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Sir John Houghton of the Intergovernmental Panel on Climate Change uses evidence compiled by LTRR professor Malcolm Hughes and colleagues to illustrate his point about ongoing global warming.

LTRR work helps convince panel world is warming up

By Melanie Lenart

Research by LTRR professor Malcolm K. Hughes, climatological colleagues and the tree-ring community figured prominently in the Intergovernmental Panel on Climate Change (IPCC) projections of future global warming.

During an international meeting in Shanghai held earlier this year, IPCC Working Group I co-chairman Sir John Houghton used a graph from a 1999 paper by Hughes and two colleagues to help illustrate why the panel of scientists now believe the Earth has already warmed unusually, and that the predicted warming could be

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nearly double its earlier projections.

The latest IPCC report, approved at the Shanghai meeting this January, projects the Earth’s average temperature will increase by 2.5 to 10.4 degrees Fahrenheit by 2100.

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Climatologist joins faculty

Michael Evans looks for signals in multi-proxy annual records

Q: What do corals and trees have in common?

- a. They both have annual growth rings.
- b. They both permit study of natural climate variability for periods when direct observations are unavailable.
- c. They both have attracted the interest of Michael N. Evans, a newly hired assistant professor of dendrochronology who will join the University of Arizona’s Laboratory of Tree-Ring Research this year.
- d. All of the above.

The correct answer is all of the above. Evans, a paleoclimatologist by training, will join the LTRR faculty in August 2001 after completing two concurrent postdoctoral positions on the East Coast.

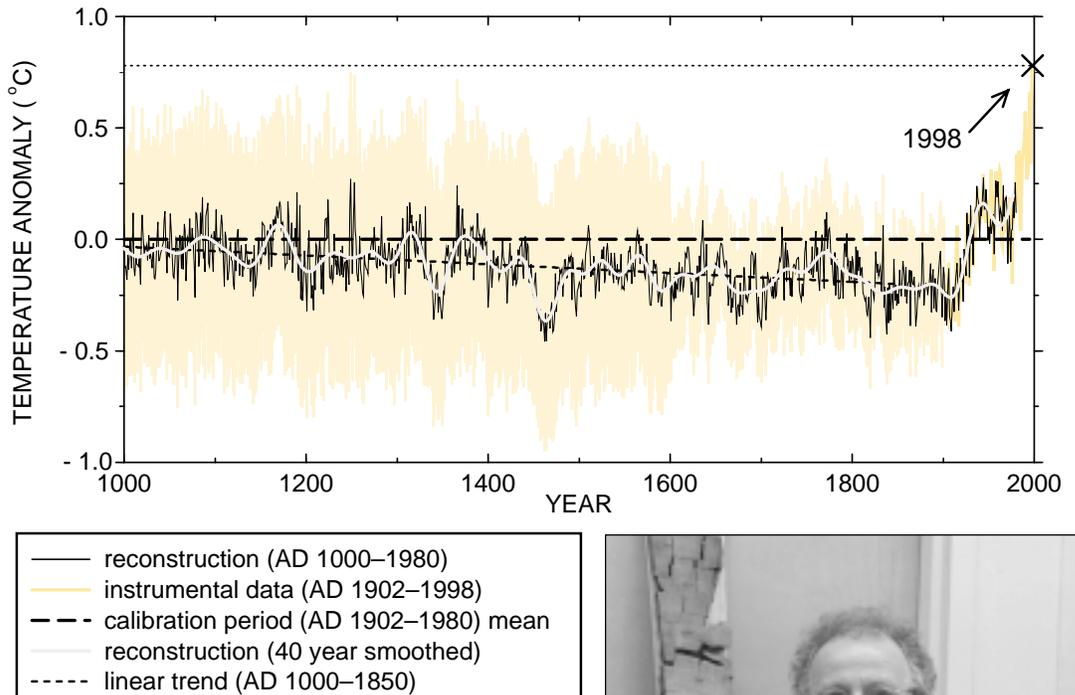
At Harvard, where he received his bachelor’s degree in 1992, he holds a Climate and Global Change postdoctoral fellowship awarded by the National Oceanic and Atmospheric Administration (NOAA). At Columbia University, where he received his Ph.D. from the Department of Earth and Environmental Sciences in 1999, he is a postdoctoral research scientist at the Lamont-Doherty Earth Observatory.

During a recent visit to Tucson, Evans described the questions that fuel his work.

“Is recently observed El Niño activity, such as the strong 1997-98 event, part of the natural variability of the system? Or is it

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At right is the graph of annual temperatures, with error bars, for the past millennium estimated from proxy records by Hughes and colleagues. More details can be found on the interactive web site listed at the bottom of the page.



Hughes, continued from page 1

The IPCC report and the press conference both featured the temperature reconstruction curve produced by Michael E. Mann and Raymond S. Bradley of the Universities of Virginia and Massachusetts along with the University of Arizona’s Hughes.

Their statistical analysis of annual records of climate – drawn from existing records of tree rings, lake and ocean sediments, ancient ice and coral reefs – indicate the average global temperature during this past century was warmer than any century of the previous 900 years. Among other things, the temperature reconstruction indicates 1998 was the warmest year in the past millennium, with 1997, 1995 and 1990 hot on its heels.

The international attention given to his work has evoked a mixed reaction in Professor Hughes, who was director of the Laboratory of Tree-Ring Research for 14 years until he stepped down last year to

devote more time to teaching and research.

“It’s both exciting and worrying. We always say we want to influence people, but when we do it’s worrying because of the responsibility that goes with doing research that turns out to be socially relevant. Even so, I am confident that our major findings will stand the test of time – that the past century, and particularly the 1990s, was unusually warm in the Northern Hemisphere compared to the previous five hundred years, and probably the previous nine hundred.”

The estimates of temperature become less certain as one ventures back in time, and the researchers used error bars to help capture this uncertainty on the graph. Tree-ring records from Russia, Scandinavia, Tasmania, Argentina, Morocco and France, along with three sets of 1,000-year-long records from North America, helped them extend the



Photo By Steven Leavitt

LTRR Professor Malcolm Hughes

temperature reconstruction back 400 years further than they had in an April 23, 1998, paper they published in Nature. Their 1999 paper was published in the March 15 issue of Geophysical Research Letters. Even more recently, they posted an interactive version of some of their findings on the following Earth Interactions website:

http://www.ngdc.noaa.gov/paleo/ei/ei_reconsa.html

