

**National Oceanic and Atmospheric Administration
National Weather Service
NOAA Profiler Network (NPN)
Full UPI Code: 006-48-01-12-02-3122-00
Annual Operational Analysis - 2006**

1.0 Strategic and Business Results

This Annual Operational Analysis (AOA) report provides an assessment of the NPN program’s performance for calendar year 2006 and its contributions to achieving the NWS’ strategic goals. This investment continues to meet established cost, schedule and performance parameters and must continue in order for NOAA to meet its Strategic Goals of Serving Society’s Needs for Weather and Water; and Supporting the Nation’s Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation.

2.0 System Performance

The steady-state portion of the NPN baseline consists of 37 National Weather Service radars, 32 located in the central United States and 5 located in Alaska; the maintenance and logistics infrastructure that supports these radars; the telecommunications network used to ingest and disseminate the data and products from these radars; and for the archiving of radar products.

It is important to note that the Profiler network is currently being operated as a demonstration system. The system will continue to be operated as a demonstration system until the frequency conversion/tech refresh effort is completed in 2011 allowing it to be transitioned to operations. However, due to the demonstrated value of the Wind Profiler data to NWS operations, the NWS will continue to use the data at its discretion in its operational forecast process. Because the data can be used operationally, the NWS has established operational performance measures for the Wind Profiler network and will assess operational performance using these measures. This will result in continued variance reporting for these performance measures until the network upgrade is completed in 2011.

Performance of the NPN investment for 2006 is shown in the table below:

Measurement Area	Measurement Indicator	2006 Baseline	Through September 30, 2006
Mission and Business Results	Network Availability	96% network availability	94.5% network availability
Customer Results	Data Access	Data available to customers in 24 hours 96% of the time	Data available to customers in 24 hours 98% of the time
Process and Activities	Product Delivery Effectiveness	Radar products delivered to the NWS Gateway in 60 seconds or less 95% of the time	Radar products delivered to the NWS Gateway in 60 seconds or less 75.7% of the time
Technology	Percentage of radars interoperable with the Galileo SARSAT	13% (5 of 37) radars currently interoperable	13% (5 of 37) radars currently interoperable

During FY06, Profiler did not achieve the operational performance for Network Service Availability or Delivery Time for Radar Products. The reason is that the system continues to experience system outages due to equipment/part availability issues. In addition, the network is

periodically shut down due to interference with the Galileo search and rescue satellites. As additional satellites are deployed, the shut down times will increase and Network Service Availability and Delivery Time for Radar Products will decrease. Currently, this only occurs about 90 minutes per day. As the European Space Agency launches additional satellites, Profilers will have to shut down for increasingly longer periods of time (up to 23:30 hours per day with full Galileo deployment) rendering the network useless. These issues will be addressed during the frequency conversion/tech refresh efforts scheduled to begin in FY07.

3.0 Financial Performance

The purpose of the NPN operations and maintenance (O&M) funding is to pay on-going costs for communications, electric utilities, maintenance training, preventive maintenance, repair and logistics support, and sustaining engineering efforts with the goal of achieving a minimum performance measures shown above. The established cost baseline for this performance is an annual, recurring funding level of \$3.0M. In FY06, the anticipated O&M funding level of \$3.0M in the President's Budget was reduced to \$2.86M during the appropriations process. As discussed above, Profiler was unable to achieve several of its performance measures. Corrective actions to achieve the performance goals include completion of the frequency conversion/tech refresh efforts and the transition to operations of the upgraded Profiler network.

4.0 Customer Results

The NPN wind profile information improves NWS operational warning and watch performance capability. Performance statistics indicate tornado, winter storm, severe storms, and flash flood forecasts and warnings, and aviation weather and fire weather warnings for NWS Weather Forecast Offices (WFOs) with Wind Profilers are more accurate and are able to provide longer warning lead-times. The Wind Profiler data, received every 6 minutes, helps forecasters more quickly detect environmental changes critical to the formation of tornadoes and other severe weather. Comparison of the statistical elements such as Probability of Detection, False Alarm Rate, Critical Success Index, and Lead Time at WFOs within the NPN, on average performed better than those outside the network and the national average.

The NPN program is fully meeting the needs of a wide range of customers including:

- NOAA forecasters charged with warning responsibility
- Other Federal Agencies requiring radar data for operational decisions including the FAA, DOD, EPA, USGS, Corps of Engineers, DHS, etc
- State and local emergency managers and local officials charged with public preparedness and response decisions for extreme events, hazardous spills, homeland security issues, and wild fire
- Private sector environmental information providers
- Weather sensitive businesses including transportation, energy, and agriculture
- National, state, and local media
- Citizens who act on the information or are directed to respond by governmental and other local decision makers
- Military and civil aviation operators and airport managers
- Highway, agriculture and forestry managers

5.0 Innovation

The mission of the Office of Operational Systems (OOS) is to provide cost effective operations and maintenance support for NWS systems in support of our customers. OOS routinely explores alternative maintenance concepts, best practices, contract strategies, technologies, etc to provide improved services at lower costs. Since the deployment of the Wind Profiler Network in the late 1980s as a demonstration system, it has proven its value to NWS operations. The upward looking Profiler radar is itself an innovative application of radar technology to meet the needs of our customers. In order to continue to provide this service in a reliable and cost effective manner, the 1980s technology will be updated with state-of-the-art radar technology during the Profiler upgrade program. As the technology program progresses and systems become operational, Profiler will be integrated into OOS' current radar support infrastructure which will ensure its long term, cost effective O&M support.