



National Weather Service

NOAA Science Advisory Budget Discussion

Jack Kelly
Assistant Administrator for Weather Services

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Agenda

- Realities
- FY 03 Budget
- FY 04 Budget
- Summary



Change Is Upon Us

- **Information Technology revolution changing the landscape**
 - ***Industry doubling IT capability every 18 (Moore' Law)***
 - ***Telecommunications capability improving more rapidly – doubling every 12 months***
 - ***New IT strategies/"Thin" Client Architectures***
 - "Fat" Server/"Thin" Client Architectures
 - Internet 2
 - Video-teleconferencing
 - Interactive collaboration between geographically separated locations
- **Faster, better, cheaper, more capable, more complete processing, manipulation, transmission of data**



Change Is Upon Us

- **Science Advances producing breakthrough potential**

- ***Improved observations:***

- NEXRAD, MDCRS, Profilers, Mesonets increase resolution
- NEXRAD Dual Pol will provide new data
- Next generation satellites will provide hyper-spectral observations

- ***Improved data assimilation and modeling:***

- Finer scale models
- More complete physics
- Ensembles and other post-processing techniques

- **Vastly improved capabilities for current products**
- **Potential for new products needed by Nation**



Customer Requirements



- **Forecasts and warnings through all time scales**
- **Dissemination**
 - *Easy and real-time access*
 - *Standardized formats*
 - *Digital*
 - *GIS*
 - *Graphic & Gridded*





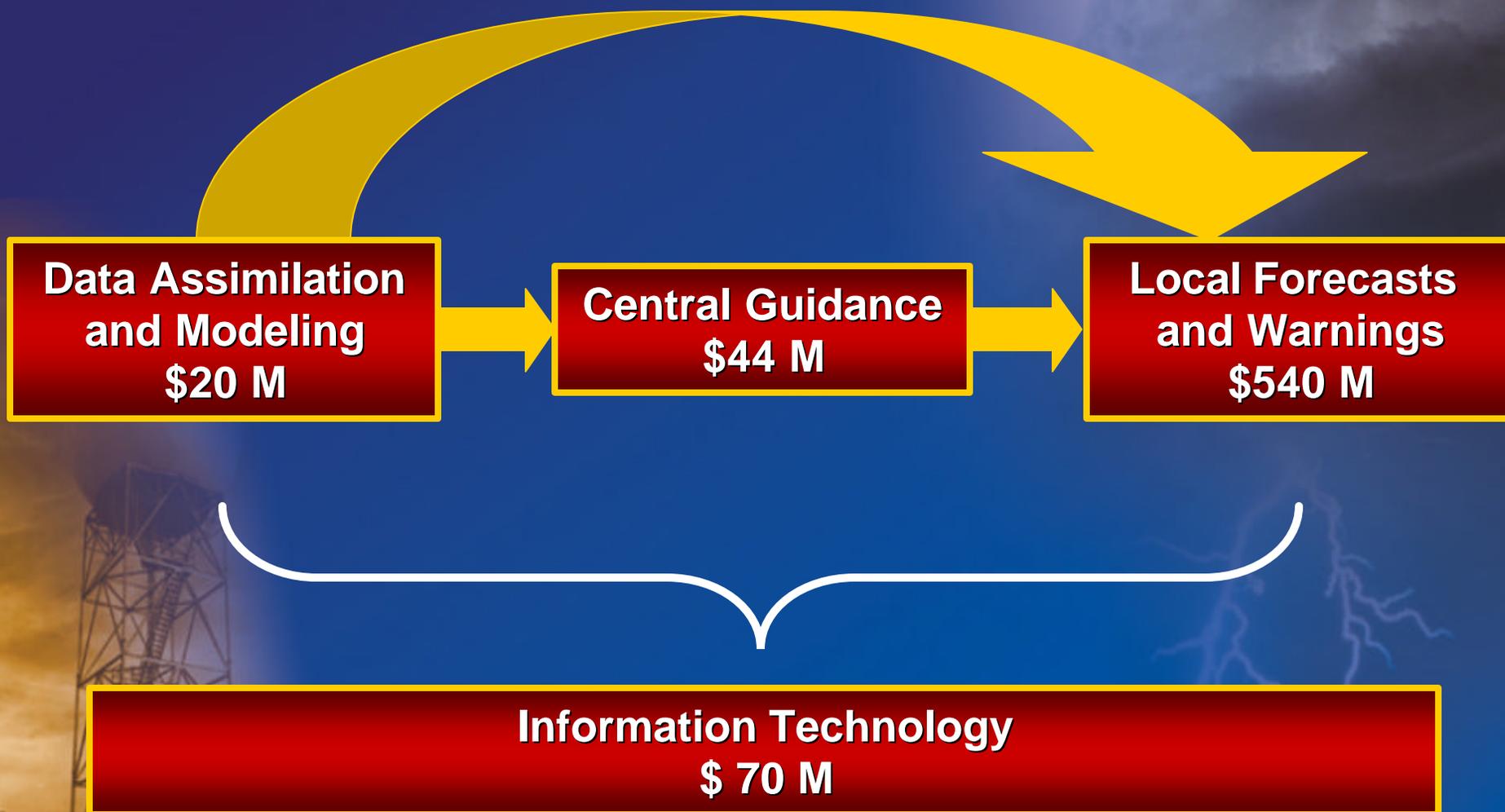
Customer Requirements



- **Longer Term Forecasts**
- **Increased accuracy across all time scales**
- **Quantify forecast certainty**
- **Quality Control**
- **Customer feedback and interaction**



Budget Realities





Budget Realities

- **FY04 President's Budget**
 - *NWS Allocation: \$820M*
 - *Growth: \$47M*
- **FY 04 Base Labor: \$402M**
- **Requires ATB of \$20.1M (42% of Growth)**
 - *FY04 Pay Raise: 2.0%*
 - *Leaves \$27M for all other requirements*



Ops Concept Drives S&T

Ops Concept

Science & Technology

- **Ops Concept also constrains S&T**

- ***Affordability***

- Must be deployed to 122 WFOs, 13 RFCs and 8 NCs

- ***Speed of infusion***

- Testing, deployment, training for WFOs, RFCs and NCs

- **Average life of business process is 7 years**

- **Average time to build supporting IT is 5 years**



S&T Enables Ops Concept

Ops Concept

**Science & Technology
Infusion**

- **New S&T already changing Ops Concept**

- *IT -- capability for New Data Sets*
- *FX-NET -- new opportunities to meet local processing needs*
- *Internet 2 -- improved telecommunications*
- *Fine-scale models -- Local NWP*
- *Regional Operations Centers at Regional Headquarters*

- **Rapidly evolving S&T driving need for future changes**

- *IFPS -- new ways of generating and communicating forecasts*
- *Programmed New Data - satellite, radar, observations*
- *Improved models (data assimilation, higher resolution, ensembles, physics, etc)*



S&T Infusion



Where Do We Focus Our Improvement Thrusts?

- **Depends critically on Ops Concept**
 - ***Distribution of workload—drawing on strengths of models, centers, WFOs and RFCs—drives supporting S&T Architecture***
 - Affordability
 - Timeliness of infusion
 - Available budget
 - ***Must address how best to***
 - Achieve breakthrough performance in today's missions
 - Provide new products and services for tomorrow's missions
 - Ensure continued affordability as mission grows

Corporate focus must be on producing best result for the U.S. most economically



S&T Infusion



- **Desired outcomes**
 - ***Breakthrough performance on Warnings and Forecasts***
 - Lead time, Accuracy, Customer Satisfaction
 - ***New products and services needed by the Nation***
 - Regional Climate Services
 - Air Quality forecasts and warnings
 - Water Quality – Drought forecasts
 - Environmental forecasts??
 - Space Weather??
 - ***More timely introduction of new products and services***
 - ***More cost effective generation of products and services***



FY 2003 Budget Appropriation Update



- President Signed Appropriation Bill on February 20th
- Provides \$759.6M for NWS, \$17.7M below Request Level
- Represents at increase of \$11.5M or 1.5% over FY 02
- Overall, Represents a Below Current Service Budget
- Partial Funds Inflationary Costs – Pay Raise of 4.1%
- Includes .65% Across the Board of \$5M
- Fully Funds Advanced Hydrologic Prediction Service at \$6.1M
- Fully Funds Aviation Weather Initiative at \$2.5M



FY 2003 Budget Appropriation Update



- Reduced Funding for NOAA Weather Radio Maintenance
- Denied Backup Weather Supercomputer
- Denied Funding for Weather Office Construction
- Fully Funds NEXRAD, ASOS, and AWIPS Technology Infusion
- Fully Funds Radiosonde Network Replacement
- Includes Earmark of \$3.0M for Air Quality Forecast by FY 04
- Includes Earmark of \$3.0M for COOP Network Modernization in Northeast



Overall FY 2004 Federal Budget

- **Totals \$2.13 trillion, an increase of \$76 billion over FY 02**
- **Proposes FY 03 Deficit of \$80 billion**
- **7 % increase for Military Spending**
- **2 % increase for Non-Military Non-Homeland Discretionary Spending**
- **Reflects Shift in National Priorities**

— *Military*

— *Economy*

— *Homeland Defense*



National Weather Service

FY 2004 President's Budget



- Supportive Budget for NWS, Considering the Fiscal Environment
- Total \$820M, an increase of \$47.4M or 5.8% Over FY 03 PB
- Positive Feedback for OMB, Ranked 6th of 234 Agencies in Assessment
- Sustains Current Services, Fully Funds Inflationary Costs
- Funds Critical Technology Infusion Initiatives
- Sustains Funding for New Service Initiative - - Aviation & AHPS
- Funds First Year of NOAA Center for Weather and Climate Prediction



National Weather Service

FY 2004 President's Budget - Increases



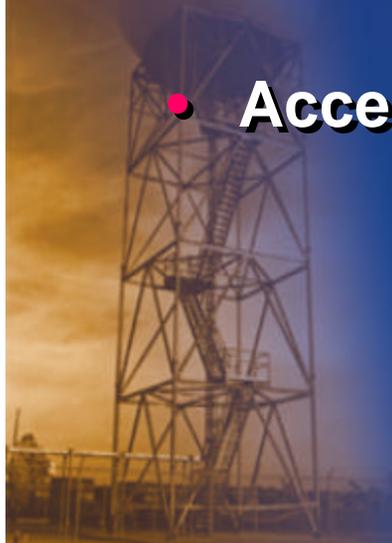
• Mandatory Inflationary Costs, Including Pay Raise	\$20.1M
• Susquehanna River Flood Warning System	\$1.3M
• Facilities Security	\$2.2M
• Pacific Island Observations	\$3.6M
• NEXRAD Weather Radar	\$3.7M
• NOAA Weather Radio – All Hazards Capability	\$5.5M
• NWS Telecommunication Gateway Replacement	\$2.9M
• Coastal Global Ocean Observing System (Marine Buoys)	\$2.0M
• Weather Forecast Office Construction	\$3.0M
• NOAA Center for Weather and Climate Prediction	\$10.4M
• Offset and Reductions	<u>(\$7.0M)</u>
Total	\$47.6M



FY 2004 Budget Priorities



- **Sustain Current Services**
- **Infuse New Technology**
- **Accelerate Service Improvements**





NOAA Weather Radio – All Hazards Warning Capability



- NWS Budget Includes One Time Increase of \$5.5M
- Automates Dissemination of Civil Emergency Messages
- Provide Emergency Managers and First Responders Direct Access to NWR Network to Transmit Messages
- Reduce Time to Disseminate Messages from 7 to 2 Minutes
- Critical Component of NOAA's Homeland Security Initiative
- NWR Network Recognized by FEMA and Department of Homeland Security as a Critical Component of the US Warning Dissemination Infrastructure
- Over 90% of US Population Have NWR Coverage

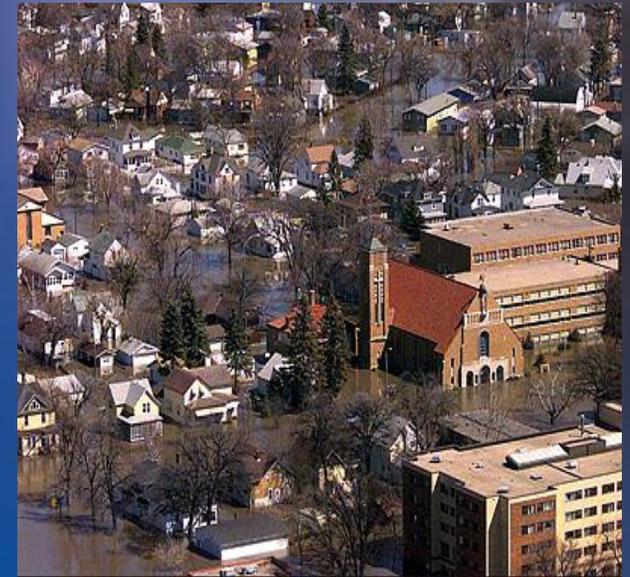




Advanced Hydrologic Prediction Service (AHPS)



- Includes \$6.2M To Accelerate National Implementation
- Flooding is the leading cause of weather damage
- AHPS Extends river forecast from 1-2 days to 3 months
- Improves Lead Time for Flash Floods by 30%
- Provides Web-Based Probability Forecasts
Emergency Managers and Local Officials
- Once Implemented, AHPS will save over \$700M annually
- Plan to implement AHPS at 480 New Sites in FY 04
- New Sites Focused on Midwest, Northeast, Northwest





NEXRAD Radar Improvements



- Increase of \$3.7M for NEXRAD Weather Radar
- Total Request of \$12M for FY 2004
- Accelerates Critical Hardware Improvements
- Improves Overall Detection Capability of the Radar
- Improve Warning Lead Time from 11 to 15 Minutes
- Extends Range for Smaller Tornadoes by 80%
- Accelerates Volume Scan from 5 to 2.5 Minutes





National Weather Service

Weather and Climate Supercomputer Backup



- Includes Request of \$7.2M in FY 04
- Critical Component of Secretary's Homeland Security Initiative
- Protects Continuity of Nation's Weather Infrastructure
- Provides Operational Backup Within 3 Hours
- Provides Critical Tool for Weather and Climate Research
- Catastrophic Fire Destroyed the NWS Supercomputer in FY 1999
- Avoids Service Degradation from Current Backup Capabilities
 - *Hurricane Track Forecast Error 16 Miles*
 - *Heavy Precipitation Forecasts by 30%*
 - *Aviation Forecast by 30%*





Summary



- **Budget - Labor Intensive Impacting Flexibility**
- **Operating Concept - Impacts Science Infusion**
- **FY04 President's Budget – Supportive of NWS**
- **Fiscal Environment - Likely to Impact Future Budgets and Services**