



AWIPS Migration Status Review

Advanced Weather Interactive Processing System (AWIPS) Program

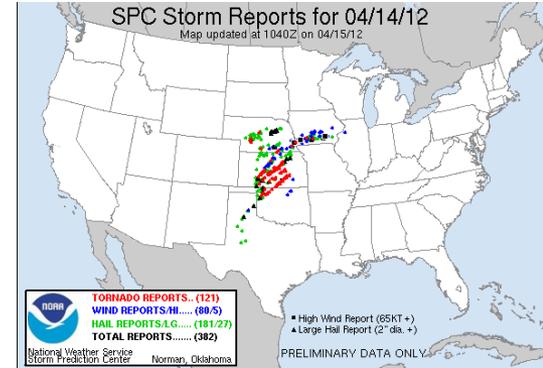
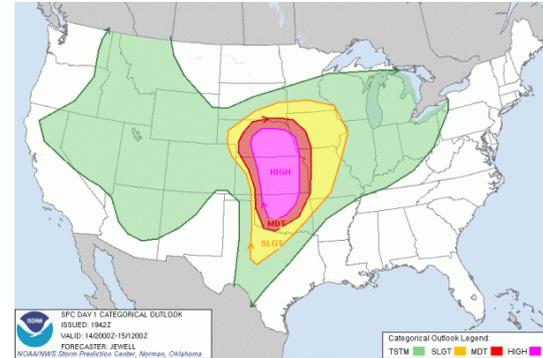
May 14, 2012

National Weather Service

Office of Science and Technology

NCEP Central Operations

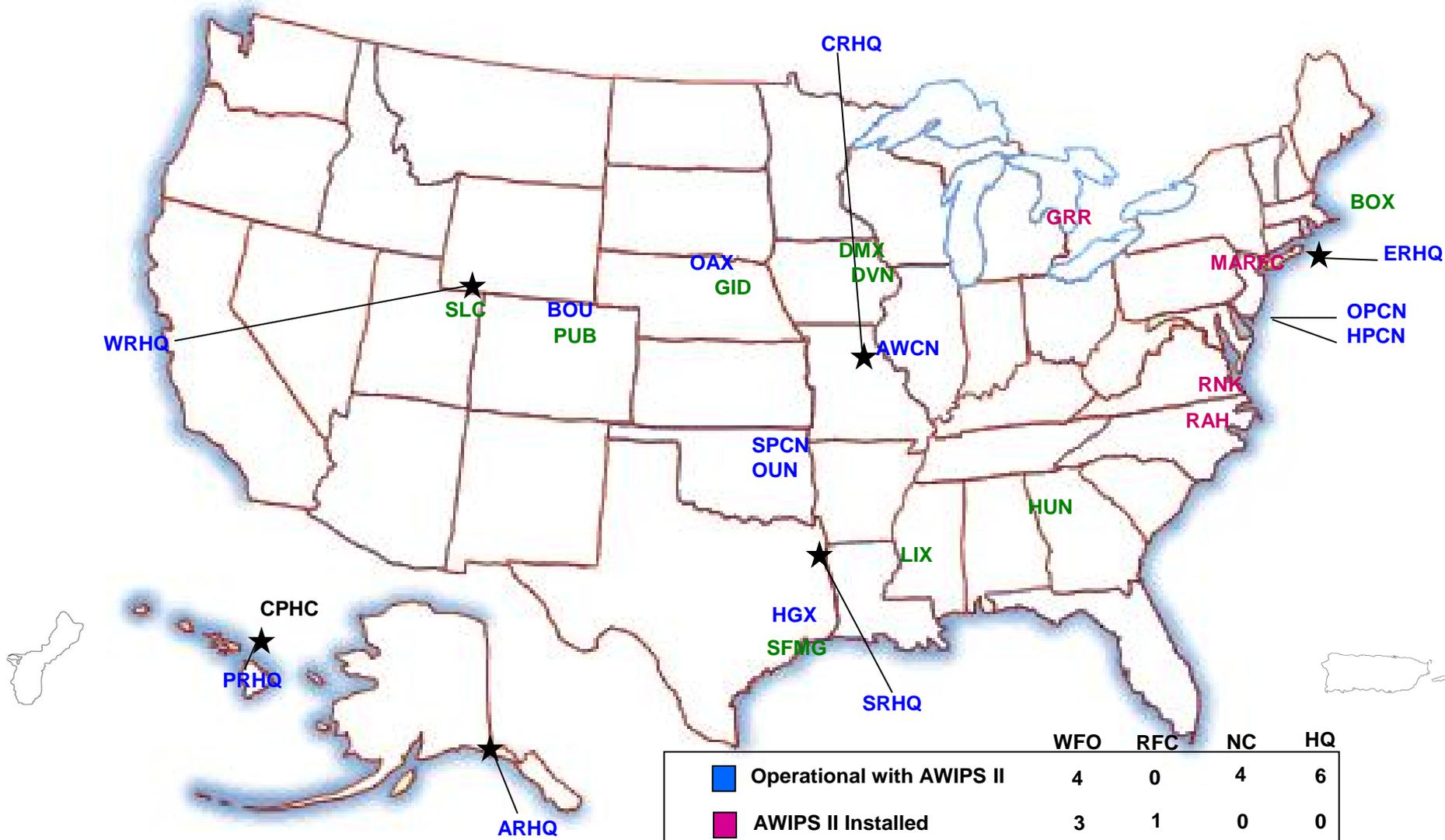
- AWIPS II Status
- NAWIPS Migration Status
- AWIPS II/NAWIPS Schedule
- Future of GEMPAK
- Partnership between NWS and Unidata
- Support Model and Governance
- AWIPS System and Development Training
- Development Projects
 - NCEP, Extended Projects, NPP





AWIPS II Status

Site Deployment as of May 11



	WFO	RFC	NC	HQ
■ Operational with AWIPS II	4	0	4	6
■ AWIPS II Installed	3	1	0	0
■ To be Installed within Next Month	9	0	0	0

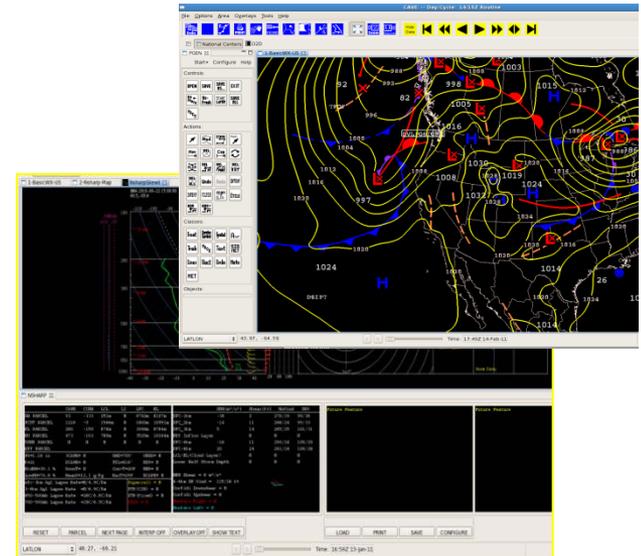
Phase II FIT



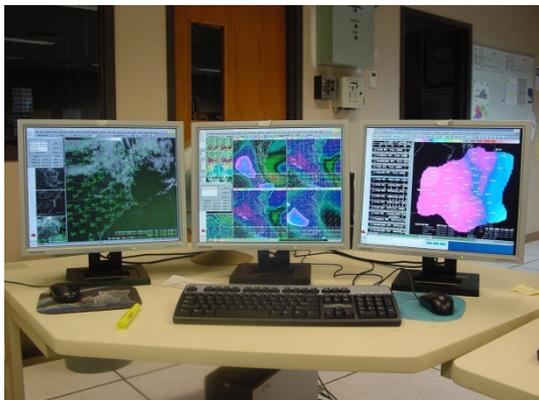
AMS



GUI Migration Code Integration



FOTE AWIPS I to AWIPS II



GEMPAK 6.5 & 6.6



64-bit
wkstn



NAWIPS Migration Challenges and Mitigation



N-AWIPS



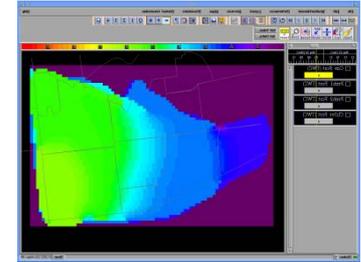
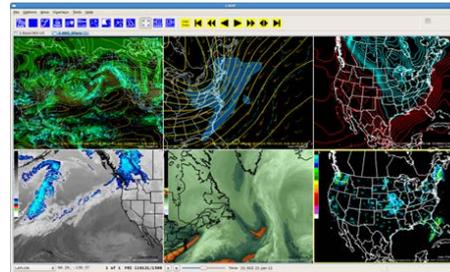
AWIPS



AWIPS II
Migrated
System

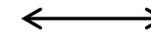
- The overall migration effort has taken significantly longer than originally planned at both the NWS and NCEP levels
- Delays in the National Migration Program have resulted in delays in the NCP migration and integration of the code by Raytheon

- **32-bit vs. 64-bit** requirement lies mostly with NCP data set size and usage, and the Gridded Forecast Editor



NCWCP Move

NCP Performance



NCP startup / Data selection
Database acquisition/display of some datatypes



AWIPS I / NAWIPS Migration Schedule



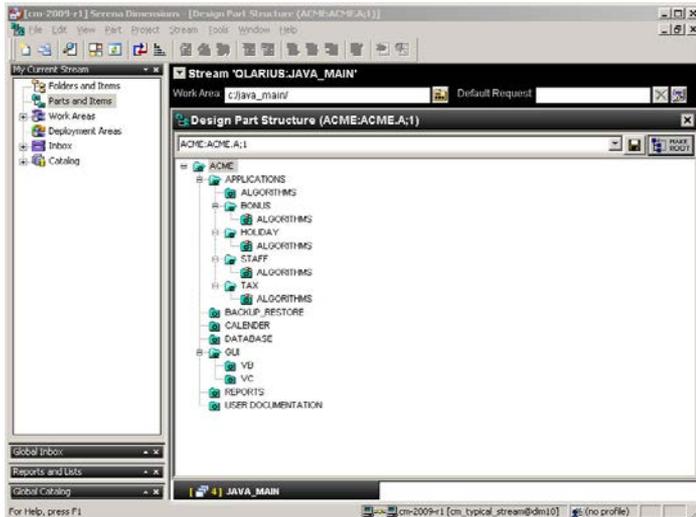
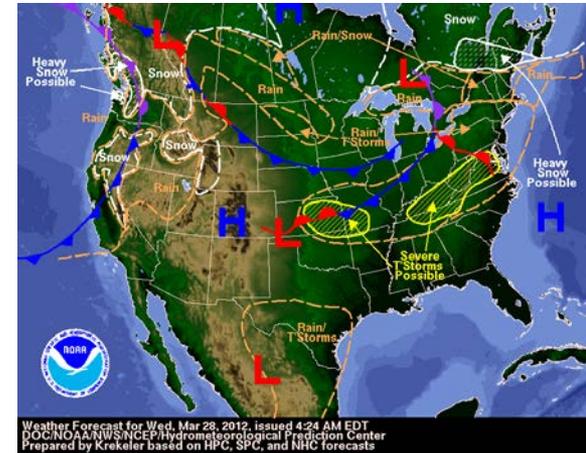
NWS AWIPS II including NCP	Schedule
System OTE	Jan – November 2011
Field OTE including National Centers	Nov 2011 – June 2013
Unidata to Receive AWIPS II	Winter 2011
Unidata Users to Receive AWIPS II	Spring 2013
NCP Code Baselined in AWIPS II by RTS	January 2012
FIT - Phase One / Phase Two / Phase Three	Feb 2011 / Nov 2011 / Oct 2012
Establishing Non-SBN Data Flow to AWIPS II	Oct 2011 (NTBN) / June 2012
GEMPAK DB Capability (SFFILE, SNFILE, SAT/RAD, XML/GeoTIFF driver, misc data sets)	March 2013
Removal of NAWIPS at NCEP Centers	Jan – Dec 2013

* **Bold indicates task completed/started**

GEMPAK will be considered a “local application” for AWIPS II

NCO will continue to support GEMPAK code indefinitely /until further notice

Routines are being reworked to ensure the GEMPAK libraries can read data from either the AWIPS II Data Base or GEMPAK format files



NCO will be uploading NCP to the AWIPS II baseline on a monthly basis

NCO mirrors RTS code from Dimensions (CM Tool) in Silver Spring

NCO anticipates the NCP code integrated with RTS code on a monthly basis

Typically the NCP code will lag about 6 weeks



Partnership between NWS and Unidata



- **Unidata is our link to the University Community!**
- **NCO** is committed to assisting in AWIPS software configuration and training key personnel at **Unidata** ~ “train the trainers”
- **Unidata** will continue to partner with NCEP to get university developed applications into the AWIPS baseline (AWIPS and NAWIPS)
- **NCEP** and **Unidata** working together to extend Unidata services to the space weather research community
- **NWS** is committed to enabling a collaborative AWIPS II environment to effectively incorporate new science and technology (capabilities) from universities



Support Model and Governance



- **Why are we Governing?**
 - Preserve operational system integrity (performance)
 - Ensure software quality (functionality, science)
 - Ensure efficient use of the architecture (maintainability)
 - Avoid duplication of effort (resources)

- **What are we putting in place**
 - Governance Advisory Board
 - Policy, Standards and Guidelines
 - SREC (development and release planning)
 - Architecture Team
 - Science Review Board (TBD)
 - Development Tools
 - Development Support





Support Model and Governance Development Planning



SREC Enhancement Portfolio

07/11/2012

Item	Item Title	Priority	Category	Impact	Start	End	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13	Phase 14	Phase 15	Phase 16	Phase 17	Phase 18	Phase 19	Phase 20	Phase 21	Phase 22	Phase 23	Phase 24	Phase 25	Phase 26	Phase 27	Phase 28	Phase 29	Phase 30	Phase 31	Phase 32	Phase 33	Phase 34	Phase 35	Phase 36	Phase 37	Phase 38	Phase 39	Phase 40	Phase 41	Phase 42	Phase 43	Phase 44	Phase 45	Phase 46	Phase 47	Phase 48	Phase 49	Phase 50	Phase 51	Phase 52	Phase 53	Phase 54	Phase 55	Phase 56	Phase 57	Phase 58	Phase 59	Phase 60	Phase 61	Phase 62	Phase 63	Phase 64	Phase 65	Phase 66	Phase 67	Phase 68	Phase 69	Phase 70	Phase 71	Phase 72	Phase 73	Phase 74	Phase 75	Phase 76	Phase 77	Phase 78	Phase 79	Phase 80	Phase 81	Phase 82	Phase 83	Phase 84	Phase 85	Phase 86	Phase 87	Phase 88	Phase 89	Phase 90	Phase 91	Phase 92	Phase 93	Phase 94	Phase 95	Phase 96	Phase 97	Phase 98	Phase 99	Phase 100
050101	2012-2013: Develop and Implement the Operational and Supportable (OSIP)...	High	Operational	High	2012	2013	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13	Phase 14	Phase 15	Phase 16	Phase 17	Phase 18	Phase 19	Phase 20	Phase 21	Phase 22	Phase 23	Phase 24	Phase 25	Phase 26	Phase 27	Phase 28	Phase 29	Phase 30	Phase 31	Phase 32	Phase 33	Phase 34	Phase 35	Phase 36	Phase 37	Phase 38	Phase 39	Phase 40	Phase 41	Phase 42	Phase 43	Phase 44	Phase 45	Phase 46	Phase 47	Phase 48	Phase 49	Phase 50	Phase 51	Phase 52	Phase 53	Phase 54	Phase 55	Phase 56	Phase 57	Phase 58	Phase 59	Phase 60	Phase 61	Phase 62	Phase 63	Phase 64	Phase 65	Phase 66	Phase 67	Phase 68	Phase 69	Phase 70	Phase 71	Phase 72	Phase 73	Phase 74	Phase 75	Phase 76	Phase 77	Phase 78	Phase 79	Phase 80	Phase 81	Phase 82	Phase 83	Phase 84	Phase 85	Phase 86	Phase 87	Phase 88	Phase 89	Phase 90	Phase 91	Phase 92	Phase 93	Phase 94	Phase 95	Phase 96	Phase 97	Phase 98	Phase 99	Phase 100

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- **Software Recommendation and Evaluation Committee (SREC)**
 - **Who?**
 - Regional Focal Points, NWS HQ, NCEP
 - **How?**
 - Submit a SON and CONOPS/ORD to OSIP
 - Submit a request for new infrastructure capability
 - Submit a small enhancements to NCF
 - Submit a local application for inclusion into the AWIPS baseline
 - **Activities**
 - Assign rankings (strategic, infrastructure, and operational) tasking
 - Assign development work and development organization builds a development plan
 - Prepare AWIPS Release Plan in coordination with field, testbeds, training, O&M
 - **Artifacts**
 - AWIPS Release Plan (updated monthly)
 - Development Plans for specific tasks

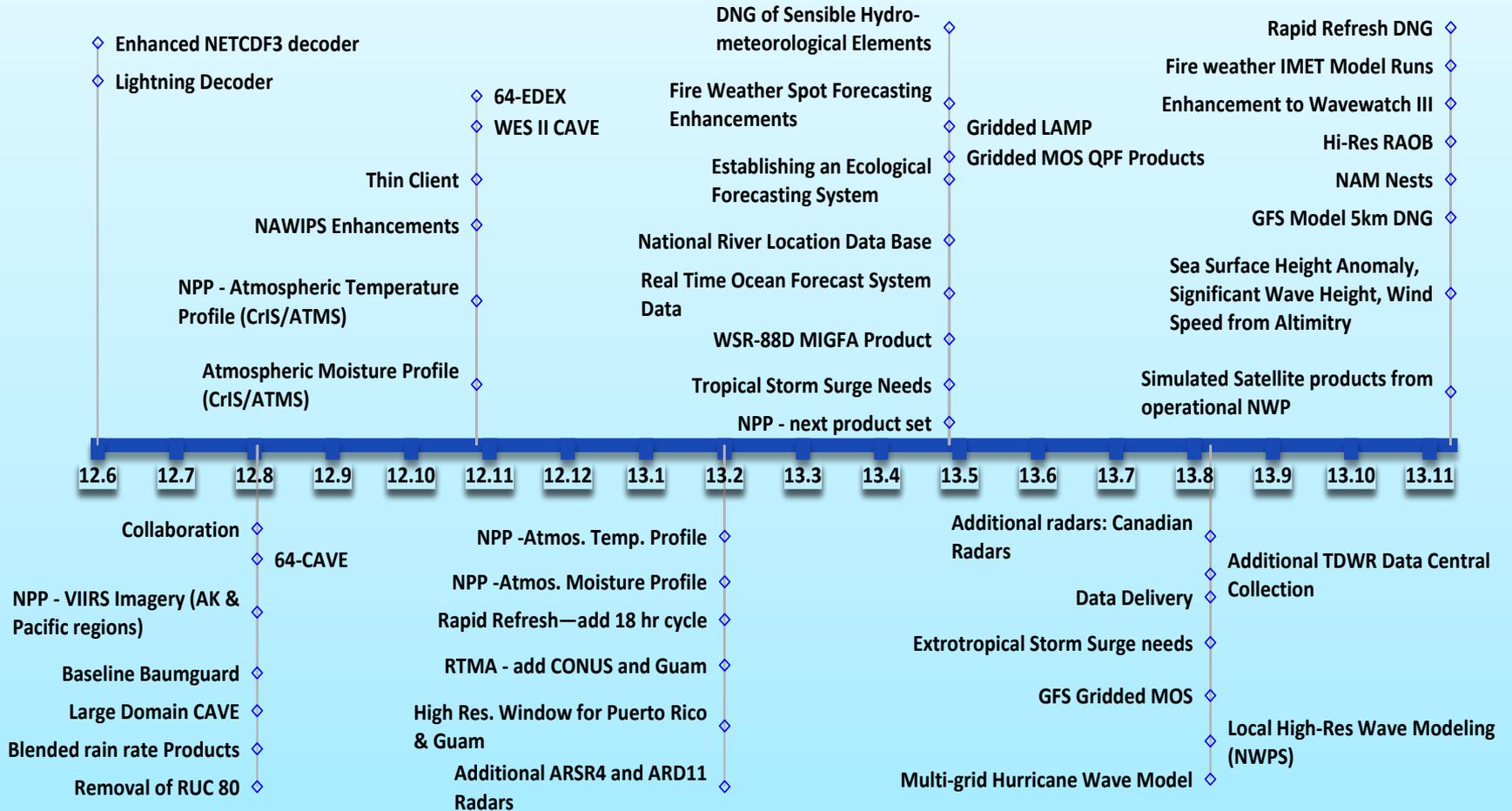


Support Model and Governance

Draft Strategic and Operational Tasks (2012 and 2013)



AWIPS Release Plan (2012-2013)





Support Model and Governance Architecture Team



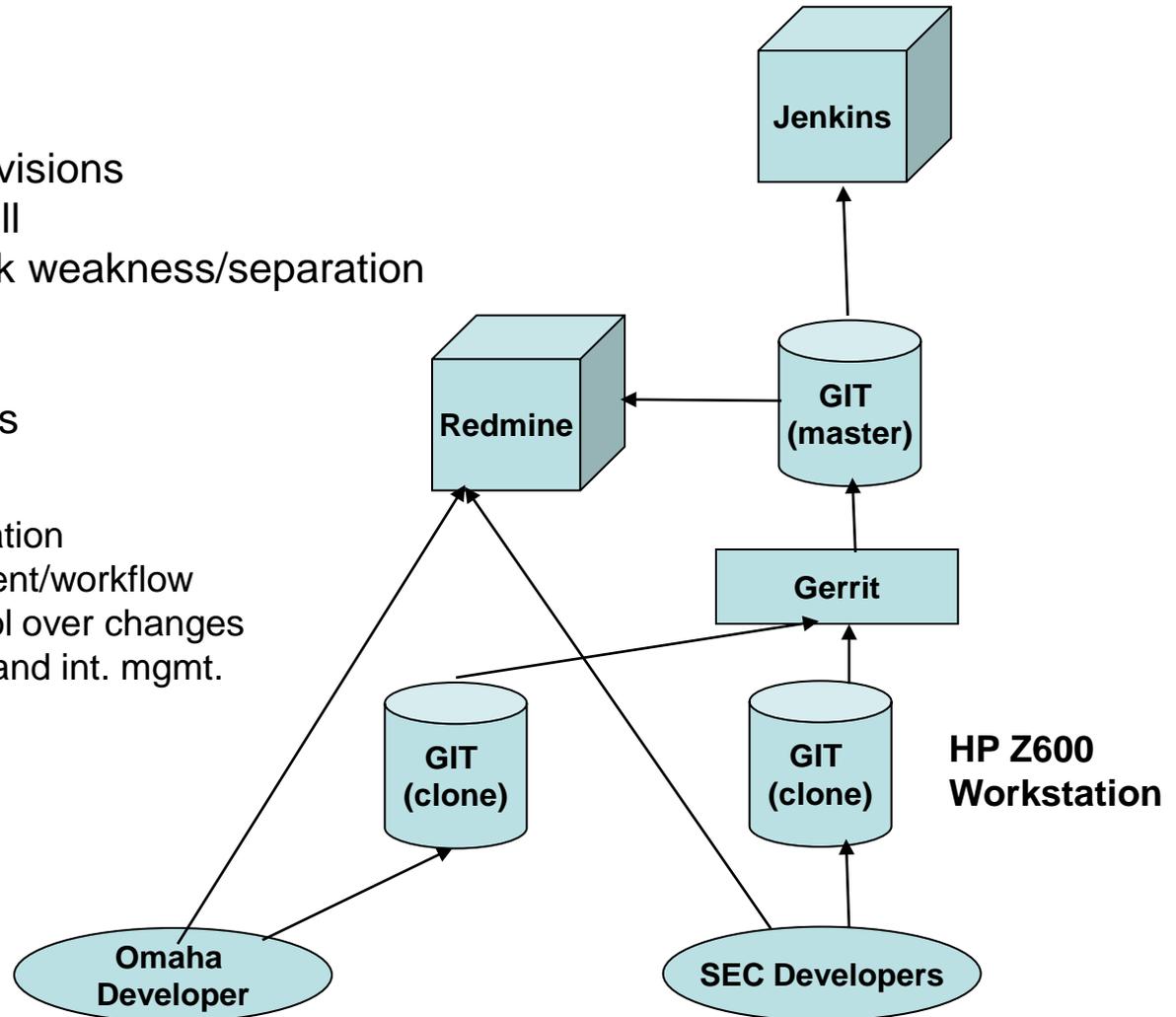
- **Membership**
 - Led by OST/SEC Analysis Branch with support from Raytheon and other development organizations
- **Become the caretaker of the AWIPS Infrastructure**
 - Create, maintain, update and oversee architecture standards and guidelines
 - Participate in software **designs reviews** (high level and low level design)
- **Develop a AWIPS Infrastructure Product Improvement Plan**
 - Enhance infrastructure to support development of new capabilities and keep pace with new science and technology
 - Identify commonalities/increase code reuse for easier maintenance
 - Identify new tools, common utilities, methods of data access, etc.

• Distributed CM

- Open source
- Control access
- Track changes and revisions
- Branch and merge well
- Accommodate network weakness/separation
- Configurable
- Gate keeper
- Good for large projects

- **Jenkins** – Continuous integration
- **Redmine** – change management/workflow
- **Gerrit** – Gate keeper/control over changes
- **GIT master** – repository/version and int. mgmt.
- **GIT Clone** – local GIT

Note: Briefing on June 7



- **Integrate Development and Test Environment**
 - ADAM platform (functional and science testing)
 - Runtime development/testing systems (performance)
 - Regions, Silver Spring, Training Center, NCEP
 - Virtualization - Looking at different solutions
 - Automated testing
 - Performance testing procedures



- **Innovation Web Portal (IWP)**

- Information center and gateway

- **Idea/project repository**

- All proposed and ongoing projects in one location

- **Provide collaboration tools**

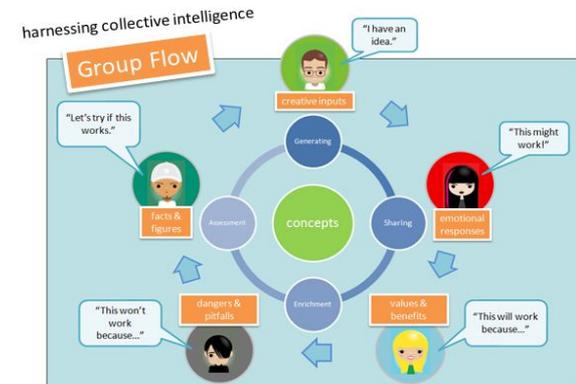
- Message boards, communities, documentation, publications, conferences, activity tracker, collaboration feature to host events and a catalog of new and enhanced products under development, experimental and operational, matrix of software developers expertise, prototypes to test and evaluate.

- **Central repository for AWIPS Governance Guidance**

- Searching, rating, comments, most popular, most recent

- **Prototyping in progress led by OST/MDL**

- Initial prototype available in June





Support Model and Governance

Development Support



- **Technical Interchanges**
 - Architecture Team available for technical interchange (1-4 hours) meetings
- **Developers Forum (Thursdays at 2:30pm EDT/EST)**
 - Look for common areas for collaboration and dependencies.
 - Advertise, sharing, and networking opportunities
 - Training topics requested by developers
 - **Want to be included?** Contact edward.mandel@noaa.gov
- **Near real time developer support to development community**
 - AWIPS II Development Listserver (awips2dev)
 - Awips2AppsChat
 - AWIPS 2 Wiki





Support Model and Governance

Development Support



- **Documentation (available to all users)**
 - Open Source references
 - Most available via the ADE (Eclipse IDE bundled with source code)
 - Source code and auto generated doc (JAVADOC) to maximum extent possible
 - APIs are documented in source, patterns are found by looking at existing code, ADE provides class hierarchies
 - AWIPS II
 - User Manual, System Maintenance Manual, and System Subsystem Design Document (SSDD)
- **Need addition documentation?**
 - Provide suggestions to edward.mandel@noaa.gov





Support Model and Governance

Short- and Long-Term Goals



- **Short term**
 - Establish Governance Advisory Board
 - Complete policies (directives)
 - Establish tasking for Raytheon support to the Architecture team
 - Gather feedback on development documentation gaps and correct
 - Complete development tools (Distributed CM in June)
 - Complete 1st phase of IWP
 - Continue to foster training of developers
- **Long Term**
 - Yield faster and more responsive and transition of new capabilities to operations
 - Maintain quality
 - Effectively incorporate new science and technology (capabilities) into AWIPS II operational baseline from NOAA development organizations, academic and research communities, and private sector



Support Model and Governance

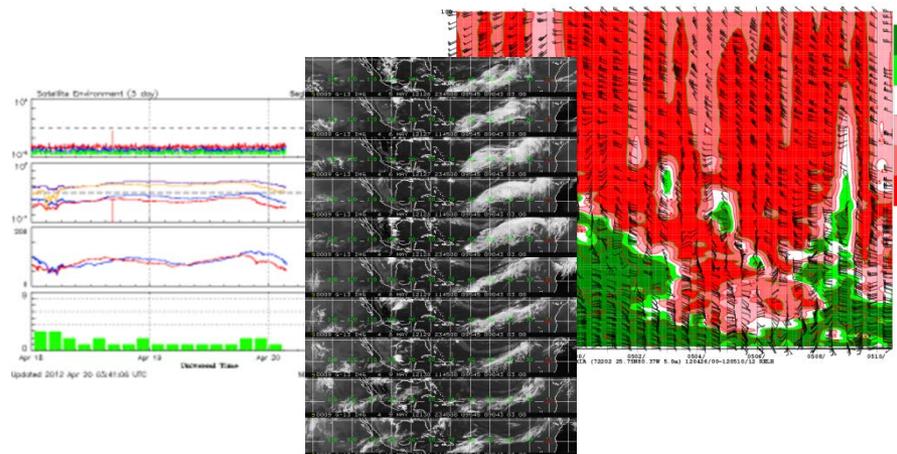
System/Developer Training



- Training Division has developed a series of modules on AWIPS2 training
- NWSTC offering 8 day System Administrative Courses for NWS ESA & ITOs (Contact James.Poole@noaa.gov)
 - 2 classes Completed / 8 additional classes planned
 - Slots for Unidata delayed until last class (Nov 2012) due to aggressive installation schedule at WFOs
- NCO will conduct a webinar in **July** to provide an overview and variance briefing for the National Center Perspective
 - Open for all Academia
 - Session will be taped and available via Unidata web site
- NASA Sport planning a joint venture with NWSTD for developer training
- NCO Test Bed available for Unidata Community for training purposes



Spatial/Temporal Sections & Series



NESDIS

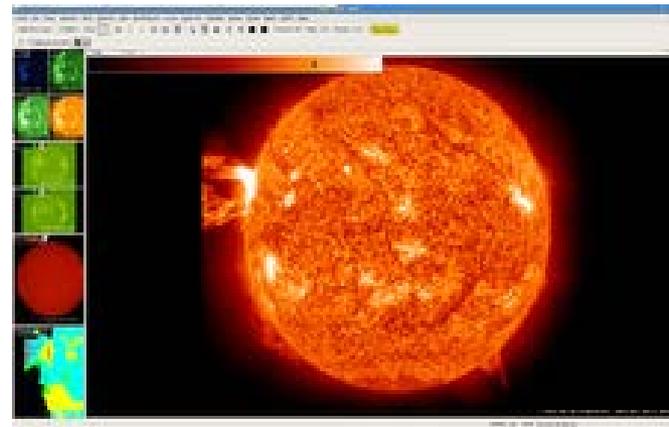
Hazard Mapping System



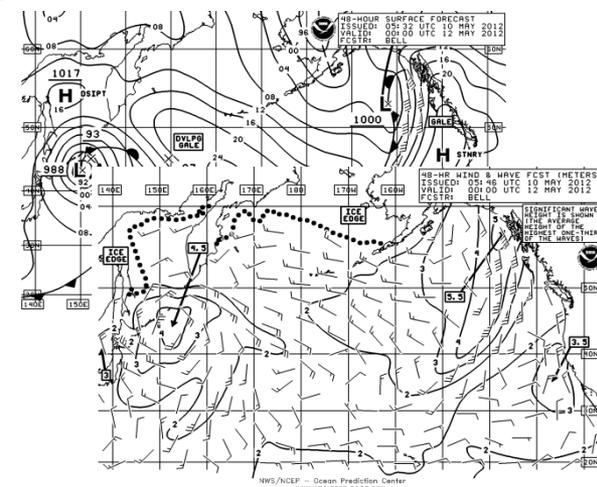
N-Flow



Space Weather Requirements



High Seas Graphic to Text



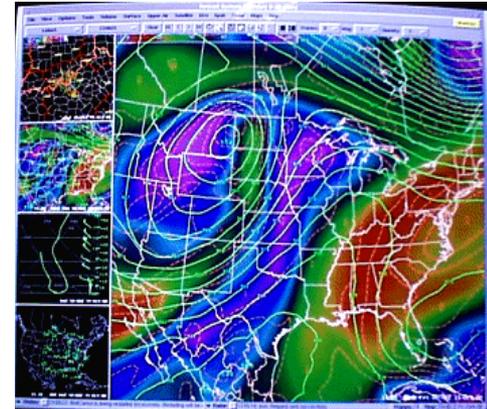


AWIPS II Development

Extended: Thin Client Project Overview



- **Key Benefits:**
 - Allows AWIPS remote access
 - Improves ability to provide impact-based decision support services from any location
 - Improves support for CWSUs over current AWIPS I approach
 - Provides additional options for COOP scenarios at NCs/RFCs
- **Status:**
 - Prototyping and system analysis of AWIPS II SOA: **Completed**
 - Production development: **In progress, testing being conducted**
 - Deployment to be staged with AWIPS II deployment
- **Schedule/Milestones:**
 - Thin Client Testing at Boulder CWSU: February, 2012 **(Complete)**
 - IOC Deployment Target: 3QFY12 **(Achieved)**
 - FOC Deployment Target: Q1FY13



Fiscal Year	FY8				FY9				FY10				FY11				FY12				FY13			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
AWIPS II Extended: Thin Client (CITRB 10/2010)				ConOPS Dev	Tech Reqmts				Design & Development								Sys Test	Deploy		Installs				
					Exploratory Dev																			
AWIPS II Extended: Thin Client (CITRB 03/2012)				ConOPS Dev	Tech Reqmts				Design & Development								Sys Test	Deploy		Installs				
					Exploratory Dev																			

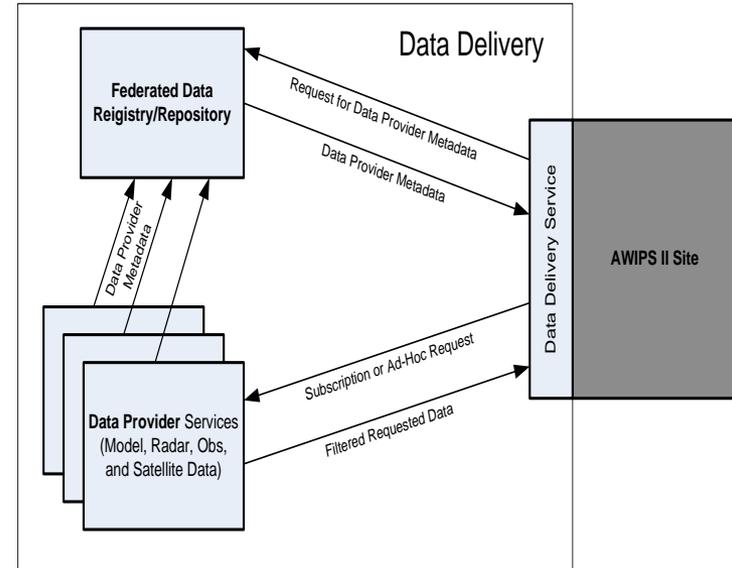


AWIPS II Development

Extended: Data Delivery Project Overview



- **Objective:**
 - Develop operational robust infrastructure to support “intelligent” access to non-local data provider datasets
- **Status:**
 - CONOPS/Technical Requirements: **Complete for IOC**
 - High-level architecture/design, technical requirements, bandwidth analyses: **Complete**
 - IOC Production design and incremental development: **In progress**
- **Schedule/Milestones:**
 - Initial Development Release: April, 2012 (**Achieved**)
 - IOC Deployment Target: Q4FY13
 - FOC Deployment Target: Q3FY15



Fiscal Year	FY8				FY9				FY10				FY11				FY12				FY13				FY14				FY15			
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	ConOPS & Reqmts IOC								Hi-Lvl Arch	IOC HI_Lvl Design			IOC Design/Devel				Sys Test	Deploy	Installs													
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AWIPS II Extended: Data Delivery (CITRB 03/2012)	ConOPS & Reqmts IOC																															
									Hi-Lvl Arch	IOC HI_Lvl Design			IOC Design/Devel				Sys Test	Deploy	Installs													
													FOC Tech Reqmts				FOC Design		Development	Sys Test	Deploy	Installs										

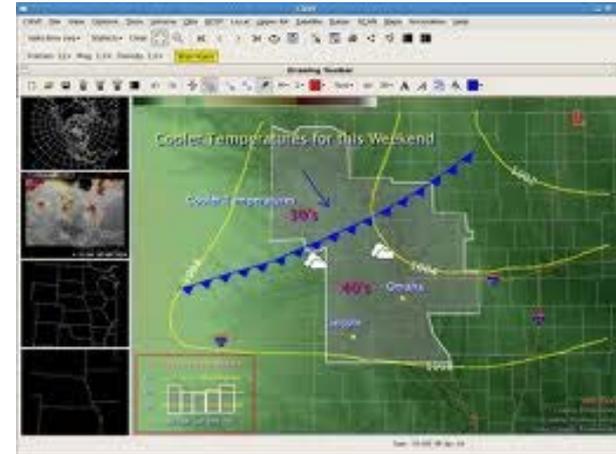


AWIPS II Development

Extended: Collaboration Project Overview



- **Objective:**
 - Improve our ability to communicate NWS forecasts customers and partners so that the appropriate response is generated
- **Status:**
 - Requirements and prototyping for internal collaboration (Phase I): **Complete**
 - Production design and development (Phase 1): **In progress**
 - Phase II (External Collaboration) requirements definition: **In progress**
- **Schedule/Milestones**
 - Initial Resource Plan and Schedule: January, 2012 (**Complete**)
 - IOC Deployment Target: Q4FY12
 - FOC Deployment Target: Q3FY15



Fiscal Year	FY8				FY9				FY10				FY11				FY12				FY13				FY14				FY15																		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4															
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AWIPS II Extended: Collaboration (CITRB 03/2012)	ConOPS Development				Exploratory Development				Reqmts, Phase 1				Develop, Phase 1				Sys Test				Deploy				Installs																						
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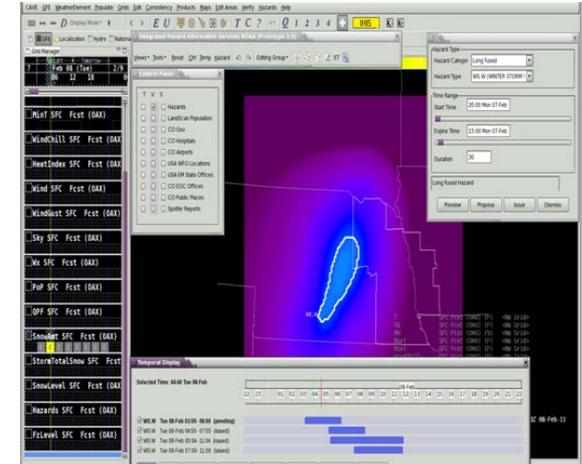


AWIPS II Development

Extended: Hazard Services Project Overview



- **Objective:**
 - Improve hazard-based information generation, distribution, and accessibility in support of Impact-based Decision Support Services (IDSS)
- **Status:**
 - Incremental design prototype and development (Phase I): **In progress**
 - Phase I – Integrate and enhance three hazard-based applications under Hazard Services
 - Establish first AWIPS II Integrated Product Team (IPT): **Completed**
 - Includes Raytheon, OAR/ESRL/GSD, and OST
- **Schedule/Milestones:**
 - IOC Deployment Target: Q4FY13
 - FOC Deployment Target: Q2FY15



Fiscal Year	FY10				FY11				FY12				FY13				FY14				FY15					
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
AWIPS II Extended: Information Generation (CITRB 10/2010)					Info Gen. Exp Dev/Reqs				Dev Phase 1				Sys Test	Deploy	Installs											
													Dev Phase 2				Sys Test	Deploy	Installs							
AWIPS II Extended: Information Generation (CITRB 03/2012)					Info Gen. Exp Dev/Reqs				Dev Phase 1				Sys Test	Deploy	Installs											
													Dev Phase 2				Sys Test	Deploy	Installs							

AWIPS II Development NPP Project

- **Objective:**

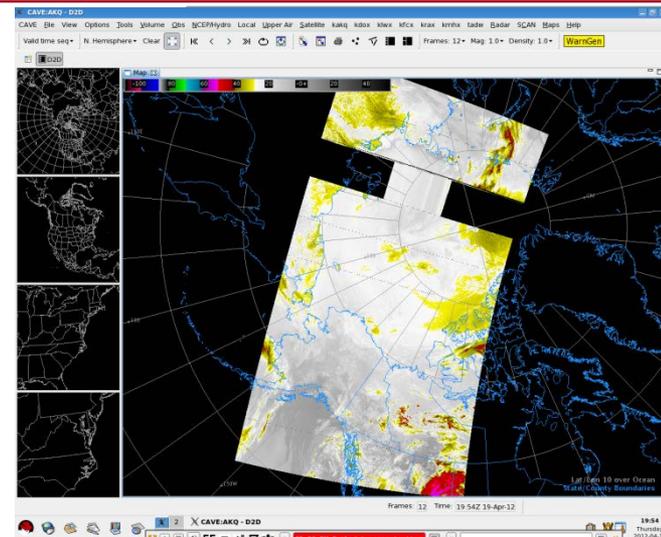
- Prepare NCF/MGS/SBN for NPP
- Provide the ingest and display capability for NPP Product Sets 1 and 2

- **Status:**

- Prototyping and system analysis of AWIPS II SOA: **Completed**
- Production development (Raytheon): **In progress, testing being conducted**
- Deployment to be staged with AWIPS II deployment

- **Schedule/Milestones:**

- **October 2012 (12.8.1)**
 - VIIRS Imagery Channel 1: Alaska & Pacific regions only
 - VIIRS Imagery Channel 4 : Alaska & Pacific regions only
 - VIIRS Imagery Channel 5 : Alaska & Pacific regions only
- **January 2012 (12.11.1)**
 - Atmospheric Temperature Profile (CrIS/ATMS)
 - Atmospheric Moisture Profile (CrIS/ATMS)
- **April 2013 (13.2.1)**
 - Atmospheric Temperature Profile
 - Atmospheric Moisture Profile





Final Thoughts...



- NWS is committed to our partnership with Unidata and the entire Unidata Community
- NCEP Central Operations will remain your primary conduit / POC for software development questions/requirements that pertain to the National Center Perspective
- NWS/OST will be your primary POC for obtaining software releases
- Despite slips in our migration schedule, NWS is focused on delivering software that is reliable, stable, and expandable to meet the needs of our partners for the years to come

