

NASA under pressure to extend Hubble's life

Tony Reichhardt, Washington

More than 200 leading astronomers crowded into a meeting room in Washington DC last week to grapple with a thorny dilemma: when, or even whether, to shut down the 13-year-old Hubble Space Telescope.

NASA wants to decommission Hubble in 2010, saving the money to prepare the larger and more capable James Webb Space Telescope (JWST) for launch in 2011 (see *Nature* 416, 112; 2002). But a growing number of astronomers think that would be a mistake. Riccardo Giacconi, a Nobel laureate and former director of the Space Telescope Science Institute in Baltimore, Maryland, warned that they "would look like fools" if they didn't keep the highly productive Hubble going at least until the JWST is launched.

So charged has the debate become that NASA has thrown the question over to a heavyweight panel of astronomers led by John Bahcall of the Institute for Advanced Study in Princeton, New Jersey. The panel will solicit views from astronomers and report to NASA in October.

NASA currently favours a last upgrade for Hubble in 2005, before attaching a rocket booster to the telescope in 2010 that would steer it to burn up over the ocean. A team at the agency's Marshall Space Flight Center in Huntsville, Alabama, is studying how to do this, with a report due at the end of this month. Many astronomers say it would add relatively little to the \$700-million cost of the 2010 trip to prolong Hubble's life, and even

add new instruments. The Marshall team considers this to be too difficult at present.

In an extraordinary gesture of support for Hubble, astronaut John Grunsfeld said that US astronauts opposed "risking human lives for the purpose of disabling great science", but would support a mission to extend Hubble's life or ensure its safe re-entry.

But George Rieke, an astronomer at the University of Arizona who is building one of the JWST's instruments, said that it would be unwise to improve Hubble's ability to survey distant galaxies in the infrared when "we're building another instrument to do that even better".

Giacconi, however, pointed to Hubble's

unique ability to see across visible, ultraviolet and infrared wavelengths — something that the more sensitive JWST won't be able to match. Astronomers viewing in X-rays and γ -rays have come to rely on supporting observations from Hubble, he said.

John Huchra of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, who chairs the Association of Universities for Research in Astronomy (AURA), called Hubble "the Energizer Bunny of astronomy". He said that a poll of AURA members ranked continued space-based observations in visible and ultraviolet wavelengths as their highest priority. ■

♦ <http://hst-jwst-transition.hq.nasa.gov/hst-jwst>



Shine on: many astronomers want the Hubble Space Telescope to remain in service after 2010.

Ecological advice sparks sea change in judicial opinion

Rex Dalton

For any environmental scientist, it would be an opportunity to die for — to speak to the judges of one of the most powerful US courts about the ecological perils to the oceans.

On 25 June, this dream became a reality for marine ecologists Jeremy Jackson and Nancy Knowlton from the Scripps Institution of Oceanography in San Diego, California.

They were invited to provide scientific background to the US Ninth Circuit Court, the largest federal circuit court network and one of the country's most powerful courts. Some 1,600 judges and attorneys attended its annual conference in Kauai, Hawaii.

Cases covering marine-mammal protection, fishing standards and disputes over seismology or sonar studies are often heard in the Ninth Circuit Court, which sets precedents for US waters off the West Coast, Hawaii and Alaska.

The unusual idea of inviting the



scientists came from Judge Raymond Fisher, a member of the Ninth Circuit Court of Appeals. The judges and attorneys "were interested in hearing the scientific side of things directly from scientists, rather than filtered through court proceedings," says

Fisher. The audience was treated to an unvarnished look at marine ecological issues — and it made them think differently.

"The ocean is really in very bad shape," Jackson told the audience, citing the collapse of major fisheries, degradation of coral-reef habitats and the widespread growth of slime from oxygen depletion and agricultural chemical pollution.

"Afterwards, people in the audience said they were largely unaware of the seriousness of the situation," says Knowlton. "They said they may want to rethink how they address certain environmental issues."

William Fletcher, a Ninth Circuit appellate judge who helped to select the scientists, added: "People thought the talks were fabulous. I thought I knew a lot about the environment, but I was staggered by what I didn't know."

Court officials say they expect to invite scientists to next year's conference. ■