CONDUIT and
NAWIPS Migration to AWIPS II
Status Updates

2013 Unidata Policy Committee

NCEP Central Operations

May 14, 2013
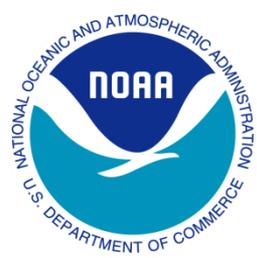
CONDUIT
Cooperative Opportunity for NCEP Data Using IDD Technology

- CONDUIT currently serves approximately 60 GB of data per day and is hosted on the infrastructure at NOAA's Web Operations Center.

- No changes to CONDUIT content in the last 12 months

- Current infrastructure can not handle more data due to limited LDM queue size

- NCEP Central Operations will take over the NCEP-related processing/web pages from NOAA's Web Operations Center by the end of this calendar year.

- New data can begin to updated on CONDUIT beginning in January 2014

- The WCOSS-based High-Resolution Rapid Refresh (HRRR) is expected to be available on CONDUIT in June 2014.

AWIPS II
Overview and Status

- NWS National Deployment of AWIPS II will be restarting in Q3FY13. Complete target is Q4FY15.

- National Center Perspective (NCP) performance issues in grid loading / data display were solved…. but new ones are cropping up with increased data ingest

- NCP baseline functionality expected to be completed late August for the OB13.6.1 release in early November

- Non-SBN operational dataflow has been turned on to some NCEP Centers

- Field Operational Test and Evaluation moved from September 2013 to January 2014 with intensive system and functional testing occurring now through the Fall

- NAWIPS V6.9 was released at the end of April / V6.10 planned for end of July

- …Yes … the project has been delayed … AND we are making progress
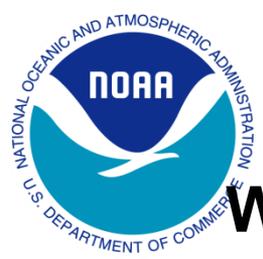
AWIPS II Migration
WFO Implementation Plan Activation Structure

- Sequential by Group of WFOs
  - 8-10 WFOs per Group

- Evaluation Criteria:
  - 1-Critical Discrepancy Reports (DRs)
  - System Stability
  - Performance

- Test Period:
  - 30 calendar days
  - Starts upon last WFO in group completing initial system checkout

- Official Schedule:
  - WFO Activation Resumes: Q3FY13
  - WFO Activation Ends: Q4FY15

AWIPS II Migration
AWIPS II WFO Activation Status

Schedule

Activation Status as of 5/1/13
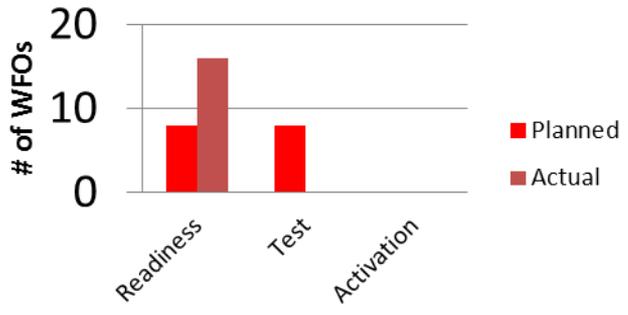
WFO Activations as of 5/1/13
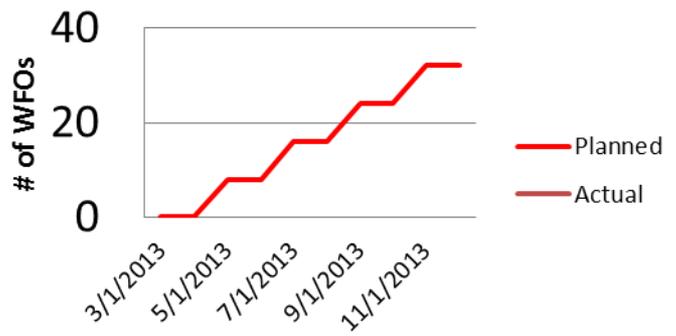
Performance

OB13.2.1 Performance Lab Tests Percentage Pass/Fail
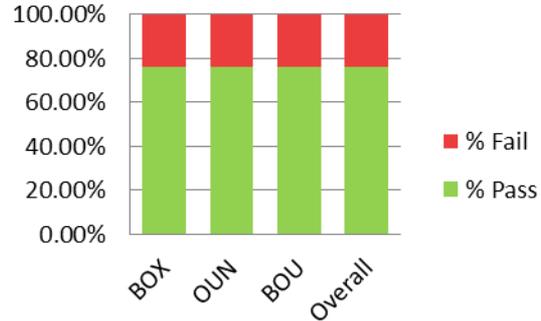
Stability

Dry Run testing at sites. Stability results will be available starting with Group 1 test.

Critical-1 DRs

Current Open Critical-1 DRs: 3
- 2 WarnGen related DRs
- 1 GFE related DR

Site Readiness
as of 5/1/13

WFO Group 2	ESA/ITO Trained	Local Apps Migration	Variance Training
GRR	Complete	100%	
MKX	Complete	80%	
RAH	Complete	100%	
SLC	Complete	90%	
PQR	Complete	60%	
BOI	Complete	100%	
ARX	Complete	90%	
AFG	Complete	50%	

NAWIPS to AWIPS II "Big Ticket" Functionality

- Ability to display solar imagery within NCP – May 2013 (13.3.1)

- Ability to save and extract PGEN xml file to/from A2DB – Apr / Jun 2013 (13.4.1)

- NTRANS-like functionality available in NCP – Apr / Jun 2013 (13.4.1)

- Baseline translation tables for NCP grid display – Apr / Jun 2013 (13.4.1)

- Ability to decode generic point data into A2DB – Jun / Sep 2013 (13.5.1)

- GEMPAK programs to read from AWIPS II Database – v6.10 / (13.6.1) Aug/Nov
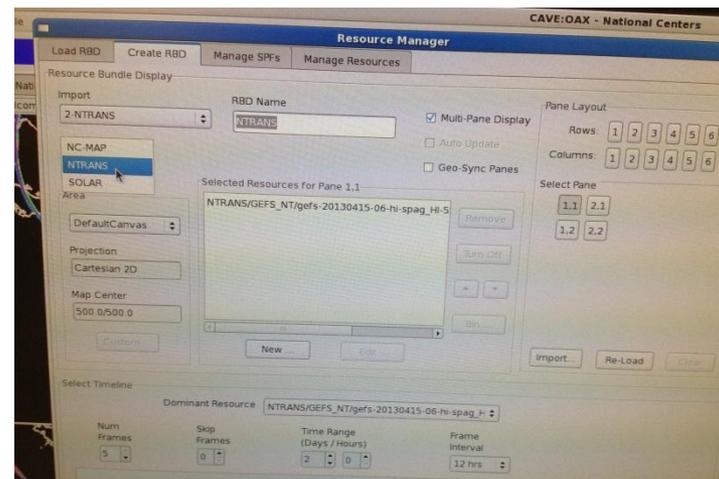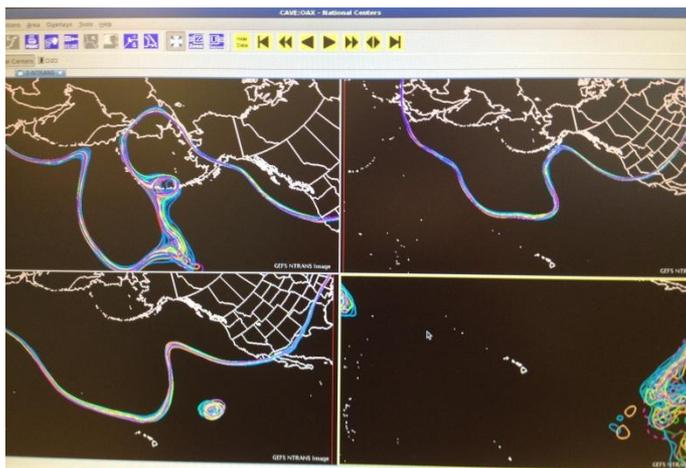
Status of "known bugs" Trouble Ticket Reports
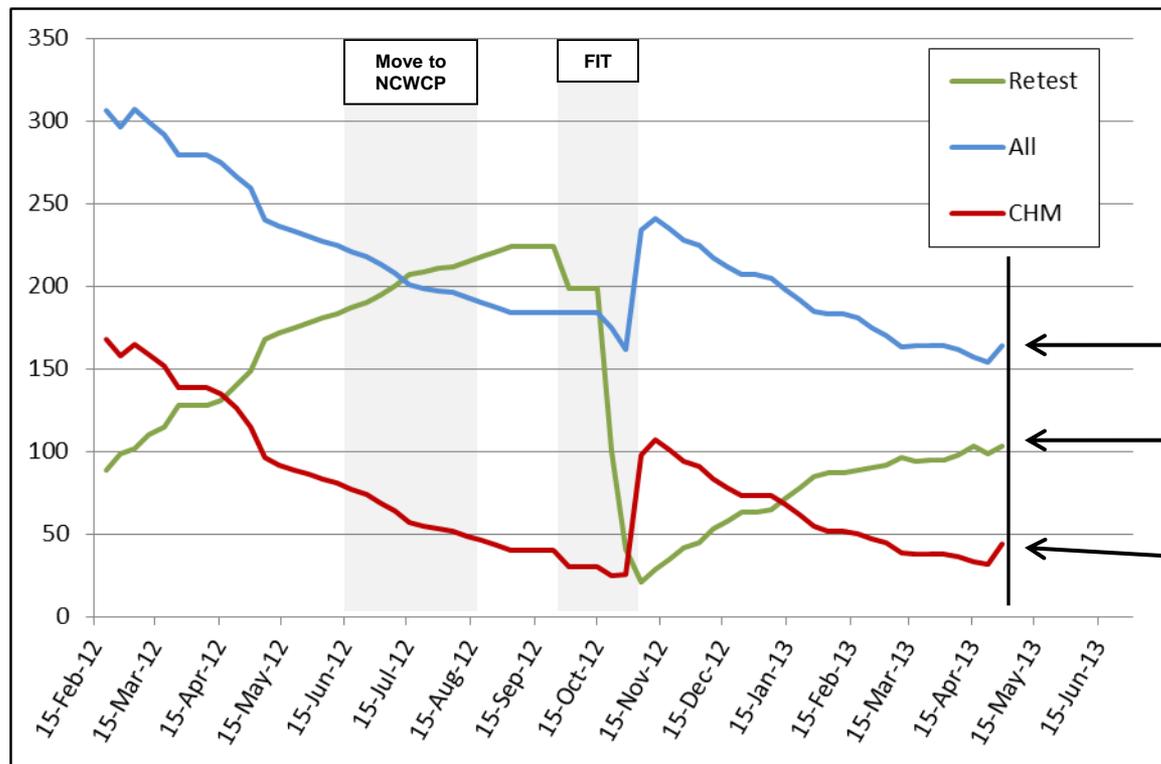
As of 7 May 2013

164 Open TTRs

103 Ready for Retest

44 CHM – 13+12+19 CHM

TTRs Classified as Critical / High / Major (CHM)
Repeatable problem that prevents or compromises the delivery of products or services

Critical - No alternate solution is available.
High - A temporary workaround is available, but is too cumbersome or workload intensive to sustain operations.
Major - A workaround is available to allow continuation of operations; however, workaround not acceptable for software acceptance.

Current Products Displayable in AWIPS II

- Radar mosaic
- Satellite data
- Re-mapped solar imagery
- ASCAT data
- Deterministic Model data
- Ensemble mean/spread model data
- Conventional observations
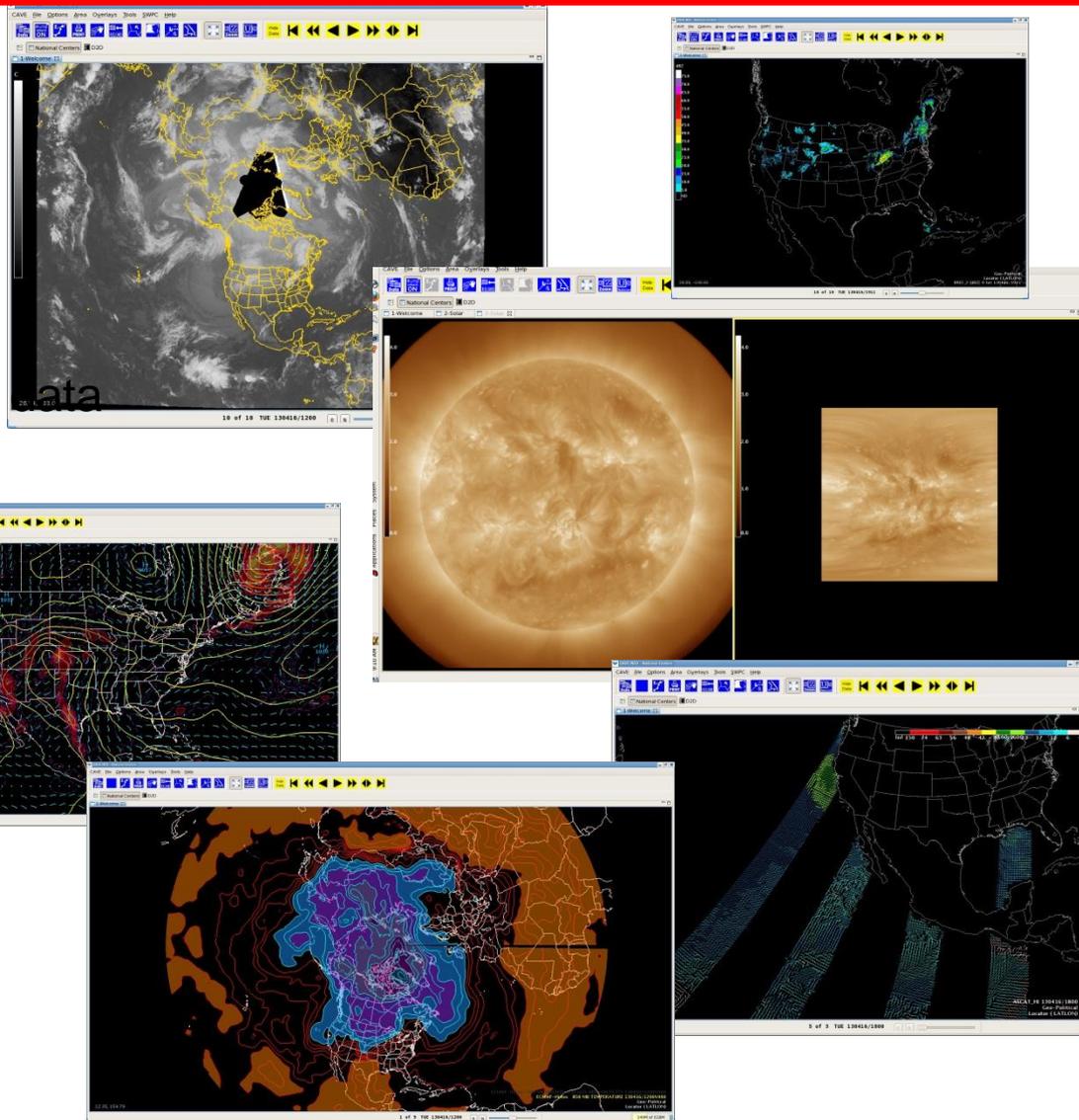
Major Hardware/Software Planned AWIPS Upgrades

- Thin Client capability – Available in OB13.1.2 / January 2013

- Initial operating capability of Data Delivery / OpenDAP in OB13.3.1 / May 2013
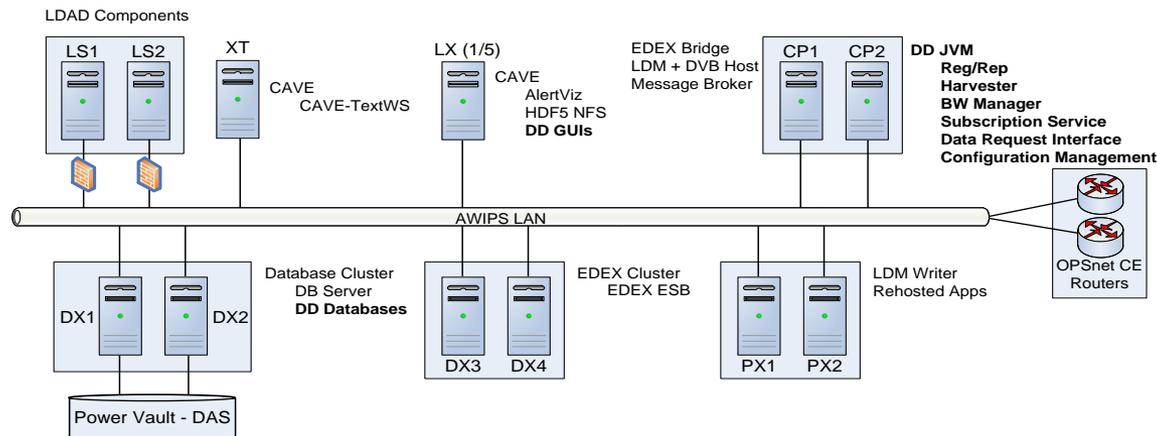
- Upgrade to PostGres database and QPID in OB13.4.1 / July 2013

- Update to Apache Camel in OB13.5.1 / September 2013

- Upgrade to RHEL 6.0 in OB14.1.1 / January 2014

- Upgrade to 64-bit Servers in OB 14.4.1 / July 2014

AWIPS II Extended Projects

- <u>Thin Client</u>: Allows AWIPS remote access , Provides ability to provide impact-based decision support services from any location

- <u>Data Delivery</u>: Develop operational robust infrastructure to support "intelligent" access to non-local data provider datasets

- <u>Collaboration</u>: Provide the ability to communicate NWS forecasts to our customers and partners more efficiently

- <u>Information Generation</u>: Provides more efficient information accessibility in support of Impact-based Decision Support Services

- <u>WES2CAVE</u>: Migration of the Weather Event Simulator capabilities into Common AWIPS Visualization Environment (CAVE)

Thin Client Overview

- Thin Client is AWIPS II CAVE that runs in remote mode connected to an instance of EDEX via an Apache proxy server to access AWIPS II data

- Thin Client CAVE Attributes:
  - Runs on Linux or Windows platforms with appropriate graphics card and memory
  - Thin Client inherits all baseline CAVE features, enhancements and DRs
  - D2D perspective available by default, Other perspectives (GFE, NCP, Hydro, AVNFPS), have not been fully tested yet

- Provides features to improve performance over limited bandwidth scenarios:
  - Data and map lossless compression between CAVE and EDEX
  - Local data, map and localization caching on the client platform

- Provides for flexible user scenarios – selected EDEX site and localization can be modified by the user in TC CAVE Preferences GUI

Thin Client – AWIPS II CAVE
Visualization Functionality

AWIPS II
Servers
– EDEX

"Thin Connection"
–Internet (Wifi, 4G, 3G,...),
T1, ...
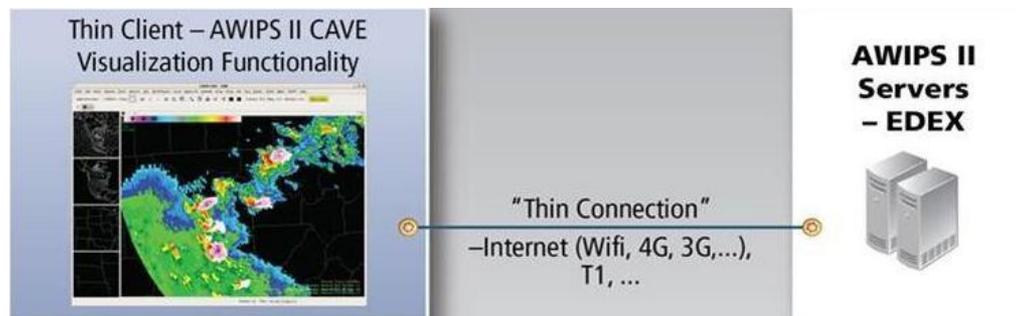
Thin Client
Data Access Methodologies

- Thin Client CAVE Data Access Attributes
  - Connects to an Apache proxy server that points to EDEX, AWIPS II server software, to access AWIPS II data
  - Supports LAN, Wireless internet access or dedicated connections
- CWSU Use Case
  - Thin Client runs on an ARD Linux Workstation with dedicated FAA circuit connection to parent WFO proxy server on pxf1
- Incident Meteorologist (IMET) Use Case
  - Thin Client run on Linux and/or Windows platform connected via internet to remote EDEX instance
  - Back-End Implementation Approach Supported by RTS
    - Proxy Server resides on refreshed LDAD servers at Regional HQ sites
    - Regional HQ EDEX used to serve data through the firewall via proxy requests

Thin Client – AWIPS II CAVE Visualization Functionality

"Thin Connection"
–Internet (Wifi, 4G, 3G,...), T1, ...

AWIPS II Servers – EDEX
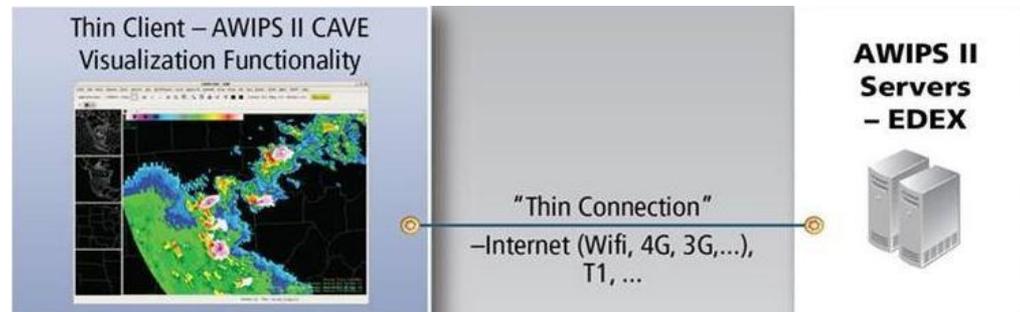
Data Delivery Overview

- The Data Delivery sub-system is designed to be a coordinated and distributed infrastructure for the collection and delivering of model data and observations

- Focus only on the data discovery, telecommunication and data access functions of the AWIPS-II system

- Does not affect the data-processing or any other function of AWIPS-II.

- The Data Delivery approach utilizes a network-centric paradigm and Service-oriented Architecture (SOA)

- Capabilities envisioned include: (via AWIPS VPN over OPSnet)
  - Data registry services
  - Data discovery services
  - "Smart" push/pull technologies either through ad-hoc request or pre-defined

- The NCEP instance of NOMADS will be accessed by using existing network infrastructure to connect to their public facing OPeNDAP GrADS server

AWIPS Development in 2014

Spatial/Temporal Sections & Series
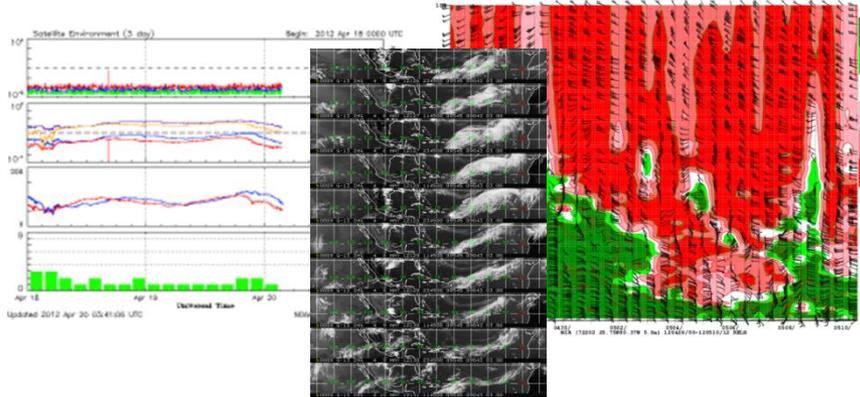
Space Weather Requirements
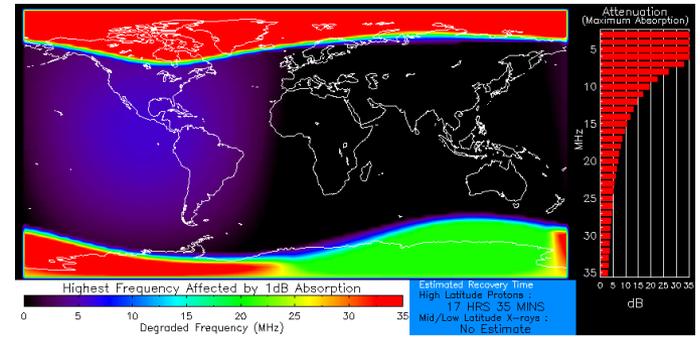
NOAA/NESDIS
Hazard Mapping System
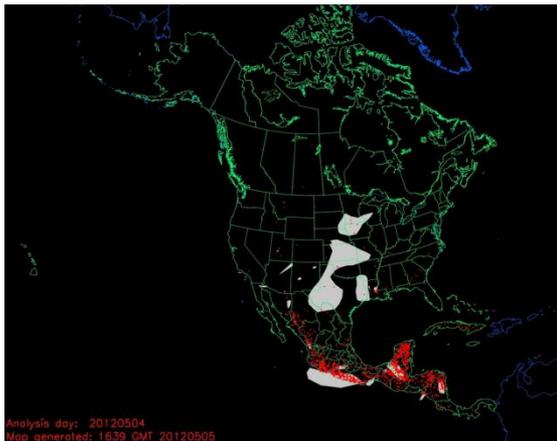
N-Flow

High Seas Graphic to Text
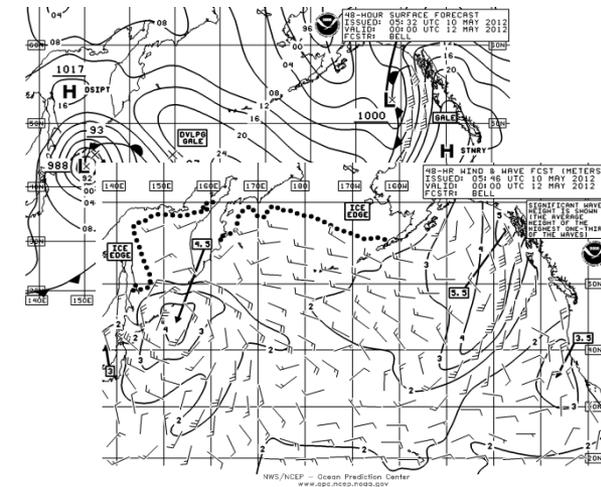
NCEP / Unidata Partnership

- For over 15 years NCEP has partnered with Unidata to provide and support NCEP software and data to the weather academia/research community

- Over the past five years, CONDUIT has expanded allowing for a more robust distribution of data – new model products – and higher resolution from existing models

- Unidata remains actively engaged with the AWIPS Program

- Weekly Migration Telecons have continued over the past year and Unidata participates on all monthly NCEP AWIPS II Status briefs

- AWIPS II migration efforts high priority of NWS through FY13 and FY14

- **NCEP continues to view Unidata as a critical partner for NCEP's total mission**