



Quaternary Geologist and Geomorphologist

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J.R. Giardino and his group climbing talus to reach Mt. Sneffels (14,150') in the San Juan Mountains above Ouray, Colorado. GPR was being used to image the rock glacier in the middle ground of the photograph. (Contributed by R. Marston)

DIVISION AWARDS

KIRK BRYAN AWARD

- **Brian R. Atwater** (U.S. Geological Survey) and
- **Eileen Hemphill-Haley** (University of Oregon)

The citationist is *John J. Clague*.

Recent recipients of the Kirk Bryan Award . . .

- 1999 William L. Graf.** *Plutonium and the Rio Grande: Environmental change and contamination in the nuclear age*: Oxford University Press, 1994.
- 1998 Vance Holliday.** *Stratigraphy and Paleoenvironments of Late Quaternary Valley Fills on the Southern High Plains*: GSA Memoir 186, 1995.
- 1997 Grant Meyer, Stephen Wells, and Timothy Jull.** *Fire and alluvial chronology in Yellowstone National Park: climate and intrinsic controls on Holocene geomorphic processes*: Geological Society of America Bulletin 107: 1211-1230.

- 1996 Roger P. Saucier.** *Geomorphology and Quaternary stratigraphy of the Lower Mississippi River Valley*: US Army Corps of Engineers, v. 1 (364 p.), v. 2 (map folio), 1994.
- 1995 James E. O'Connor.** *Hydrology, hydraulics and geomorphology of the Bonneville Flood*: Geological Society of America Special Paper 274, 90 p., 1993.
- 1994 Arthur N. Palmer.** *Origin and morphology of limestone caves*: Geological Society of America Bulletin 103: 1-21, 1991.
- 1993 William B. Bull.** *Geomorphic responses to climate change*: Oxford University Press, 326 p., 1991.
- 1992 Dale Guthrie.** *Frozen Fauna of the Mammoth Steppe: The Story of Blue Babe*: University of Chicago Press, 323 p., 1990.
- 1991 Milan J. Pavich.** *Processes and rates of saprolite production and erosion on a foliated granitic rock of the Virginia Piedmont*, in Colman and Dethier, eds., *Rates of Chemical Weathering of Rocks and Minerals*: Academic Press, p. 552-590, 1986.
- 1990 Victor K. Prest.** *Late Wisconsinan and Holocene history of the Laurentide ice sheet*: *Geographie Physique et Quaternaire* 41: 237-262, 1987.

The first Kirk Bryan Award went to **Luna B. Leopold** and **Thomas J. Maddock, Jr.** in 1958 (*The hydraulic geometry of stream channels and some physiographic implications*: U.S.G.S. Professional Paper 252, 57 p.).

DISTINGUISHED CAREER AWARD

Peter W. Birkeland (University of Colorado). The citationist is Don J. Easterbrook.

Past recipients of the Distinguished Service Award and their respective citationists:

- | | | |
|------|--------------------------|---------------------------------|
| 1999 | Troy Péwé | John Westgate Randy Updike |
| 1998 | Dale F. Ritter | Jerry Miller |
| 1997 | Stanley A. Schumm | Ellen Wohl |
| 1996 | Robert P. Sharp | A. Gillespie, D. Easterbrook |
| 1995 | David M. Hopkins | J. Brigham-Grette |

- | | | |
|------|-------------------------------|---|
| 1994 | William C. Bradley | J. Andrews, P. Birkeland, N. Caine, J. Pitlick |
| 1993 | Victor K. Prest | D.A. St. Onge |
| 1992 | Herbert E. Wright, Jr. | A.R. Schneider |
| 1991 | Luna Leopold | M.G. Wolman |
| 1990 | John T. Hack | M.G. Wolman |
| 1989 | Clyde Wahrhaftig | R. Janda |
| 1988 | A. Lincoln Washburn | S.C. Porter |
| 1987 | Aleksis Dreimanis | S.R. Hickok, P.F. Karrow |
| 1986 | Richard P. Goldthwait | D.M. Mickelson |

EASTERBROOK DISTINGUISHED SCIENTIST AWARD

Wallace S. Broecker (Columbia University). The citationist is Alan Mix.

FAROUK EL-BAZ AWARD FOR DESERT RESEARCH

Stephen G. Wells (Desert Research Institute, Reno) and *Leslie D. McFadden* (University of New Mexico). The citationist is Yehouda Enzel.

J. HOOVER MACKIN AWARD WINNERS

Martha Eppes (University of New Mexico)
Tammy Rittenour (University of Nebraska)

ARTHUR D. HOWARD AWARD WINNERS

Christopher Moy (Syracuse University)
James Sutherland (University of Nevada-Reno)

GLADYS W. COLE MEMORIAL RESEARCH AWARD

Joel L. Pederson (Utah State University)

Awards will be presented at the division's business meeting in Reno. Congratulations to the recipients!

THE 2000-2001 OFFICERS AND COMMITTEE MEMBERS

Officers

Chair: R. Craig Kochel
First Vice-Chair: Deborah R. Harden
Second Vice-Chair: J. Steven Kite
Secretary: Alan R. Nelson
Treasurer: Scott Burns
Newsletter Editor: William C. Johnson

Panel Members

New for 2000-2002

Carrie Patterson
Grant Meyer
Dave Dethier

Continuing for 1998-2000

Marith C. Reheis
E. Arthur Bettis III
Peter U. Knuepfer

Retiring for 1997-1999

Julie Bringham-Grette
Donald T. Rodbell
Jim E. O'Connor

2000 JTPC Representatives

Peter U. Clark
R. Craig Kochel

Approximately 15% of the division membership voted, and, of those, about two-thirds did so electronically.

DIVISION'S NOMINATION WEB SITE

As announced in a blast e-mail (9/20/2000), the division now has a Web site for nominating individuals for officers, panel members and GSA and division awards. The deadline for nomination of officers and panel members was October 15, but deadlines for award nomination packages are upcoming and listed individually on the Web site. The URL of the site is:
<http://www.geosociety.org/sectdiv/divnom.htm>

MESSAGE FROM THE OUTGOING CHAIR

Peter U. Clark

September 27, 2000

The program for the upcoming GSA Annual Meeting in Reno (November 9-16) demonstrates unprecedented signs of success by the QG&G Division, reflecting a continued enthusiastic response by our membership. The numbers are in, and the Reno meeting will be the largest GSA meeting ever, with 15% more abstracts than the previous high set at last year's Denver meeting. What I consider to be the more impressive number, however, is that the number of abstracts submitted to QG&G Division-sponsored sessions (more than 500 abstracts, or about 70% more abstracts than the previous high, also set in 1999) were accepted for 17 sessions. The Reno meeting thus promises to be an exciting and diverse one for our discipline, with a Pardee Session on "Causes and Consequences of Floods" as well as topical sessions on subjects such as soils, hillslopes, glacial erosion, geochronology, paleoclimatology, and large lakes, to name just a few. There is a virtual smorgasbord of Quaternary geology and geomorphology that is sure to whet the appetite of all. I hope that, as many of you will attend the meeting as possible. Kudos to the session organizers for their efforts in developing an interesting program.

Along the same lines, the Division's Awards Ceremony on Tuesday, November 14, at 7 p.m., will be both busy and exciting. In addition to the long-standing awards presented during the evening, this year's ceremony will involve presentation of the second Farouk El-Baz Award and of the first Don J. Easterbrook Distinguished Scientist Award. Although most of you know who the award winners are from reading *GSA Today*, it is worth repeating their names here. Brian Atwater and Eileen Hemphill-Haley will receive the Kirk Bryan Award. Peter W. Birkeland will receive the Distinguished Career Award. Joel L. Pederson will receive the Gladys W. Cole Memorial Research Award. Martha Eppes and Tammy Rittenour will receive the J. Hoover Mackin Award, while Christopher Moy and James Sutherland will receive the Arthur D. Howard Award. Stephen G. Wells and Leslie D. McFadden will receive the Farouk El-Baz Award. Finally, Wallace S. Broecker will receive the Don J. Easterbrook Distinguished Scientist Award. The newly elected Division Officers and Panel Members will also be introduced at the ceremony: R. Craig Kochel (Chair), Deborah R. Harden (First Vice-Chair), J. Steven Kite (Second Vice Chair), and Dave Dethier, Grant Meyer,

and Carrie Patterson (Panel Members). Congratulations to all!

Recognizing that the large number of awards puts this special Division evening in danger of becoming short on social interaction. The Management Board has developed a new schedule for the evening in which most of the awardees and their citationists will be limited to short (5-minute) presentations. In recognition of their research, the El-Baz and Easterbrook Award winners will each present named 30-minute lectures during the regular meeting - be sure to look for them in the program. We should thus see a memorable but streamlined Awards Ceremony, thus leaving plenty of time after the award presentations to meet with the awardees and our other colleagues while enjoying the beer and snacks provided at the ceremony. Given the large Division presence at the Annual Meeting, I anticipate a large turnout at the Awards Ceremony. I look forward to seeing you there as well!

The last subject I want to bring up is the recent blast e-mail you received from GSA Headquarters announcing the Web site where you can go to nominate colleagues for the Management Board and for the Division Panel. We continue to falter in our enthusiasm for nominating colleagues and, when the time comes, voting for them to serve the Division. It is very surprising to see, on the one hand, such growth and support of the Division such as is represented by membership and meeting attendance. On the other hand, we experienced such a lethargic response to perhaps the most critical contribution the membership can make to the Division, voting. Our most recent vote involved only 15% of the membership, despite the fact that we provided an easy-to-use Web site for voting electronically (although the majority of the votes did come through this means).

The Division deserves a strong leadership that reflects broad-based support by the membership. I urge you to become more proactive in nominating, and then voting, for colleagues that you consider to be at the forefront of the Division's interests, both in research as well as in the ability to lead the Division to continued successes into the coming new millennium. Similarly, I urge you to nominate your colleagues for the Division Awards; information on deadlines can be found on the Division Web site.

STUDENT RESEARCH AWARDS

GSA Committee on Research Grants

The importance of the QG&G Division within GSA, and the relative research activity by the student membership is conveyed by the fact that 13 of the 32 student proposals selected for Outstanding Mention (out of 245 awards) are topically related to the QG&G Division. Nearly half of these selections are women:

M. Hren (Dartmouth College): Distribution of metals in stream sediments in the Fisher Creek drainage, New World Mining District, Montana. (Also recipient of a Horace R. Blank, Sr. Bequest award)

K. Willey (U of Kansas): Modeling the timing of erosion and deposition events in the loess canyons of the Arikaree Breaks, Cheyenne County, Kansas. (Also recipient of the 2000 Robert K. Fahnestock Award)

D. Sjostrom (Dartmouth College): Characterization of initial precipitates in acid rock drainage environments: implications for Holocene paleoclimate determination using stable isotopes of goethite. (Also recipient of a Horace R. Blank, Sr. Bequest award)

H. Wood (U of Kansas): Strontium Isotopes as Environmental Indicators of Mineral Weathering: A Study of the Interbedded Carbonates and Siliciclastics of the Konza Prairie Long-Term Ecological Research Site, Northeastern Kansas. (Also a recipient of a Horace R. Blank, Sr. Bequest award)

T. Rittenour (U of Nebraska-Lincoln): Late Pleistocene to Early-Holocene Evolution of the Lower Mississippi River Valley: Fluvial Response to External Forcing.

M. Wartes (U of Wisconsin-Madison):

Thermochronology of the Chugach and Saint Elias Mountains, Alaska: Examining the Impact of Tectonic Uplift on Climate Change.

J. Smith (U of Pennsylvania): Climatic and Cultural Change in the Egyptian Sahara.

J. Briner (U of Colorado): Late Pleistocene Fluctuations of the Northeastern Margin of the Laurentide Ice Sheet, Northeastern Baffin Island.

H. Quevedo (U of Iowa): A High-Resolution Carbon Isotope Record of Atmospheric CO₂ Increases during the Last Deglaciation from Varved Lake Sediments from the Pequest River Valley, New Jersey.

B. Laabs (Northern Arizona U): Evidence and Causes of Quaternary Lake-Level Change in the Bear Lake Valley, Northern Utah and Southern Idaho.

G. O'Brien (Northern Arizona U): Reevaluation of Lave-Dammed Lake Deposits in the Grand Canyon, Arizona.

M. Kearney (U of New Mexico): Rates and Pathways of Nitrate Attenuation in the Hypothetic Zone of a First-Order Mountain Stream.

G. Stock (U of California-Santa Cruz): Geomorphic and Paleoclimatic Implications of Cave Deposits from the Sierra Nevada, California.

RENO 2000

Some Technical Program Highlights for QG&G Members:

Monday, November 13 - Morning

8:15 a.m. - Reno/Sparks: B13

Quaternary Geology I: Glacial Geology

8:00 a.m. - Reno/Sparks: Hall C Quaternary Geology and Geomorphology (Posters)

8:00 a.m. - Reno/Sparks: B18

T63. Geology and Geophysics of the Lower Mississippi Valley: In Memory of Roger Saucier

8:00 a.m. - Reno/Sparks: B10

T65. Landslides: From the Summits to the Plains

Monday, November 13 - Afternoon

1:30 p.m. - Reno/Sparks: B13

T49. Ice-Dammed Lake Floods and Subglacial Lake Outbursts; Mechanism, Causes and Consequences

1:30 p.m. - Reno/Sparks: B1

T62. Stochastic and Deterministic Origins of Surface Processes and Landforms

Tuesday, November 14 - Morning

8:00 a.m. - RSCC: A2&A6

T58. Colluvium: Recent Advances in Applying Geomorphology, Stratigraphy, and Sedimentology to Interpret Late Cenozoic Slope Processes.

8:00 a.m. - Reno/Sparks: B1

T152. Paleoclimatology and Climatology of South America I

Tuesday, November 14 - Afternoon

1:30 p.m. - Reno/Sparks: B7

Paleo-oceanography/Paleoclimatology II; Quaternary

1:30 p.m. - Reno/Sparks: B4

Quaternary Geology II: Geomorphology

1:30 p.m. - Reno/Sparks: B13

T55. Geomorphic and Geologic Controls on Surficial and Ground-Water Hydrology in Deep Alluvial Basins

1:30 p.m. - Reno/Sparks: B10

T121. Geoarchaeology of Colluvial Landscapes

1:30 p.m. - RSCC: A2&A6

T152. Paleoclimatology and Climatology of South America II

Wednesday, November 15 - Morning

8:00 a.m. - Reno/Sparks: B5

Paleo-oceanography/Paleoclimatology III: Isotopic and Fossil Evidence

8:00 a.m. - Reno/Sparks: B16&17

T46. Advances in Quaternary Geochronometry I

8:00 a.m. - Reno/Sparks: B18

T47. The Interaction between Soil and Biologic Processes in Landscape and Ecosystem Dynamics.

8:00 a.m. - Reno/Sparks: B1

T50. Glacial Erosion at the Scales of Individual Alpine Glaciers, Mountain Ranges and Continental Ice Sheets: Current Understanding and Future Directions I

8:00 a.m. - Reno/Sparks: B13

T53. The Physical Geology and Geomorphology of Large Lakes: Relationships to Climate and Paleoclimate

8:00 a.m. - RSCC: A2&A6

T61. Communicating Geohazards Information Effectively

Wednesday, November 15 - Afternoon

1:30 p.m. - Reno/Sparks: B4

T46. Advances in Quaternary Geochronometry II

1:30 p.m. - Reno/Sparks: B1

T50. Glacial Erosion at the Scales of Individual Alpine Glaciers, Mountain Ranges and Continental Ice Sheets: Current Understanding and Future Directions II

1:30 p.m. - Reno/Sparks: B19&20

T59. Vegetation Response to Late Quaternary Climate Variability and Disturbance Regimes in the Pacific Western United States

Thursday, November 16 - Morning

8:00 a.m. - Reno/Sparks: Hall B

K3. Causes and Consequences of floods: Geologic, Climatologic, Ecologic, and Human Dimensions

8:00 a.m. - Reno/Sparks: B1

T51. Reshaping Glacial Geomorphology: New Age Controls on Late Pleistocene Alpine Glaciation I

1:30 p.m. - Reno/Sparks: Hall C

T48. Causes and Consequences of Floods: Geologic, Climatologic, Ecologic, and Human Dimensions (Posters)

1:30 p.m. - Reno/Sparks: B1

T51. Reshaping Glacial Geomorphology: New Age Controls and Late Pleistocene Alpine Glaciation II

1:30 p.m. - Reno/Sparks: B8&9

T54. Big Storms of the Past: Evidence and Importance of Paleostorms in the Geologic Record

NEWS FROM MEMBERS

From Richard Marston (Oklahoma State University)

RESEARCH IN-PROGRESS: Heavy metals in fluvial sediments of the Picher Mining Field, NE Oklahoma (with Randa Hope); animated simulation of supraglacial stream meander migration (with Bill Sitterle); contrasting fabric data on rock glaciers with sturzstroms (with John Degenhardt and Rick Giardino); water quality in alpine environments (with Tracey

Heggie and Rick Giardino); two decades of geomorphic change in Oregon Coast Range rivers (with Jon Ferree); 25 years of geomorphic adjustment on reclaimed coal mines (with David Furin); river channel changes and vegetation response along the Snake River, Wyoming;

FUNDING RECEIVED: U.S. Geological Survey and Oklahoma Water Resources Research Institute: Geomorphology and Sedimentology of the Canadian River Alluvium Adjacent to the Norman City Landfill, Oklahoma, \$42,289, from Mar 1, 2000 to Feb 28, 2001 (with S.T. Paxton)

RECENT PUBLICATIONS OF INTEREST TO THE MEMBERSHIP:

Giardino, J.R., Marston, R.A. and Morisawa, M.A. (eds.) 1999. Changing the Face of the Earth--Engineering Geomorphology. Binghamton International Series in Geomorphology, No. 28, Elsevier: Amsterdam, NETH, 439 pp.

From Marith Reheis (USGS)

Fred Phillips (New Mexico Tech) and Marith Reheis (USGS) teamed up to try to obtain ages on pre-late Pleistocene shorelines of pluvial lakes in the western Great Basin using cosmogenic dating techniques. Along with graduate students Ellie Kurth (NM Tech) and Joanna Redwine and her field assistant Bud Burke (Humbolt State U.), we excavated backhoe pits in Newark Valley (pluvial Lake Newark) and in Walker Lake Valley (Lake Lahontan) on ascending sequences of shorelines of increasing age to obtain depth profiles of beach-gravel sediments. Redwine's MS thesis will use the soil profile data from pits in Newark Valley, and Kurth's MS thesis will be on the cosmogenic dating, largely funded by NSF. Excellent samples and fun for all, except for Burke, who voluntarily inserted all the hydraulic shores single handedly. Other basins will be sampled next summer.

From Alan Arbogast (Michigan State University)

Late Quaternary landscape evolution is a growing focus in the Geography Department at Michigan State University, where Randy Schaeztl and Alan Arbogast are developing what they hope will be one of the leading centers of field-based research in the Great Lakes region. Geomorphologic research and teaching at MSU emphasizes the interactions between landforms, soils, and environmental change. Soils-based research is done within a geomorphological framework, while

geomorphic research often utilizes soils and paleosols as indicators of landform age or the chronology of landscape evolution. Paleoenvironmental reconstruction is a significant component of our research, with the primary goal to determine the range of (paleo) environmental conditions within a region and how they affect landscapes. Within geomorphology, our program emphasizes a wide range of processes, including soils, glacial, coastal, fluvial, and eolian. Glacial geomorphology focuses on the northern Great Lakes region, and often employs soils or surficial sediments to interpret the various glacial depositional environments, or to better understand the development/evolution of these landforms over time. We also have a focus on mapping of glacial landforms. Coastal geomorphology is centered on the shore of Lake Michigan and is associated with high resolution monitoring of shorezone processes and change using GPS and remote sensing. Work in fluvial geomorphology focuses on the investigation of the post-glacial history of watersheds and streams in Michigan by reconstructing the evolution of alluvial fills, terraces, and changes in stream characteristics.

A goal in this fluvial study is to integrate the influence of Holocene climate change into an understanding of river systems in Michigan, and to examine post-settlement adjustments. Eolian landscapes currently being studied include both coastal and inland dunes within Michigan, and dune fields on the Great Plains. In both areas, the aim is to determine the chronology of dune evolution and the variables that promote activation and/or stabilization of dunes. Thus, buried soils are frequently used as chronostratigraphic markers through radiocarbon dating. We are also developing an interest in dating eolian and outwash sands using optimally-stimulated luminescence. Within soils, the research emphasis is on soil genesis within a variety of geomorphologic contexts. Soil chronosequence and chronofunction work has been a strong part of the Department in the past. Work on pedoturbation and soil evolution continues to be a research topic of ongoing interest. Since soils are important keys to (paleo) sedimentologic environments, identification of these environments, through the use of soil maps and other spatial data, are important components of our work. For example, we are currently using soils data to identify areas of eolian activity in Michigan, to understand some of the many aspects of glaciogenic depositional processes, and to decipher the glacial lake chronology, based on soils formed in probable glaciolacustrine sediments. Finally, we are very

interested in the links between soils and vegetation in the upper Midwest. To learn more about the program, see

<http://www.geo.msu.edu/soils.html>.

From John Menzies (Brock University)

Attention - "till diggers" ... Workshop/short course on Diamictic Micromorphological Analysis, to be given by Dr. John Menzies, Brock University. Work with John on the recognition and interpretation of diamictic structures, taxonomic classification, glacier-bed interface processes, evidence of porewater movement, geochemical diffusion, and particle translocation, with application to stratigraphic interpretation. To be held at SUNY-Oneonta (centrally located in upstate New York) on Saturday and Sunday, November 4-5, 2000. Limited to 10 participants.

From Doug Kellogg (West Chester, PA)

The Geoarchaeology Interest Group (GIG) of the Society for American Archaeology (SAA) sponsored a field trip in conjunction with the annual SAA meeting last April in Philadelphia. The GIG is a relatively new organization and the field trip was the first sponsored by the group.

A Web site at:

http://www.ellesworth.com/GIG_Trip summarizes the itinerary and provides supplemental information, such as a bibliography of topics discussed and names and addresses of the presenters. There is also a questionnaire on the topic of field trips that allows for input into the planning and conduct of future GIG field trips. Responses to the questionnaire are anonymous and any input is welcome. If you require additional information please do not hesitate to contact me. Thank you.
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John Milner Associates, Inc. Voice: (610) 436-9000
535 North Church Street FAX: (610) 436-8468
West Chester, PA 19380-2397

From Glenn Berger (Desert Research Institute)

We (conveners Berger, Jull and Stone) wish to draw your attention to Topical Session #46 "Advances in Quaternary Geochronometry" at the GSA meeting in Reno.

From Richard Young (SUNY-Geneseo)

Excavations during 1999 have added to the growing stratigraphic and radiocarbon data sets documenting a glacial advance in the Genesee Valley of

western New York, coincident with mid-Wisconsin marine Heinrich Event H-4 at approximately 35,000 years BP. A 20-meter-thick gravel pit section containing clay-rich deformation till (formerly rhythmites) includes wood, mammoth remains, and reworked peat with ages in the range of 38K to 47K years BP (KYBP) that were dragged into and sandwiched between proglacial lacustrine sediments dated at 35KYBP. All mid-Wisconsin units underlie glacial till and outwash gravels of late Wisconsin age. The H-4 deformation till also exhibits a basal erosional contact with fluvial braided channel sands, which contain in-situ plant roots and small pelecypods with ages between 39 and 41KYBP. This site appears to be one of the best documented, organic-rich, mid-Wisconsin terrestrial sites in the eastern Great Lakes region with an age apparently coinciding with a well-established marine Heinrich advance. Although the site has been largely excavated for commercial purposes, a comprehensive photographic, sedimentological, and organic sample record has been collected since 1990 for ongoing analyses. The organic samples are so well preserved in the clay matrix of the deformation till that the color of some wood samples is still slightly yellowish on first exposure to air. Most identifiable organic samples are spruce trunks, branches, roots, cones and needles. Persons interested in examining the pollen or microfauna and flora from the extensive peat samples collected to date are encouraged to contact R.A. Young at SUNY, Geneseo, NY <young@geneseo.edu>

From Bonnie Blackwell (Williams College)

Joel Blickstein, one of the colleagues in the ESR lab at Williams College, received a 10K Toyota Tapestry Grant from the National Science Teachers' Association. Joel, Anne Skinner, and myself have been training ten high school students from NYC in the fine art of preparing samples for ESR dating, and in running the ESR spectrometer. These students have each prepared teeth or molluscs collected from archaeological or quaternary paleontological sites for dating. Come hear our talk on how the program went during the GSA Annual Meeting.

From Greg Pope (Montclair State University)

Jordan (Zhaodong) Feng and I received a 2-year NSF grant (Geography Division) for our project, "Geographic Differentiation of the Last Interglacial Paleosol S1 in the Chinese Loess Plateau: Its Climatic and Chronological Implications". Work is in close association with Fahu

Chen and his students at Lanzhou University, as well as Zhengtang Guo at the Institute of Geology and Geophysics in Beijing. We just finished our first round of field work between Lanzhou and Xi'an, China. A publication of possible interest: Pope, Gregory A., and Miranda, Vera C. (1999). A geomorphology of megaliths: Neolithic landscapes in the Alto Alentejo, Portugal. *Middle States Geographer* v. 32, pp. 110-124.

From Greg Tucker (Oxford)

Some publications that might be of interest...

- Tucker, G.E., and Bras, R.L. (2000) A stochastic approach to modeling the role of rainfall variability in drainage basin evolution. *Water Resources Research*, 36(7), pp. 1953-1964.
- Snyder, N.P., Whipple, K.X., Tucker, G.E., and Merritts, D.J. (2000) Landscape response to tectonic forcing: digital elevation model analysis of stream profiles in the Mendocino triple junction region, northern California. *Geological Society of America Bulletin*, 112(8) pp. 1250-1263.

From Gloria C.C. Britton

Some recent research: (1) "Analysis of the 14 June 1990 Flash Flood at Shadyside, Ohio" presented at Association of American Geographers Annual Meeting, April 2000. (2) Preliminary work to determine and analyze causes of termination of farming of specific site located in Walpole, Cheshire County, NH. Examining soils, groundwater availability, climate (history), and accessibility. This site had a long history of productive farming. Desire is to re-establish site as successful working site. Reason of original termination is unknown at present. Results could be helpful in reclaiming other sites to original land-use.

gbrittongeology@altavista.com

From Heidi H. Natel (SUNY-Brockport)

Recent research has included The Sedimentary Analyses of a Soil Core from Orleans County, New York (W. Autin, advisor); this study indicates that at 140 cm there exists a transition from lacustrine to a swamp environment. I believe the region to be representative of the Lake Tonawanda basin that existed at ~ 10 ka. This environmental transition is further supported by sedimentary analysis showing a corresponding transition

from predominantly sands to silts and clays at the swamp/lake transition. The transition from coarse to fine sediment input into the basin represents a change in basin energy from a lacustrine to a wetland environment, experiencing periodic pulses of sediment by fluvial input. The site is in the present day Sandy Creek Basin.

Natel, Heidi H., 2000, Deglaciation in Western New York Based on Sedimentary Analyses in Lake Tonawanda Basin, Geological Society of America meeting in Reno.

From Jody Millette-Larned (University of Colorado-Colorado Springs)

Hydrogeomorphic analysis of a small-scale subalpine drainage basin: a case study in Park County, Colorado.

A 40-ha subalpine watershed in the South Platte River basin is being studied to determine the erosional characteristics of the basin, with a focus on the morphology of the primary discontinuous gully that dissects the area. Estimates of runoff and potential surface erosion are being calculated. Sediment traps and erosion pins are being used to monitor changes in the channel profile. (S. Jennings, advisor)

From J. Elmo Rawling 3rd (University of Wisconsin-Milwaukee)

An abstract of the dissertation research (G. Fredlund, advisor) *Holocene eolian deposits and buried soils in the White River Badlands, South Dakota, USA*

Eolian silt and sand on the North American Great Plains are commonly used to estimate Holocene paleodrought magnitude and frequency. Although others have recognized the presence of eolian deposits in southwestern South Dakota, little work establishing their chronology or how they relate to regional climate exists. Eolian deposits in the White River Badlands include, cliff-top eolian deposits, vegetated parabolic dune fields, and loess (including the Red Dog Loess). This project is examining laboratory characteristics (including particle-size distribution, organic carbon content, and carbonate content), and grass phytolith and $d^{13}C$ paleovegetation proxy from these deposits. Approximately 30 ^{14}C dates from buried organic matter, two optical luminescence dates, relative soil development, and stratigraphic relationships provide age control. Eolian cliff-top

deposits typically have loam and sandy loam textures and weakly developed buried soils with A-C and A-AC-C profiles. Late Holocene buried A horizons are cumulic. Three sites at ~950m elevation each have early Holocene (circa 7900 ^{14}C yrs BP) buried soils. The oldest soil dated at ~850m elevation is late Holocene (circa 2900 ^{14}C yrs BP). There are no soils that date to the middle Holocene at these four sections. Although dating shallowly buried soils can be problematic, only two of the dates are inverted and there is good agreement between two soil dates and an optical luminescence date between them. The $d^{13}C$ values generated to correct the dates indicate mixed C_3 and C_4 grasses present in the early and late Holocene, and a warmer period between circa 3800 and 2400 ^{14}C yrs BP that culminates circa 3000 ^{14}C yrs BP. Less work is complete on the dune fields, however thin section samples were collected from parabolic dunes at both the 950 and 850m elevations in order to compare soil development semi-quantitatively. A silty deposit below eolian cliff-top deposits at Sheep Mountain Table, that may be the Red Dog Loess produced an optical date of ~80,000 yrs BP near its base. However, the type section of the Red Dog Loess has not been visited due to logistics. I am still uncertain that the silty deposit at Sheep Mountain Table is part of that formation.

OTHER ANNOUNCEMENTS

American Antiquity frequently receives manuscripts that would profit from review by geoarchaeologists. If you can help, please contact Timothy A. Kohler, Editor-Designate, Diane Curewitz, Editorial Assistant, phone (509) 335-2770, fax (509) 335-3999, aaq@wsu.edu.

The Coastal and Marine Newsletter - Coastal Letters can be found at the following Web site:

http://aag_coma.homestead.com. Harry Jol

(jolhm@uwec.edu), Secretary/Treasurer, COMA, University of Wisconsin-Eau Claire.

Call for Applications! Looking to expand your professional horizons? Believe in serving society through science? Ready for a unique challenge? Apply for GSA's Congressional Science Fellowship 2001-2002. The deadline to apply is February 2, 2001. To

learn more about the Fellow experience, contact David Verardo at (202) 314-2234 or dverardo@usgerp.gov.

For application information, check our Web site at www.geosociety.org/science/csf/scifello.htm or contact Karlon Blythe, Program Officer, GSA Headquarters, (303)-447-2020, ext. 136 or kblythe@geosociety.org.

The Irish Association for Quaternary Studies (IQUA) has been updated and is now at:

<http://homepage.eircom.net/~iqua>.

Call for Book Reviews (from David Butler)

As Book Review Editor, I receive many books every year for review for the journal "Geomorphology" (Elsevier). I would appreciate hearing from those of you who would be interested in reviewing books (yours to keep upon completion of the review) for the journal. I am particularly interested in hearing from those of you who could provide reviews of books published in languages other than English, especially German, French, Spanish, Japanese, and Chinese. Please e-mail me directly at db25@swt.edu if you are interested.

The Scientific Nature of Geomorphology

by Rhoads, B.L. and Thorn, C.E., 1996, originally published by John Wiley (out-of-print) is now being placed on the web (.pdf files) for free access. See the following:

www.staff.uiuc.edu/~b-rhoads/book/book.htm.

***** SPECIAL FEATURE *****

BRIEF HISTORY OF THE QG&G DIVISION

Part Two

Rich Madole

The preparation and distribution of the newsletter is the most costly item in the Division budget. Typically, about half of the annual income received from dues is spent on the newsletter. Although the importance of the newsletter to individual members probably varies widely, anecdotal evidence collected in 1983 (when the number of issues was increased from one to two per year) indicated that newsletters were vital to the health

and well being of the Divisions as a whole. Comments received from GSA Headquarters and members of other Divisions indicated that when a Division allowed the publication of newsletters to lapse, membership either declined or the growth rate was slower than in Divisions that maintained their newsletters. The first Division newsletter was mailed in June 1957, and except for two years (1960 and 1961) when for lack of an editor there was no newsletter, members have received at least one issue of the newsletter each year. In the early years, newsletters were mailed when the editor had received a sufficient amount of news from members and had a hard time compiling the information on a typewriter. As awards and grants became part of Division business, the newsletter was used to call for nominations and to provide information about application requirements and deadlines. Consequently, newsletters have had to progressively meet more rigid mailing deadlines dictated by activities surrounding awards, grants, elections and the annual meeting.

From its inception, the newsletter sought to maintain communication among members about matters of common interest, such as current research, new publications, meetings and field trips, and the work of various committees and commissions. These newsletters clearly served to connect the members of a fledgling organization and provided information that at the time was not as accessible from other sources as it is today. Members provided most of the information to the editor, and for a time (1959-1962), a system was established whereby nine members called associate editors were responsible for collecting news from various regions and forwarding it to the editor. Understandably, as Division membership grew, the length of the section devoted to summarizing current research also expanded and eventually made up most of the newsletter. During this period between 1962 and 1970, newsletters were typically 17-30 pages long.

In 1970, the responsibilities of the Division Secretary and Newsletter Editor were combined. Thereafter, the length of the newsletter decreased markedly the emphasis shifted to information pertaining to Division business and announcements of new publications, meetings, and field trips. Division Secretaries continued to double as the Newsletter Editor until 1987 when the magnitude and complexity of Division activities prompted re-establishment of separate positions for Newsletter Editor and Secretary. More recently, and for similar reasons, the office of Division

Treasurer was created to relieve the Secretary of responsibility for the Division's financial affairs. Over the past 43 years, nine individuals have served as Division newsletter editor. Each editor added new dimensions to the newsletter through the inclusion of new subject matter or changes in emphasis. The editors and dates of their service are:

| | |
|----------------------|--------------|
| William D. Thornbury | 1957-1959 |
| Sidney E. White | 1962-1971 |
| Don J. Easterbrook | 1971-1981 |
| Richard F. Madole | 1982-1986 |
| Michael N. Machette | 1987-1988 |
| William E. Scott | 1989-1992 |
| Richard B. Waitt | 1992-1994 |
| G. Richard Wittecar | 1995-1998 |
| William C. Johnson | 1999-present |

The Division Newsletter is one of the most available for achieving the purposes for which the QG&G Division was founded. According to Article I of the bylaws, those purposes are "to bring together scientists interested in Quaternary geology and geomorphology, to facilitate presentation and discussion of their problems and ideas, to promote research and publication of results in those fields of geology, and to advise and assist the officers and committees of the Society in matters pertaining to Quaternary geology and geomorphology." Note that in the last part of this Article, the flow of advice is from individual members to officers, committees, and the Society, not vice versa. The Division Management Board and newsletter are vehicles for communication and effecting change, both within the Division and the Society. A decade-by-decade review of Division activities, as recorded in archival sets of newsletters, revealing an impressive record of growth and productivity. For example, the idea for sponsoring Memorial Awards and Commemorative Research Funds was proposed to the Management Board by several members during the late 1960s. Subsequently, this idea was discussed at the Management Board meeting in Atlantic City in 1969 and in newsletters that followed. These discussions led to establishment of the Hoover Mackin Memorial Fund and Award. The award was funded by annual donations from individuals. Thus, it

took until 1974 to generate enough income to present the first Mackin grant, which was in amount of \$200. The several awards and grants that are now a major part of the annual business meeting followed from this humble beginning. A similar record of growth and achievement exists for other Division activities. A fair question to ask is "Would the awards, grants, and other Division-sponsored programs exist today had not there been a QG&G Division?"

The history contained in 43 years of newsletters shows that the QG&G Division has not tended to readily adhere to doing things the way they had always been done. The first policy of the Management Board manual states that "the Management Board is free to change or eliminate policies as circumstances change." Traditions, such as the annual luncheon for example, have been abandoned when they no longer met the needs of a large part of the membership. Old ways of doing things have been modified or replaced by newer ways when appropriate, and the scope of Division activities and commitments has increased steadily, a fact easily verified by attending the annual business meeting. Hopefully, the one tradition that the membership will not abandon is a willingness to change with the times. The February and September, 1996, newsletters included excellent articles by then Division Chair, Will Graf, entitled "Chair's message: Use it or lose it. "Among other things, both articles touched upon the need for the Division membership to be alert to the changing needs and attitudes of the larger societies of which we are a part, and to "reinvent ourselves to some degree" to address those changes.

***** SPECIAL FEATURE *****

RESEARCH FACILITIES

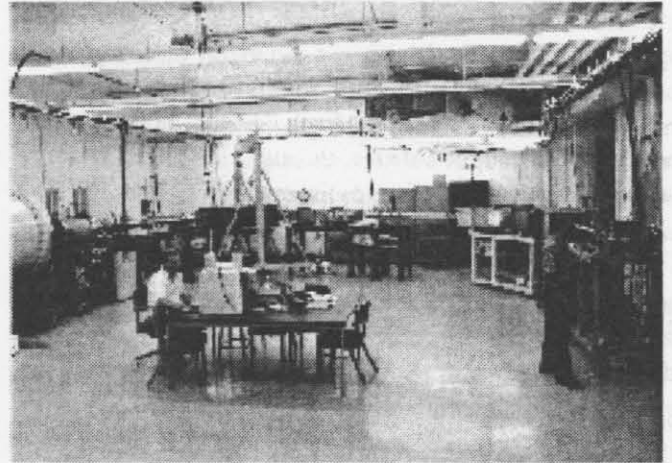
THE NSF-ARIZONA AMS LABORATORY

Tim Jull



A number of facilities exist for users who wish to obtain radiocarbon measurements by accelerator mass spectrometry. The number of these facilities used to be small, but they are increasing rapidly in number. Worldwide, there are about four dozen AMS facilities, most of which also provide dating services to external users. AMS machines all operate using similar principles of radionuclide measurements using mass spectrometry coupled with a high-voltage accelerator which serves to strip ions from negative to positive charge states. This process also destroys any molecular interferences, making it possible to detect radiocarbon and other radionuclides down to the level of about 10^{-15} . In the USA, there are 6 operating facilities, 3 of which are sponsored by NSF. These are at University of Arizona, Woods Hole Oceanographic Institution, Purdue University, Naval Research Laboratory, University of North Texas and Lawrence Livermore National Laboratory. The first 3 listed are NSF facilities specializing in radiocarbon or other radioisotope measurements. Two AMS machines are now operating at Arizona.

New developments of some radiocarbon applications are smaller, lower-voltage machines. Livermore is developing smaller machines to complement its large AMS machine and a new facility at the University of Georgia, using a small 0.5MV accelerator, is also under development. Overseas, there are equivalent AMS laboratories in most of the developed countries - Japan holds the record with 9 AMS labs! New AMS laboratories are currently on the drawing board in China, Germany and the U.K. There are now about 50 AMS labs worldwide. The purpose of this article is to highlight facilities at the University of Arizona. Since the first measurements in 1982, this lab has operated as a research and service laboratory. We have measured over 40,000 radiocarbon samples for a wide variety of applications, over the last 18 years at our laboratory. The Geosciences and Physics Departments jointly operate the laboratory at the University of Arizona. Our laboratory provides radiocarbon dating measurements by AMS to many users. NSF users receive a 50% discount in fees. Samples can be provided as raw material, or in processed form. We have agreements with about 10 "satellite laboratories", which can also provide sample pretreatment and other assistance to radiocarbon users.



FACILITIES

The NSF - University of Arizona Accelerator Mass Spectrometer (AMS) laboratory is a national facility dedicated to radioisotope research. The purpose of the facility is to provide radioisotope measurements for a broad range of scientific and historical studies. The facility is partly financed by a NSF grant and by user charges. Two AMS machines are now operational at Arizona: a 2.5MV Tandetron AMS, installed in 1981 and our second, new 3MV AMS system based on the NEC 9SDH machine arrived in Feb. 2000. The arrangement of the new system is indicated in the figure. The new equipment will improve our measurements of ^{10}Be and will allow measurements to be made on the isotopes ^{26}Al and ^{129}I . The NEC machine operates in conjunction with our existing Ionex machine in allowing us to maximize the throughput of ^{14}C samples. At least 50% of the NEC machine time will be dedicated to ^{14}C .

^{14}C Measurements

The AMS laboratory is primarily devoted to radiocarbon measurements. Scientists from around the world submit samples. A typical sample is pretreated, converted to CO_2 , and reduced to graphite. The ratio of $^{14}\text{C}/^{13}\text{C}$ in the graphite is measured in the accelerator and used to calculate a radiocarbon age. A conventional stable isotope mass spectrometer is available to provide ^{13}C measurements. These ^{13}C measurements will be provided for all samples except some sediments, and this information is used to correct the ^{14}C ages to ^{13}C of -25 ‰, as by convention, before reporting them. For samples younger than a few thousand years, the $^{14}\text{C}/^{13}\text{C}$ ratio is measured with a standard deviation of about 0.5%. This precision yields an uncertainty in the

radiocarbon age of approximately ± 40 years. With our new machine, better precision on a single target can be achieved. The Arizona laboratory has developed an excellent record of accuracy and precision and we have participated in the radiocarbon dating of many priceless artifacts, archaeological sites and geological problems. We expend a considerable effort to ensure that the quality of data produced in our laboratory is of the highest attainable quality. The precision obtained for radiocarbon measurements depends not only on the total counts accumulated in a measurement, but also on the random errors that may occur from fluctuations in parameters of the components of the instrument. When required, the published tree-ring calibration curves are used to determine calendar ages. The uncertainty in the calendar age is generally larger than the uncertainty in the radiocarbon age, and depends on the location of the calculated age in the calibration curve. For samples with ages greater than about 9000 years, only radiocarbon ages are quoted. For special cases, better precision can be achieved by analyzing several targets made from the same material. This improves the standard deviation of the averaged result by a factor of $\%n$, where n is the number of independent analyses. The maximum radiocarbon age that can be measured at the facility is about 48,000 years B.P.

¹⁰Be Measurements

The AMS laboratory can also provide ¹⁰Be measurements. Beryllium oxide targets are used in the accelerator to measure the ¹⁰Be content of samples. For samples with ratios of $^{10}\text{Be}/^9\text{Be}=10^{-13}$, ¹⁰Be rates of ~ 7 counts per minute can be obtained. The blank is 2×10^{14} $^{10}\text{Be}/^9\text{Be}$. ²⁶Al measurements are not currently available, but we plan to perform ²⁶Al measurements on our new machine in the near future.

¹²⁹I measurements

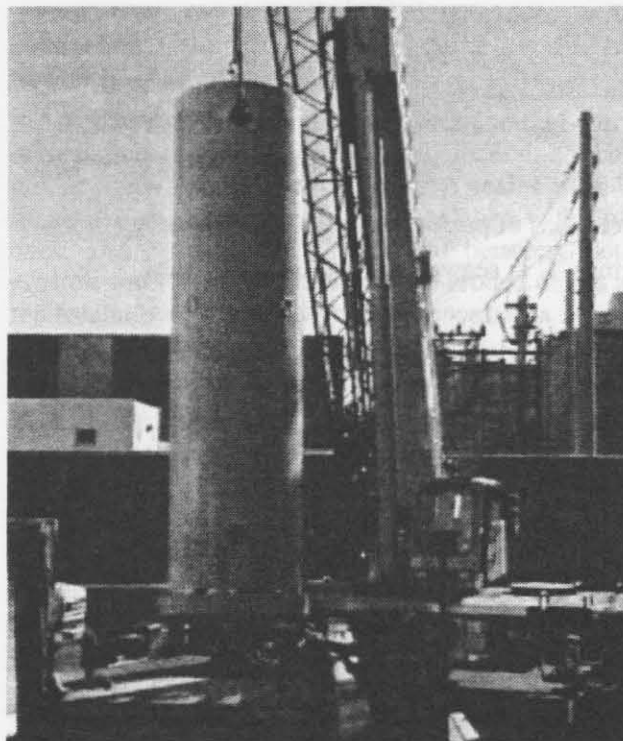
Using the new 3MV NEC Pelletron AMS, measurements of heavier radionuclides are feasible. We are investigating measurements of ¹²⁹I as a tracer. This isotope is useful for studies of fission products in the ocean and on land.

RESEARCH PROGRAMS

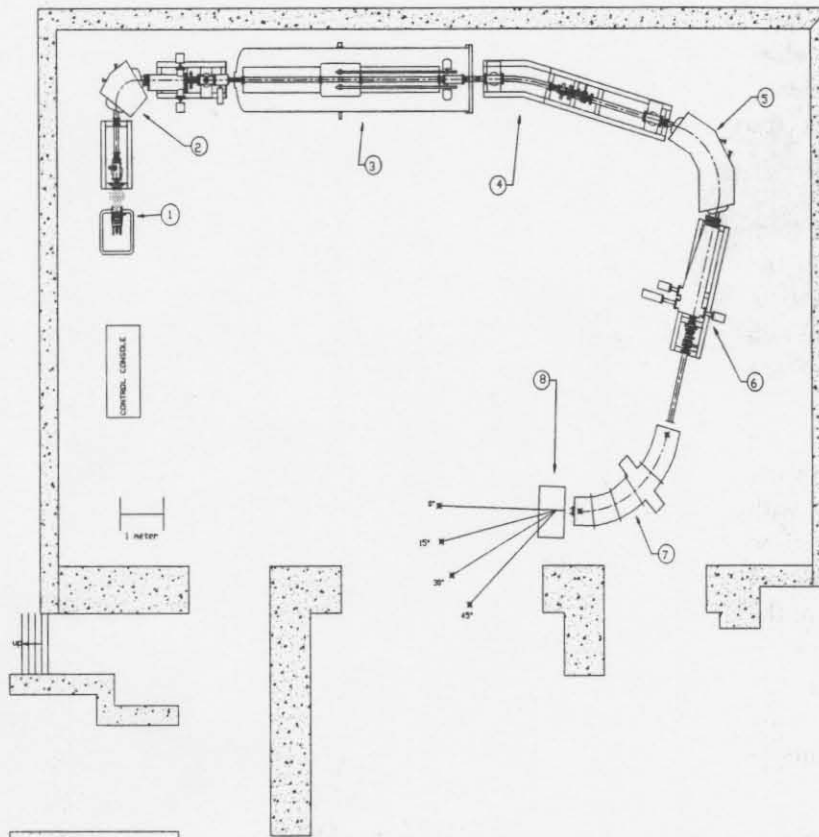
A successful AMS lab combines an active in-house research program with service to its scientific users. A vital component of the work at the NSF-Arizona AMS laboratory is the in-house research under

the direction of various researchers. Some major program topics are:

- Radiocarbon Calibration using comparison of ¹⁴C and U-Th in corals.
- A possible radiocarbon calibration (to 40,000 yrs) using ¹⁴C and U-Th from speleothems.
- Modern Carbon Cycle Studies and studies of El Niño-Southern Oscillation in the Pacific.
- ¹⁴C Dating of groundwater and seawater
- Paleoseismicity studies using AMS radiocarbon dating.
- In-situ ¹⁴C and ¹⁰Be applications to geomorphology, glaciology and other geological applications.
- Dating of fall times of meteorites and cosmic-ray-produced ¹⁴C and ¹⁰Be in meteorites.
- Studies of cosmic-ray effects in lunar samples.
- Studies of organic material in Martian meteorites.
- Studies of Climatic Change in Chinese loess deposits, lake sediments and other reservoirs.
- Measurements with ¹⁰Be in sediments over the last 50Ka and implications for variations in the cosmic-ray



Layout of the new 3MV Arizona AMS system, based on a 9SDH Pelletron accelerator



NOTES:

1. Multiple target ion source
2. Laminated core injection magnet
3. 3 MV accelerator
4. 15 degree electrostatic deflector
5. 90 degree analyzing magnet
6. Faraday cup chamber
7. 77° electrostatic spherical analyzer
8. Switching magnet

flux.

- Correlations of paleoclimate with anthropology
- Tracing ^{14}C in seawater for pollution studies.
- Using ^{129}I as a tracer in the environment.
- Chemistry for dating of art works and artifacts.

Would you like more information?

For information regarding sample submission, scientific questions about measurements and costs of services, contact: Tim Jull, at the address below or by e-mail: jull@u.arizona.edu. For general questions about sample submission, billing and other administrative questions, contact Mitzi de Martino: mitzi@physics.arizona.edu.

NSF-Arizona AMS Facility, University of Arizona PAS Building 81, 1118 East Fourth Street, Tucson, AZ 85721, (520) 621-6810 voice, (520) 621-9619 fax AMS@physics.arizona.edu, www.physics.arizona.edu/ams

IN-CASE-YOU-MISSED-IT DEPARTMENT

A VISION...

Robert S. Anderson (UC-Santa Cruz) and Emi Ito (U of Minnesota) produced a white paper entitled *A Vision for Geomorphology and Quaternary Science Beyond 2000*

Humans have achieved the ability to alter the planet in significant ways and have built in the path of some of nature's most destructive processes. In most places on Earth, the regolith on which terrestrial biota depends is only a few centimeters to meters thick. This thin layer of dirt can evolve chemically, and it is mobile. These facts have squarely embedded geomorphology, the study of Earth's surface and the processes that shape it, and the Quaternary sciences, the study of the history of Earth's surface through the last two million years, within research on global change. These sciences can, and must, act as the link between the solid Earth, the biological system, and the climate system.

We propose two new initiatives for surficial processes research at the National Science Foundation (NSF). These will constitute bold new steps that recognize the role these sciences should play in both near-term and longer-term understanding of the Earth system. The initiatives represent an unprecedented level of interaction and commitment to integrated research within the surficial-processes community.

PREDICTIVE EARTH SURFACE DYNAMICS

We propose a community-level effort to develop and test landscape models for predicting mass fluxes and landform change at time scales ranging from individual storm events to millions of years. These general models would serve both as a fundamental framework for exploration of landscape evolution and as a practical tool for addressing pressing environmental problems. This proposal has two complementary initiatives: Whole Basin Dynamics and Sustainable Landscapes. A crucial element in common between the quantitative geomorphology and the quaternary geology communities. In addition, we suggest four distinct infrastructure facilities common to and necessary for both initiatives.

Whole Basin Dynamics: A Community Initiative in Surficial Processes

Landscapes are inherently dynamic. This dynamism reflects the combination of tectonic processes that move rock with respect to base level, and a suite of physical and chemical surficial processes that alter the state of the rock and move it about on hillslopes and in rivers, glaciers and coastlines. Over long time scales, the net effect of such processes is to sculpt the landscape. While the study of surface processes is a mature field, much of the work has focused on individual elements of the landscape, with little attempt to integrate among the elements. In addition, we are only beginning to explore how geomorphic processes are affected by biota. We envision a community initiative to close some of the gaps in our current understanding and to focus on more integrated studies. The task will include both field studies and modeling. The key elements are:

- **Measurement of critical mass fluxes** throughout a small set of carefully chosen transport systems (basins) over time spans long enough to include numerous transport events and hence long enough to characterize the response to the full probability distribution of events;

- **Quantitative approach** to measuring transport processes, and casting of all processes in a quantitative formalism that connects explicitly to the meteorological forcing;

- **Integrated view of the geomorphic system** that includes all key processes and hence involves tectonics, physical geomorphology, low-temperature geochemistry, groundwater hydrology, and ecosystem biology;

- **Cooperative effort** to integrate direct flux measurements with time-averaged measures of erosion and deposition in the system, as deduced from stratigraphic and geochronological studies;

and

- Use of the field and experimental data to constrain development of **community landscape evolution models** that could be used as general predictive tools.

Some general characteristics that field sites should have are:

- **Manageable scale.** An extremely small system would not include a sufficiently wide spectrum of processes to promote or to encourage generalization, while a continental scale system is likely to be too diverse and unwieldy.

- **Active tectonics.** Some field sites should be in areas with active tectonic uplift and subsidence. Such sites would allow exploration of the time scales over which mountain erosion achieves rough balance with uplift, if ever. The linkages must be forged between mountain erosion and the transportation of the eroded debris across the foreland.

- **Closure with respect to fluvial sediment.** Careful construction of sediment budgets constitutes one of the strongest means of organizing information about the erosional and depositional system. While perfect closure with respect to sediment in natural basins is seldom achieved, proper choice of the study site with closure in mind is preferred.

- **Variation in fluvial transport mechanism.** Fluvial transport is the dominant mechanism of mass transfer between the erosional and depositional parts of the geomorphic system. While we will therefore emphasize fluvial systems, the fact that the fluvial system forms the bottom boundary conditions for hillslopes explicitly links these systems.

• **Land cover.** The type and amount of vegetation influences not only the geomorphic processes operating in a basin, but their rates. It is critical not only to be aware of the role of vegetation in the observed process rates, but also of the vegetation history of a study site. Vegetation dynamics may well play a key role in setting the lags between climatic events and the sedimentary response of the system. We seek interactions with the biological community in developing both better empirical data sets and a theoretical understanding of these dynamics.

Community landscape evolution models should have the following characteristics:

• While they may vary with respect to time and spatial scales addressed, they should all have common conceptual elements. Effort should be made to unify varying approaches, and to encourage modular structure so that improved representations of particular processes could be incorporated.

• Ambitious integrated models that seek to include biological, chemical, and physical processes.

• A commitment on the part of the surface-processes community to work on standardized interfaces and programming protocols for computer modeling.

• Both field and experimental studies are required to constrain the proper physics and chemistry, and to determine empirical constants relevant to the system.

Sustainable Landscapes: Landscapes at the Human Time Scale

This initiative is motivated by the need to develop the science to restore and protect landscape functions in order to sustain natural resource use and ecosystem functionality. We lack, however, both the theoretical framework and the field data to predict landscape change on human time scales. With this initiative we attempt to encourage a community-wide focus on building theoretical tools, obtaining fundamental field data, and communicating advances, in both our conceptual understanding of the system and in the technologies to monitor it, to practitioners. A strong educational component to the initiative recognizes that land use and ecosystem function issues have wide appeal to students; we will strive to provide them opportunities to participate in both the development of theory and its application to human-scale issues. The Sustainable Landscapes program has three components.

• **Reference landscape.** We need full, high-resolution characterization of the topographic and subsurface

bedrock fields that serve as the stage for the near-term geographic play.

• **Landscape forecasting.** Event-based predictions of runoff and erosion that can lead to the prediction of the sites of initiation and the paths of landslides, and the extent of inundation by water and debris in floods.

• **Landscape prediction.** Decadal-to century-scale prediction of the landscape processes and functions under various land-use and global climate change scenarios.

We propose a "2050 project" to predict major landscape changes that would occur in the face of the expected changes in the greenhouse gas content of the atmosphere. This exercise requires collaboration with the general circulation model and hydrological communities, policy experts and planners, and ecosystem biologist. An added collaborative opportunity with industries such as hydroelectric power and insurance companies should be explored.

INFRASTRUCTURE SUPPORT

Chronologies, Database, and Sample Curation

Chronology is fundamental to understanding both the rates of change and the correlation of events separated geographically.

The standard chronological tool, accelerator mass spectrometry (AMS) ^{14}C ages vary by 3,000 years or more from calendar dates. While correlation with dendrochronology and U-series chronology has made the calibration to calendar ages fairly reliable back to the Last Glacial Maximum (18 ka), this effort must be continued. We are not, at present, capable of testing synchronicity of events in terrestrial records beyond the Last Glacial Maximum. This requires that sites with dateable records be identified at geographically widespread locations. Demand for AMS dates far exceeds the capacity.

Many landscape events cannot be dated by ^{14}C . Cosmogenic isotopes, such as ^{10}Be , ^{26}Al , ^{36}Cl , and ^3He have revolutionized our understanding of geomorphic processes and climatic timing in both high altitude and arid landscapes. U-series dating has re-energized the study of past sea-level changes, and has provided chronological control to the study of uplift of tectonically active coastal areas. Methods such as thermal luminescence and optically stimulated luminescence are now providing ages of flood and loess deposits. Fission-track counting has proven useful in studies of long-term exhumation. However, the laboratories engaged in these dating schemes are limited, and the wait for dates can be long.

The need for global databases is becoming critical in many disciplines. Databases serve a variety of functions. Beyond making data available, they provide a protocol for data collection such as the inclusion of the original lab analysis to enable, for example, chronological correlation of records dated by ^{14}C at different times. Selected samples and relevant data should be archived in a publicly accessible facility. For certain types of samples, such as sediment cores and speleothems, curation facilities similar to those for Ocean Drilling program cores can serve this function. The first such facility is taking shape at the University of Minnesota.

High-Resolution Digital Topographic Mapping Resources

Topography is the fundamental data set that serves as the rest of a theory of landscape evolution and as the template on which all surface processes occur. Within the past decade, laser altimetry has come into its own as a tool for generating high-resolution digital elevation models at 2 m resolution. It is at this scale that many geomorphic processes act, as they can be strongly controlled by local gradients and local curvature of the landscape. A recent example of the utility of laser altimetry is in the mapping of shoreline change in central California during the 1997-1998 El Niño.

We propose that the NSF support a facility for the collection of 2-m-resolution digital elevation models. At present, remote sensing is expensive in terms of hardware, software, and training. Few facilities exist with the luxury of full-time, long-lived support of personnel to aid in the training of new users and to ensure continuity of the program.

Shared or Centrally Managed Field Equipment

Maintaining large stores of equipment is expensive. Such equipment includes deep-drilling equipment, and various surveying and monitoring equipment. A centralized facility, if properly managed, would assist the scientists, and be cost effective for the NSF. This arrangement is similar to the Incorporated Research Institutions for Seismology, or IRIS, program in seismology, University NAVSTAR consortium, or UNAVCO, in Global Positioning System studies, PICO (now VECO) for polar and arctic support, or Drilling, Observation, and Sampling of Earth's Continental crust (DOSECC), Inc., in deep continental drilling.

National Laboratories for Experimental Surface Process Dynamics

At present, only a few major experimental facilities for the study of earth surface processes exist. These labs are expensive to maintain. It is important that these facilities are maintained and accessible to the entire community on a competitive basis. We propose a small funding program that would facilitate the kind of open door policy that St. Anthony Falls Hydraulic Laboratory has implemented. We expect many spin-off experimental studies from the proposed initiatives.

EDUCATION AND OUTREACH

Geomorphology and Quaternary sciences are among the most accessible of the geosciences. The recent spate of catastrophic events and unusual weather patterns has brought the topic of global change to the forefront of the public's consciousness. We must educate the public about the likely response to global changes, with the twin perspectives of the response to past climates, and of process-based theoretical research.

We see several levels and numerous formats for bringing geomorphology and the Quaternary sciences to the public. Effective visualizations can bring the geomorphology and the Quaternary sciences to the public. Effective visualizations can bring the geomorphic processes to colleges. Working with K-12 educators, these visualization efforts can be repackaged for elementary and secondary school students. Geomorphic processes can also be brought to the general public via numerous science and natural history museums.

The initiatives we propose have major implications for civil and environmental engineering. What we learn from these initiatives will be shared in a series of workshops and short courses offered at professional meetings.

ACKNOWLEDGMENTS

The workshop, funded by the National Science Foundation's Division of Earth Sciences (NSF-EAR) Geology and Paleontology Program, was held at the University of Minnesota in February 1999. The author organized the workshop, whose participants were Allan Ashworth, Thure Cerling, Peter Clark, Bill Dietrich, Russ Graham, Eric Grimm, Vance Holliday, Jim Knox, Jack Oviatt, Chris Paola, and Liz Safran. (Reprinted with permission by the Geological Society of America. Anderson, R. S. and Ito, E., 2000, GSA TODAY, v. 10, n. 8, p. 14-17).

1999 GEOSCIENCE HIGHLIGHT FROM GEOTIMES

GEOMORPHOLOGY

David Butler

During the past year, geomorphologists continued to demonstrate a wide-ranging interest in both application and theory. Fluvial geomorphologists research topics ranging from laminar flow on hillslopes to the role of woody debris in stream channels. Anne Chin provided a unique perspective on the origin of step pools in mountain streams (*Geophysical Research Letters*, v. 26(2), p. 232-238). Landslides and their impact on human communities are a continuing topic of important applied geomorphological research. Gregory Pope and Ruth Rubenstein described human impacts on weathering rates or "anthroweathering" (*Geoarchaeology: An International Journal*, v. 14(3), p. 247-264). Anthroweathering examines human impacts on pedogenic rock and mineral weathering. In their study of a Hohokam pit house in central Arizona, Pope and Rubenstein found that greater weathering of soil samples and their constituent mineral grains occurred under areas of significant human impact, suggesting increased chemical activity at such sites. Anthroweathering therefore has potential application for identifying and analyzing cultural remains and for assessing environmental degradation.

Geomorphologists are also studying how animals act as geomorphic agents. John Pickard studied the geomorphic effects of feral rabbits (*Zeitschrift fur Geomorphologie*, v. 43(2), p. 155-166), while Ross Meentemeyer and David Butler studied how beaver ponds reduce stream velocity and discharge and induce sediment accumulation (*Physical Geography*, v. 20(5), p. 436-446). The publication last year of Jonathan Phillips' *Earth Surface Systems* stimulated continuing interest in the application of nonlinear dynamical systems to the study of surficial processes. Phillips argues that the simultaneous presence of order and chaos reflects common, fundamental properties of both earth surface processes and systems.

The Geomorphology Specialty Group of the Association of American Geographers (AAG) presented the 1999 G.K. Gilbert Award for Excellence in Geomorphological Research to T.R. Paton, G.S. Humphreys and P.F. Mitchell for their book, *Soils: A New Global View*. Dick Reeves of the University of Arizona received the group's Mel Marcus Distinguished Career Award. The Quaternary Geology and Geomorphology Division of the Geological Society of

America gave Will Graf of Arizona State University the Kirk Bryan Award for his book *Plutonium and the Rio Grande: Environmental Change and Contamination in the Nuclear Age*. Troy Pewe, the distinguished periglacial geomorphologist, received the division's Distinguished Career Award. The Canadian Geomorphology Research Group presents the J. Ross Mackay Award every year to recognize a significant achievement by a young geomorphologist within Canada. The 1999 Mackay Award was presented to Cheryl McKenna Neuman for her paper, "Particle Transport and Adjustments of the Boundary Layer Rough Surfaces with an Unrestricted, Upwind Supply of Sediment" (*Geomorphology*, v. 25, p. 1-17).

The thirtieth Binghamton Geomorphology Symposium was held in November 1999 and focused on the topic, Geomorphology in the Public Eye: Education, Policy Issues, and the Public. Peter Kneupfer of SUNY-Binghamton and James Petersen of Southwest Texas State University organized the symposium. Its proceedings will be published in a special issue of *Geomorphology*.

(Reprinted with permission by the American Geological Institute. Butler, R., 2000, *Geomorphology: Geotimes*, v. 45, n. 7, p.26)

JONATHAN O. DAVIS SCHOLARSHIP

The 2000 Jonathan O. Davis Award has been awarded to Ms. Joanna Redwine (Department of Geology at Humbolt State University). Her research proposal was entitled *Investigations of Quaternary pluvial history, paleoclimatic implications, and neotectonics of Neward Valley, east-central Nevada*. In addition, a stipend was awarded to James C. Sutherland (Hydrologic Sciences Program, University of Nevada-Reno) for his proposal entitled *Eighteenth-Century logging and the geomorphic stability of a selected watershed in the Carson Range, western Nevada: Implications for impact of land-use changes on Lake Tahoe*. If you have any questions or would like further information, please contact Mary Ann Moran at 775-673-7458 (mmoran@dri.edu).

INQUA 2003 FIELD TRIPS

Glaciation of the Western U.S.-a 2-week trip through the western U.S., including the Cordilleran Ice Sheet, Missoula floods, Yellowstone, Grand Tetons, Pinedale, Lake Bonneville, and Sierra Nevada.

Alaska-basal freeze-on phenomena of the Matanuska Glacier, glaciation between Anchorage and Fairbanks

Yellowstone/Tetons-Glaciation of the Yellowstone Plateau and Grand Teton Range

Cordilleran Ice Sheet and Cascade Alpine Glaciation-Late Pleistocene Readvance of the Cordilleran Ice Sheet, alpine glaciation of the North Cascade Range

Missoula Floods and Loess Chronology of the Columbia Plateau-Missoula Flood features; loess stratigraphy and chronology

Rocky Mt. Soils-soils of the Colorado Front Range

Great Basin Pluvial Lakes-Pleistocene expansion and contraction of pluvial lakes of the Great Basin

Marine Terraces-marine terraces of San Clements Island, California

Great Lakes Glaciation-Pleistocene glaciation of the Great Lakes region

Lower Mississippi Loess-Pleistocene loess sequences of the Mississippi Valley

Archeology of Plains Indians-record of habitation of plains Indians

The committee is looking for proposals for additional field trips, especially in the eastern, central, and southeastern U.S. Proposals for field excursions should be sent to Don J. Easterbrook (dbunny@cc.wvu.edu) or any of the field trip committee members.

ASSOCIATION OF AMERICAN GEOGRAPHERS

GEOMORPHOLOGY SPECIALTY GROUP (GSG) HOME PAGE

This is a Web site that may be of interest to members of our division. It contains numerous links to geomorphology and Quaternary science sites and to journals, as well as announcements of up-coming conferences and past and present newsletters. The URL is:

<http://www.cla.sc.edu/geog/gsgdocs/index.html>.

Contact Allan James (University of South Carolina) if you have any questions or comments (ajames@sc.edu).

AAG ANNALS

The Annals of the Association of American Geographers is the flagship journal of the North American geographic community. Starting in 2001, the journal will be divided into four sections, each under a separate editor. The Environmental Sciences section is

edited by Basil Gomez (annala@indstate.edu), who welcomes papers from QG&G members and is also happy to receive direct inquiries from prospective authors. Manuscripts should describe original and significant research results, the only provisos being that the research should have a conspicuous spatial dimension and be attuned to the sensibilities of a diverse scholarly audience. The Annals publishes research papers, review articles, and notes, the length of the published paper being determined by its content. The new journal will have an 8.5 x 11-inch format, and the Instructions for Authors may be accessed at <http://www.aag.org>.

UPCOMING MEETINGS

2000

Geomorphology Symposium

October 13-15, Bingham, New York

This symposium focuses on the multi-disciplinary nature of coupling computer-based modeling with field observations to identify and understand the dynamic constraint envelopes that control geomorphic systems.

Diamicton Micromorphological Analysis

(workshop/short course by Dr. John Menzies)

November 4-5, SUNY-Oneonta

Participants will work on the recognition and interpretation of diamicton structures, taxonomic classification, glacier-bed interface processes, evidence of porewater movement, geochemical diffusion, and particle translocation, with applications to stratigraphic interpretation.

American Anthropological Association

November 15-19, San Francisco, California

The Alluvial Archaeology of North-West Europe and the Mediterranean

December 18-19, University of Leeds, UK

Research themes will include multidisciplinary high-resolution landscape studies, impact of natural and anthropogenic environmental change, paleobiological research, modeling of environmental change, paleobiological research, modeling of catchment and valley floor evolution, geochronology and dating control, geoprospection, provenancing of alluvial sediments, management of alluvial archaeological resources, and experimental archaeology in alluvial settings.

Go to Web site:

<http://www.geog.leeds.ac.uk/conferences/alluvial>.

Contact Dr. Andy J. Howard, School of Geography,
University of Leeds, Leeds, LS@ 9JT
(a.howard@geog.leeds.ac.uk).

2001

RGS/IBG Conference

January 2-5, University of Plymouth, UK

Quaternary Research Association

January 3-5, National Museum, Wales

Australian Quaternary Association-Biennial Conference

February 5-9, Port Fairy, Victoria

EGS XXVI General Assembly 2001

March 26-30

European Union of Geosciences Biennial Conference

April 8-12, Strasbourg

Society of American Archaeologists

April 18-22, New Orleans, LA

Symposium on Land Degradation and Desertification

May 6-13, Mexico

Topics will include: Land degradation in historical times, the Teotihuacan valley, regional development and degradation, water supply to Mexico City, environmental implications in Toluca Valley, degradation and recent volcanism and Paricutin Volcano.

GAC-MAC/CANQUA Symposium

May 27-30, St. John's, Newfoundland

Quaternarists from around the northern North Atlantic Ocean, working in terrestrial, coastal, or marine environments and successions, are cordially invited to participate in this symposium.

Canadian Association of Geographers

May 29-June 2, Montréal, Québec

Symposium on Climate Change and Variability in Northern Europe-Proxy Data, Instrumental Records, Climate Models and Interactions

June 6-8, Turku, Finland

The aim of the interdisciplinary symposium is to bring together scientists studying dynamics in a broad sense and to foster communication between scientists and interest groups applying scientific knowledge on mitigation and adaptation for climate change.

Millennial-Scale Events in the North Atlantic Region during Termination I

June 13-18, University of Ulster, North Ireland

The conference will focus on evaluating the timing, signatures and correlation of high-frequency hemispheric-scale climate and environmental changes during Termination 1.

7th International Conference on Fluvial Sedimentology

August 6-10, University of Nebraska-Lincoln

The conference, held every four years since 1977, seeks to stimulate the exchange of ideas between scientists with common interests in rivers and their deposits, both modern and in the geological record. The scope of the meeting will encompass geomorphology of modern rivers, sediment transport and deposition. Quaternary fluvial history, fluvial facies models, alluvial basin analysis and sequence stratigraphy, economic aspects of fluvial deposits, and river management. See <http://www.unl.edu/geology/ICFS.html>.

Contact Dr. Mike Blum, Department of Geosciences, 214 Bessey Hall, University of Nebraska-Lincoln, Lincoln, NE 68588-0340, 402.472.7872 (voice), -.4917 (fax). Mblum@unl.edu.

17th World Congress of Soil Science

August 14-21, Bangkok, Thailand

The main focal points of this symposium are to increase understanding of the genesis of arid and semi-arid soils (especially the formation of calcic, gypsic, and salic horizons); their use in paleoclimatic reconstructions and archaeological interpretations; find solutions to management problems; and to better understand their role in the carbon cycle.

5th International Geomorphology Conference

August 23-28, Tokyo, Japan

Previously announced in the 2nd Circular under the title "Geomorphic Responses to Global Change", the title has been altered to embrace regional and local impacts of rapid changes in climate and other controlling factors in the environment, taking places on different time scales from Quaternary to modern.

Functions of Soils in the Geosphere-Biosphere System

August 26-29, Russian Academy of Sciences, Moscow State University, Moscow

The main topics will include soil functioning in ecosystems, soil-atmosphere relationships, and soil influence on the hydrological and hydrochemical cycles, soil functions in the lithosphere, soil as a record of geosphere-biosphere interactions, and soil as a natural

resource for human society. Contact Alexander Makeev
(makeev@fadr.msu.ru).

6th International Paleopedology Workshop

August 23-28, Moscow State University, Moscow

PAGES - PEP III Conference

September 18-22, Aix-en-Provence, France

**International Conference on Carpathian-Balkan
Geomorphology**

September 24-27, Krakow

Quaternary relief evolution of the Carpathian-Balkan system, Climatic and tectonic control on landscape evolution and Human impact on geomorphic processes.

**International Symposium and Field Workshop on
Paleopedology**

October 7-16, Mexico City, Mexico

Themes of the meeting are expected to include paleosol-sedimentary sequences, magnetic properties of Quaternary and pre-Quaternary paleosols and sediments as paleoclimate indicators, polygenetic models of pedogenesis in relation to Quaternary climatic change, biomorphs in paleosols, and paleopedology and archaeology. Three field trips are planned (pre-, mid-, and post-conference).

Contact Dr. Elizabeth Sollerio-Rebolledo (solleiro@geologia.unam.mx) or Dr. Klavdia Oleschko (oleschko@seridor.unam.mx). +52.56.22.43.17 (fax).

Geological Society of America

November 5-8, Boston, Massachusetts

**INTERNATIONAL ASSOCIATION OF
GEOMORPHOLOGISTS**

**IAG grants to attend the Fifth International
Conference on Geomorphology**

As announced in Newsletter 16 (3/1999), IAG will provide a number of partial grants for young geomorphologists who are planning to present a paper at the Congress in Tokyo in 2001. Application guidelines and application forms are the same as those provided by the Conference Organizers in Japan to help individual scientists from developing countries. The complete application form (Form C in the 2nd Circular) plus the abstract of paper and a letter of reference must be submitted to the Conference Organizers by November 15, 2000. Please note that this is two weeks later than that advertised in the 2nd Circular, and is an absolute deadline.

**Fifth International Conference on Geomorphology,
Tokyo, 23-28, August 2001.**

5th ICG homepage:

http://www.nacsis.ac.jp/jgu/icg_hopa/indexicg.html

Correspondence address: Fifth International Conference on Geomorphology, c/o Convention Linkage, Inc. Akasaka-Nihon Bldg. 9-5-24, Akasaka, Minato-ku, Tokyo 107-0052, Japan. Phone: +81-3-5770-5791, Fax: +81-3-5770-5532, 5icg@c-linkage.co.jp

Important Dates

November 30, 2000: Final date for registration for overseas field excursions.

December 20-31, 2000: Final date for submission of abstracts by air mail/ by e-mail. Note: abstracts must be sent together with a complete registration form!

December 31, 2000: Final date for early registration fees and deposit for field excursions (full cost for overseas field excursions).

March 2001: The Third Circular will be distributed to all that have registered.

March 31, 2001: Final date for receipt of balance of field excursion costs.

June 30, 2001: Final date for advance registration.

July 18, 2001: Final date for hotel reservation.

Structure of the Conference

Registration of participants and Welcome Party on August 23, 2001. Opening ceremony in the morning of August 24. Symposia, Plenary Lectures, oral and poster sessions on August 24, 25, 26 and 28. August 27 is reserved for during-conference field trips. Additional events and business meetings: Reception on August 24. Meeting of Young Geomorphologist on August 26. IAG General Assemblies on August 24 and 28. Meetings of the National and Regional Delegates on August 25 and 26. Meetings of the IAG Executive Members on August 23 and 28.

Session Topics

(1) Hillslope processes and hydrogeomorphology, (2) Fluvial geomorphology and environments, (3) Coastal geomorphology and environments, (4) Glacial and periglacial geomorphology, (5) Weathering and structural and rock control in geomorphology, (6) Volcanic geomorphology and hazards, (7) Tectonic geomorphology and earthquake hazards, (8) Pedogeomorphology and environments, (9) Quaternary environments, geochronometry and historical geomorphology, (10) Anthropogenic and engineering

geomorphology, (11) Monograph and mapping in geomorphology, (12) Landscape simulation, (13) Macrogeomorphology, (14) Theories, methods and techniques in geomorphology, (15) Karst geomorphology, (16) Others.

Symposia

S1: Rock control in geomorphological processes (T. Suzuki, K. Matsukura, Y. Tanaka), S2: Rapid mass movements and related fluvial processes (H. Suwa, K. Okunishi), S3: Debris flows (P. Wassmer), S4: Slope-channel interactions (G. Brierley), S5: Sediment transport through drainage system (T. Marutani, N. Trustrum, F. Nakamura), S6: Large rivers (A. Gupta, E. Latrubesse), S7: Fluvial geomorphological processes through time (J. Vandenberghe), S8: Geomorphological significance of active faults and seismo-tectonics (A. Okada), S9: Quaternary tectonics in large plains (B. Parkash), S10: Surface and buried geomorphology of deep sea channel, canyon and deep sea fan; active margin vs passive margin (H. Tokuyama, S. Tani), S11: Geomorphic responses to global change (T. Oguchi, H. Piegay, A. Jones), S12: Lake and its drainage basin: geomorphic evolution by inland water (K. Chikita), S13: Climate and tectono-geomorphic changes and lake sediment information (K. Kashiwaya), S14: Loess in the Quaternary (I. Smalley), S15: High resolutional paleoclimatological implications of loess and aeolian dust record in the Quaternary (T. Naruse), S16: High-resolution paleoenvironmental reconstructions and their interactions to archaeological events during the Holocene (K. Kashima), S17: Laboratory approaches to geomorphological problems (H. Ikeda), S18: Geomorphological consequences of large-scale anthropogenic transformation of Earth's surface (T. Okimura, T. Tamura), S19: New concepts and modeling in geomorphology (I. S. Evans, R. Dikau, E. Tokunaga, H. Ohmori, M. Hirano), S20: Geomorphometry, DEMs and GIS (R. J. Pike, M. Nogami, K. Saito, H. Masaharu), S21: Interface between geomorphology and ecology (F. Nakamura, J. M. Dorave, T. Kikuchi), S22: Geomorphic processes and riverine habitats (J. M. Dorave), S23: Interaction between geomorphic changes and hydrological circulation (R. Sidle, Y. Onda), S24: Glaciation and periglaciation of Asian high mountains (N. Matsuoka, T. Shiraiwa), S25: Karst in a changing world: the response of Karst systems to tectonic events, changing climates, sea-levels, and human impact (P. Williams), S26: Topographic hollow features (esp. as carbon sinks) (L. Coltrinari), S27: Geomorphology of desert environments and desertification (X. Yang), S28:

The role of geomorphology in combating land degradation (A. Conacher).

Grants

The Organizing Committee is trying to help individual scientists from developing countries to attend the conference by partially subsidizing their expenses. The Second Circular provides an application form, which must be received by October 31, 2000.

Pre-Conference Excursions

- Okinawa and Kikai Island: Quaternary tectonics, karst. Aug. 17- 22 (100,000 Yen)
- Southwestern Japan transect: Anthropogenic landforms. Aug. 18-22 (69,000 Yen)
- Kobe: Man made landforms, earthquakes. Aug. 20-22 (35,000 Yen)
- Boso Peninsula, Honshu: Coastal landforms. Aug. 20-23 (60,000 Yen)
- Hidaka Range, Hokkaido: Late Quaternary glaciation, Aug. 20-23 (50,000 Yen)
- Soya Hills, N - Hokkaido: Field experiments in hydro-geomorphology. Aug. 20-22 (35,000 Yen)

Post-Conference Excursions (all excursions start on August 29)

- Kyushu: Volcanic landforms. End: Sept.2 (90,000 Yen)
- Median tectonic line, Shikoku, S-Honshu: Active tectonic phenomena. End: Sept 1 (55,000 Yen)
- Japanese Alps, Honshu: Alpine geomorphology. End: Sept. 1 (55,000 Yen)
- Japanese Alps, Honshu: Landslides and debris flows. End: Sept. 2 (80,000 Yen)
- Mt. Fuji, Akaishi Mt., Honshu: Large landslides. End: Aug. 31 (50,000 Yen)
- Izu Peninsula, Honshu: Active faults, volcanism. End: Aug. 31 (60,000 Yen)
- Mt. Fuji, Japanese Alps, and Honshu: Periglacial processes. End: Sept. 3 (90,000 Yen)
- Japanese Alps, Honshu: Quaternary glaciation. End: Sept. 3 (90,000 Yen)
- Kanto and Chubu districts, Honshu: Fluvial and tectonic landforms. End: Sept. 3 (80,000 Yen)
- Pacific coast - Japan Sea, N-Honshu: General geomorphology. End: Sept. 2 (78,000 Yen)
- Hokkaido: Quaternary geomorphology. End: Sept. 3 (90,000Yen)

Overseas field excursions (note: final date for registration is November 30, 2000)

- Tibet, Xining - Lhasa, landforms of a cold-dry environment, Aug. 31-Sept.9 (2,000 US\$)
- Arid landforms along the Silk Road from Xi'an to Urumqi, Aug. 30-Sept.10 (1,800 US\$)
- Three Gorges of the Yangtze River, Aug. 30-Sept. 6 (1,040 US\$)
- Kunming - Yulong Snow Mt. and Dali County of Yunnan, Aug.31-Sept. 6 (1,050 US\$)
- Dynamic landscape of Taiwan, Aug.18-22 (500 US\$)
- South Korea - coastal and river terraces, karst, pediments, Aug. 31-Sept. 4 (590 US\$)

One-Day Field Excursions during the Conference

On August 27, 2001, there is a choice of 16 excursions (cost: 3,000 Yen each): (1) Nikko (erosion control on stratovolcano, falls, lake, famous traditional shrine), (2) Mito (coastal landform, coastal dune, marine terrace), (3) Tsukuba academic city (national research facilities related to geomorphology), (4) Tone river (man-made change of channel, channel morphology, riverside district), (5) Boso peninsula (rock control on hills and valleys, coastal landform, marine terraces), (6) Miura peninsula (coastal landform, raised benches, active faults), (7) Kamakura and Enoshima (land-tied island, raised benches, old shrines and temples), (8) Izu peninsula (coastal landform, volcanoes, active faults), (9) Hakone volcano (caldera, fumarole, active faults, lake, hot springs), (10) Tama hills (man-made land transformation, river terraces, ground water and springs), (11) Sagami river (river terraces, tephrochronology), (12) Fuji volcano (stratovolcano, lava flow, lakes, timber line), (13) Kofu basin and Yatsugatake (alluvial fans, river terraces, gorge, volcanic mudflows), (14) Chichibu basin (river terraces, past extraordinary flood), (15) Asama (stratovolcano, lava flow, pyroclastic flows, plant succession), (16) Ashio (devastated terrain due to copper refining, talus, gorge).

Visit the IAG Web site at:

<http://www.homepage.montana.edu/~ueswl/geomorphlist/index.htm>

FRIENDS OF THE PLEISTOCENE

Pacific Cell

February 17-19, 2001

Death Valley, California

The Pacific Cell FOP trip for 2001 will be in Death Valley. Primary leaders include Ralph Klinger

(University of Colorado-Boulder), Jeff Knott (University of California), Michael Machette (USGS-Denver) and Andrei Sarna-Wojcicki (USGS-Menlo Park).

The preliminary itinerary includes a day looking at tectonics and Plio-Pleistocene stratigraphy along the Furnace Creek fault zone in Northern Death Valley (Klinger), a day on the late Cenozoic deposits of the Furnace Creek area (Machette), and a day on late Pliocene and Pleistocene stratigraphy, slip rate of the Death Valley fault zone, and evidence for pluvial lakes (Knott).

The trip will probably be limited to 150 participants owing to our field trip permit with the National Park Service. However, we will have use of the Texas Springs Campground (group sites and individual). Anticipated prices are \$30-40. We will use the last Pacific Cell FOP e-mail list for our first notification this fall. If you want to be added to the list, contact Michael Machette, U.S. Geological Survey, MS 966, PO Box 25046, Denver, CO 80225; 303-273-8612; Fax: -8600; machette@usgs.gov

Southeast Cell

October 27-29, 2000

The Southeast Cell FOP fieldtrip for 2000 will be in the southern Shenandoah Valley. The Primary Leader will be David Harbor (Washington and Lee University).

The landscape in the southern tip of the Great Valley is more rugged and steep than in adjacent drainage basins. Just upstream of the James River gap in the Blue Ridge, the Maury and James Rivers flow in incised valleys cut into a gentler valley upland. While the causes are speculative at best, the rate of incision in the Late Quaternary is 2 to 4 times higher than other estimates of Appalachian incision rates, and may be as high as 150 m/Ma. Incision rates are based on cosmogenic exposure age of abandoned meanders; and the high rate of incision is supported by paleomagnetic records in caves and abandoned meanders. Rapid incision of the main stem rivers into a previously more stable landscape has produced dramatic knickpoints in tributary profiles, ingrown meanders, and varied weathering with height above the modern river. More rapid incision in the James River basin produces expansion of the basin area captured at the margins. A Quaternary capture event diverted the southernmost Blue Ridge headwaters of the Shenandoah River into the James and lowered base level by 80 m. Basin expansion is also occurring at the expense of Gulf streams.

See <http://www.wlu.edu/~harbord/FOP.html> or call (540) 463-8800 for more details.



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FROM THE EDITOR

Some requests to the membership:

- 1) **Send news and announcements** that you think would be of interest to the membership—e.g., Web sites, new publications, upcoming meetings and sessions, your recent grants and contracts, exciting research findings, and so on.
- 2) For the upcoming issues, send an electronic version of **your favorite field photograph** for the covers.
- 3) If you would like your **research facility** or one that you are championing to be featured in the Newsletter, please let me know. The slot is yet open for the next issue.

4) Pass along any **suggestions for the Newsletter content and design**—ideas are certainly needed.

5) Please let me know if you would like to receive the **Newsletter in electronic form** (e-mail), rather than in paper (land mail).

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