

INSTITUTE OF APPLIED SCIENCES
THE UNIVERSITY OF THE SOUTH PACIFIC

Report on the Regional Training Courses in Basic Earth Science

IAS Technical Report 78/02

By

R.J Morrison

UNIVERSITY OF THE SOUTH PACIFIC

Institute

Of Natural Resources

REPORT ON THE REGIONAL TRAINING COURSES IN

BASIC EARTH SCIENCE

DR. R. J. MORRISON
22nd May 1978

A Regional Training Course in Basic Earth Science was organized by University of the South Pacific's Institute of Natural Resources, as a consequence of a recommendation of the Fourth Session of the Committee for the Co-ordination of Offshore Prospecting in the South Pacific (CCOP/SOPAC). The course was funded by UNESCO/IOC and the Australian Government. This training course in geology, geochemistry and geophysics was aimed at meeting the needs of the South Pacific region for junior staff to help in geological surveying which will enable the countries of the region to exploit fully their mineral resources, both on land and off-shore.

The course ran from 1st November 1977 to 24th February 1978, having a total of 17 teaching weeks. Originally 18 participants were nominated but one, Mr Willie Harrison from the New Hebrides was unable to attend for personal reasons. The 17 participants, with nominating authorities and nominal sponsors are listed below:

	<u>Participant</u>	<u>Nominating Authority</u>	<u>Nominal Sponsor</u>
1.	Mr. Siniala AVENGA	Tuvalu Government	UNESCO/IOC
2.	Mr. Nofaga KAFOA	Emperor Gold Mining Co. Ltd.	E.G.M.C.L.
3.	Mr. Sitivi KAMU	Western Samoa Govt.	Aust. Govt.
4.	Mr. Talanoafuka KITEKEI' AHO	Tonga Government	Aust. Govt.
5.	Mr. Mose LATA	Western Samoa Govt.	Aust. Govt.
6.	Mr. Samuela LOKI	Fiji Government	Aust. Govt.
7.	Mr. Rennel MAGU	Solomons Is. Govt.	UNESCO/IOC.

8.	Mr. Sekove MOTUIWACA	Amax Exploration Co	Amax
9.	Mr. Mawendra NANDAN	Fiji Government	Aust. Govt.
10.	Mr. Ermas NGIRAFLEBAED	TTPI Government	Aust. Govt.
11.	Mr. Vahu ORU	PNG Government	UNESCO/IOC
12.	Mr. Teariki RONGO	Cook Is. Government	UNESCO/IOC
13.	Mr. Sione SOAKAI	Tonga Government	Aust. Govt.
14.	Mr. Alexander TARI	New Hebrides Govt.	Aust. Govt.
15.	Mr. Tevita VUIBAU	Fiji Government	Aust. Govt.
16.	Mr. Balthasar WAYI	PNG Government	UNESCO/IOC
17.	Mr. Frank WHIPPY	Fiji Government	Aust. Govt.

The Course Director was Dr. C. D. Ollier of the Research School of Pacific Studies, Australian National University, Canberra. He was assisted by the following teaching staff:

Dr. R. J. Morrison	}	From SNR, USP
Mr. J. Bonato		
Mr. S. Muralidhar		
Mr. R. McKenzie		
Mr. J. Hallunen	}	From CCOP/SOPAC
Mr. J. Eade		
Mr. P. Rodda		From MRD, Fiji
Dr. M. Leggo		From Amax Exploration Co. Ltd.

A technical assistant was also employed for the duration of the course.

The activities included in the course were lectures, practical demonstrations, assigned practical work, field trips (usually followed by laboratory work on samples), seminars and discussion groups. The field trips were mainly on Viti Levu, but also included a 4 day expedition to Ovalau, to give the participants an opportunity to experience some of the techniques involved in marine geological surveys.

The course attempted to cover as much elementary geology as possible, but time and the limited background of some of the participants caused some restrictions. The general topics covered in the course were: weathering, tectonics, coasts and rivers, earth structure, hydrology, coral islands, sand dunes, geological process rates, stratigraphy, volcanoes, economic geology, petrology, soils, and marine geology.

Participants were shown how to:

- 1) interpret geological maps, diagrams, and aerial photographs;
- 2) identify hand specimens of rocks and minerals (including those of economic importance);
- 3) use binocular, plain light and petrological microscopes;
- 4) identify fossils;
- 5) interpret seismograph readings;
- 6) use an echo sounder to study the shape of the ocean floor;
- 7) determine bearings, elevations, altitudes, etc;
- 8) carry out routine laboratory tests associated with the above activities;

- 9) carry out calculations on the various topics and activities where appropriate.

The participants were assessed continuously by spot tests, written assignments and performance in practical exercises. At the end of the course a series of examinations (one theory and three practical) was held. All the participants received certificates indicating that they had completed the course.

The Institute would like to thank all the aid donors whose generosity made the running of the course possible. Thanks are also due to the University staff and others who assisted with (i) transport to and from the airport, (ii) accommodation and catering arrangements, (iii) purchase and delivery of equipment, (iv) maintenance of equipment and (v) preparation of course materials.

These included:

Dr. D. Cook)	
Capt. W. Day)	
Mr. V. Dayal)	
Mr. N. Gardiner)	
Mr. W. Peter)	of SNR, USP
Mr. S. Singh)	
Dr. R. Solly)	
Mr. C. Wright)	

Mr. P. Oates)	of Student Services Section, USP
Mr. R. Sharma)	

6.

Miss F. Raj Mani)	of INR, USP
Miss T. Israel)	of CCOP/SOPAC
Mr. R. Richmond)	Director of MRD, Fiji
Mr. R.C.Gupta)	of PWD, Suva

The Financial report for the course is attached.

Dr. R. J. Morrison
Project Manager,
INR Basic Earth Science Course

22nd May 1978

RJM/sbs

FINANCIAL REPORT

ALL ITEMS ARE QUOTED IN FIJI DOLLARS UNLESS OTHERWISE INDICATED

<u>INCOME</u>	<u>Fiji Dollars</u>
UNESCO i)	914.16
ii)	6,631.00
iii)	871.34
AUSTRALIAN GOVT. THIRD COUNTRY AWARDS	
i)	7,766.00
ii)	3,170.00
AUSTRALIAN GOVT. RECURRENT AID TO USP	8,149.57
EMPEROR GOLD MINING CO. LTD	895.00
AMAX EXPLORATION (AUST) INC.	300.00
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INCOME RECEIVED	28,697.07
LESS REFUND TO AUSTRALIAN GOVT. FOR 1 NEW HEBRIDES PARTICIPANT WHO DID NOT ATTEND	1,302.00
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TOTAL COURSE INCOME	27,395.07

N.B. This does not include \$500 (US) referred to in Article II C) of the contract with UNESCO (SC/IOC 551.508), due to be paid to INR on receipt of the Course report and financial statement.

EXPENDITURE

a)	SALARIES SENIOR STAFF		
	Dr C. D. Ollier		6,000.00
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	TOTAL	a)	6,000.00
b)	SALARIES JUNIOR STAFF		
	Sashi Krishnan (Technician)		650.41
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	TOTAL	b)	650.41
c)	TRAVEL, COURSE PARTICIPANTS		
i)	Airfares: 2 x Apia - Suva - Apia		504.60
	return		
	2 x P. Moresby - Suva		1,540.46
	P. Moresby return		
	2 x Nuku'alofa - Suva		292.00
	Nuku'alofa return		
	1 x Honiara - Suva		582.00
	Honiara return		
	1 x Rarotonga - Suva		486.00
	Rarotonga return		
	1 x Port Vila - Suva		252.00
	Port Vila return		
	1 x Saipan - Suva		517.40
	Saipan return		
	1 x Funafuti - Suva		282.00
	Funafuti return		
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		Sub Total i)	4,456.46
ii)	Transport Nausori Airport - USP		
	Nausori Airport		58.40
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	TOTAL	c)	4,514.86

EXPENDITURE

d) SUBSISTANCE, COURSE PARTICIPANTS

Accomodation	4,073.25
Meals	2,654.92
Pocket Allowance	1,622.86
Medical Expenses	4.05

TOTAL d) 8,355.08

e) TRAVEL, COURSE DIRECTOR

Airfares - Dr C. D. Ollier and family	2,149.57
Transport - Nausori Airport USP - Nausori Airport	9.88

TOTAL e) 2,159.45

f) OFFICE AND GENERAL AND INCIDENTALS

Postages	186.47
Telexes and Telegrams	44.03
Stationary	28.97
Xeroxing	9.96
Secretarial Expenses	423.80
Laboratory use fees to SNR	340.00
Welcoming function expenses	79.69

TOTAL f) 1,112.92

TOTAL EXPENDITURE

	<u>FIJI DOLLARS</u>
a) SALARIES , SENIOR STAFF	\$6,000.00
b) SALARIES , JUNIOR STAFF	650.41
c) TRAVEL, COURSE PARTICIPANTS	4,514.86
d) SUBSISTANCE, COURSE PARTICIPANTS	8,355.08
e) TRAVEL, COURSE DIRECTOR	2,159.45
f) OFFICE AND GENERAL AID INCIDENTALS	1,112.92
g) EQUIPMENT	4,266.14
h) FIELD TRIPS	722.52
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TOTAL EXPENDITURE	27,781.38
TOTAL INCOME	27,395.07
CURRENT DEFICIT	386.31

This deficit will be met from the funds outstanding from UNESCO (Article II C) of contract SC/IOC,551.508) mentioned earlier in this report.