

**Part 4: JOINT CCOP/SOPAC — IOC WORKING GROUP ON SOUTH
PACIFIC TECTONICS AND RESOURCES (STAR)**

**Part 4: : JOINT CCOP/SOPAC — IOC WORKING GROUP
ON SOUTH PACIFIC TECTONICS AND RESOURCES
(STAR)**

First Session, Apia, Western Samoa, 2 November 1984

SUMMARY REPORT

1. Opening of the Session and presentation of the Terms of Reference

The meeting was opened by the Chairman of the former CCOP/SOPAC Working Group on South Pacific Studies on Tectonics and Resources (SOPAC/STAR), Dr Charles Helsley, who welcomed the participants (ANNEX III) and invited the representatives of the two sponsoring organisations to make an opening statement.

The representative of the Intergovernmental Oceanographic Commission of UNESCO, Dr Giermann, conveyed the hearty greetings of the Secretary of the Commission, Dr Ruivo, to the first Session of STAR expressing the wish that this new joint body may contribute its part to an increase of scientific knowledge and wealth in the South Pacific region. Dr Giermann's remarks and the relevant points of IOC interaction are given in ANNEX IV.

In closing, the IOC representative wished the new Joint Group good luck in its work.

2. Adoption of the Agenda

The agenda was adopted without changes, and is attached as ANNEX I.

3. Election of the Chairman and Vice-Chairman and appointment of the rapporteur

Dr C. Helsley was nominated as the Working Group Chairman, and Mr Ronald Richmond as Vice-Chairman by the Papua New Guinea representative, and subsequently elected. Dr Eric Decarlo and Mr James Eade were nominated and appointed session rapporteurs.

4. Preparation of a Work Programme with Projects, taking into account the recommendations made by the Suva Workshop, October 1983 and by the Third Session of WESTPAC in Townsville, September 1983

The Working Group reviewed the CCOP/SOPAC - IOC - UNU Workshop Report No. 35 on Basic Geo-scientific Marine Research

Required for Assessment of Minerals and Hydrocarbons in the South Pacific and established an *Ad hoc* Committee to formulate a priority listing of the Work Programme. This listing is presented in ANNEX V.

5. Establishment of ad hoc Working Groups (Study Groups) on specific subjects (such as age dating; ship schedule information dissemination; ocean drilling plans; tectonic analysis)

As a means of focusing attention upon significant scientific problems of the region, the Working Group established the following five Study Groups:

(1) Ocean Drilling Study Group (Chairman : Dr K. Crook)

The Working Group was informed that the new academic drilling vessel *Joides Resolution* will be in the western Pacific in the late 1980s. The Working Group therefore formulated resolution STAR-1.1 and established the Study Group. The report of this Group is given as ANNEX III.

(2) Age Dating Study Group (SW portion of the Pacific Plate, and western portion of the Indo-Australian Plate (Chairman : Dr B. Keating)

The Working Group noted that:

- (i) Radiometric age dating is fundamental to geological studies of the Pacific,
- (ii) That several major island and seamount groups in this region remain undated, and
- (iii) Age controls on island arcs and back-arc basins are needed.

The Working Group therefore recommended that a compilation of radiometric data be made for the southwest Pacific and northeast portion of the Indo-Australian region, and established a Study Group to be chaired by Dr B. Keating to facilitate the compilation and identify regions of future study.

(3) Tectonics Study Group (Chairman: Dr L.W. Kroenke)

In considering the importance of tectonic analysis in the solution of regional geological problems, the Working Group recognised that there was a continuing need for information on the regional geological framework and structural relationships throughout the South Pacific in order to facilitate exploration and resource assessment. Aware of the value of tectonic concepts and ideas, in stimulating exploration and determining new directions for research, the Group also noted the importance of understanding the geodynamic processes operating at divergent and convergent margins, past and present, within the region.

The Working Group therefore recommended that a Study Group be established under the Chairmanship of Loren Kroenke to identify problems, formulate projects, and design experiments to further develop tectonic concepts, test tectonic hypotheses, and refine tectonic theory. With a focus on the South Pacific the Study Group should:

- (i) examine the historical development of plate margins in the Pacific,
 - (ii) investigate problems relating to the formation and deformation of lithosphere in the South Pacific, and
 - (iii) determine rheological properties of the upper mantle beneath the South Pacific to evaluate: boundary conditions, horizontal and vertical motions, and compositional heterogeneities of the asthenosphere.
- (4) The Working Group decided to establish a Study Group for Ship Operations information exchange to receive and disseminate forthcoming cruise proposals and ship schedules, and agreed that the CCOP/SOPAC Data Manager would act as Chairman of the study group and Co-ordinator for this system. Dr d'Ozouville, the current CCOP/SOPAC Data Manager, declared that in order to allow better co-operation between institutions, he will compile a summary of the planned research cruises in the Southwest Pacific. He would like to have inputs from the various research institutions present at this meeting, and would appreciate if they could make their inputs on the form distributed by him. He would like to receive subsequent changes or additions at the following address:

CCOP/SOPAC Data Manager
Co-ordinator for ship operations and
information exchange
c/o Mineral Resources Department
Private Mail Bag, G.P.O.
Suva
FIJI
Attn: Dr L. d'Ozouville

(5) **Island Drilling Programme**

Recognising the fact that this ocean dominated region has very limited exposures and that there is an urgent need for additional geologic data, the Working Group established a Study Group to formulate plans for drilling in various critical areas in the region. The report of this Study Group is given in ANNEX VII.

6. Report from the Submersible Workshop Preparatory Committee

A report from the Organising Committee was received. The Working Group decided to accept this Workshop as a STAR activity and took decisions as outlined in Resolution STAR-1.3.

7. International co-operation on the use of submersibles for research purposes in the context of agreed international global and regional programmes and projects, and related TEMA activities

The Working Group, in recognising that the IOC had expertise on the potential application of submersibles in mineral resource assessment and that IOC promotes training activities through TEMA, agreed that there may be a training component and suggested that the Noumea Submersible Workshop consider training in its deliberations.

8. Plans for a Workshop on Mineral Resources of Nearshore Areas

The Workshop noted the great interest of member countries in this subject, and that a second Workshop of a similar nature had been proposed on Control of Coastal Erosion. It recommended to merge these two activities and adopted Recommendation STAR-1.5.

9. Establishment of National Contact Points

The Working Group adopted Resolution STAR-1.4.

10. Future directions of STAR, and identification of resources/donors

The Working Group noted that also in future permanent study groups should be established

within STAR. The purpose of these groups would be to evaluate the review proposed research programmes and add or delete other activities as deemed necessary by such study groups. The group also noted that there was interest in the establishment of a programme of geotraverses in the area.

The Working Group noted that the Cyprus Drilling Project has been completed and was considering establishing a drilling programme in the Marianas Arc, and suggested that the Cyprus Drilling Project be contacted in an attempt to interest them in drilling problems in the Southwest Pacific and to establish an Island Drilling Programme to address important scientific problems in the region.

Considering future resources, the Working Group requested IOC to provide funds for a part-time co-ordinator (preferably from the region) to manage and implement STAR activities during the coming year. The Working Group believes that 3 to 4 months plus some local travel would be appropriate since most of the

work would be at the Techsec. Office in Suva.

11. Date and Place of the next Session

The Group agreed that the next meeting of STAR be held immediately prior to the 14th Session of CCOP/SOPAC in Honiara, Solomon Islands.

12. Adoption of the Summary Report and the Resolutions and Recommendations contained therein

The Working Group reconvened on Monday, 5 November, and adopted the Summary Report and the Resolutions and Recommendations contained in ANNEX II.

13. Closure of the Session

The Working Group on STAR closed on Monday afternoon, 5 November 1984. In its name the Working Group Chairman and Vice-Chairman thanked the organisers and CCOP/SOPAC for the meeting arrangements, and the participants for their valuable inputs into the discussions.

ANNEX I Agenda

1. Opening of the Session and Presentation of the Terms of Reference
2. Adoption of the Agenda
3. Election of the Chairman and Vice-Chairman and Appointment of the Rapporteur
4. Preparation of a Work Programme with Projects, taking into account the recommendations made by the Suva Workshop, October 1983 and by the Third Session of WESTPAC in Townsville,

- September 1983
5. Establishment of ad hoc working groups (Study Groups) on specific subjects (such as age dating; ship schedule information dissemination; ocean drilling plans; tectonic analysis)
 6. Report from the Submersible Workshop Preparatory Committee
 7. International co-operation on the use of submersibles for research purposes in the context of agreed international global and regional programmes and projects, and

- related TEMA activities
- 8 Plans for a Workshop on Mineral Resources of Nearshore Areas
- 9 Establishment of National Contact Points
- 10. Future directions of STAR, and identification of resources/donors

- 11. Date and place of the next Session
- 12. Adoption of the Summary Report and the Resolutions and Recommendations contained therein
- 13. Closure of the Session

ANNEX II: Resolutions and Recommendations

Resolution STAR-1.1 OCEAN DRILLING PROGRAMME

The Joint Working Group on STAR

Noting that there is a possibility of scientific ocean drilling being undertaken in the South Pacific region by the Ocean Drilling Programme in the late 1980s;

Noting further that various projects proposed by CCOP/SOPAC Workshops have included drilling suggestions; and that drilling in the region would substantially contribute to the objectives of STAR;

Noting with regret that in the South Pacific — Australasian region is presently under represented in the Ocean Drilling Programme and that increased membership in ODP by regional nations would facilitate regional scientific input into the programme, improve the likelihood of drilling in the region, and enhance the quality of geoscientific services supplied to the region;

Decides to encourage ODP drilling in the region and that, to facilitate this, an Ocean Drilling Study Group be established, under the chairmanship of Keith Crook, to ensure that drilling proposals of relevance to STAR objectives are identified; that proponents of these proposals are asked to submit their proposals to the ODP Planning Committee before the end of 1984; and that proponents send summaries of their proposals to the Chairman of the Study Group for distribution to the other members of the Group;

Urges that more STAR Member Countries in the South Pacific — Australasian region become full or consortium members of ODP in the

immediate future.

Resolution STAR-1.2 ISLAND DRILLING PROGRAMME

Noting that many projects proposed by regional workshops include drilling suggestions or could be greatly enhanced if drilling were included as part of the work;

Noting further that the limited outcrops on islands of the region severely constrain the amount of information that can be acquired from surface studies alone;

Resolves that Island Drilling Programme (IDP) be formulated for the region and that Member Countries of STAR be encouraged to support this IDP through provision of funds and/or equipment.

Resolution STAR-1.3 SUBMERSIBLES WORKSHOP NOUMEA

The Joint Working Group on STAR

Decides that the Workshop on Submersibles be a function of STAR under the name of "STAR Workshop on the Use of Manned Submersibles and Remotely Operated Vehicles in the South Pacific", sponsored by ORSTOM and IFREMER;

Decides to continue with the Organising Committee for the Noumea Submersibles Workshop, now called International Steering Committee, and thanks the Committee and its Chairman for the valuable preparatory work done so far;

Decides further that the work of the Steering Committee be co-ordinated by the Director, CCOP/SOPAC;

Decides also to hold the above mentioned Workshop in Noumea in timely conjunction with the next CCOP/SOPAC and STAR meetings, to be held in the Solomon Islands in the second half of 1985;

Finally decides to ask the private sector to donate funds to the Workshop and in return allow them to present a small visual exhibition in the conference centre.

Resolution STAR-1.4 NATIONAL CONTACT POINTS

The Joint Working Group on STAR

Recognising the need for Contact Points in each participating country to facilitate the activities of STAR;

Requests STAR Member Countries to identify the names of individuals prepared to act as National Contact Points for STAR and inform the Secretariats of both sponsoring organisations (CCOP/SOPAC and IOC) of these names.

Recommendation STAR-1.5 WORKSHOP ON NEARSHORE AREAS

The Joint Working Group on STAR,

Noting that there is widespread support for the concept of a regional workshop on nearshore geological problems, and that two such workshops have been proposed, one on Mineral Resources of Nearshore Areas, the other on Control of Coastal Erosion in Pacific Island Nations;

Recommends

1. that the two workshops be combined and held in conjunction with the 1986 CCOP/SOPAC Session in the Cook Islands
2. that a small organising committee be set up under the guidance of Dr Russell Howorth (Victoria University, Wellington) and Dr Eric Bird (University of Melbourne) to plan the workshop, and
3. that a small planning meeting be held in the region in mid 1985.

ANNEX III : List of Participants

Member Country Representatives

Australia

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Mr Anthony Utanga (Chairman: Work
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Mr Kalman Kiri
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Water Supply
Port Vila

Mr Arthur McCutchan
Director
Ministry of Geology, Mines and Rural
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Western Samoa

Mr Alan Cresswell
Acting Superintendent
Apia Observatory
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Representatives of International Organizations/Projects

CCOP/SOPAC (sponsoring organisation)

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Project Manager
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IOC (of UNESCO) (sponsoring organisation)

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ANNEX IV : Report of IOC Representative

Dr Giermann reminded the group, that it is now for more than ten years that the IOC and CCOP/SOPAC have co-operated in a most friendly and successful manner, and that it is only logical that this common effort ended in the formation of a joint body. The IOC representative referred to the decision taken by the IOC Executive Council at its 17th Session in Paris, January/February 1984, to co-sponsor STAR. As some of the participants of STAR had probably not yet had close contact with the IOC, the IOC representative then introduced the Commission and its manifold tasks to the audience. He explained that many of the Commission's activities have a bearing on the Pacific, and that to implement these, the Programme Group for the Western Pacific (WESTPAC) had been established to serve as regional arm.

Amongst the programmes with particular reference to the STAR region, OSNLR had to be mentioned first. OSNLR is the IOC programme of Ocean Science in Relation to Non-Living Resources, which the UN through its Ocean Economics and Technology Branch (OETB) co-sponsors. It is aimed at the study of regional geological and geophysical problems so as to provide the scientific basis for mineral exploration and exploitation. WESTPAC, at its 3rd Session in Townsville, Australia, in September 1983, took up this demand and established two geoscience programmes under OSNLR, one entitled Sea Level, Environment and Tectonics (SET) and the other Margins of Active Plates (MAP).

The IOC representative invited the new group to carefully consider, when selecting its own projects, WESTPAC's decision as well as the recommendations of the Joint CCOP/SOPAC — IOC — UNU Workshop on Basic Geoscientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific, which he had chaired himself in Suva, in October 1983. In a later session, STAR will also have to take into account the outcome of the First Session of the Guiding Group for OSNLR, which will meet in Paris, in January 1985.

In closing, the IOC representative drew the attention of the group to the services and training

opportunities rendered by the IOC, with particular mention of the International Oceanographic Data Exchange (IODE) system, the International Co-ordination Group for the Tsunami Warning System in the Pacific (ITSU), and the TEMA Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries. The IOC representative wished the new Joint Group good luck in its work.

For reference by STAR members, the following are excerpts of the IOC actions establishing the Joint Working Group.

Resolution EC-XVII.6

FORMATION OF A JOINT CCOP/SOPAC — IOC WORKING GROUP ON SOUTH PACIFIC TECTONICS AND RESOURCES (STAR)

The Executive Council,

Having been requested by the Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC) to co-sponsor its Working Group on South Pacific Studies on Tectonics and Resources (SOPAC/STAR), with the aim of assisting and promoting research programmes in marine geology and geophysics in the South Pacific;

Recalling with appreciation the close and fruitful co-operation between the Commission and CCOP/SOPAC over a period of more than 10 years;

Decides to co-sponsor STAR which will be known as "Joint CCOP/SOPAC — IOC Working Group on South Pacific [Studies on] Tectonics and Resources", and which will work under the Terms of Reference and Composition annexed to this Resolution.

Annex to Resolution EC-XVII.6

FORMATION OF A JOINT CCOP/SOPAC — IOC WORKING GROUP ON SOUTH PACIFIC TECTONICS AND RESOURCES (STAR)

TERMS OF REFERENCE AND COMPOSITION

The CCOP/SOPAC — IOC Joint Working Group on South Pacific Tectonics and Resources (STAR) shall:

- i) formulate plans to implement research programmes and projects that are developed by CCOP/SOPAC — IOC or

- joint workshops for the South Pacific region, and to facilitate the co-ordination of such implementation;
- ii) evaluate, on a regular basis, the results of projects carried out under STAR, and to update the overall programme of research, as appropriate;
- iii) facilitate exchange of the data collected, and ensure dissemination of the scientific results of the agreed projects;
- iv) assess the scientific needs of the participating countries in the region on a continuing basis.

Membership of the Joint Working Group will be open to all member countries of IOC and CCOP/SOPAC.

ANNEX V : Listing of Work Programmes

(pursuant to item 4 of the Agenda)

(resulting from a meeting of the Work Programme *Ad hoc* Committee under the Chairmanship of A. Utanga)

Terms of Reference

1. To prepare Work Programmes for projects formulated at the IOC Workshop in Suva.
- II. To consider the USSR proposal (IESSWP) (CR.6-6.5 II)

Members

A Utanga, Cook Islands (Chairman); R. Herzer, New Zealand (Rapporteur); M. Sandy, Papua New Guinea; D. Tappin, Tonga; G. Greene, USA; V. Leonov, USSR; K. Crook, Australia; R. Holmes, Fiji.

References

1. 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)
2. Proceedings of the Twelfth Session CCOP/

SOPAC, Nuku'alofa, Tonga, 11-20 October 1983.

3. Others

I. A-1.

Sub-Programme on Sedimentary Basin Development in Island Arcs Project A-1.1 Stratigraphic Correlation in the Southwest Pacific

(a) *Palaeontology*

Status: Studies 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' interests in the Southwest Pacific.

(b) *Land-based Studies*

Status: Ongoing

Recommendation: Initiate an island drilling

programme as soon as practical.
Co-ordinate island drilling programme with Ocean Drilling Programme.
Identify areas of interest for stratigraphic drilling based on:

1. Results of Tripartite programmes
2. Recommendations of national geological surveys
3. Recommendations from other interested parties

Island drilling programme is also pertinent to projects A-1.2, A-1.3, A-1.4. The following programme is proposed:

A-1.1 (b) (ii)

In Vanuatu, Eastern Solomon Islands, PNG, and Tonga, several onland drilling sites are proposed that would assist in the correlation of offshore seismic stratigraphy with onshore stratigraphy. These sites are eastern Malakula, Espiritu Santo, and Torres Islands in Vanuatu, Nendo Island in the Eastern Solomon Islands, Eua in Tonga, and New Ireland and Cape Vogel Basins in Papua New Guinea.

(c) **Seismic Stratigraphy**

Status: Ongoing

(d) **Non-Palaeontological Projects**

Status: Ongoing

Project A-1.2 Evolution of Coral Reefs and Associated Environments

Status: Initiated

Recommendation: Insert new objective.

(f) Study of the geometry, litho- and chronostratigraphy of reefs in relation to engineering properties.

Suggested Programme:

A-1-2 (b) (ii)

The unique development of an insular basin along the eastern shelf of Espiritu Santo Island in Vanuatu appears to have formed by the gradual subsidence of a reef-fringed graben. Tectonic uplift of the island since Late Miocene time has supplied over 2 km of detrital sediment that is ponded behind the reefs. Scattered carbonate build-ups are present through time and space. Continued investigation of this area would assist to establish the relationship between reef growth and tectonism.

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

Status: Ongoing (Tripartite I & II programme)

Recommendation: Initiate further projects in Recommendation categories A and B of 1983 IOC Workshop Report 35.

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

Background: The *Natsushima* cruise in December 1983 confirmed the existence of a turbidite fill in the West New Britain Trench (west of 150 06'E) by single and multi-channel seismic lines, and in the Markham Canyon mouth by coring.

Bathymetry from that cruise and with Krause *et al.* (1970) shows that this is a site of "non-fan" turbidite accumulation.

Planning: (i) SeaMARC II swath-mapping to establish detailed surface morphology

(ii) Deep-tow high-resolution seismic profiling to image facies geometry

(iii) HPC-drilling under ODP to provide samples for calibration of seismic and SeaMARC-II data, and for determination of relevant physical and chemical properties.

Project A-1.4 Sedimentary Basin Delineation and Resource Assessment

Status: Ongoing (Tripartite I & II programme)

Recommendation: Add to Recommendation B:

6. North New Hebrides Platform

7. Western Cape Vogel Basin

8. Deepwater basins marginal to Viti Levu and Vanua Levu

Project A-1.5 Data Management

Status: Initiated (CCOP/SOPAC HIG Data base, Petroleum training course proposal by N.Z. Geological Survey)

Recommendation: Initiate a master index of bottom sample locations and seismic lines.

II. A-2

Tectonics and resource Potential of Island Arcs

Project A-2.1

Fore-arc Back-arc Processes in the Tonga — Lau Region

Status: Ongoing (Tripartite I & II programme, RV *Sonne*, R/V *Jean Charcot*)

Recommendation: ODP drilling should be promoted

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

Status: Ongoing (Tripartite programmes and R/V *Jean Charcot*)

Recommendation: ODP drilling should be promoted

Project A-2.3

Arc Reversal and Fore-arc Processes in the Solomon and New Hebrides Arcs

Status: Ongoing (Tripartite programmes and R/V *Jean Charcot*)

Recommendation: ODP drilling should be promoted

Project A-2.4

Initiation and Early Stages of Back-arc Basin Evolution

Status: Ongoing (BMR studies by HMAS *Cook* and R/V *Jean Charcot*)

Recommendation: ODP drilling should be promoted

Project A-2.5

Evolution of Major Geomorphic Terrain in the Papua New Guinea Region

Status: Ongoing

Recommendation: ODP drilling should be promoted. Island drilling should be promoted.

Project A-2.6

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

Status: Ongoing (Tripartite programme)

Recommendation: ODP drilling should be promoted.

B. Distribution Character and Genesis of Offshore Metallic Deposits

Project B-1

Phosphorites, Phosphate Sediment and Associated Ferromanganese Crusts

Status: Ongoing

Project B-2

Near-surface Submarine Volcanoes: Metallogensis and Assessment of Volcanic Hazards

Status: Ongoing (Tripartite programme)

Recommendation: Add to area of interest: St Andrew Strait, SE Manus area

Submarine volcanoes near Tinakula in New Hebrides Arc, Tofua chain in Tonga Arc

Project B-3

Nature, Origin and Development of Metalliferous Deposits along Active Rifts

Status: Ongoing (Tripartite programme)

Project B-4

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

Status: Ongoing

Project B-5

Environments of Deposition of Potentially Economic Nodules

Status: Ongoing

C. Sediment Budgets in Reef-fringed Lagoons

***Status:* Initiated (Coastal erosion workshops, Workshop proposal by Australia)**

II. IESSWP PROPOSAL

1. STAR-WPSG considered the USSR proposal and endorsed the concept of geotraverses in the Southwest Pacific (IESSWP), that was presented to the Apia meeting, and recommends that it be included in the STAR Work Programme.

2. IESSWP has several aspects that relate to projects with the STAR — CCOP/SOPAC Work Programme. Connections with the programme listed on pp 110-119 of the 12th Session Proceedings are:

<i>Project No.</i>	<i>IESSWP Geotraverses Nos</i>
A-2.1	Geotrav. 1
A-2.2	Geotrav. 1, 2, 3
A-2.3	Geotrav. 3
A-2.4	Geotrav. 1, 2, 3, 4
A-2.6	Geotrav. 1-6
A-2.4	Geotrav. 1

3. Two ships (probably *Acad. Nesmeyanov* and one other) will be available in late 1985 — early 1986 for 1-2 months each, to implement the proposal. The proponents have suggested that Geotraverses 1, 2, and 4 be considered as objectives of the first cruises but that a final decision await further consultations with SOPAC.

4. The IESSWP proposal is described in its title as an "International Expedition". However, the proposal envisages a series of cruises to accomplish its scientific objectives. The Work Programme of CCOP/SOPAC and STAR has been implemented through scientific cruises similar to those envisaged in the IESSWP proposal. A procedure for implementation of proposals has evolved within SOPAC, and in addition to normal intergovernmental clearance procedures includes:

- (i) Initial contact and correspondence between proponents and interested scientists/institutions in the region, and with the SOPAC Technical Secretariat. This leads to
- (ii) A pre-cruise meeting at which a SOPAC co-chief and a co-chief nominated by the proponent and other relevant scientists identify specific scientific objectives and a ship track.
- (iii) The cruise follows in which scientists from SOPAC member countries, and in some cases CCOP/SOPAC Technical Secretariat and technical advisor countries, participate.
- (iv) Data collected during the cruise are made available to all participants as far

as possible during the cruise and in any case within 6 months after the cruise.

- (v) A post-cruise meeting may be held generally within 12 months of the end of the cruise at which all data are tabled and available for copying.
- (vi) Results of the cruise are published or included in open-file reports within 2 years after the completion of the cruise.

STAR-WPSG is of the view that this procedure should be adopted and standard for all proposals within the STAR Work Programme, and in that case this procedure would apply to implementation of the IESSWP proposal.

ANNEX VI : Report of STAR Ocean Drilling Study Group

1. The Study Group met on two occasions during the 13th Session of CCOP/SOPAC. Membership: Keith A. Crook, Australia (Chairman of the Study Group); (alternate: Neville Exon, Australia)
James Eade, New Zealand (alternate: Rick Herzer, N.Z.)
Loren Kroenke, USA
Dave Scholl, USA (alternate: Gary Greene, USA)
Andy Stevenson, USA
Yurij Leonov, USSR
Jacques Recy, France
Ulrich Schluter, F.R. Germany
2. A large number of targets for scientific ocean drilling have been suggested and their proponents identified. (See map and list of suggested areas).
3. Proponents will be asked to submit their broad ideas or more developed drilling

proposals to the ODP Planning Committee by Christmas 1984. *Each Study Group member or alternate is responsible for contacting proponents in his or her institution or region. Copies of summaries of proposals are to be sent to the Study Group Chairman.*

4. Arrangements are being made for seminars to be given at HIG during the January meeting of the ODP West Pacific Panel in mid January 1985 by representatives of the Australian, N.Z., and U.S. scientific communities who will present examples of the available data base and develop the rationale for a range of drilling proposals.
5. The possibility of the Study Group together with some other scientists meeting again, in mid-1985 under the aegis of ODP as an ODP S.W. Pacific Working Group, is being investigated.

List of Suggested ODP Target Areas in the Southwest Pacific

Location	Proponents
1. New Ireland Basin	M. Marlow, N. Exon
2. Central Solomons Basin	J. Vedder, J. Colwell

- | | |
|--|---|
| 3. Central New Hebrides | G. Greene, D. Falvey, J. Recy |
| 4. Lau Basin Magma Chamber | D. Scholl, R. Herzer |
| 5. Tonga Platform | D. Scholl, R. Herzer |
| 6. Louisville Ridge — Tonga —
Kermadec Fore-arc Collision | R. Herzer, B. Keating, J. Recy |
| 7. Line Islands Atoll | E. Winterer, S. Schlanger |
| 8. Hikurangi Margin | K. Lewis |
| 9. Bounty Trough | B. Davy |
| 10. Louisville Ridge and adjacent seafloor | F. Davey, L. Kroenke, J. Recy |
| 11. Norfolk Ridge, Norfolk Basin and Three
Kings Ridge | J. Eade |
| 12. d'Entrecasteaux — New Hebrides
Fore-arc back-arc basins | J. Recy, R. Burne, M. Fisher, G. Greene |
| 13. New Caledonia Ophiolite in the
Loyalty Basin | J.Y. Collot, J. Dubois, J. Recy |
| 14. Rennell Island Ridge | K. Crook |
| 15. Cape Vogel Basin/Papuan
Ultramafic Belt | M. Sandy / H. Davies |
| 16. West New Britain Trench | K. Crook |
| 17. Coral Sea Basin and Margin | P. Symonds |
| 18. Tonga Arc — Lord Howe Rise Transect | N. Exon and P. Symonds |

**ANNEX VII : Report of ad hoc Working Group on Island Drilling
(Regional Element 38)**

At the 1984 meeting of CCOP/SOPAC and STAR, a need was recognized for a Drilling Project for Islands of the Southwest Pacific. The drilling proposed falls into three categories:

1. **Island Arc Drilling** — stratigraphic drilling as well as basement drilling in order to determine the geologic structure of specific islands which could be used in a specific regional context;
2. **Ophiolite Drilling** — deep drilling into an ophiolite structure in order to define the nature, structure, and timing of ophiolite formation;
3. **Atoll Drilling** — stratigraphic drilling of a western Pacific atoll in order to study the vertical and horizontal history of the ocean basin.

The proposed drilling would meet many of the objectives proposed by the CCOP/SOPAC — IOC — UNU Workshop on Basic Geo-scientific

Marine Research for Assessment of Minerals and Hydrocarbons in the South Pacific (IOC Workshop Report No. 35). These would include the following projects:

1. Study of the geologic evolution of island arcs and arc basins, and the genesis of metal and hydrocarbon concentration;
2. Stratigraphic correlation in the Southwest Pacific;
3. Evolution of coral reefs and associated environments;
4. Hydrocarbon source, maturation, and entrapment models in island arc settings and collision terrains;
5. Sedimentary basin delineation and resource assessment;
6. Fore-arc and back-arc processes in the Tonga — Lau region;
7. Rifting processes in the Fiji Platform — North Fiji Basin — New Hebrides Arc region;

8. Arc reversal and fore-arc processes in the Solomons and New Hebrides Arcs;
9. Evolution of major geomorphic terrains in the Papua New Guinea region;
10. Pre-Pliocene break-up history of the Southwest Pacific: A regional framework study.

Specific areas of interest were identified, these include:

1. **Island Arc Drilling** (includes both shallow and deep basement drilling)
 - A. Fiji Island Arc — Yasawa Islands
 - B. Tonga Island Arc — Eua Island
 - C. Mariana Island Arc — Guam
Purpose: To examine the geological structure of the island of Guam and explore geothermal potential
 - D. Solomon Islands — Guadalcanal, Choiseul and/or Santa Isabela, Nendo Island (sediment and basement)
 - E. Papua New Guinea
 - (1) New Ireland — sediment and basement — deep drilling
 - (1a) Northwest New Ireland
 - (1b) Central New Ireland
 - (1c) Namatanai
 - (2) New Ireland — shallow stratigraphic drilling

(3) Cape Vogel — sediment and basement — deep drilling

- F. Vanuatu — Malakula, Santos, and/or Torres Island (sediment and basement)

2. **Ophiolite Drilling**

- A. Cape Vogel, Papua New Guinea
- B. Pentecost, Vanuatu

3. **Atoll Drilling**

- A. Christmas Island

Objectives: To detail the geological history of the atoll in order to better understand:

1. Its volcanic origin and development;
2. The vertical history of this seamount (which is believed to be representative of most west and central Pacific atolls);
3. Examine the nature of phosphate deposits present in the carbonate sequence.

It has been suggested that these wells be drilled in such a way that they may be used at a later date for water. Thus, data on water temperature and chlorine content should be collected as part of the drilling programme.

List of important contacts for suggested island drilling in the South Pacific

Cook Islands	Tony Utanga	(Cook Islands)
Tonga	David Scholl	(USGS)
	Tracy Vallier	(USGS)
	Richard Herzer	(NZGS)
	David Tappin	(Tonga)
Fiji	Richard Holmes	(MRD, Fiji)
Vanuatu	Gary Greene	(USGS)
	Sandy Macfarlane	(British Geological Survey)
	Arthur McCutchan	(Vanuatu)
Solomon Islands	Jack Vedder	(USGS)
	Jim Colwell	(BMR, Canberra)
	Stephen Danitofea	(Solomons)
Papua New Guinea	Mike Sandy	(PNG)
	Neville Exon	(BMR, Canberra)
	Mike Marlow	(USGS)
Marianas (Guam)	Barbara Keating	(HIG)
Kiribati and Tuvalu	Barbara Keating	(HIG)
	E.L. Winterer	(Scripps)
	S.O. Schlanger	(North Western University, USA)
General	Dave Falvey	(BMR, Canberra)
	Charles Helsley	(HIG)