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CONGRESS REPORT

Third International Limnogeology Congress (ILIC3). Tucson, Arizona 29 March-2 April, 2003

The 3rd International Limnogeology Congress of the International Association of Limnogeology (IAL) was held in Tucson, Arizona (U.S.A.) from March 29 to April 2, 2003. 270 abstracts on lakes and lake deposits of all ages were submitted for presentation from lake workers from 34 countries. The chair of the organizing committee was Andrew Cohen of the University of Arizona. The format of the meeting was different than the first two ILIC meetings held in Copenhagen (ILIC1) and Brest (ILIC2). Each morning and afternoon session began with four keynote talks. After discussion, the remaining time was spent at a plethora of posters. Workshops were held later in the day covering topics such as hydrology and its effects on lake sediment diagenesis, scientific drilling opportunities, studies of floods and droughts, Asian paleolimnologic records, and paleolimnology of Meso- to South America. Sandwiched in among three days of sessions and workshops was a mid-meeting field trip led by Owen Davis through the Plio-Pleistocene deposits of the San Pedro Valley, southeast of Tucson. The congress banquet was held at the Desert Museum among cacti and rocks, with an otherworldly plenary address by Vic Baker (University of Arizona) on paleolacustrine features on Mars. After dinner the W.H. Bradley Medal of the International Association of Limnogeology for excellence in research and service in limnogeology was presented to Thomas Johnson of the Large Lakes Laboratory of the University of Minnesota, USA. A post-meeting field trip to the Grand Canyon and the Mesozoic lakes of the Colorado Plateau was led by Timothy Demko (University of Minnesota), Kathleen Nichol (University of Oxford), and Lisa Park (University of Akron).

Topics discussed at ILIC 3 comprised varve records, flood and drought signals for climate reconstruction, arid lakes and their records, lakes on the edge (extreme environments), Quaternary to Holocene lake signals from seven continents, and climate change and human activity in Meso-America. Other subjects included the use of isotopes in unraveling paleoclimate, paleoweathering, and paleodrainage in lakes, the recognition of seismic events in lake sequences, and ancient lake deposits from the Phanerozoic. Some new sedimentology research in lake sequences is outlined below; however, this only scratches the surface!.

Research on Holocene to Quaternary lakes is focusing on high temporal resolution of sediments to tease out short-term climatic change as well as predict short-term events on a human scale. Paleomagnetics was suggested as a way to extend and verify chronology in lakes and correlate among a suite of lakes. Research also continues in correlating continental records to marine events, such as the Heinrich and Dansgaard-Oeschger events. The goal of the lake drilling program of the ICDP is to collect climatic records from a series of lakes for assessing the effects of orbital precession vs. ice sheet dynamics in controlling climate at various latitudes. The Great Salt Lake and Lake Titicaca data are being processed while Lakes Malawi and Bosumtwi in Africa are the next targets. Also, work is underway in Asia and South America to collect and analyze lake signal archives to tie together data in regional syntheses.

The ancient deposits of the Eocene Green River Formation are receiving renewed attention. Detailed basin analyses suggest that the number of varves or rhythmites in the lake basin center is not the same in areas toward the lake margin. This puts into question the exact procedure for determining Milankovitch cycles in ancient lake sequences. In addition, a sedimentary record of tectonic change in the Green River Basin, i.e. a drainage diversion, has been determined through detailed fieldwork. This suggests that the scale of effects in a lake record from tectonic conditions can be separated from sedimentation patterns attributed to climatic change. A new tool in the recognition of provenance changes due to tectonic diversions of drainage is isotopic Sr ratios. Helpful in teasing out tectonic signals in the Green River Formation, this geochemical tool has also been applied to Quaternary Lake Bonneville deposits and Holocene Lake Victoria and Lake Edward sediments to determine water sources through time. These techniques will be useful as limnogeologists continue to test the lake model proposed by Bohacs, Carroll, and colleagues (balanced fill, overfilled, and underfilled basins) to understand the relative effects of climate and tectonics on ancient lake sequences.

A newer topic in geosciences is the impact of microbial life on sedimentation, especially in relation to extreme conditions. “Lakes on the edge” included highly acidic lakes, Antarctic lakes, highly saline lakes, and hot spring lakes with their associated records of sedimentation and life. In addition, organic matter archives, from hydrocarbons, bacteriochlorophylls, to alkanes, were probed in various types of lakes through the use of biomarkers and sulfur, oxygen, and hydrogen isotopes.

ILIC3 was a successful meeting with much discussion on the frontiers of Limnogeology; the global camaraderie of the lake scientists was quite apparent. ILIC4 is set for Barcelona in 2007. Hope to see you there!

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