

PENROSE CONFERENCE SCHEDULED

Tectonics, Climate And Landscape Evolution

January 13-17, 2003
Taroko National Park, Taiwan

CONVENERS:

Sean Willett, Department of Earth and Space Sciences University of Washington, Seattle, WA, 98125, (206) 543-8653, fax: (206) 543-0489, swillett@u.washington.edu

Niels Hovius, Dept of Earth Sciences, Cambridge University, Cambridge CB2 3EQ England 44-1223-333453 nhovius@esc.cam.ac.uk

Mark Brandon Department of Geology and Geophysics, Yale University, P.O. Box 208109, New Haven, CT 06520-8109, (203)432-3135 mark.brandon@yale.edu

Don Fisher, Department of Geosciences, The Pennsylvania State University, University Park, PA 16802, (814) 865-3206 fisher@geosc.psu.edu,

LOCAL ORGANIZING COMMITTEE:

Lu Chia-Yu National Taiwan University, Taipei, Taiwan, chia@ccms.ntu.edu.tw

Chu Hao-Tsu, Geological Survey of Taiwan, chuht@linx.moeacgs.gov.tw

Yue-Gau Chen, National Taiwan University, Taipei, Taiwan, ygchen@ccms.ntu.edu.tw

The past decade has seen considerable interest in the coupling between tectonics, climate, surface processes and the evolution of the Earth's topography. General acceptance of the principles of the tectonic origin of topography, the increase in erosion rates with relief and the importance of climate as a modulator between uplift and erosion has evolved into a desire for understanding of the processes, their rates and the mechanisms of feedback implicit to these principles. This conference will examine progress made through geomorphological, geophysical, geochemical and atmospheric studies, and assess the current state of knowledge of the dynamic Earth surface system

Potential topics for presentation and discussion include:

- Surface processes and rates in active tectonic areas. What are the important processes and the rates at which they operate in mountain regions? What are the mechanisms of fluvial incision

into bedrock? How important are deep-seated landslides or debris flows? Are chemical processes and regolith formation important processes in tectonically active areas? What is the role of glacial erosion?

- The landscape response to tectonic deformation, uplift and horizontal motion. What features of the landscape are characteristic of tectonic deformation or its diverse forms? Can we interpret landforms or a landscape in terms of tectonic or climatic forcing?
- The landscape response to climate change. How does the landscape respond to changing climate conditions such as precipitation, temperature, storminess or base-level change?
- Feedback mechanisms between tectonics, climate and surface processes. How does the generation of relief enhance rates of erosion? How does an increase in elevation affect climate? Do tectonic processes respond to erosion in measurable ways?
- Coupled models. How well are we able to simulate the coupled tectonic-surface process-climate system? Do we understand how to quantify the relevant processes?
- Response time and steady state in tectonically active landscapes. What is the time-dependent response of a landscape to tectonic or climatic forcing?

VENUE:

The conference will be held in Taroko National Park, Taiwan. In Taiwan, active tectonism and mountain building is evidenced by 4000m peaks, precipitation rates of several meters/yr and erosion rates as high as 5-10 mm/yr. The conference venue will be in the Taroko Gorge, a 1000m deep gorge in the heart of Taroko National Park, providing a dramatic example of the effects of high rates of uplift, precipitation and erosion. First-rate hotel and conference facilities are available in the national park. Two half-day fieldtrips will be conducted during the conference to showcase the Taroko Gorge environs. Cost of the five day conference including room and board is expected to be less than \$850.

APPLICATION DEADLINE:

SEPT 1, 2002

Potential participants should send a letter of application to one of the conveners including a brief statement of interests and relevance of the applicant's work to the conference topic, as well as a short abstract of work to be presented at the meeting, if desired. Attendance is limited to 80 persons, although we hope to attract the participation of a broad range of earth and atmospheric scientists. Graduate students are encouraged to apply and some funds will be available to help offset costs for students.

OPTIONAL FIELDTRIP:

A four-day pre-conference fieldtrip will be offered from Jan 9 to 12. This fieldtrip will start in Taipei and finish at the conference site in Taroko Park, thereby crossing the modern orogenic belt from the foreland Coastal Plain to the metamorphic core. This will also provide opportunity to visit surface deformation related to the 1999, magnitude 7 Chi-Chi earthquake. Cost of the fieldtrip is expected to be less than \$500.