THE FEDERAL PLAN FOR METEOROLOGICAL SERVICES AND SUPPORTING RESEARCH FISCAL YEAR 2009 EXECUTIVE SUMMARY

For Fiscal Year (FY) 2009, the President's budget requests over a total of $4.49 billion for meteorological services and supporting research. Of the requested total, over $3.20 billion is designated for operations and over $1.29 billion for supporting research. Table ES-1 lists a breakout of the FY 2009 budget proposal.

For FY 2009, 98.1 percent of the total funds requested will go to the Department of Commerce (DOC), the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), and the Department of Transportation (DOT). The distribution among these four agencies is DOC 49.8 percent, DOD 21.9 percent, NASA 16.5 percent, and DOT 9.9 percent. The other Federal agencies will share the remaining 1.9 percent.

Table 2-1 shows the total FY 2009 request represents an increase of 7.4 percent above the over $4.18 billion appropriated in FY 2008. Within the four agencies mentioned above, DOC's request is an increase of 12.6 percent, DOD a decrease of 5.4 percent, NASA's request is an increase of 12.9 percent, and DOT has a 7.9 increase. The overall DOC increase is mainly the result of increases in NESDIS requested funding. DOD's decrease is attributable to a decrease in DMSP and Navy operations requests.

The budget requests for the other departments are as follows:

- Department of Agriculture (USDA): decrease of 9.7 percent,
- Department of the Interior (DOI): no change,
- Environmental Protection Agency (EPA): no change,
- Nuclear Regulatory Commission (NRC): large percent increase of over 300 percent stemming from an increase from $120K appropriated to $500K requested.

All agencies project a personnel total of 11,286 full-time equivalent (FTE) to be employed in Federal meteorological operations in FY 2009. This figure represents a decrease of less than one percent from the 11,383 FTE employed in FY 2008.

Table ES-1. Federal Budget for Meteorological Operations and Supporting Research, FY 2009 (in thousands of dollars)

Agency	Operations	% of TOTAL	Supporting Research	% of TOTAL	TOTAL	% of TOTAL
Agriculture	16,335	0.5	29,063	2.3	45,398	1.0
Commerce	2,113,708	66.1	122,798	9.5	2,236,506	49.8
Defense	625,045	19.6	357,612	27.7	982,657	21.9
Homeland Security	23,060	0.7	0	0.0	23,060	0.5
Interior	2,400	0.1	0	0.0	2,400	0.1
Transportation	408,033	12.8	38,252	3.0	446,285	9.9
EPA	0	0.0	9,000	0.7	9,000	0.2
NASA	7,497	0.2	733,212	56.8	740,709	16.5
NRC	500	0.0	0	0.0	500	0.0
TOTAL	$3,196,578	100	$1,289,937	100	$4,486,515	100

MAJOR PROGRAMS--DOC, DOD, NASA, AND DOT

NEXT GENERATION WEATHER RADAR (NEXRAD)

NEXRAD is the joint National Weather Service (NWS), Federal Aviation Administration (FAA), and Department of Defense (DOD) weather radar system consisting of 159 operational radars. NEXRAD utilizes Doppler technology and hydrometeorological processing to provide significant improvements over the previous generation of weather radars for tornado and thunderstorm warnings, air safety, flash flood warnings, and water resources management. The system is modular in design, upgradeable, has long life cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements.

The NEXRAD Program, which was initiated in FY 1981, was responsible for procurement, installation, and operation of the Weather Surveillance Radar-1988 Doppler (WSR-88D). The first limited production WSR-88D system was installed at Oklahoma City, Oklahoma, in May 1990, and commissioned four years later in February 1994. The original program plan called for a total of 161 radars. In response to a National Research Council report, 3 additional radars were deployed, which raised the total to 164 radar sites (158 operational sites and 6 support sites). By agency, as of June 2001, the Department of Commerce (DOC)/NWS had commissioned 120 operational sites, the DOD (USAF and Army) had commissioned 26 sites (within the United States and overseas), and the Department of Transportation (DOT)/FAA had commissioned 12 sites. DOD has three systems at Keesler AFB, Mississippi, for training; DOC/NWS has one each at the National Reconditioning Center, the NWS Training Center in Kansas City, Missouri, and the Radar Operations Center, Oklahoma City, Oklahoma. In 2004, an additional WSR-88D was commissioned in Evansville, Indiana, to augment coverage for southern Indiana and western Kentucky, bringing the count of operational radars to 159.

The NEXRAD Program has an ongoing process of modifying, retrofitting, and enhancing NEXRAD hardware and software. These efforts target obsolescence avoidance, improved operational reliability, lower operating costs, higher quality data, and meeting new operational requirements. The next major NEXRAD enhancement is to add a dual polarization capability which will improve radar precipitation accumulation estimates, hail and icing conditions, and higher data quality. The dual polarization capability is expected to begin deployment in 2010.

AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)

ASOS is the primary minute-by-minute, 24-hour weather observation system for NWS, FAA, and DOD. ASOS generates the basic Aviation Routing Weather Report (METAR) and Aviation Selected Special Weather Report (SPECI). This information is essential for safe and efficient aviation operations and is used by the public to plan day-to-day activities. ASOS also provides valuable information for the hydrometeorologic, climatologic, and meteorologic research communities.

The ASOS program began in 1983 as a joint development effort between the DOC/NWS, DOD, and DOT/FAA. Installation of ASOS units started in 1992. Implementation of ASOS into NWS field operations provides continuous weather watch and yields improved staff productivity. A total of 1,003 units have been purchased. The NWS has purchased, accepted, and commissioned 312 sites. The FAA has purchased 573 units, all of which have been accepted and commissioned by the NWS. The Navy has purchased and accepted 71 sites. The Air Force has purchased and accepted 47 sites.

The ASOS Product Improvement Program was established in 1999 to address technology insertion and system improvement. Agency priorities have been established for seven improvement areas. Replacement of the under-powered ASOS processing unit and re-hosting of the ASOS software was the highest priority effort, and was successfully completed in 2005. Replacement of the temperature dewpoint sensor, necessitated due to excessive required maintenance, was completed in 2005 as well. In 2005, NWS systems were upgraded with the All Weather Precipitation Accumulation

Gauge (AWPAG) to meet NWS climatology needs. The mechanical cup and vane wind sensors, subject to freezing, were replaced by the Ultrasonic Wind Sensor in 2007. A replacement for the logistically unsupportable legacy cloud height sensor will be fielded beginning in 2010, and will be followed by a new sensor to provide automatic reporting of drizzle, hail, and ice pellets. The last of the prioritized efforts, incorporation of a sunshine duration reporting capability, is expected to begin in 2011.

AUTOMATED WEATHER INFORMATION SYSTEMS (AWIS)

The DOC, DOD, and DOT require AWIS to facilitate the collection, processing, and interpretation of meteorological data. AWIS are procured to provide an automated, high-speed, user-friendly interface to access and process large volumes of sophisticated meteorological data. AWIS programs support the timely production of accurate and geographically precise warnings, forecasts, and special tailored products. They also provide the communications capability for expeditious product dissemination.

Major agency systems classified as AWIS are: NOAA's Advanced Weather Interactive Processing System (AWIPS), FAA's Weather and Radar Processor (WARP); Air Force's Joint Environmental Toolkit (JET); and the Naval Integrated Tactical Environmental Subsystem (NITES).

AWIPS

In February 1997, the Secretary of Commerce approved the limited deployment of AWIPS at over 40 sites. On April 9, 1998, the Secretary authorized full-scale production and deployment of AWIPS, through Build 4.2, for the remaining 95 systems. Installation of these 95 systems began in September 1998 and was completed in June 1999. An Operational Test and Evaluation of the commissioning software load (Release 4.2) was successfully conducted from mid-May through June 1999. AWIPS commissioning began in January 2000 and was completed in November 2000 with 141 NWS systems commissioned at 122 Weather Forecast Offices (WFOs), 13 River Forecast Centers (RFCs), the Spaceflight Meteorology Group (SMG), and the National Centers for Environmental Prediction (NCEP).

The NWS successfully completed the final development release of AWIPS (Build 5) in early 2003, completed deployment of its first Operational Build (OB1) that summer, OB2 in December 2003, OB3 in August 2004, OB4 in February 2005, and OB5 in December 2005. Additional AWIPS releases were deployed to field offices as OB6 in February 2006, OB7.1 in October 2006, OB7.2 in January 2007, OB8.1 in July 2007, and OB8.2 in January 2008. OB8.3 began deployment in mid-June 2008. The AWIPS Operational Builds deliver new functionality, enhancements, and fixes for the areas of warning product generation and support, hydrological product generation, forecast generation, data and imagery display, communications, and infrastructure.

Significant activities underway include the re-architecture of the current AWIPS software, which is known as AWIPS-II, and is planned for deployment starting in 2010. AWIPS-II will transition the system to a Service Oriented Architecture (SOA), and will require extensive testing to validate whether it can meet or exceed the performance of the software currently deployed in the field. A follow-on project, AWIPS-II Extended, will enable AWIPS to be the visualization system for the entire NOAA Weather Enterprise. AWIPS-II will include a Thin Client capability, which is essential for AWIPS-like operations for NWS Weather Service Offices (WSOs), Incident Meteorologists (IMET) in the field, and NCEP.

WARP

The FAA's WARP will greatly enhance the dissemination of aviation weather information throughout the National Airspace System (NAS). WARP will automatically create unique regional, WSR-88D-based mosaic products and send these products, along with other time-critical weather information, to controllers through the Advanced Automation System (AAS), as well as to pilots via the aeronautical data link.

JET

JET will replace several disparate legacy weather systems with a single, integrated means of supporting both garrison and deployed operations,

including a "first-in" weather forecasting capability. Combining forecasting, product-tailoring, and mission-impact capabilities in an interactive, network-centric, standards-based package; JET accesses, processes, analyzes, tailors, and integrates terrestrial and space weather information into command and control systems to guide warfighter decision making. This effort will eliminate Air Force weather weapon system redundancies and inefficiencies, reduce the burden on system administrators, and ultimately extend, consolidate, or replace the following systems: Operational Weather Squadron Production System Phase II, the New-Tactical Forecast System, the Joint Weather Impacts System, and the Army's Integrated Meteorological System Weather Toolkit.

NITES

A series of NITES variants (I - IV) were re-engineered from the Tactical Environmental Surveillance System and other legacy systems of the early 1990's. NITES has capabilities to ingest, process, fuse, display, and disseminate meteorological and oceanographic (METOC) information and its impact on tactical operations. In early 2000, the NITES II application software was redesigned to align with the Global Command and Control System (GCCS) Family of Systems 4.x, provide increased flexibility, enable operating system and/or hardware independence, and improve user operability with a new graphical-user interface for tactical decision aid applications. The NITES II redesign suite of software is integrated with both GCCS-Maritime (M) and GCCS-Joint (J) 4.x versions.

The Navy will field a follow-on system, called "NITES – Next," to increase the capabilities for ashore, afloat and mobile METOC support to naval tactical operations and be net-centric and interoperable with the other services. NITES – Next will be a software only solution and compliant with the DOD Global Information Grid and Navy FORCEnet architectures. Navy is coordinating with the Air Force to efficiently and effectively leverage the Air Force's Joint Environmental Toolkit (JET) Program to eliminate unnecessary duplication of METOC capabilities.

THROUGH-THE-SENSOR (TTS) CAPABILITIES

The Hazardous Weather Detection and Display Capability (HWDDC) and Tactical Environmental Processor (TEP) are TTS technologies which will passively tap the AN/SPS-48G(V) (HWDDC) and SPY-1 (TEP) 3D air search radars to obtain and display hazardous weather information. The TEP and HWDDC systems will be based off common modular weather processing algorithms, and will have similar data product and display capabilities. Essentially, they are one common set of processing applied to two different radars. The differences in capabilities supported by the systems are driven by the differences in the radars, themselves.

The HWDDC will be integrated into the baseline AN/SPS-48G air-search radar, allowing it to extract and display reflectivity data. HWDDC addresses a long-standing fleet requirement for real-time hazardous weather detection/display to support safety of flight and operations planning within Carrier and Expeditionary Strike Groups. The knowledge of hazardous weather conditions afloat greatly enhances readiness and combat posture.

The TEP, which will be installed on modernized Destroyers (DDG), provides not only convective weather detection and display, but also real-time volumetric wind profiles and radar refractivity assessments for SPY-1 radar returns. This Refractivity from Clutter (RFC) capability supports SPY-1 optimization, which is critical in rapidly changing afloat refractivity environments. RFC enhances detection capability of small surface vessels and low-flying aircraft, while also significantly contributing to improvement in atmospheric modeling quality.

GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITES (GOES)

The GOES spacecraft circle the Earth in a geosynchronous orbit. This means they orbit the equatorial plane of the Earth at a speed matching the Earth's rotation. These satellites provide continuous monitoring necessary for effective, detailed, and extensive near-term severe weather monitoring and fore-casting and long-term environmental monitoring. GOES-East at 75°W and GOES-West at 135°W provide data on the United States and the Western Hemisphere. GOES-East monitors North and South America and most of the Atlantic Ocean. GOES-West monitors North America and the Pacific Ocean basin. In FY 2009, the next spacecraft in the

current GOES series will be launched. GOES-O is slated to launch in December 2008 and will become an on-orbit spare (GOES-14).

NATIONAL POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEM (NPOESS)

The NPOESS Program began when Presidential Decision Directive (PDD) NSTC-2 established the Integrated Program Office (IPO) in October 1994. Under the terms of this PDD, the IPO's function is to "...reduce the cost of acquiring and operating polar-orbiting environmental satellite systems, while continuing to satisfy Department of Defense (DOD) and Department of Commerce (DOC) operational requirements for data from these systems." Effectively, the directive combines the current operations and future follow-on activities of the DOD Defense Meteorological Satellite Program with the DOC NOAA Polar-orbiting Operational Environmental Satellite program. The new follow-on system will be called NPOESS. Cooperation with foreign governments and international organizations are to be encouraged as well.

NPOESS is an integrated DOC, DOD, and National Aeronautics and Space Administration (NASA) program. Through the IPO, DOC is responsible for operations and overall program management; DOD is responsible for the acquisition and launch of the satellites; and NASA is responsible for insertion of new and innovative technology.

In January 2006, the program was expected to exceed its approved program baseline by 25 percent. This required the DOD to recertify the program to Congress in accordance with the Nunn-McCurdy Amendment of the 1982 Defense Authorization Act. The program configuration was reduced from three to two orbital planes and from six to four satellites.

The space segment of NPOESS will include space platforms and sensors that will collect and store environmental and other data until it can be downlinked directly to operational weather processing centers (e.g., Air Force Weather Agency, Fleet Numerical Meteorology and Oceanography Center, Naval Oceanographic Office, and National Environmental Satellite, Data, and Information Service (NESDIS)) and field terminals (receivers used by deployed and/or remote military units and civilian users to obtain environmental data). The space segment will consist of meteorological, oceanographic, terrestrial, space environmental monitoring, climatic sensors, and other capabilities such as surface data collection and/or location and aid to search and rescue operations. The satellite will store and download all data to ground stations with a latency of less than 90 minutes and will also provide continuous downlink of data for receipt by worldwide civilian and DOD users.

The NPOESS constellation will notionally consist of U.S. satellites in two orbital planes and will receive data from one European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) satellite via European ground sites. The US satellites will fly at 833 ± 17 km altitude with an inclination of 98.7 ± 0.05 degrees in two distinct sun-synchronous orbits: early morning and early afternoon. EUMETSAT will cover the mid-morning orbital plane.

Each satellite will carry several types of sensors to accomplish its mission, including electro-optical (E/O), microwave (MW), and space environment (the exception is the first NPOESS satellite, C1, which will not carry a space environment package). The E/O instruments include a Visible/Infrared Imager/Radiometer Suite to provide imagery in the visible and infrared spectra, a cross-track infrared sounder to provide high-resolution vertical profiles of atmospheric properties in conjunction with MW soundings, and an ozone mapping and profiler suite to measure ozone in the earth's atmosphere.

NPOESS will carry other payloads that are similar to existing instruments, such as NOAA's managed data collection system (DCS), which collects, processes, and stores for subsequent transmission buoy, free-floating balloon, and remote weather station measurements; and the search and rescue satellite aided tracking (SARSAT) system that uses NOAA satellites in low-Earth and geostationary orbits to detect and locate users in distress. The satellites relay distress signals from emergency beacons to a network of ground stations and ultimately to the SARSAT U.S. Mission Control Center (USMCC) in Suitland, Maryland. USMCC alerts the appropriate search and rescue authorities.

NPOESS also recently sponsored the University Corporation for Atmospheric Research Co-

operative program for Operational Meteorology, Education, and Training (COMET) in branching into high-latitude territory. Since the usefulness of geostationary satellites declines rapidly at latitudes above 60° north and south, NPOESS data are especially important toward the poles. COMET is developing a series of modules to help prepare forecasters for the products available from the polar orbiters.

The IPO is working with the NPOESS contractor to ensure ground systems are in place and operating in time to use NPOESS Preparatory Project data in 2010 and that all systems are ready for an expected 2013 launch of the first operational NPOESS satellite.

NASA's FY 2009 request is for just over a total of $740.7 million--over $7.50 million for operations and $733.2 million for supporting research. These funding levels are composed of the estimated meteorology share of the supporting research and analysis programs as well as Earth Observing System (EOS) and Earth Probe instruments, EOS science, and the EOS Data Information System elements of the NASA Office of Earth Science budget.

OTHER AGENCY PROGRAMS

For FY 2009, the Department of Agriculture (USDA) requested $45.4 million for meteorological operations and supporting research. Operationally, the USDA supports specialized weather observation networks and also conducts an active supporting research program to ensure an abundance of high-quality agricultural commodities, while minimizing the adverse effects of agriculture on the environment. Under supporting research, USDA focuses on the interactions of weather and climate with plant and animal production and water resources management.

The Department of the Interior's (DOI) FY 2009 request of $2.4 million is primarily to support the Bureau of Land Management's Remote Automatic Weather Station (RAWS) program.

The Environmental Protection Agency (EPA) budget request for FY 2009 is $9.0 million, the same amount as in FY 2008, to provide user-appropriate and scientifically credible air-quality and meteorological programs and models to support regulatory applications.

The Nuclear Regulatory Commission's (NRC's) request for $500,000 in FY 2009 is for operations. With an increased emphasis on nuclear energy, the NRC will dedicate the increased funding to obtain and analyze meteorological data and information related to siting more new nuclear power plants than last year and continued safe operation of nuclear facilities, to the protection of public health and safety, and protection of the environment.

FEDERAL COORDINATION

NATURAL DISASTER REDUCTION

INTERDEPARTMENTAL HURRICANE CONFERENCE

The OFCM annually hosts the Interdepartmental Hurricane Conference (IHC) to provide a forum for the responsible Federal agencies, together with representatives of the user communities such as emergency management, to review the nation's hurricane forecast and warning program and to make recommendations on how to improve the program. The 62nd IHC in Charleston, South Carolina, March 3-7, 2008, was attended by approximately 200 people including representatives from nine Federal agencies. Objectives of the 2008 IHC included the following: (1) review the Nation's tropical cyclone forecast and warning program from end-to-end; (2) update the National Hurricane Operations Plan for 2008; (3) review the 2007 Joint Hurricane Testbed (JHT) projects, and identify candidates that may be successfully transitioned into operations; (4) examine how hazard risk reduction improvements can be made through stronger local partnerships and alliances; and (5) as recommended in the Interagency Strategic Research Plan for Tropical Cyclones: The Way Ahead, begin developing an interagency implementation strategy for the tropical cyclone research priorities. Actions resulting from the conference included: (1) Update and execute the National Hurricane Operations Plan for the 2008 hurricane season; (2) Analyze tropical cyclone research activities presented at the 62nd IHC and other subsequent forums with respect to the priorities established in Table 5.1 of the interagency strategic research plan; (3) Identify overlaps, gaps, areas for collaboration and leveraging opportunities; and (4) Establish the

next steps needed to fill the gaps. The IHC was extremely successful in bringing the operational and research communities together to further improve the tropical cyclone forecast and warning program. Finally, the conference provided a baseline of research activities that will enable the development of an interagency implementation strategy for the tropical cyclone research priorities, which can be reviewed at subsequent IHCs. The 63rd IHC is being planned for March 2009 in St. Petersburg, Florida.

TROPICAL CYCLONE RESEARCH AND DEVELOPMENT PLAN

The tropical cyclone forecast and warning program is an interdepartmental collaboration to provide the United States and designated international recipients with forecasts, warnings, and assessments concerning tropical and subtropical weather systems. The Interagency Strategic Research Plan for Tropical Cyclones: The Way Ahead provides a strategy to improve the effectiveness of operational forecasts and warnings through increased collaboration among the major players in the operational and research and development (R&D) communities. This strategic plan has become the underpinning of NOAA's Hurricane Forecast Improvement Program and provides a foundation for Navy and NASA research as well as supporting NSF's related activities. In response to direction from the Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR), the OFCM formed the Working Group for Tropical Cyclone Research with cochairs from NOAA and the Navy in the summer of 2008. In FY 2009, the Working Group will be developing an implementation strategy for the research objectives outlined in the strategic plan.

POST-STORM DATA ACQUISITION

The OFCM continued to coordinate, as required, timely post-storm data acquisition surveys in response to Presidentially declared natural disasters and other agency requirements. Under the 5-year Umbrella Agreement and an FY 2008 funding agreement between OFCM and the U.S. Air Force for up to $22,000 in reimbursable support, the Civil Air Patrol flew 17 missions in support of tornado and hurricane damage assessments, flood assessment, survey of potential dam breaks, glacial lake damming in Alaska, and a pre-storm hydrology survey in Hawaii. This support will continue in FY 2009 at a planned level of $25,000 set aside for these missions.

URBAN METEOROLOGY

NATIONAL WILDLAND FIRE WEATHER NEEDS ASSESSMENT

The needs assessment has been completed, capabilities information has been gathered, and an initial gap analysis has been accomplished. The needs assessment identified 47 specific needs in nine functional areas and the preliminary gap analysis indicates just two of these needs may have no activity against them but, conversely, none of the needs may be considered fully met at this time. The OFCM briefed the results of the needs assessment and provided a copy of the summary report to the NOAA Science Advisory Board's Working Group on Fire Weather Research as part of their kickoff activities in October 2007. The results of the NOAA SAB's working group study have been incorporated into the draft final report. In FY 2009, the Working Group for Wildland Fire Weather will complete the final report which will outline the needs, capabilities, gaps, and a framework to address the needs.

ATMOSPHERIC TRANSPORT AND DIFFUSION RESEARCH AND DEVELOPMENT

The Joint Action Group for Joint Urban Test Beds (JAG/JUTB), under the Working Group for Urban Meteorology (WG/UM), is continuing work to develop an operational concept document for multifunctional joint urban test beds to provide services and data to model developers, test and evaluation personnel, and users. The joint urban test beds will support the following functional areas: severe weather (e.g., hurricanes, tornadoes, heat waves and cold spells, drought, and wildland fires), homeland security (dispersion of hazardous materials), climate, air quality (e.g., particulate matter aerosols), and water quality (e.g., deposition of airborne contaminants on water sources and waterborne transport of contaminants). JAG/JUTB is currently planning to pursue implementation of a JUTB over the National Capital Region first; this JUTB would be the proof of concept and our experience with it would allow for the improved development of an operational concept

document based upon experiences with this first JUTB.

GEORGE MASON UNIVERSITY ATMOSPHERIC TRANSPORT AND DISPERSION MODELING CONFERENCE

George Mason University (GMU), Fairfax, Virginia, conducted its 12th Annual Conference on Atmospheric Transport and Dispersion Modeling in July, 2008, and the OFCM cosponsored the event together with a number of other agencies. Technical topics of interest for the conference were: new developments in basic theories of boundary layer models and transport and diffusion models; urban-scale meteorological and dispersion experiments and models; computational fluid dynamics (CFD) model theory and applications; field experiments and laboratory experiments concerned with boundary layer studies and turbulence and dispersion studies; mesoscale meteorological modeling for input to transport and dispersion models; the use of remote sensing technology in boundary layer and transport and dispersion studies; model evaluation methods, uncertainty/sensitivity analyses, and risk assessments; improvements in model inputs (e.g., land-use data, 3-D building data) and output visualizations; and methods and criteria for emergency response and decision making.

OPERATIONAL PROCESSING

Interagency cooperation continued to improve processing and backup capabilities of NOAA's National Centers for Environmental Prediction and Office of Satellite Data Processing and Distribution, the Air Force Weather Agency, and the U.S. Navy's Fleet Numerical Meteorology and Oceanography Center and Naval Oceanographic Office. In FY 2008, the agencies signed the Data Acquisition, Processing, and Exchange (DAPE) Memorandum of Agreement to update and formalize these activities among the operational processing centers, and the Environmental Satellite Data Acquisition (ESDA) annex to the DAPE MOA is in final coordination to be completed in FY 2009. This annex will replace the expiring Shared Processing Program (SPP) agreement which provides for funding to support the exchange of extensive volumes of data.

WEATHER INFORMATION FOR SURFACE TRANSPORTATION

In 2008, the interagency weather community continued to move forward in support of surface transportation. The Fourth National Symposium on Surface Transportation Weather was held in Indianapolis, Indiana, in June 2008 and several U.S. representatives attended the Safety in Mobility conference held in Velden, Austria, in July 2008. At the invitation of the U.S. Embassy in Austria, the Federal Coordinator for Meteorology provided a keynote address. Agency representatives attended the Intelligent Transportation System World Congress in New York City in November 2008. In FY 2009, the interagency community will focus on areas such as: current and emerging capabilities; transition of research to operations to improve products and services; getting the right message out and the need for social science involvement; education and outreach; the need for metrics to measure success and guide resource allocation; identifying gaps and setting research priorities; and exploiting the opportunity for a near-term intermodal initiative to develop and demonstrate emerging capabilities.

AVIATION WEATHER

Agency representatives continued to participate in the Next Generation Air Transportation System (NextGen) Weather Working Group and the Friends/Partners in Aviation Weather (FPAW). The OFCM presented results of the 10-year National Aviation Weather Program effort to reduce weather-related aviation accidents at a National Aviation Weather Program Council meeting and at the FPAW meeting at the National Business Aviation Association annual conference. The goal was to reduce weather-related fatal aviation accidents by 80 percent over the 10-year period from 1997 through 2006. Although the National Aviation Weather Program achieved significant progress over this period, particularly in the area of general aviation, the second five years of the 10-year period showed a marked slow down in the decline of accident rates and the ambitious 80 percent reduction goal was not achieved. The OFCM will be working with the NTSB and others in

FY 2009 to develop an understanding of the change in the trend lines, how the program can sustain the progress which has already been made, and how to jump start additional progress toward the overall 80 percent reduction. The final report assessing this goal will be published in FY 2009.

SPACE WEATHER

The Committee for Space Weather is refining the draft and expects to publish the new NSWP Strategic Plan in FY 2009, with a follow-on effort to craft an updated Implementation Plan. In a complementary effort, the Committee prepared and submitted a Space Weather Implementation Plan (SWxIP) as requested by the Committee on Environment and Natural Resources (CENR) Subcommittee for Disaster Reduction (SDR). The SWxIP is in final review within the Executive Office of the President and publication is expected in 2009. Another significant NSWP effort in FY 2008 was the completion of the report Impacts of NPOESS Nunn-McCurdy Certification and Potential Loss of ACE Spacecraft Solar Wind Data on National Space Environmental Monitoring Capabilities, documenting the results of a study requested by the Office of Science and Technology Policy (OSTP). The For Official Use Only report identifies a number of significant impacts resulting from the expected loss of significant space environmental sensing capabilities. The space weather community received a follow-on request from OSTP to conduct a mitigation study in FY 2009.

PHASED ARRAY RADAR

The interagency weather community continued to move forward with a coordinated approach to risk reduction for applying multifunction phased array radar (MPAR) to weather detection and concurrent air and weather surveillance. The MPAR Symposium in October 2007 highlighted that now is the time to begin the evaluation of MPAR, and a risk-reduction implementation strategy was needed. The WG/MPAR developed a coordinated implementation strategy in early 2008, which formed the anchor point for ongoing planning and coordinated action across NOAA, DOD, DHS, and the FAA. The Working Group for MPAR (WG/MPAR) completed a service improvement assessment for weather surveillance which mapped the linkages from basic capabilities expected of a PAR system, to derived capabilities, and subsequently to anticipated service improvements. Also in late FY 2008, the National Academies' Board on Atmospheric Science and Climate (BASC) Committee on the Evaluation of the MPAR Planning Process delivered their report. Their overarching recommendation was to continue the MPAR research and development. The WG/MPAR is defining requirements and drafting an operations concept for MPAR. Over the last year, DHS supported targeted research using the National Weather Radar Testbed at the National Severe Storms Laboratory in Norman, OK, and additional future funds were programmed for phased array radar work in NOAA. At its meeting on September 29, 2008, the Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR) supported the creation of a senior policy council for MPAR within the Federal meteorological coordinating infrastructure. This council would begin addressing policy issues among the key stakeholding agencies as anticipated funding increases materialize in the years ahead.

CROSSCUTTING HYDROMETEOROLOGICAL ASSESSMENT

In September 2008, a one-day interagency hydrometeorology mini-workshop by OFCM brought together the relevant Federal agencies to initiate discussion on topics such as programs, product suites and services, needs and requirements, transitioning research into operational applications, and related education and outreach activities. The workshop spurred interest among the participants to see what others are working on and to continue gathering needs and requirements and identifying priorities and gaps. A follow-on mini-workshop is planned for December 2008.

CRITICAL SKILL SHORTAGES

The interagency weather community has already identified a deficiency in advanced data assimilation expertise and anecdotal evidence indicates additional potential shortages in the areas of

probability, radar meteorology, and tropical meteorology. Senior leaders agreed to establish the Joint Action Group for Critical Skill Shortages to identify other critical areas, collect information, and conduct an analysis of the Federal sector's current and projected critical skill shortages. The group will then make recommendations to address the skill shortages identified.