



# THE ENERGY MINERALS GEOLOGIST

Newsletter of the Energy Minerals Division  
of the American Association of Petroleum Geologists

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## PRESIDENT'S MESSAGE



In 1973, AAPG formed the Energy Minerals Committee in response to the expansion of oil companies into uranium exploration. Enthusiastically received, a Division was formed in July 1977 with 760 initial members. We grew to a March 1984 peak of 2013 members. Then, with the next uranium depression, we slacked off to a trough of 1591 in 1986. However, wisely embracing all non-traditional oil/gas, geologic energy resources and technologies (i.e., remote sensing), membership rose again as coal replaced uranium as the popular power-generating fuel, peaking in May 1992 at 2037. Membership has fluctuated between 3.8% and 6% of AAPG membership, and since 1982, has been on a plateau averaging 4.9% (July 1 figures).

As members must first join AAPG before joining EMD, this plateau outwardly suggests a natural limit of oil-company geologists working or interested in "other" energy resources, synchronous with company excursions into and out of diversification programs. However, a cadre of non-petroleum geologists always has been very visible in EMD, particularly in its hierarchy. Also, the two membership curves differ in detail. AAPG peaked in 1985 while EMD was shrinking during the transition to coal. Our recent surge to 6% reflects a membership drive and expanding coal production, while a petroleum recession caused AAPG to shrink. Thus, the limit may be chimerical, and if real, might be pierced. It does give us pause to consider the role of EMD and its appeal to members.

Although EMD embraces the spectrum of non-renewable natural energy resources, excluding traditional oil and gas, the division of jurisdictions is fuzzy. Coal, tar, and shale oil are not minerals. (Water is the liquid phase of a mineral. All minerals have liquid phases, which do not preclude their being minerals.) We have embraced coalbed methane (a natural gas) because of its relation to coal. Now that AAPG has deleted the word "Energy" from the Bylaws description of its interest sphere, EMD is free to embrace non-energy-generating minerals used in the production of energy. Within this spectrum, the only viable commodities to sustain EMD have been uranium and coal, but not coincidentally. Tar sands recently have become viable (only in the Athabasca Basin). Only dry steam is viable; aqueous geothermal fluids are marginally so with

subsidies. The others, despite costly research, remain competitively non-viable and are of interest only if oil and gas become scarce. Except for coal and coalbed methane, EMD now addresses a very small corner of the real world. In 1992, oil and gas accounted for 50% of domestic energy production, coal for 32%, nuclear minerals for 10%, and geothermal fluids for 0.002%. This may be a better cause for our membership plateau. EMD might become the coal arm of AAPG. However, it would not be wise to neglect the "other" resources.

Recalling the OPEC-generated shortages of the 1970s, government, industry, and the public need to know when such situations threaten and what is ready to substitute. A prime EMD responsibility to its members is keeping them informed about the balance of economic viability, sufficiently so they can anticipate necessary career changes. Usually, however, we go along in a status-quo complacency. I believe few realize that despite its unpopularity, nuclear power has staged a quiet comeback around the world and is growing. After a 4-yr (1978-81) step, its growth curve resumed its steep gradient, a rate possibly exceeded only by natural gas. The reason U.S. uranium production continues in the doldrums is that domestic deposits no longer can compete with Canadian and Australian high-grade deposits. However, using in situ leaching, some American production survives. Geothermal power and space heating managed a steady growth through 1987, but at a very slow rate.

There is work for EMD to do, and needed services to perform. To accomplish these, EMD needs an expanded membership and financial base. As the economy has inflated, our membership plateau has restrained our income and gradually curtailed our ability to act. Our primary goal for 1993-94 is to strengthen the drive for new members. First, we must break through the apparent limit, hopefully to exceed 10% of AAPG members. Second, we want to encourage non-petroleum geologists to join AAPG and EMD. AAPG's excellent organizational framework, management team, publication mechanism, and reputation are good inducements.

I invite the entire EMD membership to join these efforts. Encourage your associates to join EMD, and contribute your expertise to make our Division needed and wanted.

John W. Gabelman  
President 1993-94

## MUGS!!MUGS!!MUGS!!

A limited number of coffee mugs with the EMD logo on them are available now! They are white with the logo in black. Cost is US\$7.00 (includes shipping; coffee not included). How can members get by without one?!

Please send your check or money order to Carl J. Smith, West Virginia Geological Survey, P.O. Box 879, Morgantown, WV 26507-0879, Phone: 304-594-2331, Fax: 304-594-2575. As long as the supply lasts, new members also will receive a mug when they sign on. Get 'em while they last!!

## ADVERTISING NOW ACCEPTED

Advertising in the form of business cards and standard advertisements for services and materials/equipment now is being accepted for "The Energy Minerals Geologist." Business cards will be published in one-column size (no vertical cards, please) and will cost \$10 per newsletter issue (\$35 for four issues). Advertisements must conform to the 3-column format of the newsletter, must be camera-ready copy, and can be full-page, half-page, one- or two-column (vertical), one-third page, one-fourth page, or one-sixth page in size. Prices for non-business-card advertisements still are being worked out, but there

will be discounts for full-year (four-issue) subscriptions. Please contact Doug Peters (303-236-0772) for more information, deadlines for submissions, or to determine the advertising rates prior to the next issue. **Deadline** for our receipt of advertisements and cards for the next issue is **December 8, 1993**.

## OOPS!

I neglected to get hold of the photographs for the EMD Council in time for this issue, so we will have to run those and the Councillors' addresses in the next issue. Sorry about that!

Doug Peters

## 1994 ANNUAL MEETING SHORT COURSES

Plans for the short courses for the AAPG Annual Meeting in Denver are well underway. Two short courses are planned for EMD sponsorship:

**Title:** "Geostatistics in the Search for Energy"  
**Instructor:** Dr. Michael E. Hohn, Senior Research Geologist, West Virginia Geological and Economic Survey  
**Address:** P.O. Box 879, Morgantown, WV 26507-0879  
**Phone:** 304-594-2331  
**Fax:** 304-594-2575  
**Max. # Participants:** 30

**Title:** "Trace-elements in Coal: A Clean Air Perspective"  
**Instructor:** Dr. Robert B. Finkelman, Chief of Coal Quality Project; Dr. Hal Gluskoter, Chief of Branch of Coal Geology; and Leslie F. Ruppert, Research Geologist; all with the U.S. Geological Survey  
**Address:** MS 956, Reston, VA 22092  
**Phone:** 703-648-6412  
**Fax:** 703-648-6419  
**Max. # Participants:** 25

Mike Hohn will discuss geostatistical tools (variograms, kriging, etc.) and their applications to the coal, oil, and gas industries. Bob Finkelman, Hal Gluskoter, and Leslie Ruppert will offer a short course on trace elements in coal and their significance

to the Clean Air Act. Bob, Hal, and Leslie are researchers at the U.S. Geological Survey specifically working on the characteristics of coal. Recently, the U.S. EPA has designated the USGS coal quality database as the source of information for making policy decisions. This database will be used in the short course and protocol for access to and use of the database will be discussed.

Both courses will be held before the technical session portion of the meeting. Costs and exact dates are not available yet, but will be included in future notices on the courses.

Gretchen Hoffman



AAPG ANNUAL MEETING

Analogues for the World

## UPCOMING MEETINGS

- 1) First North American Rock Mechanics Symposium:** University of Texas at Austin, **June 1-3, 1994**. Conference will address the challenges facing the petroleum, civil, and mining industries and the rock mechanics research efforts that can meet these challenges. Contact: Dr. Priscilla Nelson, NARMS Chair, Dept. of Civil Engineering, University of Texas at Austin, Austin, TX 78712, Phone: 512-471-5664, Fax (Dr. Stephen Laubach, Co-Chair): 512-471-0140.
- 2) Fifth International Conference on Ground Penetrating Radar:** Kirchner, Ontario, Canada, **June 12-16, 1994**. Sponsored by the Waterloo Centre for Groundwater Research and the Canadian Geotechnical Society. Deadline for abstracts is November 15, 1993. Contact: The Waterloo Centre for Groundwater Research, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada, Fax: 519-725-8720.
- 3) Third International Conference on Environmental Issues and Waste Management in Energy and Mineral Production:** Burwood Resort Convention Center, Perth, Western Australia, **August 29-September 1, 1994**. Conference theme is "Management and Problem Solving." Four technical tracks will be followed: 1) economic social and cultural impact of minerals and energy production, 2) mitigating practices in environmental management, 3) waste disposal technology and its management, and 4) environmental awareness and quality control in mineral and energy industries. Contact: Professor Odwyn Jones, Brodie-Hall Research & Consultancy Centre, Unit 1-R&D Centre, 1 Sarich Way, Technology Park, BENTLEY, WA 6102, Phone: +619-472-1122 or +619-351-2136, Fax: +619-472-1044 or +619-351-2563.
- 4) Bootprints along the Cordillera: Porphyry Copper Deposits from Alaska to Chile:** Tucson Convention Center, Tucson, Arizona, **October 5-7, 1994**. International conference featuring case studies and regional overviews, exhibits, field trips, and discussion of new exploration, geochemical and remote sensing techniques, and melts, volatiles, and supergene enrichment. Contact: Jim Laukes, University of Arizona Extended University, 1955 E. Sixth St., Tucson, AZ 85719-5224, Phone: 1-800-955-8632, Fax: 602-621-3269, E-mail (Internet): jlaukes@ccit.arizona.edu.

## 1994 EASTERN SECTION MEETING REPORT

The 1993 Eastern Section meeting was held at the Fort Magruder Inn in Williamsburg, Virginia, on September 19-23, 1993. The location afforded attendees the opportunity to enjoy nearby colonial Williamsburg during free time. The EMD chairman was Dr. Paul C. Lyons of the U.S. Geological Survey Branch of Coal Geology. EMD President John Gabelman attended the meeting.

The EMD session focused on sulfur in coal. The winners of the Ralph L. Miller Memorial Award for Best Energy Minerals Division Oral Paper were J.C. Hower, U.M. Graham, and C.F. Eble. Their paper was entitled "High Sulfur Coals in the Eastern Kentucky Coal Field." Carmen Bauert was the recipient of the Best Energy Minerals Division Poster Paper Award and the Vincent E. Nelson Memorial Award for overall Best Poster Paper for the paper entitled "Chitinozoan Biostratigraphy—A Good Correlation Tool for Ordovician Rocks: Case Study of Baltoscandian Oil Shale Interval." This



President John Gabelman and Eastern Section Councillor Scott McColloch discuss the state of EMD amidst our booth at the Eastern Section-AAPG Annual Meeting.

paper was co-authored by H. Bauert. (Please see the August 1993 issue of the *AAPG Bulletin* for the abstracts for these papers.)

Also of interest to EMD members were several papers that addressed environmental aspects of energy mineral production and utilization that were presented in sessions of the Division of Environmental Geosciences.

The meeting also focused on educational issues. A short course titled "Environmental Geology and Carbon-Based Resources, From the City to the Classroom" was given on the

weekend preceding the meeting.

Mr. William B. Bailes, Vice President of Norfolk and Southern Corporation in charge of Coal and Ore Traffic was the featured speaker at the EMD Luncheon. Mr. Bailes spoke about Norfolk and Southern's role in coal transportation. EMD also sponsored a booth at the meeting to promote membership and EMD publications.

Scott McColloch and Jane S. McColloch

## MEMBERS' ENERGY RESEARCH

### Petroleum Geology of Marine Versus Nonmarine Rocks

Despite the fact that petroleum production throughout the world has come from marine sediments, a controversy on petroleum origin exists pertaining to the occurrence of numerous pools in rocks of undoubted nonmarine origin. For example, the Eocene Green River Formation of Colorado and Utah is estimated to hold 600,000,000,000 bbl of oil in high grade lacustrine calcareous shales and salts, about 7,000 ft (2,100 m) thick, which were deposited in tectonic basins occupied by several continental lakes. Oil exploration and production from nonmarine rocks has been established in many places around the world, including Australia, the United States, China, England, Brazil, Colombia, and Argentina. The potential evidently is much greater.

Paradoxically, the oil-rich Maracaibo

Basin of Venezuela contains a lake of fresh to somewhat brackish water exhibiting seasonal brine density stratification, and petroleum with an average gravity of 30° API is produced from Eocene, Oligocene, and Miocene sedimentary rocks marked by large structures and some stratigraphic pinchouts. Some mysteries to be explained are 1) could marine conditions have prevailed in the basin in earlier Tertiary time?, and 2) could the lacustrine sediments be source rocks? Evaporation causes the water level to drop and salinity to increase, whereas marine inflow may augment organic matter.

Marine or estuarine phytoplankton are favored as the source of petroleum. All organic matter in sediments may be categorized by the C-H-O ratios into 1) coal-like kerogen and 2) sapropelic kerogen (oil shale type). Both

kerogen and petroleum were derived from high molecular-weight organic compounds (protoperoleum). They occur together in sediments, and mass spectrometer results indicate odd carbon isotope selectivity.

Whether oil is of marine or nonmarine origin, it is rare and irregularly distributed in rocks. The question of petroleum origin is of interest due to recent dramatic advances in the fields of geochemistry and petroleum geology.

Dr. S.M. Billo  
Dept. of Geology, King Saud University  
Riyadh, Saudi Arabia

(Editor's Note: Discussions on this subject are welcomed and will be forwarded to Dr. Billo for his response.)

## RECENT PUBLICATIONS OF INTEREST

- 1) **Bangs, N.L.B., D.S. Sawyer, and X. Golovchenko**, 1993, Free gas at the base of the gas hydrate zone in the vicinity of the Chile triple junction: *Geology*, v. 21, no. 10, p. 905-908.
- 2) **Ekinci, Ekrem**, 1993, Fluidized bed combustion studies of Turkish lignites: *Energeia*, v. 4, no. 4, p. 1-5.
- 3) **Hutchison, I.P.G., and R.D. Ellison, eds.**, 1992, Mine waste management: Boca Raton, Florida, Lewis Publishers, 654 p.

- 4) **Judge, A.S., and J.A. Majorowicz**, 1992, Geothermal conditions for gas hydrate stability in the Beaufort-MacKenzie area: The global change aspect: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 98, p. 251-263.
- 5) **Krause, F., et al.**, 1993, Energy policy in the greenhouse—Least-Cost insurance against greenhouse risks: The cost of cutting carbon emissions: El Cerrito, California, International Project for Sustainable Energy Paths, Vol. 2, 5 parts. (Available

from IPSEP at 7627 Lewiston Ave., El Cerrito, CA 94530. Cost is \$350 for all five parts; parts can be purchased separately. Parts: 1) Cutting carbon emissions: Burden or benefit?; 2) The cost of carbon reductions in Western Europe; 3A) The electricity sector; 3B) Sourcebook—Electrical efficiency; 3C) Sourcebook—Fossil and renewable supplies; 3D) Sourcebook—Nuclear Power; 4) The transport sector; 5) Efficiency in industry and buildings.)

## SELECTED EMD ABSTRACTS FROM THE 1993 ANNUAL MEETING

The following are selected abstracts of EMD-sponsored session papers presented at the 1993 AAPG Annual Meeting in New Orleans. These are provided as a service to EMD members who did not attend the meeting or otherwise did not order a copy of the meeting abstracts volume. Abstracts are printed on a space-available basis. Full addresses for senior authors are included when they are known to the editor.

Charpentier, Ronald R., and Ben E. Law, (U.S. Geological Survey, P.O. Box 25046, MS 940, Denver, CO 80225)

### Estimation of Coalbed Methane Contents from Geologic Data:

Appraisal of coalbed methane resources is dependent on an accurate estimation of methane content per unit volume of coal. For those cases where desorption measurements are not available, it would be very useful to make methane content estimates using available data, such as depth to the coalbed, rank, and coal quality. Although relationships have been established previously for such estimation, they have not quantified the uncertainty. Appraisals of gas resources are of much greater utility when given in a probabilistic format that expresses the uncertainty.

We have compiled a database of approximately three thousand coalbed desorption measurements and have used it to assess the uncertainty in the estimations of gas content. These data were collected from public and private sources and include, when available, location information, proximate analyses, vitrinite reflectances, and gas analyses.

Coalbed gas content can be estimated by a function that increases linearly with depth. Gas content also increases with increasing rank, and separate linear estimation functions for each rank were developed. Importantly, the uncertainty of these estimations also can be quantified. For example, the estimate of gas content for high-volatile bituminous coals generally is within  $\pm 3$  cc/g. For higher rank coals, the uncertainty of the gas content estimate increases, and for lower rank coals, this uncertainty decreases. Further analysis also shows how other geologic characteristics, such as ash content, affect the coalbed methane content.

Dillon, William P., Kristen Fehlhaber, (U.S. Geological Survey, Woods Hole, MA) and Myung W. Lee, (U.S. Geological Survey, Denver, CO)

### Gas Hydrates—Their Distribution and Significance in Sea-Floor Sediments of the U.S. Atlantic Margin:

Gas hydrates bind immense volumes of gas (mostly methane) in ocean-floor sediments. They represent a possible major energy resource; they probably have had an important influence on sea-floor slope stability and they may, at times, supply a significant greenhouse gas to the atmosphere. We have mapped hydrates along the U.S. Atlantic margin from South Carolina to New Jersey, by using more than 7,500 km of digitally recorded seismic profiles. Hydrate volume is estimated by seismic modeling, employing the measured reduction of reflection amplitude, which apparently is caused by cementation of strata by gas hydrate. Because this model implies velocities, we can generate an isopach map of the hydrate-cemented surface layer of sediment. Estimates show large amounts of gas. At the location of greatest concentration, hydrates may contain 600 TCF of gas within a 2,800-km<sup>2</sup> area. High concentrations of gas hydrate occur in two settings: 1) areas of rapid sedimentation, such as at the Blake Ridge and continental rise hills, where we anticipate greater biogenic gas generation and the possibility of upward recycling of hydrate gas as deposition occurs, and 2) areas of diapirs and associated faulting along the seaward side of the Carolina Trough, where fractures may provide migration pathways for thermogenic gas from depth. Thickness of the hydrate-cemented layer and volume of hydrate are decreased at landslide scars, indicating that hydrate breakdown may be a cause and/or effect of landsliding. Because methane is a strong greenhouse gas, landslide processes may release enough methane to affect global climate significantly.

Knutson, Carroll F., (INEL, EG&G Idaho, 2817 S. Higbee Ave., Idaho Falls, ID 83404) J.R. Dyni, (U.S. Geological Survey, Denver, CO) J.L. Qian, (Beijing Petroleum Univ., Beijing, China) F.D. Ball, (3-D Geoconsultants, Fredericton, NB, Canada) V. Kattai, V. Puura, A. Kogerman, (Estonian Academy of Science, Tallinn, Estonia) A.C. Hutton, (Univ. of Wollongong, Wollongong, NSW, Australia) G. Solti, (Hungarian Geological Institute, Budapest, Hungary) and E.M. Piper, (Stone & Webster, Denver, CO)

### Oil Shale in the 80s and 90s:

A review of the oil shale developments in the decade of the 1980s, carried out by the AAPG/EMD oil shale committee, reveals some interesting patterns. In the early portion of the decade, the production of synfuels from oil shale received major interest. Countries such as the U.S.S.R. and China, with mature shale oil industries, were in the middle of programs to accelerate research and development efforts aimed at increasing shale oil production. Other countries with oil shale resources, such as the U.S.A., Canada, Brazil, and Australia, were fielding major research and development efforts aimed at putting in place significant shale oil production capacities. Environmental awareness was growing during this period, and the calculated cost of shale oil was a monotonically increasing factor. The decrease in the price of crude oil in the early 1980s resulted in detailed examination of the varied synfuel research and development projects and a general marked decrease in their funding.

The middle and late 1980s saw increased attention paid to the non-synfuel uses of oil shale. Some examples of successful application are the 1) Israeli power generation with direct oil shale combustion and spent shale used for ceramics and cement, 2) Hungarian utilization of oil shale in agriculture, and 3) the utilization of spent shale as a cement component in Germany, Estonia, and China. Research in applications for shale oil components as petrochemicals and niche market hydrocarbons was and is being carried out in Estonia, Russia, and the U.S.A.

Oil shale is an abundant resource in a number of areas, and research aimed at its beneficial economic utilization would appear to be a high-return activity.

Lambert, Stephen W., (Taurus Exploration, 210 Sixth Ave. North, Birmingham, AL 35203)

### Managing the Environmental Challenges of Producing Methane from Warrior Basin Coals:

In 1989, Taurus Exploration acquired the assets of an independent coalbed methane producer in Tuscaloosa County, Alabama. Those assets included 18 producing wells and 15,000 acres of potentially developable property. While remaining as operator of the project, Taurus sold a portion of its acquired interest to TECO Coalbed Methane, a subsidiary of TECO Energy of Tampa, Florida. Driven by the Section 29 tax credit, the Taurus field operation quickly grew into a very large-scale and rapid development program, beginning in late June 1989. Taurus continued to lease adjacent acreage, and by June 1990, had expanded the project to approximately 33,000 acres, adding Chevron to the joint venture effort. By the end of 1990, Taurus had drilled approximately 400 multizone coalbed methane wells, completed 326 wells, and had begun pumping operations at 256 wells. Current production from the 400-well project stands at 65 MMCFD and is rising.

The scale and pace of Warrior Basin coalbed methane well development challenged the capability of both operators and regulators to fully address the then rapidly increasing range of environmental concerns. Taurus' response to this challenge was to incorporate, indeed emphasize, management of environmental issues into the planning,

development, and production phases of the project. Specific field procedures were established that provided for avoidance of potential environmental harm, such as pre-construction well site biological and archeological assessments, or for minimal impact, such as the formulation of Best Management Practices for land erosion control, or for both, such as Spill Prevention Control and Counter Measure Plans. Headquarters and field operations personnel organizations were altered to provide and place staff in highly visible roles focused on maintaining set corporate objectives of environmental excellence. The entire company was brought quickly to a singular mindset in which consideration of environmental implication(s) became a work standard expected for each and every field activity and individual job task.

Towse, Donald, (2420 Ruby Ave., San Jose, CA 95148)

### Ensuring Energy Security for the North American Nations in the 21st Century:

Increasing interdependence and the future free trade zone among the countries of North America require that energy planners consider

the continent as a whole.

The United States is dangerously dependent on foreign sources of oil; based on recent experience and prognoses for the United States and for Canada and Mexico, the situation will not improve. Conventional petroleum will provide little more than half of the continent's requirements for liquid fuels.

Proponents of visionary exotic technologies (e.g., fusion power based on seawater fuel) do not expect commercial deployment before the middle of the 21st century. Providing for North America's near-term energy supply depends on development of North American resources based on presently achievable technologies. These resources include uranium ores in the United States and Canada and vast identified resources of oil sands in Canada, supplemented by major deposits in the United States. North America's 1400 billion bbl of oil contained in known oil sands dwarfs by almost 4 times its ultimate conventional oil resources, is 1.6 times that of the Middle East, and is over two-thirds of the world's total.

Conversion of transportation to nuclear-generated electric power and development of the region's oil sand resources are key energy developments to provide the bridge to an exotic-energy future.

## MORE ON COAL GEOLOGIST CERTIFICATION

As reported in the June issue of "The Energy Minerals Geologist," EMD in cooperation with DPA is preparing to certify coal geologists in the same fashion DPA certifies petroleum geologists. The proposed program continues to wend its way through the various levels of AAPG's bureaucracy and appears on-track for final action by the House of Delegates during the 1994 Annual Meeting in Denver next June.

An important change made to the proposed requirements as reported last issue is the dropping of the requirement for recommendations by two non-certified geologists. This change was instituted to bring EMD's coal geologist certification in line with DPA's requirements for petroleum geologist certification. However, remember that on-year's membership in EMD is required prior to submission of an application for certification as a coal geologist. Expect further fine-tuning as the approval process continues.

I have received a number of responses to the first announcement from EMD members, AAPG (non-EMD) members, and several non-AAPG members. However, I still am looking for volunteers to help with committee work, especially after final approval in June. Coal-conscious CPGs especially are needed for participation during initial certification approvals. In addition to volunteers, I would like to get an idea of the number of EMD and AAPG (non-EMD) members actually interested in certification as a coal geologist. Please drop me a line, call, or fax and make your thoughts known. See you in Denver!

Mitch Blake

West Virginia Geological Survey  
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## NEWSLETTER ON ENVIRONMENTAL SATELLITE DATA

"Environmental Satellite Data Research" is a relatively new newsletter which reviews more than 1000 satellite images every month and indicates the best scenes from around the world. The satellite data of interest are those produced by the National Oceanic and Atmospheric Administration's (NOAA) Advanced Very High Resolution Radiometer (AVHRR) which has a ground resolution of 1 km. Images commonly are used for large-area, general structural geology, oceanography, agriculture monitoring, and global change research among other topic areas. The newsletter lists 1) cloud-free scenes, 2) unusual weather patterns, 3) ocean currents, and 4) polar features.

Images are grouped by geographic region for fast reference. Complete scene identification allows easy ordering from NOAA. Customized searches of the satellite data for areas and phenomena of interest also are available from the publisher.

Free sample issues are available. For more information or to subscribe to "Environmental Satellite Data Research" (cost US\$240/yr in the U.S. and US\$340/yr outside the U.S. for 12 issues), contact Heckman Research, P.O. Box 1161, Clarksville, MD 21029, Phone: 301-596-3831, Fax: 410-740-8320.



## NATURAL GAS NEWSLETTER



"Natural Gas Week," a newsletter on gas pricing and the various State and Federal regulations concerning the natural gas industry, now is available for a special 13-week trial offer. The cost for this trial period is US\$99, which is 50% off the regular price for the equivalent period.

The newsletter covers such topics as gas supply and deliverability, State and Federal taxes, environmental laws, and gas storage. The newsletter also contains 20 pricing/indicator tables, including spot wellhead prices, spot delivered-to-pipeline, gas futures prices, gas storage levels, city gate prices, burner tip prices, market hub prices, comparative fuels, rig counts, and Canadian exports.

Contact Natural Gas Week at 1401 New York Ave., NW, Suite 500, Washington, DC 20005-2150, Phone: 800-621-0050, Fax: 202-662-0739 for more information or to subscribe.

## ACCESSING THE EMD CONNECTION

If you have the necessary hardware and software, to use the EMD Connection (our computer bulletin board) you need to:

- 1) Set up your communications software for 300, 1200, or 2400 bps, no parity, 8 bits, and 1 stop bit. This often is abbreviated as 1200-N-8-1 or 2400-N-8-1 or some similar combination, depending on your communications software. The number of bps, sometimes referred to as "baud", automatically will be sensed by the BBS.
- 2) Dial 304-594-3547. The BBS will answer and the modems will exchange some information in the form of tones. At this point, your modem will inform you that it has connected at the communication speed (bps or baud rate) that you set up.
- 3) Type a couple of carriage returns for the software to use to determine this speed on the other end. You then will receive a welcome message that will include a short message from me.
- 4) Type NEW as instructed if you are a new user. (After an account is set up, type your user name and password.) After you type "new", the BBS will print several paragraphs to read and ask you a series of questions. At the end of this, you will receive an electronic mail message from me that includes an "attached" file.
- 5) Read the message by typing ERT (this concatenated command stands for "E-mail Read To you"). This will display some header information and ask if you would like to read the message by typing R. Do this and read the message. You then will be given the opportunity to download a file of user information named NEWUSER.TXT. Both the initial welcome message and NEWUSER.TXT will include information that I will keep up to date. I will make sure that NEWUSER.TXT also is available in a library file for experienced users. Please fill out the registry of users as soon as possible. This is a public information listing that can be used to find out a little about other users on the BBS. Information in the registry can be updated by you at any time.

G.H. "Scott" McColloch  
EMD Connection SYSOP

## HOW TO SUBMIT MATERIAL FOR THE NEWSLETTER

I encourage you, the EMD member and/or reader of the EMD newsletter, to submit short notices and articles (in suitable form) for publication in the newsletter. These can include commodity/industry news notes and press releases, product announcements in areas of EMD topics, book reviews, employment changes, member news, geological software reviews, and any other items which would be of general interest to EMD members. I prefer to receive such articles in ASCII format on IBM-compatible diskettes (which will be returned), but letters or legible faxes are okay. Mailed and faxed material should be sent to me at the U.S. Bureau of Mines, P.O. Box 25086, Bldg. 20, Denver, CO 80225, Fax: 303-236-0828. I also can receive messages and articles via INTERNET e-mail at mailbox petersd@drc.usbm.gov. Call me at (303) 236-0772 for more information on submitting material. General comments and suggestions can be addressed to me as well.

Doug Peters

### THE ENERGY MINERALS GEOLOGIST

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