



## Congress Highlights

- July 17–23** Pre-Congress Field Trips
- July 23** Welcoming Reception,  
National Automobile Museum
- July 24–30** Technical Sessions
- July 24** Plenary Symposium  
  
Presidential Address
- July 27** Field Trips
- July 28** Public Forum: Communicating  
Quaternary Research to the Public
- July 29** Congress Banquet, Ponderosa  
Ranch
- July 30** Farewell Reception, Reno Hilton
- July 31–August 7** Post-Congress Field Trips

## INQUA Events and Meetings

- Thursday, July 24**
- 8:00–10:00 a.m. Opening Ceremony and General  
Assembly, Tahoe
- 1:30–4:30 p.m. International Council, Nevada 1-2
- 4:30–6:00 p.m. Presidential Address, Formal  
Quaternary Stratigraphy–What Do We  
Expect and Need?, Reno Ballroom
- 7:00–8:30 p.m. Reception for International Delegates  
Ruby 1-2 (By Invitation Only)
- Friday, July 25**
- 1:30–3:30 p.m. INQUA New Commissions, Tahoe
- Saturday, July 26**
- 1:30–4:30 p.m. International Council, Nevada 1-2
- Tuesday, July 29**
- 1:30–4:30 p.m. International Council, Nevada 1-2
- Wednesday, July 30**
- 4:30–6:00 p.m. General Assembly, Reno Ballroom



## INQUA Commission Meetings

### Thursday, July 24

- 6:00–8:00 p.m. Commission on Tephrochronology and Volcanism
- 6:00–8:00 p.m. Commission on Stratigraphy
- 6:00–8:00 p.m. FLAG/IGCP 449
- 6:00–9:00 p.m. Paleopedology Commission
- 7:00–8:30 p.m. Loess Commission: President's Meeting

### Friday, July 25

- 2:30–4:30 p.m. Commission on Glaciation Business Meeting
- 4:30–6:00 p.m. Subcommission on Paleoseismicity
- 6:00–8:00 p.m. Commission on Carbon/IGCP-459 Business Meeting

### Saturday, July 26

- 6:00–7:30 p.m. Commission on Human Evolution and Palaeoecology
- 6:00–8:00 p.m. Commission on the Holocene

### Monday, July 28

- 6:00–7:30 p.m. Loess Commission: Secretary's Meeting
- 6:00–8:00 p.m. Global Continental Palaeohydrology
- 6:00–8:00 p.m. Commission on Palaeoclimate

### Wednesday, July 30

- 1:30–6:00 p.m. Workshop and Business Meeting of the Commission on Sea Level Changes and Coastal Evolution

## Workshops and Short Course

### WORKSHOPS

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#### Friday, July 25

- 7:00–9:00 p.m. **Workshop:** Palaeoclimates Modelling Intercomparison Phase II Planning Session

#### Saturday, July 26

- 6:00–8:00 p.m. **Workshop:** Earth System Modelling and Analysis

#### Wednesday, July 30

- 1:30–6:00 p.m. **Workshop:** Sea Level Changes and Coastal Evolution:

### SHORT COURSE

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#### August 1–7

##### Field Methods in Neotectonics and Paleoseismology

A field-oriented course with emphasis on collection and analysis of geologic data related to neotectonics and paleoseismology, and as needed—geomorphology, Quaternary geology, and soils.

**Instructors:** James P. McCalpin, GEO-HAZ Consulting, and John Caskey, San Francisco State University.

# Special Sessions

## Plenary Sessions

### **Thursday, July 24: Plenary Symposium 10:00 a.m.–12:00 p.m., Reno Ballroom**

Paleoclimatic perspectives on the Anthropocene –Raymond Bradley

From glacial geology to palaeoglaciology –Geoffrey Boulton

Who, when, from where, how, and how often? Pleistocene peopling of  
the Americas –David Meltzer

### **Friday, July 25: 4:30–6:00 p.m., Reno Ballroom**

Quaternary tephrochronology: progress, problems, and prospects  
–John Westgate

Quaternary DNA: A dramatic new interface between paleontology, ecology, and  
archaeology –Alan Cooper

### **Saturday, July 26: 4:30–6:00 p.m., Reno Ballroom**

The genetic consequences of the ice ages –Godfrey Hewitt

Quaternary Superfloods –Victor Baker

### **Monday, July 28: 4:30–6:00 p.m., Reno Ballroom**

Terrestrial and oceanic record of the past climates of the Indian sub-continent: a  
synthesis –Ashok Singhvi

The lion or the unicorn? Do we need to invoke variations in atmospheric CO<sub>2</sub> in  
order to explain late Quaternary changes in the tropical land biosphere?  
–Alayne Street-Perrott

### **Tuesday, July 29: 4:30–6:00 p.m., Reno Ballroom**

Where does the trigger for abrupt climate change reside, in the ocean or  
in the tropics –Wallace Broecker

Global glacial isostatic adjustment: highstands, lowstands, in postglacial  
variations in the level of the sea –Richard Peltier

## Poster Session Introductions

The following poster sessions will have a 30 minute oral introduction to the session.  
All introductions will take place 1–1:30 p.m. in the rooms shown below.

### Thursday, July 24: 1–1:30 p.m.

Quaternary economic deposits and landscape evolution in the late Cenozoic,  
Carson 1&2

Paleohydrology and global change, Carson 3&4

Geophysical investigations of Quaternary sediments, Crystal 1&2

### Friday, July 25: 1–1:30 p.m.

Determining the extent of glaciation in areas of limited evidence, Carson 1&2

Geologic emissions of methane from lands and seafloor: mud volcanoes  
and observing systems, Carson 3&4

Arroyo processes and histories, Crystal 1&2

Late Quaternary ecosystem dynamics and carbon cycling in the tropics, Crystal 3&4

### Saturday, July 26: 1–1:30 p.m.

Glaciotectonic map of central Europe, Carson 1&2

Glacier extent and ice thickness in Eurasia at the Last (?) Glacial Maximum,  
Carson 3&4

Correlation of ice, marine, and terrestrial sequences using tephrochronology,  
Crystal 1&2

High resolution late Holocene climate records for Europe and Africa  
(PEP III Transect), Crystal 3&4

### Tuesday, July 29: 1–1:30 p.m.

Holocene in eastern Mediterranean and Black Sea regions, Carson 1&2

Developments in pollen calibration and quantitative reconstruction of past  
vegetation cover, Carson 3&4

Are soils a source or sink for atmospheric carbon dioxide, Crystal 1&2

### Wednesday, July 30: 1–1:30 p.m.

Holocene sea level changes, coastal evolution and future prospects,  
Carson 1&2

Quaternary sea level changes and their physical, biological and  
oceanic impacts, Carson 3&4

# **Communicating Quaternary Research to the Public: A Public Forum at the XVI INQUA Congress**

**Monday July 28, 2003: 7:30–9:30 p.m., Reno Ballroom**

Ever feel that the public needs to know what you have learned but don't know how to get the information out? Today more than ever Quaternary scientists must know how to share the results of their investigations with a diverse public that, while fascinated with the past, is also the target for seriously flawed (mis) information. This Forum is designed to help scientists get their stories into the minds of the people who ultimately determine public education policy and research funding. Seven authorities on presenting science to the public will discuss their craft from the perspectives of major media including novels, more traditional science books written for the general public, newspapers, the World Wide Web, television, cinema, and museum exhibits. The goal is help scientists in the audience understand how to successfully tell the stories of their exciting discoveries as well as the deeper meanings Quaternary science has for the modern world.

After the speakers briefly introduce themselves, they will make short statements addressing some of the questions listed below. Next we will open the floor to written questions solicited from the audience and, time permitting, verbal questions and comments. Panelists have been asked to consider the following questions.

1. What are the particular advantages and/or drawbacks of each media or forms of presenting Quaternary science to the public?
2. In visual presentations, what is the proper mix of real objects and artifacts versus created graphics and how can we ensure that the public understands the difference?
3. Why should the public be interested in Quaternary studies and what benefits can citizens draw from their knowledge?
4. How can we expand the current interest in archaeology, paleontology and the human past to encompass the entire range of Quaternary sciences (geology, oceanography, biology, chemistry, etc.)?
5. How can scientists do a better job of communicating the importance of their work for human survival to the public?
6. How can we translate public interest in science into concrete support?
7. How can we prepare undergraduate and graduate students to be better communicators?

**The organizers and panelists hope this will be an informative, useful, and entertaining event.**

# Field Trips

## Pre-Congress Field Trips

### ***Marine terraces, sea level history and Quaternary tectonics of the San Andreas fault on the coast of California***

Daniel R. Muhs, U.S. Geological Survey  
Carol Prentice, U.S. Geological Survey  
Dorothy J. Merritts, Dept. of Geosciences, Franklin and Marshall College

### ***Quaternary stratigraphy, geomorphology, soils, and alpine archaeology in an alpine-to-plains transect, Colorado Front Range***

David P. Dethier, Dept. of Geosciences, Williams College  
James B. Benedict, Center for Mountain Archaeology  
Peter W. Birkeland, Dept. of Geosciences, University of Colorado  
Nel Caine, Dept. of Geography, University of Colorado  
P. Thompson Davis, Dept. of Geology, Bentley College  
Richard F. Madole, U.S. Geological Survey  
Penny E. Patterson, Exxon Production Research Company  
Alan B. Price, Natural Resources Conservation Service  
Taylor F. Schildgen, Dept. of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology  
Ralph R. Shroba, U.S. Geological Survey

### ***Soil geomorphological studies in the Mojave Desert: Impacts of Quaternary tectonics, climate, and rock type on soils, landscapes, and plant-community ecology***

M. C. Eppes, University of North Carolina  
E. V. McDonald, Desert Research Institute  
L. D. McFadden, University of New Mexico

### ***Pliocene to Holocene lakes in the western Great Basin, USA: New perspectives on paleoclimate, landscape dynamics, tectonics, and paleodistribution of aquatic species***

Marith Reheis, U.S. Geological Survey  
Joanna Redwine, Department of Geology, Humboldt State University  
Kenneth Adams, Desert Research Institute  
Scott Stine, Department of Geography, California State University–Hayward  
Kathy Parker, Department of Chemistry, Geology, and Physics, California State University-Bakersfield  
Rob Negrini, Department of Chemistry, Geology, and Physics, California State University-Bakersfield.  
Raymond Burke, Department of Geology, Humboldt State University  
Gabrielle Kurth, Department of Earth and Environmental Sciences, New Mexico Tech  
John McGeehin, U.S. Geological Survey  
James Paces, U.S. Geological Survey  
Fred Phillips, Department of Earth and Environmental Sciences, New Mexico Tech  
Andrei Sarna-Wojcicki, U.S. Geological Survey  
Joseph Smoot, U.S. Geological Survey

## Mid-Congress Field Trips (Sunday, July 27)

### ***Prehistoric diversions of the Walker River: Ages and paleohydrologic significance***

Ken Adams, Desert Research Institute

### ***Paleoseismicity and historic faulting in the central Nevada Seismic Belt***

Leader: John Caskey, San Francisco State University

### ***Late Pleistocene glaciations in the northwestern Sierra Nevada*** Leader: Allan James

### ***Late Pleistocene/early Holocene archaeology of the Lahontan Basin***

Leaders: Ted Goebel and Kelly Graf, University of Nevada Reno

### ***Prehistoric lifeways at Hidden Cave and beyond*** Leader: David Rhode, Desert Research Institute.

### ***Quaternary history of the lower Truckee River and pluvial Lake Lahontan***

Leaders: John Bell and Kyle House, Nevada Bureau of Mines and Geology

### ***Paleoseismicity of the Carson Range***

Leader: Alan Ramelli, Nevada Bureau of Mines and Geology

## Post-Congress Field Trips

### ***Glacial geology of upper Cook Inlet, Matanuska Glacier and Denali Highway, Alaska***

Grahame J. Larson, Dept. of Geological Sciences, Michigan State University  
Edward B. Evenson, Dept. of Earth and Environmental Sciences, Lehigh University  
Daniel E. Lawson, U.S. Army Cold Regions Research and Engineering Laboratory  
Staci L. Ensminger, Dept. of Geology and Geography, Northwest Missouri State University  
Greg Baker, Dept. of Geology, State University of New York at Buffalo  
Richard B. Alley, Environmental Institute and Dept. of Geosciences, The Pennsylvania State University

### ***Cordilleran Ice Sheet glaciation of the Puget Lowland and Columbia Plateau. Alpine glaciations of the North Cascades, Washington***

Don J. Easterbrook, Dept. of Geology, Western Washington University

### ***Mountain glaciations of the Sierra Nevada***

Doug Clark, Western Washington University  
Alan R. Gillespie, University of Washington  
Malcolm Clark, U.S. Geological Survey  
Bud Burke, Humboldt State University

### ***Quaternary geology and ecology of the greater Yellowstone area***

Kenneth L. Pierce, U.S. Geological Survey  
Don G. Despain, U.S. Geological Survey  
Cathy Whitlock, University of Oregon  
Kenneth P. Cannon, National Park Service  
Grant Meyer, University of New Mexico  
Lisa Morgan, U.S. Geological Survey

# General Information

## Accessibility for Special Needs

We are committed to making the INQUA Congress accessible to all attendees. If you or your guests require auxiliary aids or services because of special needs, please contact the registration desk.

## Airport Transportation

The Reno Hilton operates a courtesy shuttle between the hotel and the airport from 5:30 a.m.–11:30 p.m. daily.

## Car Rental

For information on local car rental, check the Concierge desk or the yellow pages in the local telephone book.

## Congress Office

The Congress Office is located in Teton 1 on the Mezzanine Level.

## Business Center

The business center is located on the Arcade Level and is open as follows:

Monday–Friday . . . . . 7 a.m.–7 p.m.  
Saturday . . . . . 8 a.m.–6 p.m.  
Sunday . . . . . 9 a.m.–5 p.m.

Services include shipping, copying, and faxing.

## City and Visitors Information

Brochures and information on local attractions will be available in the registration area. Additionally, registration assistants from the local area will be available to provide you with the “local” perspective of Reno attractions and restaurant recommendations.

## Congress Banquet at Ponderosa Ranch

Tuesday, July 29 . . . . . 5:30–11:30 p.m.

Join your colleagues at the Congress Banquet at the Ponderosa Ranch. Enjoy an exclusive evening at the Ponderosa Ranch where the legendary show Bonanza was filmed. The Ranch is an entire western town filled with authentic western memorabilia along with the television ranch house of the Cartwrights. The evening includes a narrated tour of the Cartwright’s house, a Western BBQ dinner, Western music provided by Ridin’ High—a four-piece Country Western band, and bar in the Silver Dollar Saloon, as well as a fun evening exploring shops on Main Street. For additional entertainment, there’s also a working Blacksmith and Glass Blower. Included in the ticket price is round trip motor coach transportation, professional guide, exclusive use of the Ranch, open bar for cocktails, beer, wine, soda and bottled water, souvenir tin cups, and entertainment. Check at the INQUA registration desk to see if tickets (\$75) are still available!

## Exhibit Hall Hours

Friday and Saturday, July 25–26 . . . 10 a.m.–4:30 p.m.  
Monday and Tuesday, July 28–29 . . . 10 a.m.–4:30 p.m.

## Farewell Party

Wednesday, July 30. . . . . 6–8 p.m.

Join your colleagues in completing the Congress at a Farewell Party in the Hilton Pavilion. The party is included in the Congress registration fee and includes light hors d’oeuvres and a drink coupon.

## Field Trips

See page 13 for a listing of field trips. All one-day and post congress field trips depart from the transportation center. For additional information, please contact the field trip desk located in the registration area in the Grand Salon.

## First Aid and Emergency Services

For First Aid or Emergency assistance at the Reno Hilton, contact security at extension 2911 or dial “0” for the operator.

## Information and Messages

A message board will be available in the registration area in the Grand Salon. Please stop by periodically to check for messages.

An information board will be available in the Hilton Pavilion for posting and receiving general information pertinent to INQUA attendees.

## INQUA Executive Committee Office

The INQUA Executive Committee will maintain an office at the Congress, located in Teton 2 on the Mezzanine Level.

## INQUA Commission Meetings

See page 7 for a listing of dates, times, and places

## Internet Access

Internet access is available via the Gateway Internet Café in the Hilton Pavilion. It is open when the exhibits and posters are open:

Thursday, July 24 . . . . . 1:30–4:30 p.m.; 6–8 p.m.  
Friday–Saturday, July 25–26 . . . . . 10 a.m.–4:30 p.m.; 6–8 p.m.  
Monday–Tuesday, July 28–29 . . . . . 10 a.m.–4:30 p.m.; 6–8 p.m.  
Wednesday, July 30. . . . . 1:30–4:30 p.m.; 6–8 p.m.

## Local Transportation

Local transportation is available by rental car or taxi.

## Presidential Address

Join us for Professor Sir Nicholas Shackleton’s Address Formal Quaternary Stratigraphy—What Do We Expect and Need?, at 4:30 p.m. on Thursday, July 24 in the Reno Ballroom.

## Registration/Information

Grand Salon

### Hours:

Wednesday, July 23 . . . . .12–7:30 p.m.  
Thursday, July 24 . . . . .7 a.m.–7 p.m.  
Friday–Saturday, July 25–26 . . . . .7 a.m.–5 p.m.  
Sunday . . . . .Closed  
Monday–Wednesday, July 28–30 . . . . .7 a.m.–5 p.m.

### On-Site Registration Fees:

Professional. . . . . \$450  
Student . . . . . \$250  
Guest/Spouse . . . . . \$ 50

**Badges:** Badges **must** be worn for access to ALL activities. There is a \$10 replacement fee for lost or forgotten badges.

**Guest Registration:** The guest registration fee of \$50 per person is available for nongeologist spouses or friends of professional and/or student meeting registrants. The guest registration fee does not provide access to technical sessions. Refreshments in the Guest Hospitality Room, Shasta 1 on the Mezzanine Level, are reserved only for those who have paid the guest registration fee.

**No Refunds:** There are no refunds for on-site registration, abstract books, or ticket sales.

**Students:** A CURRENT student ID is required to obtain student rates, otherwise the professional fee applies.

## Restaurants

The Reno Hilton has a wide variety of restaurants. Check the hotel information for location and menus. If you are interested in dining outside the hotel, see the list in your registration package.

## Session Chair Orientation

Daily: 7–7:30 a.m. (except Sunday) in Crystal Ballroom 5. All oral session conveners and co-conveners are urged to attend and learn about the AV system.

## Short Course

See page 7 for details.

## Speaker Ready Room

Crystal Ballroom 5

### Hours:

Wednesday, July 23 . . . . .12–5 p.m.  
Thursday-Saturday, July 24–26 . . . . .7 a.m.–7 p.m.  
Sunday July 27 . . . . .12–6 p.m.  
Monday-Tuesday, July 28–29 . . . . .7 a.m.–7 p.m.  
Wednesday, July 30 . . . . .7–10 a.m.

**All oral session speakers must check-in at the Speaker Ready Room a minimum of 24 hours prior to your presentation.** All PowerPoint presentations must be submitted in the Speaker Ready Room to be downloaded to a main computer and transferred to the technical session room where speakers will be making their presentations. Student presentation coordinators will have each individual presentation cued up and ready to go when speakers arrive to the technical session room. LCD projectors, computers, screens, 35mm slide projectors, slide trays, and labels are available in the Speaker Ready Room to practice presentations. There are AV technicians available to answer your questions and help speakers get comfortable with the equipment. Speakers may NOT use their own laptops in technical session rooms.

## Volunteer Office

Volunteers should check in at the Volunteer Office, Teton 1 on the Mezzanine Level.

## Welcoming Reception

Wednesday, July 23 . . . . .6–8 p.m.

National Automobile Museum

Travel through time as you walk through the National Automobile Museum and see more than 220 antique cars, vintage cars, classics, and one-of-a-kind cars! And do it all as you're renewing acquaintances with your colleagues from around the world. Gallery hosts will be available in each area to answer any questions you may have about the collection.

The Welcoming Reception is included in the registration fee and includes round-trip transportation from and to the Reno Hilton (departs from Transportation Center), light hors d'oeuvres, drink coupon, and entrance to the museum.

## Workshops, Working Groups, and other affiliated meetings

See pages 6–7 and 22–25 for a listing of dates, times, and places.