2008 U.S. BUDGET: Ocean Research Gets a Modest Boost

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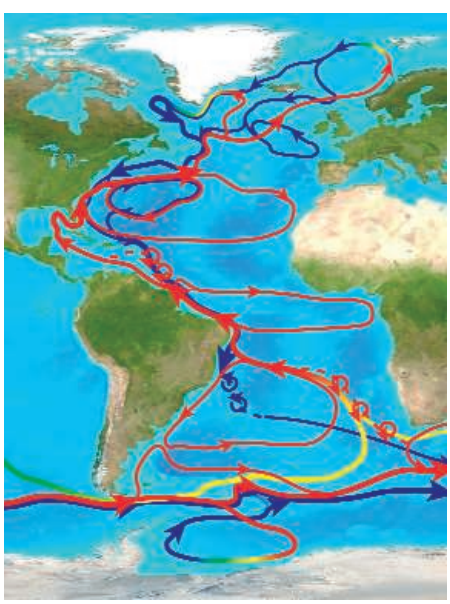
2008 U.S. BUDGET

Ocean Research Gets a Modest Boost

It's more than a drop in the bucket. But the $40 million increase for U.S. ocean research proposed last week by the Bush Administration for 2008 falls far short of the torrent that two prestigious commissions said 3 years ago was needed to deal with declining fisheries, climate change, and a host of other problems in the seas.

The research bump is part of a $143 million spending boost for ocean projects in the president's upcoming 2008 budget request; Administration officials announced the increase in advance of the budget's 5 February submission to Congress. It covers four areas tagged as priorities in the next 2 to 5 years: natural hazards in coastal areas, basic research comparing marine ecosystems, new biosensors, and the role of Atlantic Ocean currents in rapid climate change. Most of the overall spending increase, if approved by Congress, would go to the National Oceanic and Atmospheric Administration (NOAA), although the smaller research pot would be split almost evenly between NOAA and the National Science Foundation (NSF), with the U.S. Geological Survey getting a tiny portion.

"This isn't good enough; it's off by a factor of 2," says Admiral James Watkins, a retired navy officer who co-chairs the Joint Ocean Commission Initiative (JOCI), a task force that lobbies for progress on recommendations made by the two commissions. In 2004, the U.S. Commission on Ocean Policy issued a report that called for a 5-year doubling, to $1.3 billion, of federal spending on ocean science. Still, some advocates see the Bush spending plan as a step in the right direction, and they also like an accompanying long-term research plan put together by an interagency group. "I think that's a very good sign for the future of the field," says Robert Gagosian, former director of the Woods Hole Oceanographic Institution in Massachusetts and an adviser to the U.S. Commission and JOCI.



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Charting the course. The proposed new research funding covers priority topics such as the Atlantic currents that influence climate change.

The report was drafted by the White House's Joint Subcommittee on Ocean Science and Technology, which began working on it in 2005. After a public meeting in April last year, the panel compiled 21 priority topics for ocean research that fit into six broad areas important to society, such as sustainable use of ocean resources and minimization of natural hazards. Agencies also identified near-term priorities in ocean research with the greatest impact and urgency, and suggested how much could be spent in each area.

The final figure "is in the ballpark" of what was proposed, says Julie Morris, head of the division of ocean sciences at NSF, one of the participating agencies. But the real surprise was the White House's willingness to fund any initiative in the upcoming 2008 budget, says Margaret Leinen, Morris's former boss, who last month stepped down as head of NSF's geosciences directorate. "Nobody was thinking that it wouldn't happen, but having it rolled out in '08 was very satisfying," says Leinen, now chief science officer for Climos, a greentech startup company based in San Francisco, California (*Science*, 22 December 2006, p. 1847).

NOAA would get $123 million of the proposed $143 million in new spending, a 9.2% increase over the agency's request last year. (Its 2007 budget, like that of all domestic agencies, is still unresolved.) The new funds would cover $38 million for coral reef conservation and restoration of salmon habitat, $25 million to help end overfishing, and $40 million for research support, including $16.4 million for the Integrated Ocean Observing System, an embryonic network of sensors and buoys that has mostly been funded by earmarks. Although that amount would be far below the $70 million proposed for 2007 by a Senate spending panel (*Science*, 21 July 2006, p. 280), it is listed for the first time as a separate budget item, a step that observers say demonstrates the Administration's commitment to developing the system.

NOAA's share also includes $20 million ▶

Italian Center Back to Life

Italy's government is poised to rescue the Biomedical Research Center in Palermo. The project in regenerative medicine was jointly sponsored by the University of Pittsburgh and Palermo's ISMETT organ transplantation research center (*Science*, 27 October 2006, p. 577). More than 100 Italian scientists living abroad protested a government plan to withdraw support last year. Now the government has submitted a finance bill that would provide $340 million rather than the $410 million first proposed. The downsizing has forced a project review, but ISMETT says it hopes to begin recruiting staff later this month.

–FRANCESCO DE PRETIS

Stern But Kind at NASA

NASA Administrator Michael Griffin has found a new chief for the agency's beleaguered earth and space sciences program, insiders say. Griffin has been introducing S. Alan Stern, executive director of the Southwest Research Institute in Boulder, Colorado, around NASA's Washington, D.C., headquarters as a successor to Mary Cleave, who announced last September that she would leave this spring. Stern, a planetary scientist, is the principal investigator on NASA's Pluto–Kuiper belt mission and an advocate for lunar exploration—music, no doubt, to Griffin's ears. His challenge will be to preserve the agency's $5.5 billion commitment to science projects in the face of a flat budget and the growing appetite of NASA's human flight program. Stern did not return messages, and a NASA spokesperson declined comment.

–ANDREW LAWLER

More Direction for NIH

The freighterlike momentum of the National Institutes of Health (NIH) makes it notoriously hard to turn, but on 8 July the $28 billion agency will get a new steersman. Alan M. Krensky, a pediatric nephrologist and immunologist at Stanford University School of Medicine in Palo Alto, California, has been named director of the NIH office of portfolio analysis and strategic initiatives, a newly created post to help NIH Director Elias Zerhouni craft his agenda of high-priority programs known as the Roadmap. Krensky will also run a team that tracks spending across all NIH divisions and evaluates how well the agency hews to its goals.

Krensky, 56, already a consultant for the agency, says an important part of his job will be to align NIH spending with societal concerns such as the burden of specific diseases. His office will not impose priorities, he insists, but rather "facilitate" decisions by NIH institute chiefs. **–ELIOT MARSHALL**

for priority research. NSF would get $17 million, and $3 million would go to the U.S. Geological Survey for mapping the sea floor and monitoring water quality. NOAA is still deciding which existing programs will receive the $20 million and how much would be extramural research, says Richard Spinrad, NOAA's assistant administrator for oceanic and atmospheric research.

And although the plan spells out NASA's critical role in ocean research, there was no mention of the agency at the 26 January press conference. "I'm shocked," says Len Pietrafesa of North Carolina State University in Raleigh, especially given last month's report from the National Academies' National Research Council highlighting the 30% decline in NASA's earth science budget over the past 6 years. Dan Walker of the White House Office of Science and Technology Policy, which worked on the research plan, says NASA is already contributing to ocean research.

Watkins says he will continue lobbying Congress to boost overall ocean funding to the level recommended in a recent report from JOCI. And he says he's optimistic that the new Democratic-led Congress will do better than its Republican-led predecessor. This week, for example, JOCI gave the nation a failing grade on funding for the field.

–ERIK STOKSTAD

With reporting by Jeffrey Mervis.

GEOLOGY

Indonesian Mud Volcano Unleashes a Torrent of Controversy

A mud volcano on Java that has destroyed four villages since it began erupting 8 months ago will likely continue spewing "for many months, if not years," according to the first published scientific report on the disaster. But experts are sparring over two points: whether the eruption was triggered by an earthquake or a gas well and whether anything can be done to stop it.

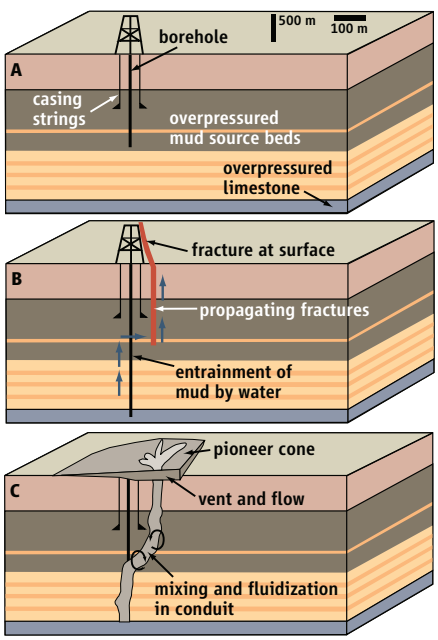
The volcano, known locally as "Lusi," roared to life on 29 May 2006 when steam and mud burst to the surface about 200 meters from an exploratory gas well near the coastal city of Sidoarjo, 700 kilometers east of Jakarta. The mud, up to 10 meters deep in places, has engulfed approximately 3.6 square kilometers and displaced more than 10,000 people.

Several geologists on the scene concluded that the rupture was related to the drilling (*Science*, 29 September 2006, p. 1865). But some Indonesian officials have pinned the blame on a magnitude-6.3 earthquake on 27 May 2006 that leveled parts of the ancient capital Yogyakarta, 280 kilometers southeast of Sidoarjo.

The new report discounts the earthquake scenario. After analyzing the site's geology, Richard Davies, a geologist at Durham University in the U.K., and colleagues argue that the drilling penetrated a highly pressurized and permeable limestone formation about 2800 meters deep. In the absence of a casing to protect the drill hole, fluid gushed back up, suffusing sediments and forcing mud to the surface through new fissures.

Davies's scenario, in this month's issue of *GSA Today*, has sparked a vigorous debate. It's "convincing," says Michael Manga, a geologist at the University of California, Berkeley, who has studied how earthquakes trigger volcanic eruptions. Manga says that in the Sidoarjo case, "the earthquake was too small and too far away."

Others are not so sure. The *GSA Today* report is "based on many speculations," says Adriano Mazzini, a geologist at the University of Oslo. The hypothesis relies on "unreleased geologic data," which Davies describes as drilling information provided to a co-author by a "reliable individual." His team also gleaned details from press releases and Web sites, but they have not visited the site, Davies says. Mazzini, on the other hand, went to Sidoarjo last fall to gather information and mud. "I'm working on a paper with real samples and real data," he says. But Mazzini is hedging his bets: "The earthquake could have contributed," he says; "it is also possible the drilling contributed."



Up and out. In a proposed scenario for Indonesia's mud eruption, a gas well is drilled far below a protective casing into permeable limestone, about 2800 meters deep (A). Pressurized fluid escaping from the limestone formation fractures overlying strata (B) and carries mud to the surface (C).

A lack of consensus has exposed a rift in the government. Aburizal Bakrie, minister of people's welfare, maintains that the mud volcano is a natural disaster and not the result of human negligence. His family's Bakrie Group conglomerate partly owns Lapindo Brantas, the drilling firm responsible for the hole. Last December, Indonesian President Susilo Bambang Yudhoyono ordered Lapindo Brantas to pay $420 million in compensation to local residents.

A more pressing concern is whether the flow can be stanched. "I would guess that stopping the eruption is impossible," says Manga. Mazzini and Davies agree. But last fall, William Abel, a Houston, Texas–based drilling expert who advises Lapindo Brantas, predicted that a relief well to intercept the original well 2100 meters down would allow engineers to plug the leak. However, work on the relief well was halted before it reached the target depth. After sinking more than $40 million into the relief well, "Lapindo Brantas has no more money, everybody has gone from the [drilling] site, and the rig is being taken down," says Rudi Rubiandini, a petroleum engineer at the Institut Teknologi Bandung who advises Indonesia's Ministry of Environment. Abel did not respond to a request for comment.

For now, the government is letting nature take its course. The mud, spurting at up to 150,000 cubic meters per day, is being channeled into a river that carries it to the sea. "It is difficult to predict how long the process of venting from the subsurface may continue if no action is taken," says Roger Sassen, a geochemist at Texas A&M University, College Station, who studies mud volcanoes. And the disaster may even widen: Davies predicts that the mud-laden region may subside or even collapse into caverns created by subterranean erosion, taking with it any hope the villagers have of ever returning home. **–DENNIS NORMILE**

CREDIT: ADAPTED FROM R. DAVIES *ET AL.*, *GSA TODAY* (FEBRUARY 2007)