Geomorphology and Climate Change

(Special Topics 491; Selected Topics 598)
Spring 2012 - Wednesday 10:30-1:30

This seminar will explore the relationships between changing climates and geomorphic processes and landforms throughout Earth's history.

Schedule:

1/25 General climate history & climate mechanisms.
2/1 Large-scale/Long-term changes - at geologic scales.
2/8 Large-scale/Long-term changes - Quaternary glacial/interglacials.
2/15 Large-scale/Long-term changes - Quaternary glacial/interglacials.
2/22 Holocene changes in climate and geomorphic systems.
2/29 Holocene changes in climate and geomorphic systems.
3/7 Desert geomorphology and climate change.
3/14 American Southwest and New Mexico.
2/28 Modern climate change and recent geomorphic responses.
4/11 Climate and Geomorphology: Theoretical Issues
4/18 Geomorphic evidence of climate change on Mars.
4/25 Future geomorphic changes under predicted climate/environmental change.
5/2 Future geomorphic changes under predicted climate/environmental change.

Basic Procedures:

- Each week participants will be assigned 2-3 readings. These will be a combination of papers read by the entire group and papers read individually.
- Each participant will be responsible for writing a one-page summary for each reading and preparation of notes for in-class discussion during the following week.
- Periodically, participants will select their own readings either from an available list or from individual searches. Summaries will be presented to the discussion group by each participant.
- Each participant will formulate a relevant research topic and write a 15-page (including bibliography), double spaced, 12-point font term paper.

Grading:

Weekly summary papers.....35%
Weekly discussion.....35%
(preparation and participation)
Term Paper.....30%

Readings:

1/25 General climate history & climate mechanisms.
- Bull91
- Sowers00
- Wright00

2/1 Large-scale/Long-term changes - at geologic scales.
- Dunai05
- Molnar04
- Parrish98 (parts 1, 2, 3)
- Pederson00
- Pelzhen01

2/8 Large-scale/Long-term changes - Quaternary glacial/interglacials.
- Andrews00
- Bogaart00
- Owen97
- Pederson01

2/15 Large-scale/Long-term changes - Quaternary glacial/interglacials.
- TBA

2/22 Holocene changes in climate and geomorphic systems.
- Bull00
- Coulthard00
- Harden10
- Millar99

2/29 Holocene changes in climate and geomorphic systems.
- TBA

3/7 Desert geomorphology and climate change.
- Lancaster00
- LaVee98
- Molnar01
- Tsoar05
- Waters01

3/14 American Southwest and New Mexico.
- Allen05
- Anderson02
- Buck99
- Butler07

- Etheredge04
- Pazzaglia05

2/28 Modern climate change and recent geomorphic responses.
- Evans94
- Knox00

4/11 Climate and Geomorphology: Theoretical Issues.
- Moglen98
- Phillips06
- Rinaldo95
- Tucker97
- Viles03
- Whipple99

4/18 Geomorphic evidence of climate change on Mars.
- Dickson07
- Golombek06
- Kanner04
- Marchant05
- Marchant07
- Page09
- Stepinski05

4/25 Future geomorphic changes under predicted climate/environmental change.
- Dehn00
- Goudie06
- Jones01
- Jones93
- Slaymaker09
- Stoffel06
- Thomas05

5/2 Future geomorphic changes under predicted climate/environmental change.
- TBA