COMING EVENTS

- * Events wholly or partially sponsored by IUGS, one of its Affiliated Associations or joint ventures — the International Geological Correlation Programme (IGCP) or the Inter-Union Commission on the Lithosphere (ICL).
- Signifies first announcement of meeting in EPISODES.

1989

May 15 - 17, 1989
ENVIRONMENTAL GEOTECHNOLOGY (2nd International Symposium), Shanghai, China. (Secretary, ISEG, c/o Box 415, Bethlehem, PA 18016, U.S.A.)

May 21 - 23, 1989
• TECTONIC EVENTS AND BRITAIN'S OIL AND GAS RESERVES (Meeting), Bath, U.K. (R.F.P. Hardman, Amerada Hess Ltd, 2 Stephen Street, London W1P 1PL, U.K.)

May 22 - 27, 1989
PALAEOLOGY AND STRATIGRAPHY (International Meeting), Messina and Taormina, Italy. Languages: Italian, French and English. (Centenario di G. Seguenza, Istituto di Scienze della Terra, Università degli Studi, 98100 Messina, Italy)

May 23 - 25, 1989
GOLD IN EUROPE (International Conference), Toulouse, France. (R.P. Foster, Department of Geology, University of Southampton, Hants. SO9 3NH, U.K.)

May 28 - June 3, 1989
HYDROGEOLOGICAL MAPS - A TOOL FOR ECONOMIC AND SOCIAL DEVELOPMENT (International Symposium), Hannover, F.R.G. (Hydrogeological Maps Symposium, BGR Organising Unit, Postfach 510153, D-3000 Hannover 51, Federal Republic of Germany)

May 30 - June 2, 1989
EUROPEAN ASSOCIATION OF EXPLORATION GEOPHYSICISTS (51st Annual Meeting), Berlin F.R.G. Includes GENERATION, ACCUMULATION AND PRODUCTION OF EUROPE'S HYDROCARBONS (1st Conference of European Association of Petroleum Geoscientists) (EAPG, Wassenaarseweg 22, 2596 CH The Hague, The Netherlands)

June 1, 1989
• NONMARINE CRETACEOUS CORRELATIONS (IGCP-245 International Meeting), Drumheller, Alberta, Canada. (D.F. Stott, Geological Survey of Canada, 3303 - 33rd Street NW, Calgary, Alberta, Canada T2L 2A7)

June 5 - June 9, 1989
RIVER SEDIMENTATION (4th International Symposium), Xi'an, China. (Dr. Ding Lianzhen, IRTCES, P.O. Box 366, Beijing, P.R. China)

June 6 - 9, 1989
• CRETACEOUS OF LATIN AMERICA (Meeting), Buenos Aires, Argentina. Includes symposia sponsored by IGCP-242: LATIN AMERICAN CRETACEOUS RESOURCES, EVENTS AND RHYTHMS. GLOBAL PROCESSES AND SEDIMENTARY RECORD AND CRETACEOUS MINERAL DEPOSITS OF LATIN AMERICA (Centro de Investigaciones Geológicas, calle 1 no. 644, 1900 La Plata, Argentina)

June 6 - 10, 1989
RHENOHERCYNIAN AND SUBVARISCAN FOLD BELTS (International Workshop), Boppard/Rhein, F.R.G. Language: English. (Dr. Andreas Vogel, Mathematical Geophysics Group, Free University of Berlin, Podbielskiallee 60, D-1000 Berlin 33)

June 25 - July 1, 1989
• IAVCEI (General Assembly), Santa Fe, New Mexico, U.S.A. (Dr. M.A. Dungan, Department of Geological Sciences, Southern Methodist University, Dallas, TX 75275, U.S.A.)

June 26 - 29, 1989

• ENGINEERING GEOLOGY IN TROPICAL TERRAINS (International Conference), Selangor Darul Ehsan, Malaysia. Co-sponsored by IAEG. (Dept. Geology, Universiti Kebangsaan, 43800 Bangi, Selangor Darul Ehsan, Malaysia)

June 26 - 30, 1989

• GOLD GEOLOGY AND EXPLORATION (International Symposium), Shengyang, China. Co-sponsored by IMA. (Professor Zhu Fengsan, Secretariat of ISGGE, Chinese Society of Metals, 46 Dongsixi Dajie, Beijing, P. R. China)

June 27 - July 1, 1989

• GEOSCIENCES AND REMOTE SENSING (International Symposium), Vancouver, Canada. (Dr. G.F. Tomlins, BC Research, 3650 Westbrook Mall, Vancouver, BC, Canada V6S 2L2)

June 28 - July 7, 1989

• ACTIVE FAULTS OF THE AEGEAN REGION (International Symposium), California, U.S.A. Co-sponsored by IGCP-206. (Dr. P.L. Hancock, Department of Geology, University of Bristol, Wills Memorial Building, Queen's Road, Bristol BS8 1RJ, U.K.)

June 29 - 30, 1989

• DEVELOPMENTS IN SEDIMENTARY PROVENANCE STUDIES (Meeting), London. (Simon Todd, Department of Geology, University of Bristol, Wills Memorial Building, Queen's Road, Bristol BS8 1RJ, U.K.)

June 29 - July 1, 1989

• MAFIC DYKE SWARMS (Annual Meeting IGCP-257), Santa Fe, New Mexico, U.S.A. (John W. Geissman, Department of Geology, University of New Mexico, Albuquerque, NM 87131, U.S.A.)

July 5 - 8, 1989

CHAROPHYTES (International Colloquium), Montpellier, France. Languages: French and English. (Colloque Charophytes, Laboratoire de Paleobotanique, U.S.T.L., Place E. Bataillon, F-34 060 Montpellier, France)

July 9 - 19, 1989

• INTERNATIONAL GEOLOGICAL CONGRESS (28th), Washington, D.C., U.S.A. (International Geological Congress, P.O. Box 1001, Herndon, VA 22070, U.S.A.) — detailed listing below.

July 12 - 15, 1989

NEW MINERAL RAW MATERIALS (4th International Symposium), Karovy Vary, Czechoslovakia. (NEMIRAM, Geological Survey, Malostranske nam. 19, 11821 Praha 1, Czechoslovakia)

July 17 - 19, 1989

MINING IN THE ARCTIC (International Symposium), Fairbanks, Alaska. (Dr. Sukumar Bandopadhyay, 108 Brooks Building, Department of Mining and Geological Engineering, University of Alaska Fairbanks, Fairbanks, Alaska 99775, U.S.A.)

July 22 - 24, 1989

• TECTONOTHERMAL EXPRESSION OF TERRANE ACCRETION WITHIN THE APPALACHIAN OROGEN (IGCP-233 International Conference), Athens, Georgia, U.S.A. (R.D. Dallmeyer, Department of Geology, University of Georgia, Athens, GA 30602, U.S.A.)

July 24 - August 4, 1989

INTERNATIONAL ASSOCIATION OF GEOMAGNETISM AND AERONOMY (6th Scientific Assembly), Exeter, U.K. (Dr. Roy Jady, Department of Mathematics, University of Exeter, Exeter EX4 4QE, U.K.)

July 31 - August 3, 1989

EROSION AND VOLCANIC DEBRIS FLOW TECHNOLOGY (International Symposium),

Yogyakarta, Indonesia. (Mr. Hartono Pramudo, Tromol Pos 23/KBT Kebayoran Baru, Jakarta Selatan, Indonesia)

July 31 - August 4, 1989

• METEORITICAL SOCIETY (52nd Annual Meeting), Vienna, Austria. (Dr. Christian Koerber, Institute of Geochemistry, University of Vienna, A-1010 Vienna, Austria)

August 1 - 3, 1989

• PLATINUM (5th International Symposium), Espoo, Finland. Co-sponsored by IAGOD. (Prof. H. Papunen, Department of Geology, University of Turku, SF-20500 Turku, Finland)

August 2 - 4, 1989

PREPAREDNESS, MITIGATION AND MANAGEMENT OF NATURAL DISASTERS (Symposium), New Delhi, India. Language: English. (Dr. R.C. Agrawal, Symposium PMMD, c/o Dept. of Earthquake Engineering, University of Roorkee, Roorkee-247667, India)

August 3 - 12, 1989

• WATER-ROCK INTERACTION (6th IAGC International Symposium), Malvern, England. (Dr. W.M. Edmunds, British Geological Survey, Wallingford, Oxon OX10 8BB, U.K.)

August 7 - 10, 1989

• PACIFIC NEOGENE STRATIGRAPHIC, PALEO-OCEANOGRAPHIC AND ANDEAN EVENTS (IGCP-246 Meeting), Vina del Mar, Chile. (Pacific Science Association, VI Inter-Congress, Box 14187, Suc. 21, Santiago, Chile)

August 7 - 11, 1989

GEOLOGY OF THE CARIBBEAN (12th Conference), St. Croix, Virgin Islands. (Frederick Nagle, Department of Geological Sciences, P.O. Box 249176, University of Miami, Coral Gables, FL 33124, U.S.A.)

August 8 - 10, 1989

• LANDSLIDES (South American Symposium), Paipa, Colombia. (Juan Montero Olarte, Apartado Aereo 057045, Bogota, Colombia)

August 13 - 18, 1989

SOIL MECHANICS AND FOUNDATION ENGINEERING (12th International Conference), Rio de Janeiro, Brazil. (Organizing Committee, XII ICSMFE, Caixa Postal 1559, 2000 Rio de Janeiro, RJ, Brazil)

August 14 - 17, 1989

• PRECAMBRIAN GRANITOIDES: Petrogenesis, Geochemistry, and Metallogeny (IGCP-217 and IGCP-247 Symposium), Helsinki, Finland. (Precambrian Granitoids Symposium, Department of Geology, University of Helsinki, P.O. Box 115, SF-00171 Helsinki, Finland)

August 14 - 17, 1989

DUNES '89 (Meeting), Swakopmund, Namibia. (J.D. Ward, P.O. Box 2168, Windhoek 9000, Namibia)

August 14 - 18, 1989

SOILS AND THE GREENHOUSE EFFECT (International Conference), Wageningen, The Netherlands. (A.D. Bouwman, ISRIC, P.O. Box 353, 6700 AJ Wageningen, The Netherlands)

August 14 - 29, 1989

SPELEOLOGY (10th International Congress), Budapest, Hungary. (10th International Congress of Speleology, c/o Magyar Karszt -es Barlangkutatas Tarsulat, Anker köz 1, H-1061 Budapest, Hungary)

August 21 - 25, 1989

INTERNATIONAL ASSOCIATION FOR HYDRAULIC RESEARCH (23rd Congress), Ottawa, Canada. (IAHR Secretariat, National Research Council, Building M-58, Montreal Road, Ottawa, Ontario, Canada K1A 0R6)

August 21 - September 1, 1989

• IASPEI (25th General Assembly), Istanbul, Turkey. Co-sponsored by ICL. (Dr. Otkay Ergunay, Earthquake Research Division, Ministry of Public Works and Settlement, Yuksek Cad No. 7/E, Ankara, Turkey)

CONGRESS PROGRAM

28th INTERNATIONAL GEOLOGICAL CONGRESS, WASHINGTON, D.C.

A selection of plenary events and technical sessions co-sponsored by IUGS and affiliated organizations. Chairpersons in brackets. For further information contact Dr. B. Hanshaw, IGC Secretary-General (address on back page). For explanation of acronyms see listing elsewhere in this issue of *Episodes*.

July 10, 1989

AM

Congress-wide Colloquium - World Natural Resources (E. Seibold, F.R.G., W.L. Fisher, U.S.A., and B.J. Skinner, U.S.A.)

PM

A16 Geochemistry of the Proterozoic (IGCP Project 217: M. Figueiredo, Brazil, and W.T. Jolly, Canada)

F11 Mantle metasomatism and crustal contamination (ICL: M.A. Menzies, U.K., and W.P. Leeman, U.S.A.)

G3 Accretionary tectonics and composite continents I (ICL: L. Zonenshain, U.S.S.R., and R.D. Hatcher, Jr., U.S.A.)

I1 Applied mineralogy: Fe and Mn biomineralization from micro to macro I (IMA: R.W. Fitzpatrick, Australia, and H.C.W. Skinner, U.S.A.)

I7 Synchrotron radiation in the geological sciences I (IMA: S. Sueno, Japan, and G.E. Brown, Jr., U.S.A.)

K1 The idea of time: changing concepts of the antiquity of Man and the Earth (INHIGEO: M. Guntau, G.D.R., L.F. Laporte, U.S.A., and C.J. Schreier, U.S.A.)

P6 Geological, geochemical and geophysical contrasts between the Archean and Proterozoic (ICS, IGCP Project 217: K.A. Plumb, Australia, and R.E. Zartman, U.S.A.)

P33 History of geologic mapping (INHIGEO: K. Cook, U.K., G.L.H. Davis, Ireland, and K.L. Taylor, U.S.A.)

Plenary Session - The International Geological Correlation Program (A.J. Naldrett, Canada, and B.J. Skinner, U.S.A.)

July 11, 1989

AM

B7 Stromatolite diversity through time (IGCP Project 261: R.V. Burne, Australia, and S. Awramik, U.S.A.)

F5 Physical and chemical processes in layered intrusions I (CIMP: L. Campbell, Australia, and L.S. McCallum, U.S.A.)

G3 Accretionary tectonics and composite continents II (ICL: L. Zonenshain, U.S.S.R., and R.D. Hatcher, Jr., U.S.A.)

I1 Applied mineralogy: Fe and Mn biomineralization from micro to macro II (IMA: R.W. Fitzpatrick, Australia, and H.C.W. Skinner, U.S.A.)

I7 Synchrotron radiation in the geological sciences II (IMA: S. Sueno, Japan, and G.E. Brown, Jr., U.S.A.)

L8 The Precambrian/Cambrian faunal and floral transition I (ICS: P.A. Jell, Australia, and A.R. Palmer, U.S.A.)

P10 The Global Geosciences Transects Program (ICL: F. Herve, Chile, and W.R. Van Schmus, U.S.A.)

PM

B2 Intercorrelations of time scales: biologic, radiometric, magnetic, and chemical I (ICS: J.W. Cowie, U.K., and W.A. Berggren, U.S.A.)

D6 Weathering and soil I (IAGC: D. Lal, India, and M. Pavich, U.S.A.)

F5 Physical and chemical processes in layered intrusions II (CIMP: L. Campbell, Australia, and L.S. McCallum, U.S.A.)

F6 Metamorphism and geodynamics II (IMA, IGCP: L. Perchuk, U.S.S.R., and R.J. Tracy, U.S.A.)

G3 Accretionary tectonics and composite continents III (ICL: L. Zonenshain, U.S.S.R., and R.D. Hatcher, Jr., U.S.A.)

G7 Tectonic interpretation of the Earth from space (CCP: A.M.C. Sengör, Turkey, and K. Burke, U.S.A.)

G11 The World Stress Map I (ICL: S. Cloetingh, The Netherlands, and M.L. Zoback, U.S.A.)

I5 High-pressure mineralogy I (IMA: S. Akimoto, Japan, and R. Jeanloz, U.S.A.)

K3 The trans-Atlantic exchange of geological ideas during the nineteenth century (INHIGEO: G.Y. Craig, U.K., E. Dudich, Hungary, and A.V. Carozzi, U.S.A.)

L8 The Precambrian/Cambrian faunal and floral transition II (ICS: P.A. Jell, Australia, and A.R. Palmer, U.S.A.)

PRM Precambrian metallogeny related to plate tectonics (IGCP Project 247: G. Gaal, Finland, and K.J. Schulz, U.S.A.)

P10 The Global Geosciences Transects Program (ICL: F. Herve, Chile, and W.R. Van Schmus, U.S.A.)

P21 Morphology of ocean crust formation (ICL: D. Needham, France, and P.J. Fox, U.S.A.)

Plenary Session - The International Lithosphere Program (K. Fuchs, F.R.G.)

July 12, 1989

AM

A5 Continental scientific drilling: Plans, scientific results, and technology developments I (ICL: Ye.A. Kozlovsky, U.S.S.R., and G.A. Barber, U.S.A.)

B2 Intercorrelations of time scales: biologic, radiometric, magnetic, and chemical II (ICS: J.W. Cowie, U.K., and W.A. Berggren, U.S.A.)

C17 Evolution of ore-forming processes through geologic time I (SEG, IAGOD, SGA: M. Stempok, Czechoslovakia, J.E. Gair, U.S.A., and R.W. Hutchinson, U.S.A.)

D6 Weathering and soil II (IAGC: D. Lal, India, and M. Pavich, U.S.A.)

D18 Global change: impact on the earth, natural hazards, and man's activities (ICL: J.O. Rabassa, Argentina, and R. Price, Canada)

F20 Genesis and evolution of oceanic crust melts, magma chambers, and mantle source I (ICL: L.V. Dmitriev, U.S.S.R., and W.G. Melson, U.S.A.)

G4 Neotectonic and Holocene deformation I (ICL: T. Matsuda, Japan, and R.S. Yeats, U.S.A.)

G11 The World Stress Map II (ICL: S. Cloetingh, The Netherlands, and M.L. Zoback, U.S.A.)

I5 High-pressure mineralogy II (IMA: S. Akimoto, Japan, and R. Jeanloz, U.S.A.)

P11 Access and transfer of earth science data (ICL: O. Dottin, France, and M.A. Chinnery, U.S.A.)

PM

A5 Continental scientific drilling: Plans, scientific results, and technology developments II (ICL: Ye. A. Kozlovsky, U.S.S.R., and G.A. Barber, U.S.A.)

A6 Influence of extraterrestrial impact phenomena on the course of geologic history (CCP: K.S. Hsu, Switzerland, and E.M. Shoemaker, U.S.A.)

A9 Geological, geochemical and geophysical contrasts between the Archean and Proterozoic I (ICS, IGCP Project 217: K.A. Plumb, Australia, and R.E. Zartman, U.S.A.)

B2 Intercorrelations of time scales: biologic, radiometric, magnetic, and chemical III (ICS: J.W. Cowie, U.K., and W.A. Berggren, U.S.A.)

B3 Seismic images of sedimentary basins (ICL: D.G. Roberts, U.K., and A.W. Bally, U.S.A.)

C17 Evolution of ore-forming processes through geologic time (SEG, SGA, IAGOD:

M. Stempok, Czechoslovakia, J.E. Gair, U.S.A., and R.W. Hutchinson, U.S.A.)

D6 Weathering and soil III (IAGC: D. Lal, India, and M. Pavich, U.S.A.)

F20 Genesis and evolution of oceanic crust melts, magma chambers, and mantle source II (ICL: L.V. Dmitriev, U.S.S.R., and W.G. Melson, U.S.A.)

G4 Neotectonic and Holocene deformation (ICL: T. Matsuda, Japan, and R.S. Yeats, U.S.A.)

G11 The World Stress Map II (ICL: S. Cloetingh, The Netherlands, and M.L. Zoback, U.S.A.)

I2 Spectra and thermodynamics of minerals I (IMA: A.N. Lazarev, U.S.S.R., and A. Navrotsky, U.S.A.)

Plenary Session - The International Natural Disaster Reduction Program (F. Press, U.S.A.)

July 13, 1989

AM

A5 Continental scientific drilling: Plans, scientific results, and technology developments III (ICL: Ye.A. Kozlovsky, U.S.S.R., and G.A. Barber, U.S.A.)

A9 Geological, geochemical, and geophysical contrasts between the Archean and Proterozoic II (IGCP Project 217: K.A. Plumb, Australia, and R.E. Zartman, U.S.A.)

E17 The common geologic hazards: natural and man-induced I (ICL: INQUA, IAGC, IAH: M. Arnold, France, B.A. Bolt, U.S.A., and G.A. Kiersch, U.S.A.)

I2 Spectra and thermodynamics and minerals II (IMA: A.N. Lazarev, U.S.S.R., and A. Navrotsky, U.S.A.)

I4 Mineral physics I (IMA: S.M. Stishov, U.S.S.R., and C. Prewitt, U.S.A.)

J3 The influence of geoscience education on the development of Third World countries I (AGID: S. Alpan, Turkey, and W.R. Greenwood, U.S.A.)

M1 Statistical treatment of outlier data applied to remote sensing, ore deposits, pollution, geochemistry, engineering geology, and hydrogeology I (IAMG: M. Armstrong, France, and H. Parker, U.S.A.)

PM

A9 Geological, geochemical and geophysical contrasts between the Archean and Proterozoic III (ICS, IGCP Project 217: K.A. Plumb, Australia, and R.E. Zartman, U.S.A.)

A19 The Global Geosciences Transects Program I (ICL: J. Monger, Canada, and R. Speed, U.S.A.)

B4 The record of sea-level fluctuations I (ICL: W. Schlager, The Netherlands, and K.F. Biddle, U.S.A.)

C25 Metalliferous black shales and related ore deposits (IGCP Project 234: J. Pasava, Czechoslovakia, and R. Grauch, U.S.A.)

E17 The common geologic hazards: natural and man-induced II (ICL: INQUA, IAGC, IAH: M. Arnold, France, B.A. Bolt, U.S.A., and G.A. Kiersch, U.S.A.)

G5 Brittle and on-brittle crustal deformation I (ICL: B.E. Hobbs, Australia, and W.D. Means, U.S.A.)

I3 Fluid inclusions (IMA: A. Kozlowski, Poland, and E. Roedder, U.S.A.)

I4 Mineral physics II (IMA: S.M. Stishov, U.S.S.R., and C. Prewitt, U.S.A.)

I6 Kinetics of mineral reactions (IMA: M.A. Carpenter, U.K., and A. Lasaga, U.S.A.)

J3 The influence of geoscience education on the development of Third World countries II (AGID: S. Alpan, Turkey, and W.R. Greenwood, U.S.A.)

M1 Statistical treatment of outlier data applied to remote sensing, ore deposits, pollution, geochemistry, engineering geology, and hydrogeology II (IAMG: M. Armstrong, France, and H. Parker, U.S.A.)

N5 Exploration of Mars (CCP: A.T. Basilevsky, U.S.S.R., and M.H. Carr, U.S.A.)

Congress Program

Plenary Session - The Global Sedimentary Geology Program (R.N. Ginsburg, U.S.A.)

July 14, 1989

- AM
A9 Geological, geochemical, and geophysical contrasts between the Archean and Proterozoic IV (ICS, IGCP Project 217: K.A. Plum, Australia, and R.E. Zartman, U.S.A.)
A19 The Global Geosciences Transects Program II (ICL: J. Monger, Canada, and R. Speed, U.S.A.)
B4 The record of sea-level fluctuations II (ICL: W. Schlager, The Netherlands, and K.T. Biddle, U.S.A.)
C25 Metalliferous black shales and related ore deposits II (IGCP Project 254: J. Pasava, Czechoslovakia, and R. Graueh, U.S.A.)
F4 Metamorphism under extreme conditions I (CIMP: W. Schreyer, F.R.G., and B.W. Evans, U.S.A.)
F12 Andean magmatism and its tectonic setting I (IGCP Project 249: C.W. Rapel, Argentina, and S. Kay, U.S.A.)
G5 Brittle and non-brittle crustal deformation II (ICL: S.E. Hobbs, Australia, and W.D. Means, U.S.A.)

- PM
A7 Constraints on the motion of major plates and accreted terranes I (ICL: L.P. Zonenshain, U.S.S.R., and C.R. Scotese, U.S.A.)
A9 Geological, geochemical, and geophysical contrasts between the Archean and Proterozoic V (ICS, IGCP Project 217: K.A. Plum, Australia, and R.E. Zartman, U.S.A.)
A19 The Global Geosciences Transects Program III (ICL: J. Monger, Canada, and R. Speed, U.S.A.)
B8 Black shales and oceanic anoxia in the Paleozoic and Mesozoic (ICS: L. Premoli-Silva, Italy, and S.O. Schlanger, U.S.A.)
F4 Metamorphism under extreme conditions II (CIMP: W. Schreyer, F.R.G., and B.W. Evans, U.S.A.)
F12 Andean magmatism and its tectonic setting II (IGCP Project 249: C.W. Rapel, Argentina, and S. Kay, U.S.A.)
G5 Brittle and on-brittle crustal deformation III (ICL: B.E. Hobbs, Australia, and W.D. Means, U.S.A.)
H4 Three-dimensional structure of the earth's deep interior (ICL: G. Nolet, The Netherlands, and A. Dziewonski, U.S.A.)

Plenary Session - The Ocean Drilling Program (T.E. Pyle, U.S.A.)

July 17, 1989

- AM
A7 Constraints on the motion of major plates and accreted terranes II (ICL: L.P. Zonenshain, U.S.S.R., and C.R. Scotese, U.S.A.)
A9 Geological, geochemical, and geophysical contrasts between the Archean and Proterozoic VI (ICS, IGCP Project 217: K.A. Plum, Australia, and R.E. Zartman, U.S.A.)
B16 Lacustrine deposits as petroleum source rocks and records of paleoenvironments I (IGCP Project 219: K. Kelts, Switzerland, and W.E. Dean, U.S.A.)
B20 Thermal history of sedimentary basins I (ICL: N. Clauer, France, and N.D. Naeser, U.S.A.)
B25 Precambrian platform sedimentation (IGCP Project 160: J. Marmo, Finland, and R.W. Ojakangas, U.S.A.)
C14 Circum-Pacific energy and mineral resources (CPCEMR: J. Corvalan, Chile, and G.W. Moore, U.S.A.)
E13 The geological environment and human health I (IAGC: Lin Xueyu, P.R.C., and M.S. Rutstein, U.S.A.)

- F1 The thermal regime and tectonic styles during the Precambrian (ICL: E.G. Nesbit, Canada, and F. Richter, U.S.A.)
G9 Tectonics of the Himalayan region I (ICL: V.C. Thakur, India, and R. Yeats, U.S.A.)
H2 Evolution of the core-mantle system (ICL, CCP: H. Wäke, F.R.G., and M.J. Drake, U.S.A.)
L7 Global biological events in earth history I (IGCP Project 216: O.H. Walliser, F.R.G., and G.R. McGhee, Jr., U.S.A.)
E17 The common geologic hazards: natural and man-induced (ICL, INQUA, IAE, IAH: M. Arnould, France, B.A. Bolt, U.S.A., and G.A. Kiersch, U.S.A.)

PM
A9 Geological, geochemical, and geophysical contrasts between the Archean and Proterozoic VII (ICS, IGCP Project 217: K.A. Plum, Australia, and R.E. Zartman, U.S.A.)

- B10 Global changes indicated by stratigraphic boundaries I (IGCP Project 218: O.H. Walliser, F.R.G., and J.K. Rigby, U.S.A.)
B16 Lacustrine deposits as petroleum source rocks and records of paleoenvironments II (IGCP Project 219: K. Kelts, Switzerland, and W.E. Dean, U.S.A.)
B20 Thermal history of sedimentary basins III (ICL: N. Clauer, France, and N.D. Naeser, U.S.A.)
C14 Circum-Pacific energy and mineral resources II (CPCEMR: J. Corvalan, Chile, and G.W. Moore, U.S.A.)
C15 Distribution models for ore deposits and their genetic implications I (IUGS: A.J. Sinclair, Canada, and S.E. Kesler, U.S.A.)
E13 The geological environment and human health II (IAGC: Lin Xueyu, P.R.C., and M.S. Rutstein, U.S.A.)
G1 Evolution of crustal rift systems I (ICL, IGCP Project 227: A.B. Kampunzu, Zaire, and P. Morgan, U.S.A.)
G9 Tectonics of the Himalayan region II (ICL: V.C. Thakur, India, and R. Yeats, U.S.A.)
G10 Terranes in Circum-Atlantic orogens I (IGCP Project 233: J.D. Keppie, Canada, and R.D. Dallmeyer, U.S.A.)
H1 Mantle evolution: New isotopic and geochemical information (ICL: B. Jahn, France, and G.N. Hanson, U.S.A.)
L7 Global biological events in earth history II (IGCP Project 216: O.H. Walliser, F.R.G., and G.R. McGhee, Jr., U.S.A.)
N1 Geologic evolution of Venus; application to the Earth II (CCP: A.T. Basilevsky, U.S.S.R., and J.W. Head, U.S.A.)
N2 Planetary differentiation and early crustal genesis (CCP: H. Palme, F.R.G., and R.W. Carlson, U.S.A.)

Plenary Session - The International Geosphere-Biosphere Program (W.S. Fyfe, Canada)

July 18, 1989

- AM
C15 Distribution models for ore deposits and their genetic implication II (IUGS: A.J. Sinclair, Canada, and S.E. Kesler, U.S.A.)
G1 Evolution of crustal rift systems II (IGCP Project 227, ICL: A.B. Kampunzu, Zaire, and P. Morgan, U.S.A.)
G10 Terranes in Circum-Atlantic orogens II (IGCP Project 233: J.D. Keppie, Canada, and R.D. Dallmeyer, U.S.A.)
H3 The composition and dynamics of the mantle I (ICL: E. Takahashi, Japan, and P. Silver, U.S.A.)
N3 Planetary volcanism and tectonism (CCP: P.L. Masson, France, and J. Masursky, U.S.A.)
P16 Seismic reflection studies of the continental crust (ICL: D.H. Matthews, U.K., and J. Oliver, U.S.A.)

PM

- C17 Evolution of ore-forming processes through geologic time III (SEG, IAGOD, SGA: M. Stempok, Czechoslovakia, J.E. Gair, U.S.A., and R.W. Hutchinson, U.S.A.)
F14 The nature of the lower continental crust through time (IAGC, ICL: R. Meissner, F.R.G., and D. DePaolo, U.S.A.)
G10 Terranes in Circum-Atlantic orogens (IGCP Project 233: J.D. Keppie, Canada, and R.D. Dallmeyer, U.S.A.)
H3 The composition and dynamics of the mantle II (ICL: E. Takahashi, Japan, and P. Silver, U.S.A.)
N4 Meteorites, asteroids, comets, and cosmic dust (IMA, CCP, IAGC: H. Takeda, Japan, and H.Y. McSween, U.S.A.)

Plenary Session - The International Geological Correlation Program II (A.J. Naldrett, Canada, and B.J. Skinner, U.S.A.)

July 19, 1989

AM

Congress-wide Colloquium - The Twentieth Anniversary of the Apollo 11 Lunar Landing: A Planetary Perspective (V.L. Barsukov, U.S.S.R., and J.W. Head, U.S.A.)

OTHER ASSOCIATED EVENTS

July 11 - 15, 1989

COMMISSION FOR THE GEOLOGICAL MAP OF THE WORLD (General Assembly). (CGMW, 77, rue Claude-Bernard, 75005 Paris, France)

July 15 - 16, 1989

IUGS COUNCIL (Meeting). (Dr. R. Sinding-Larsen, Geological Survey of Norway, P.O. Box 3006, N-7002 Trondheim, Norway)

July 15, 1989

GEOLOGY OF AFRICA (Forum). Sponsored by CIFE and Unesco. (M. Leleu, CIFE, 103 rue de Lille, 75005, Paris, France)

RECEIVED THE THIRD CIRCULAR YET?

The Third Circular for the 28th IGC has now been mailed to all who pre-registered using the forms in the Second Circular. To obtain your copies of these circulars write 28th International Geological Congress, P.O. Box 727, Tulsa, Oklahoma 74101-0727, U.S.A. (Telex: 49-9432)

For Your Bookshelves

Laznicka, P. **BRECCIAS AND COARSE FRAGMENTITES, Petrology, Environments, Associations**. Ores. Elsevier, 1988, 832p., \$168.50/Dfl. 320.

Lee, K.Y. and Masters, C.D. **GEOLOGIC FRAMEWORK, PETROLEUM POTENTIAL, AND FIELD LOCATIONS OF THE SEDIMENTARY BASINS IN CHINA**. USGS Miscellaneous Investigations Series I-1952, 1988, 1:5,000,000, \$5.50.

Lovelock, J.E. **THE AGES OF GAIA, A Biography of Our Living Earth**. Oxford, 1988, 2,272p., £13.50.

Lowenstam, H.A. and Weiner, S. **ON BIOMINERALIZATION**. Oxford, 1989, 288p., \$49.95.

Mahaney, W.C. (ed.) **QUATERNARY AND ENVIRONMENTAL RESEARCH ON EAST AFRICAN MOUNTAINS**. A.A. Balkema, 1989, 483p., (H) \$67.50.

Maling, D.H. **MEASUREMENTS FROM MAPS, Principles and Methods of Cartometry**. Pergamon, 1988, 577p., (H) \$80/£45; (S) \$36/£20.

Mandl, G. **MECHANICS OF TECTONIC FAULTING: Models and Basic Concepts**. Elsevier, 1988, 407p., \$79.

McDougall, I. and Harrison, T.M. **GEOCHRONOLOGY AND THERMOCHRONOLOGY BY THE ⁴⁰AR/³⁹AR METHOD**. Oxford, 1988, 224p., \$55.

McKinney, M.L. (ed.) **HETEROCHRONY IN EVOLUTION, A Multidisciplinary Approach**. Plenum, 1988, 348p., (H) \$79.50.

McRae, S.G. **PRACTICAL PEDOLOGY: Studying Soils in the Field**. Longman/John Wiley, 1988, 253p., (H) \$49.95/£35.

Melosh, H.J. **IMPACT CRATERING, A Geologic Process**. Oxford, 1988, 272p., \$65.

Moore, E.M. and Wahl, F.M. (eds.) **THE ART OF GEOLOGY**. GSA Special Paper 225, 1988, 140p., (H) \$37.50.

Morton, A.C. and Parson, L.M. (eds.) **EARLY TERTIARY VOLCANISM AND THE OPENING OF THE NE ATLANTIC**. Proceedings of a meeting held March 1987. Geological Society Special Publication No. 39, 1988, 477p., £40 (Fellows); £80 (others).

Peel, J.S. (ed.) **STRATIGRAPHY AND PALAEONTOLOGY OF THE HOLM DAL FORMATION (LATE MIDDLE CAMBRIAN), CENTRAL NORTH GREENLAND**. Meddelelser om Grønland, 1988, 168p., (H) DKK 288 (excl. VAT and postage). Available from The Commission for Scientific Research in Greenland, Oster Voldgade 10, DK-1350 Copenhagen K, Denmark.

Poulos, H.G. **MARINE GEOTECHNICS**. Unwin Hyman, 1988, 448p., (H) \$125.

Ritchie, W., Wood, M., Wright, R. and Tait, D. **SURVEYING AND MAPPING FOR FIELD SCIENTISTS**. Longman, 1988, 304p., £12.95.

Runcorn, S.K., Turner, G. and Woolson, M.M. (eds.) **THE SOLAR SYSTEM: Chemistry as a Key to its Origin**. The Royal Society, 1988, 153p., £50 (U.K.); £53 (elsewhere).

Saltzman, B. (ed.) **ADVANCES IN GEOPHYSICS**, Vol. 30. Academic, 1988, 248p., \$65.

Schreiber, B.C. (ed.) **EVAPORITES AND HYDROCARBONS**. Columbia University Press, 1988, 475p., (H) price not listed. Available from Columbia University Press, 562 West 113th Street, New York, NY 10025, U.S.A.

Scott, D.B., Pirazzoli, P.A. and Honig, C.A. (eds.) **LATE QUATERNARY SEA-LEVEL CORRELATION AND APPLICATIONS**. NATO ASI Series C: Mathematical and Physical Sciences, Vol. 256. D. Reidel, 1989, 228p., (H) \$69/£42/Dfl. 130. Available from Kluwer Academic Publishers Group.

Sharp, R.P. **LIVING ICE, Understanding Glaciers and Glaciation**. Cambridge, 1988, 160p., (C) \$29.95.

Skinner, H.C.W., Ross, M. and Frondel, C. **ASBESTOS AND OTHER FIBROUS MATERIALS, Mineralogy, Crystal Chemistry, and Health Effects**. Oxford, 1988, 224p., \$35.

Siever, R. **SAND**. Scientific American Books, 1988, 240p., \$32.95. Available from W.H. Freeman and Company, 4419 West 19800 South, Salt Lake City, UT 84104, U.S.A.

Sposito, G. **THE CHEMISTRY OF SOILS**. Oxford, 1989, 304p., \$29.95.

Steiner, F. and Zilahi-Sebess, L. **INTERPRETATION OF FILTERED GRAVITY MAPS**. Akadémiai Kiadó, 1988, 344p., \$38. Available from Akadémiai Kiadó, Hungarian Academy of Sciences, H-1363 Budapest, P.O.B. 24, Hungary.

Streletsova, T.D. **WELL TESTING IN HETEROGENEOUS FORMATIONS**. An Exxon Monograph. John Wiley, 1988, 413p., \$62.50.

Stuart, W.D. and Aki, K. (eds.) **INTERMEDIATE-TERM EARTHQUAKE PREDICTION**. Birkhäuser Verlag, 1988, 544p., (P) \$55/ DM 88/ sFr. 74. Available from Birkhäuser Verlag AG, P.O. Box 133, CH-4010 Basel, Switzerland; or Birkhäuser Boston, Inc., c/o Springer-Verlag New York, Inc., 44 Hartz Way, Secaucus, NJ 07096-2491, U.S.A.

Szaboles, I. **SALT-AFFECTED SOILS**. CRC Press, 1989, 272p., \$139 (U.S.A.); \$163 (elsewhere).

Takemoto, S. et al. **LASER HOLOGRAPHY IN GEOPHYSICS**. Ellis Horwood Series in Applied Geology. The Institution of Geologists, 1989, 250p., (H) £32.50.

TECTONICS OF THE EAST-ASIA MARGINAL SEAS. Geodynamic Researches No. 11. Soviet Geophysical Committee, 1988, 141p. In Russian with English abstracts. Available from the Soviet Geophysical Committee on a book-exchange basis.

Thompson, S.J. **A CHRONOLOGY OF GEOLOGICAL THINKING FROM ANTIQUITY TO 1899**. Scarecrow Press, 1988, 320p., \$29.50. Available from Scarecrow Press, Box 4167, Metuchen, NJ 08840, U.S.A.

Thomson, K.S. **MORPHOGENESIS AND EVOLUTION**. Oxford, 1988, 192p., £24.

Trudgill, S.T. **SOIL AND VEGETATION SYSTEMS**, 2nd ed. Oxford, 1988, 224p., (C) \$58.50; (P) \$19.50.

Vincent, W.F. **MICROBIAL ECOSYSTEMS OF ANTARCTICA**. Studies in Polar Research. Cambridge, 1988, 304p., (H) \$75.

White, W.B. **GEOMORPHOLOGY AND HYDROLOGY OF KARST TERRAINS**. Oxford, 1988, 478p., \$45/£35.

White, W.R. (ed.) **INTERNATIONAL CONFERENCE ON RIVER REGIME**. John Wiley, 1988, 456p., \$97.50/£42.

Williams, P.J. **PIPELINES AND PERMAFROST, Science in a Cold Climate**, 2nd ed. Oxford, 1988, 140p., (P) \$14.95.

Wilson, M. **IGNEOUS PETROGENESIS**. Unwin Hyman, 1988, 480p., (H) \$100/£50; (P) \$39.95/£24.95.

Yatsu, E. **THE NATURE OF WEATHERING: An Introduction**. Sozisha, 1988, 824p., price not listed. Available from Maruzen Co., Export Dept., P.O. Box 5050, Tokyo International, Japan 100-31.

NEW JOURNALS

ARCTIC RESEARCH OF THE UNITED STATES. A new journal (v. 1, Fall 1987) published by the U.S. National Science Foundation on behalf of the Interagency Arctic Research Policy Committee and in cooperation with the Arctic Research Commission. Two issues per year. For

information: IARPC Staff, Division of Polar Programs, Room 620, National Science Foundation, Washington, DC 20550, U.S.A.

SCIENTIFIC DRILLING, GEOPHYSICS, GEO-CHEMISTRY, AND TECHNOLOGY. A new (v. 1, 6 issues, 1989) journal from Springer-Verlag. R.N. Anderson, Editor. For information: Springer-Verlag New York, 175 Fifth Avenue, New York, NY 10010, U.S.A.

NEW MAPS AND ATLASES

Bally, A.W. (ed.) **ATLAS OF SEISMIC STRATIGRAPHY**, A 3 vol. teaching atlas. AAPG Studies in Geology No. 27, Vol. 2, 1988, \$42 (members); \$48 (others).

Booth, J.S. et al. **MAP AND TABULATION OF QUATERNARY MASS MOVEMENTS ALONG THE UNITED STATES-CANADIAN ATLANTIC CONTINENTAL SLOPE FROM 32° TO 47° N LATITUDE**. USGS Miscellaneous Field Studies Map MF-2027, 1988, 1:2,000,000, 3 sheets \$4.50.

CARTE DES GITES MINERAUX DE L'ALGERIE AU 1/500,000. Ministère de l'Industrie Lourde, 1987, 1:500,000, price not listed. Available from Ministère de l'Industrie Lourde, Office National de la Géologie, Rue Ahmed Bey de Constantine, Immeuble 'Le Colyseé', Algiers.

CHINA'S OIL AND GAS FIELDS, PETROLEUM POTENTIAL. USGS Miscellaneous Investigations Map I-1952, 1989, scale and size not listed, \$5.50.

Drake, A.A., Jr., et al. **BASEMENT AND BASEMENT-COVER RELATION MAP OF THE APPALACHIAN OROGEN IN THE UNITED STATES**. USGS Miscellaneous Investigations Series I-1655, 1988, 1:1,000,000, \$6.20.

GEOLOGIC MAP OF THE CIRCUM-PACIFIC REGION, NORTHWEST QUADRANT, and Explanatory Notes. Circum-Pacific Council for Energy and Mineral Resources, 1988, 1:10,000,000 plus 37p. text, \$12 plus postage. Available from AAPG.

GEOLOGIC MAP OF THE CIRCUM-PACIFIC REGION, SOUTHWEST QUADRANT, and Explanatory Notes. Circum-Pacific Council for Energy and Mineral Resources, 1988, 1:10,000,000 plus 30p. text, \$12 plus postage. Available from AAPG.

Goter, S.K. **MAP SHOWING GLOBAL DISTRIBUTION OF SEISMICITY, 1977-1986**. USGS Geophysical Investigations Map GP-989, 1:40,000,000 at equator, \$3.10.

Haxby, W.F. **GRAVITY FIELD OF THE WORLD'S OCEANS**. National Geophysical Data Center Report MGG-3, 1987, 1:40,000,000, \$10; Magnetic tape \$90. Available from National Geophysical Data Center, 325 Broadway, Boulder, CO 80303, U.S.A.

Petit-Maire, N. (director) **LE SAHARA A L'HOLOCENE: MALL Laboratoire de Géologie du Quaternaire, CNRS**, 1988, 1:1,000,000, price not listed. Available from Laboratoire de Géologie du Quaternaire, CNRS, 13288 Marseille, Luminy Cedex 9, France.

Swithbank, C., Chinn, R.J., Williams, R.S., Jr., and Ferrigno, J.G. **ANTARCTICA, Satellite Image Atlas of Glaciers of the World**. USGS Professional Paper 1386-B, 1988, \$40.

NEW REFERENCE BOOKS

DIRECTORY OF DATA SOURCES FOR LITHOSPHERIC INVESTIGATIONS, Vol. 1. National Geophysical Data Center, 1988, 400p., \$20, additional copies \$10. Available from National Geophysical Data Center, NOAA, NESDIS (EG/C4), 325 Broadway, Dept. 705, Boulder, CO 80303, U.S.A.

Coming Events

Sekretariat symposia, Hornicka Pribram ve Vede a Technice, post. schr. 41,261 02 Pribram, Czechoslovakia)

October 16 - 27, 1989

•**REGIONAL MINERAL RESOURCE ASSESSMENTS** (Workshop for international participants), Reston, Virginia. (U.S. Geological Survey, Office of International Geology, Training Section, 917 National Center, Reston, VA 22092, U.S.A.)

October 18 - 20, 1989

STRUCTURAL AND TECTONIC MODELLING AND ITS APPLICATION TO PETROLEUM GEOLOGY (Meeting), Stavanger, Norway. (Norwegian Petroleum Society, P.O. Box 1897 - Vika, 0124 Oslo, Norway)

October 20 - 22, 1989

GEOMORPHIC EVOLUTION OF THE APPALACHIANS (20th Annual Geomorphology Symposium), Carlisle, Penn., U.S.A. (W.D. Sevon, Pennsylvania Geological Survey, P.O. Box 2357, Harrisburg, PA 17120, U.S.A.)

October 22 - 25, 1989

WORLD GOLD '89 (Meeting), Reno, Nevada, U.S.A. (Society of Mining Engineers, P.O. Box 625002, Littleton, CO 80162, U.S.A.)

October 23 - 27, 1989

COAL SCIENCE (International Conference), Tokyo, Japan. Language: English. (Secretariat for ICCS, Coal Conversion Department, New Energy Development Organization (NEDO), Sunshine 60 Building, 1-1, Higashi-Ikebukuro 3-chome, Toshima-ku, Tokyo 170, Japan)

October 28 - 30, 1989

GEOLOGY AND GEOPHYSICS OF IRELAND AND ITS CONTINENTAL MARGIN (Meeting), Galway, Ireland. (D. Ryan, Geology Department, University College, Galway, Ireland)

October 29 - November 2, 1989

SOCIETY OF EXPLORATION GEOPHYSICISTS (Annual Meeting), Dallas, Texas, U.S.A. (Convention Assistant, SEG, P.O. Box 3098, Tulsa, OK 74101, U.S.A.)

November 2 - 3, 1989

•**MOUNTAINS, BASINS AND LITHOSPHERE RHEOLOGY** (Meeting), London, U.K. (Dr. R. Butler, Dept. Earth Sciences, Open University, Walton Hall, Milton Keynes, MK7 6AA, U.K.)

November 6 - 9, 1989

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), St. Louis, Missouri, U.S.A. (Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301, U.S.A.)

November 13 - 15, 1989

MINERAL EXPLORATION PROGRAMME '89 (Symposium), Madrid, Spain. (MEP '89, 4 Brandon Road, London N7 9TR, England, U.K.)

November 14 - 16, 1989

WORLD WATER (Conference), Wembley, London, U.K. (World Water '89, Institution of Civil Engineers, 1-7 Great George Street, Westminster, London SW1P 3AA, U.K.)

November 20 - 21, 1989

•**MODERN EXPLORATION TECHNIQUES** (Symposium), Regina, Saskatchewan. (Bob Troyer, Saskatchewan Geological Survey, P.O. Box 234, Regina, Sask., Canada S4P 2Z6)

November 23 - 24, 1989

•**MESOZOIC EUSTASY RECORD ON WESTERN TETHYAN MARGINS** (Meeting), Lyon, France. (Prof. P. Cotillon and Dr. S. Ferry, Université Claude Bernard, Institut TOAEE, Centre des Sciences de la Terre, 29-43 Blvd. du 11 novembre, F-69622 Villeurbanne Cédex, France)

December 4 - 8, 1989

AMERICAN GEOPHYSICAL UNION (Fall Meeting), San Francisco, Calif., U.S.A. (AGU Meetings, 2000 Florida Avenue NW, Washington, DC 20009, U.S.A.)

December 12 - 15, 1989

•**LAND SUBSIDENCE** (International Symposium), New Delhi, India. (Prof. B. Singh, Central Mining Research Station, CSIR, Barwa Road, Dhanbad 826001, India)

December 18 - 20, 1989

•**GEO THERMOMETRY AND GEOBAROMETRY** (Session in Conference, The Stability of Minerals), London, U.K. (Dr. B.W.D. Yardley, Department of Earth Sciences, University of Leeds, Leeds LS2 9JT, U.K.)

1990

January 15 - 27, 1990

OMAN OPHIOLITE, STRUCTURE, PETROLOGY, STRATIGRAPHY (International Symposium), Muscat, Sultanate of Oman. (Secretary, Hilal Azry, Ministry of Petroleum and Minerals, P.O. Box 551, Muscat, Oman)

January 29 - 30, 1990

•**ADVANCES IN RESERVOIR GEOLOGY** (Meeting), London, U.K. (Dr. Ashton, Badley, Ashton & Associates Ltd., Winceby House, Winceby, Horncastle, Lincs. LN9 6PB, U.K.)

February 4 - 9, 1990

•**GONDWANA, TERRANES AND RESOURCES** (10th Australian Geological Convention), Hobart, Australia. (10th AGC, c/o P.O. Box 56, Rosny Park, Tasmania TAS 7018, Australia)

February 5 - 9, 1990

BRACHIOPODS (2nd International Congress), Dunedin, New Zealand. (J.D. Campbell, Geology Department, University of Otago, P.O. Box 56, Dunedin, New Zealand)

February 12 - 14, 1990

•**PNG PETROLEUM CONVENTION** (Conference), Port Moresby, Papua New Guinea. (Mr. M. McWalter, First PNG Petroleum Convention, c/o PNG Chamber of Mines and Petroleum, P.O. Box 7059, Boroko, Port Moresby, Papua New Guinea)

March/April 1990

•**ENGINEERING GEOLOGY PROBLEMS IN RESIDUAL SOILS** (International Symposium), Abidjan-Yamassoukro, Ivory Coast. Sponsored by IAEG. English and French. (G. Cougny, Laboratoire du Bâtiment et des Travaux Publics, 048P3 Abidjan 04, Ivory Coast)

March 5 - 7, 1990

•**DEVELOPMENTS IN GEOPHYSICAL TECHNIQUES RELATED TO THE SUBTLE TRAP** (Meeting), Kristiansands, Norway. (Norwegian Petroleum Society, P.O. Box 1897 Vika, N-0124 Oslo 1, Norway)

March 14 - 17, 1990

•**ASIA/PACIFIC MINING** (2nd Conference), Jakarta, Indonesia. (Asia/Pacific Mining Conference Secretariat, c/o Cahners Exposition Group (S) Pte Ltd, 1 Maritime Square, #13-02 World Trade Centre, Singapore 0409)

April 4 - 6, 1990

•**THRUST TECTONICS** (International Conference), Egham, U.K. (Dr. K. McClay, Department of Geology, Royal Holloway and Bedford New College, Egham, Surrey TW20 0EX, U.K.)

April 4 - 8, 1990

•**CRETACEOUS OF TRINIDAD AND TOBAGO, THE CARIBBEAN AND RELATED AREAS** (2nd Geological Conference and IGCP Symposium), Port of Spain, Trinidad, West Indies. (J. Keens-Dumas, Trinidad and Tobago Petroleum Co. Ltd., Santa Flora, Trinidad, West Indies)

April 18 - 20, 1990

OROGENESIS IN ACTION: Tectonics and Processes in the West Equatorial Pacific Margin (Meeting), London, U.K. (R. Hall, Dept. Geological Sciences, University College London, Gower Street, London WC1E 6BT, U.K.)

April 27 - May 11, 1990

•**MOROCCO, THE AFRICAN PROMONTORY BETWEEN THE MEDITERRANEAN AND THE ATLANTIC** (Conference), Rabat, Morocco. (A. Demnati, B.P. 1219 Rabat, Morocco)

May 6 - 12, 1990

PACIFIC RIM 90 (International Congress), Gold Coast, Queensland, Australia. (The AusIMM-Pacrim 90, P.O. Box 731, Toowoong, Qld 4066, Australia)

May 13 - 18, 1990

•**URBAN GEOHAZARDS** (IAEG Latin-American Symposium), Sao Paulo, Brazil. Languages: Portuguese and Spanish. (Dr. M. Primel, LCPG, 58 Bd. Lefebvre, 75732 Paris Cedex 15, France)

May 14 - 18, 1990

WORLD MINING (14th Congress), Beijing, P.R. China. (China Organizing Committee, 14th World Mining Congress, 54 Sanlihe Road, Beijing, People's Republic of China)

May 16 - 18, 1990

•**GAC/MAC** (Joint Annual Meeting), Vancouver, Canada. (GAC-MAC '90, 801-750 Jervis Street, Vancouver, BC, Canada V6E 2A9)

May 24 - 27, 1990

•**GEOLOGICAL SOCIETY OF GREECE** (5th Congress), Thessaloniki. (Prof. D. Mountrakis, Aristotle University of Thessaloniki, Department of Geology, Thessaloniki 54006, Greece)

May 29 - June 1, 1990

EUROPEAN ASSOCIATION OF EXPLORATION GEOPHYSICISTS (52nd Annual Meeting), Copenhagen, Denmark. (J. Tychsen, Miljøministeriet, Amaliegade 13, DK-1265, Copenhagen K, Denmark)

June 1990

•**GEOCHEMISTRY OF WEATHERING** (2nd International Symposium), Aix-en-Provence, France. Sponsored by IAGC. (B. Hitchon, Alberta Research Council, Box 8330, Station F, Edmonton, Alberta, Canada T6H 5X2)

June 2 - 6, 1990

•**GEOANALYSIS 90** (International Symposium), Muskoka area, Canada. (Dr. A. Vander Voet, Ontario Geological Survey, 77 Grenville Street, Toronto, Ontario, Canada M7A 1W4)

June 4 - 6, 1990

•**SLOVAK GEOLOGICAL CONFERENCE** (5th), Bratislava, Czechoslovakia. (Czechoslovak Scientific-Technical Society, Mrs. Ing. Eugénia Kiselyova, Skultetyho 1, 832 27 Bratislava, Czechoslovakia)

June 12 - 15, 1990

•**UNIQUE UNDERGROUND STRUCTURES** (International Symposium), Denver, Colorado. (Dr. R.S. Sinha, U.S. Bureau of Reclamation, D-3120, Box 25007, Denver, CO 80225, U.S.A.)

June 24 - 29, 1990

•**GEOSCIENCE INFORMATION** (4th International Conference), Ottawa, Canada. (D. Reade, Geological Survey of Canada, 601 Booth Street, Ottawa, Canada K1A 0E8)

June 25 - July 7, 1990

•**COSPAR** (Meeting), The Hague, The Netherlands. (COSPAR, 51, Boulevard de Montmorency, 75016 Paris, France)

June 28 - July 3, 1990

•**INTERNATIONAL MINERALOGICAL ASSOCIATION** (15th General Assembly), Beijing, P.R. China. (Prof. Huang Yunhui, c/o Institute of Mineral Deposits, Chinese Academy of Geological Sciences, Baiwan-zhuang Road 26, Fuchengmenwai, Beijing, P.R. China)

July 1990

•**CAMBRIAN SYSTEM** (3rd International Symposium), Novosibirsk, U.S.S.R. (Dr. J.W. Cowie, Department of Geology, University of Bristol, Queen's Building, University Walk, Bristol BS8 1RJ, U.K.)

Coming Events

July 1990

INTERNATIONAL DYKE CONFERENCE (2nd), Australia. (Dr. P.C. Rickwood, Department of Applied Geology, University of NSW, P.O. Box 1, Kensington, NSW 2033, Australia)

July 2 - 6, 1990

• **SEISMIC ANISOTROPY** (4th International Workshop), Edinburgh, U.K. (J. Lovell, British Geological Survey, Murchison House, West Mains Road, Edinburgh, EH9 3LA, U.K.)

July 2 - 6, 1990

GEOLOGY AND MINERAL RESOURCES OF CONTINENTAL MARGINS: ANCIENT AND MODERN (23rd Earth Science Conference, Geological Society of South Africa), Cape Town, South Africa. (Dr. P.G. Gresse, Geological Survey, P.O. Box 1739, Bellville, 7530, South Africa)

July 2 - 6, 1990

COUNCIL OF MINING AND METALLURGICAL INSTITUTIONS (14th Congress), Edinburgh, Scotland, U.K. (Secretary, Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, U.K.)

July 9 - 13, 1990

• **GROUNDWATER IN LARGE SEDIMENTARY BASINS** (International Conference), Perth, Western Australia. (Groundwater Conference, University of Western Australia, Nedlands, Western Australia 6009)

July 19 - 18, 1990

INTERNATIONAL UNION OF CRYSTALLOGRAPHY (15th Congress), Bordeaux, France. (Stefan S. Hafner, University of Marburg, 3550 Marburg, Federal Republic of Germany)

July 29 - August 3, 1990

• **CIRCUM-PACIFIC ENERGY AND MINERALS RESOURCES** (Conference), Honolulu, Hawaii. (Mary Stewart, Circum-Pacific Council on Energy and Mineral Resources, 5100 Westheimer Road, Houston TX 77056, U.S.A.)

August 1990

• **VISCOPLASTICITY OF GEOMATERIALS** (International Colloquium), Bucharest, Romania. (Prof. N. Cristescu, Department of Mechanics, University of Bucharest, Str. Academiei 14, Bucharest Cod 70109, Romania)

August 1990

• **IGES** (13th International Geochemical Exploration Symposium), Rio de Janeiro, Brazil. Sponsored by AEG, (Sherman Marsh, USGS, Federal Center MS 973, Denver, CO 80309-0250, U.S.A.)

August 6 - 10, 1990

• **IAEG** (6th International Congress), Amsterdam, The Netherlands. Languages: English and French. (Dr. L. Primel, L.C.P.C., 58 Boulevard Lefebvre, 75732 Paris Cedex 15, France)

August 12 - 18, 1990

INTERNATIONAL ASSOCIATION ON THE GENESIS OF ORE DEPOSITS (8th Symposium), Ottawa, Canada. (Dr. R.W. Boyle, 601 Booth Street, Ottawa, Canada K1A 0E8)

August 15 - 17, 1990

ARCTIC GEOLOGY AND PETROLEUM POTENTIAL (Meeting), Troms, Norway. (Norwegian Petroleum Society, Box 1897-Vika, 0124 Oslo 1, Norway)

August 15 - 31, 1990

INTERNATIONAL GEOGRAPHICAL UNION (Regional Conference), Beijing, P.R.C. (Wu Chuanjun, Inst. of Geography, Chinese Academy of Sciences, Beijing 10011, P.R. China)

August 24 - 27, 1990

• **PALEOZOIC OROGENS IN CENTRAL EUROPE** (IGCP-233 International Conference), Göttingen, F.R.G. (K. Weber, Institut für Geologie, Goldschmidtstrasse 3, D-3400 Göttingen, F.R. Germany)

August 26 - September 1, 1990

• **SEDIMENTOLOGY** (13th International IAS Congress), Nottingham, U.K. (I.N. McCave,

Dept. Earth Sciences, Cambridge University, Downing Street, Cambridge CB2 3EQ, U.K.)

August 26 - September 8, 1990

LATIN AMERICAN CONODONT SYMPOSIUM, La Paz, Bolivia and San Juan, Argentina. (M. Hunicken, Academia Nacional de Ciencias, Casilla Correo 36, 5000 Cordoba, Argentina)

August 27 - September 1, 1990

• **WATER RESOURCES IN MOUNTAINOUS REGIONS** (IAH and IAHS International Symposium) and **IAH** (22nd Congress), Lausanne, Switzerland. (Dr. A. Parriaux, Laboratory of Geology EPFL (GEOLEP), CH-1015 Lausanne, Switzerland)

September 1990

• **GEOCHEMICAL EXPLORATION** (13th International Symposium), Prague, Czechoslovakia. Joint IAGC and AEG meeting. (B. Ilitchev, Alberta Research Council, Box 8330, Station F., Edmonton, Alberta, Canada T6H 5X2)

September - October 1990

• **IPA GRAPTOLITE WORKING GROUP** (4th International Conference), Nanjing, P.R. China. (Chen Xu, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-Ssu, Nanjing, P.R. China)

September 3 - 6, 1990

CALIBRATION AND RELIABILITY IN GROUNDWATER MODELLING (International Conference), The Hague, The Netherlands. (Kivl., P.O. Box 30424, 2500 GK The Hague, The Netherlands)

September 3 - 8, 1990

VOLCANOLOGY (International Congress), Mainz, F.R.G. (G. Brey, Max Planck Institut für Chemie, Abtl. Kosmochemie, Saarstrasse 23, 6500 Mainz, Federal Republic of Germany)

September 4 - 7, 1990

DEEP SEISMIC REFLECTION PROFILING OF THE CONTINENTAL LITHOSPHERE (4th International Symposium), Bayreuth, F.R.G. (C. Reichert, DEKORP, NLF, Postfach 510153, D-3000 Hannover 51, F.R. Germany)

September 12 - 15, 1990

• **OROGENIC LHERZOLITES AND MANTLE PROCESSES** (International Workshop), Montpellier, France. (Workshop 90, Centre Géologique et Géophysique, USTL, place Eugène Bataillon, 34060 Montpellier Cedex 1, France)

September 12 - 16, 1990

• **MAFIC DYKES** (2nd International Conference), Adelaide, South Australia. Co-sponsored by IGCP-257. (Dr. A.J. Parker, SA Department of Mines and Energy, P.O. Box 151, Eastwood, South Australia 5063)

September 17 - 18, 1990

• **GEOCHEMISTRY OF CLAY-PORE FLUID INTERACTIONS** (Meeting), London, U.K. (D. Savage, Fluid Processes Research Group, British Geological Survey, Keyworth, Notts. NG12 5GG, U.K.)

September 17 - 21, 1990

ARCHEAN (Symposium), Perth, Australia. (D.L. Groves, Department of Geology, University of Western Australia, Nedlands, Western Australia 6009)

September 17 - 22, 1990

• **EUROPEAN SEISMOLOGICAL COMMISSION** (Meeting), Barcelona, Spain. (Dr. A. Roca, Geological Survey of Catalunya, Diputació 92, 08015 Barcelona, Spain)

September 18 - 20, 1990

• **HYDROGEOLOGY: Parameter Identification and Estimation for Aquifer and Reservoir Characterization** (5th Canadian-American Conference), Calgary, Alberta. (S. Bachu, Alberta Research Council, Box 8330, Station F, Edmonton, Alberta, Canada T6H 5X2)

September 23 - 27, 1990

SOCIETY OF EXPLORATION GEOPHYSICISTS (Annual Meeting), San Francisco,

U.S.A. (Convention Assistant, SEG, P.O. Box 3098, Tulsa, OK 74101, U.S.A.)

September 24 - 29, 1990

GEOCHRONOLOGY, COSMOCHRONOLOGY AND ISOTOPE GEOLOGY (7th International Conference), Canberra, Australia. (Organizing Committee, ICOG 7, Research School of Earth Sciences, Australian National University, GPO Box 4, Canberra, ACT 2601, Australia)

September 28 - October 2, 1990

• **BENTHIC FORAMINIFERA** (4th International Symposium), Sendai, Japan. (Dr. Yokichi Takayanagi, Institute of Geology and Palaeontology, Tohoku University, Sendai, 980 Japan)

October 1990

EUROPEAN GEOLOGICAL SOCIETIES (6th Meeting), Lisbon, Portugal. (Rogério Rocha, Geological Society of Portugal, Faculdade de Ciências, R. Escola Politécnica, P-1294 Lisboa Codex, Portugal)

October 23 - 26, 1990

• **HYDROLOGICAL BASIS FOR WATER RESOURCES MANAGEMENT** (International Symposium), Beijing, P.R. China. (Dr. Chen Jiaqi, P.O. Box 366, IWHR, Beijing, P.R. China)

October 23 - 27, 1990

• **AGGREGATES** (2nd International Symposium), Erlangen, F.R.G. (Prof. G. Lüttig, Applied Geology, University of Erlangen-Nürnberg, Schlossgarten 5, D-8520 Erlangen, F.R.G.)

October 29 - November 1, 1990

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Dallas, Texas, U.S.A. (GSA, P.O. Box 9140, Boulder, CO 80301, U.S.A.)

November 1990

• **MEDITERRANEAN NEOGENE** (9th International Congress), Barcelona, Spain. Cosponsored by IUGS. (Prof. Jordi Martinell, Fac. de Geologia, Univ. de Barcelona, Zona Universitària de Pedralbes, 08028 Barcelona, Spain)

1991

March 1991

ECONOMIC EVALUATION OF MINERAL RESOURCES (International Conference), Kosice, Czechoslovakia. Languages: Russian and English. (Intergeoeconomika 1991 CSSR, GEOFOND, Eng. St. Richter, Garbanova 1, 040 11 Kosice, Czechoslovakia)

April 7 - 10, 1991

AAPG/SEPM (Annual Meeting), Dallas, Texas, U.S.A. (Convention Department, AAPG, Box 979, Tulsa, OK 74101, U.S.A.)

April 26 - May 1, 1991

• **ASSOCIATION OF EXPLORATION GEOCHEMISTS** (15th International Geochemical Exploration Symposium), Reno, U.S.A. (Richard B. Jones, Nevada Bureau of Mines and Geology, University of Nevada, Reno, Nevada 89557-0088, U.S.A.)

May 1991

• **QUANTITATIVE METHODS OF INVESTIGATION OF THE STRUCTURE OF SOILS AND ROCKS** (IAEG International Symposium), Moscow. (Dr. M. Primel, LCPC, 58 Bd. Lefebvre, 75732 Paris Cedex 15, France)

May 27 - 29, 1991

GAC/MAC (Annual Meeting), Toronto, Canada. (J. Fawcett, Department of Geology, University of Toronto, Toronto, Ontario, Canada M5S 1A1)

August 2 - 9, 1991

QUATERNARY RESEARCH (13th INQUA International Congress), Beijing, P.R. China. (Secretariat, 13th INQUA Congress, Chinese Academy of Sciences, 52 Sanlihe, Beijing 100864, People's Republic of China)

Coming Events

August 11 - 24, 1991

IUGG (26th General Assembly), Vienna, Austria. (F. Wiederstein, BM für Land- und Forstwirtschaft, Hydrographisches Zentralbüro, Marxergasse 2, A-1030 Vienna, Austria)

August 11 - 24, 1991

IASPEI (26th General Assembly), Vienna, Austria. To be held in conjunction with IUGG. (Dr. R.D. Adams, International Seismological Centre, Pipers Lane, Thatcham, Newbury, Berks. RG13 4NS, England, U.K.)

August 20 - 30, 1991

★ENGINEERING GEOLOGY IN DESERT ENVIRONMENTS: Rock/Water Interaction (IAEG Meeting), Jerusalem, Israel. (Dr. M. Primel, LCPC, 58 Bd. Lafeyvre, 75732 Paris Cedex 15, France)

September 16 - 20, 1991

ROCK MECHANICS (7th International Congress), Aachen, F.R. Germany. (Deutsche Gesellschaft für Erd- und Grundbau, Kronprinzenstrasse 35a, D-4300 Essen 1, F.R.G.)

September 22 - 27, 1991

CARBONIFEROUS-PERMIAN STRATIGRAPHY AND GEOLOGY (12th International Congress), Buenos Aires, Argentina. Language: English. (Dr. S. Archangelsky, Museo Argentino de Ciencias Naturales, Av. A. Gallardo 470, Buenos Aires 1405, Argentina)

October 6 - 10, 1991

SOCIETY OF EXPLORATION GEOPHYSICISTS (Annual Meeting), New Orleans, Louisiana, U.S.A. (Convention Assistant, SEG, P.O. Box 3098, Tulsa, OK 74101, U.S.A.)

October 21 - 24, 1991

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), San Diego, Calif., U.S.A.

(Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301, U.S.A.)

1992

February 9 - 12, 1992

●LANDSLIDES (6th International Symposium), New Zealand. (Dr. M. Primel, LCPC, 58 Bd. Lafeyvre, 75732 Paris Cedex 15, France)

May 25 - 27, 1992

GAC/MAC (Joint Annual Meeting), Wolfville, Nova Scotia, Canada. (Aubrey Fricker, Atlantic Geoscience Centre, P.O. Box 1006, Dartmouth, Nova Scotia, Canada B2Y 4A2)

June 1992

WORLD MINING (15th Congress), Seville, Spain. (World Mining Congress, Al Ujazdowski 1-3, PL-00583, Warsaw, Poland)

June 14 - 17, 1992

AAPG/SEPM (Annual Meeting), Washington, D.C., U.S.A. (Convention Department, AAPG, Box 979, Tulsa, OK 74101, U.S.A.)

June 28 - July 1, 1992

●PALEONTOLOGY (5th North American Convention), Chicago, U.S.A. (Dr. Peter R. Crane, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605-2496, U.S.A.)

August/September 1992

INTERNATIONAL GEOGRAPHICAL CONGRESS (27th), Washington, D.C., U.S.A. (Dr. B. Bishop, Committee for Research and Exploration, National Geographic Society, Washington, DC 20036, U.S.A.)

October 26 - 29, 1992

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Cincinnati, Ohio, U.S.A. (Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301, U.S.A.)

1993

April 25 - 27, 1993

AAPG/SEPM (Annual Meeting), New Orleans, Louisiana, U.S.A. (Convention Department, AAPG, Box 979, Tulsa, OK 74101, U.S.A.)

October 25 - 28, 1993

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Boston, Mass., U.S.A. (Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301, U.S.A.)

1994

January 1994

SOIL MECHANICS AND FOUNDATION ENGINEERING (13th International Conference), New Delhi, India. (Prof. S.K. Gulhati, 13th ICSMFE, India Geotechnical Society, c/o Civil Engineering Department, Indian Institute of Technology, New Delhi 110016, India)

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