framework of the International Continental Drilling Program (ICDP), which is currently under way (http://icdp.gfz-potsdam.de/html/chicxulub/news/news4.html). Drilling of a 2–3 km deep hole in the crater has been scheduled to begin early in the year 2000. A second expedition to the Eltanin impact site with RV *Polarstern*, which will include seismic and sediment coring surveys, is planned for February 24–April 12, 2001 (contact rgersonde@awi-bremerhaven.de). The results of the cruise should also help to define a proposal for drilling the impact region in the frame of the post-2003 Integrated Ocean Drilling Program (IODP). During the summer of 2000, an expedition with N/O *Atalante* will examine the origin of the so-called Tore "Seamount," located 300 km off Portugal, which was proposed to represent a deep ocean impact structure (contact: jfmontei@fc.ul.pt). The structure displays a peculiar geometry with a 5000-m deep central depression, rimmed by steep walls that reach up to ~2000 m. Sediments from the Cenomanian-Turonian boundary recovered on a Portuguese coastal site were interpreted to include ejecta and tsunami deposits that were tentatively linked to the proposed Tore impact.

A special Deep-Sea Research issue will be collated in spring 2000 (May 15) to publish papers related to oceanic impact features and numerical modeling of associated processes. Hopefully, this should help to improve our understanding and exploration of oceanic impacts. Submission of manuscripts is highly welcome (contact author by e-mail: rgersonde@awi-bremerhaven.de).

Oceanic impacts were the focus of a workshop held April 15–17, 1999, at the Alfred Wegener Institute in Bremerhaven, Germany. The workshop was supported by the European Science Foundation (ESF) within the IMPACT program (http://www.esf.org/lp/IMPACTa.html and http://psri.open.ac.uk/esf/). Extended abstracts of the meeting are published in *Reports on Polar Research, Vol. 343*, 1999.

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U.S. Unscrambles GPS Signals, Making Them More Accurate for Scientific and Public Use

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James Baker, administrator for the U.S. National Oceanic and Atmospheric Administration, announced the read-out from his hand-held global positioning system (GPS) device. Ground zero, in this case, he said, was pinpointed at 39°, 24 minutes north, and 77°, 58 minutes west: the White House press briefing room.

After years of intentional degradation of GPS location and timing information for national security reasons, Clinton Administration officials—including Baker—on May 1 announced the immediate curtailment of GPS' "selective availability" feature, and the worldwide unscrambling of GPS signals.

The move makes GPS signals up to 10 times more accurate for four million current GPS users—including scientists and the general public—who tap into GPS signals that are broadcast free of charge globally from a system of 24 satellites. The unscrambled signals improve GPS accuracy from about 100 meters to within 20 meters or better, and do not require users to have any new equipment.

The decision to end selective availability could help to boost the already booming market for GPS applications and increase GPS' competitive advantage among current and potential users. The market for GPS applications, estimated at $8 billion per year, could double in the next three years to over $16 billion per year, according to Baker. GPS already is the dominant standard satellite navigation system, far more widely accepted than Russia's Global Navigation Satellite System (GLONASS).

The U.S. Secretary of Defense, along with the Interagency GPS Executive Board, decided that releasing more accurate GPS information would have minimal impact on national security. New technologies would allow the military to retain the ability to scramble GPS signals in particular regions during national emergencies, and the military continues to upgrade systems that use its Precise Positioning Service.

Unscrambling the GPS signals could have far-reaching benefits in areas including recreational hiking, boating, and fishing; emergency response assistance; precision agriculture; wildlife tracking; telecommunications; navigation; and a wide range of Earth science applications.

"Within my agency alone," said Baker, "there will be significant benefits, including improved fisheries border enforcement, more effective search and rescue and hazardous spill response operations, streamlined weather satellite data processing, and better electronic navigational charting for ships."

Unscrambled signals could aid in mineral and resource exploration by eliminating the need for differential correction equipment and services to explore remote, uncharted geographic regions for oil, coal, and other natural resources.

The U.S. Bureau of Land Management, U.S. Forest Service, and other agencies also could benefit from an end to selective availability. These agencies might be able to save money and increase their productivity by better using GPS to manage wetlands, forests, and other natural resources without augmentation systems or, in some cases, military receivers.

Earthquake monitoring and space operations are among other applications that could benefit significantly from unscrambled signals.

"GPS should help us conduct both human and robotic aeronautics and space operations more safely," said NASA Administrator Daniel Goldin. "Within two years, the [NASA] Shuttle fleet will rely on GPS as the primary source for navigation. The International Space Station (ISS) operation will rely on GPS to enable critical rendezvous procedures as well as safe navigation of 'free flyers' [co-orbiting platforms] near the ISS."

NASA satellites receiving unscrambled GP signals could determine their orbit positior more accurately and improve science obse vations and satellite operations.

The decision to unscramble GPS signals came as a follow-up to a March 1996 Presidential Decision Directive to discontinue selective availability by 2006. Further GPS refinements are planned in 2003 and 2005 to help minimize distorting effects of the Earth's ionosphere on signals from space.

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