



Global Precipitation Measurement (GPM) Mission National Weather Service Perspective

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The Ongoing NWS Challenge

- Despite science and services improvements, people are still **injured and dying from weather and water events**
- Society is becoming more **vulnerable** to extreme weather events
- Our challenge: Use GPM to **reduce loss of life and property and improve water services**
 - Fill observational gaps in places like Alaska, Central Mexico, Pacific Ocean, Tropics
 - Leverage GPM in forecast models



Recent US Water Tragedies



**Ice and floodwater inundate Eagle Alaska
May 6, 2009**



**Tennessee Floods
May 2010**



**Arkansas Campsite Flooding
June 2010**



NOAA & NWS Strategic Plans

- “Weather-Ready Nation” (NOAA)
 - **Reduced loss of life, property, and disruption from high-impact events**
 - **Improved water resource management**
- NWS
 - Improve **weather decision services** for events that threaten **safety, health**, the environment, economic productivity, or homeland security
 - Deliver a broader suite of improved **water services** to support management of the Nation’s water supply



OST and OHD Missions

- Office of Science and Technology:
 - **Identify** scientific needs; **advocate** for and/or **develop** solutions; and **infuse** them into operations
- Office of Hydrologic Development:
 - **Transition** of hydrologic science and software into field offices
 - **Lead** expansion of water resource information services



Benefits of Precipitation Constellation

- Models
 - Tuning of merged GEO/MW precipitation algorithms
 - Fill observational gaps to improve model initialization
- Situational Awareness
 - Use of satellite data to fill ground based observation gaps for precipitation
 - Global monitoring of storms
 - Sensitive to cold season precipitation
- Climate
 - Climate monitoring and trending
 - Develop inter-satellite calibrated data sets for Climate Data Records



Science Service Area Goals (Precipitation Related)

- **Fire Weather**
 - Red Flag Warning
 - >24hr lead time
- **Hydrology**
 - Inundation Forecasts
 - Dependable Street Scale Probabilistic Warnings
- **Winter Weather**
 - Improved Heavy Snow Forecasts
- **Tropical Weather**
 - Hurricane Track, Intensity Forecasts
 - Errors reduced by 50%
- **Ecosystems**
 - River/Estuary Water temperature
 - Water quality



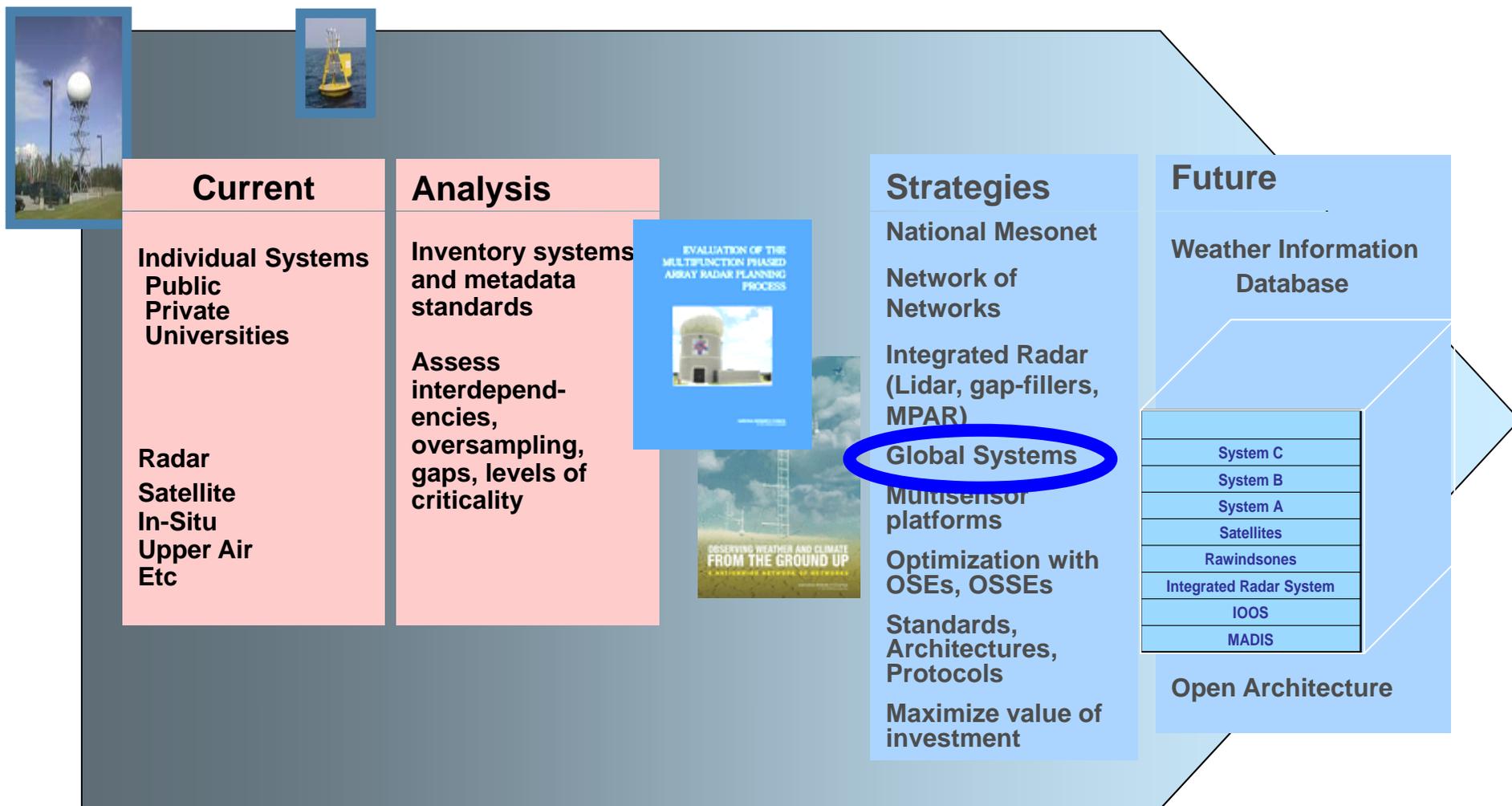
Connection to Workshop

Workshop Goals:

- 1) Identify Observational Gaps
 - **Linked to NWS Goals and Societal Benefits**
 - **Defined in terms of increasingly integrated observation system**



Integrated Observation and Analysis System





Connection to Workshop

NWS/OST Director's Perspective

Workshop Goals:

- 1) Identify Observational Gaps
 - Linked to NWS Goals and Societal Benefits
 - Defined in terms of increasingly integrated observation system
- 2) **Define path for accelerated use of GPM data**
 - **Tools are in place for forecasters to exploit data**
 - **Data assimilation is optimized for ingest into models; communications architecture is ready**
 - **Training is available for timely operational use**
- 3) **Identify new applications and uses of GPM data**
 - **Go beyond our understanding of what GPM can do today**
 - **Leverage operational field expertise for R2O transition**

Leverage Testbeds for GPM R20

- GOES-R Proving Ground is leading the way
- Integrate polar and geo data testing
- Ensure testing is done in operational environments
- Leverage the NWS **testbeds** that best evaluate GPM data's impact on operational missions





Take Away

- Budgets are **Getting Tighter**
- GPM shows potential for improving forecasts and warnings through improved situational awareness and modeling capabilities
- We must **understand and communicate** the future value of GPM data
- Ensure forecast production systems and models can fully exploit these data
- Involve field forecasters at every step possible