



SEABED HYDROTHERMAL SYSTEMS OF THE WESTERN PACIFIC

Current Research & New Directions

25th – 26th June 2003

**CSIRO Riverside Auditorium
Riverside Corporate Park
North Ryde NSW 2113**

The Seabed Ore Systems Team at CSIRO Exploration & Mining is pleased to invite you to attend a meeting of researchers and industry representatives to communicate current research on the seabed hydrothermal systems of the Western Pacific Rim. The attached workshop program includes presentations by leading academics and industry professionals from the Australasian region, including the first detailed descriptions of work by the CSIRO over a period of 15 years.

The workshop addresses five themes, including regional tectonics, the geology and geochemistry of seabed hydrothermal systems, geophysical studies and the commercial exploitation of seafloor massive sulfides, including environmental and legal considerations.

All interested parties are encouraged to attend the meeting. To this end, registration costs have been kept to a minimum at \$50 (GST inclusive). Fulltime Australian undergraduate and postgraduate tertiary students are eligible for a subsidised registration of \$25 (GST inclusive). Registration includes an Abstract Volume and Conference CD-ROM, morning and afternoon tea on both days and a casual dinner, to be held at CSIRO on the evening of June 25th.

Program for Day One - Wednesday 25th June

09:00 – 09:50 Registration

09:50 – 10:00 Welcome Address

Dr Timothy McConachy, CSIRO Exploration and Mining.

THEME 1: Modern tectonic evolution and geology of the arcs and backarc sequences of the Western Pacific Rim.

10:00 – 10:25

Seafloor spreading history and tectonic evolution of Western Pacific back-arc basins.

Ms Maria Sdrolias, School of Geosciences, The University of Sydney.

10:25 – 10:50

The evolution of oceanic crust north of Australia: How many backarc basins?

Dr Carmen Gania, School of Geosciences, The University of Sydney.

10:50 – 11:15

Magmatism and tectonics of the Coriolis and Jean Charcot Troughs, New Hebrides Arc-Backarc system.

Prof Richard Arculus, Department of Geology, Australian National University.

11:15 – 11:35 Morning Tea

THEME 2: Geological features of hydrothermal systems: case histories, cruise summaries and general observations.

11:35 – 12:35

KEYNOTE ADDRESS. The nature of the PACMANUS hydrothermal field, Eastern Manus Basin, Papua New Guinea: The results of a decade of seafloor investigation and the first deep drilling of an active, felsic hosted, submarine hydrothermal system.

Dr Raymond Binns, CSIRO Exploration and Mining (retired).

12:35 – 13:00

The SuSu Knolls hydrothermal field, Eastern Manus Basin, Papua New Guinea: An actively forming submarine high sulfidation copper-gold system.

Dr Christopher Yeats, CSIRO Exploration and Mining.

13:00 – 14:00 Lunch

14:00 – 14:25

Studies of submarine hydrothermal activity in Indonesia.

Dr Timothy McConachy, CSIRO Exploration and Mining.

14:25 – 14:50

Preliminary report of the TELVE cruise to the Tonga Arc-Lau Backarc system.

Prof Richard Arculus, Department of Geology, Australian National University.

14:50 – 15:15

New discoveries of submarine hydrothermal activity in the far eastern Solomons and Northern New Hebrides: Preliminary results from the SOLAVENTS expedition, 2002.

Dr Timothy McConachy, CSIRO Exploration and Mining.

15:15 – 15:45 Afternoon Tea

THEME 3: Geochemistry of hydrothermal systems: alteration, oxide and sulfide chemistry, isotopic studies and the nature of hydrothermal plumes.

15:45 – 16:10

Geochemistry of alteration at the PACMANUS hydrothermal field, Eastern Manus Basin, Papua New Guinea: Vertical and lateral variation at low- and high- temperature vent sites.

Dr Christopher Yeats, CSIRO Exploration and Mining.

16:10 – 16:35

Petrology, trace element geochemistry and isotope geochemistry of sulfides and oxides from the PACMANUS hydrothermal field, Eastern Manus Basin, Papua New Guinea.

Dr Joanna Parr, CSIRO Exploration and Mining.

16:35 – 17:00

Strontium isotopes and fluid sources in the PACMANUS hydrothermal system.

Dr Raymond Binns, CSIRO Exploration and Mining (retired).

17:00 Close

18:30 Workshop Dinner

Program for Day Two – Thursday 26th June

09:30 – 10:00 Registration

10:00 – 10:25

Hydrocarbon Gas Analysis of Seawater from the New Hebrides Arc.

Dr Stephen Sestak, CSIRO Petroleum Research.

10:25 – 10:50

Plume studies of hydrothermal vents of the Kermadec Arc.

Dr Alexander Malahoff, Chief Executive, New Zealand Institute of Geological and Nuclear Sciences.

THEME 4: Geophysical studies.

10:50 – 11:15

Deep-tow magnetic and resistivity measurements on hydrothermal vents.

Dr David Cousens, CSIRO Exploration and Mining.

11:15 – 11:45 Morning Tea

11:45 – 12:10

Reflection studies on the plate boundaries in the Bismark microplate and deep tow magnetics on PACMANUS.

Dr Jong Kuk Hong, Korean Ocean Research and Development Institute.

THEME 5: Commercial exploitation of seabed massive sulfides: engineering, environmental and legal considerations, and the potential for bioprocessing applications.

12:10 – 12:35

Key steps towards commercial exploitation of seafloor massive sulfides.

Mr David Heydon, CEO, Nautilus Minerals Limited.

12:35 – 13:00

Mining seafloor massive sulfides - the engineering challenge.

Mr Cameron Rees, Mining Research Centre, The University of New South Wales.

13:00 – 14:00 Lunch

14:00 – 14:25

Visualising seafloor massive sulfide mine environments.

Ms Jayne Holden, Mining Research Centre, The University of New South Wales.

14:25 – 14:50

A pre feasibility engineering study of mining massive sulfides at 2,300m below sea level.

Mr David Heydon, CEO, Nautilus Minerals Limited.

14:50 – 15:15

Emerging legal regimes regulating access to seabed massive sulfides and the genetic resources of hydrothermal systems: What impact do they have on marine scientific research, mining and bioprospecting?

Mr David Leary, Centre for Environmental Law, Division of Law, Macquarie University.

15:15 – 15:45 Afternoon Tea

15:45 – 16:10

Collection and cultivation of Extremophiles from deep ocean vents using bioreactors.

Dr Alexander Malahoff, Chief Executive, New Zealand Institute of Geological and Nuclear Sciences.

16:10 – 16:35

Archaeal hyperthermophilic communities in marine sediments and vents of the Manus Basin and from nearby terrestrial environments: lipid signatures, isolation, characterisation and industrial potential.

Dr Peter Nichols, CSIRO Marine Research.

16:35 Close – Informal Drinks

Logistical Information

The CSIRO site at Riverside Corporate Park is located at 1 Julius Avenue, Riverside Corporate Park, North Ryde, approximately 15 kilometres northwest of the Sydney CBD. Interstate visitors should allow up to 90 minutes to reach the site from the airport and 45 minutes from the CBD, during peak traffic times. The quickest route from the city is over the Harbour Bridge or through the tunnel and north on the Gore Hill Expressway to Epping Road. Turn right off Epping Road onto Delhi Road and then right again into Julius Avenue. The CSIRO building is immediately to the left on entering the Riverside site.

Attendees requiring accommodation are encouraged to organise their own rooms. Three nearby options (all approximately 5km west, 15-20 minutes by taxi in peak traffic) are listed below, with cost estimates.

Location and Address	Contact	Rate	Comments
Dunmore Lang College 130 Herring Road North Ryde NSW	Ph: 02 9856 1011 Ask for Vic Chetty	\$75 per person/per night Ask for the workshop rate	Includes breakfast Rooms are very limited
Travelodge Macquarie North Ryde 81 Talavera Road Macquarie University NSW	Ph: 1300 886 886	Standard room \$125 per night Ask for the CSIRO rate	Breakfast available for \$10.50
Stamford Grand North Ryde Corner Epping and Herring Roads North Ryde NSW	Ph: 02 9888 1077	Superior room \$146 per night Ask for the CSIRO rate	Breakfast available, additional cost Includes access to free shuttle bus to CSIRO site

TAX INVOICE / REGISTRATION FORM

CSIRO ABN: 41 687 119 230

Date: 5 June 2003



CSIRO
EXPLORATION
AND MINING

SEABED HYDROTHERMAL SYSTEMS OF THE WESTERN PACIFIC

Current Research & New Directions

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DETAILS:

Name for badge: _____

Company/Affiliation: _____

Phone / Fax: (0) _____ / (0) _____

COST:

Full registration prior to June 20th, 2003.....\$50 (incl. GST)
Student registration prior to June 20th, 2003.....\$25 (incl. GST)
Registration after June 20th, 2003.....\$55 (incl. GST)

Please note that no discounted student registrations will be accepted after June 20th. Because of the low cost of the meeting, discounted partial or single day registrations are not possible.

Payment may be made by credit card (preferred) or cheque. Cheques should be non negotiable and payable to CSIRO. Please fill in the appropriate details below and fax or mail the completed form, with payment to Susan Crammond.

Postal Address: Susan Crammond Fax: 02 9490 8921
CSIRO Exploration and Mining
PO Box 136
North Ryde NSW 1670

CHEQUE PAYMENT DETAILS:

I enclose my cheque made payable to CSIRO in the amount of \$_____.

CREDIT CARD PAYMENT DETAILS:

Card number:			
Card type:	BANKCARD <input type="checkbox"/> / MASTERCARD <input type="checkbox"/> / VISA <input type="checkbox"/>	Card expiry date:	/
Cardholder Name:			Payment Amount:
Cardholder Signature:			

Questions/Additional Information: Dr Chris Yeats (Ph: 02 9490 8697; Email: Chris.Yeats@csiro.au)