTES left the Humber via a grid of water sampling sites at the mouth of the Humber before anchoring at site A1 in the Wash. Samples were collected for sediment process study.

On Sunday 23 February CORYSTES proceeded to sample the Wash Grid, water and sediment samples were collected at each site. The inner part of the grid was sampled before proceeding to the BELS3 site in the Inner Silver Pit to collect further water and sediment samples.

A clean 75 litre water sample was collected for M Coffey (UEA) and the remainder of the Wash Grid was worked on Tuesday 25 February 1992. CORYSTES completed water sampling at the remaining stations of the North Sea Grid before docking at 1500h on Wednesday 26th February 1992.

#### RESULTS:

Aims 1, 2, 3 and 5 were successfully achieved and little time lost to bad weather.

The new box-corer was used at all the sediment process sites. This corer is much easier to use than the Reineck box corer and provides a better sample of the sediment water interface. The dimensions of the corer are such that it may be worked from the starboard gantry of the CORYSTES, over the rail without any difficulty. The corer sampled a wide variety of sediments although it was not always possible to sub-sample the cores, in future use will be made of intact cores without sub-sampling.

250 water samples were collected together with salinity and temperature data. Nutrient determinations were made at sea and samples were filtered for chlorophyll, CNP and suspended load determination at Lowestoft. An additional 30 samples were taken aboard from the 'Sea Vigil' survey of the Humber. All water column nutrient samples were worked up at sea.

Sediment process samples were collected for nutrient determination at Lowestoft. Fe and Mn determinations were performed at sea for sediment interstitial water, all other working up will be performed on return to the laboratory.

Interstitial water samples were taken with the in situ sipping system from cores from the Humber and Wash for metal determination at Burnham-on-Crouch.

Aim 4 was not attempted as the Acoustic Doppler Current Profiler was not released by the manufacturer in time for the trial.

S J Malcolm  
26 February 1992

SEEN IN DRAFT: J French (Master)  
M Reynolds (SFM)

INITIALLED: C E P

DISTRIBUTION: Basic list+  
D S Kirkwood  
J A Durance  
R Laslett  
A J Baxter  
D B Sivyer  
J Taylor

Additional Aim 4. The NERC Spar Buoy was recovered successfully.

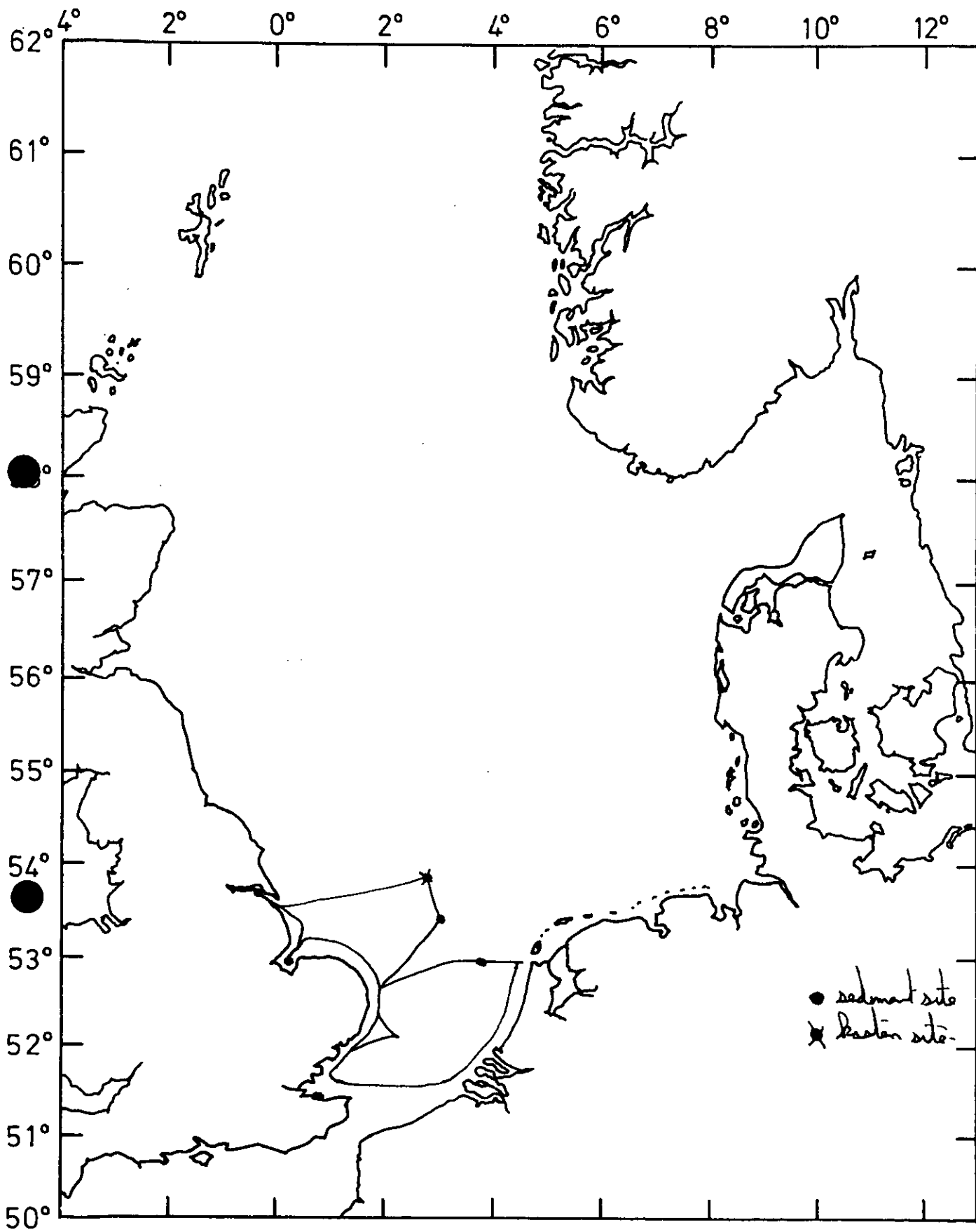
J M Rees  
SIC  
17 March 1992

SEEN IN DRAFT:

INITIALLED: CEP

DISTRIBUTION:

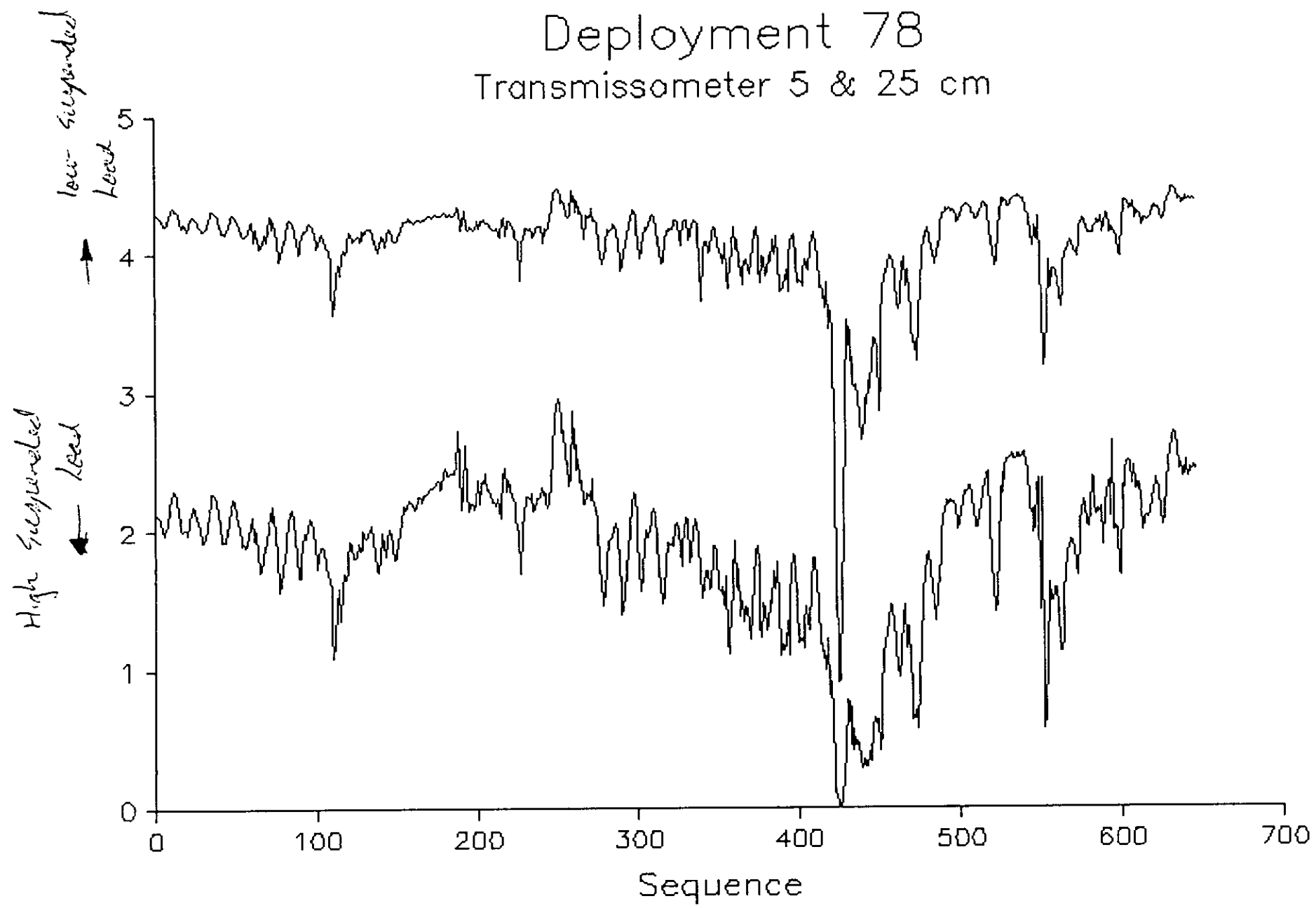
Basic List +  
Dr R Dickson  
Dr P Kershaw  
N Pearson  
J Read  
A James (UMIST)  
M Mason (University of Cambridge)  
Z Yu (University of Cambridge)



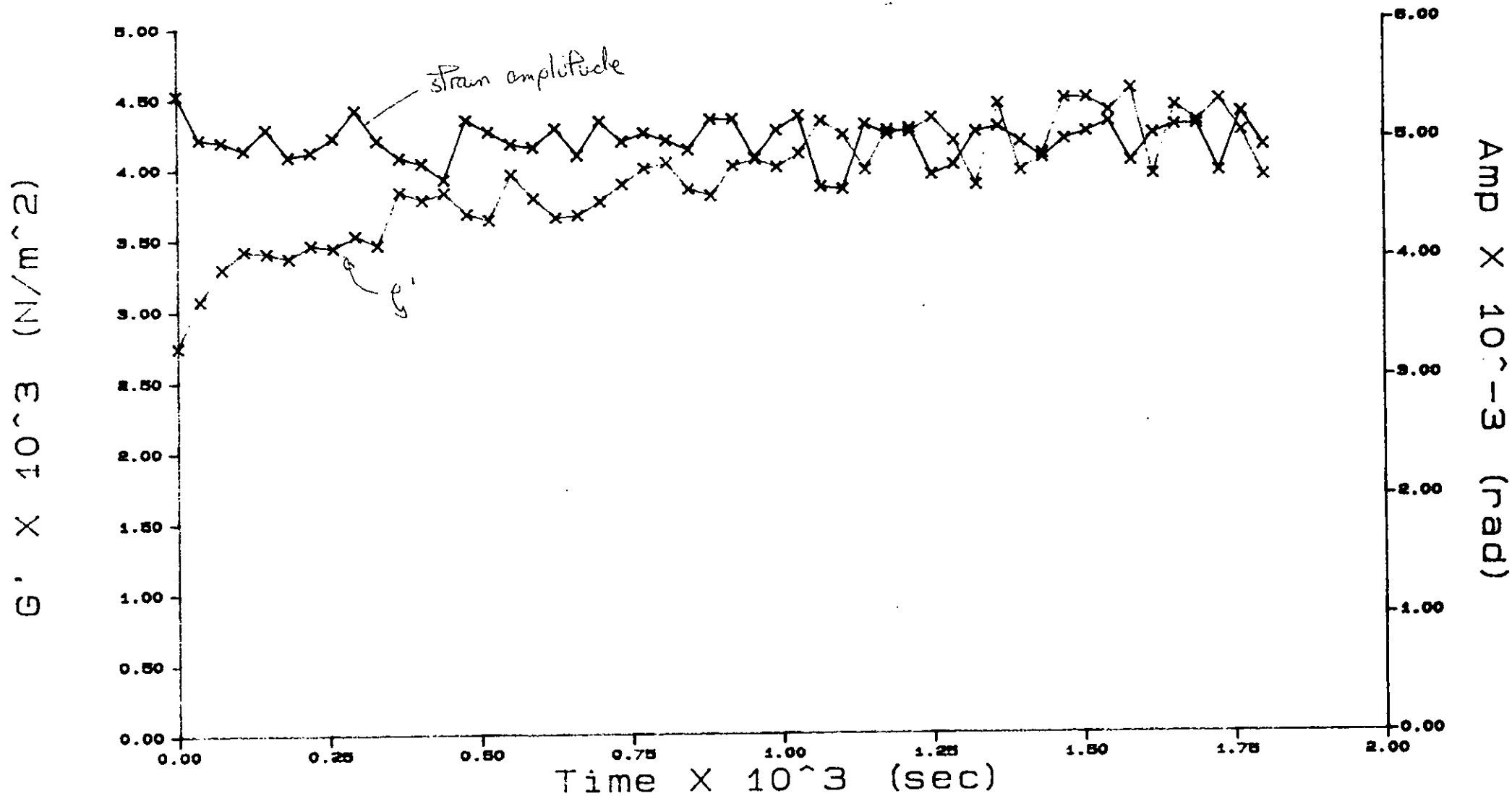
Corystes Balpa.  
 Dr Malcolm  
 HEP. 4

# Deployment 78

Transmissometer 5 & 25 cm



COSEDS - Co 3B 92 Stn 39 (Surface)



Sample

XXX S4JD 2

Carri-Med Ltd  
 Vincent Lane, Dorking

Fig 2