J3.12 HOW SCIENTIFIC SERVICES DIVISION OF THE NWS/WESTERN REGION (WR) HAS ADAPTED AWIPS FOR OPERATIONS IN THE WEST

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1. Introduction

The NWS deployment of AWIPS has provided a robust national, operational system for all NWS forecast offices. However, weather varies across the United States. In the western United States, complex mountainous terrain and the lack of data over the eastern Pacific Ocean, the source region of major storms, are two challenges for WR Forecast Offices. During a typical winter storm event, it is not uncommon for rain to be falling in the valleys, snow falling in the foothills and heavy snow in the higher elevations. Precipitation amounts can vary by an order of magnitude within 10 to 20 miles due to complex terrain. Forecasters require additional data and applications to support unique regional weather challenges. WR SSD has developed a number of solutions to supplement the national AWIPS system with data and applications that are focused on western U.S. problems and support the SOO program. The concept is that AWIPS provides the forecaster with a common workstation, and all WR data and applications are available to WR forecasters in a manner similar to the national datasets and applications. This paper will provide a brief overview of the type of data that WR SSD transmits to the Forecast Offices to supplement the national AWIPS data sets.

2. Technical Background

WR implemented a Wide Area Network (WAN) that uses frame relay technology to connect all 24 WR Forecast Offices. This system was installed approximately 6 years ago and provides the Forecast Offices with communication services not provided by AWIPS, such as Internet access and access to a number of data set. The frame relay communication line to each office can burst up to 384 kbps. The WR WAN also has high speed lines to acquire data. The precessing hub is located at SLC.

To augment the national AWIPS data set, SSD acquires the data from a variety sources, including other NOAA Offices, Universities and NOAA Cooperative Institute. SSD then processes the data and uses LDM to transmit the data to each Forecast Office. The NCAR developed LDM software automatically queues data and provides a much more robust system than common FTP sessions. The data is then captured by each office's AWIPS LDAD system. LDAD moves that data over to the DS1 where the data is ingested and stored on the AWIPS database. With a few more changes to the Graphical User Interface, the data is available to the forecasters and can be used and combined with other AWIPS datasets.

3. Examples of the types of data WR supplements

Satellite Data: WR/SSD augments the national data sets with experimental satellite data sets, such as SSMI, AMSU and other data sets to improve observations over the data sparse eastern Pacific Ocean. SSD transmits almost 300 mbytes of satellite data a day to the Forecast Offices.

Model Data: SSD has written software and documentation to allow offices to insert local run meso models into AWIPS. SSD is also distributing experimental NCEP models, such as the experimental ETA 10) to WR offices for evaluation.

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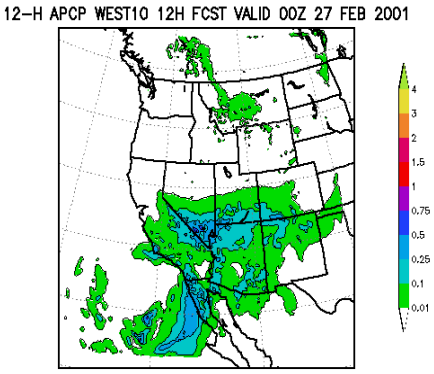

Figure 1: Experimental 10km ETA

Mesonets and new Data Assimilation System: WR, in conjunction with the University of Utah, has a program called Mesowest. Mesowest is a collection of 2,500 mesonet sites that augment the 168 official ASOS sites. All of this Mesowest data is sent to the Forecast Offices. The extra mesonet data is also used in a data assimilation system modified to produce better results in complex terrain. The ADAS system runs at 10 km and is distributed to all WR Forecast Offices.

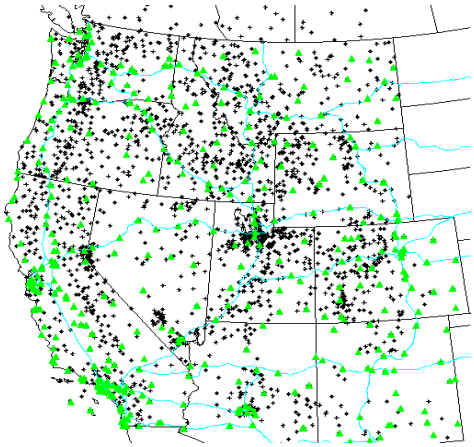

Figure 2: Mesowest Mesonet Sites

Addition of new applications and display sectors: WR modified the standard AWIPS sectors to provide the Pacific Northwest offices with sectors better tuned for operations.

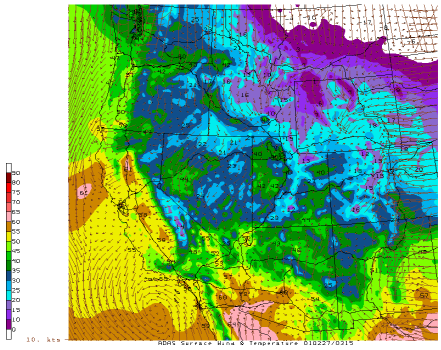

Figure 3: 5km ADAS Analysis

New Web Services: SSD has adapted AWIPS to provide real time data to the WR Web Farm. This has provided the capability to generate real time web based graphics showing where warnings and watches are in effect and provide users with a "total forecast"

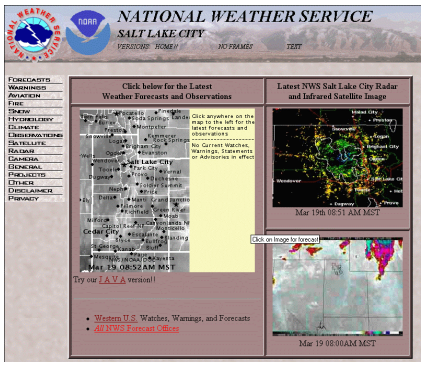

Figure 4: SLC Web Page

Local Application AWIPS Database: SSD developed a interactive web based system to allow offices too share locally written AWIPS applications. This system was adapted by NWS headquarters as a national system.

4. Summary

AWIPS is a powerful platform that can integrate data from a number of sources, both national, regional and local.