There was also a consensus concerning the need for interdisciplinary research on key time intervals. These are intervals when there are both data supporting extremely important evolutionary events and the potential to obtain much more highly resolved climate records than we have at present. Three intervals stood out as noteworthy for future intensive, integrative study:

- 3.0–2.4 Ma: Onset of 41-kiloyear glacial cycles in Arabian Sea dust records, origin of stone tools and the genus *Homo*, evidence of faunal change in East Africa
- 2.0–1.5 Ma: Evolution of *H. erectus*, expansion of *Homo* out of Africa, evidence for expansion of grassland habitats
- 0.4–0.05 Ma: Diversification of *Homo*, origin of anatomically modern humans, beginning of Middle Stone Age and major transition in stone tool and other technological innovations, dispersal of modern humans out of Africa.

In taking a time-slice approach, the challenge for the paleoclimate/human evolution community will be to better integrate outcrop, marine, and lake core data and modeling results, in order to reconcile their very different temporal and spatial scales and resolutions. Conference participants agreed that a research consortium of like-minded scientists could provide an umbrella of symposia, databases, and Web sites or publications to promote such an effort. It would also sharpen the focus on where improved climate records might be obtained on the continents, specifically through scientific drilling technology. Such records might come from a range of possible targets, from drilling existing fossil/artifact outcrop sites in order to sample unweathered strata, to drilling depocenters near such sites for more complete records, to drilling extremely long continental records in areas such as Lake Tanganyika in central Africa, where a continuous record of the span of human evolution might be obtained.

Regardless of the approach, the workshop made clear that this is only the beginning of what promises to be an exciting time for collaborative efforts to understand the climatic context in which our species and our close relatives evolved.

Paleoclimates and Human Evolution: A Workshop on Integrating Continental Drilling Research with Paleoanthropology and Other Geological Records, held 17–20 November 2005 at the Smithsonian's Conservation and Research Center in Front Royal, Va., was sponsored by the U.S National Science Foundation; the Smithsonian Institution's National Museum of Natural History's Human Origins Program; and the Drilling, Observation and Sampling of the Earth's Continental Crust (DOSECC) Inc. Additional workshop information can be found at http://www.geo.arizona.edu/web/HumanEvolutionWorkshop/

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ABOUT AGU

Outstanding Student Papers, 2005 Fall Meeting

The following members received Outstanding Student Paper Awards at the 2005 Fall Meeting in San Francisco, Calif.

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Planetary Sciences

June Clevy, University of Idaho, Moscow, *Relationship between topography and the eastern equatorial hydrogen signal on Mars.*

Timothy H. McConnochie, Cornell University, Ithaca, N.Y., *THEMIS-VIS measurements of the altitude and velocity of clouds in the Martian mesosphere.*

Seismology

Gregory Bensen, University of Colorado, Boulder, *Extending ambient noise surface wave tomography to continental scales: Application across the United States.*

Kate H. Chen, National Cheng Kung University, Tainan, Taiwan, *Earthquake triggering along a segmented creeping fault: 1951 ML7.3 Hualien-Taitung earthquake sequence in eastern Taiwan.*

Gordon Emore, Purdue University, West Lafayette, Ind., *Recovering absolute seismic displacements through combined use of 1 Hz GPS and strong motion accelerometers.*

Adam Fischer, University of Southern California, Los Angeles, *A closer look at high frequency bursts observed during the 1999 Chi-Chi, Taiwan earthquake.*

Yoshihiro Kaneko, California Institute of Technology, Pasadena, *Modeling aftershock rates using simulations of spontaneous earthquake nucleation on rate and state faults.*

Zack Lawrence, University of Memphis, Tennessee, *Investigating amplitude dependent sediment properties using a vibroseis truck and a micro-array of accelerometers.*

Jimin Lee, Binghamton University, New York, *Earthquake site effect modeling in sedimentary basins using IBEM-FMM.*

Diego Mercerat, Laboratoire de Sismologie, Institut de Physique du Globe de Paris, France, *Triangular spectral element simulation of 2D elastic wave propagation using unstructured triangular grids.*

Meredith Nettles, Harvard University, Cambridge, Mass., *Inference of upper-mantle density structure from seismic velocities.*

Tarje Nissen-Meyer, Princeton University, New Jersey, *3-D global seismic wavefields computed using 2-D spectral-elements: A basis for exact sensitivity kernels.*

Ruth Plets, University of Southampton, National Oceanography Centre, Southampton, U.K., *3-D reconstruction of a shallow archaeological site from high resolution acoustic imagery: A case study.*

Tectonophysics

Graham Baines, University of Wyoming, Laramie, *Time-averaged rate of detachment*

faulting at Atlantis Bank, Southwest Indian Ridge: Evidence for highly asymmetric spreading rates during the formation of oceanic core-complexes.

Shaun Barker, Australian National University, Canberra, *Chemical evidence for episodic growth of a fibrous antitaxial calcite vein from externally derived fluid.*

Arnaud Burtin, Ecole Normale Supérieure, Paris, France, *Evidence for the decoupling of stress above and beneath the Main Himalayan Thrust.*

Violaine Combier, Institut de Physique du Globe de Paris, France, *Upper crustal dynamics of the 9N OSC at the East Pacific Rise: Linking surficial and melt sill structures.*

Colleen Dalton, Harvard University, Cambridge, Mass., *Seismic-wave attenuation in the asthenosphere.*

W. Ashley Griffith, Stanford University, California, *The balance of frictional heat production, thermal pressurization, and slip resistance on exhumed mid-crustal faults (Adamello batholith, Southern Italian Alps).*

A. Ozgun Konca, California Institute of Technology, Pasadena, *The joint seismic and geodetic inversion and strong ground motion estimates of the 2005 Nias 8.6 earthquake.*

Einat Lev, Massachusetts Institute of Technology, Cambridge, *Seismic anisotropy in eastern Tibet from shear-wave splitting - Evidence for crust-mantle de-coupling.*

Sara Pozgay, Washington University, St. Louis, Mo., *Seismic anisotropy and mantle flow across the Mariana subduction system.*

Michelle Salmon, Victoria University of Wellington, New Zealand, *Seismic attenuation, temperature, H20, mantle melting and rock uplift, Central North Island New Zealand.*

Hiroki Sone, Kyoto University, Japan, *Frictional properties and permeability of fault rocks from Taiwan Chelungpu-fault drilling project and their implications for high-velocity slip weakening.*

Marshall Sundberg, Brown University, Providence, R.I., *Strain partitioning and crystallographic textures of experimentally deformed olivine + orthopyroxene aggregates.*

MEETING ANNOUNCEMENTS

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■ 19–21 April 2006 **Symposium on Climate Variability and Ecosystem Impacts on the North Pacific: A Basin Scale Synthesis**, Honolulu, Hawaii, U.S.A. Sponsors: North Pacific Marine Science Organization; Global Ocean Ecosystem Dynamics; North Pacific Fishery Management Council; others. (Secretariat, Institute of Ocean Sciences, P.O. Box 6000, Sidney, British Columbia, Canada V8L 4B2; Tel.: +1-250-363-6366; Fax: +1-250-363-6827;
E-mail: secretariat@PICES.int; Web Site: http://www.pices.int/meetings/international_symposia/Honolulu2006)

The symposium's primary objective is to present a synthesis of the effects of seasonal to multi-decadal variability on the structure and function of the North Pacific. Topics include examining the ocean and ecosystem responses to known strong, infrequent changes in the North Pacific and ecosystem productivity and structural responses to physical forcing.

■ 10 May 2006 **Annual Board Meeting of the Mid-Atlantic/Northeast Visibility Union**, Pittsburgh, Pa., U.S.A. Sponsors: U.S. Environmental Protection Agency; Mid-Atlantic/Northeast Visibility Union. (K. Bryant, Ozone Transport Commission/MANE-VU Office, 444 North Capitol Street NW, Suite 638, Washington, D.C., U.S.A. 20001; Tel.: +1-202-508-3480; E-mail: ozone@otcair.org; Web Site: http://www.manevu.org)

Under the theme of "Regional Planning for Improved Visibility," this meeting will focus on regional haze and visibility improvement issues.

■ 14–17 May 2006 **Joint Annual Meeting: Geological Association of Canada and Mineralogical Association of Canada**, Montreal, Quebec, Canada. Sponsors: Geological Association of Canada; Mineralogical Association of Canada. (Conference Coordinator; E-mail: gacmac2006@uqam.ca; Web Site: http://www.gacmac2006.ca)

With the theme of "Planet Earth in Montreal," the conference will explore how geoscientists can develop an integrated approach to global problems. Topics include economic geology; structural geology and tectonics; mineralogy, crystallography and mineral chemistry; and sedimentology, paleontology and micropaleontology. Pre- and post-conference field trips will be offered.

■ 21–25 May 2006 **World Environmental and Water Resources Congress 2006**, Omaha, Nebr., U.S.A. Sponsor: American Society of Civil Engineers' Environmental and Water Resources Institute. (C. Jacobson, Jacobson Helgoth Consultants, 10838 Old Mill Road, Suite One, Omaha, Nebr., U.S.A. 68154; Tel.: +1-402-697-0701; Fax: +1-402-697-0702; E-mail: djacobson@jhcinc.com; Web Site: http://www.asce.org/conferences/ewri2006)

This conference will examine the confluence of environmental and water concerns in the hopes of gaining new perspectives on recent catastrophes. Topics include computational hydraulics; dam removal; irrigation and drainage; hydraulic structures, and river and wetland restoration.

■ 25–26 May 2006 **ARCUS 18th Annual Meeting and Arctic Forum 2006**, Washington, D.C., U.S.A. Sponsor: Arctic Research Consortium of the United States (ARCUS). (Conference Coordinator, ARCUS, 3535 College Road, Suite 101, Fairbanks, Alaska, U.S.A. 99709-3710; Tel.: +1-907-474-1600; Fax: +1-907-474-1604; E-mail: info@arcus.org; Web Site: http://www.arcus.org/annual_meetings/2006/index.html)

Under the theme "International Arctic Research at a Turning Point: Innovations and Collaborations for the Future," topics will include an overview of Arctic research challenges, and strategies for forging partnerships. Abstract deadline is 10 May.