

# AUSTRALIAN SOCIETY OF EXPLORATION GEOPHYSICISTS

## NEWSLETTER

### *Preview*

#### **NUMBER 8**

**JANUARY-FEBRUARY, 1987**

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## AGM - CALL FOR NOMINATIONS

The 1987 ANNUAL GENERAL MEETING will be held in Adelaide on  
**Wednesday April 22, 1987**  
at the Fontana Di Trevi Restaurant, 125 Pirie St, Adelaide, commencing at  
17:30 hours.

The Federal Executive herewith call upon the membership to submit  
nominations in writing to:

The ASEG nominating committee  
PO Box 44  
EASTWOOD SA 5063

for the Federal Executive positions of:

Nominees:

President.....	Bob Smith
President-elect**.....	Eve Howell
First Vice President.....	Peter Elliott
Second Vice President.....	
Honorary Treasurer.....	Peter Fullagar

\*\*The Federal Executive has nominated Eve Howell as President-Elect, an  
active member of the 1987/88 Federal Committee. Eve will then stand for  
election as Federal President, 1988/89 and if successful, the Federal  
Executive will move to Perth.

Any alternative nominations to the above, are to be in writing, signed by ten  
or more members with the consent in writing of the nominee and must be  
received by the secretary by April 1.

## OTHER STATE AGM'S:

ACT:

NSW: April 10, Len Evan's

QLD: April 15, Minerals & Energy Centre, 61 Mary St

SA: April 22, Fontana Di Trevi, 19:00

VIC: April 21, Cafe Legend, Hawthorn

WA: April 02, location to be advised

## CURTIN CALL FOR WAIT GRADUATES

The Western Australian Institute of Technology became CURTIN UNIVERSITY OF  
TECHNOLOGY on January 1st, 1987.

For further information about CURTIN and the implications for WAIT graduates,  
telephone 09-3507002, or write to:

Alumni Office  
CURTIN UNIVERSITY OF TECHNOLOGY  
GPO Box U1987  
PERTH WA 6001

## CORPORATE MEMBERS:

The support given to the Society by its Corporate members is greatly appreciated and  
those who joined this group of Companies during the past year are herewith welcomed:

Velocity Data  
SADME  
Delhi Petroleum Pty Ltd



## CHAIRMAN'S REPORT ON THE FIFTH ASEG CONFERENCE & EXHIBITION

This Conference was a great technical and social success. One hundred technical papers were presented reflecting the theme "MEETING THE CHALLENGE".

Awards were assessed by a broad panel of judges, and reflected the quality and popularity of case histories, with BEST PAPER AWARDS going to:

**Don Pridmore:** Olympic Dam deposit - geophysical case history - content and

**Eve Howell:** The Harriet oilfield case history - for best presentation. The inaugural presentation of the LARIC HAWKINS AWARD, for the most innovative use of a geophysical technique went to:

**Shanti Rajagopalan:** The use of 'automatic gain control' to display vertical magnetic gradient data.

Special awards were presented to:

**Nic Sheard** for the best expletive deleted and

**Steve Mudge** for the most exuberant display with a radio antenna in the Aeromagnetic workshop.

Special mention and thanks to **Laurence Hansen** of Horizon and **Richard Williams** of Seismic & General who organised the EXHIBITION. Thirty exhibitors displayed the latest in geophysical hard and soft ware in 46 booths and 4 displays. Best exhibitor award went to **Geoterrex** with an excellent display of case histories.

Of the total 431 delegates, 391 registered for the whole conference, 26 for one day and 14 registrated as associates.

The workshops turned out to be a great success with a total of 240 attendees. The **Gold** and **Aeromagnetic** workshops had the greatest number attending, whilst **Mike Badley's** Seismic Interpretation was a sellout. The **Indian Pacific** workshop also proved to be a great way to prepare for the Conference.

I am looking forward to the joint ASEG/SEG CONFERENCE & EXHIBITION in Adelaide next February. This inaugural joint production promises to be an exciting and well attended event with many of this years exhibitors already signed up for booth space.

I thank the Perth87 conference committee en masse for their efforts and support over the past eighteen months, and wish the Adelaide88 committee every success.

### GREG STREET

Editor's comment:

On behalf of the Society in general and the Conference delegates in particular, I congratulate Greg on a first class effort. His job as Conference Chairman was not made any easier by the number of Committee members who due to job relocations were forced to give up their positions on the Committee.

The success of Perth87 was largely due to the mammoth load Greg shouldered, and the Society owes him a great debt of gratitude.

**Well done Greg!!**





# NATIONAL STANDARDS COMMISSION

12 LYONPARK ROAD NORTH RYDE SYDNEY N.S.W.

Your ref:

Our ref: 83/161

6 March 1987

Correspondence: Executive Director  
P.O. Box 282 NORTH RYDE  
N.S.W. 2113  
Telegrams: NATSTANCOM SYDNEY  
Telephone: 888 3922  
Telex: AA23144  
Facsimile: 888 3033

## PROPOSED CLOSURE OF RADIO STATION VNG

For many years, members of the timekeeping community have made use of the signal from radio station VNG for time comparison and standard frequency purposes. Telecom has recently advised that it intends to terminate the operation of this station by the middle of 1987. Arrangements are being proposed to maintain the service until the need for the provision of some alternative service has been assessed.

In order that the Commission can evaluate the impact of its closure and propose provisions for future time comparisons throughout Australia, you are requested to complete the enclosed questionnaire and return it to the Commission by 31 March 1987.

If, within your organisation there are several users or if you are aware of other users who have not been contacted, please make photocopies of the enclosed questionnaire and have one returned for each user.

Yours faithfully

Dr G Harvey  
Secretary, Precise Time Working Group  
for Executive Director

## Possible alternatives to radio station VNG

1. Use of AUSSAT TV signals for time comparison. Cost is about \$3000. Precision is better than ten microseconds. CSIRO is at present developing a facility to provide epoch on TV transmissions.
2. Within regions such as Brisbane, Sydney, Melbourne, Hobart and Adelaide that are served by a common TV transmitter, local TV time comparisons can be used.
3. For applications requiring less precision, the Telecom two-tone system can be used to phase lock a stable crystal clock.
4. WWV, WWVH and similar HF transmissions from overseas but at much weaker signal strength than VNG.
5. The Telecom civil time code distribution system can provide time of day information.
6. ABC radio hourly time pips.



NATIONAL STANDARDS COMMISSION  
SURVEY OF RADIO STATION VNG USERS

Please return this questionnaire to the:

National Standards Commission  
PO Box 282  
NORTH RYDE NSW 2113

by 31 March 1987.

Questions:

1. Do you make use of radio station VNG?
2. For what purpose do you use radio station VNG?
3. How do you use the VNG service?
4. What are your accuracy requirements?
5. At what time of day and how often do you need timing signals?
6. Please explain briefly the significance of this activity to the Australian community.
7. Please estimate the economic value to the Australian community of this activity.
8. What provisions have you already made for the impending closure of radio station VNG?
9. Are you able to make use of any of the options listed above?
10. If so, which ones?
11. If not, what other options are you contemplating?
12. What do you estimate to be the cost to your organisation of the provision of this/these alternatives to radio station VNG?  
§
13. What is the timeframe for you to be able to adopt an alternative?



AUSTRALIAN ACADEMY OF SCIENCES

An Elizabeth & Frederick White Research Conference

on

## Geophysical Inverse Problems

will be held at Ellerton Becker House,  
Australian Academy of Sciences, Canberra

2-3 July 1987

This research conference will focus on the development of techniques for the construction of geophysical models from observed data. In most cases the dependence of the observable quantities on the physical parameters describing the models is nonlinear and so care is needed in the inversion process to produce meaningful results.

Particular attention will be paid to recent advances in algorithms for nonlinear problems. Such methods have applications to a wide range of geophysical situations on exploration and larger scales, especially for seismic and electromagnetic problems.

For further information contact:

B.L.N. Kennett  
Research School of Earth Sciences  
Australian National University  
G.P.O. Box 4  
Canberra, A.C.T. 2601  
Australia  
Telex: 62693  
Telephone: (062) 49 4621

or

K. Vozoff  
Centre for Geophysical Exploration  
Research  
Macquarie University  
Sydney, N.S.W. 2109  
Australia  
Telex: 172217  
Telephone: (02) 805 8165

REFER TO PAGE 11 FOR NOTIFICATION OF INTEREST FORM



## THE APPLICATION OF NUMERICAL TECHNIQUES IN EARTH SCIENCES



August 24-25 1987

RSES, Australian National University

Canberra

1st Circular

**Aims:** to provide to Australian earth scientists and engineers a forum for the advancement of numerical modelling in geological and geophysical sciences.

In the geosciences it is becoming increasingly important to be able to model geological and tectonic processes. However, their inherent complexity precludes analytical solutions for many problems, and therefore recourse must be made to numerical techniques. There are several approaches including finite difference, finite element and boundary element methods.

The application of these techniques to geological modelling is rapidly developing. Knowledge from this modelling will prove important in our understanding of the fundamental processes of heat and mass transfer in the Earth. Important applications are: geomorphology, petroleum exploration (e.g. deformation related to formation of structural traps, oil migration, thermal maturation) and mineral exploration (e.g. hydrothermal fluid migration for the generation of mineralisation)

For further information contact:

Dr Jim Leven,  
Bureau of Mineral Resources,  
Geology and Geophysics  
P.O. Box 378  
Canberra, ACT 2601  
Telex: 62109  
Telephone: (062) 499310

or

Dr Greg Houseman  
Research School of Earth Sciences  
Australian National University  
G.P.O. Box 4  
Canberra, ACT 2601  
Telex: 62693  
Telephone: (062) 494175

**The conference is sponsored by:**

Specialist Group on Solid Earth Geophysics of the Geological Society of Australia  
Australian Society of Exploration Geophysicists, A.C.T. Branch  
Research School of Earth Sciences, Australian National University  
Bureau of Mineral Resources

REFER TO PAGE 11 FOR NOTIFICATION OF INTEREST FORM



## REPORT FROM THE PUBLICATION COMMITTEE:

Volume 18, Issue 1/2, pages 1-245, the Abstracts of the 5th ASEG Geophysical Conference & Exhibition - PERTH, was published by the Society, printed by Graphic Services Pty Ltd in Adelaide, and was distributed to attendees at the Perth Conference from February 20th onwards.

This publication heralds a new phase in the life of 'EXPLORATION GEOPHYSICS'.

Having thrown off the yoke of Blackwell Scientific Publications with the concomitant delays in publication and escalating costs, we have taken on the burden of publishing this quality Journal ourselves.

Some interesting facts:

1. Blackwells commenced publishing our journal in 1983 with Vol 14/1
2. Blackwells finish publishing the journal with Vol 17/4
3. Volume 16, Issues 1-4, pages 1-396, cost the Society \$43,044.
4. Vol 16, Issue 4, scheduled for December 1985, was not distributed until mid-July 1986.
5. Vol 16/4 carried 10 pages of advertising, Vol 18/1-2 carries 20 pages.
6. Of the 169 non-member subscribers, only 49 University Libraries receive our journal.
7. Vol 18/1-2, Mar-Jun 1987, was printed late February 1987, whilst Vol 17/3, Sep 1986, was received in January 1987, and Vol 17/4, Dec 86, has yet to be typeset - delays with this issue can be attributed to ASEG.
8. With Vol 18/1-2 Graphic Services received edited manuscripts in early November through early December, and final edited galleys up to late January 1987.

Graphic Service's ability to meet the very tight schedule with Volume 18/1-2 vindicated the move from Blackwells.

Those members who did not attend the Perth Conference can expect their copy of Volume 18/1-2 by late March.

It is the intent of the Federal Executive to increase the scale of ADVERTISING in 'EXPLORATION GEOPHYSICS'. As a general policy approach, the intent is to make our journal a reference for all those interested in locating GEOPHYSICAL CONSULTANTS, CONTRACTORS, SERVICE & SUPPLY AGENTS.

To this end, the PROFESSIONAL DIRECTORY which first appeared in Volume 18/1-2 will be expanded to automatically include any full page advertiser in the journal, and will be included in each issue of Preview - see pages 8 & 9.

So to all those GEOPHYSICISTS who claim that 'EXPLORATION GEOPHYSICS' isn't the best place to advertise - THINK AGAIN! With your support the journal will become known as the definitive DIRECTORY FOR AUSTRALIAN GEOPHYSICS, and your name placed in that directory will provide greater exposure than you could possibly get at the moment using all available advertising avenues.

Currently our advertising rates per issue of Exploration Geophysics are:

FULL PAGE	\$280
HALF PAGE	\$186
EIGHTH PAGE**	\$ 61
COLOUR	\$165 extra per colour
SPECIAL POSITIONS	\$308
OUTSIDE BACK COVER	\$360
INSERTS	\$700

We normally have four issue per year, however in 1987 we will probably be limited to two, Volume 18, 1-2 & 3-4.



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46a



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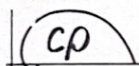
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## PROFESSIONAL DIRECTORY

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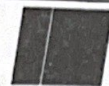
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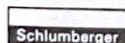
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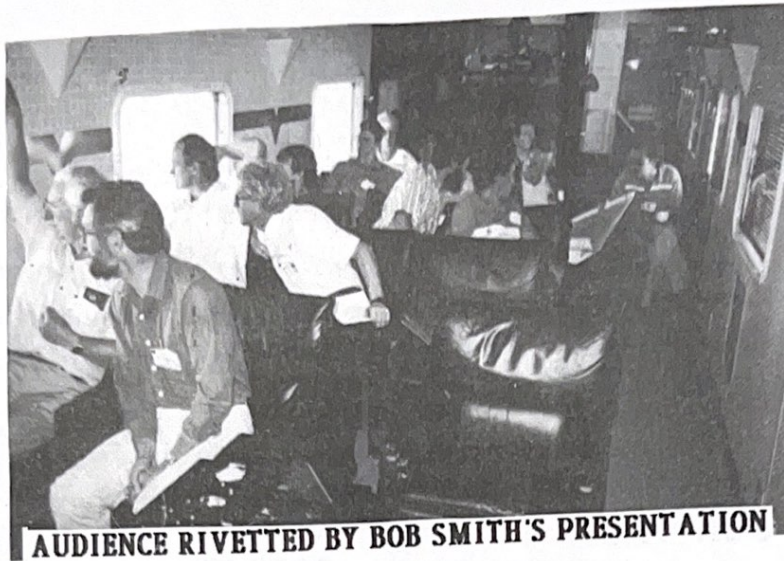
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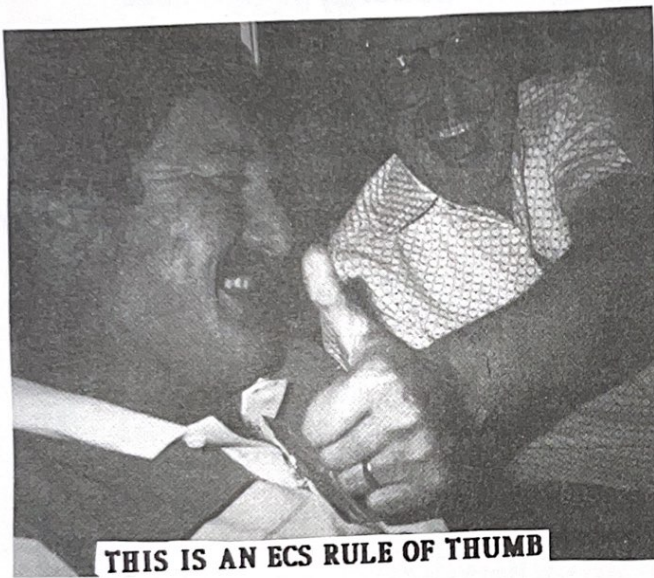
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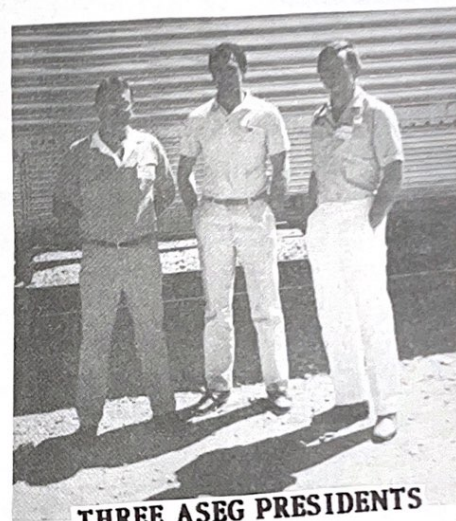
GLIMPSES OF THE INDIAN PACIFIC WORKSHOP - FEB 20-21, 1987



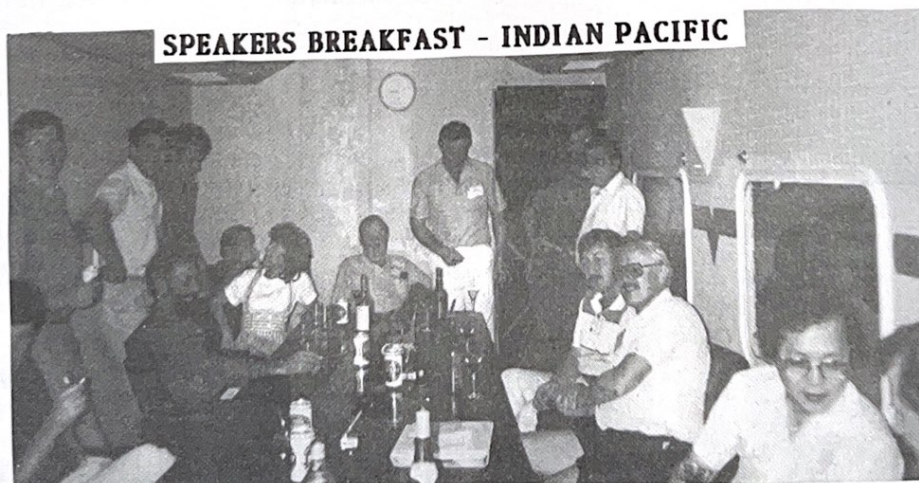
AUDIENCE RIVETTED BY BOB SMITH'S PRESENTATION



THIS IS AN ECS RULE OF THUMB



THREE ASEG PRESIDENTS



SPEAKERS BREAKFAST - INDIAN PACIFIC



Elizabeth and Frederick White Research Conference  
Geophysical Inverse Problems

Ellerton Becker House, Australian Academy of Sciences, Canberra  
2-3 July 1987

Notification of Interest

Name (please print): .....  
Address: .....  
.....  
.....  
.....

I would like to present a paper on the topic

.....  
.....

Please return to:

B.L.N. Kennett  
Research School of Earth Sciences  
Australian National University  
G.P.O. Box 4  
Canberra, A.C.T. 2601  
Australia

by 23rd March 1987

The registration fee is expected to be \$75 with a student rate of \$25

Please send me further information concerning the research conference "The Application of  
Numerical Techniques in Earth Sciences" to be held at the Research School of Earth  
Sciences, Australian National University, Canberra, August 24-25, 1987.

Name (Please print): .....  
Address: .....  
.....  
.....  
.....

I am/am not interested in presenting a paper (~ 30 minutes) on the topic:

.....  
.....

Information about accommodation will be forwarded at a later date.

Please return to:

Dr J. Leven  
Bureau of Mineral Resources, Geology and Geophysics  
P.O. Box 378  
Canberra, A.C.T. 2601.  
Australia.

REGISTRATION FEE:

Full registration	\$25.00
Registration for SGSG or ASBG members	\$20.00
Student registration	\$10.00



# MEET THE CHALLENGE

*leave nothing unattempted in '88*

## ASEG/SEG INTERNATIONAL GEOPHYSICAL CONFERENCE & EXHIBITION

Feb. 14-21, 1988

Adelaide, Australia

1788 - 1988  
Australia Bicentenary  
Voyage of Discovery

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BELONG raises his standards yet again, and makes some important comment on the DK coupling technique which was mentioned in PREVIEW #7



## Velocity Data Pty Ltd

P.O. Box 118, Dora, Queensland Aust 4076  
500 Seventeen Mile Rocks Road  
Seventeen Mile Rocks, Qld 4073  
Telephone (07) 376 5544

2nd February, 1987

Mr. R. Nelson,  
Newsletter Drone & Photographer,  
ASEG Executive,  
P.O. Box 44,  
EASTWOOD SA 5063

Dear Reg,

In my capacity as standards representative to the SEG  
I have received a copy of a document for a tape standard  
for magnetotelluric data. Should anyone have an anomalous  
desire for a copy please contact me.

Whilst I acknowledge the excellence of the DK coupling method  
in oil seismic exploration, so capably documented in  
the last newsletter, evidence does exist in our company  
files of similar techniques being used in the high resolution  
seismic area many years before. Discretion and proprietary  
rights do not permit the release of such information.

Yours sincerely,

Barry E. Long  
ASEG, Queensland.



## ANNOUNCEMENT AND CALL FOR PAPERS

4th AUSTRALASIAN REMOTE SENSING  
CONFERENCE  
14 - 18 SEPTEMBER, 1987

## REMOTE SENSING AND THE AEROSPACE INDUSTRY

The program will feature all aspects of Remote  
Sensing, including :-

- APPLICATIONS - in Geosciences,  
Environment and Landuse,  
Agriculture, Oceanography,  
Meteorology, Mapping etc;
- SENSORS
- DATA ACQUISITION
- DATA PROCESSING AND  
ANALYSIS
- LINKS WITH GEOGRAPHIC  
INFORMATION SYSTEMS
- EDUCATION & TECHNOLOGY  
TRANSFER

## WITH SPECIAL EMPHASIS ON

- NEW DEVELOPMENTS IN  
OPERATIONAL AIRBORNE  
AND SPACEBORNE SYSTEMS

## REGIONAL EMPHASIS

It is intended to emphasise the regional  
developments in Operational Remote Sensing  
and associated Aerospace Industries. To that  
end a special invitation is being made for  
contributions from S.E. Asian and Pacific  
rim countries.



## **OVERVIEW OF PETROLEUM ECONOMICS & GEOPHYSICAL ACTIVITY**

The following is a summary of facts and figures presented by Ken Howard (GSI) to the Annual General Meeting of IAGC (Australian Chapter) at the Perth ASEG Conference. We gratefully acknowledge Ken's permission to publish this information for ASEG members generally.

### **SUPPLY/DEMAND:**

**Crude:** OPEC production cuts were generally implemented with several non-OPEC producers cooperating as long as OPEC held to quotas.

Lower production was magnified by a rising winter demand, but was offset by an estimated 300m bbl inventory.

By early 1990's some analysts see worldwide demand up from 45-46 mbd to 50-51 mbd with OPEC supplying the incremental increase as non-OPEC production remains at its current 24-25 mbd output.

**Natural gas:** Most see adequate worldwide supplies through 2000. US supplies, estimated at 19% over demand, are expected to be balanced by the late 80's due to reduced drilling/reserve replacement.

### **PRICES:**

**Crude:** Prices up sharply to \$17-\$19 level by mid January. OPEC members asking buyers to accept fixed prices as of February 01.

Not all buyers willing to accept fixed prices for a term lasting through June in case prices begin to ease. Test coming on whether prices can withstand expected demand decline in spring and whether OPEC can refrain from cheating.

**Natural Gas:** Prices up slightly due to seasonal demand.

## **1987 EXPLORATION MARKET OUTLOOK VERSUS 1986**

### **Oil Industry Earnings:**

Generally lower 1987 earnings forecasts also based on lower oil prices. Continued stability at or above \$18/bbl would provide some upside.

### **Oil industry upstream spending:**

Salomon survey of 150 companies shows almost all underspent their planned 1986 expenditures. 1987 international budgets are down 5.7%, whilst in US they are down 7% vs 1986, based on \$15/bbl oil. Over half the companies said they would raise budgets if they perceive prices would hold at \$18/bbl level. Increases unlikely before the latter half of the year.

### **Regional Market outlook:**

Australia: Onshore seen as flat as 1986. No definite offshore plans for 1987,

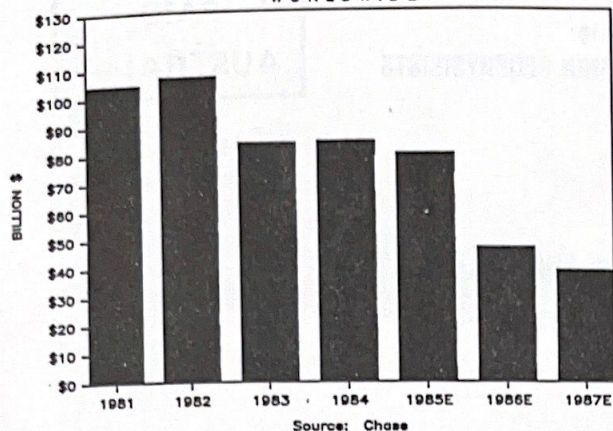
though ESSO/BHP receive first retention lease (off WA) under new Petroleum Submerged Lands Act.

New Zealand: Petrocorp cut 87 budget: Major exploration under joint venture only: will farm out Taranaki rights. If exploration tax incentives cut in 1988, further exploration cutbacks are likely.

Other Far East: India is the most active, with China steady. Malaysia & Indonesia have potential for growth. Changes in Thai Petroleum Laws call for improved tax & royalty terms. Phillipines are set to open offshore exploration in March, but terms (ie joint ventures with locals) may not be very attractive.

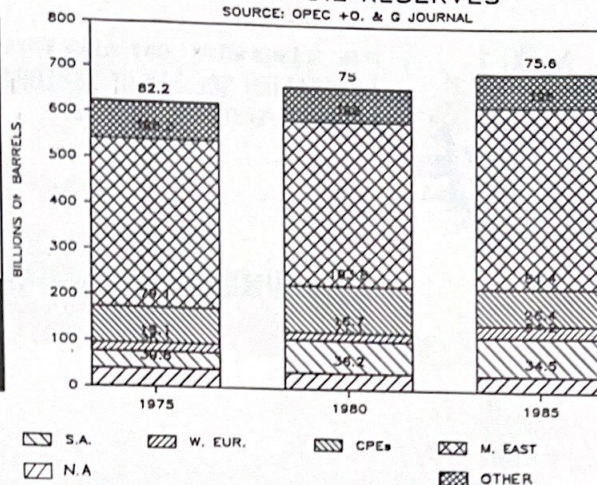


### OIL EXPLORATION/PRODUCTION SPENDING WORLDWIDE



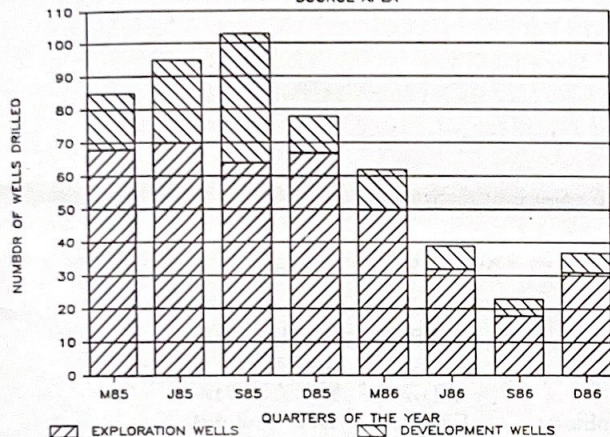
### WORLD OIL RESERVES

SOURCE: OPEC + O. & G JOURNAL



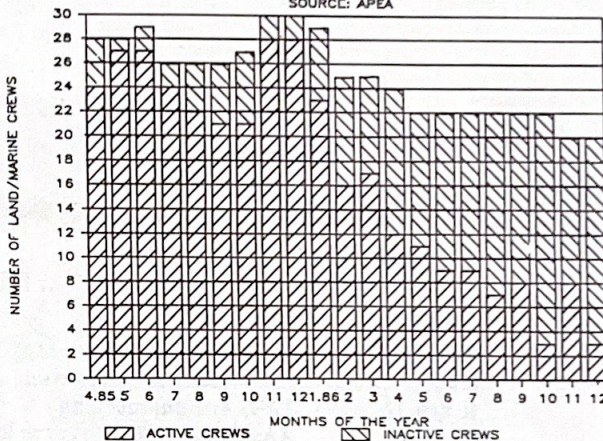
### QUARTERLY DRILLING ACTIVITY—AUSTRALIA

SOURCE: APEA



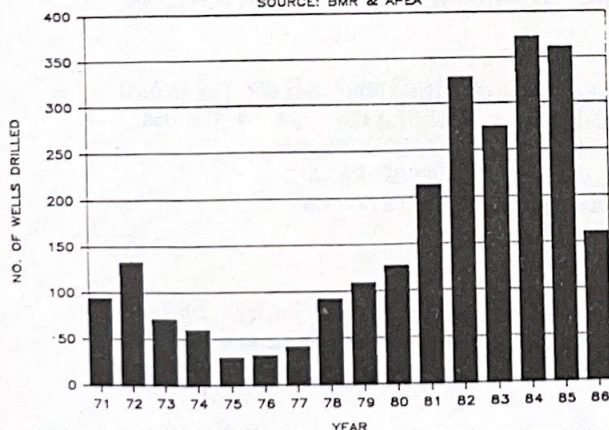
### SEISMIC CREW ACTIVITY—AUSTRALIA

SOURCE: APEA



### ANNUAL DRILLING HISTORY — AUSTRALIA

SOURCE: BMR & APEA



### SEISMIC KILOMETERS COLLECTED

AUSTRALIA MARINE AND LAND

