

The percentages given are valid for all laboratories at the low level, but only for about half of the material at the medium and the high level, where the error in many cases exceeded 10 percent.

Several laboratories reported that they have had trouble with their columns and a further study of the reduction with cadmium is urgently needed.

In the intercalibration experiment there was an intention to study the effect of phosphate in the determination of silicate and vice versa. The data are available. However, the treatment of the material is complicated because of the fact that there is definitely silicate in various amounts in the phosphate samples and it is impossible to decide whether the response of the silicate reaction to the phosphate samples is due to the phosphate or to the silicate dissolved from the walls of the ampoules. At this moment it seems that this study must be abandoned.

Already in 1970 the ICES Working Group on chemical analysis of seawater discussed the use of nutrient standards from the Sagami Chemical Research Center in Japan in future international expeditions, and it was agreed that these standards will form a much more uniform basis for future nutrient analysis.

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Karsten Palmork
September 1972

ANNEX VI

REPORT ON SCOR WORKING GROUP 21 CONTINUOUS CURRENT VELOCITY MEASUREMENTS

Current Meter Intercomparison Experiment, 24 August - 4 September 1972

A third current meter intercomparison experiment under the auspices of SCOR Working Group 21 was performed from the Woods Hole research vessel Atlantis II at Site D between August 24th and September 4th 1972.

The intercomparison involved the use of four types of current meters Alexaev (USSR), Geodyne type 850 (USA), LSK (GDR), VACM (USA), and two types of mooring, one with surface buoyancy (463) and the other subsurface (464). A diagram showing the mooring positions and the deployment of the instruments is attached. Both moorings were set anchor first on August 24th. All the instruments were attached to the mooring line by their normal method. During the course of the experiment a set of 9 hydrographic stations was occupied, one station close to the mooring and the others at distances of 10 and 20 km, north, south, east and west of the mid point.

The Alexaev current meters recorded once every 15 minutes; the LSK's recorded speed every 10 minutes and direction every 5. The Geodyne and VACM meters were able to record at much faster rates and periods of 225 and 56.25 seconds respectively were used. Several other recorders were deployed in order to monitor mooring performance and meteorological conditions. There was a wind recorder on the surface buoy and a recording tensiometer at a depth of 45 m below the toroidal buoy. The upper end of the subsurface buoy had a depth recorder capable of resolving depth changes of 50 cm and at the nominal 500 m level on each mooring was a TENSAC (tension and acceleration recorder).

The horizontal separation of the two moorings was less than had been intended and there was some apprehension that the moorings might at some stage during the experiment become tangled. When the subsurface buoy was recovered, (on September 4th) there was damage to the instruments and to the mooring line at the 200 m level. On the surface buoy there was damage to instruments at all levels and again to the wire near 200 m. The damage to the instruments at

50 and 1000 m on the surface buoy is not likely to have been caused by tangling of the two mooring lines and must have been due to severe mooring motion.

A summary of instrument performance is given in the Table together with the depths at which the current meters settled. There is a considerable mismatch (~ 40 m) between the depths of the 200 m instrument groups on the two moorings. Measurement of the lengths of wire rope used on mooring 464 shows that one of the 500 m lengths in mooring 464 was in fact 6% too long due to an error made by the manufacturers. Evidence from the current depth and tension records that have been analysed up to the present time suggest that the tangling may have occurred within the last 2 days of the experiment.

The performance of the current meters has been good and calibration tests are now in progress at Woods Hole.

SCOR WG 21

Current Meter Intercomparison, Woods Hole, Aug-Sept 1972

		Depth (m)	<u>Surface Buoy (463)</u>
4631	(W)	0	Record very noisy but readable
4632	(T)	2	Telemetry tensiometer
4633	(T)	45	Recording tensiometer. Good record
4634	(V)	47	No damage. Good record
4635	(L)	48	Propeller and vane missing. Recorded for whole period of mooring
4636	(A)	49	Fins missing from current meter and damage to rotor cage. Record bad from 1815Q 2-IX; Stops 1915Q 2-IX
4637	(G)	53	Damage to paint. Good record
4638	(V)	197	Rotor out of bearings 0200Q 4-IX. Vane missing from 1800Q 2-IX otherwise good
4639	(L)	198	Meter had slipped down the wire. Propeller missing and damage to vane. Recorded for whole period
463,10	(A)	199	Fins missing. Damage to suspension and rotor and rotor cage. Records stops 1815Q 2-IX. Otherwise good
463,11	(G)	203	Damage to paint. Good record
463,12	(TA)	501	TENSAC flooded. No record
463,13	(V)	999	No damage. Good record
463,14	(L)	1000	Propeller and vane missing. Recorded for whole period
463,15	(A)	1001	Severe damage to fins. Stop 2330Q 28-VIII. Otherwise good
463,16	(G)	1005	No damage. Good record
<u>Subsurface Buoy (464)</u>			
4641	(D)	160	Good record. Settled at 130 m.
4642	(V)	162	Paint chafed off pressure case. Good record
4643	(L)	163	Current meter had moved up the wire. Evidence of damage. Good record. Piece of wire jacket found in clamp
4644	(A)	164	Damage to rotor cage. Record stops 2300Q 3-IX. Otherwise good
4645	(G)	168	Rotor missing 0230Q 4-IX. Damage to rotor cage. Good record
4646	(TA)	457	Good record
4647	(V)	1002	No damage. Good record
4648	(A)	1003	No damage. Good record
4649	(G)	1007	No damage. Good record

<u>Code</u>	(W)	Wind recorder	(D)	Depth recorder
	(T)	Tension recorder	(L)	LSK current meter
	(V)	Vector Averaging current meter	(A)	Alexaev current meter
			(G)	Geodyne type 850 current meter
			(TA)	Tension and acceleration records

