

News by category

XML

- ▶ Nano and Quantum Physics
- ▶ Technology
- ▶ Applied Physics
- ▶ Space and Earth science
- ▶ Electronic Devices
- ▶ Striking Research and Developments

Most popular

- ▶ World's First Ultra-Thin Multilayer Circuit Board Fabricated by Epson Inkjet Technology
- ▶ Possible origin of cosmic rays revealed with gamma rays
- ▶ Honeybees defy dino-killing 'nuclear winter'
- ▶ Duke Robot Climbs to Victory in Madrid
- ▶ NASA's X-43A to Attempt Mach 10 Flight Next Week

Last forum posts

- ▶ Quantum computing is a hoax last post by **extrasense**
- ▶ Why are yawns contagious? last post by **Cristina**
- ▶ Einstein, Twins and Moving Clocks last post by **ARtone**
- ▶ Some ideas on Quantum Mechanics last post by **ARtone**
- ▶ Huge 160" Monitor display for 20 \$? last post by **ARtone**
- ▶ the metallic bond in single crystals last post by **Henadzi Filipenka**

Riders on the storm

November 19, 2004

[Latest News By E-mail](#)
[Print this news](#)

Drifting buoys & floats weather hurricanes for better storm prediction

While some are still cleaning up from the series of hurricanes that plowed through the Caribbean and southern United States this season, scientists supported by the Office of Naval Research are busily cleaning up valuable data collected during the storms. The rapid-fire hurricanes barely gave researchers time to rest between flights that took them into the hearts of Hurricanes Frances, Ivan, and Jeanne. As part of a project called CBLAST, for Coupled Boundary Layer/Air-Sea Transfer, researchers air-dropped specially designed instruments into the paths of the hurricanes--and into the hurricanes themselves.

"This season has seen a breakthrough in hurricane and oceanographic research," said ONR program manager Dr. Carl Friehe. "Real-time data sent back by the drifters and floats have created great interest among oceanographers, meteorologists, and hurricane forecasters." Project CBLAST-Hurricane focuses on the energy exchanges between the ocean and atmosphere during a hurricane, and how those interactions affect a storm's intensity (a separate CBLAST component studies low-wind interactions). By better understanding these energy exchanges, scientists can develop better models to predict a hurricane's development. A hurricane's intensity determines the size of the storm surge of water that precedes it--which can pose a significant threat to ships in port.

New instruments that can measure the ocean water's temperature, salt content, and velocity--before, during, and after a hurricane--are providing a unique view of the conditions that affect a storm's intensity. While satellites can provide ocean temperature data, they only monitor the "skin" or surface of the ocean down to just 1/8th of an inch. To reach into lower depths, ONR has sponsored the

Today's news:

Electronic Devices

- **Nintendo DS Launches On Nov. 21; New Experiences Only a Touch Away**
- Fujitsu Siemens forging ahead with tablet PC innovations
- Sharp to Introduce New Home Theater Projector
- Dell Goes Wireless with Home and Office Printers

Nano and Quantum Physics

- **Futuristic 'smart' yarns on the horizon**
- New grant to translate nanomedicine research into advances in heart care
- **Aligned nanowires: carbon nanotubes grow along atomic steps on sapphire surfaces**
- **So What is 'Nano'?**

Applied Physics

- **ATLAS Gets It's Heart: Particle Physics on a New Level**
- How the sea urchin grows new spines
- **Scientists shape crystals with biomolecules**
- **Scientists explore atomic mysteries of ancient pigment** 

Space and Earth science

- **Help NASA Make the Next Giant Leap**

▶ Hard to believe! science go wrong way, physics wro
last post by **ARtone**
▶ As The World Turns, It Drags
Space And Time
last post by **ARtone**

News archive

▶ News archive
▶ Search

Important

Help us make our site better!
We'd like to know more about the people who use PhysOrg, and we need your help. The survey takes less than two minutes, there's nothing to identify you personally, and you won't receive any email or other sales pitches by participating.
Take PhysOrg.com Survey



development of new ocean probes by Dr. Eric D'Asaro and Dr. Tom Sanford of the University of Washington Applied Physics Laboratory (Seattle), and Dr. Peter Niiler and Dr. Eric Terrill of Scripps Institution of Oceanography (La Jolla, Ca).

The data collected on water conditions over the course of a hurricane are crucial to forecast modeling because "the ocean is the gasoline for the hurricane's engine," explained ONR's Friehe. During the summer and fall, the sun warms the top hundred meters or so of the ocean. Hurricanes only form over these warm ocean regions, where water easily evaporates and is picked up by swirling weather patterns. "In order to build a model that can predict a storm's development, we need to know exactly how much energy is in the water, as well as how it is distributed by depth and location between Africa and the Caribbean," he said.

The floats from the UW Applied Physics Lab and Scripps are programmed to bob up and down through the upper 200 meters (656 ft) of the ocean, measuring the water's temperature, salinity, dissolved gases, and velocity. They also monitor underwater sounds as part of a study to develop methods of measuring hurricane force winds and rainfall. The floats from the Applied Physics Lab are deployed in a line perpendicular to a hurricane's path, so that one is centered on the eye, another is about 50 km (27 nautical miles) to the north of the eye, and a third 100 km (54 nm) to the north. Each time the instruments reach the water's surface, they transmit data back to scientists using satellite communications.

Drifters from the Scripps team remain on the ocean's surface, floating like bottles with a message that's constantly updated as their instruments measure air pressure, wind speed and direction, and sea surface temperature. They can collect data for as long as their batteries continue to function (up to several months) or they can be picked up by passing ships for reuse and downloading of more detailed information than they are able to transmit. The drifters and floats were dropped into the paths of this season's hurricanes by the U.S. Air Force Reserve 53rd Weather Reconnaissance Squadron (Keesler AFB, Miss.) from two C130J Hercules aircraft. The probes parachuted into the ocean and automatically began taking measurements. They returned time series of ocean profiles that documented the upwelling and mixing caused by the hurricanes. Several of the floats and drift buoys obtained an unprecedented second set of hurricane observations as Hurricane Jeanne followed closely on the path of Frances.

While the drifters and floats weathered the storms from sea level and below, other CBLAST instruments--and researchers--flew through Hurricane Jeanne in two National Oceanic and Atmospheric Administration (NOAA) WP-3D aircraft. From various altitudes throughout the storms, and with the help of fixed and deployed instruments, they collected data on air temperature and pressure, wind speed and direction, and precipitation. The combination of atmospheric and ocean science, technology (GPS, cell phones, miniature computers, etc.), deployment via aircraft, and the need for better hurricane forecasting have all come together in 2004 to mark a sea change in hurricane research, according to Friehe.

NOAA provides project management for CBLAST, as well as researchers, aircraft, flight crews, and other support through its Hurricane Research Division, Aircraft Operations Center, and Office of Oceanic and Atmospheric Research. Researchers from the University of Miami, Rosenstiel School; University of Washington Applied Physics Lab; Scripps Institution of Oceanography; Massachusetts Institute of Technology; and the University of Massachusetts Microwave Remote Sensing

- Crew Members Added to Second Shuttle Return To Flight Mission
- **Not finding life? Dig deeper** 
- NASA research shows wetland changes affect Florida freezes

Technology

- **DOE, Intel, Topspin And Voltaire To Accelerate Development Of New Open-Source Infiniband Software For High Performance C**
- Panasonic Develops World's First Flexible Vacuum Insulation Panel 'Chip-Vacua'
- **NVIDIA And Intel Sign Broad Cross-License, Chipsets License Agreements**
- **Fujitsu Issues the Second White Paper on WiMAX: 'RF Spectrum Utilization in WiMAX'**

Striking Research and Developments

- SunPower's Solar Cells Designed Into Futuristic 'BioHaus' Building
- Back to basics
- **Engineers, psychologists duplicate search process of human eye**
- 2004-5 Mars Rover Model Competition

News archive

Laboratory also participated. The 5-year (FY01-FY05) funding amount for CBLAST Hurricane is: \$5.3 M from ONR and \$0.7 M from NOAA's U.S. Weather Research Program (USWRP).

Source: Office of Naval Research

Related stories:

- [Frances, Ivan Contribute to Hurricane Studies](#) , September 16, 2004
- [France and Australia resume Southern Ocean carbon dioxide research](#) , October 18, 2004
- [Ocean study explores link with Australian rainfall](#) , July 28, 2004
- [Autonomous Robot To Cross the Gulf Stream Underwater](#) , November 05, 2004
- [Ground-Breaking Arctic Expedition](#) , September 28, 2004



Cash Advances: \$100-\$1,000.
Overnight!

We deposit cash in your account overnight. Compare our very low fee of \$18.62 per hundred loaned. Fast decisions. Direct deposit is not required. No credit check. Confidential & secure.

Refinance & Mortgage Loans-
Bad Credit OK

\$25K minimum. FREE QUOTE!
Fast Approval. Absolutely the lowest rates available.

Refinance, 2nd Mortgage,
Consolidation, Line of Credit &
New Loans. Quick and simple application.

PhysOrgForum discussions:

[You may add your comments on the news. Your post will be added to PhysOrgForum.](#)

[You need to be registered at PhysOrgForum to add your comments.](#)

[If you do not have a username / password please register here !](#)

We require registration to prevent spam at PhysOrgForum. Registration is very simple and will not take much time!

Username:

Password:

Topic Title:

**Your
comments:**

Other news discussion topics:

- [Exobiology](#)
- [Probing other star systems](#)
- [Leonard meteor shower](#)
- [junkyard moon](#)
- [Hard to believe! science go wrong way,physics wro](#)

[Home](#)

[Search](#)

[PhysOrg](#) [FAQ](#)

[Links](#)

[Contact us](#)

[Add headlines to your site](#)

©PhysOrg.com 2003-2004