Data Delivery and Formats

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Data Delivery and Formats Session
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Context (or, "for whom I am attempting to speak")

Planners/developers/maintainers/users of NWS **baseline** environmental satellite data streams.   This implies:

- validated requirement for product (e.g.,. needed by NWS forecaster)
- dedicated NOAA infrastructure for product generation/distribution
- "operational" support (e.g., human on-call support ~ availability)
- failover/backup/contingency
- products broadly available to NWS forecasters (e.g., via AWIPS)
- products available to external users via NOAAPort/SBN

There are numerous **non-baseline** streams feeding local NWS field offices.   These non-baseline streams are largely outside the scope of this presentation.

Guidance to Panelists (Emphasis added)

Overview: NOAA requires GPM-era data with ***minimal data latency*** and ***provided in formats that will be suitable for immediate use across NOAA.*** Additionally, NOAA-unique products can be generated from the GPM radiometer constellation.

Expected Outcome: Identify needed actions to prepare for a potential ***transition of relevant portions of NASA's ground processing segment for GPM*** … and to determine specific NOAA-needs from the PPS and its related components (e.g., communication lines, computing power, etc.).

Questions for Panelists to Consider:

1. **What is the expected data latency of GPM core and constellation member L1 and L2 data?**

Seconds	Minutes	Hours

Short-Fuse Warnings
(e.g., Flash Flood Warning)

Watches
General Forecasts

Reanalyses/
Survey/Climate

2. **Are there ways to improve on these nominal values (i.e., enhance com lines between NASA and NOAA, direct downlink, etc.) and at what cost?**

NWS planning on enhancing communications lines between NESDIS nodes (e.g., NSOF) and NWS (e.g., AWIPS), but so far bandwidth enhancements do not explicitly account for GPM products/data. Alternative data-delivery methods under prototype/development.

Questions for Panelists to Consider:

3. How might NOAA improve its product processing and delivery to users through the elimination of "stove pipes"?

Compatibility with (and utilization of) existing NOAA enterprise/infrastructure initiatives. From NWS, this includes NWS Ground Readiness Project, AWIPS, NextGen, and NWSTG rearchitecture (WMO gateway). *From NESDIS...*

4. What are the expected data formats for the GPM data from NASA and <u>what are the data format plans at NOAA?</u>

Current major/baseline data formats supported:
     GINI/imagery, GRIB1/2, BUFR, netCDF3, text
Planned major/baseline data formats supported:
     netCDF4, HDF5, GRIB2, BUFR, netCDF4, text

Non-baseline data formats supported:
     formats above plus McIDAS (e.g., N-AWIPS)

Questions for Panelists to Consider:

5. How can GPM be leveraged to generate NOAA-Unique Products?

Introduction of GPM data/products into NOAA-Unique Products could establish initial leg of a longer pathway to disseminate GPM data/products to NWS field forecasters.   Example pathway:

GPM → NESDIS/ESPC → NWSTG/AWIPS (users)

Possible fusion performed at ESPC. Decision assistance tools at end-user location (e.g., AWIPS workstation). NCEP modeling community might prefer lower-level (less processed) sensor data.

Questions for Panelists to Consider:

6. **Short-Term Actions (Next 1-3 Years):**

Product-oriented Requirements – identify products and information needed by user community.   Broad stakeholder community.   Diverse requirements (different products needed, various geographical coverages, see next slide).

Validate requirements - Recommend direct participation of NWS OCWWS/OS&T/NCEP.
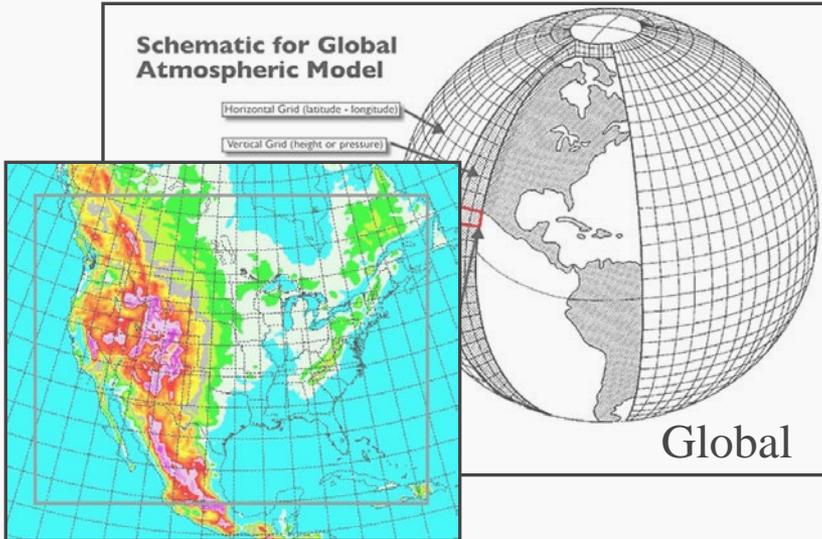
Prototyping/pathfinding/proving-grounds.

IT infrastructure planning and systems engineering flow from requirements.

Various Geographical Coverages. . .

CWSUs

WFOs

RFCs
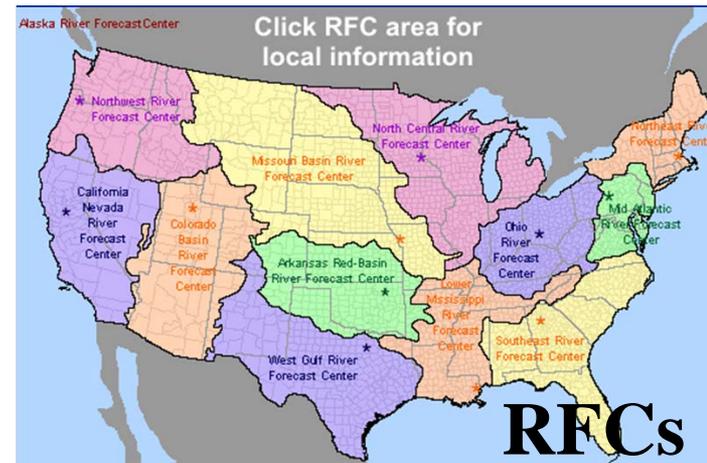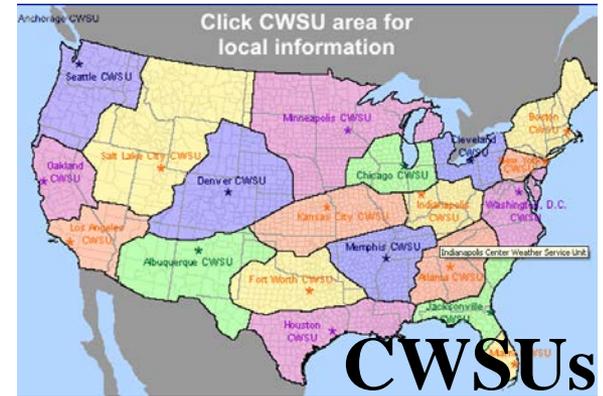
Schematic for Global
Atmospheric Model

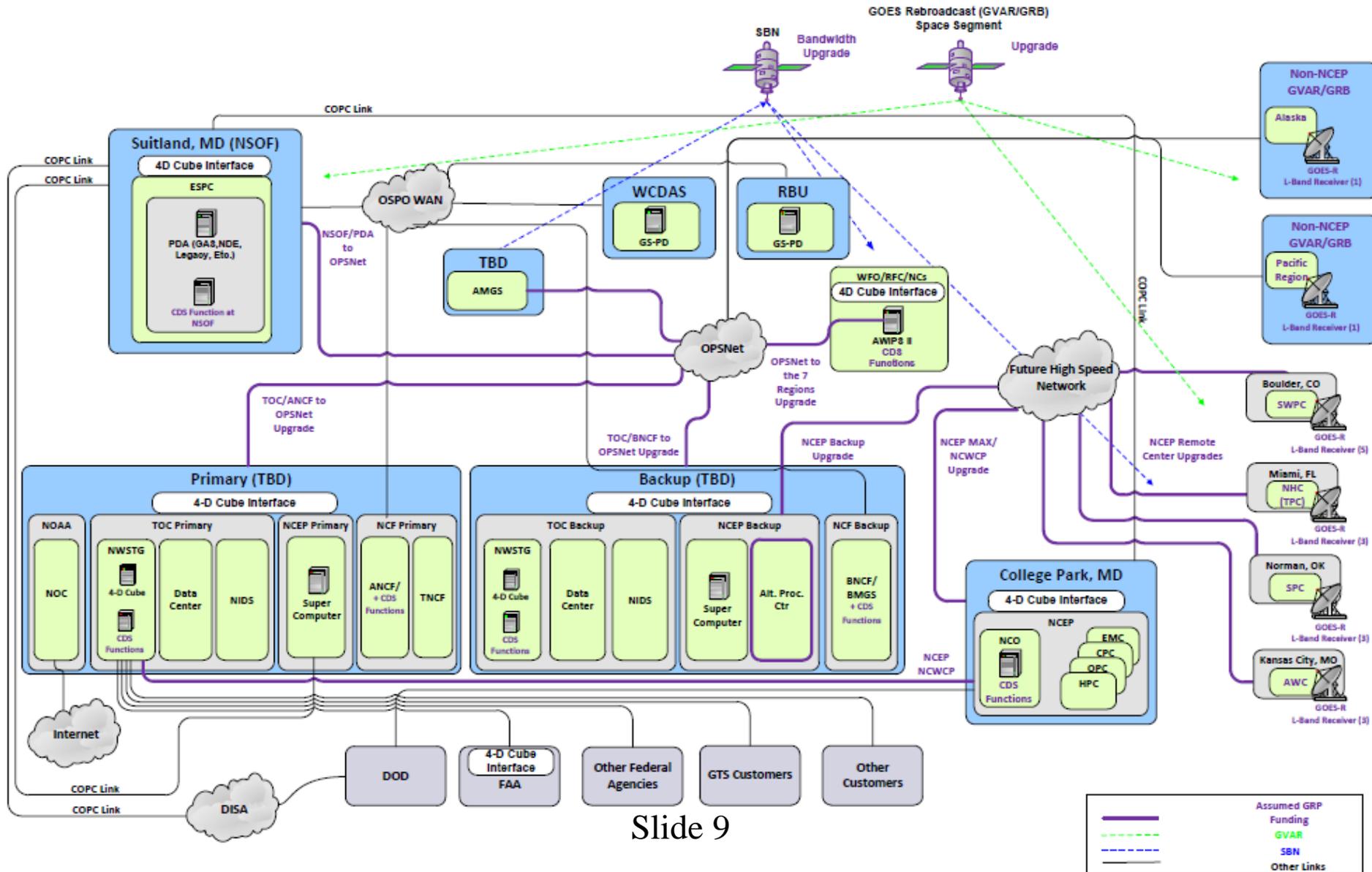Horizontal Grid (latitude - longitude)

Vertical Grid (height or pressure)

Global

Mesoscale

NCEP Modeling
and
Field-Center Requirements

NWS 2014-2017 NPP/GOES-R/JPSS Era
Draft/Notional IT Infrastructure View

Slide 9

AWIPS Data Delivery and NextGen

Future increased emphasis on user-tailored subscriptions and ad hoc requests

Slide 10