

Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies



**Joint CCOP/SOPAC-IOC
Working Group on
South Pacific Tectonics
and Resources (STAR)**

Second Session

Honiara, Solomon Islands, 10-12 September 1985

Unesco

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CCOP(SOPAC)-IOC/STAR-II/3
Paris, 25 October 1985
English only

In this Series

Reports of Meetings of Experts and Equivalent Bodies, which was initiated in 1984, the reports of the following meetings have already been issued:

- Third Meeting of the Central Editorial Board for the Geological/ Geophysical Atlases of the Atlantic and Pacific Oceans
- Fourth Meeting of the Central Editorial Board for the Geological/ Geophysical Atlases of the Atlantic and Pacific Oceans
- Fourth Session of the Joint IOC-WMO-CPPS Working Group on the investigations of «El Niño»
- First Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in relation to Living Resources
- First Session of the Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
- First Session of the Joint CCOP (SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
- First Session of the IODE Group of Experts on Marine Information Management
- Tenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies in East Asian Tectonics and Resources
- First Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in relation to Non-Living Resources
- Sixth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
- First Session of the IOC Consultative Group on Ocean Mapping
- Joint IOC-WMO Meeting for Implementation of IGOS XBT Ship-of-Opportunity Programmes
- Second Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources

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1. OPENING OF THE SESSION

1 The Chairman, Dr. Charles Helsley, called the Second Session of the Joint CCOP/SOPAC - IOC Working Group on South Pacific Tectonics and Resources (STAR-II) to order at 0900 hours on Tuesday 10 September 1985, in the Solomon Islands Broadcasting Corporation Conference Centre, Honiara, Solomon Islands. He welcomed Delegations and Observers from Member Countries of CCOP/SOPAC and Member States of the IOC, as well as Representatives of UN Agencies and Observers from regional project groups (the List of Participants is given in Annex III).

2 The Chairman confirmed the status of participants as representatives of the member countries. The Delegation of China stated that, since they did not receive instructions on their representation to the Session, they preferred to participate in the Session as observers.

3 The Chairman reminded the Working Group that STAR is a body that has two parents: IOC and CCOP/SOPAC. As such, the responsibility of the Working Group is to formulate and assist in the implementation of a scientific research programme under the general guidelines of IOC, but addressing needs of the SOPAC region. The Chairman also stressed the need for close interaction between SOPAC member countries and scientists interested in the region in the formulation of these plans.

4 The Assistant Secretary of the IOC, Dr. Kazuhiro Kitazawa, acting as a Technical Secretary for the Session, welcomed participants on behalf of the Secretary of the IOC, and thanked the Government of the Solomon Islands for hosting the Session, and the Ministry of Natural Resources for local organization.

2. ADOPTION OF THE ADGENDA

5 The Provisional Agenda was introduced by the Acting Director of the Technical Secretariat (Techsec) of CCOP/SOPAC, Mr. Cruz Matos. The Working Group, after agreeing some amendments, adopted the Agenda. (Annex I).

6 Dr. Gary Greene of the United States of America kindly accepted the invitation to serve as Rapporteur for this Session.

3. REVIEW OF ACTIVITIES OF IOC

7 The Assistant Secretary of the IOC informed the Working Group that the Summary Report of the First Session of the Joint CCOP/SOPAC - IOC Working Group on South Pacific Tectonics and Resources (STAR-I), held in Apia, Western Samoa on 2 November 1984, had been submitted to the Thirteenth Session of the IOC Assembly, in Paris, France, from 12 to 28 March 1985. The Assembly had welcomed the promising start to STAR activities at its First Session, and approved the Summary Report thereof. The Assembly decided to co-sponsor the two STAR Workshops, proposed by the STAR Working Group, namely the Workshop on the Use of Manned Submersibles and Remotely Operated Vehicles in the South Pacific, (Resolution STAR-I.3), and the Workshop in Nearshore Areas (Recommendation STAR-I.5). The Assembly acknowledged the efforts of CCOP/SOPAC Secretariat to support STAR.

8 He also reported that the First Session of the IOC - UN(OETS) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources (OSNLR) had been held in Paris from 14 to 18 January 1985, and he submitted its Summary Report to the Working Group as an information document. Referring to recommendations made by the Guiding Group, he requested the Working Group to re-evaluate its own situation in order to identify needs and scientific research in respect of non-living resources. The Guiding Group concluded that a global programme should be developed with particular attention to non-living resources of coastal zones.

9 The Assistant Secretary also informed the Joint Working Group, that the IOC, as a follow-up of IOC to the recommendation made at the Third Session of the IOC Programme Group for the Western Pacific (WESTPAC-III) held in Townsville, Australia, from 19 to 24 September 1983, had created a Group of Experts on Marine Geology and Geophysics in the Western Pacific to develop programmes of marine geology and geophysics in the region, with initial emphasis on projects concerned with sea-level, environments and tectonics (SET) and margins of active plates (MAP). The First Session of this Group will be convened in early 1986.

10 Training opportunities for scientists in this region were provided on an ad-hoc basis, usually as individual study grants to selected participants in training courses/workshops and in scientific cruises for onboard training.

11 The Working Group expressed its strong interests in the planned WESTPAC projects on Sea-Level, Environments and Tectonics (SET), and Margins of Active Plates (MAP), and requested IOC to consider adequate representation of marine geo-scientists involved in research in the SOPAC region in any guiding groups that might be formed.

4. REVIEW OF ACTIVITIES OF CCOP/SOPAC

12 The Acting Director of the Technical Secretariat (Techsec) of CCOP/SOPAC, Mr. Cruz Matos, reported on the training activity undertaken by Techsec during the past year. These consisted of: an Earth Science and Marine Geology Course, for which five trainees received certificates jointly issued by the University of the South Pacific, Fiji, and Victoria University of Wellington, New Zealand; a Coastal Mapping Workshop in Apia, Western Samoa, involving 20 trainees; a Training Course on Petroleum Geology, attended by six trainees; and a Bathymetric Training Course on Petroleum Geology attended by two trainees. Individual training was also received by participants aboard the M.S. NATSUSHIMA, R.V. SONNE and R.V. HAKUREI MARU No. 2. Additional details of this activity are given in Annex IV hereto.

13 Dr. Ralf Carter, of the Techsec, reported on coastal engineering efforts undertaken by the Techsec, and Dr. Peter Roy reported on work on detrital minerals, phosphate, black coral, and construction material investigations undertaken by the Techsec during the year. These reports are also given in Annex IV.

14 The Working Group noted with appreciation the various efforts and accomplishments of the CCOP/SOPAC Technical Secretariat during this reporting period.

5. REPORTS OF THE STAR STUDY GROUPS

15 The Chairman of the Working Group requested each Chairman of the Study Groups to provide summary reports on their activities to the Working Group. These reports are given in Annex V hereto, and additional information can be found in the appropriate annexes.

5.1 OCEAN DRILLING STUDY GROUP

16 The Chairman, Dr. Keith Crook, reported on the activities of the Study Group since the First Session of STAR (Annex V.1); these included: participation of the Chairman in the COGS Ocean Drilling Workshop in Canberra, 12 - 14 November 1984 and in the editing of the resultant COGS Publication No.2 (Site Proposals for Scientific Ocean Drilling in the Australasian Region) which included several proposals for drilling in the SOPAC region; participation of several STAR representatives in meetings of the ODP Planning Committee, West Pacific Regional Panel, and a back-arc basins workshop; and participation of Australasian STAR representatives in ODP as part of a consortium with the European Science Foundation, the outcome of which is expected to be known by 30 September 1985.

17 Dr. Jacques Recy reported that drilling legs submitted by various STAR representatives had been prioritized by the West Pacific Regional Panel of ODP, with Vanuatu being rated 6, Lau-Tonga 8, and Solomon Islands 11 (top rating being 1). He suggested that an amalgamation of Solomon Islands and Manus-Mussau proposals could attract a higher ranking. A maximum of 3 legs in the region could be expected, with 2 legs as a more likely outcome.

18 The Study Group recommended that more data, including those obtained using new technologies, be collected in areas already accorded priority by ODP panels and that special attention be given to completion of data sets.

19 The Study Group requested that the Chairman of STAR write to the Chairman of the ODP Planning Committee to encourage drilling in the region, in terms set out in Annex V.1.

20 The Study Group noted that isolated single holes, if of sufficient thematic and regional interest, could be proposed for inclusion in drilling legs, but that few proposals of this nature have been submitted.

21 The Working Group adopted Resolutions STAR-II.1 and STAR-II.2.

5.2 AGE AND DATING STUDY GROUP

22 In view of the absence of the Chairman of this Study Group, the Chairman of the Working Group deferred presenting the report of the Study Group until the next session of STAR.

5.3 TECTONICS STUDY GROUP

23 The Chairman of the Tectonics Study Group, Dr. Loren Kroenke, reported on ongoing and proposed tectonic programmes reviewed by the Study Group, and the close linkage of these programmes to programmes of IOC and CCOP/SOPAC were noted. The topics of the ongoing programmes included:

- the status of the CCOP/SOPAC Map of Tectonic Elements of the Southwest Pacific;
- distribution of CCOP/SOPAC Technical Bulletin 6 and the need for similar compilations and syntheses in adjacent areas;
- possible publication of a new series of maps, such as a bathymetric map series, at 1:2 million scale by the Circum-Pacific Council;
- publication of a special issue of Geo-Marine Letters on the Solomon Sea, including a new bathymetric map.

24 The Chairman of the Study Group informed the Working Group of the status and current plans for funded programmes, including:

- the French SEAPSO programme of the research vessel R.V. JEAN CHARCOT in the South Pacific in 1985-86;
- the Scripps Institution of Oceanography cruise of the R.V. THOMAS WASHINGTON to Lau Basin and the southwest Pacific in 1985-86;
- the Tripartite II cruise of the Hawaii Institute of Geophysics' R.V. MOANA WAVE to the Bismarck Sea in 1985-86;
- the details of the Soviet programme, as endorsed last year, of transects across the Tonga-Kermadec arc-trench system using two Soviet research vessels involving about 80 days of ship time for both ships, and now planned for 1986; the Soviet Delegate also offered to consider providing additional work in the Solomons-Ontong Java area as part of this cruise if requested to do so by member countries concerned.

25 The Study Group commended these efforts and urged the early initiation of the programmes and their timely completion.

26

Attention was directed to proposals for future work, including:

- a Japanese proposal for a 3-5 year programme to study back-arc basins in the southwest Pacific;
- a proposal for extensive geophysical investigations of the newly discovered Micronesian subduction zone;
- a proposal to undertake a 3-day SeaMARC II survey of the Woodlark Basin-Solomon Islands triple junction, using the R.V. MOANA WAVE;
- a proposal from the Solomon Islands to study the relationship between gold occurrences and deep-seated faults in the Solomon Arc;
- a proposal from Australia to continue palaeomagnetic studies in Papua New Guinea; and
- a proposal to use GLORIA in several areas of the southwest Pacific, following its programme in the Indian Ocean in 1986.

27

The Study Group endorsed these proposals and recommended their early implementation (see Annex V.3 for additional details).

28

The Chairman of the Study Group stated that several informal *ad hoc* sessions of the Study Group might be held prior to its next formal session at the Circum-Pacific Conference in Singapore, August 1986.

29

The Study Group also noted that a great deal of data from the SOPAC region will be displayed at the Circum-Pacific Energy Resources Conference in Singapore, August 1986, and opportunities could occur for interaction with ODP scientists.

30

The Study Group noted, pursuant to Resolution STAR I.1, that it would be very desirable for Australia to become a member of ODP.

31

The full text of the Tectonics Study Group Report can be found in Annex V.3.

32

The Working Group adopted Recommendation STAR-II.1.

5.4 INFORMATION EXCHANGE STUDY GROUP

33

The Chairman, Mr. Laurent d'Ozouville, reported that, in accordance with the recommendations of the First Session of STAR, held in Apia in November 1984, a system was established for the receipt and dissemination of cruise proposals and research schedules in the South Pacific region. A form for recording ship operation data was prepared in February 1985 and mailed to institutions and agencies identified in Apia as actively doing research in the region. In July 1985, a synthesis of the cruises planned for 1985 and proposed for 1986 was prepared and mailed.

34 The full text of this Study Group is in Annex V.4.

35 The Working Group adopted Resolution STAR-II.3.

5.5 ISLAND DRILLING STUDY GROUP

36 Mr. Michael Sandy, Papua New Guinea, was elected Chairman of this Study Group. In its report (Annex V.5), this Study Group noted that the decision made at the First Session of STAR "that an Island Drilling Programme be formulated" was a response to various needs to combine offshore and onshore objectives. The Study Group also noted that shallow drilling in Cook Islands lagoons will commence in 1986.

37 The Study Group requested the CCOP/SOPAC Techno to approach the Crustal Drilling Project regarding ophiolite drilling in the region.

38 The Study Group also decided that the Island Drilling Programme could best be implemented by encouraging individuals and groups to submit specific proposals for drill sites to the Chairman of the Study Group for review by the Study Group. Guidelines for preparation of proposals were developed and are included in Annex V.5.

39 The Working Group adopted Resolution STAR-II.4.

6. REPORT OF THE INTERNATIONAL STEERING COMMITTEE FOR THE WORKSHOP ON THE USE OF MANNED SUBMERSIBLES AND REMOTELY OPERATED VEHICLES IN THE SOUTH PACIFIC

40 The International Steering Committee for the Workshop, sponsored by ORSTOM, IFREMER, CCOP/SOPAC and IOC, met twice for the purpose of organizing the Workshop. The location of the Workshop was discussed during the second meeting, and, with the agreement of the CCOP/SOPAC Co-ordinator, Mr. Cruz Matos, it was decided to hold the Workshop in Suva, from 24 to 29 September 1985, rather than in Noumea as previously planned. In spite of the late change in location, the Committee was able to notify all participants and solicit their abstracts. About 60 participants are expected to attend.

41 Programmes with abstracts have been printed and are now available for distribution.

42 The purpose of the Workshop was reviewed and consists of the following:

- (i) help determine the feasibility of using manned submersibles and remotely operated vehicles (R.O.V.) in geological and geophysical exploration activities in the South Pacific;
- (ii) develop guidelines for their use in mineral resource assessment, resource management and engineering studies;
- (iii) identify appropriate technologies and target areas for their use in the South Pacific region;

- (iv) encourage the establishment of international co-operative programmes for their use in the region.

43

Workshop Committees are as follows:

International Steering Committee:

Gary McMurtry - Chairman:	Hawaii Institute of Geophysics (HIG) University of Hawaii
Bernard Bijou Duval - Vice Chairman:	ORSTOM
Jacques Daniel:	ORSTOM
Gunter Giermann - IOC Representative:	Alfred-Wegner Institute for Polar Research
Kawuo Kobayashi - IOC Representative:	Ocean Research Institute, University of Tokyo
Loren Kroneke - CCOP/SOPAC Techsec:	HIG
Patrick Maillet - Secretary:	ORSTOM
Laurent d'Ozouville:	CCOP/SOPAC Techsec
Jacques Reoy - Vice-Chairman:	ORSTOM
Ronald Richmond - Vice-Chairman of the STAR Working Group	

Local Organizing Committee:

Patrick Maillet - Chairman:	ORSTOM
Jean-Philippe Eissen - Secretary:	ORSTOM
Laurent d'Ozouville - CCOP/SOPAC Techsec	

44

Regarding the large operating cost and sophistication of submersibles, the Assistant Secretary of IOC suggested that an adequate arrangement be considered to develop regional co-operation for efficient, non-duplicating work. In addition, the Assistant Secretary encouraged the Working Group to consider organizing a training programme that would acquaint scientists of the South Pacific Region with techniques and the usefulness of submersibles for marine scientific research.

45

The Working Group agreed to consider seeking support for such a programme and requested the Organizing Committee of the Workshop to include the items in their Agenda.

7. REPORT OF THE PREPARATORY COMMITTEE FOR THE WORKSHOP ON NEARSHORE AREAS

46

The Co-Chairman of the Committee, Dr. Russell Howorth, reported that, at this time, no formal planning meeting had been held. However, a meeting was held in Sydney, Australia, in April 1985. Those at the meeting included: Eric Bird (Co-Chairman), Bruce Thom, Bob Burne, Peter Roy and Andrew Short. The meeting agreed with Recommendation STAR-I.5 that the proposed Workshop on Nearshore Mineral Resources be merged with a Workshop on Coastal Erosion.

47 The Working Group, at its First Session, had suggested that the Workshop be held prior to the Fifteenth Session of CCOP/SOPAC in 1986 and that a planning meeting be held in Honiara at the time of the Second Session of STAR.

8. FUTURE STAR WORK PROGRAMME

8.1 FORMATION OF COASTAL AND NEARSHORE PROCESSES AND RESOURCES STUDY GROUP

48 Recognizing the increasing importance of work in the South Pacific island countries on coastal and nearshore processes and resources, and the recommendation of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources that priority be given to examining non-living resources of coastal zones, the Working Group resolved to establish a Study Group on Coastal and Nearshore Processes and Resources.

49 The Working Group adopted Resolution STAR-II.5.

50 The Study Group on Coastal and Nearshore Processes and Resources held its initial meeting to elect a Chairman, discuss the aims and objectives of the Group and review the plans for a Workshop on Nearshore Areas. Dr. Russell Howorth was elected Chairman of the Study Group. The Study Group decided that its aims and objectives should be to encourage work aimed at:

- (i) understanding coastal and nearshore processes;
- (ii) evaluating non-living resources in the coastal and nearshore zone.

51 The report of the Study Group is given in Annex V.6.

52 The Working Group reviewed the plans for the Workshop on Nearshore Areas and recommended that the Workshop concentrate on evaluation of coastal processes, such as shoreline movement, especially coastal erosion, and sediment budget studies in South Pacific island countries.

53 The Working Group adopted Recommendation STAR-II.2.

8.2 ORGANIZATION OF STAR REMOTE SENSING STUDY GROUP

54 Recognizing that remote sensing of reflected and emitted electromagnetic radiation by sensors on satellites and aircraft is a potentially valuable source of information on the physical nature, the living and non-living resources and the effects of natural processes and human activities in the SOPAC area, and noting that remote sensing can make valuable contributions particularly in those elements of the STAR work programme related to Coastal and Nearshore Resources and Processes and to Tectonics, the Working Group resolved to organize a Remote Sensing Study Group.

55

The terms of reference for the Study Group are:

- (i) to examine the needs of the SOPAC countries for remotely sensed data and to promote future acquisition of such data;
- (ii) to formulate and undertake remote-sensing studies as an input to the STAR Work Programme;
- (iii) to co-operate with the ESCAP Regional Remote-Sensing Project and with other groups to encourage the development of expertise in the use of remotely sensed data among the SOPAC countries.

56

A new source of high-spatial-resolution data is expected to become operational late in 1985 with the launch by France of the SPOT 1 satellite, for which a ground receiving and data-processing station may be established in Noumea. Thus, it is opportune for STAR to consider the potential usefulness of this and other sources of remotely sensed data to its Work Programme. A first step towards achieving these aims should be the formulation, through Techsec, of co-operative projects with IFREMER on the use of SPOT 1 data in the SOPAC region.

57

The Working Group adopted Resolution STAR-II.6,

58

The STAR Work Programmes (Summary Report of STAR-I, Annex V) is revised and listed in Annex VI hereto.

9. ESTABLISHMENT OF NATIONAL CONTACT POINTS

59

Noting the Resolution STAR-I.4, the Working Group recognized that only a few member countries have provided the requested name or names of National Contact Points. The Chairman of the Working Group reminded all participants to provide such names to CCOP/SOPAC Technical Secretariat and IOC. In the absence of such designees, the Chairman determined that the present delegates and observers could act temporarily as the National Contact Points. The Working Group accepted this provisional designation.

10. FUNDING AND RESOURCES

60

The Work Programme developed by the Working Group has evolved rapidly in response to the previous regional needs and the work programme developed by the Technical Advisory Group of CCOP/SOPAC. Although substantial funding for the implementation of some work elements has been identified from various national and regional organizations, the Working Group noted that additional funding will be required if more of the work programme is to be implemented. Delegates were urged to seek resources for this purpose from their governments or other sources as appropriate.

61

Recognizing the importance of continuity in STAR activities, the Working Group requested the IOC to consider providing an amount of funds to support STAR activities on a regular basis.

62 The Working Group further requested the IOC to consider ways
and means to enable the provision of a coastal processes specialist
to the SOPAC region on part- or full-time basis. This specialist
should provide advisory services for governmental organizations of
STAR Member Countries on coastal-zone management problems and should
arrange a series of on-the-job training programmes for personnel who
are currently involved in such shore-line management functions in
these countries. This training should include and assist the
development of a coastal monitoring programme in the SOPAC region
relevant to the STAR work programme. Such funds should be accompanied
by adequate travel funds so that training visits can be made to several
of the island countries of the SOPAC region,

11. DATE AND PLACE OF THE NEXT SESSION

63 The Working Group agreed that the next STAR Session should
be organized in 1986 in conjunction with the 15th Session of CCOP/SOPAC.

12. ADOPTION OF THE SUMMARY REPORT, THE RESOLUTIONS AND
RECOMMENDATIONS

64 The Working Group was reconvened at 1100 on 12 September 1985
specifically to deal with this Agenda Item. It adopted the Summary
Report, and the Resolutions and Recommendations contained in Annex II.

65 The Summary Report will be printed by IOC and submitted to
the Nineteenth Session of its Executive Council in March 1986, and the
same text will be annexed to the Proceedings of the Fourteenth Session
of CCOP/SOPAC.

13. CLOSURE OF THE SESSION

66 The Chairman noted with regret that a representative of Guam
was unable to attend the STAR sessions. The Chairman further noted
that, as a result, Guam's priorities may not be reflected in the STAR
report.

67 On behalf of the Working Group, its Chairman and Vice-Chairman
thanked the Ministry of Natural Resources of the Solomon Islands and
the CCOP/SOPAC Secretariat for the local organization of the Session, and
the participants for their valuable inputs into the discussions.

68 The Chairman closed the Session at 1230 on 12 September 1985.

ANNEX I

AGENDA

1. OPENING OF THE SESSION
2. ADOPTION OF THE AGENDA
3. REVIEW OF ACTIVITIES OF IOC
4. REVIEW OF ACTIVITIES OF CCOP/SOPAC
5. REPORTS OF THE STAR STUDY GROUPS
 - 5.1 OCEAN DRILLING STUDY GROUP
 - 5.2 AGE DATING STUDY GROUP
 - 5.3 TECTONICS STUDY GROUP
 - 5.4 INFORMATION EXCHANGE STUDY GROUP
 - 5.5 ISLAND DRILLING STUDY GROUP
6. REPORT OF THE INTERNATIONAL STEERING COMMITTEE FOR THE WORKSHOP ON THE USE OF MANNED SUBMERSIBLES AND REMOTELY OPERATED VEHICLES IN THE SOUTH PACIFIC
7. REPORT OF THE PREPARATORY COMMITTEE FOR THE WORKSHOP ON NEARSHORE AREAS
8. FUTURE STAR WORK PROGRAMME
 - 8.1 FORMATION OF COASTAL AND NEARSHORE PROCESSES AND RESOURCES STUDY GROUP
 - 8.2 ORGANIZATION OF STAR REMOTE SENSING STUDY GROUP
9. ESTABLISHMENT OF NATIONAL CONTACT POINTS
10. FUNDING RESOURCES
11. DATE AND PLACE OF THE NEXT SESSION
12. ADOPTION OF THE SUMMARY REPORT, RESOLUTIONS AND RECOMMENDATIONS
13. CLOSURE OF THE SESSION

ANNEX II

RESOLUTIONS

<u>Resolution number</u>	<u>Title</u>
STAR-II.1	Ocean Drilling Programme (ODP)
STAR-II.2	Membership of Ocean Drilling Programme
STAR-II.3	Information Exchange
STAR-II.4	Island Drilling Programme
STAR-II.5	Study Group on Coastal and Nearshore Processes and Resources
STAR-II.6	Study Group on Remote Sensing

RECOMMENDATIONS

<u>Recommendation number</u>	<u>Title</u>
STAR-II.1	Tectonics Study Programme
STAR-II.2	Workshop on Nearshore Areas

Resolution STAR-II.1.

OCEAN DRILLING PROGRAMME (ODP)

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

Noting that the STAR Ocean Drilling Study Group established by Resolution STAR-I.1 has actively promoted scientific ocean drilling in the CCOP/SOPAC region;

Noting further that some proposals for drilling in the region are currently attracting sufficiently high priority ratings to make likely their inclusion in the final ODP operational programme;

Requests the Co-Chairmen of STAR to write to the Chairman of the ODP Planning Committee, in terms stated in Annex V.1, encouraging drilling in the CCOP/SOPAC region,

Requests the STAR Ocean Drilling Study Group to seek the means for collecting more data, including those obtained by new technologies such as swath-mapping and submersible diving, in priority drilling areas, giving special attention also to completion of data sets.

Resolution STAR-II.2

MEMBERSHIP OF OCEAN DRILLING PROGRAMME

The joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

Noting that Resolution STAR-I.1 urged that more STAR member countries in the South Pacific-Australasian region become full or consortium members of ODP in the immediate future;

Noting further that no additional STAR member countries have yet joined ODP, but that a proposal seeking funding for Australia, with the European Science Foundation, to join ODP as part of a consortium is now being considered by the Australian Government;

Requests the Technical Secretariat of CCOP/SOPAC and member governments of CCOP/SOPAC to urge Australia to become a member of the ODP organization.

Resolution STAR-II.3

INFORMATION EXCHANGE

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources.

Noting that the exchange of information, particularly on scheduled research cruises, is helpful to develop future research programmes in the region;

Noting further that a questionnaire on planned research cruises in the SOPAC region were sent by CCOP/SOPAC Technical Secretariat to institutions and agencies concerned, and that Techsec received responses;

Requests the CCOP/SOPAC Technical Secretariat to:

- (i) attempt to collect detailed information on planned research cruises from institutions and agencies concerned, as well as from STAR National Contact Points, and disseminate it to interested parties on a regular basis at least once a year, and possibly twice a year;
- (ii) compile a list of ongoing and planned marine geology projects in the region, with details of objectives, methodology and participants, and to disseminate it to interested parties;
- (iii) prepare up-to-date information on planned research projects/cruises in the region for publication in the CCOP/SOPAC Newsletter;
- (iv) determine the possibilities of convening, in co-operation with IOC, a Workshop on Management of Marine Science Data and Information in the near future;

Requests Chief Scientists, when planning a research cruise in the region, to provide detailed information to the CCOP/SOPAC Technical Secretariat, including maps at appropriate scale with an indication of details of proposed survey and list of primary equipment to be used.

Resolution STAR-II.4

ISLAND DRILLING PROGRAMME

The joint CCOP/SOPAC - IOC Working Group on South Pacific Tectonics and Resources,

Noting the Resolution STAR-I.2 that an Island Drilling Programme be formulated;

Noting further that an Island Drilling Programme would provide opportunities to use on-shore drilling to replace expensive off-shore drilling to obtain data needed to interpret off-shore studies,

Invites interested individuals and groups to prepare specific proposals for island drilling, which should generally follow the format used by the Ocean Drilling Programme as further described in Annex V.5, and to submit them to the Chairman of the STAR Island Drilling Study Group who, together with the CCOP/SOPAC Technical Secretariat, will maintain a file of proposals and submit them to the Study Group for review and recommendation for inclusion in the STAR work programme,

Requests the CCOP/SOPAC Technical Secretariat to approach the Crustal Drilling Project regarding ophiolite drilling in the CCOP/SOPAC region.

Resolution STAR-II.5

STUDY GROUP ON COASTAL AND NEARSHORE PROCESSES AND RESOURCES

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

Noting the need for data on nearshore and coastal processes;

Noting further the need for resource assessment in the nearshore and coastal zone;

Recognizing the emphasis placed on coastal and nearshore work by the IOC-UN (OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources (OSNLR) in a recommendation made at its First Session;

Decides to establish a Study Group on Coastal and Nearshore Processes and Resources.

Resolution STAR-II.6

STUDY GROUP ON REMOTE SENSING

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

Recognizing that remote sensing of reflected and emitted electromagnetic radiation by sensors on aircraft and satellites is a potentially valuable source of information on the physical nature, on living and non-living resources, and on the effect of natural processes and human activities in the SOPAC area,

Recognizing that remote sensing can make valuable contributions, particularly in those elements of the STAR Work Programme related to Coastal and Nearshore Resources and Processes and to Tectonics,

Decides to form a Study Group on Remote Sensing,

Recommendation STAR-II.1

TECTONICS STUDY PROGRAMME

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

A.

Noting that remarkable progress has been made in the tectonic studies of the South Pacific region by various research groups, and the results published or being prepared for publication (specifically CCOP/SOPAC Map of the Tectonic Elements of the South Pacific, including the newly discovered Micronesian Trench, and the CCOP/SOPAC Technical Bulletin 6, the Cenozoic Tectonic Development of the Southwest Pacific);

Noting further that necessary preparatory steps have been taken to implement the research plans/cruises of the Tonga-Kermadec arc-trench system with two Soviet research vessels, with a French research vessel, the R.V. JEAN CHARCOT under the SEAPSO project in the Southwest Pacific, with the R.V. THOMAS WASHINGTON in a cruise planned by the Scripps Institution of Oceanography in the Lau Basin, and with R.V. MOANA WAVE in a Tripartite II cruise in the Bismarck Sea;

Noting that the STAR Tectonic Study Group studied and endorsed with great interest the outlines of planned Japanese programme on back-arc basins in the southwest Pacific using submersibles and remotely operated vehicles (ROVs);

Recommends that:

- (i) new compilations and syntheses of South Pacific tectonics be made in both text and map format under CCOP/SOPAC Technical Bulletin guidelines,
- (ii) a planned programme on back-arc basins in the southwest Pacific be implemented as soon as possible,
- (iii) Seabeam equipment on the R.V. THOMAS WASHINGTON be used if possible when the vessel transits through the Havre Basin between Tonga and New Zealand,
- (iv) a comprehensive investigation of the Micronesian Trench be planned to include marine geophysical surveys using high-resolution reflection profiling equipment, precision-mapping techniques, such as Seamarc II, and refraction experiments and seismological studies using OBS arrays,
- (v) funding be urgently sought from external sources to carry out a Seamarc II survey of the Woodlark-Solomons triple junction, since the R.V. MOANA WAVE with the Seamarc II equipment will pass through the Solomon Islands in November 1985,

- (vi) further studies to delineate fault structures related to gold occurrences in the Solomon Islands be carried out,
- (vii) further palaeomagnetic studies be carried out in Papua New Guinea, including Mesozoic and Cenozoic sequences for the study of rotations of allochthonous terranes, and to detail the apparent polar wander path for the craton.

B.

Noting with interest that a cruise of the R.R.S. CHARLES DARWIN is being planned for the Northern Indian Ocean, with a possible extension into the southwest Pacific in late 1986-87 during which GLORIA survey will be undertaken;

Recognizing the usefulness of GLORIA, which is a reconnaissance side-scan sonar system and ideal for delineating tectonic fabrics and seabed features;

Recommends strongly that ways and means be found to facilitate the use of GLORIA in the southwest Pacific,

Recommendation STAR-II.2

WORKSHOP ON NEARSHORE AREAS

The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources,

Noting that studies in coastal areas, particularly on coastal and nearshore processes, non-living resources, and coastal erosion as a geological hazard, are of increasing importance to South Pacific island countries;

Noting further the increasing requirements for scientific data to assist in the development of coastal zones;

Decides that the Workshop on Nearshore Areas proposed in Recommendation STAR-I.5 should concentrate on the evaluation of coastal processes, such as shoreline movement, especially coastal erosion and sediment budget studies, on the identification of aspects unique to the region and on the delineation of long-term objectives and appropriate methodologies and resources for coastal protection,

Decides further that the Workshop be a function of STAR and be entitled "STAR Workshop on Coastal Processes in South Pacific Island Countries", and that the preparatory work of the Planning Committee be co-ordinated by the Director of the CCOP/SOPAC, in consultation with the Secretary of the IOC,

Recommends that the IOC and the CCOP/SOPAC consider seeking the required financial assistance to hold the Workshop, and particularly to assist the travel of participants.

ANNEX III

LIST OF PARTICIPANTS

I. PARTICIPANTS FROM MEMBER COUNTRIES

AUSTRALIA

Dr. Keith Crook
Reader
The Australian National University
GPO Box 4
Canberra ACT 2601
Telephone: 6162492059 Cable: NATUNIV Telex: RESES 62693

Dr. Neville Exon
Principal Research Scientist
Bureau of Mineral Resources, Geology and Geophysics
Post Office Box 378
Canberra ACT 2601
Telephone: 499111 Cable: BUROMIN Telex: 62109 AA

Mr. John Miller
Australian Development Assistance Bureau
Derwent House
Robert Place
Canberra ACT 2614
Telephone: (062) 495-758 Cable: AUSTDEVAID Telex: 62631

CHINA, PEOPLE'S REPUBLIC OF

Mr. Jiang Minxi (Observer)
Deputy Division Chief
Bureau of Foreign Affairs
Ministry of Geology and Mineral Resources
64 Funei Dajie, Xisi
Beijing
Telephone: 66432 Cable: 0966 BEIJING Telex 22531 MGMRC CN

Mr. Zhang Ruixiang (Observer)
Deputy Chief Engineer
Ministry of Geology and Mineral Resources
64 Funei Dajie
Beijing
Telephone: 66857-441 Cable: 0966 BEIJING Telex: 22531 MEMRC CN

COOK ISLANDS

Mr. Stuart Kingan
Science Officer
Office of the Prime Minister
Prime Minister's Department
Post Office Box 66
Rarotonga
Telephone: 23687 Telex: 62006 RG

FIJI

Mr. Richard Holmes
Principal Geologist
Mineral Resources Department
Private Mail Bag
Suva
Telephone: 381611 Cable: SOPACPRO Telex: 2330 FJ

Mr. Alfred Simpson
Assistant Director
Mineral Resources Department
Private Mail Bag
Suva
Telephone: 381611 Cable: SOPACPRO Telex: 2330 FJ

FRANCE

Mr. Jaques Daniel
Geologist
ORSTOM
BP A5
Noumea Cedex, New Caledonia
Telephone: (687)261000 Telex: 193 NM

Mr Jaques Recy
Chief Scientist
ORSTOM
BP A5
Noumea Cedex, New Caledonia
Telephone: (687)261000 Telex: 193 NM

JAPAN

Dr. Kiyoyuki Kishimoto
Technical Officer
Science and Technology Agency
Prime Minister's Office
2-2-1 Kasumigaseki, Chiyoda-ku
Tokyo-100
Telephone: 03-581-1679 Cable: STASDGJ Telex: 2226

and

Geological Survey of Japan
AIST, MITI (Ministry of International Trade and Industry)
1-1-3 Higashi, Yatabe
Ibaraki-305
Telephone: (298) 543769 Telex: 3652570 AIST J

KIRIBATI

Mr. Marae Irata
Senior Assistant Secretary
Ministry of Natural Resource Department
Post Office Box 64
Bairiki
Tarawa
Telephone: 269 Cable: RESOURCES Telex: KI 77039

NEW ZEALAND

Mr. James V. Eade
Marine Geologist
NZ Oceanographic Institute
Post Office Box 12346
Wellington North
Telephone: 861189 Cable: OCEANOGRAPH Telex: NZ 3276

PAPUA NEW GUINEA

Mr. Stevie Nion
Senior Geologist
Geological Survey of Papua New Guinea
Department of Minerals and Energy
Post Office Box 778
Port Moresby
Telephone: 212422 Cable: GEOLANDS Telex: NE 23305

Mr. Michel Sandy (Chairman, Island Drilling Study Group)
Senior Petroleum Geologist
Geological Survey of Papua New Guinea
Department of Minerals and Energy
Post Office Box 778
Port Moresby
Telephone: 212422 Cable: GEOLANDS Telex: NE 23305

SOLOMON ISLANDS

Mr. Stephan Danitofea
Chief Geologist
Ministry of Natural Resources
Post Office Box G24
Honiara
Telephone: 21521 Cable: SOLFISH Telex: 66306

Mr. James Saliga
Permanent Secretary
Ministry of Natural Resources
Post Office Box G24
Honiara
Telephone: 21521 Cable: SOLFISH Telex: 66306

SOLOMON ISLANDS (continued)

Mr, Rodney Walshaw
Principal Geologist
Ministry of Natural Resources
Post Office Box G24
Honiara
Telephone: 21521 Cable: SOLFISH Telex: 66306

TONGA

Mr. David Tappin
Government Geologist
Ministry of Lands, Surveys and Natural Resources
Post Office Box 5
Nuku'alofa
Telephone: 21511 Cable: MINLAND Telex: 66269 PRIMO TS

Mr. Sione Tongilava
Superintendent
Ministry of Lands, Survey and Natural Resources
Post Office Box 5
Nuku'alofa
Telephone: 21210 Cable: MINLAND Telex: 66269 PRIMO TS

TUVALU

Mr. Tauaasa Taafaki
Permanent Secretary
Ministry of Commerce and Natural Resources
Post Office Box 38
Funafuti Island
Telephone: 827 Cable: COMM TUV Telex: 4800 TUV

UNION OF SOVIET SOCIALIST REPUBLICS

Dr, Lev Kondakov
Deputy Director
All-Union Institute of Geology of Foreign Countries
Ministry of Geology
7th Dimitrov Street
Moscow
Telephone: 238-9554

Dr, Yuri Leonov
Geological Institute of USSR Academy of Science
Zhevsky, 7
Moscow ZH-17 109017
Telephone: 203-6512

ANNEX IV

REPORT OF INTERSESSIONAL ACTIVITIES OF CCOP/SOPAC

A. TRAINING

Training activities undertaken during the reporting period were:

1. The Earth Science and Marine Geology Course was held during January-February 1985 at the Suva campus of the University of the South Pacific (USP) with funding from Australia and New Zealand. A total of 16 trainees attended of which 5 received Certificates issued jointly by USP and Victoria University of Wellington certifying satisfactory completion of the five year training course. The next course is scheduled for January-February 1986 at the same venue.
2. The third Coastal Mapping Workshop was held in Apia, Western Samoa in cooperation with the Pacific Marine Branch of the U.S. Geological Survey. Funding was provided by US AID and Australia. A total of twenty trainees attended representing most of the CCOP/SOPAC member-countries. An advanced workshop is planned for Honiara, Solomon Islands in 1986.
3. Mr. Sione Tongilava of Tonga attended a Workshop on Tsunami Prediction in Canada with funds made available by IOC and CCOP/SOPAC.
4. Arrangements have been made for a trainee from the Cook Islands to participate in the 1985 survey cruise of the R.V. HAKUREI MARU NO.2 cruise in the southwest Pacific with funds made available by the Government of Japan.
5. Arrangements have been made for a trainee from Fiji to attend the International Volcanological Congress with funds made available by the Government of Australia.
6. Arrangements have been made for representatives of each of the CCOP/SOPAC member-countries to attend the Workshop on Submersibles to be held in Suva, Fiji immediately following the CCOP/SOPAC annual session. Funding is being provided by the IOC.
7. Mr. James Kamsoo, Junior Electronics Technician with the Techsec 18 in Norway undergoing training in the deployment and maintenance of Wave Rider systems and Telemetry systems. Funding is being provided by the Government of Norway.
8. The first training course on Petroleum Geology was held in Wellington, New Zealand by the NZ Geological Survey. Six trainees from the CCOP/SOPAC member-countries attended the course with funds made available by the Government of New Zealand.
9. Training in marine geology was received by Mr. Vaitoti Tupa of the Cook Islands on board the R.V. SONNE with funds made available by UNDP.
10. Training in marine geology was received by Mr. Fuka Kitekei'aho of Tonga on board the R.V. NATSUSHIMA with funds made available by ESCAP.

11. The Government of Australia has agreed to fund a continuation of the Bathymetric Drafting course previously held at the Techsec in Suva. Arrangements have been made for a maximum of six trainees per year to receive training in Canberra. During the reporting period two trainees from Tuvalu and Fiji attended the Course.

B. COASTAL ENGINEERING

During the 1984-85 reporting period coastal engineering programmes were undertaken in five member countries: Cook Islands, Tonga, Tuvalu, Vanuatu, and Western Samoa. Beach erosion control and harbour reclamation studies are in progress in Rarotonga. Dredging planes, environmental controls and watershed erosion control are involved. Studies dealing with causeway development are progressing in Vava'u, Tonga. Wave studies, sand transport and beach profiles studies were made for Fongafale and Funafuti Atolls in Tuvalu. A continuing baseline study for the location of an ocean outfall for Port Vila was made in Mele Bay. Also a bathymetric survey was conducted for the relocation of a fuel depot in Teouma Bay, Vanuatu. Finally, geological data required for the design of a seawall to protect Mulinu'u Point, Apia, has been developed and the engineering design is proceeding. In addition, bathymetric, high-resolution seismic, and side-scan sonar data were collected at Salelologa and Asau Harbours on the island of Savaii, Western Samoa.

C. DETRITAL MINERALS, PHOSPHATE, BLACK CORAL AND CONSTRUCTION MATERIAL

Advice was provided to the Solomon Islands Government on the availability of U.N. funds to continue assessing the economic feasibility of developing a garnet industry in Malaita.

An assessment of detrital gold in the coastal plain of Guadalcanal (Solomon Islands) has been initiated as part of a programme of coastal and nearshore mapping and resource assessment.

Phosphate drilling in Manihiki Lagoon, Cook Islands, has been rescheduled for the second quarter of 1986.

In Tuvalu, a phosphate investigation was initiated with bathymetric and seismic surveys of Mukufetau Lagoon to identify potential drilling sites.

A non-destructive system to search for black coral has been developed using a towed underwater video camera. The system will be deployed in Western Kiribati in late 1985.

A reconnaissance survey for nearshore sand and gravel was completed in Western Samoa on the east coast of Upolu. Seismic, side-scan and bathymetric data as well as sediment samples were used to identify the Holocene depositional history and sand body geometry.

The Kingdom of Tonga was visited to plan future exploration for nearshore construction materials.

Evaluation of wave power potential in the South Pacific is continuing with assistance from Norway. A CCOP/SOPAC technician is undergoing training abroad and wave monitoring buoys will be installed at sites in Tonga Cook Islands and Western Samoa.

ANNEX V

REPORTS OF STAR STUDY GROUPS

1. OCEAN DRILLING STUDY GROUP

Membership: Keith Crook - Chairman

Colin Clark
Neville Exon
Gary Greene
Richard Holmes
Charles Helsley
Stuart Kingan
Larry Machesky
Jacques Recy
Mike Sandy
Alf Simpson
David Tappin
Rodney Walshaw

The Study Group on Ocean Drilling was established at the First Session of STAR in November 1984, with the charge to encourage ODP drilling in the CCOP/SOPAC region. It submitted its first report to the First Session of STAR (STAR-I Summary Report, Annex VI).

On 14 November 1984 the Chairman wrote to members of the Study Group encouraging them to promote the submission of site proposals to the ODP Office.

On November 12-14 1984, the Chairman and Neville Exon participated in the COGS Ocean Drilling Workshop held in Canberra. As a sequel the Chairman, together with D.A. Falvey and G.H. Packham, co-edited COGS Publication No.2 "Site Proposals for Scientific Ocean Drilling in the Australasian Region", which was widely distributed to ODP panels and members of the ODP Executive Committee and Planning Committee. The proposals included several in the CCOP/SOPAC region and reference was made to others in preparation. The proposals were formally logged-in with ODP in January 1985.

In January 1985 the Chairman attended a meeting of the ODP Planning Committee in Austin, Texas and a meeting of the ODP West Pacific Regional Panel in Hawaii as an observer. Opportunity was taken to promote ODP drilling in the region.

On 9 May 1985 a status report on Australasian-Southwest Pacific Ocean drilling site proposals was circulated to members of the Study Group and the CCOP/SOPAC Secretariat.

On 10 May 1985 a joint COGS/BMR proposal for Australian participation in ODP as part of a consortium with the European Science Foundation (representing nine European nations) was submitted to the Australian National Energy Research Development and Demonstration Council, seeking funding support. The Chairman participated in the preparation of this proposal. On 23 August 1985 the responsible Minister, Senator the Hon. Gareth Evans, Minister for Resources and Energy, advised that "the ODP proposal has been referred to the NERDDC Technical Standing Committee No. 1 for consideration and it is expected to present its recommendations to the Council meeting this week".

In July 1985 Jim Eade (NZOI), attended a workshop on active back-arc regions held at Scripps Institution of Oceanography, La Jolla, USA which included consideration of drilling in the CCOP/SOPAC region. His report on this meeting is available.

Liaison has been maintained with the CCOP/SOPAC Secretariat, with the BMR and with members of the Australian Government and their staff with the aim of promoting ODP drilling within the CCOP/SOPAC region.

A final decision on participation in ODP by Australia is expected before 30 September 1985, this being the expiry date of current transitional arrangements pertaining to prospective ODP members who have not yet committed themselves.

A proposal for drilling in the Manus-Mussau forearc and at the junction of the Manus and Mussau Trenches has been recently submitted by Mike Marlow, Neville Exon and others.

Jacques Recy, a member of the PRP of ODP, reported that, following the ranking by the WPRP of drilling proposals clustered into drilling-ship legs, a Vanuatu leg is currently rated 6, Lau-Tonga 8, and Solomon Islands 11. He suggested that if the Manus-Mussau and Solomon Islands proposals were combined into a leg the chance of their securing a higher ranking would be improved.

The Study Group noted that although other panels have yet to give their priorities, it was most unlikely that more than 3 legs would be drilled in the SOPAC region and that 2 legs were a more likely outcome. The only leg in the region other than those mentioned above that would possibly attract a high priority from other panels appeared to be one on the northeastern Australian margin.

The Study Group recommends:

that more data, including those using new technologies such as swath-mapping and submersible diving be collected in areas already accorded priority by ODP panels, to maintain interest. Special attention should be given to ensuring completion of data-sets for well-documented existing proposals.

The Study Group requested the co-Chairmen of STAR to write to the Chairman of the Planning Committee of ODP noting that several areas of high interest to scientists in the SOPAC region remain as viable proposals in the light of WPRP priorities; that there is a strong interest in the region in seeing these proposals become part of the final operational programme; that STAR has recommended that action be taken to ensure completion of data sets for these areas, and also that acquisition of further data using new technologies be undertaken and that scientists in the region will attempt to provide any additional information that may assist the Planning Committee in its consideration of drilling proposals in the region.

The Study Group noted that, in addition to drilling several holes in a particular area, an isolated single hole could possibly be included if sufficient interest exists both thematically and regionally. Not many such holes have been proposed in the SOPAC region.

The possibility of CCOP/SOPAC seeking to nominate a person to the SW Pacific Working Group of ODP, should such a working group be established was discussed. However, no decision was made.

The Study Group noted that a great deal of data from the SOPAC region would be displayed at the Circum-Pacific Energy and Mineral Resources Conference in Singapore, August 1986. The WPRP of ODP would meet during that Conference and other ODP Panels and the Planning Committee may also meet there.

The Study Group noted that pursuant to Resolution STAR I.1 of the Apia Meeting, it would be very desirable for Australia to become a member of ODP.

Among those nominated as members of the Study Group (STAR-I Summary Report, Annex VI), Ulrich Schluter has declined to serve.

2. AGE DATING STUDY GROUP

No reports for the Age Dating Programme.

3. TECTONICS STUDY GROUP

Loren Kroenke: Chairman
Don Tiffin: Rapporteur
Keith Crook
Jacques Daniel
Fred Douth
Jim Eade
Neville Exon
Gary Greene
Charles Helsley
Kiyo Kisimoto
Lev Kondakov
Yuri Leonov
Don Mallick
Stevie Nion
Jacques Recy
Bob Rowland
Theo Rumme
Rodney Walshaw

The STAR Tectonics Study Group met at the Mendana Hotel, Honiara, Solomon Islands, on 10 September 1985, preceding the 14th Session of CCOP/SOPAC.

Following the discussion of the terms of reference for the Study Group as set forth at the First Session of STAR in 1984, the status of the tectonic programmes was reviewed. The close linkage of these programmes to programmes of IOC and CCOP/SOPAC was noted.

The Study Group was informed of the status of the CCOP/SOPAC map of the Tectonic Elements of the southwest Pacific. New results will be incorporated into the map prior to printing, including the newly-discovered Micronesian Trench, which stretches from the North Tonga Trench to the concurrence of the Mariana-Yap Trenches, and work recently published by P. Symonds (BMR - Australia) in the Coral Sea. The map is expected to be published soon.

The CCOP/SOPAC Technical Bulletin 6 on the Cenozoic Tectonic Development of the southwest Pacific was discussed. The need for similar tectonic compilations and syntheses for various parts of the southwest Pacific regions, particularly for those areas not addressed by Technical Bulletin 6, was emphasised and the compilation of tectonic data in both text and map formats was recommended. The importance of early distribution of such work was noted.

It was suggested that the Circum-Pacific Council also may be interested in publishing a new map series such as a bathymetric and geologic series at 1:2 million scale.

The group was informed of the forthcoming publication of results of the R.V. NATSUSHIMA 1983 work in the Solomon Sea which will be published as a special issue of Geo-Marine Letters in 1986. A new bathymetric map of the Solomon Sea will be included.

The group was informed that the current Japanese programme to study the Indo-Pacific Plate Boundary Arcs (IPPBAS) will be completed in 1985 with work in Indonesia. The group was advised that Japanese scientists are now planning a new programme to study back-arc basins in the southwest Pacific using submersibles and ROVs over a 3-5 year period. This programme, although not yet funded by Japan, was endorsed by the Study Group, who recommended its early implementation.

The Study Group received with interest the current Soviet plans for two transects through the Tonga-Kermadec arc-trench system using two Soviet research vessels. The transects, one at about 22°S and the other at about 30°S, would require about 80 days of seetime for both ships. The group was also advised that additional work could be undertaken in the Ontong Java Plateau-Solomon Islands region by the Soviet ships if that work was requested.

The group was briefed on the status of the SEAPSO Project of the French research vessel R.V. JEAN CHARCOT in the southwest Pacific between October 1985 and January 1986. The ship will use Seabeam swath-mapping techniques to study two main geological processes; the collision of aseismic ridges and trenches, and the hydrothermal deposits of back-arc basins.

Other work of interest was brought to the attention of the Study Group, including the forthcoming SLO cruise of the R.V. THOMAS WASHINGTON in the Lau Basin. It was indicated that the R.V. THOMAS WASHINGTON would pass through the Havre Basin to New Zealand without using Seabeam unless about \$12,000 (US) of additional funds could be made available to enable the use of this equipment. The group, recognizing the importance to the region of this type of study, strongly recommended that the means to make use of the equipment be sought.

The group was also informed of a forthcoming Tripartite II cruise of the R.V. MOANA WAVE in November-December of 1985 and January 1986 to the Bismarck Sea. Seamarc II equipment will be used to define the spreading ridges and transform faults. A sampling programme also has been separately funded for the same area by the U.S. National Science Foundation.

Evidence was presented for the formation of a new subduction zone in the Western Pacific (the Micronesian Trench). The group was advised that additional studies of this feature would be required for accurate assessment of its seismicity, location and tectonic and bathymetric configuration. Noting that special instrumentation, including ocean bottom seismometers, hydrophones, downhole (sub-bottom)

seismometers and temporary high-frequency seismic stations on nearby islands would be needed, the Study Group recommended further investigation of this feature to include marine geophysical surveys using high-resolution reflection profiling equipment, precision mapping techniques such as SeaMARC II, and seismic refraction experiments using OBS arrays.

Other proposals for work under the Tectonics Study Group programme were tabled. These included a partly-funded proposal to use SeaMARC II to define the triple junction of the Woodlark Basin and Solomon Islands south of New Georgia Group in order to complete a geophysical investigation carried out in 1984 by the R.V. KANA KEOKI. Further funding to assist this proposal is urgently required as the R.V. MOANA WAVE with SeaMARC II equipment will be passing through the Solomon Islands in November 1985. About three days work is involved. The group recommended that this work be accomplished and urged that means be urgently sought to do it.

A study of possible relationships of gold occurrences in the Solomon Islands arc was also proposed. It was noted that work to define the faults would be particularly useful and further study to delineate these structures was recommended.

Additional studies of the ponded turbidites in the Western New Britain Trench and a GLORIA survey in the area where docking of the allochthonous terrains of the Juon region of Papua New Guinea has taken place were also proposed.

The group was briefed on recent results of palaeomagnetic studies in Irian Jaya and Papua New Guinea, which reveal a counter-clockwise rotation of post mid-Miocene terrain in Papua New Guinea and informed of proposals for further work. The group recommended that (i) further palaeomagnetic studies be carried out, and (ii) that Mesozoic and Cenozoic sequences be studied to detail the apparent polar wander path for the craton.

The group was advised of the plans for GLORIA surveys in the Indian Ocean in 1986 and the possibilities to bring GLORIA to the southwest Pacific in 1987. The group strongly recommended that ways and means be found to facilitate the use of GLORIA in the southwest Pacific.

The meeting closed on the decision to convene the next meeting of the Study Group at the Circum-Pacific Energy and Minerals Conference in Singapore, August 1986.

4. INFORMATION EXCHANGE STUDY GROUP

Laurent d'Ozouville: Chairman

Michael Sandy: Rapporteur

Members:

Richard Holmes

David Tappin

The Study Group met on 10 September 1985, at the Mendana Hotel, Solomon Islands prior to the 14th Session of CCOP/SOPAC to review past activities and to plan future work.

It was reported that forms listing research cruises scheduled to take place in CCOP/SOPAC region were sent out to all known institutions and agencies working in the region. These forms were returned and were presented at the working session for review.

Several recommendations were made and are as follows:

- a) continue to mail to interested scientists South Pacific Research Ship Schedules at least once a year and possibly twice a year;
- b) up-date the mailing list from that shown at the end of this report;
- c) request from Chief Scientists planning on working in the region maps at suitable scale showing details of proposed survey and to lists categorising primary equipment to be used;
- d) establish a list of all marine geology projects presently active and proposed for the South Pacific region including details of objectives, methodology and participants;
- e) a set of CCOP/SOPAC quarterly Newsletters to up-date general information;
- f) a workshop on data management to be held in 1987 in Papua New Guinea.

The Study Group noted the information received from the IOC representative that IOC receives information on declared national programmes and indicated it would appreciate receiving this information from IOC through the CCOP/SOPAC Technical Secretariat.

5. ISLAND DRILLING STUDY GROUP

Chairman: Michael Sandy

Rapporteur: Keith Crook

Members:

Colin Clark

Neville Exon

Gary Greene

Charles Helsley

Richard Holmes

Stuart Kinqan

Larry Machesky

Jacques Recy

Alf Simpson

David Tappin

Rodney Walshaw

The Study Group reviewed the 1984 report annexed to the STAR-I Summary Report (Annex VII) and noted that the Resolution (STAR-I.2) "that an Island Drilling Programme be formulated" was proposed because of:

- the limited outcrops on islands, which constrain the information available from surface studies;
- the opportunity to use onshore drilling to replace expensive offshore drilling that could obtain data needed to interpret offshore studies;
- the possible interest of the Crustal Drilling Project in drilling ophiolites in the region; and
- the fact that projects proposed by regional workshops have included drilling suggestions or would be enhanced by drilling.

The Study Group noted that shallow drilling in lagoons in the Cook Islands will commence in 1986 under Netherlands auspices. A diamond drill with wire-line core recovery will be utilized. The project is funded for two years and includes a technical training programme. Objectives are assessment of rock phosphate resource potential and investigation of the sedimentary history of atolls. Cambridge University is interested in the latter aspect.

The Study Group requested that the Crustal Drilling Project be approached regarding ophiolite drilling in the region. The Study Group suggested that CCOP/SOPAC Techsec make this approach.

The Study Group, in reviewing the specific areas of interest identified in the 1984 Report, recommended that separate categories of drilling should be identified, grouped by depth of penetration and equipment required.

The Study Group resolved that the Island Drilling Programme could best be implemented by encouraging individuals and groups to prepare specific proposals for drill sites.

- (i) Proposals would follow generally the ODP format. Scientific objectives and technical requirements should be closely stated. The regional geological context and detailed local geology should be included.
- (ii) Proposals should be submitted to the Chairman, reviewed and categorised by the Island Drilling Study Group at its next meeting.
- (iii) Where appropriate, proposals will be included in the STAR Work Programme for reference to CCOP/SOPAC, IOC and member countries for inclusion in their Work Programmes.
- (iv) Funding for individual proposals could be sought from CCOP/SOPAC, bilateral arrangements or organizations outside the region.
- (v) A file of developed proposals should be maintained by the Chairman and CCOP/SOPAC Techsec so that drilling can be undertaken at short notice should equipment or funding become available unexpectedly.
- (vi) Funding for multi-lateral workshops or planning meetings of IDP could be sought from IOC and CCOP/SOPAC.

6. COASTAL AND NEARSHORE PROCESSES AND RESOURCES STUDY GROUP

Dr. R. Howorth: Chairman
Mr. B. Richmond: Rapporteur

Members:

Colin Clark
Stephen Danitofea
Laurent d'Ozouville
Gary Greene
Charles Helsley
Richard Holmes
Marae Irata
Stuart Kingan
Kazuhiro Kitazawa
Larry Machesky
Don Mallick
John Miller
Peter Roy
Zhiang Ruixiang
Mike Sandy
Alf Simpson
Tauaasa Taafaki
David Tappin
Sione Tongilava

This new Study Group met during the Second Annual Session in Honiara, Solomon Islands.

The importance of coastal and nearshore processes and resource work in the existing CCOP/SOPAC Work Programme was noted.

It was further noted that the IOC-UN (OETB) guiding group of experts on the programme of ocean science in relation to non-living resources (OSNLR) recommended that priority be given to examining non-living resources of coastal zones and appropriate training activities.

Aims and Objectives of the Study Group would include the following projects:

- a) Evaluation of non-living resources including sand, gravel, phosphates, and placer deposits.

- b) Groundwater resource assessment in low-lying coastal areas and atolls.
- c) Shoreline movement and sediment budget studies, in particular studies related to coastal erosion.
- d) Coastal Engineering studies.
- e) Coastal and nearshore mapping including remote sensing.
- f) Evolution of coral reefs.
- g) Investigation of sea-level change, tectonics and shoreline movements, past - present - future.
- h) Studies of shallow-water environments and pollution.
- i) Hydrocarbon and alternative energy assessment.
- j) Evaluation of man's impact on the coastal environment.
- k) Development of coastal evolution models.

As an initial step it is recommended that the proposed STAR Workshop on Nearshore Areas planned for 1986 be concentrated on the evaluation of coastal processes, such as shoreline movement, especially coastal erosion and sediment budget studies to identify unique aspects to the region and to delineate long-term objective and appropriate methodologies and resources for coastal protection.

The objectives of the Workshop are to include:

- a) Review existing case studies in the South Pacific and in other comparable areas.
- b) Identify those aspects unique to the region.
- c) Delineate long-term objectives and appropriate methodologies including remote sensing.
- d) Assess available resources - financial and equipment.
- e) Develop regional and local data handling systems.
- f) Devise programmes for training nationals in data acquisition and improving public awareness in problem areas.

It was recommended that in view of the intention to hold the workshop in conjunction with the 1986 CCOP/SOPAC Session funding for participants to attend the Workshop should be finalized as soon as possible.

ANNEX VI

STAR PROJECTS

The STAR projects are listed herein; they may also be found in the following references:

- (i) CCOP/SOPAC-IOC-UNU Workshop on Basic Geo-scientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific, Suva, Fiji, 3-7 October 1983. (IOC Workshop Report No. 35).
- (ii) Proceedings of the Thirteenth Session of CCOP/SOPAC, Apia, Western Samoa, 29 October - 6 November 1984.
- (iii) IOC Report on Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources (STAR), First Session, Apia, Western Samoa.

I. A-1. SEDIMENTARY BASIN DEVELOPMENT IN ISLAND ARCS

Project A-I.1 Stratigraphic Correlation in the Southwest Pacific

(a) Palaeontology

Status	: Studies are underway as part of Tripartite I and II programmes and island mapping by local geological surveys.
Identified Needs	: A shortage of palaeontologists with a good knowledge of the area.
Recommendation	: Co-ordination among palaeontologists of all countries interested in the southwest Pacific.
Related Projects	: CCSP.REG.26; IOC Prog. SET.

(b) Land-based Studies

Status : Shallow drilling in Cook Island lagoons will commence in 1986.

Recommendations :

- : Request CCOP/SOPAC Techsec to approach Crustal Drilling Project to promote ophiolite drilling in the region.
- : That the island drilling programme be implemented and that individuals and groups be encouraged to submit specific drill sites proposals for review by the Study Group.

Related Projects : CCSP.REG.39; IOC Prog. SET.

(c) Seismic Stratigraphy

Status : on going

Related Projects : CCSP.FEG.26; IOC Prog. SET

(d) Non-Palaeontological Projects

Status : Ongoing

Project A-I.2a Evolution of Coral Reefs and Associated Environments

Status : Ongoing

Recommendation : To encourage further high-resolution and side-scan data collection and submersible studies.

Related Projects : CCSP.REG.32, 37; IOC Prog. SET.

Project A-1.2b Depositional History of East Santo Basin

Status : Ongoing (Tripartite Programme)

Recommendation : Collect high-resolution seismic-reflection profiles and side-scan sonar sonographs; use submersible to study boundary conditions.

Related Projects : CCSP.REG.32, 37; IOC Prog. SET.

Project A-1.3 Hydrocarbon Source, Maturation and Entrapment Models in Island Arc Settings and Collision Terrains

Status : Ongoing (Tripartite programme)

Suggested Project : Development of process-related facies models, patterns of organic carbon distribution, porosity-permeability trends and the evolution with burial in the West New Britain Trench, and Solomons, New Hebrides and Tonga arcs.

Planning : SeamARC II or GLORIA swath-mapping information on surface morphology, in conjunction with Project A-2.5(a).

Related Projects : CCSP.REG. 33; IOC Prog. MAP; STAR Proj. A-2.5(a)

Project A-1.4 Sedimentary Basin Delineation and Resource Assessment

Status : Ongoing

Data collected by Tripartite and being interpreted; data by NATSUSHIMA in northern Tonga being interpreted; data being collected in Coral Sea by RIG SEISMIC;

Forthcoming cruises include French SEAPSO cruise with JEAN CHARCOT; U.S. cruise of MOANA WAVE and THOMAS WASHINGTON; New Zealand cruise of TUI; proposed Russian cruises of R.V. PEGAS and R.V. NORSKOY GEOFIZIK.

Related Projects : CCSP.REG. 1, 26, 33; IOC Prog. MAP, SET; STAR A-1.2(b).

Project A-1.5 Data Management

Status : Compiled cruise schedules in SOPAC region for coming year. Established mailing list and appropriation of data base computer from France.

Recommendation : See recommendations of Annex V.4.

Related Projects : CCSP.REG.17.

II. A-2. TECTONICS AND RESOURCES POTENTIAL OF ISLAND ARCS

Project A-2.1 Fore-arc Processes in the Tonga-Lau Region

Status : Ongoing (Tripartite programme), R.V. NATSUSHIMA and R.V. JEAN CHARCOT cruises; proposed cruises of R.V. PEGAS and R.V. NORSKOY GEOFIZIK.

Recommendation : Continue to promote ODP drilling.

Related Projects : CCSP.REG. 3, 28; IOC Prog. MAP

Project A-2.2 Back-arc and Rifting Processes in the Fiji Platform-North Fiji Basin-New Hebrides Arc Region

Status : Ongoing (Tripartite programmes); cruises of R.V. SONNE, and forthcoming R.V. MOANA WAVE and R.V. JEAN CHARCOT.

Recommendation : Continue to promote ODP drilling.

Related Projects : CCSP.REG. 3, 4; IOC Prog. MAP.

Project A-2.3a Arc Reversal and Fore-arc Processes in the Solomon and New Hebrides Arcs

Status : Ongoing (Tripartite programmes); proposed cruises of R.V. JEAN CHARCOT and R.V. MOANA WAVE.

Recommendation : Continue to promote ODP drilling

Related Projects : CCSP.REG. 2, 3; IOC Prog. MAP.

Project A-2.3b Swath-Mapping of the Woodlark-Solomon Islands Triple Junction

Status : Proposed, but not yet fully funded: part-funded from Australian and U.S. sources, Australian funding not yet assured.

Background : Tripartite II R.V. MOANA WAVE cruise in Manus Basin will traverse triple junction en route from Honiara, with SeaMARC II equipment and technical crew onboard. Scientific complement includes key participants in Tripartite I R.V. KANA KEOKI survey of triple-junction region.

Research Plan : Three days of SeaMARC II swath-mapping to delineate geomorphic features of the triple-junction region and the postulated line of submarine volcanic centres extending from Kana Keoki Seamount (? extinct) to Kauachi (presently active).

Related Projects : CCSP.REG. 2, 10; IOC Prog. MAP.

Project A-2.5a Evolution of Major Geomorphic Terrains in the Papua New Guinea Region

Status : Ongoing

Recommendation : Continuation of studies of both allochthonous and alltochthonous blocks in Papua New Guinea.

Related Projects : CCSP.REG. 3, 34; IOC Prog. MAP

Project A-2.5b Delineation of Morpho-Tectonic Features in the Huon Gulf and Vitiaz Strait related to Progressive Collision between the Finnsterre-New Britain Block and Mainland Papua New Guinea

Status : Suggested new project

Background : The NATSUSHIMA cruise in December 1983, together with onland data collected in 1984 reveals submarine sedimentary-geomorphic and onshore structural-sedimentological features consistent with collision and ESEwards triple-junction migration along the southern margin of the South Bismarck Plate with the Australia and Solomon Sea Plates.

Research

- (i) GLORIA and SeaMARC II swath-mapping in the Huon Gulf to establish detailed surface morphology.
- (ii) A limited high-resolution multichannel seismic survey in the Huon Gulf to establish subsurface structure for comparison with onland (N. margin Marckham Valley) structure.
- (iii) A dredging and coring programme to establish the ages and facies of surficial and "basement" sediments in the Huon Gulf, including the age and subsidence history of coral pinnacles on the south flank of the Marckham Canyon.

Related Projects : IOC Prog. MAP.

Project A-2.6 Pre-Pliocene Break-up History of the Southwest Pacific: Regional Framework Study

Status : On going

Recommendation : Continue to promote ODP drilling

Related Projects : CCSP.REG.35.

Project A-2.7 Investigation of Newly-forming Micronesian Trench

Status : Initiation, new project.

Background : Studies by L. Kroenke indicate that a new arc-trench system may be developing to connect Samoa with Caroline Ridge north of Ontong-Java Plateau. (see Annex V.3).

Recommendations : Field work should be initiated

Related Projects : CCSP.REG. 3, 39; IOC Prog. MAP.

III B DISTRIBUTION, CHARACTER AND GENESIS OF OFFSHORE METALLIC DEPOSITS

Project B-1 Phosphorites, Phosphate Sediment and Associated Ferromanganese Crusts

Status : Ongoing

Recommendation : Use of submersibles for in situ sampling.

Related Projects : CCSP.REG. 11.

Project B-2 Near-surface Submarine Volcanoes: Metallogenesis and Assessment of Volcanic Hazards

Status : Ongoing (Tripartite programme)

Recommendation : Use of submersibles for further sampling and observation

Related Projects : CCSP.REG. 11.

Project B-3 Nature, Origin and Development of Metalliferous Deposits along Active Rifts

Status : Ongoing (Tripartite programme, R.V. SONNE and R.V. JEAN CHARCOT).

Recommendation : Use of submersibles for sampling and observation

Related Projects : CCSP.REG. 10.

Project B-4 Distribution, Composition and Environment of Deposition of Cobalt-rich Ferromanganese Crusts

Status : Ongoing (Tripartite programme)

Related Projects : CCSP.REG.29.

Project B-5 Environments of Deposition of Potentially Economic Nodules

Status : Ongoing (R.V. HAKUREI MARU NO. 2 and
Tripartite programme)

Related Projects : CCSP.REG. 12, 15, 22.

IV. C. SEDIMENT BUDGETS IN REEF FRINGED LAGOONS

Project C-1 Coastal and Nearshore Processes Workshop

Status : Formulation of Coastal and Nearshore
Processes workshop in association with
15th Session CCOP/SOPAC.

Recommendation : See Annex V.6

Related Projects : CCSP.REG. '37; IOC Prog. SET.

V. D. GEOLOGIC HAZARDS ASSESSMENT

Project D-1 Marine Geologic Hazards Study of Vanuatu

Status : Initiation, new project

Background : Studies from Tripartite work indicate many
geologic features on seafloor within Vanuatu
may be considered as geologic hazards.

Recommendations : Complete seafloor mapping

Related Projects : CCSP.REG. 40; IOC Prog. MAP

Project D-2 Seismic Hazard Assessment, Lae Urban Area

Status : Proposed new project

Background : The C-14 dates in the Lae urban area in the
range 1,000-20,000 years indicate uplift
rates of 1-2 m/1000 years for the past
20,000 years, vertical movement for past
5,000 years and tilting of up to 35° during
5,000-20,000 years. Is this a result of
creep or episodic (? 1,000 year recurrence)
1 m + movements?

Recommendation : Initiate offshore framework study (cf. A-2.5a
to provide geomorphic/structural control

- Research Plan
- (i) Land-based laser-ranging geodetic studies across western Huon Gulf to establish dynamics of plate convergence/terrain docking.
 - (ii) Delineate submarine geomorphology of Huon Gulf (cf. A-2.5a) to establish sites for deployment of ocean bottom seismometers (OBS).
 - (iii) Deploy OBS array for 12 month study of microseismicity of plate convergence in Huon Gulf, including first motion studies of seismic events.
- Related Projects : CCSP.REG. 41; OC Prog. MAP.

ANNEX VII

LIST OF ACRONYMS

BMR	Bureau of Mineral Resources (Australia)
CCOP/SOPAC	Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas
COGS	Consortium for Ocean Geosciences of the Australian Universities
ESCAP	UN Economic and Social Commission for Asia and the Pacific
GLORIA	Geological Long Range Inclined Asdic
HIG	Hawaii Institute of Geophysics (University of Hawaii, USA)
IDP	Island Drilling Programme
IFERMER	Institut Francais de Recherche pour l'Exploitation de la Mer
IOC	Intergovernmental Oceanographic Commission
IPPBAS	Indo-Pacific Plate Boundary Arcs
MAP	Margins of Active Plates (WESTPAC Project)
NERDDC	National Energy Research Development and Demonstration Council (Australia)
NZOI	New Zealand Oceanographic Institute
OBS	Ocean Bottom Seismometer
ODE	Ocean Drilling Programme
ORSTOM	Institut Francais de Recherche Scientifique pour le Développement en Coopération (previously Office de la Recherche Scientifique et Technique Outre-Mer)
OSNLR	Ocean Science in Relation to Non-Living Resources
PRP	Pacific Regional Panel (of Ocean Drilling Programme)
ROV	Remotely Operated Vehicle
SEAPSO	Sea-beam dans le Pacifique Sud-Ouest

SET	Sea Level, Environment and Tectonics (WESTPAC Project)
SIO	Scripps Institution of Oceanography (USA)
SPOT	Satellite pour l'Observation de la Terre
STAR	The Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
Techsec	Technical Secretariat of CCOP/SOPAC
UN	United Nations
UN(OETB)	UN Ocean Economics and Technology Branch
UNDP	United Nations Development Programme
USP	University of the South Pacific (Fiji)
WESTPAC	IOC Programme Group for the Western Pacific
WPRP	West Pacific Regional Panel (of Ocean Drilling Programme)