

ESTIMATE OF SCOR FINANCES
(1 January thru 30 September 1969)

BALANCE as of 1 January 1969

In Rome	\$ 4,733.63 *
In La Jolla	<u>23,061.68</u>
	\$ 27,795.31

* 1,633.33 in Indian Rupees

INCOME

National Contributions	13,414.99	
UNESCO Contract	12,600.00	
Interest on Savings Account	<u>451.26</u>	<u>26,466.25</u>
		\$ 54,261.56

EXPENSES

Office	4,103.22
Publications	3,429.60
Working Groups (WG 10-\$1,248.50; WG 21-\$522.20; WG 23-\$1,058.45; WG 25-\$617.84; WG 28-\$890; WG 30-\$5,512.01; WG 31-\$1,277.50)	11,126.50
Executive Expense	10,512.04
Representatives, other meetings	1,908.00
UMC Symposium Support	1,500.00
Royal Society Symposium Support	400.00
ICES Symposium Support	<u>1,043.00</u>
TOTAL EXPENSES	\$ 34,022.36

BALANCE as of 30 September 1969

In Rome	\$ 5,133.63 *
In La Jolla	<u>15,105.57</u>
	<u>\$ 20,239.20</u>

* 2,133.63 in Indian Rupees

REPORT OF SCOR WORKING GROUP 21
ON
CONTINUOUS CURRENT VELOCITY MEASUREMENT
(with IAPSO and UNESCO)

REPORT OF MEETING IN DUBLIN, 25-27 SEPTEMBER 1969

SCOR Working Group 21, on Continuous Velocity Measurements, met several times during the ICES Symposium on Physical Variability in the North Atlantic, at Dublin during 25-27 September 1969. All the members of the group were present, except Dr. Shekhvatov who was at sea.

Dr. F. Webster was invited to take part in the meetings, and Dr. C.R. Mann was invited to discuss participation in a proposed further intercomparison experiment.

The Group considered the following items:

- (1) The possibility of completing the intercomparison of current meters made in July 1967, by a further experiment involving Alekseev current meters.
- (2) Whether, and in what form, current meter data should be submitted to data centers.
- (3) The future of the working group.

The conclusions reached are set out below.

(1) Possibility of a further intercomparison experiment: The working group learned with great interest of the proposed expedition of the "Akademik Kurchatov" in early 1970, during which it is planned that a large number of Alekseev current meters will be moored in a small area in the trade-wind region of the Eastern North Atlantic. Dr. Chekotillo invited members of the working group to consider the possibility of participation in the expedition. It was unanimously agreed that this excellent opportunity for further intercomparison of current meters should not be missed.

The working group invites the approval of SCOR for the proposal outlined below, and if such approval is forthcoming requests that SCOR should communicate its approval to the USSR Academy of Sciences.

It is proposed that three of each of the following types of current meter should be provided for inclusion in the array of Alekseev meters, for comparison over a period of about two weeks:

Geodyne, Aanderaa, Plessey, Braincon.

- (Note: (1) It is unlikely that the new Hydrowerkstatten meters will be available before May 1970
- (2) The group wishes to propose including Braincon meters in view of their extensive use by the Bedford Institute, Canada.)

It is understood that it may be convenient for the "Akademik Kurchatov" to call at Southampton (UK) in mid-January 1970 to take equipment and visiting scientists on board, and might land the equipment there in April. It is proposed that the Geodyne and Braincon meters should be shipped to UK from Woods Hole and Bedford Institute. Aanderaa and Plessey meters, and possibly some Braincons, can be provided from UK sources.

Although all members of the group would have wished to take part if possible, other commitments prevent Mr. Kvinge and Drs. Siedler and Swallow from doing so. Drs. Fofonoff and Webster hope to be able to participate, and suggest that Mr. R. Heinmiller (WHOI) be invited as well. Mr. W.J. Gould (UK, NIO) and Dr. W. Zenk (FRG, Kiel) are willing to take part and would take care of the Aanderaa and Plessey meters. Dr. Mann was unable to accept personally an invitation to participate, due to another seagoing commitment, but suggested that Mr. C.K. Ross and possibly one other from the Bedford Institute, Canada, might be able to do so. It is proposed, therefore, that permission should be sought for the following six or seven visitors to join the "Akademik Kurchatov" at Southampton in mid-January 1970:

Dr. Fofonoff)	Mr. Gould	(NIO)
Dr. Webster) (WHOI)	Mr. Ross) (B.I.)
Mr. Heinmiller)	+ 1 other (?))
		Dr. Zenk	(Kiel)

It is understood that some of the moorings are to be set and recovered after a period of about ten days, and that Alekseev meters will be placed at approximately 12 levels from 25 to 300 meters. For the purpose of the intercomparison, and without detracting from the main experiment, it is desirable that the "visiting" current meters should be included in four moorings which are set and recovered after 14 days. It is recommended that the sampling interval should be 15 minutes. The "visiting" current meters should be paired with Alekseev meters at three depths, tentatively chosen as 25, 300 and 1000 meters, arranged in the following way:

Mooring no.:	1	2	3	4
Depth: 25m	G	P	B	A
300m	P	B	A	G
1000m	B	A	G	P

(G - Geodyne, P - Plessey, B - Braincon, A - Aanderaa)

Since the Alekseev meters are suspended from brackets clamped to a continuous wire mooring, and it is not the normal practice to cut the wire, it is proposed that bracket suspensions should be used for all the types of current meter. Dr. Chekotillo agreed to send a drawing of the existing brackets to those concerned so that suitable modified brackets can be constructed.

It is proposed that the six or seven visitors should leave at the first port after the 14-day moorings have been recovered, probably Dakar or Gibraltar in mid-February. It will be most convenient if the "visiting" equipment can be landed at Southampton during the return passage of the "Akademik Kurchatov" in April.

Original records or lists of data should be sent to Woods Hole for analysis not later than three months after the return of the "Akademik Kurchatov" in April 1970.

If SCOR decides to approve this proposal, the working group requests that SCOR consider providing support for the visiting scientists to travel to join and return from the ship, and for shipping current meters to and from Southampton.

Analysis of the data will take several months and it may be appropriate tentatively to plan for a further meeting of the group to consider the results in late 1971, perhaps in Moscow.

An alternative opportunity for an intercomparison occurs in mid-May to mid-June 1970, when the "Akademik Kurchatov" returns to continue work on the array of moorings. This would be a convenient opportunity for Dr. Siedler to provide three new Hydrowerkstatten meters, and it might be possible for Mr. Kvinge to join them, but it would be difficult for any Geodyne meters to be provided from Woods Hole or any equipment from the UK at that time. For most of the group, and considering the availability of equipment, the earlier opportunity would be much more convenient.

(2) Submission of Current Meter Data to Data Centers: The group discussed the question of whether raw or processed current meter data should be submitted for compilation in data centers. While recognizing the need for data centers to be able to meet requests from industrial and other users for information about currents, it was the opinion of the group that data centers should not store lists of raw current meter data. It was proposed that summaries of current information should be submitted. Such summaries might include the following, as a tentative minimum:

Position of observation; depth; depth of meter; type of meter; time of start of record; time of end of record; sampling interval; mean velocity (over whole period); mean velocity (per day or other interval); maximum velocity (over some period); minimum velocity (over some period); speed histogram; direction histogram; progressive vector diagram; location of data repository; data format.

(3) Future of the Working Group: If the proposed further intercomparison experiment is approved, it will be necessary for the group to continue its existence until the analysis of the results of that experiment is completed. SCOR is invited to consider the desirability of enlarging the group by including Dr. F. Webster and a representative from Canada (Bedford Institute) in view of their present and proposed future activities on its behalf.

ANNEX IV

REPORT OF SCOR WORKING GROUP 28
IAMAP/IAPSO/SCOR COMMITTEE ON AIR-SEA INTERACTION
REPORT OF MEETING IN PRINCETON, NEW JERSEY, 21-23 JANUARY 1969

The Meeting was attended by the following:

K. Bryan, H. Charnock (Chairman), A.S. Monin, J. Namias, C.H.B. Priestley, R.W. Stewart, P. Welander, O.M. Ashford, V.A. Bugaev, J. Smagorinsky.

The report is extracted below. Apart from administrative matters, other items not reproduced here include a discussion of air-land interactions in relation to GARP.

6. Air-sea interaction in relation to ocean circulation studies

Some models of ocean circulation take the surface fluxes as given, though coupled atmosphere-ocean models have been studied. The main difficulty appears to lie in representing turbulent transport within the ocean.

More realistic representation of the near surface transport of heat, salt and momentum is hindered by our ignorance of the velocity structure of the upper layers of the ocean. Any method of observing the current distribution while avoiding the effects of waves would be of great interest.

The study of the response of the ocean to the atmospheric forcing, on all scales will be helped by the increased amount of data available but a corresponding increase in oceanic data is also needed if the full benefit is to be obtained.

7. Air-sea interaction in relation to GARP

There was a wide ranging discussion of this topic, it being realized that the planning for GARP was still in such a formative state that unequivocal answers to many questions could not yet be provided. Nevertheless there was a growing need to start the development of instruments so as to allow their field testing before the main GARP Global Experiment.

The basic assumption made was that GARP would seek a realistic mathematical model of the whole atmosphere and of the upper layers of the ocean, with an observational grid of about 500 km in the horizontal and with about 10 levels in the vertical.

(a) General policy on boundary layer incorporation

It will be essential to take into account the transfer of heat, water vapor and momentum by processes on too small a scale to be resolved by the observational network. The transfers with which the committee is concerned are most important in the layers near the surface.