Integrating NAWIPS into the New NWS Service Oriented Architecture

Migrating NAWIPS to AWIPS II

Scott Jacobs

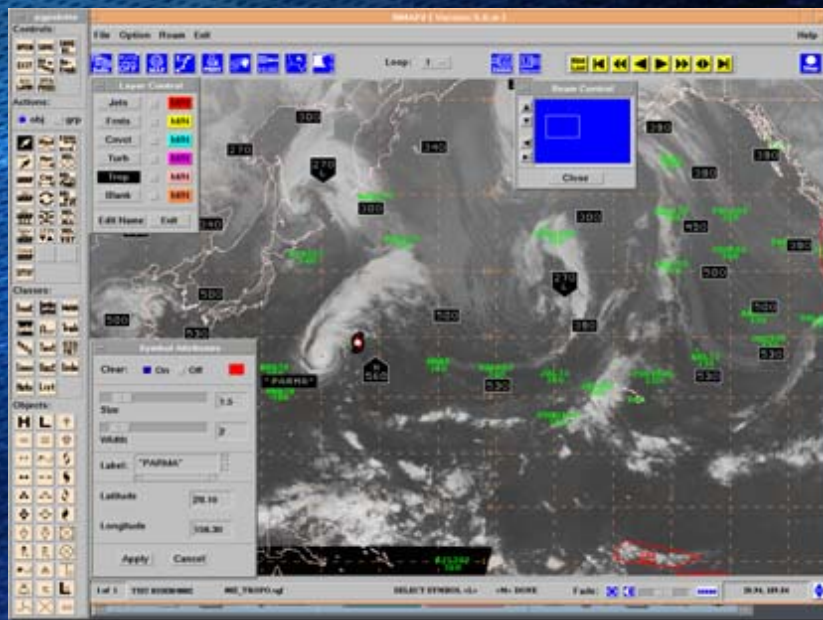**Software Technical Lead**

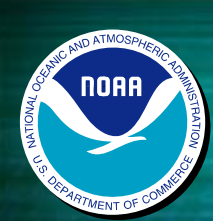*National Centers for Environmental Prediction*

24th Conference on Interactive Processing Systems

AMS Annual Meeting 2008 Paper 6A.3

23 January 2008

Purpose

- **Provide an understanding of the plans for migrating NAWIPS functionality to the AWIPS II environment**
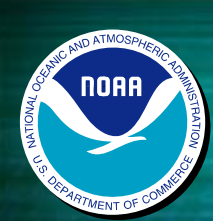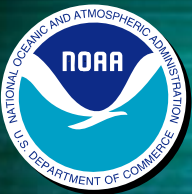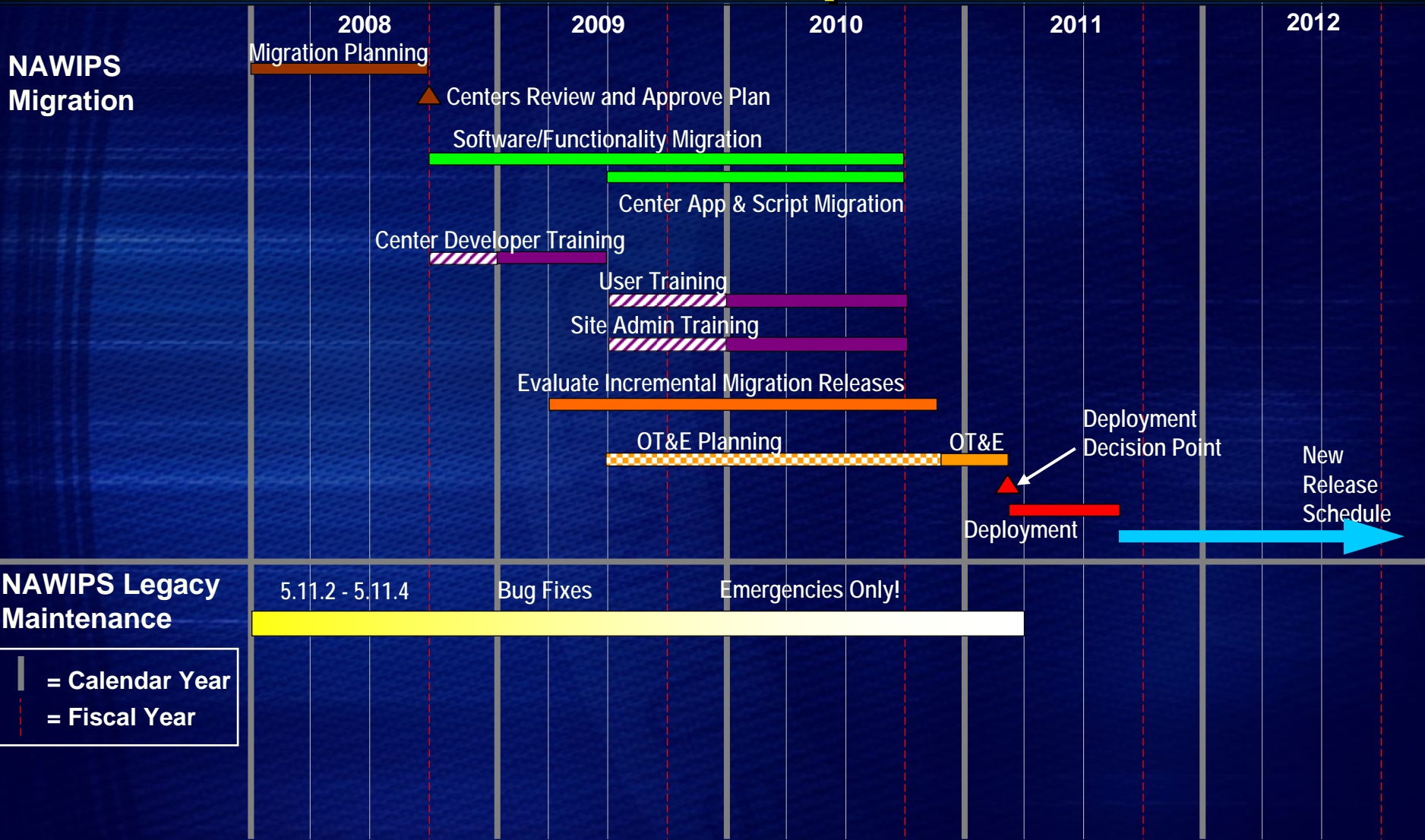
NAWIPS Migration
Goals

- **Enhance collaboration among Centers, WFOs, RFCs and customers**
  - *Deliver products and services in industry and customer centric formats*
  - *Enable collaborative development between local, national and outside developers*
- **Provide seamless, flexible and extensible weather enterprise that integrates all levels of NWS operations**
  - *Integrate service delivery via the migration of AWIPS and NAWIPS into a common Service Oriented Architecture*
  - *Integrate visual collaboration throughout the organization*
  - *Put new science into operations faster*
  - *Make same science tools available to all levels of NWS operations via common algorithm library and tool sets*

NAWIPS Migration
Roadmap

NAWIPS Migration

	2008	2009	2010	2011	2012

Migration Planning

▲ Centers Review and Approve Plan

Software/Functionality Migration

Center App & Script Migration

Center Developer Training

User Training

Site Admin Training

Evaluate Incremental Migration Releases

OT&E Planning

OT&E

Deployment Decision Point

Deployment

New Release Schedule

NAWIPS Legacy Maintenance

5.11.2 - 5.11.4   Bug Fixes   Emergencies Only!
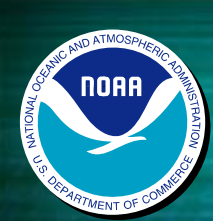
| = Calendar Year |
| = Fiscal Year |

NAWIPS Migration Responsibilities

- **Planning**
  - *NCEP and OST*
  - *Some Raytheon support for architectural discussions*
- **Application Migration**
  - *NCEP migrates NAWIPS with Raytheon support*
  - *Testing*
    - **Incremental ("alpha") testing of migrated functionality**
    - **Verification and validation – test to break**
    - **OT&E**
- **Training**
  - *Developer training*
  - *Site admin training*
- **Government (NCEP) will maintain migrated NAWIPS applications in AWIPS II era**
  - *NCEP develops new application level functionality*
  - *Raytheon maintains infrastructure and architecture*

NAWIPS Migration
Re-Architecture Approach

- **Preserve existing NAWIPS functionality**
- **Minimize changes to user interfaces – "Grey Box" conversion**
  - *Minimizes user training of forecasters and administrators*
- **Leverage use of AWIPS II services, functionality and development tools to optimize migration**
  - *AWIPS II uses open source projects – No proprietary code*
  - *AWIPS II is platform independent*
- **Migrate NAWIPS functionality incrementally to AWIPS II to reduce risk**
  - *Multiple deliveries planned for FY09 and FY10 for testing and evaluation purposes*
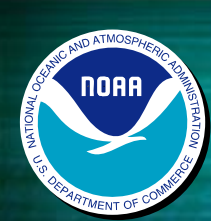
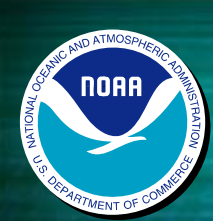# NAWIPS Migration
FY08 Activities

- **Goals**
  - *Gain expertise in AWIPS II technologies and architecture*
  - *Ensure that AWIPS II architecture can support NCEP requirements*
  - *Develop NAWIPS migration plan for FY09/10 execution*
- **Activities**
  - *Take training: SOA, Java, RTS developer*
  - *Participate on AWIPS II teams : IV&V, IWT testing*
  - *Conduct NCEP-OST monthly coordination meetings to support migration planning*
  - *Participate in RTS TIMs, including NCEP-specific issues*
  - *Conduct NAWIPS vs. AWIPS II Gap Analyses*
    - **Software, hardware, network and data flow**
  - *Prototype in AWIPS II ADE*
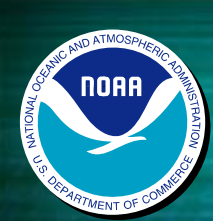   - **GUIs, decoders, displays, diagnostics**

NAWIPS Migration
Issues and Challenges

- **GEMPAK batch processing**
  - *How do we support batch processing with an interactive system?*
  - *How do we support batch processing in a super computer environment?*
- **GEMPAK scripting**
  - *How does this drive training and local application development?*
  - *What is the impact on transition?*
- **Local apps**
  - *How will "local apps" for the National Centers and outside users be handled?*
- **Conversion of archived data sets to new data standards**
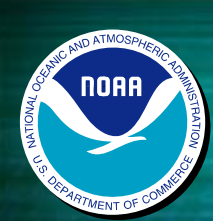- **University and Unidata support**

NAWIPS Migration
Issues and Challenges

- **Performance in AWIPS II architecture**
  - *Handling large global data sets, including ensembles*
  - *Handling a large number of concurrent users*
- **Use of AWIPS II vs. NCEP hardware and network infrastructure decision factors**
  - *AWIPS II must support ingest of NCEP unique data sets*
  - *AWIPS II must scale to support NCEP processing requirements*
  - *Can AWIPS workstation hardware support NCEP requirements?*
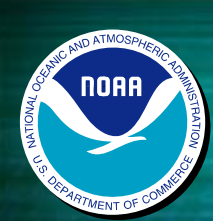 - *Evaluating gaps and deltas between AWIPS and NAWIPS current system implementations*

NAWIPS Migration
Issue and Challenges

- **NAWIPS moratorium required during migration period**
  - *Migration complexity – enhancing existing NAWIPS while migrating not practical*
  - *Resource constraints*
- **Routine NAWIPS maintenance only**
  - *Bug fixes only*
  - *Table, map updates as necessary*

Summary

- **NAWIPS Migration an essential part of AWIPS Evolution**
  - *Migration preparation and planning underway*
  - *Migration executed in FY09 and FY10*
  - *Deployment complete FY11*
  - *Migration will improve NWS collaboration*
  - *Migration will improve NWS products and services*