Theme 4: Technology Transfer and Outreach

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Weather Information Display Systems
GSD Impacts on Forecast Services

- A few months ago, GSD hosted a workshop consisting of a diverse set of stakeholders
- We produced a movie to emphasize that everyone’s input is valuable
- As you watch the movie, keep in mind that GSD technology plays a vital role in the forecast process
GSD Impacts on Forecast Services

- GSD Technology has changed Weather Forecast Services
  - Advanced Interactive Weather Processing System (AWIPS)
  - Graphical Forecast Editor (GFE)
  - FX-Net
  - FX-Collaborate (FX-C)
  - Weather Information Decision Aids (WIDA)
AWIPS

- AWIPS Workstation
  - Built for National Weather Service
  - Integrates dozens of meteorological data sets
  - Primary System Used by NWS Forecasters
AWIPS - Impacts

• Decreased Warning Generation Time
  • From several minutes to less than one minute
  • Combined Meteorological Data Sets
    • Enhances forecaster comprehension
    • Forecasters able to assimilate more data
    • Improved forecasts

• Quotes from WFO Forecasters . . .
  • “It’s fantastic to be able to get this [many data sources] on one workstation.”
  • “We could not have conducted such an efficient warning operation without NEXRAD and AWIPS.”
  • “[After AWIPS] nationwide tornado lead times more than doubled from less than 4 minutes to more than 11 minutes.”
AWIPS – Graphical Forecast Editor (GFE)

Text Products to Digital Products

NWS City Forecast For:
BOULDER AND WESTERN DENVER SUBURBS

ZONE FORECASTS FOR NORTHEAST AND NORTH CENTRAL COLORADO
NATIONAL WEATHER SERVICE DENVER CO
437 AM MST THU NOV 05 2009

NWS Forecast:
- Today...Mostly sunny. Highs in the mid to upper 70s. West winds 10 to 15 mph.
- Tonight...Mostly clear. Lows 39 to 49. West winds 10 to 20 mph.
- West...Mostly clear. Lows 35 to 45. West winds up to 25 mph near the foothills.

FORECAST:
- Sunday...Mainly clear. Highs in the upper 70s. West winds 10 to 15 mph.
- Sunday...Mainly clear. Lows in the mid 50s.
- Monday and Monday Night...Mainly cloudy with a 20 percent chance of rain showers and snow showers. Lows in the mid 40s. Winds in the upper 20s.
- Tuesday and Tuesday Night...Partly cloudy. Highs in the upper 50s. Lows around 30.
- Veterans Day...Mostly sunny. Highs in the mid 50s.

High Temperature(F) Ending Thu Nov 05 2009 8PM MST
(Fri Nov 06 2009 03Z)
NWS Boulder, CO
Graphic Created Nov 05 9:53AM MST
GFE - Impacts

- Forecasts defined more precisely in space and time
  - 2.5 – 5 kilometer resolution for ~20 weather elements
- Automatic text product generation
  - Far less typing, more time to focus on meteorology
- Provides for better forecast products and services
  - Point and Click, Image, Time-Series
- Quotes . . .
  - From a WFO Forecaster, “...you have set a bar by which all other support and development organizations will be judged by the field.”
  - From the Australian Bureau of Meteorology, “This collaborative effort was crucial in adding another success to our ongoing modernization.”
FX-Net

- Remote, ‘Thin’ Meteorological Workstation for...
  - Wildfires
  - Hazardous Spills
  - Floods
  - Any High-Impact Weather-Related Event
FX-Net - Impacts

- Improved weather services during field operations
  - Delivers high-resolution satellite, radar, observational and weather prediction model data over a low-bandwidth network
  - Enhanced safety for first-responders (e.g., fire fighters)
  - Used by air quality forecasters and researchers to produce air quality forecasts and to study climate variability and air pollution sources
- Quotes from IMETs and NWS fire weather services management ...
  - “The FX-Net system is heavily used. For the IMETS, it’s the most critical system they have.”
  - “The FX-Net system is the ‘backbone’ of fire weather forecasting in the field.”
  - “FX-Net has had a huge impact on improving firefighter safety”.

FX-Collaborate (FX-C)

Weather Briefings
Weather Alerting
  • Web Graphics
  • R911/CAP (test)
Weather Charts
  • CWB Wave Height
Core for Collaboration
FX-C - Impacts

- Improved weather services during field operations
  - Provides latest information on weather hazards to the public
  - Communicates weather launch criteria information to site personnel at USAF/VBAFB prior to a rocket launch
  - Provides ocean wave information to fishermen and others in Taiwan area
- Quote from weather information consumer in Norman, OK
  - “This is the second or third time I have seen this. This is great! Especially with the storms we were having. I can look at your site and tell more then watching all 3 weather casts in the morning news”.

Weather Information Decision Aids (WIDA)

- Weather information Better Integrated into Operational Decisions (based on FX-C)

System used for making operational decisions at Dallas/Ft. Worth (CWSU)

Transition path is through AWIPS

Technology is being extended to other service areas
Weather Information Decision Aids

- WIDA Impacts
  - Dramatically improved weather display and information for ARTCC TMU.
  - Improved efficiency of Fort Worth ARTCC airspace.
- Quotes from TMU Traffic Manager . . .
  - “ZFW TMU strongly supports the WIDA convective weather forecast tools used at ZFW.”
  - “WIDA was a significant factor in making good tactical and strategic decisions...”
Summary

Many technologies are derived from AWIPS services