



## FY 2003 President's Request

### Base Restorations at NOAA Labs



Moored buoy that measures ocean changes and transmits data in real time to forecast El Niños in PMEL's Tropical Atmosphere Ocean (TAO) Array



NOAA's Space Environment Center in Boulder, CO is the nation's official source of space weather alerts and warnings



Tall tower used by CMDL for monitoring carbon in the atmosphere

#### What is requested?

NOAA's Office of Oceanic and Atmospheric Research (OAR) requests \$943,000 as a permanent restoration of base funding at five laboratories for operational scientific activities that have not received inflationary cost adjustments over a five-year period. The restoration will support expenses associated with equipment and other infrastructure in OAR that have been affected by multiple years of base funding erosion. Operational activities are those that provide sustained, quality controlled measurements vital both to research conducted in NOAA and to core NOAA services. The laboratories covered under the base restorations conduct climate and weather research that is important to NOAA's mission, occupies a central role in the lab, and provides critical data or services. The long-term observing systems described below directly support the President's climate initiative.

#### What will we do?

The base restorations will support:

##### Climate research:

- # \$216,000 for the Pacific Marine Environmental Laboratory (PMEL) in Seattle, WA to operate the Tropical Atmosphere Ocean (TAO) array used for forecasting El Niño and La Niña events.
- # \$125,000 for the Climate Monitoring and Diagnostics Laboratory (CMDL) in Boulder, CO to continue operational global air sampling programs for carbon cycle and halocarbon (CFC) gas monitoring.
- # \$217,000 to maintain operation of the Global Ocean Observing System (GOOS) by the the Atlantic Oceanographic & Meteorological Laboratory (AOML) in Miami, FL in support of seasonal to interannual climate forecasts and climate research data.

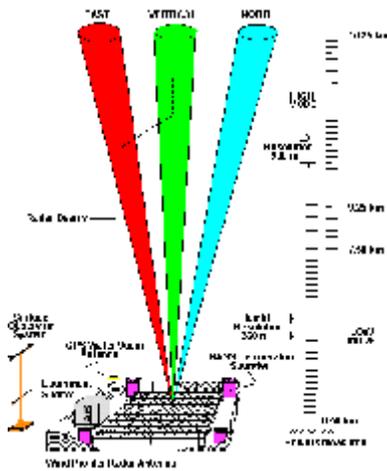
##### Weather research:

- # \$210,000 to allow the Space Environment Center (SEC) in Boulder, CO to improve its space weather forecasting of solar and geomagnetic events that impact electrical power delivery, communications by airlines and satellite communications.
- # \$175,000 to fund replacement parts and contractors to continue operation of the wind profiler network by NOAA's Forecast Systems Laboratory (FSL) in Boulder, CO for severe weather forecasts.

#### Why do we need it?

**PMEL:** TAO is the cornerstone of the El Niño Southern Oscillation (ENSO) Observing System and other ocean observing systems. Without base restoration, moorings would need to be decommissioned at a rate of about 2 per year. A reduction in the number of mooring sites will affect the ability to forecast El Niño/La Niña events which could in turn have an impact on the U.S. economy and public safety.

**SEC:** The lab collects data to characterize and forecast conditions in the space environment. It is the unique provider of official alerts and warnings to the civilian public, and it partners with the US Air Force to develop data and products for the military. Base erosion has left SEC with inadequate



Wind profilers in FSL's network operate continuously, alternating sampling modes every minute between a low or high mode and switch beam positions every 2 minutes.



Understanding the interaction between the ocean and the atmosphere is key to AOML's Global Ocean Observing System (GOOS).



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computer security and redundancies, and unable to develop new data streams and models to improve products for electric power grid operators, satellite communicators, and precision GPS users.

**CMDL:** The restoration to the CMDL base will cover both the increased cost of equipment and other infrastructure to partially restore these networks to a necessary level of operation. Inflationary increases have caused CMDL to reduce its staff for observing systems by 15% over the past six years. This has rendered the lab barely able to sustain the daily global operations and production and maintenance of gas standards.

**AOML:** The Global Ocean Observing Systems (GOOS) Center uses expendable probes and other equipment to provide ocean sub-surface temperature, salinity, and depth data to the National Weather Service' National Centers for Environmental Prediction (NCEP). This funding would restore the equipment and data provided to NCEP and the international community.

**FSL:** The wind profiler network delivers NOAA's National Weather Service with wind, temperature, and meteorological measurements that are critical to providing warnings of severe weather. The network is an operational "workhorse" that is now in advanced stages of life. Cost increases for replacement parts have averaged 30% annually over the past seven years. These parts are crucial for the profilers' operation.

### What will result from the restoration of base funds to these labs?

**PMEL:** Restoring funds to support this program will eliminate the need to decommission moorings and will continue to provide NOAA with the ability to forecast El Niño/La Niña events. These events can have significant impacts on the U.S. economy and threaten public safety.

**SEC :** Modernizing computer systems will allow SEC to ingest and process observations from NOAA satellites for operational services. The funding will allow SEC to implement backup systems for space weather services and incorporate essential data from NOAA and NASA satellites into its forecasts. It will allow improvement of NOAA's space weather services and the transition of more models into operations, as customers have requested.

**CMDL:** Restoration of this funding will improve the quality of a large number of observations and analyses of gases affecting stratospheric ozone and will strengthen the science behind climate change. Inadequate funding in the past has caused the lab to replace experienced staff with part-time employees, a factor that can jeopardize the integrity of the program.

**AOML:** The base restoration will allow the GOOS Center to purchase ocean monitoring probes to restore the quality of data provided to NCEP and will again allow NOAA to meet its international monitoring commitment.

**FSL:** While severe weather can strike at any time, there has not been adequate staff support for ongoing equipment maintenance to avoid system failure and loss of critical data in the event of a tornado or other significant event. In some cases, lack of parts has caused downtime. Restoration of the funding will result in profilers operating without significant downtime and would eliminate the need to decommission profilers.

NOAA Budget	FY2003 Change
Oceanic & Atmospheric Research	
Base Restorations at NOAA labs	\$943,000