

benchmark was the Apollo program of the 1960s, as the U.S. responded to the Soviet Union's launching of Sputnik. "That was the high-water mark of America's investment in research and development," Obama recalled, "... and it is time for us to lead once again."

One way to do that, he said, is to double the budgets for NSF, the Office of Science at the Department of Energy (DOE), and the National Institute of Standards and Technology as part of a boost in spending for the physical sciences. Another initiative would double spending on cancer research at the National Institutes of Health. He also made official his Administration's support for DOE's new Advanced Research Projects Agency-Energy, which was created in 2007 and received \$400 million in the recent stimulus package.

Although he praised the president's overall message, Lennard Fisk, a former head of the academies' Space Studies Board and of NASA's science program, said it is ironic that Obama is invoking memories of the space race at the same time NASA, which needs billions of dollars more to carry out all the scientific missions on its books, isn't one of the agencies whose budgets the Administration has pledged to double. "What type of space program does he envision?" asked Fisk, an astrophysicist at the University of Michigan, Ann Arbor. "It was fine in its day, but we don't need another Apollo program."

The sole new effort unveiled by the presi-

dent was a joint education initiative at NSF and DOE to stimulate interest in energy research. NSF Director Arden Bement said that the two agencies would be spending "hundreds of millions of dollars a year" on efforts to entice students to pursue careers in clean energy and to educate the public about the challenges of moving from fossil fuels to renewable sources of energy. The money will go for classroom and laboratory activities at levels ranging from elementary school through graduate training, as well as for informal education. Bement said the initiative, dubbed RE-ENERGYSE in a White House press release, will tap into the 2-year stimulus funding for NSF and DOE along with regular agency budgets in this and subsequent years. He said other agencies may also participate.

The biggest applause line of Obama's speech had nothing to do with money. But it is the reason why so many academy members have welcomed his election. Referring to the actions of his predecessor, Obama promised that "under this Administration, the days of science taking a back seat to ideology are over." Toward that end, he also announced the rest of the members of the President's Council of Advisors on Science and Technology (www.ostp.gov). The 20-member council, co-chaired by Holdren, Harold Varmus, and Eric Lander, wasted no time getting down to business, convening in private only minutes after Obama hit the road. **—JEFFREY MERVIS**



No response? Clouds in a model do not block more sunlight when cosmic rays increase.

the changes in clouds. "I'm feeling fairly confident that other models will also show the change in CCN is very weak," Pierce adds. "It's possible the models are missing something important; it just doesn't seem likely."

The reason cosmic-ray variations don't make themselves felt up the chain, at least in the model, seems to be the daunting matter of millionfold growth. Once a tiny amount of, say, sulfuric acid vapor condenses onto a cosmic-ray-induced ion to form a 1-nanometer particle, a million times more vapor must condense on it within its lifetime of less than a week before it grows large enough to trigger cloud drop formation. All the while, other growing particles are competing for the

scarce vapor and gobbling up smaller particles that they collide with. Make only a few ion-nucleated particles, and they are not enough to matter; make a lot, and there's too little vapor to go around, so few particles grow large enough.

Other modelers have just started to run global simulations of atmospheric particle formation, provoking a range of reactions. "We see a very similar thing" in our model, says Jan Kazil of the University of Colorado, Boulder. "Cosmic-ray variations have only a small effect on the clouds in our model."

But Fangqun Yu of the University at Albany in New York says he disagrees with the Carnegie Mellon researchers "because of problems in their simulations." Among other problems, Yu suspects that in simulating only two rates of new particle formation via ionization—very high and much lower—Pierce and Adams may have missed a "sweet spot" production rate in between, at which just enough but not too many particles are produced. Testing the Goldilocks hypothesis will take more modeling and observations.

—RICHARD A. KERR

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China Falls Short on Olympic Cleanup.

The Chinese government went to great lengths to reduce air pollution in Beijing in advance of the Olympic Games. But a new analysis in *Geophysical Research Letters* suggests that the country achieved only mediocre results. The problem? Officials didn't take the weather into account. <http://tinyurl.com/chjzy6>

Artificial Blood Vessels Prove Effective.

Scientists report in *The Lancet* that artificial blood vessels made using a person's own skin cells work well in patients receiving kidney dialysis. The new blood vessels mark the first vascular grafts to be derived entirely from a patient's own tissues, which lowers the odds of a harmful immune reaction. Down the road, engineered grafts may also prove useful in treating patients with circulatory problems in their legs and coronary arteries. <http://tinyurl.com/d333v6>



Presto, Instant Sunglasses! Researchers report in the *Journal of the American Chemical Society* that they have developed a material that almost instantaneously changes from clear to dark blue when exposed to ultraviolet light, and it just as quickly reverts to clear when the light is turned off. The new material, one of a class called photochromics, could be useful in optical data storage as well as in superfunny sunglasses. <http://tinyurl.com/dj2x45>

"Shall We Dance?" Pond scum may seem like a mass of ungraceful goop, but look closer: That gunk could be in the midst of an elegant minuet. According to new research in *Physical Review Letters*, tiny colonies of the common algae *Volvox* can whirl each other around for hours like ballroom dancers, driven by the rhythm of tiny, tail-like structures called flagella. The findings could shed light on how interaction between primitive organisms evolved. <http://tinyurl.com/djrme4>

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