

# Planning for New Satellite Exploitation in Future NWS Operations

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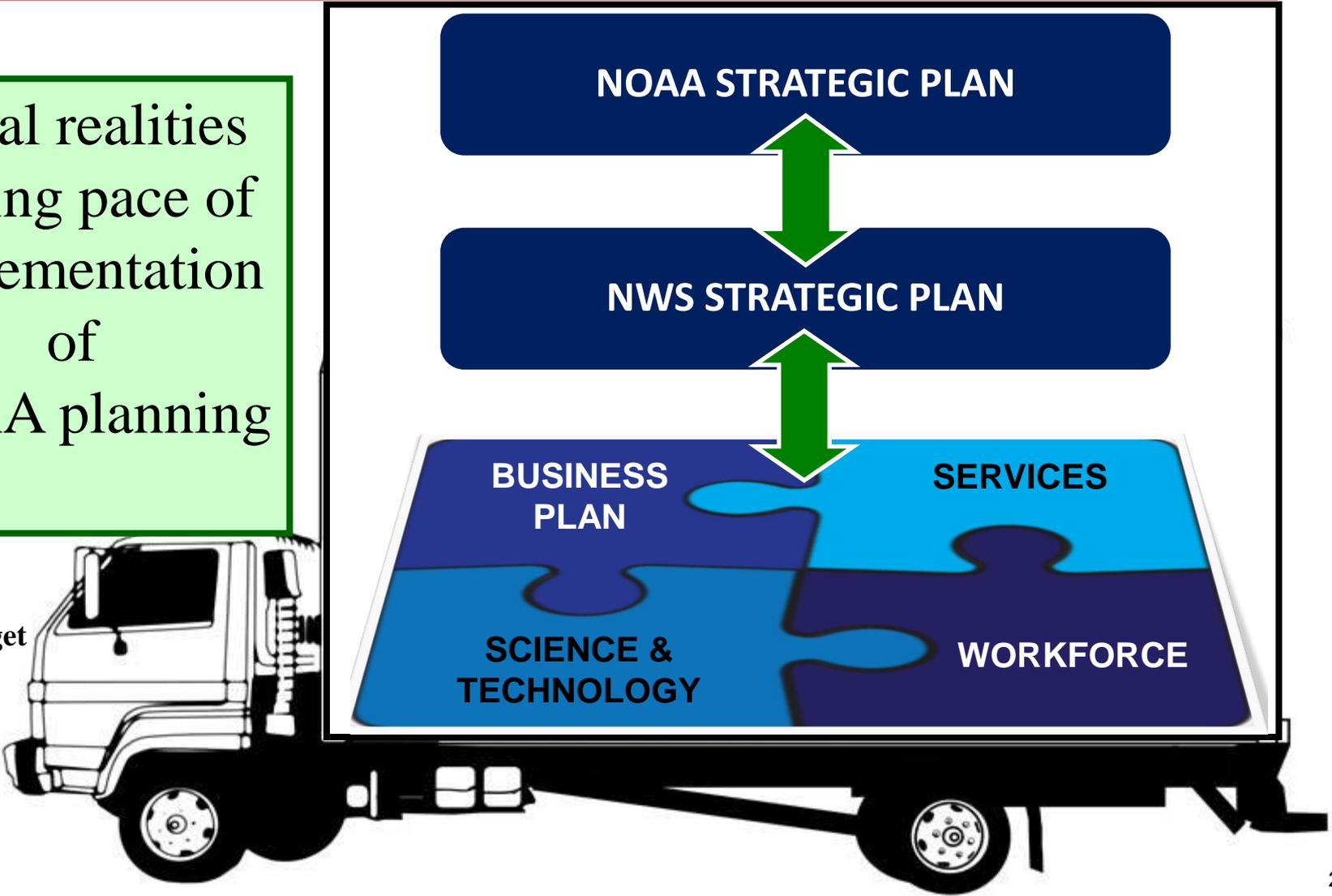
# Planning for Decision-Support Transition is Maturing but Timing Uncertain



Fiscal realities driving pace of Implementation of NOAA planning



NOAA Budget





# Fiscal Challenges drive Uncertainty

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- NOAA's Challenge

- Strong downward budget pressures; NOAA must urgently identify potential cost reductions and preserve critical NOAA mission delivery
- NOAA must re-engineer its approach to its observing system architecture to reduce costs
- Importance of observations to NOAA's mission dictates a thorough analysis to ensure there are no critical impacts; Current speed of federal budget decisions is accelerating analysis.



# Multiple-Program Development Inter-Dependency



- Near-term Milestones (2011-2012), e.g.:
  - NPP readiness & testing
  - Dual Pole Radar deployment
  - AWIPS II deployment
- Short to Mid-term Milestones (2011-2015), e.g.:
  - Model Improvements
    - NWP Physics & Resolution
    - High Power Computing
    - Data Assimilation
  - 4-D Wx Data Cube
  - Evolving capabilities in data delivery and display
  - Testing and Prototype development at Testbeds and Proving Grounds
- Operations Transition Milestones (2015-2025), e.g.:
  - GOES-R and JPSS become operational
  - Evolving mix of observation systems exploited operationally
    - Increasing exploitation of research and international satellite systems
    - increased globalization of environmental data
  - New Operational Concepts Tested...then Fielded





# Proving Ground – Risk Reduction



2009-2013

Focus on Products

- Day 1
- GOES-R Risk Reduction

2011-2019

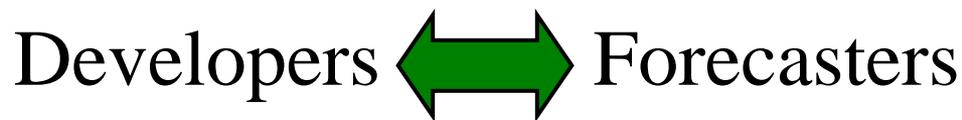
Prepare & Implement Fusion

- Evolve fusion concepts
- Implement NWS Roadmaps
- Test concepts operationally
- Transition to service focus

2020&Beyond

Focus on Services

- Improve fusion support
- Fully Implement service focus



# Future Operations Research and Development

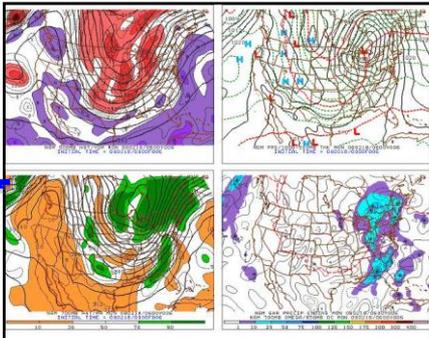
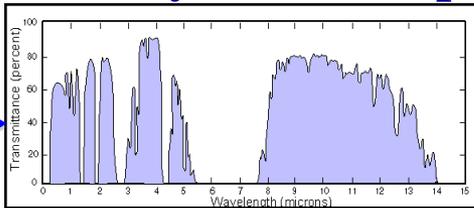
- Moving from product centric approach to a more integrated approach
- Fog Probability example (others: turbulence-, icing-, integrated-CI probability)
- Increasing role of NWP as integrator

## Satellite

ABI channels 2, 7,14  
Cloud Mask  
Cloud Phase  
Solar zenith angle



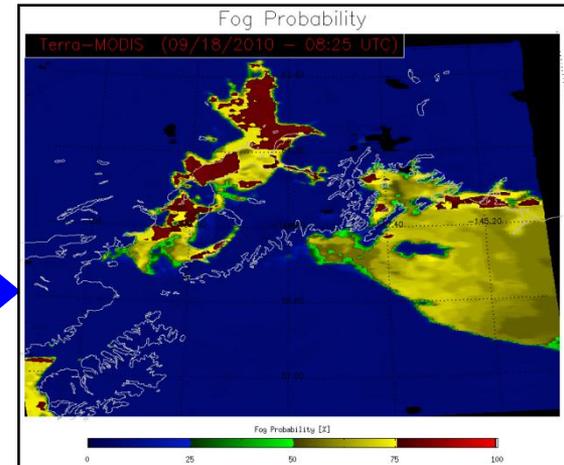
## Clear Sky RTM Output



## NWP Data



Data  
Integration and  
Fusion



Fog Probability



# Expected Evolution in Concept of "Situational Awareness (SA)"

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- **Today's Forecast and Warning Concept**
  - Forecast based primarily on NWP, Warning operations use mix of SA (e.g. radar, spotter reports, satellite) and NWP
  - SA synonymous with observations, and is specific to each observation. It is a method for forecaster to check NWP expectations against reality...then adjust
  - In the future, an additional form of SA will become integral to short-term warning operations, Specifically:
- **Rapid Real Time Mesoscale Data Analysis**
  - Integration / fusion of multiple observations refreshed on continuous basis ~15 mins
  - RTMA-like, except 3-dimensional, higher spatial and temporal resolution