GEOMORPHORUM

Newsletter of the Geomorphology Specialty Group of the Association of American Geographers

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NOTES FROM THE CHAIR: *Geomorphology in Context* - From Carol Harden

It is useful to gain international perspective on what we do. The following comments rise from my experience at the Fourth International Conference on Geomorphology, convened in August 1997 in Bologna, Italy, by the International Association of Geomorphologists. I encourage you to attend an IAG function. International conferences occur every four years (next in Japan in 2001). From a global perspective, we North American geomorphologists show up as being mostly process-oriented, but not always successful in putting our work in broader contexts (hence, we frequently appear to be examining our navels).

As geomorphologists, many of us tell the stories of places, large and small and of single or multiple events in those places. Sometimes we connect the geomorphic story to geologic or anthropic history. Sometimes we relate the events of the geomorphic story to climatic events; sometimes the geomorphic story helps interpret the climate story. In order to do this, we continue to develop or borrow new tools of measurement, dating, analysis and presentation. Presentation is significant because it enhances our ability to communicate, not only with other geomorphologists, but with decision-makers, the general public and colleagues in other sciences. These linkages are increasingly essential if geomorphology is to flourish.

Site-specific research in geomorphology contributes a better understanding of landscapes, one which we hope will help shape better land-use decisions. Our work to document rates of geomorphic change in specific places contributes to the general understanding of the land surface system and helps delineate the "realm of the possible," especially with regard to catastrophic events. Site-specific geomorphology also equips the researcher with the ability to put on good field trips, thus furthering the educational experience of colleagues.

But beyond site-specific studies there remains a need to identify more general patterns, to organize our understanding and develop the capacity for prediction. Real additions to geomorphic thinking come from comparisons and analyses. When we are lucky, we find patterns with simple mathematical expressions - then we marvel at the elegance of nature. Because we work with complex systems, however, an elegant solution is rarely obtained, and, inevitably, solutions will be appropriate to only one situation or region or have many exceptions. This cloud has a silver lining. One thing we can contribute to other sciences is our considerable experience in working with messy data and uncertainty. From "equifinality" to types of instability, applications of chaos theory and the development of approaches for tackling issues of scale, we have the opportunity to be leaders in new frontiers of science.

It's time for new frontiers. We have explored most of this planet, except for the ocean basins. It is unlikely that new geomorphic processes remain to be discovered. If we have a blind spot, it is for the geomorphic effects of human activities .

Back to context. Whether our work is site-specific or generalized, its value is greater if we undertake it and present it in a broad context. To do so challenges us to reflect and consider the way in which our small "piece" fits into the grander "puzzle" of scientific knowledge, and it forces us to consider the basic questions of "so what?" and "who cares?" Those who should care are more likely to do so if we are explicit about the connection between our contributions and their interests.

-- Carol Harden, University of Tennessee

Past Officers of the Geomorphology Specialty Group:
Compiled by Allan James, based on past newsletters and an earlier report by Ron Dorn.

1978-79 Richard H. Kesel, Colin Thorn, and John D. Vitek were elected as representatives to help in the promotion and formation of a specialty group.
1979-80 Percy Daugherty, Colin Thorn, and John D. Vitek were elected as representatives to help in the promotion and formation of a specialty group.

Year Chair / Sec.-Treas.
1980-81 Jack Vitek / Will Graf
1981-82 Will Graf / Stan Trimble
1982-83 Stan Trimble / Terry Toy
1983-84 Terry Toy / Athol Abrahams
1984-85 Athol Abrahams / Rick Giardino
1985-86 Rick Giardino / Dick Marston
1986-87 Dick Marston / John Dixon
1987-88 John Dixon / Jim Gardner
1988-89 Jim Gardner / Dave Butler
1989-90 Dave Butler / Pat McDowell
1990-91 Pat McDowell / Ron Dorn
1991-92 Ron Dorn / Bill Johnson
1992-93 Bill Johnson / Andrew Marcus
1993-94 Andrew Marcus / Vatche Tchakerian
1994-95 Vatche Tchakerian / Allan James
1995-96 Allan James / Bruce Rhoads
1996-97 Bruce Rhoads / Carol Harden
1997-98 Carol Harden / Jeff Lee

News from Departments and/or Individuals

David Butler.
Professor of Geography at Southwest Texas State University, was an invited speaker at the U.S. Geological Survey-sponsored Human-Induced Environmental Change Workshop, held in mid-September at the Flathead Lake Biological Station in Polson, Montana. Prior to the workshop, he spent several days conducting fieldwork with George Malanson, Steve Walsh, Dave Cairns, and Dan Brown in Glacier National Park, Montana. At the workshop, Dave co-presented (with George and Steve) the paper "Issues of scale, pattern, and process in the analysis of Rocky Mountain Landscapes". In conjunction with Malanson, Walsh, and Cairns, he also led the fieldtrip "Geoecology of the Logan Pass area, Glacier National Park" on September 19th.

Dave recently co-guest edited a special issue of "Geomorphology" with Steve Walsh of North Carolina. The Special Issue, Vol. 21 (3-4), is devoted to the topic "applications of remote sensing and GIS in geomorphology". Dave also continues as Book Review Editor for the journal, and encourages volunteers to send him topical areas in which they'd like to review books for the journal.

Recent grants include an approved Quick Response Grant (1997-1998) from the Natural Hazards Research and Applications Information Center, in Boulder, Colorado, on the topic of public responses to geomorphic hazards in northwest Montana and how those responses compare to those generated by snow avalanche hazards; and a Southwest Texas State University Faculty Research Enhancement Grant (1998) for summer fieldwork on repeat photography of landscape changes from Fire Lookout towers. A recently unearthed cache of photographs from the mid-1930s will serve as the basis for the comparison, with some intermediate views taken by Dave in 1975 also available.

Recent publications include:

- Butler, David R., and Stephen J. Walsh, 1998. The application of remote sensing and geographic information systems in the study of geomorphology: an introduction. Geomorphology 21(3-4), 179-181.
- Walsh, Stephen J., David R. Butler, and George P. Malanson, 1998. An overview of scale, pattern, process relationships in geomorphology: a remote sensing and GIS perspective. Geomorphology 21(3-4), 183-205.

- Butler, David R., 1997. The physical geography of North Carolina. In: Field Guide to North Carolina - Tar Heel Bus Tour (M. Smith and J. Wegner, eds.), University of North Carolina, Chapel Hill, NC, pp. 75-81.
- Walsh, Stephen J., and David R. Butler, 1997. Morphometric and multispectral image analysis of debris flows for natural hazard assessment. Geocarto International 12(1), 59-70.
- Butler, David R., 1997. Book reviews of "Geomorphic Hazards", ed. by O. Slaymaker, and "Geomorphological Hazards of Europe", ed. by C. Embleton and C. Embleton-Hamann. Geomorphology 21(2), 169-171.
- Butler, David R., 1997. Book review of "Grand Canyon, A Century of Change: Rephotography of the 1889-1890 Stanton Expedition", by Robert H. Webb. Journal of Geography 96(5), 270.

Finally, in October Dave attended the National Council for Geographic Education (NCGE) national meeting in Orlando, Florida, where he received an NCGE Distinguished Teaching Achievement Award, one of five university faculty in North America to receive such an award. His dad also attended, and they thoroughly enjoyed touring the space/rocket facilities at the Kennedy Space Center and Cape Canaveral.

Antony Orme,UCLA:
Antony Orme has received two recent awards for research on which he and his group are presently working, as follows:

- (a) $249,000 from the California Coastal Conservancy and Environmental Protection Agency for interdisciplinary research on Lower Malibu Creek and Malibu Lagoon leading to an improved restoration and management plan for the lower basin. Orme is co-PI with Rich Ambrose (Environmental Science & Engineering) and is responsible for studies in the Holocene evolution and contemporary processes operating in the system. As many people know, the Malibu coast along the south shore of the Santa Monica Mountains is a real basket case from the perspective of a natural system distorted by enhanced fire, flood and storm-wave scenarios, and further confounded by conflicting human demands which pit developers against conservationists (what else is new?), Hollywood glamor and unspeakable wealth against the needs of a lagoonal ecosystem and the surfing community, and so on. The project is designed to evaluate the range of physical and biological processes operating within the system with a view to providing a restoration and management plan that will meet all needs!! Among the more interesting geomorphological aspects is the relation between the water and sediment flux and the morphodynamics of the barrier-lagoon system at the mouth of Malibu Creek. The lagoon is a sump for fluvial and marine inputs and for human waste (nice topic, you would think we would know better!), resulting in frequent changes in system morphology, particularly as a result of winter storms and surfer frustration. However, the project is providing good support for several geography graduate students whose careers may be made by their findings, even as their health is broken.
- (b) $28,000 from the Waterways Experiment Station, US Army Corps of Engineers, for an investigation of the Quaternary Geomorphology of Rosamond Dry Lake in the western Mojave Desert, California (that's right, waterways experiments in the desert, why not!). Lake Rosamond formed part of a larger Lake Thompson which included Lake Rogers during late Pleistocene time. It desiccated in the Holocene but not before it left a suite of subtle beach ridges and was blanketed by shifting dune fields. The lake still receives storm runoff from the San Gabriel and Tehachapi Mountains to the SW and NW respectively, but most low flows are absorbed by the desert floor before reaching the lake. So far, we have mapped some 30 morphosedimentary units in and around the lake and have produced a draft map which will be published shortly by the Corps of Engineers. Of particular interest are the deflated ribs of a once impressive late Pleistocene dune system, most of which has long since been removed downwind to beyond Rogers Dry Lake (of SR1 and Space Shuttle fame). Lake Rosamond is not Lake Bonneville but, if you look hard and have faith, the subtle evidence for

lake oscillations and alternating wet and dry spells is quite inspiring! We may core shortly.

Graduate students involved in this work include geographers Kenneth Schwarz, Priya Finnemore, Mark Kuhlman, Andrew Kane and Caroline Tepley. I am also pleased to announce that Jacqueline Gallagher obtained her Ph.D. in 1996 for a dissertation on the Holocene evolution of Morro Bay, California, and is now on the tenure track at Florida Atlantic University; and that Richard Ford received his Ph.D. in 1997 for a dissertation on contemporary delta sedimentation and morphodynamics, using the Chorro delta as his field laboratory, and is now teaching at Weber State University, Utah.

Terry Toy, University of Denver.
Terry has been elected the president-elect of the American Society for Surface Mining and Reclamation. He will become the president of the National Executive Committee next year and a member of that committee for the next three years.

Gerardo Bocco, News from Morelia, Michoacan, Mexico.
We do geomorphology as a basis for landscape ecological mapping and biodiversity assessments. we are specifically involved in indigenous communties in the state of michoacan. in this context, we carry out conventional geomorphological surveys as a tool for land evaluation and spatial landscape segmentation for traditional knowledge assessments. Ee use extensively remote sensing and gis tools applied to land use change in temperate and tropical forests in our region.

I supervise a laboratory of geoecology in the department of natural resources of the institute of ecology of the university of Mexico. I hope my English has been understandable. Thanks, gerardo bocco Gerardo Bocco <gbocco@miranda.ecologia.unam.mx>

Danny Vaughn, Weber State University - Published:

- A Major Debris Flow Along the Wasatch Front in Northern Utah, USA; Physical Geography Vol 18. No. 3
- Presented papers titled:
- Computer-Assisted Applications in Terrain Analysis Geological Society of America National Meeting, Salt Lake City, UT; October, 1997
- Planning and Analysis of a Water Quality Project Using a GIS; Great Plains\Rocky Mountain Division; Association of American Geographers Meeting Bozeman, MT September, 1997

Montclair State University:
1) Zhaodong (Jordan) Feng, Co-PI of A NSF funded field workshop on Interdisciplinary Earth Science Research Opportunities in the Mongolian Republic ($64,000) , took part in field work in Mongolia with other five American scientists, in September, 1996. To develop a comprehensive project on "Eolian History of the Mongolian Plateau", he will conduct a second field trip to Mongolia this summer, funded by NSF ($10,500). These two trips and associated lab work will lay foundations for him and his colleague Gregory Pope and others to work on "Eolian Linkage of the East Asian Monsoons between the Chinese and Mongolian Plateaus during the Last Interglacial/glacial Cycle". Greg Pope conducted weathering studies at a variety of historic and prehistoric sites in Portugal last summer (1997). The goals of the project, funded by pilot grants from Montclair State University, were to 1) assess the weathering impacts on prehistoric petroglyphs in the Vale do Coa of Northeast Portugal; 2) assess the impacts of weathering on methods used to date petroglyphs; 3) ascertain weathering rates on cut granitic building stone, and determine microenvironmental factors responsible for variation. Papers detailing the results of this research are forthcoming at the 1998 Boston AAG meeting, and 1998 Association for the Study of Marble and Other Stones in Antiquity meeting, also in Boston.

Jack Shroder, University of Nebraska at Omaha:
The Nanga Parbat Denudation Group (Jack Shroder, Michael Bishop, Luke Copland, Kevin Cornwell, Dick Marston, Bill Phillips, Valerie Sloan, and a host of other students) has returned from a third year of work on a spectacular Himalayan peak with a host of new information on surface processes. The arduous field conditions not withstanding, new information was obtained on a variety of interesting topics. Monsoon driven

(summer precip) glacier advances, rapid glacier and fluvial incision, intersting mass-movement events, and exciting new techniques and results in cosmogenic radionuclide dating, IRSL dating, analysis of high resolution satellite imagery and the digital elevation model all promise to produce new understandings of Himalayan geomorphology. Work and funding efforts are already underway for a joint Anglo-American Expedition to the western Himalaya two years hence.

Don Friend, Mankato State University:
At Arizona State this past summer, Don Friend completed and successfully defended his dissertation, entitled, "Evolution of Desert Colluvial Boulder Fields, Eastern California." He immediately moved to Mankato, Minnesota where he serves as Assistant Professor at the real MSU, Mankato State University. When he arrived, the department literally said to him, "we want you to do what you do best." A most pleasant greeting as a new faculty member. Consequently, Don has begun a field and hands-on oriented program in earth surface processes. His course in Snow & Ice Processes this winter quarter drew 40 students, 20 of whom went to Montana on a week long field trip to complete their term projects. MSU has 10,000 undergraduates, 2,000 graduates, 175 geography majors, 25 geography MA/MS students, and 8 geography faculty (currently recruiting a 9th). Don is the lone geomorphologist on campus but is well supported by his colleagues in all departments. The geography department includes a small but active climatology/meteorology program, an excellent cartography and GIS program, a good old Sauerian people-environment program, a geographic education program, and several interdisciplinary programs including earth science and earth science teaching. The department sponsors an active student club, R.A.N.G.E. (Regional and National Geographic Exploration), which will visit the upcoming AAG meeting in Boston. Don and RANGE will also attend the upcoming FOP trip in northern Wisconsin.

Michigan State University:
With the arrival of Alan Arbogast in 1995, eolian geomorphology is a growing emphasis in the Department of Geography at Michigan State University. Specific research areas include the Great Plains (Kansas) and Michigan. Ongoing work in Kansas focuses on the source area for dune sand on the Great Bend Sand Prairie in south-central Kansas and the age of meander-belt dunes in the north-central part of the state. In Michigan, research is being conducted on coastal dunes along the Great Lakes and dune fields within the interior of both peninsulas. Although coastal dunes are immense (> 30 m tall), very little is known about their chronology and relationship with the nearby lakes. Of particular interest are the large (forested) dune fields that occur in the interior of the state, far (> 50 km) from the modern shoreline. In the past, these dunes have been thought to be relict beach ridges that developed because of fluctuating proglacial lakes or as a result of strong katabatic winds in a deglacial environment. While each of these models may have some factual basis, preliminary evidence suggests that significant reactivation or initial mobilization occurred during the Altithermal (middle Holocene). If this is further documented, it would indicate that the dune fields are more sensitive to climate change than previously believed.

Vatche P. Tchakerian, Texas A&M:
Some recent publications by Texas A&M Geomorphologists:

- Chin, A. 1998, On the stability of step-pool mountain streams, Journal of Geology, v. 106, p. 56-69.
- Phillips, J. D. 1998, Geomorphic and sedimentological controls on the effectiveness of an extreme flood. Journal of Geology, v.106, p. 87-95. With F.J. Magilligan, lead author, B. Gomez, and L.A. James.
- Phillips, J. D. 1997, Floodplain sedimentation and sensitivity, Earth Surface Processes and Landforms, v. 22, p. 923-936. With B. Gomez, lead author, F.J. Magilligan, and L.A. James.
- Phillips, J. D. 1997, Human agency, Holocene sea level, and floodplain accretion in coastal plain rivers, Journal of Coastal Research, v.13, p. 854-866.
- Phillips, J. D. 1997, A short history of a flat place: Three centuries of geomorphic change in the Croatan, Annals of the Association of American Geographers, v. 87, p.197-216.
- Phillips, J. D. 1997, Humans as geological agents and the question of scale,

American Journal of Science v. 297, p. 98-115.
- Phillips, J. D. 1997, Simplexity and the reinvention of equifinality, Geographical Analysis v. 29, p. 1-15.
- Phillips, J. D. 1997, Ferricrete formation in the North Carolina Coastal Plain, Zeitschrift fur Geomorphologie, v. 41, p. 67-81 With M. Lampe, R.T. King, M. Cedillo, R. Beachley, and C. Grantham .
- Pease, P. and Gomez, B. 1997, Landscape development as indicated by basin morphology and the magnetic polarity of cave sediments, Crawford Upland, South-Central Indiana, American Journal of Science, v. 297, p. 842-858.
- Tchakerian, V.P., Pease, P.P. and Tindale, N.W. 1997, Gemorphology and sediments of the Wahiba sand sea, Sultanate of Oman, Supplementi Di Geografia Fisica e Dinamica Quaternaria, v. III, p. 372-373.
- Tchakerian, V.P. 1997, The North American Deserts, in D.S.G. Thomas (ed.), Arid Zone Geomorphology: Process, Form and Change in Drylands, 2nd edition, London: John Wiley & Sons, p. 523-541.
- Breed, C.S., McCauley, J.F., Whitney, M.I., Tchakerian, V.P. and Laity, J.E. 1997, Wind erosion forms, in in D.S.G. Thomas (ed.), Arid Zone Geomorphology: Process, Form and Change in Drylands, 2nd edition, London: John Wiley & Sons, p. 437-464.
- Townsend, P.A. and Walsh, S.J. 1998, Modeling floodplain inundation using an integrated GIS with radar and optical remote sensing, Geomorphology, v. 21, p. 295-312.

Information on Meetings (past and present)

REVIEW OF THE 1997 BINGHAMTON SYMPOSIUM: Jon Harbor, Purdue:
Changing the Face of the Earth: Engineering Geomorphology. The 28th Annual Binghamton Symposium was held in conjunction with the 4th International Conference on Geomorphology at the University of Bologna in Italy, 29-30 August 1997. Organized by J.R. Giardino, R.A. Marston and the late Marie Morisawa, the basic theme of the Symposium was to address the contributions and challenges of engineering geomorphology. The symposium focused on past accomplishments, current opportunities and future directions in the role of geomorphologists and engineers in addressing resource management problems. A diverse gourp of invited speakers provided an international perspective on concepts and techniques in engineering geomorphology in fluvial, hillslope, arid, periglacial, glacial, tropical, coastal, and urban environments. Elsevier will publish a volume in 1998 with 20 manuscripts (the speakers plus additional invited papers), and the papers will also appear in Geomorphology. As with past Binghamton volumes, this is sure to become a standard reference in the field, and will be well worth reading.

I won't provide exhaustive discussion of individual papers here (get the book / journal for these). Rather, as a participant in the symposium, I would stress the larger overall message the symposium delivered. A number of common themes seemed to come out of the wide-ranging discussion of the challenges and opportunities for geomorphologists involved in real-world management problems with a strong engineering component.

- 1. Speakers addressing work done in all types of geomorphic environments showed how a science-based understanding of geomorphic processes and boundary conditions provides a critical part of the information required to come up with an appropriate, cost-effective approach to resource management.
- 2. Given #1, there are many important and exciting new research directions geomorphologisits could be pursuing to provide the information necessary for wise resource management.
- 3. Geomorphologists and engineers often approach problems differently, each with preconceived notions and standard approaches that may or may not be appropriate in a specific case.
- 4. Collaborative work across the disciplinary boundary has frustrations, but often yields solutions and insights that neither

side would have come up with individually.

- 5. Geomorphologists main contributions include a good understanding of processes, spatial and temporal scale and variability, and interactions between people and processes. Their common failings include a lack of understanding of regulatory and decision making processes, and a tendency to suggest solutions that are great in theory but unworkable in practical terms. However, there are good examples of geomorphologists taking active roles in the development of new regulatory approaches.

Overall, this was an excellent and inspiring symposium that will hopefully serve to focus attention on both research and applied work in the critical area of engineering geomorphology. Jon Harbor, Purdue University.

Kevin Mulligan, Texas A&M: Texas Geomorphology Symposium

The first annual Texas Geomorphology Symposium was held in Junction, Texas on January 29 and 30, 1998. The purpose of the conference was to bring together a diverse group of professionals and scientists from across the state who share a common interest in geomorphology and surficial processes. The symposium was designed as an inexpensive and informal gathering, taking advantage of the excellent facilities at the Texas Tech University Center in Junction. Twenty speakers presented research in five sessions over two days. The idea was to provide a venue where the participants could present and discuss their research activities in an casual and relaxed atmosphere (e.g., Junction is presently outside of cellular telephone range).

On the first day of the symposium Dr. J. Rick Giardino (Texas A&M) welcomed the participants to the Texas Tech University Center. In the first session the five papers focused on dust production in the southern high plains (Thomas Gill, USDA/ARS), the nature of soil landscape evolution (Jonathan Phillips, Texas A&M), wind erosion within burned rangelands (John Stout, USDA/ARS), planetary geomorphology (David Gywnn, Texas A&M) and the global distribution of large inland deltas (Justin Wilkinson, JSC/NASA). After dinner, the three papers in the second session focused on engineering geology (Christopher Mathewson, Texas A&M), zoogeomorphology in Texas (David Bulter, Southwest Texas State) and a GIS model of channel migration (Jack Mills, University of Texas at Tyler). At the end of the first day all of the participants gathered under the stars around a bonfire on the banks of the South Llano River.

On the second day of the symposium there were three sessions. In the first session the papers focused on the development of playa basins in the southern high plains (Warren Wood, USGS), the geomorphic variety of playas (Peter Briere, Texas A&M), a geomorphological interpretation of a SPOT image in western Australia (John Degenhardt and Peter Briere, Texas A&M) and current research ongoing at the Canyon Research Natural Area at Big Bend National Park (Keith Yarborough, Sul Ross State). In the second session papers focused on the role of microorganisms in sandstone surface stabilization (Harry Kurtz, Sam Houston State), the influence of clastic pipes on sandstone landform evolution (Dennis Netoff, Sam Houston State), a geomorphologistÆs role in the U.S. Joint Global Ocean Flux Study (Patrick Pease, Texas A&M) and stream characteristics of the San Miguel River in Colorado (Davis Jennings, Texas A&M). In the last session of the symposium papers focused on wind flow over a barchan (Kevin Mulligan, Texas A&M), wind erosion in the dust bowl (Jeff Lee, Texas Tech) and aeolian processes and landforms in the Mojave and Sonoran deserts (Vatche Tchakerian, Texas A&M).

Following the paper sessions the participants gathered to discuss future plans. By all accounts the symposium was a great success and there was overwhelming support for a second "Junction function". The second annual Texas Geomorphology Symposium will be held in Junction, Texas, on February 11, 12 and 13, 1999. The symposium is sponsored by Texas A&M University through the Office of the Vice President and Associate Provost for Graduate Studies, the Department of Geography, and the Department of Geology and Geophysics. The Texas conference is open to anyone with a strong interest in geomorphology, and students are particularly encouraged to attend and present their research. For more information on the next conference contact the symposium organizer, Dr. J. Rick Giardino at Texas A&M or check out the

symposium web site at http://geoweb.tamu.edu/~giardino/tx_geo.html.

Forthcoming Meetings.

British Geomorphological Research Group; David Higgitt, University of Durham:

- April 14-18 GEOSCIENCE `98; Keele University. One day symposium on: Palaeogeography of the Quaternary: Precise Reconstruction of Environments Sponsored by British Geomorphological Research Group, Marine Studies Group and Quaternary Research Association. Contact convenor: Alastair Dawson (Coventry University) email gex014@coventry.ac.uk
- May 1-4 20th BGRG Postgraduate Symposium; Queen's University, Belfast. Contact: Eileen Kennedy, QUB; email BGRG98@qub.ac.uk; www http://web.qub.ac.uk/geosci/research/geography/bgrg20pgs.html
- May 17-19 BGRG Spring Field Meeting. Garrigill, North Pennines. Contact: Jeff Warburton, (University of Durham). email jeff.warburton@durham.ac.uk
- July 6-10 4th International Conference on Aeolian Research ICAR-4 meeting in collaboration with BGRG and IGCP 349; University of Oxford. Contact Ian Livingstone (Nene College); email ian.livingstone@nene.ac.uk; www http://www.geog.ox.ac.uk/news/conference.html
- September 15-17 River Basin Systems: Archives of Environmental Change. Fluvial Archives Group (FLAG) and BGRG Cheltenham College of Higher Education. Contact Darren Maddy (Cheltenham) email dmaddy@chelt.ac.uk
- September 18-20 BGRG Annual Conference "Tracers in Geomorphology". Coventry University Contact: Ian Foster (Coventry). email: gex002@coventry.ac.uk
- 9-10 November Coastal and Estuarine Environments - Sedimentology, Geomorphology and Geoarchaeology. British Sedimentological Research Group, British Geomorphological Research Group and English Heritage. Contact Ken Pye email k.pye@reading.ac.uk

The ***British Geomorphological Research Group*** produces a newsletter (***Geophemera***) three times a year. Send information about meetings to David Higgitt (University of Durham) email d.l.higgitt@durham.ac.uk For membership details contact Jill Labadz (University of Huddersfield) email j.c.labadz@huddersfield.ac.uk Web page: http://boris.qub.ac.uk/andy/bgrg/index.htm

Simulation Model Tony Parsons, Leicester University: *Simulating Slope Development*

Slope Development is one of 17 modules produced by GeographyCal in association with the CTI Geography at Leicester University, UK. The core of this module is a slope-development simulation program. This program simulates the operation of four sets of processes: mass movement, solution, wash and diffusion, and it can be used in three main ways in the module. First, in Simulating Slopes of the World, it can be used to consider the effects of different climates and lithologies on slope development. This unit contains a data bank of typical slope profiles from numerous locations around the world. A particular hillslope can be selected and the simulation program will show how we might expect this hillslope to develop through time. Secondly, in Modelling Slope Processes, the simulation program can be used to examine how different processes and combinations of processes alter the speed of hillslope development and the shape of the evolving hillslope. In addition, the user can control the shape of the initial hillslope profile to examine the effects of different initial forms on slope evolution. Finally, in Exploring your own Slopes, the user can input a real slope profile and some information on its climate and lithology, or estimates of process rates, to see how a real hillslope (maybe one that the user has measured in the field) will develop in the future.

For each of the three units described above, when the model is run the module will show how the hillslope changes through time. In addition, it keeps a record of the sequence of changes in a gallery of slope profiles. Profiles from this gallery can be extracted to a clipboard for pasting into a report. The module also produces two tables, one giving numerical data on the change to the slope profile form, the other records the development of soil depth through time. The emphasis in this

module is on user choice. What the simulation program does is controlled by choices the user makes. This means the module allows the user to explore the effects of particular changes on slope development. What happens to hillslope development if the profile if it is made steeper, or longer, or bumpy? How would slope development change if a basalt hillslope found in Peru were moved to Mali? Does the importance of particular processes change through time? These are typical of the questions that the module tries to encourage the user to answer. The module is most effective when the tutor asks students to use it to answer specific questions about slope processes/development.