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New Ocean Radar Study to Increase Offshore Alaska Safety

Anchorage--The launch of a four-year federal study using high frequency Doppler radar to map the daily and seasonal current changes in Alaskan waters is expected to produce the most richly detailed oceanographic data ever produced in this notorious offshore region. According to the Minerals Management Service, the study should provide better oceanographic information for the shipping and fishing industries, the offshore oil and gas industries and for other scientific purposes along Alaska's coasts.

The MMS along with the National Oceanic and Atmospheric Administration, under the umbrella of the National Ocean Partnership Program (NOPP) designed the study. For its part, the MMS has funded 30 years worth of scientific studies, among them studies on ocean currents, to gain a better understanding of the oceans' physical processes.

In this Alaska study, a team of scientists from the University of Alaska, Fairbanks and CODAR Ocean Sensors will set up radar stations along the Beaufort Sea's central coast. The radar units, which measure currents much like National Weather Service radar tracks thunderstorms, will measure surface currents during open water and mixed ice periods from June through October 2005 and 2006. These units will then be moved to Cook Inlet to measure surface currents for one full year beginning in October 2006 and ending in November 2007.

"This project is an example of MMS's effort to ensure that state-of-the-art technology is thoroughly explored as we strive for safe and environmentally sound operations on the outer continental shelf," says James Kendall, studies chief for the MMS. "As a leader in ocean environmental safety and a key player in developing our nation's Integrated Ocean Observing System, we expect data and experience from this study will enhance the safety of offshore workers, and the marine environment."

In late September, one week after the contract was awarded; the scientific team field tested the HF radar instruments on Alaska's North Slope in preparation for their June 2005 deployment.

"We have taken advantage of the open water conditions during early October in the Beaufort Sea to test the Doppler radar units for the distance from shore that we will be able to map surface

currents, which is typically 50 miles. Initial results collected during the week of October 4, 2004, indicate that we can ‘see’ over the barrier islands into the open Beaufort Sea,” says principal investigator Dave Musgrave, associate professor for marine science at UAF’s School of Fisheries and Ocean Sciences. “These units have the capability to map the surface currents every hour on a two-dimensional grid of points separated by one mile in each direction.

The data collected through this study will contribute to the baseline oceanography of these two locations. Additionally, the data will be used by MMS for comparing hydrodynamic and circulation models used to develop oil spill risk analyses for offshore oil and gas operations.

“This study will give us the first look at the spatial patterns of surface currents in the Beaufort Sea and how they vary with time,” Musgrave said.

According to Kendall, the reason for the study can be traced to an MMS information need which matched that of NOAA and the NOPP. The NOPP is an organization of 15 federal agencies that provides leadership and coordination of national oceanographic research and education programs, including the design and development of the Integrated Ocean Observation System (IOOS). When complete the IOOS will improve climate change forecasts, improve safe and efficient marine operations, ensure national security, manage resources for sustainable use, preserve and restore healthy marine ecosystems, mitigate natural hazards, and reduce public health risks.

MMS’s Alaska office is a member of the Alaska Offshore Observing System, a regional IOOS effort. The IOOS is being designed as a “federation” of such “regional” associations nationwide. The study is one of MMS’s contributions to the Alaska program. If the study is successful, then AOOS believes such radars could be stationed along key parts of the more than six thousand miles of Alaska coastline to improve oceanographic information.

“The need to balance the value of resources from the outer continental shelf against the potential for environmental damage is an important concern for MMS,” Kendall noted. As offshore activities move into new complex geographic areas, an understanding of the complete dynamic environment of the ocean will play a major role in MMS’s management of these resources.

“For offshore users dealing with tough weather conditions at sea, these efforts will make their jobs a little easier, while helping preserve a cleaner, marine environment,” Kendall said.

For more information on the High Frequency Radar Mapping study, visit the following websites: www.mms.gov/alaska and www.codaros.com. A preliminary web site has been developed for the project located at <http://halibut.ims.uaf.edu:8000/~salmon/CIBS-MAP/>.

The Minerals Management Service is the federal bureau in the U.S. Department of the Interior that manages the nation’s oil, natural gas and other mineral resources on the Outer Continental Shelf (OCS) in federal offshore waters. Currently, about 30 percent of the oil and 23 percent of the gas produced domestically comes from these federal waters. The bureau also collects, accounts for, and disburses mineral revenues from Federal and American Indian lands. MMS disbursed approximately \$8 billion in Fiscal Year 2004 and more than \$143 billion since it was

created in 1982. Nearly \$1 billion from those revenues go into the Land and Water Conservation Fund annually for the acquisition and development of state and federal park and recreation lands.

Additionally, the State of Alaska receives 27% of all revenues generated as a result of federal leases that lie within 3-to-6 miles offshore the Alaska coast, and 50% of this money goes into the Alaska Permanent Fund Account.

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