

National Oceanic and Atmospheric Administration
NOAA Research
Scientific Computing Support
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Operational Analysis
October 2008 – December 2008 (Q1, FY08)

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1.0 Customer Results

1.1 Customer Requirements and Costs

NOAA's research serves diverse customers. The average citizen benefits through earlier warnings of threatening weather, healthier coasts and fisheries, or a broader understanding of environmental processes. The private sector uses NOAA data to make business decisions and also employs technology developed and transferred by NOAA scientists. Federal agencies, state governments, and local authorities rely on NOAA research expertise for the sound scientific basis of crucial policy decisions related to environmental protection and restoration strategies. NOAA researchers are recognized as international leaders on environmental issues. With their international counterparts, NOAA scientists contribute to the understanding and assessment of issues such as ozone depletion and climate variability which must be addressed worldwide to ensure success.

The scientific computing needed to support NOAA's research is a steady state investment. It is critical to provide an infrastructure that delivers Program products and services using information technology solutions that meet the needs of the science and the scientists.

IT Technical refresh is performed based on established industry practices, routinely on a 3 year cycle for desktops, and 4 years for server systems and communications equipment due to the higher cost. NOAA Research desktop operating systems include Windows, Macintosh, and various distributions of Linux. According to Gartner ([Use Processes and Tools to Reduce TCO for PCs, 2005-2006 Update, 13 January 2006](#)), PC hardware and operating system choices are no longer the greatest determinants of PC total cost of ownership (TCO). The implementation of policies, best practices and processes offers the main opportunities for enterprises to reduce the TCO of their PC installed base across its life cycle.

Very loosely coupled clusters can be created by combining together otherwise idle desktop computers in an ad-hoc environment, thus allowing a dual use of certain resources. Such clusters allow researchers to use otherwise "wasted cycles" by combining computer resources that would be idle overnight to tackle specific jobs. In particular, ESRL has been running a loose cluster of 60 Macintosh desktop computers for the past 3 years which is managed as a desktop system and as a node in a loose cluster.

Environmental modeling applications are processor intensive, and when compute systems are replaced, compute cluster technology is purchased to ensure scalability and load balancing. A compute cluster is a group of loosely coupled computers that work together closely so that in many respects they can be viewed as though they are a single computer. The components of a cluster are commonly, but not always, connected to each other through fast local area networks. Clusters are usually deployed to improve performance and/or availability over that provided by a single computer, while typically being much more cost-effective than single computers of comparable speed or availability. Cost efficiencies can be achieved because a cluster does not have to be replaced when more processor power is needed – instead, it can grow by acquiring additional processors.

1.2 Performance Measures

NOAA Research has an indirect but important role that can potentially impact lives and property. Below are selective highlights from Quarter 1 of FY2008 project accomplishments that demonstrate performance results to the citizens of the US. These measures align with the "Customer Results Measurement Area" of the Performance Reference Model developed by the Federal Enterprise Architecture Program Management Office (FEA-PMO). Table 1 summarizes the performance measures.

Table 1: Customer Results Performance Measure

Measurement Area	Indicator	[Reporting Year – 1] Baseline	[Reporting Year] Actual Result	Comments
Customer Requirements	Climate Observation and Analysis: Integrated Ocean Observing System (IOOS) Implemented	59%		No data to report as of Q1 FY08

NOAA research and development is unique within the federal government. No other agency investigates the Earth system from the bottom of the ocean to the top reaches of the atmosphere. NOAA researchers are tackling some of our Nation’s most pressing challenges, including global climate change, improving weather and air quality forecasts and warnings, understanding the complexities of the oceans, and natural resource management. Here are some prime examples of NOAA Research (Scientific Computing Support) accomplishments in the first quarter of 2007.

NOAA is Major Contributor to Nobel Prize-Winning Intergovernmental Panel on Climate Change Reports

Many NOAA scientists, as well as NOAA technology and models, contributed to the Intergovernmental Panel on Climate Change (IPCC) climate science reports since the IPCC was established in 1988. For their collective efforts, the nearly 2,000 scientists who comprised the IPCC were awarded the 2007 Nobel Peace Prize.

NOAA scientists served as contributors and government reviewers of the Fourth IPCC Assessment Report and its associated chapters issued this year. Dr. Susan Solomon of NOAA’s Earth System Research Laboratory served as co-chair of IPCC Working Group 1, and was instrumental in the production of the group’s report - The Physical Science Basis for Climate Change. Nine lead and review authors were NOAA scientists, and NOAA observation networks, computer modeling labs, and research programs provided data and analysis. NOAA’s Geophysical Fluid Dynamics Laboratory provided model runs that enhanced the projections used in the IPCC report and contributed improved climate models coupling the interactions of the atmosphere and the oceans.

Socio-economic impact: The depth of NOAA's contributions in this international effort, highlight the preeminent science conducted by NOAA, providing observations, data, model simulations, analysis, authors and review editors.

NOAA Flies Pilotless Aircraft Toward Eye of Hurricane for First Time

NOAA scientists from the Atlantic Oceanographic and Meteorological Laboratory and the Earth System Research Laboratory, and NASA flew an unmanned aircraft system (UAS) into Hurricane Noel giving researchers the first real-time, low-altitude look at a storm with hurricane category 1 winds hovering around 80 miles per hour. NOAA hurricane researchers are leading efforts to test the ability of using a remotely controlled UAS to fly into the eyewall of a hurricane at altitudes as low as 500 feet. Scientists hope using unmanned aircraft will help fill a gap in near-surface data. The data have been hard to gather because of the safety risks of low-level flight. The five-foot-long

Aerosonde UAS aircraft with a wing span of 10 feet is owned and operated by AAI Corporation subsidiary, Aerosonde Pty Ltd., located in Victoria, Australia.

Socio-economic impact: Unmanned flights at very low altitude are important since they provide unique insights and continuous observations in a region of the storm where the ocean's energy is directly transferred to the atmosphere just above. Attempting this type of research flight with hurricane hunter aircraft would risk the lives of our crew and scientists.

NOAA Reports New Findings on Relationship between Hurricanes and Global Warming

Studies performed at NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) reveal new findings on the relationship between hurricanes and global warming. Global climate model simulations for the 21st century indicate a robust increase in vertical wind shear in the tropical Atlantic and East Pacific oceans could act to inhibit the development or intensification of hurricanes in these regions. A second GFDL study found long-term changes in tropical cyclone potential intensity - a measure that provides an upper limit on cyclone intensity - are more closely related to the regional pattern of warming than to local ocean temperature change. Regions that warm more than the tropical average are characterized by increased potential intensity, and vice versa.

While other studies have linked hurricane intensity to global warming, these are the first published studies to indicate that changes to vertical wind shear seen in future climate projections would likely diminish the frequency and intensity of hurricanes; and natural climate variations may have a larger effect on tropical cyclone activity than the more uniform patterns of global warming.

Socio-economic impact: This research adds important, new information to the body of scientific knowledge regarding the potential impacts of global climate change on hurricane formation and intensity.

NOAA Research Finds Expanding Tropical Belt Could Affect Climate

The Earth's tropical belt – approximately the area between the tropics of Cancer and Capricorn – has widened over the past quarter century as the planet has warmed, and could change precipitation patterns that would affect ecosystems, agriculture, and water resources, according to research by a NOAA Air Resources Laboratory scientist and academic colleagues. The findings were published December 3, 2007, in the first edition of the new publication *Nature Geoscience*.

Researchers looked at how certain aspects of the structure and circulation of the atmosphere have been altered over the past few decades and how models predict they may change as the climate changes in the future. Computer model simulations in several recent studies found that jet streams and the associated wind and precipitation patterns tend to move poleward under global warming. Some observational studies have already found a widening of the tropics by several degrees latitude since 1979. The study noted a variety of mechanisms that can be causing the expansion, such as warming sea surface temperatures and stratospheric ozone depletion. Other possibilities that have yet to be explored include changes in the El Niño Southern Oscillation system and stratospheric climate changes.

Socio-economic impact: Better understanding of changes in the oceans and atmosphere will contribute to advances in predicting climate change.

NOAA Joins International Community in Celebrating Deployment of 3000th Argo Float

On October 2, 2007, the international community, along with researchers of NOAA's Pacific Marine Environmental Laboratory and Atlantic Oceanographic and Meteorological Laboratory and their collaborating joint institutes, will celebrate the upcoming deployment of the 3000th Argo float.

NOAA Highlights Opportunities for Marine Technology for Oceans Conference

Dr. Richard W. Spinrad, Assistant Administrator for Oceanic and Atmospheric Research, will deliver a keynote address, "Opportunities for Marine Advanced Technology," to the Oceans 2007 conference Oct. 2, 2007, in Vancouver, British Columbia.

NOAA Scientist to Co-Chair Science Panel of Montreal Protocol

A.R. Ravishankara, Director of NOAA's Earth System Research Laboratory's Chemical Sciences Division (CSD), was selected September 21 as Co-Chair of the Scientific Assessment Panel of the Montreal Protocol.

NOAA Focuses on Latest Developments in Multifunction Phased Array Radar

NOAA's senior leadership fills key roles in a high-level symposium October 10-12 on multifunction phased array radar (MPAR), technology with the potential to scan the atmosphere more than five times faster and with higher spatial resolution than present systems as well as save money in the replacement of aging radar throughout the U.S.

NOAA-EPA Program to Eliminate Medical Waste in Water Supplies Wins Award

A joint NOAA Illinois-Indiana Sea Grant (IISG) and U.S. EPA Great Lakes National Program Office project to help communities initiate collection programs for unwanted medicine has been chosen this year's Best Education Program by the North American Hazardous Materials Management Association (NAHMMA).

NOAA Releases First 'Arctic Report Card' on Rapidly Occurring Changes

Following the "State of the Arctic" report published in 2006, an international group of scientists, including an Arctic scientist from NOAA's Pacific Marine Environmental Laboratory (PMEL), will issue an "Arctic Report Card" October 17.

NOAA Computer Facility Earns Recognition for Outstanding Design, Construction:

The facility housing the supercomputer developed and used by NOAA's Earth System Research Laboratory (ESRL) to run short- and long-term forecast models has been named "Outstanding Mechanical/Electrical Project" by Colorado Construction magazine.

Stakeholders Award NOAA-Supported Scientists for Providing Climate Science Information

Key NOAA-supported researchers recently received all five of the first-ever California Department of Water Resources (DWR) awards for Climate Science Services.

NOAA Announces ‘Average’ Antarctic Ozone Hole Measured in 2007

Measurements taken and analyzed by scientists of NOAA’s Earth System Research Laboratory (ESRL) reveal the Antarctic ozone hole was less deep in 2007 than in 2006 and is considered near average in comparison to the past 15 years.

NOAA Brokers Dialogue among Oil and Gas Interests and Fisheries Stakeholders:

The NOAA Alaska Sea Grant Program at the University of Alaska at Fairbanks (UAF) School of Fisheries and Ocean Sciences and Norway’s Bodø University are organizing a March 2008 workshop in Anchorage to improve communications, share common interests and concerns, and fill data gaps on issues surrounding the potential for coexistence between the fishing and offshore oil and gas industries.

NOAA Atmospheric Scientist Receives Highest Award from Meteorological Society

Dr. Isaac Held, a senior research scientist at NOAA’s Geophysical Fluid Dynamics Laboratory, will receive the Carl-Gustaf Rossby Research Medal from the American Meteorological Society (AMS).

NOAA Leads Cruise in Eastern Pacific to Improve Short-term Climate Prediction

Scientists with NOAA’s Earth System Research Laboratory (ESRL) are conducting a climate processes study aboard the NOAA ship RONALD H. BROWN, October 16-November 6, in the marine stratocumulus region off northern Chile.

NOAA-Developed Technology Used to Assist Firefighters of California Wildfires

A meteorological workstation developed by scientists at NOAA’s Earth System Research Laboratory (ESRL) is being used by the National Weather Service’s (NWS) Incident Meteorologists (IMETs) deployed to the devastating wildfires in California.

NOAA Hosts Saudi Leader for Aquarius Dive and Educational Activities

His Royal Highness Saudi General Khaled bin Sultan will make a brief dive to NOAA’s Aquarius laboratory on November 1, accompanied by the Office of Oceanic and Atmospheric Research’s Deputy Assistant Administrator for Program and Administration.

NOAA To Fly Unmanned Aircraft into Tropical Storm Noel

NOAA’s Atlantic Oceanographic and Meteorological Laboratory (AOML) and its partners planned to launch the Aerosonde Unmanned Aerial Vehicle (UAV) into Tropical Storm Noel on Friday, November 2, to obtain unique data near the ocean surface that can help to track hurricanes and to develop more accurate models.

NOAA Aviation Technology Moved to Operational Forecasting System

Aviation technology developed by NOAA's Earth System Research Laboratory (ESRL) has been successfully transferred to operational systems.

NOAA Leadership Meets with NOAA Science Advisory Board

The NOAA Science Advisory Board (SAB) will meet November 5-6, 2007, at the National Weather Center in Norman, Oklahoma.

NOAA Visualization Illustrates Reach of Global Ocean Observing System

Scientists with NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML) are now offering visitors to the lab a highly visual and graphic representation of the volume of data oceanographers collect to study oceans and climate.

NOAA Flies Unmanned Aircraft at Record Low Altitude into Hurricane-Force Winds of Noel

Researchers with NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML) successfully flew an Aerosonde Unmanned Aircraft System (UAS) for the first time through hurricane-force winds and at record low altitudes into Tropical Cyclone Noel November 2-3.

Climate Change Science Program releases NOAA-led Report on North American Carbon Cycle

The U.S. Climate Change Science Program (CCSP) will release a report November 13 to Congressional staff and the media that quantifies North America's net contribution of carbon to the atmosphere, and catalogues various sources and sinks of carbon on the continent.

NOAA Scientist Chairs Climate Change Roundtable for Indian Consulate

At the request of the U.S. Department of State, Dr. Venkatachalam Ramaswamy, Acting Director of NOAA's Geophysical Fluid Dynamics Laboratory (GFDL), will chair a roundtable discussion, "Climate Change: Trends, Impacts and Possible Actions," at the U.S. Consulate in Chennai, India on November 16.

NOAA Light Trap Finds New Species of Fish Not Yet Described by Scientists

A new light trap designed by a scientist at NOAA's Cooperative Institute for Marine and Atmospheric Studies (CIMAS) led to the discovery of an unusual larval goby that differed slightly from the known species of Atlantic gobies.

NOAA Teams with NASA for Space Measurement of Tropospheric Carbon Dioxide (CO₂)

Scientists from across NOAA's Earth System Research Laboratory (ESRL) are working with NASA to evaluate a new laser technique for the remote measurement of tropospheric CO₂ concentrations from space.

NOAA Dispatches Mobile Radar to California Burn Site To Improve Debris Flow Warnings

A team of researchers from NOAA's National Severe Storms Laboratory (NSSL) will operate the Shared Mobile Atmospheric Research and Teaching Radar (SMART-R) to provide high-resolution rainfall measurements for the 2007-2008 U.S. Geological Survey (USGS)-NOAA Debris Flow Project.

NOAA Highlights 50-Year Global Carbon Dioxide (CO₂) Record; Looks to Future

NOAA's long-term achievements in monitoring CO₂ and other trace gases in the atmosphere will be recognized by Mr. Timothy R. Keeney, Deputy Assistant Secretary for Oceans and Atmosphere, and Dr. Richard W. Spinrad, Assistant Administrator for Oceanic and Atmospheric Research, as they and many scientists represent NOAA at the 50th Anniversary of the Global CO₂ Record Symposium November 28-30 at Kona, Hawaii, near NOAA's Mauna Loa Observatory.

NOAA Recognized by U.S. Delegation as Final IPCC Report Released:

As the Intergovernmental Panel on Climate Change (IPCC) released the final piece of its Fourth Assessment Report November 16 in Valencia, Spain, the U.S. Delegation to the IPCC meeting had words of praise for NOAA and the scientists who worked on the international consensus report on climate change.

NOAA's Mauna Loa CO₂ Monitoring Lauded by Hawaiian Governor

NOAA and its longtime measurement of climate-forcing gases in the atmosphere at its Mauna Loa Observatory were recognized in a proclamation by Hawaii's Governor Linda Lingle that declared November 28, 2007, as CO₂ Observing Day in Hawaii.

NOAA Meteorologist Selected to Present Briefing to United Nations Convention

Ronald J. Stouffer, a senior research meteorologist at NOAA's Geophysical Fluid Dynamics Laboratory (GFDL), is one of only a few scientists selected to brief delegates to the Subsidiary Body for Scientific and Technological Advice (SBSTA) on the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (AR4).

NOAA Cruise Measures Key Oceanic Parameters from Mexico to Antarctica

Researchers with NOAA's Pacific Marine Environmental Laboratory (PMEL) and Atlantic Oceanographic and Meteorological Laboratory (AOML) will spend the holidays aboard the NOAA Ship RONALD H. BROWN studying physical and chemical changes in the Pacific Ocean from Mexico to Antarctica.

NOAA Upgrades Resolution for Users of Rapid-Update Forecast Model

Starting December 4, 2007, RUC (Rapid Update Cycle) gridded data will become available at higher horizontal and temporal resolution to all NOAA National Weather Service data users.

NOAA Wins Award for Trawl that Eliminates ‘Bycatch’ Problem for Haddock

Fishing for haddock is now easier for the commercial fishing industry due to a new trawl designed by a team of NOAA Rhode Island Sea Grant researchers that eliminates bycatch of heavily restricted cod and flounder that swim with haddock but have to be thrown back if caught with the legal haddock.

NOAA Adds High Elevation Measurements for 2008 Hydrometeorological Experiment

NOAA’s Earth System Research Laboratory (ESRL) begins field operations December 3 for the 2008 Western Hydrometeorological Testbed (HMT-West 2008), and is adding precipitation and soil moisture measurement sites at high elevation.

NOAA Links Invasive Species to Botulism Deaths of Migrating Waterfowl in Great Lakes

NOAA’s Michigan Sea Grant, in conjunction with the Michigan Department of Natural Resources, confirms that type E botulism is causing the deaths this year of many fish-eating waterfowl as they migrate from Canada through the Great Lakes region to winter grounds.

NOAA Scientists Attend Nobel Peace Prize Ceremony in Oslo

Dr. Susan Solomon, a senior scientist with NOAA’s Earth System Research Laboratory (ESRL), and Dr. Dan Albritton, former Director of NOAA’s Aeronomy Laboratory and the Chemical Sciences Division of ESRL, now retired, are among 25 attendees representing the Intergovernmental Panel on Climate Change (IPCC) at a ceremony for the 2007 Nobel Peace Prize on Monday, December 10, in Oslo, Norway.

NOAA Tests New Method for Collecting High-Resolution Profile of Trace Gases

Scientists of NOAA’s Earth System Research Laboratory (ESRL) are testing a novel method of collecting high-resolution vertical profiles of trace gas concentrations that is easier and more cost-effective than current methods and provides additional data about climate-forcing gases.

NOAA Scientists Meet the Press on IPCC and Air Quality at AGU Annual Meeting

Preeminent scientists Dr. Susan Solomon and Dr. David Parrish, both of NOAA’s Earth System Research Laboratory, are participating in press conferences at the American Geophysical Union (AGU) annual Fall Meeting which runs from December 10-14 in San Francisco.

NOAA Report Shows Progress in Pollution Clean-up of Detroit River and Lake Erie

NOAA’s Michigan Sea Grant last week released a report titled “State of the Strait: Status and Trends of Key Indicators” that indicates U.S. and Canadian pollution prevention and control programs over the past 35 years have resulted in substantial improvements in environmental quality in the Detroit River and western Lake Erie that have led to dramatic ecological recovery.

NOAA Reports New Findings on Relationship between Hurricanes and Global Warming

A report in this week's Nature, co-authored by Dr. Gabriel Vecchi of NOAA's Geophysical Fluid Dynamics Laboratory, suggests natural climate variations may have a larger effect - per degree local warming - on tropical cyclone activity than the more uniform patterns of global warming.

NOAA Observatory Records Exceptionally Warm November and December

The NOAA Earth System Research Laboratory Atmospheric Baseline Observatory in Barrow, AK, reports the November average temperature at the observatory was 14.3°F warmer than the monthly norm.

NOAA Participates in Comprehensive Test Ban Treaty Organization (CTBTO) Exercise

This week and next, NOAA's Air Resources Laboratory (ARL) will test the prototype source attribution tools it developed to support the U.S. Regional Specialized Meteorological Center (RSMC) during an exercise conducted by the CTBTO and the World Meteorological Organization (WMO).

2.0 Strategic and Business Results

2.1 NOAA Research Helps to Achieve Strategic Goals

Selected Research accomplishments that demonstrate NOAA Research's ability to help achieve NOAA Strategic Goals, across all goals:

- To the date of this submission, the current Climate Office Program Operational Plan (POPs) that encompasses the Scientific Computing Support System for FY2008 has not been published yet to capture any strategic and business results from Q1 of FY2008.

2.2 Business Results

2.2.1 Program Management and Controls

At the NOAA level, the NOAA's Program Planning and Integration (PPI) and Programming, Analysis and Evaluation (PA&E) offices provide management oversight from Planning to Programming to Budgeting to Execution (PPBES) using the PPBES process. At the Line Office level, the Climate Program Office provides management oversight for the Climate Goal Programs (Observations and Analysis, Climate Forcing, Projections and Predictions, Ecosystem, Regional Decision Support).

2.2.2 Monitoring Cost, Schedule and Performance

Program funding increases to meet planned Program Initiatives are requested through the NOAA PPBES process. Each PPBES Program capability in the Program Operating Plans (POPs) provides cost, schedule, and performance information.

Quarterly, Quad Charts are prepared for the NOAA Budget Office to track Cost, Schedule, and Performance, and update the NOAA CFO and PA&E on Risks and Issues and mitigation strategies.

With the Continuing Resolution of FY2008 (Quarter 1), there are no reports since finance and budget weren't yet appropriated and executed. Tracking these cost is not available at this time.

2.3 Reviews

There were no reviews done within the first quarter timeframe in FY2008.

2.4 Security

All OAR systems contributing to the NOAA Research Scientific Computing Support system are scheduled to be re-certified and re-accredited by the end FY08. Maintaining its schedule, in the first quarter of FY2008, there were 2 systems certified and accredited (C&A). One of the two accredited systems was a consolidation of six systems, previously C&A'ed separately. They now are combined as one system to form the Earth Systems Research Laboratory, which composes the majority of the Scientific Computing Support system.

All systems are continuously monitored for security incidents by the NOAA Computer Incident Response Team (N-CIRT) and undergo quarterly vulnerability assessments and annual self-assessments of all security controls.

2.5 Performance Measures

Performance management at the NOAA corporate level consists of a suite of performance measures called Corporate Performance Measures (CPMs). These performance measures help the NOAA Administrator and senior management ensure the organization is moving towards strategic planning goals and outcomes, and organizational priorities. CPMs focus on high-level Program and Goal outcomes and the performance objectives that lead to these outcomes. They should serve to communicate NOAA's corporate performance to external audiences and provide a basis for the internal evaluation of NOAA's progress to plan.

The performance measures in Table 2 show the Scientific Computing Support's performance with respect to Strategic and Business Results. Strategic and Business Results performance measures introduced in [reporting year] include "[example measure]" and "[example measure]." These measures align with the "Mission and Business Results Measurement Area," "Processes and Activities Measurement Area" and the "Technology Measurement Area" of the Performance Reference Model developed by the FEA-PMO.

Table 2: Business Results Performance Measures

Measurement Area	Indicator	[reporting year - 1] Baseline	[reporting year] Actual Result	Comments
Strategic and Business Results	Reduce the uncertainty in the magnitude of the North American carbon uptake	+/- 0.4 gtC		No data to report as of Q1 FY08

Measurement Area	Indicator	[reporting year – 1] Baseline	[reporting year] Actual Result	Comments
	Climate Observation and Analysis; CDRs undergoing operational testing and validation. (Cumulative Total #)	1		No data to report as of Q1 FY08
	Increased number of ecological forecasts and living marine resource assessments used by managers that incorporate indices of climate variability and change	5		No data to report as of Q1 FY08
	Increase contribution to national and international climate-relevant products and assessments	0.25		No data to report as of Q1 FY08
	U.S. temperature forecasts (cumulative skill score over the regions where predictions are made)	28.7		No data to report as of Q1 FY08
	Improve society's ability to plan and respond to climate variability and change using NOAA climate products and information	32		No data to report as of Q1 FY08
	Reduce uncertainty in model simulations of the influence of aerosols on climate.	10.00%		No data to report as of Q1 FY08
	Reduce the error in global measurement of sea surface temperature	.53C		No data to report as of Q1 FY08
	Determine the National explained variance (%) for temperature and precipitation for the contiguous United States using USCRN stations	temperature (97.7%); precipitation (93.8%)		No data to report as of Q1 FY08
	Improved estimates of the magnitude, associated error, and sources of variability on atmospheric forcing agents	39		No data to report as of Q1 FY08

Measurement Area	Indicator	[reporting year – 1] Baseline	[reporting year] Actual Result	Comments
	Increase contribution to national and international climate-relevant products and assessments	0.25		No data to report as of Q1 FY08
	U.S. temperature forecasts (cumulative skill score over the regions where predictions are made)	28.7		No data to report as of Q1 FY08
	Improve society's ability to plan and respond to climate variability and change using NOAA climate products and information	32		No data to report as of Q1 FY08
	Reduce uncertainty in model simulations of the influence of aerosols on climate.	10.00%		No data to report as of Q1 FY08
	Reduce the error in global measurement of sea surface temperature	.53C		No data to report as of Q1 FY08
	Determine the National explained variance (%) for temperature and precipitation for the contiguous United States using USCRN stations	temperature (97.7%); precipitation (93.8%)		No data to report as of Q1 FY08
	Improved estimates of the magnitude, associated error, and sources of variability on atmospheric forcing agents	39		No data to report as of Q1 FY08

3.0 Financial Performance

3.1 Current Performance vs. Baseline

NOAA Research's Financial Management System (FDMS) tracks commitment funding and uses data from the Commerce Financial Management System to track obligations and commitments. The FDMS system tracks funding down to the project level for each laboratory.

3.2 Performance Measures

Via the PPBES Quad Chart reporting, program performance measures are mapped to project milestone activities, planned and obligated budget spending, and any risks or issues with associated mitigation strategies.

Due to the Continuing Resolution in Q1 of FY2008, there are no PPBES Quad Chart reporting.

3.3 Cost Benefit Analysis

In 2007, NOAA CIO Office implemented a process by which the PPBES Goal Team Leads annually provide planned costs for IT. The responses to the cost matrix are coordinated by the Goal Team Leads (e.g., Climate Program Office) and are intended to be used to assess the impact of alternatives proposed to meet gaps in Program capabilities. IT planning costs are estimated in parallel with the Program Operational Plans (POPS) planning phase of the PPBES process.

Climate Goal IT FY2009 Planning Estimates are included in the FY2007 Operational Analysis.

3.4 Financial Performance Review

On an annual basis, the Senior IT Managers report to the lab Director to identify technical refresh requirements for software, hardware, and services to meet steady state operations within the laboratory's baseline IT budget. These requirements are prioritized and implemented as budgeted.

In Q1 FY2008, there were reports submitted to lab Directors to satisfy this process.

4.0 Innovation to Meet Future Customer Needs

Onsite partnerships provide a unique opportunity for close collaboration, while sharing infrastructure costs, equipment, and personnel to make better use of technology and lower operating costs.

Facilities. On December 17, Conrad C. Lautenbacher, Jr., Vice Admiral / Under Secretary, and Dr. Richard W. Spinrad, Assistant Administrator for OAR, will participate in a ceremonial groundbreaking for a new NOAA Great Lakes Environmental Research Laboratory (GLERL) in Pittsfield Township, MI.

Technology. NOAA Research implemented a Video Conferencing System, helping to reduce travel time and the expenses associated with business meetings. In the first quarter of FY08, two additional VTC systems were installed in the Climate Program Office. Both systems included newer technology upgrades including improved sound and High Definition broadcasting.