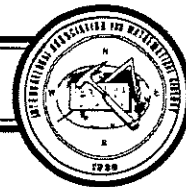


IAMG NEWS LETTER NO. 37



The IAMG News Letter is made possible by a grant from the Kansas Geological Survey, The University of Kansas. Published at Lawrence, Kansas 66046 USA.
Newsletter Editors: John C. Davis and Jo Anne DeGraffenheid. Contributions are warmly welcomed!

Madras Geostatistics Seminar

J. Jayakumar of Madras University, Salem, India, has kindly provided a report on the successful first meeting of a proposed series of seminars and lectures "in modular form" organized by the Post Graduate Extension Centre, Government College of Engineering, Madras University and held under auspices of the New Delhi University Grants Commission (UGC). Although unfortunately no longer new (through no fault of the director, Dr. Jayakumar), the information about the 1986 seminar is newsworthy.

The initial UGC-sponsored national meeting, entitled "Appropriate Statistical Methods in Earth Sciences," was presided over by T. S. Paramasivam, who spoke about successful mineral exploration combining the statistical approach with careful observation in the field. S. K. Ekambaram delivered the keynote address, explaining the foundations of the statistical approach and describing the growth of geostatistics and its development in India. The technical sessions were inaugurated by N. Leelananda Rao, who enumerated the statistical methods applicable to the Earth sciences and pointed out their utility in different branches: geological engineering, remote sensing, geohydrology, marine geology, geochemistry, geophysics, sedimentology, and mineral exploration. A total of 27 papers in these fields were presented. Seminar participants accompanied cooperating industry officials to several mining sites to see firsthand applications of the quantitative approach to problems of sampling and mine-development planning.

The University of Madras geostatistics series will be addressed particularly to "active Earth scientists in the age-group mostly from late twenties to early forties" and should assume an important role in the presentation of mathematical geology to a wider audience of Indian scientists. Hopefully, as suggested by Dr. Jayakumar, it will "trigger off thinking and choice of techniques and even development of new techniques."

Time Warp?—IAMG Best Paper Awards Announced at Last

It takes time for committees to deliberate; that is, "to ponder or think about [things] with measured careful consideration and often with formal discussion before reaching a decision or conclusion." It takes even more time if committee members are scattered around the world and must first read a number of articles in a number of

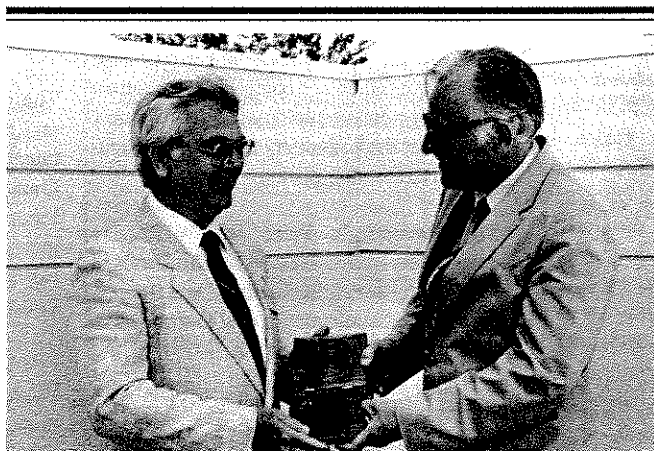
numbers of journals. What if the journals are late? The committees lose time. And when the journals are on time, the post office delivers them late. And what about discussions that must be conducted by mail? Even if they don't get lost, it still takes time. And of course there's a time lag between announcement and publication of winners' names.... Anyway, it's high time the following winners be announced.

Best Paper appearing in *Math Geology* during 1984: "Application of fuzzy clustering and fuzzy classification to evaluate the provenance of glacial till" (*Math Geology*, v. 16, no. 3) by Göran Granath of Ariadne Exploration, Uppsala, SWEDEN. [Apologies for failing to include this information in *News Letter* 36; and to the MGUS '87 attendee with an unidentified pic among your Redwood City photos: It's Göran, and you promised to send it to us! Eds.]

Best Paper appearing in *Math Geology* during 1985: "Spatial analysis of two-dimensional orientation data," (*Math Geology*, v. 17, no. 2) by N.I. Fisher, J.F. Huntington, D.R. Jackett, M.E. Willcox, and J.W. Creasey, all of CSIRO, Div. of Mathematics and Statistics and Div. of Mineral Physics, Lindfield, North Ryde, and Canberra, Australia.

Best Paper appearing in *Computers & Geosciences* during 1983: ("LSEQIEQ: A FORTRAN IV subroutine package for the analysis of multiple linear regression problems with possibly deficient pseudorank and linear equality and inequality constraints," *Computers & Geosciences*, v. 9, no. 3) by M.S. Ghiorso, University of Washington, Seattle, USA.

(cont.)



Krumbein Medal Awarded

John C. Davis is recipient of the 11th Krumbein Medal of the International Association for Mathematical Geology. The medal was formally presented by D. F. Merriam, Davis' mentor and close friend of many years, during the April 1987 conference of the Mathematical Geologists of the United States, in Redwood City, California. The 10-cm bronze medal was inaugurated in 1976 and honors American scientist William Christian Krumbein (1902-1979). Krumbein was a pioneering leader in the application of quantitative methods to geology and the medal bearing his name represents the highest distinction bestowed by the Association.

Davis received his Ph.D. in Geology from the University of Wyoming in 1967. He is a former NDEA Doctoral Fellow (1961-64). Since 1966 he has been associated with The University of Kansas (USA) and the Kansas Geological Survey

where he is Professor of Chemical and Petroleum Engineering, and Senior Scientist and Chief of the Survey's Advanced Projects Section. He is a Charter Member of the IAMG and has been closely involved in efforts to promote the development and use of mathematical geology, particularly in the areas of computer applications, automated cartography, and hydrocarbon assessment. He is author of *Statistics and Data Analysis in*

Geology (Wiley, 1986). Now in its 2nd edition, this textbook has introduced a generation of young, or maybe not-so-young, sometimes eager, sometimes reluctant scientists to the mysteries of the quantitative arts.

Davis serves frequently as a consultant, short-course instructor, and lecturer on geomathematics, mapping techniques, and statistical methods of resource appraisal—both in the United States and abroad. In 1973 he directed the NATO Advanced Study Institute on Display and Analysis of Spatial Data in Nottingham, UK. In 1978 he was co-director of the COGEO DATA Conference on Computer Mapping for Resource Evaluation in Mexico City. He has twice served as instructor at NATO Institutes in Italy and has conducted a number of seminars in Latin American countries. At present he is directing a cooperative research program to analyze multivariate patterns in geochemical analyses of stream sediments from Austria.

Moosemoss, MN
April 31, 1987

Dear Editor,

I know why there's no date on the *IAMG News Letter*. It's because it appears so sporadically! It would be too embarrassing to put a date on it. But you forgot, us guys are real good with numbers. I know I haven't missed any issues, because I've got all the numbers. No. 36 was the last one I received—and that was LAST SUMMER! Shape up.

With deepest reproach,
A. Woodby Reader

Dear Woodby,

O.K. Send news! What's happening up there in Moosemoss? Have you been promoted, demoted, transferred, exiled? Have you found a mind-bending solution to a common problem, or is your mind all bent up from trying to solve an uncommon problem? Write and crow about your success, or cry about your failure—maybe a fellow-IAMGer can provide some fresh insight.

We (I now have a mouse in my pocket, or on my desk, actually) wanna do better, newsletterwise. The shape will remain basically the same, but the size, content, and timeliness will improve—if you help. Send us your comments about the objectives and methods of the Association: What should we be doing? What shouldn't we be doing? (besides failing to get out the *News Letter*, that is!). Have you read something so dramatically geomathematical that you want to share it with the world? Send a review. (You wrote it? Have your spouse send a review.) We want to know about meetings, publications, positions available, jobs wanted, programs, projects.... Send news!

Repentantly,
JAD, Ed.

IAMG Best Paper Awards (cont.)

Best Paper appearing in *Computers & Geosciences* during 1984: ("FUSE: A FORTRAN V program for agglomerative fusion for minicomputers," *Computers & Geosciences*, v. 10, no. 4) by L. Belbin, CSIRO, Division of Water and Land Res., Canberra, Australia.

Best Paper appearing in *Computers & Geosciences* during 1985: ("Cokriging—A computer program," *Computers & Geosciences*, v. 11, no. 2) by James Carr, University of Missouri, and D.E. Myers and C.E. Glass, University of Arizona, USA.

IAMG Best Paper winners receive a Certificate of Award and a year's subscription to the journal in which their article appeared.

1986 President's Prize

The International Association for Mathematical Geology is pleased to announce the 1986 President's Prize winner, Dr. Marek Kaciewicz of the University of Warsaw, Poland. His recent work has focused on applications of fuzzy set theory to problems in the earth sciences, especially to engineering geology (slope stability), geological information science, and resource assessment.

Dr. Kaciewicz began his career as a student in numerical analysis at Warsaw University, switched to computer science where he earned his M.S. degree, and then in 1980 transferred into the geology department where he received his Ph.D. in 1985. Dr. Kaciewicz was

attracted to the Earth sciences by the challenges in rock mechanics he saw in problems he had worked on as a computing consultant to the engineering geology faculty. He now remains at the University as a faculty member in engineering geology.

The President's Prize was officially awarded by IAMG President John Davis in a ceremony during the International Conference on Geomathematics and Geostatistics in Wroclaw, Poland, in June.

IAMG Cosponsors Meeting in Poland

The University of Wroclaw, Poland, was the site of a one-week scientific conference and training course which attracted over 60 participants from east and west Europe and North America. Held on June 1-6, the *International Conference and Training Course on Geomathematics and Geostatistics* was cosponsored by the IAMG, along with CODATA, IUGS, and UNESCO. Analysis of space- and time-dependent data was the central theme of the meeting, which was highlighted by a series of invited lectures by visiting experts, including M. Armstrong (France), C.F. Chung (Canada), J.C. Davis (USA), P. Dowd (UK), D. Myers (USA), V. Nemeč (Czechoslovakia), D.A. Rodionov (USSR), and J.J. Royer (France). The contributed talks were of exceptionally high quality, a fact that is especially gratifying since many of the papers were given by young scientists at the beginning of their

professional careers. This aspect was emphasized by the presentation of the 1986 IAMG President's Prize to M. Kaciewicz during the meeting.

Under the skillful leadership of the local organizer, Barbara Namysłowska-Wilczynska, the Polish hosts arranged a full schedule of cultural as well as scientific events. In addition to an opening reception and a conference banquet, participants were treated to a field trip to the Lubin copper district, the largest in Europe. Because of the enthusiastic support and participation by all concerned, this very successful meeting was an important step in east-west scientific exchange and cooperation. The IAMG encourages such scientific contacts, and will continue to sponsor future meetings in this series.

De Geostatisticis

A new European newsletter, *De Geostatisticis*, has been initiated to establish closer communications between scientists working in the area of spatial statistics. The newsletter will contain information on courses, coming events, computer programs, book reviews, and future developments (examples of new applications of geostatistics, description of problems to be solved, etc.). It will also contain "point-of-view" articles and commentaries. The newsletter does not carry technical articles, which should be submitted to scientific journals.

The initial issues of *De Geostatisticis* will be produced and distributed by the Centre de Géostatistique (Fontainebleau), under the editorship of Dominique Jeulin, Gaëlle Le Loc'h, and Hans Wackernagel. The newsletter accepts contributions in almost any European language, but material must be submitted in one of three forms: as camera-ready copy using a two-column format, with column width of 20 picas; as electronic mail on the EARN computer network (address DEGEOS at node FREMP11); or on a 5-1/4 inch diskette (360K) in IBM PC XT format. An abstract in English or French also must be provided. Articles may be up to two pages in length.

De Geostatisticis has a 14-member editorial board and actively seeks additional members. It also welcomes contributions to the newsletter of news, information and articles. For a copy of the first issue and additional information on subscriptions and contributions, contact: *De Geostatisticis*, Centre de Géostatistique, 35 rue Saint Honoré, 77305 Fontainebleau, France. Persons who have received the first issue of the newsletter must return the included address form in order to receive future numbers.

Back Volumes of our Journals

New members and members who let their membership lapse for a year or longer can receive back volumes of both journals at reduced prices.

Computers & Geosciences: Volumes 1-12 can be purchased at a cost of US \$235.00 per volume, less a 25% discount for current members. A complete set is available for US \$2,115.00 less the 25% discount. Checks

should be made payable to Pergamon Journals, and orders can be sent to either of the following addresses:

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Maxwell House
Fairview Park
Elmsford, NY 10523 USA

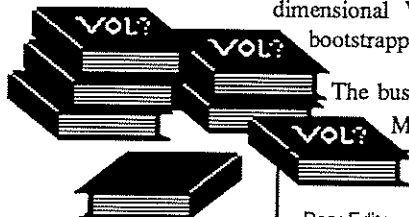


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Headington Hill Hall
Oxford OX3 0BW
ENGLAND



Mathematical Geology: All back issues, volumes 1-18, are available to members at the member price of \$26.00 per volume. Orders should be placed directly with the following office:

J.S. Canner & Company
49-65 Lansdowne St.
Boston, MA 02215 USA
Tel. 617/437-192



Committee on Quantitative Stratigraphy (CQS)

CQS, a body of the IUGS International Commission on Stratigraphy, was established in 1986 to follow-up IGCP Project 148—Evaluation and Development of Quantitative Stratigraphic Correlation Methods—and further the development of numerical methods in physical stratigraphy. The committee promotes the acceptance and use of quantitatively defined stratigraphic methods and units of correlation in paleontology, geology, and geophysics and foresees a much larger role for quantitative stratigraphy, particularly in the area of Earth science applications. A history of CQS's founding and relationship to IGCP Project 148, the committee's guidelines, and philosophical viewpoints on quantitative biostratigraphy (by CQS Chairman Felix Gradstein*) and quantitative lithostratigraphy (by Cedric Griffiths†, CQS Secretary) are contained in *CQS Newsletter No. 1-1987*, as well as an outline of activities for 1987-89 and beyond, information on recent computer programs and literature, a list of books and special journal issues published under auspices of IGCP Project 148, and a membership and mailing list.

*Dr. F. M. Gradstein, Atlantic Geoscience Centre, Bedford Institute of Oceanography, Dartmouth, N.S., Canada B2Y 4A2.

†Dr. C. M. Griffiths, Continental Shelf Institute (IKU), P.O. Boks 1883, 7001 Trondheim, Norway.

April MGUS '87 Conference on Emerging Concepts—Announcement of Officers for 1987-89

The names of 88 participants appear on the list of MGUS '87 attendees, primarily from the United States and Canada but including also mathematical geologists from France, Federal Republic of Germany, Sweden, Australia, and Japan. The MGUS (Mathematical Geologists of the United States)* meeting, held in California on April 13-15, was hosted by Fluor Engi-

neers, Inc. at their Redwood City facility, which provided an excellent meeting site—a spacious auditorium with adjoining cafeteria and an elegant rotunda for the cocktail party preceding the dinner banquet. Local arrangements were made by MGUS member Harry Parker of Fluor Engineering and his very able assistant, Ms. Elaine Eagan. Conference Chairman was Jen-Ho Fang. *Math Geology* editor C. John Mann was in charge of the technical program, which included 44 papers on distribution theory/graphics, fractals in geosciences, new advances in geostatistics, risk analysis in geological hazards, expert systems, and general topics including application of fuzzy logic, Bayesian estimation, two-dimensional Voronoi data structures, and bootstrapping models.

The business meeting was chaired by MGUS president Don Myers,

who introduced the new MGUS officers for 1987-89: Jen-Ho Fang, President; John Schuenemeyer, Vice President; Andy Solow, Secretary, and John Kork, Treasurer.

A feature of the evening banquet concluding the conference was the presentation by Dan Merriam of the IAMG's 11th William Christian Krumbein Medal to IAMG President John Davis. Only the inimitable mathematical historian Don McIntyre as keynote speaker could have followed Dan's slideshow highlights(?) of the life and career of 1986 Krumbein medalist Davis.

MGUS '87 was pronounced a success by conference organizers and participants alike. Interest and enthusiasm were high and the quality of papers was excellent. Despite the somewhat low attendance, it was concluded

(cont.)

Plano, TX
July 2, 1987

Dear Editor,

In the course of our search this spring to fill a position in resource assessment, several with whom I spoke asked that I write up the job description and send it to them for future reference. I thought that was a good idea in general...because I think that this type of skill combination will be in demand in the future from industry, government, and perhaps again from ARCO. The length and difficulty of our search also testifies to a situation in which demand clearly exceeds supply....

...We concluded in the end that outstanding strength in math/stat and applied computer skills could compensate for specific experience in resource assessment. The assessment can be picked up from reading and most importantly, practical experience....

Sincerely yours,
John D. Grace, Sr. Research Geologist
ARCO Exploration Research

RESOURCE ASSESSMENT POSITION BASIN EVALUATION GROUP—EXPLORATION RESEARCH

Duration: 10 month contract with the possibility of renewal or permanent employment.

Location: ...

Salary: Open, commensurate with qualifications and experience.

Duties: Assist resource assessment group with ongoing projects in methodological research and analysis of basins and plays of interest to the Company. Initiate own research in assessment techniques.

Start: ...

Qualifications:

Degree: Candidate should hold a Ph.D., or have dissertation defended and accepted by.... Outstanding candidates at the masters level considered.

Education/Skills:

1) **Geology.** Candidate must be a geologist, preferably with graduate coursework and research experience. Specialization or job experience in petroleum geology preferred, but will consider other geologic disciplines. Petroleum exploration experience a plus.

2) **Math/Stat.** Candidate must have very strong grounding in mathematics and statistical theory and practice. Specific experience in multivariate analysis and the application of math/stat analytic techniques to geologic problems is required. Experience in the treatment of regionalized variables is highly desirable.

3) **Computer.** Knowledge of programming as evidenced through experience with FORTRAN or other higher level language required. General knowledge of mainframe operating systems and interfaces required. Extensive experience with large statistical packages (preferably SAS) and manipulation of very large data sets required. Knowledge of SURFACE II, UNIRAS or other mainframe mapping packages and BLUEPACK desirable.

4) **Resource Assessment.** Knowledge of and experience with the theory and practice of assessment of undiscovered hydrocarbon or mineral resources very highly desirable. This includes geologically based, statistical and economic modeling.

5) **Economics.** An understanding of economics, preferably of mineral resources, desirable.

that "things being as they are," we can't complain!" Topics and possible locations for future meetings are already under discussion.

*All members of the IAMG in good standing and residing permanently or temporarily in the United States are automatically members of MGUS. No dues are levied for MGUS membership. Get involved!

W.W. (Bill) Hutchison (1935-1987)

The international geoscience community lost a valued member, and mathematical geology a staunch supporter, with the death of W.W. Hutchison in Ottawa, Canada, on July 3, 1987. At the time of his death, Bill was President of the International Union of Geological Sciences (IUGS), which is the parent body of the IAMG. He also was serving as Assistant Deputy Minister of Earth Sciences, Canadian Department of Energy, Mines and Resources.

Among his many previous posts, Bill was the first Chairman of the COGEOLOGICAL Committee of the IUGS. Later, he became President of CODATA, the Committee on Data of the International Council of Scientific Unions (ICSU). He then was elected to a four-year term as Secretary-General of the IUGS before being elected as President in 1984.

Throughout his career, Bill Hutchison was concerned with problems in the handling and analysis of geological data, a concern that stemmed from his experiences in the early 1970's as Head of the Canadian Survey's Data Systems Group. Bill continued to stress the importance of well-organized, computer-assisted management and analysis of geoscience data throughout his many years of professional service. His was a powerful voice in support of mathematical geology in the councils of international science; the IAMG and the profession will miss him.

International Conference on Geomathematics and Geostatistics

The Organizing Committee for ICGG-III met at the Technical University of Wrocław, Poland, on June 5, 1987. The committee includes C.F. Chung (Canada), J.C. Davis (USA), P.A. Dowd (UK), B. Namysłowska-Wilczyńska (Poland), V. Nemeč (Czechoslovakia), D. Rodionov, N. Shilin, and S. Sirotinskaja (USSR), and J.J. Royer (France). Davis represents the IAMG, and R. Sinding-Larsen (Norway, not present) represents the IUGS.

ICGG-III, the next international conference in the series sponsored jointly by the IAMG and

CODATA, will be hosted by the University of Leeds, in Leeds, England. The meeting will be held in 1990 and is tentatively scheduled for the first week in July. A topic of the meeting will be *statistics of point processes*. As in previous ICGG's, a training course will be given at the conference. Chairman of the organizing committee for the meeting is P.A. Dowd, Dept. Mining & Mineral Engineering, Univ. Leeds, Leeds LS2 9JT, England. Chairman of the training courses committee is J.J. Royer, *Sciences de la Terre*, Rue du Doyen Marcel Roubault, B. P. 40, F-54501 Vandoeuvre-lès-Nancy, France. Contact the chairmen for suggestions about the conference and to obtain further information.

BANG Needs Help!

BANG, the *Bulletin of Australian News in Geomathematics*, needs and deserves our assistance. IAMG Western Treasurer M.E. Hohn has responded by forwarding a "Corporate Contribution" on behalf of the Association, and individual IAMG members are also urged to help out. Editors M.A. Cameron, N.I. Fisher, B.D. Johnson, P.S. Ingram, *et al.* have labored since the early 80's to provide topical information on all aspects of geomathematics in Australia; now, they are experiencing a severe financial crunch, as explained in their June issue.

"Up to the present time the production of BANG has been supported by donations from companies. Due to the current economic conditions, the number of these companies able to continue supporting BANG has decreased. We are now faced with the situation where we have insufficient money to pay for many more issues. The cost of producing BANG is approximately \$5.00 per head per year. We are therefore asking for you to either make a donation of \$10.00 per reader, or obtain company support at the level of \$150.00 from your company. Cheques should be made payable to BANG and sent to P.O. Box 136, North Ryde, N.S.W., 2113. It is up to you as the readers of BANG to maintain its existence and without significant injection of funds it will cease to be produced."

BANG appears Feb.-Apr.-June-Aug.-Oct.-Dec. Companies currently supporting BANG are listed on the front cover of each issue; current sponsors are Applied Mathematics Div. of the AMS, Australian Society of Exploration Geophysicists, Century Oils Australia Pty. Ltd., CSR Ltd., Esso Australia Ltd., Goldfields Exploration Pty. Ltd, PEKO WALLSEND, SIROMINES, and the Statistical Society of Australia. Add your organization's name to the list!

IAMG Member Society President

William W. Hay, Director of the University of Colorado Museum at Boulder has been elected

President of the Society of Economic Paleontologists and Mineralogists (SEPM). Dr. Hay is known for his work in quantitative paleontology and oceanography. The SEPM has about 6900 members worldwide.

Second Volume of Computer Science Review

In 1986 a 27th title—Computer Science—was added to the series "Annual Review of..." This series (published by Annual Reviews Inc.) was initiated in 1932 by Professor James Murray Luck, now Emeritus Professor of Chemistry at Stanford University, for the purpose of promoting the advancement of the sciences and, as described by the current president of the non-profit organization, Nobel Laureate Dr. Joshua Lederberg, "to aid in the definition of a scientific discipline and to set critical standards for excellence within it, as well as to provide information useful to research workers, teachers, and students." Each Annual Review is organized by an editorial committee selected from leading academic and research centers in North America and articles are comprehensive, critical, in-depth analyses of the current status of carefully chosen topics. The nonprofit structure of the organization allows Annual Reviews Inc. to offer case-bound, library-quality volumes at very reasonable prices (student rates are also available). Series titles in addition to Computer Science are Anthropology, Astronomy and Astrophysics, Biochemistry, Biophysics and Biophysical Chemistry, Cell Biology, Earth and Planetary Sciences, Ecology and Systematics, Energy, Entomology, Fluid Mechanics, Genetics, Immunology, Materials Science, Medicine, Microbiology, Neuroscience, Nuclear and Particle Science, Nutrition, Pharmacology and Toxicology, Physical Chemistry, Physiology, Phytopathology, Plant Physiology, Psychology, Public Health, and Sociology. *Annual Review of Computer Science Vol. 2* will appear in November [edited by Joseph F. Traub, 1987. Annual Reviews Inc., 4139 El Camino Way, Palo Alto, CA 94303-9910 USA. 572 pp. (approx.), ISBN 0-8243-3202-4, Clothbound, U.S. \$39 (USA), \$42 elsewhere]. Volume 1 is still available. Write for additional information, or call toll-free outside California: 1-800-523-8635.

AAPG Honors Two IAMG Members

John W. Harbaugh (Stanford University) and Daniel F. Merriam (Wichita State University) were given Distinguished Service Awards by the American Association of Petroleum Geologists at the AAPG Annual Meeting in June. Both John and Dan are recipients of the IAMG's Krumbein medal, and Dan is Editor of *Computers & Geosciences*.

GIS-IAMG Symposium Planned for GSA Centennial Celebration

"Computers and the Individual Scientist—Personalized Computing" is the title of the joint symposium of the Geoscience Information Society and the International Association for Mathematical Geology which will convene in Denver in 1988 during the 101st Annual Meeting of the Geological Society of America. Symposium chairman and GSA representative **Don McIntyre** of Pomona College will deliver the keynote address. **Dedrick Ward**, University of Illinois at Urbana-Champaign is GIS representative. In addition to invited speakers, the symposium will feature both oral presentations and posters. Those who wish to participate or who want additional information should contact IAMG representative **Dan Merriam** at the Department of Geology, Wichita State University, Wichita, KS 67208 USA; Telephone 316-689-3332.



New IAMG Book Series Available at Member's Discount

Take advantage of your IAMG-member discount to order *Use and Abuse of Statistical Methods in the Earth Sciences*, the first volume in the new IAMG series, "Studies in Mathematical Geology," published by Oxford University Press. The new monograph series is under the general editorship of **Richard B. McCammon**, IAMG Secretary-General. Books in the series will be available to IAMG members at a special discount of 20%.

Use and Abuse of Statistical Methods in the Earth Sciences is for geologists who want a greater understanding of the underlying assumptions of randomness, normality, and variance of sample data used with statistical methods in the Earth sciences. The book contains nine chapters, each written by an expert on a particular subject. Topics include sampling plans (**W.B. Size**), confidence limits (**P. Schiffelbein**), unmixing (**R. Ehrlich** and **W.E. Full**), discriminant functions (**F. Chayes**), quantitative recognition (**E.H.T. Whitten** and others), linear regression and best-fit lines (**B.M. Troutman** and **G.P. Williams**), and bivariate association (**J.A. Harrell**).

The book contains 192 pages and has a list price of \$29.95. IAMG members can obtain the volume at the special prepaid price of only US\$23.95, plus \$1.50 postage and handling, by writing directly to the publisher, Oxford University Press, 200 Madison Avenue, New York, NY 10016 USA. Oxford also accepts MasterCard and Visa charge orders. Be sure to mention that you are an IAMG member to obtain the discount price.

More Honors for the Young

Georges Verly of Geomines Ltd., Montreal, Quebec, has been selected by the Society of Mining Engineers as the recipient of the prestigious **Robert Peele Memorial Award**. This award is given annually for the most outstanding paper on a mining or exploration subject that is written by a Society member under 36 years old, and published in a Society sponsored publication.

This year's Peele award was given to Dr. Verly in recognition of his paper "Multigaussian Kriging—A Complete Case Study," published in the *19th APCOM Proceedings*.

Dr. Verly was the 1985 recipient of the President's Prize of the IAMG, which is awarded for outstanding contributions by a member 35 years old or younger.

THIRD INTERNATIONAL GEOSTATISTICS CONGRESS

Papal Palace
Avignon, France



5 - 9 September 1988

Chairman: Prof. Georges Matheron
Organizing Committee:
Centre de Géostatistique, Fontainebleau
Ecole Polytechnique, Montréal
Department of Minerals Engineering, Leeds
Istituto di Geologia Applicata, Rome
Centro de Valorizacao de Recursos
Minerais, Lisbon

For information, please contact: Centre de Géostatistique
E.N.S.M.P.
35, rue Saint-Honoré
77305 FONTAINEBLEAU
Cedex
Tél. (1) 64.22.48.21
Telex: 600736 F

Geostatistics—No News is Bad News for Recalcitrant Contributors!?

Our Spring 1987 *Geostatistics* (V1 N3) appeared recently. If you're tired of skimming over lists of books you've read and meetings you can't afford to attend, this newsletter has some meat on its bones—articles, opinions, and regular columns such as "University Spotlight" that focuses on North American academic programs in geostatistics and "Recent Dissertations," brief reviews of relevant works completed within the last 12 months. *Geostatistics* is published quarterly by the North American Council on Geostatistics and

distributed free to active professionals in the field. But there's a price to be paid for a good newsletter and editor **Randal Barnes** (Dept. Civil and Mineral Engineering, University of Minnesota, 500 Pillsbury Drive S.E., Minneapolis, Minnesota 55455) knows how to extract it—here's his ultimatum in N3 "From the Editor's Desk": "...I have used this space to solicit contributions from you the readers—to no avail. I am tired of this litany. In the future, names of readers that do not contribute material for inclusion in the newsletter will be randomly selected from the mailing list, printed in the newsletter, and deleted (with prejudice)." Better get those cards and letters in the mail!

Forthcoming Meetings

Denver Geotech '87, Denver, CO, Oct. 3-6, 1987. Contact S. A. Krajewski, Geomath Inc., 165 S. Union Blvd., Suite 410, Lakewood, CO 80228 USA.

Computer-Aided Analysis of Geologic Data. A seminar sponsored by the Eastern Section, American Association of Petroleum Geologists, in Columbus, OH, Oct. 7, 1987. Contact Dr. Lawrence H. Wickstrom, Ohio Geological Society, P. O. Box 14322, Columbus, OH 43214 USA.

16th Annual Geochautauqua + 13th Mining Pribram Symposium, Pribram, Czechoslovakia. Oct. 12-16, 1987. Contact Dr. Vaclav Nemeč, GEOINDUSTRIA, Geologicka 2, 15200 Praha 5-Barrandov, Czechoslovakia.

APCOM '87—20th International Symposium on the Applications of Computers and Mathematics in the Mineral Industries, Johannesburg, South Africa. Oct. 19-23, 1987. Contact the Conference Secretary (C.31), Mintek, Private Bag X3015, Randburg 2125, South Africa.

South American COGEO DATA, Ouro Preto, Minas Gerais, Brazil, Nov. 23-26, 1987. Contact Hubert Roeser, Dept. Geology, Federal University of Ouro Preto, Box 50, 35400 Ouro Preto, MG, Brazil.

Geological Information Management, a one-week course in Bangkok, Thailand, in the 1st semester, 1988. Taught at the Asian Institute of Technology. Contact C.I.F.E.G., 103 rue de Lille, 75007 Paris, France.

3rd International Geostatistical Congress, Avignon, France, Sept. 5-9, 1988. See information, this page, for addressing inquiries.

11th International CODATA Conference, "Scientific and Technical Data in a New Era," Karlsruhe, FRG. Sept. 26-29, 1988. Contact

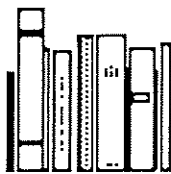
(cont.)

Forthcoming Meetings (cont.)

DECHEMA, Attn. CODATA Conference, P.O. Box 97 01 46, D-6000 Frankfurt/M. 97, Federal Republic of Germany.

Mathematical Methods of Ore & Oil Deposits Research, Dusanbe, Tadzhik S.S.R., Oct. 1988. (This IAMG-sponsored meeting has been moved from Baku.) Contact R. Volkov, Executive Secretary, USSR National Committee of Geologists, Pyzhevsky 7, 109017 Moscow Zh-17, USSR.

International Symposium on Groundwater Management: Quantity and Quality, Benidorm, Spain. October 2-5, 1989. Contact Dr. J. Andreu, E.T.S. de Ingenieros Caminos, Universidad Polytécnica, Camino de Vera, 46071 Valencia, Spain.



Books 'n Things

Geostatistical Case Studies. Edited by G. Matheron and M. Armstrong, 1987. D. Reidel Publishing Company, 264 pp., ISBN 1-55608-019-0, Dfl. 138.00/U.S. \$59.50. [SPECIAL IAMG-MEMBER DISCOUNT PRICE: U.S. \$47.60 prepaid. Order direct from Kluwer Academic Publishers Group, P.O. Box 322, 3300 AZ Dordrecht, The Netherlands, and identify yourself as an IAMG member.] With accent on how to apply methods, this volume presents a series of innovative applications, including new techniques such as the external drift method for combining well data with seismic information.

CLUSTER—Mainframe Program Package for Cluster Analysis of Observations and Variables. Documentation in English or German, U.S. \$295. Detects hierarchies, partitions and anomalies underlying data sets alone or in conjunction with SAS or SPSS. Prints dendrograms and computes extensive descriptive statistics: mean, standard deviation, minimum, maximum, skewness, kurtosis, typical and untypical objects. CLUSTER can carry out several tasks with several input files in a single run. Ten types of data sets can be read in by writing key word only. About 7000 program statements written in FORTRAN; easily transferrable to minicomputer (e.g. PDP 11). Extensively tested. Information and orders: Hans-Joachim Mucha, Academy of Sciences of the DDR, Inst. of Mathematics, Mohrenstraße 39, Postfach 1304, DDR-1086 Berlin.

Statistics for Geoscientists. Translation edited by D. F. Merriam, 1987. (Translated from the second German edition, D. Marsal, Editor.) Pergamon Press, Fairview Park, Elmsford, New

KANSAS GEOLOGICAL SURVEY The University of Kansas Lawrence, Kansas 66046-2598

Position Announcement

Title of Position: Research Assistant or Research Associate

Starting Date: Position available December 1, 1987, or as soon as the selected candidate is available.

Salary and Fringe Benefits: Annual salary range, \$22,000-\$27,000. Salary commensurate with experience. This is a full-time, permanent position in the unclassified staff at The University of Kansas. Twenty-two days vacation and 12 days sick leave earned annually with up to nine holidays; group medical, life insurance, and retirement program options available; KU staff privileges.

Responsibilities: This position will be in support of Kansas Geological Survey efforts in four research areas: (1) modeling of water flow, compaction, and heat flow to describe the thermal maturity of a geologic basin; (2) automated analysis of pumping-test data in an expert system environment; (3) design of monitoring well networks by sensitivity analysis; (4) applied statistics and spatial analysis. The successful candidate will have interest and experience in two or more of these areas. The selected person will provide programming and operational support of research, as well as contributing to the research itself. Documentation of developments and publication of results will be expected.

Required Qualifications: Master's degree in a discipline emphasizing flow through porous media, with experience in flow modeling. Experience in scientific programming, including the ability to develop and apply computer simulation models with analytic, statistical and graphic components. Experience in two or more of the areas of research.

Preferred Qualifications: Two or more years of job experience following receipt of Master's degree. Publications in the areas of interest. Familiarity with hazardous waste and monitoring well systems. Experience with interactive graphics systems, statistical analysis packages, and scientific program libraries.

Contact Person and Application Deadline: To apply, or for further information, contact Lila M. Watkins, Personnel Manager, Kansas Geological Survey, 1930 Constant Avenue, Campus West, The University of Kansas, Lawrence, Kansas 66046-2598. Phone (913) 864-3965. A résumé, college transcripts, and the names, addresses, and telephone numbers of three references must accompany letters of application. Applications received on or before November 2, 1987, will be considered.

An Equal Opportunity/Affirmative Action Employer. Applications are sought from all qualified persons regardless of race, religion, color, sex, disability, national origin, ancestry, and, as specified by law, age and veteran status.

York, USA/Headington Hill Hall, Oxford, UK, 220 pp. (approx.), Flexicover U.S. \$20, Hardcover U.S. \$35 (prices approx.), available in Oct. Covers the modern application of most of the important statistical methods and analyses used by geoscientists.

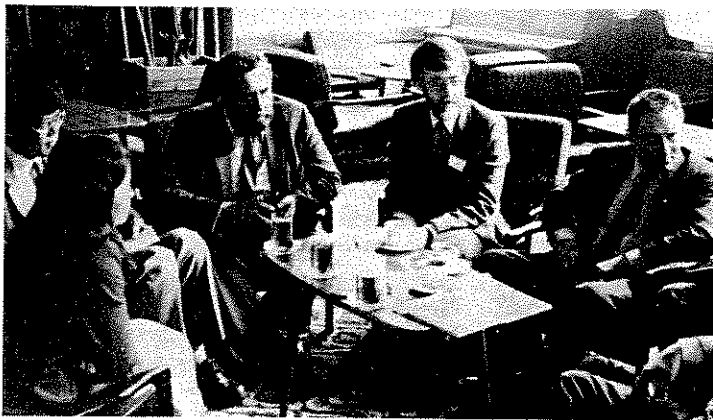
PETMAR Trilobite Breeding Ranch offers: **MicroDEM**, a digital terrain mapping package for IBM PC/compatibles—produces contour maps, topographic profiles, slope maps, tinted elevation maps, and oblique 3-D views using digital data available from USGS. 1, 2, or 3-disk sets priced at U.S. \$7.50, \$12, and \$15. **MicroNet**, an interactive Schmidt and Wulff net program, plots poles, great circles, etc.—\$7.50. **StratCol**, an interactive stratigraphic column generator ("computer 'ZIP-A-TONE'")—\$7.50. **DrillBit**, an interactive simulation for teaching structural and historical geology, suitable for introductory physical geology class (source code not available)—\$7.50. All PETMAR software requires IBM PC or true compatible, DOS 2.0 or higher, 256 K memory, one disk drive, color graphics monitor (CGA or equiv.) Information and orders: Dr. Peter L. Guth, 105-A Chaucer Road, Mt. Laurel, NJ 08054 USA.

Exploration-Geochemical Data Analysis with the IBM PC, by George S. Koch, 1987. Van Nostrand Reinhold, New York (Mail Order Service, P.O. Box 668, Florence, KY 41042-9979

USA), 128 pp., U.S. \$74.95 (payment must accompany order). Software package for analyzing exploration geochemical data. Includes guidebook and two floppy diskettes. An integrated system of computer programs and material written especially for geologists covering every stage of the research process. Contents: Introduction, Writing and Editing Data Files, Listing Files, Summary Statistics, Making Histograms, Working with Logarithms, Sorted Lists, Estimating Geochemical Thresholds, Simple Linear Regression, Plotting Data, Appendices—(1) Error Messages, (2) ASCII Characters.

"From Statistics to Expert Systems. Applications in Geoscience" (English-French), *Sciences de la Terre —Série Informatique Géologique*, no. 25, 1986, 87 pp., 115 FF. Papers on recent developments in multivariate statistics and expert systems including "Variable selection in statistical prediction for mineral deposits," by P. Zhao, W. Hu and Z. Li; Final Report of IGCP Project no. 154—Global Exchange and processing of information in geochemistry: "Communication and exchange of computerized chemical data. Problems and solutions, scientific results," by H. de la Roche, J. M. Stussi, M. Marchal, and A. Ploquin; "Comportement hydrogéologique et thermique de la nappe des grés du Trias Inférieur dans le secteur de Vitte," by M. Danis and J. J.

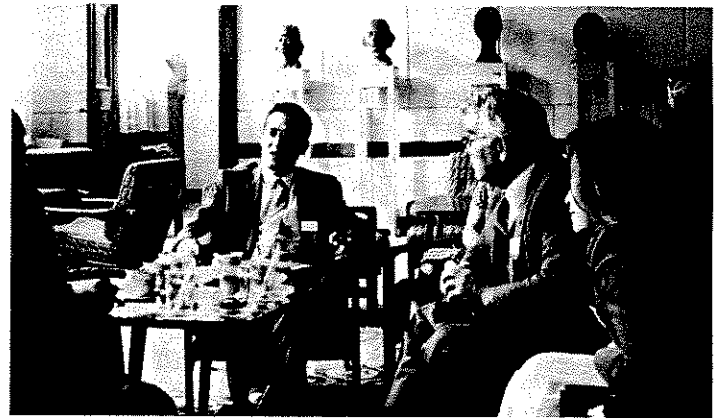
(cont.)



1.

The ICGG-III Committee examines all the issues from all the sides at the Wroclaw Conference on Geomathematics and Geostatistics.

1. Lower left to right: B. Namyslowska-Wilczynska
C. Chung
N. Shilin
P. Dowd
D. Rodionov



2.

2. Left to right: J.J. Royer
J. Davis
B. Namyslowska-Wilczynska



3.

3. Left to right, facing: C. Chung
N. Shilin
P. Dowd
D. Rodionov
V. Nemeec
J.J. Royer



4.

One more fuzzy, out-of-focus slide and I'm going out for coffee!

Don reminds coworker Margaret of the advice of his famous fellow countryman regarding viewgraphs (or something)—“Don't leave home without 'em.”

4. Left to right: Margaret Armstrong, D.E. Myers
5. M. Kacewicz
6. Left to right: Vaclav Nemeec, Y.Z. Ma, J.J. Royer

“Yes, Vaclav, it's true! I'm delighted to confirm that the Proceedings of the Wroclaw meeting will appear in *Sciences de la Terre* .”



5.



6.

Books 'n Things (cont.)

Royer; "Système Expert dans la classification des roches," by E. Bkouche-Palen. Orders (accompanied by check or purchase order) to: J. J. Royer, Editor, *Sciences de la Terre*, Rue du Doyen Marcel Roubault, BP 40, F-54501, Vandoeuvre-lés-Nancy Cedex, France

Contouring Geologic Surfaces with the Computer, by T. A. Jones, D. E. Hamilton, and C. R. Johnson, 1986. Van Nostrand Reinhold, New York (Mail Order Service, P.O. Box 668, Florence, KY 41042-9979 USA), 320 pp., U.S. \$37.95. Incorporate geological relationships and interpretation during contour mapping via a series of steps using program options that let you introduce and model geologic interpretations. Methods work with most commercial mapping programs. Useful for interactive or batch-submitted jobs for micros and mainframes.

Abstracts of Chinese Geological Literature. One volume of 4 issues per year. Vol. 1 (1985), Vol. 2 (1986)—Sfr. 324/U.S. \$136 ea. English abstracts from more than 100 Chinese geological journals. English translations of the original articles available on request. Subjects covered include extraterrestrial geology, oceanography & marine geology, structural geology, geophysics, seismic geology, geochemistry, mineralogy, petrology, rocks and minerals determination and analysis, economic geology, petroleum geology, coal geology, paleontology, historical geology and stratigraphy, geochronometry, Quaternary

geology and geomorphology, exploration geochemistry, exploration geophysics, hydrogeology and engineering geology, environmental geology, mathematical geology and computing technique, exploration engineering, remote sensing. Information and orders: J. C. Baltzer AG Scientific Publishing Company, Wettsteinplatz 10, CH-4058 Basel, Switzerland.

Computers and Computing Information Resources Directory, First Edition. Edited by Martin Connors, 1987. Gale Research Co., Detroit, MI, USA, 1271 pp., ISBN 0-8103-2141-6,

Remember! This newsletter is a service for all members of the International Association for Mathematical Geology. Any Regional Organization may (and should!) request up to a full page to report on its activities. Just write to: The Editors, IAMG News Letter, c/o Kansas Geological Survey, 1930 Constant Avenue, Lawrence, KS 66046-2598 USA.

U.S. \$160. Provides comprehensive coverage of the eight major types of sources of information about computers and computing. Over 4000 sources ranging from worldwide associations and user groups to consultants and research organizations are fully described. Profiles more than 1500 periodicals, directories, and abstracting and indexing services in the computer field.

International Journal of Geographical Information Systems. Published by Taylor & Francis, London—New York—Philadelphia. First issue appeared Feb. 1987. Refereed papers, review

articles, book reviews and news for those working in design of systems, database management, computer graphics and analysis of spatial data, and those in planning and decision making. For information and submission of papers, contact the Editors: J. T. Coppock, Dept. Geography, University of Edinburgh, Edinburgh, UK; E. K. Anderson, Chief, Eastern Mapping Center, U.S. Geological Survey, Reston, VA, USA.

Multilingual Thesaurus of Geosciences. Edited by G. N. Rassam, J. Gravesteyn, and R. Potenza, 1987. Pergamon Press, Fairview Park, Elmsford, New York, USA/Headington Hill Hall, Oxford, UK, 600 pp. (approx.), ISBN 0-08-033178-5, Hardcover U.S. \$95. Alphabetical key entries in English followed by translations in five languages—French, German, Russian, Spanish, Italian. Body text includes field of geosciences to which term belongs and a use indicator. Indexes are compiled for each language.

EZSearch-Petroleum—A Program Search Diskette. 5-1/4 inch diskette runs on MSDOS or PC DOS. Updated quarterly. Price of U.S. \$75 includes updates for one year. 700 currently available petroleum applications by application category, program name, or vendor. References are available in over 30 application categories, including graphics and mapping, log analysis, geologic data base management, seismic, magnetics, geophysics, paleontology. Available from Gibbs Associates, Energy and Minerals Information Specialists, P.O. Box 706, Boulder, CO 80306-0706 USA.

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