OZONEWS

A weekly electronic news service on ozone protection & related issues compiled by:
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In this issue:

1. Ozone layer Over Europe Dropping to Low Levels

September 18,2000-Upper atmospheric conditions in The Northern Hemisphere are becoming similar to those of the Antarctic. The ozone layer over Europe has been dropping to lower levels daily for the first two weeks of September.
The related images are available on solcomhouse: http://www.solcomhouse.com/ArcticOzone.htm

2. Fiber-Optic Laser Could Track Changes in Earth's Ozone Layer

BALTIMORE-Mounted inside a satellite high above the Earth, a powerful fiber-optic laser system, no larger than a laptop computer, fires an ultraviolet beam toward the planet. The beam strikes gas molecules such as ozone, sulfur and carbon dioxide, then bounces back to the satellite, carrying critical information about the health of the atmosphere.
Within five to seven years, this cutting-edge tool, envisioned by engineers at The Johns Hopkins University and NASA's Goddard Space Flight Center, could be in orbit, gathering important data for scientists who monitor air pollution and atmospheric changes that may be associated with global warming.
NASA recently awarded an $815,500 three-year grant to a Johns Hopkins-Goddard team that plans to design and build a prototype of this device. Jin Kang, an assistant professor in Johns Hopkins' Department of Electrical and Computer Engineering, will create the ultraviolet light source based on fiber-optic laser technology. Engineers at Goddard will fabricate a sturdy housing that will protect the system from the rigors of space travel.
"This kind of laser is ideal for space applications, where it has to be able to survive the rocket vibrations and remain operating in space for a long time," Kang says. "In a fiber-optic laser, the light keeps going around a loop of fibers and gets amplified as it does. It's very simple, and you don't have to align mirrors the way you do with a conventional laser. A fiber-optic laser is very light and highly efficient."
Kang's colleagues at Goddard say these characteristics are important. "We're going to integrate Kang's basic laser into our equipment, making the parts rugged enough to survive space travel and miniaturizing some parts to reduce the size and weight," said Harry Shaw, associate branch head for component technology and radiation effects at Goddard. "We're going to develop a device that is compact, reliable and weighs much less than conventional lasers. That's very attractive to spacecraft designers because it's expensive to put things in space."
The Hopkins-Goddard proposal was one of about a dozen selected from hundreds of proposals NASA received this year in response to a request prepared by the agency's Earth Science Technology Office. Researchers in this office want to foster development of lasers that can be used for atmospheric sensing applications.
This laser device promises to become the critical component of a LIDAR system, a variation of radar that uses light instead of radio waves. In this system, light beams are aimed at the atmosphere. When the beams strike gas molecules, they bounce back, carrying a wavelength absorption "fingerprint" containing information about the identity of gases in the atmosphere and their density. The system could be used, for example, to measure changes in the protective ozone layer that surrounds the Earth.
The engineers from Johns Hopkins and Goddard hope to finish building their fiber-optic laser device within three years. Afterward, the same team hopes to incorporate the laser into a larger research instrument that could be launched into space a few years later.

Source:By AScribe Newswire, 29/8/2000, http://envirolink.netforchange.com/frame.html

3. Back to the Future for Air Conditioners

Scientists are looking back to the early 20th century in their search for an environmentally friendly alternative to air-conditioning refrigerants linked to global warming. That means carbon dioxide, the refrigerant of choice years ago, could be on the verge of a comeback in millions of automobile and portable air conditioners, say Purdue University researchers.

Ironically, the synthetics chemicals now blamed for causing global warming replaced carbon dioxide because they were easier to handle. Carbon dioxide required heavy steel tubing and machinery to contain it. But technological advances, including ultrastrong yet thin aluminum tubing, could make the back-to-the-future use of carbon dioxide practical. The well-known Freon was among the synthetic refrigerants called chloroflurocarbons that replaced carbon dioxide in the 1930s. But the federal government banned chlorofluorocarbon production in 1995 because of concerns about ozone depletion

Hydrofluorocarbons, the synthetic refrigerants used now, pose no danger to the ozone but can cause global warming and likely will be restricted by federal regulators, says Eckhard Groll, the researcher leading the Purdue team.

"Then we're in trouble because there's no replacement for the [hydrofluorocarbons] with the current technology," Groll says. Carbon dioxide also can contribute to global warming, says Groll, an associate professor of engineering at Purdue. But its impact is infinitesimal compared with hydrofluorocarbons, which cause about 1,400 times more global warming than the same amount of carbon dioxide, the researchers say.

Quantities of carbon dioxide released from air conditioners also would be just a tiny fraction of the amount produced by burning fossil fuels such as oil, coal and gas for energy and transportation, they say.

The Purdue team has created a computer model that simulates performance of carbon dioxide-based air conditioners and could be used to design air conditioners that use carbon dioxide. Carbon dioxide air-conditioning systems likely would take five to 10 years to perfect, Groll says.

Mark McLinden, a chemical engineer at the National Institute of Standards and Technology, says he's optimistic about the potential of carbon dioxide replacing the more harmful synthetic chemicals. But cost will be a big factor, he says. "Absolutely, it will work," McLinden says. "[But] it always comes down to a question of economics -- economics in terms of the cost of the equipment and then the operating costs."

Still, pressure to find alternatives to existing synthetics likely will grow, he predicts.

"If you're in business of producing air conditioning or refrigeration, you'd be totally burying your head in the sand to pretend that [hydrofluorocarbons] are not under some threat," McLinden says. "It's just a prudent sort of strategy to at least be aware of what other possibilities are out there."

What to Do?

To learn more about global warming and its causes, visit the Environmental Protection Agency <http://rd.yahoo.com/Dailynews/inlinks/hsn/*http://www.epa.gov/globalwarming/actions/efficiency/index.html>.

The agency also offers a backgrounder on ozone-depleting chemicals <http://rd.yahoo.com/Dailynews/inlinks/hsn/*http://www.epa.gov/ozone/title6/phaseout/accfact.html> that have been phased out.

Also, the National Oceanic and Atmospheric Administration offers more information about hydrofluorocarbons <http://rd.yahoo.com/Dailynews/inlinks/hsn/*http://www.cmdl.noaa.gov/noah/flask/hfc.html>.

Source:Health Scout Reporter, 10/9/2000 By: Gary Gately, http://dailynews.yahoo.com/h/hsn/20000910/hl /backtothefutureforairconditioners1.html

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Prepared by: Samira de Gobert, Public Information Assistant
Reviewer: Jim Curlin, Information Officer

If you have questions, comments, ideas for future articles, or you want to discontinue receiving this update, please contact: Mrs. Samira de Gobert, Tel. 0144371452 Email: sami.degobert@unep.fr