FAS: AN INTERNATIONAL VERSION OF AWIPS

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1. INTRODUCTION

Since 2000, the Korea Meteorological Administration (KMA) has been developing the Forecaster's Analysis System (FAS), an AWIPS-like forecaster workstation (Lim et al., 2000; Lee et al., 2001: Jung et al., 2000). The purpose of this project is to develop an exclusive system for forecasters that can easily analyze all weather information by overlaying, combining, and animating it in a single display, so forecasters can focus on the weather event itself and reduce the overall preparation time.

During the first 2-year development, AWIPS has been successfully installed and is running semi-operationally at the KMA forecast office. FAS is now fully running on the Linux platform (including data servers and user workstations), and receives all observational data and operational numerical model outputs in the KMA. The system was deployed at 6 Regional Offices in July 2002 and will be deployed at 37 Weather Stations in 2003.
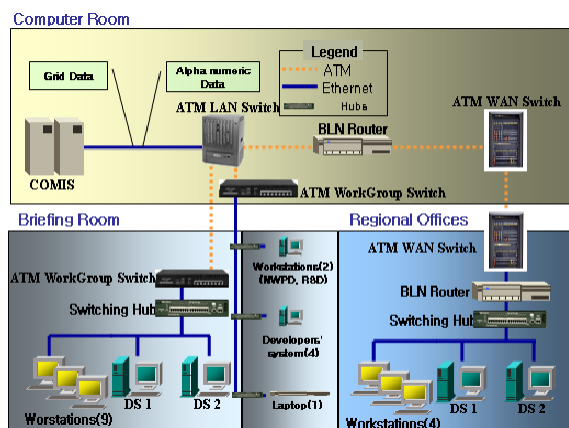

Fig. 1 The FAS system architecture.

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Figure 1 shows the FAS system architecture installed in KMA headquarters and 6 regional offices. FAS consists of 4 to 9 D2D workstations, depending on the regions, and 2 data servers. The combined Meteorological Information System (COMIS), which is KMA's official communication system, distributes all meteorological data in KMA headquarters through a Gigabit network and to regional offices through an ATM network.

2. INTERNATIONALIZATION

During the first year of the project, a background map of the FAS has been set up for Korea and East Asia, and a data ingest structure that includes decoders for all of meteorological data has been changed in accordance with the KMA environment.

Apart from that, the KMA planned to change the U.S. environment–such as English units (mi, ft, in, kt, etc.) and the English menu–into the appropriate format used in Korea from the beginning. During the 2002 development period, the English units have been replaced with the International System of Units (SI units), and the menu has been changed from English to Korean.

2.1 *Menu Koreanization*

AWIPS adopted the Tcl/Tk script language to develop the user interface process. New international features introduced in Tcl8.1 enabled users to create Tcl/Tk applications that support any multibyte language such as Korean, Japanese, etc. Tcl/Tk automatically converts strings from the UTF-8 format to the system encoding, which is the character encoding used by the Operating System (OS).

FAS is based on Redhat Linux 7.3, and the system language is set to Korean. In many cases, the C++ code grasps text strings from the file containing menu items and passes them to the D2D user interface. The problem is that the Unicode information is lost when the Tcl/Tk script communicates with the C++ code. To

prevent losing this information, we changed the C++ code to call functions that support Unicode.

2.2 *Unit Conversion*

Since Korea adopted the SI units (km, m, cm, m s^{-1}, etc.) as a national standard measure, overall unit conversion on AWIPS is essential. Because of their usefulness, units on the skewT-logP display and the interactive skewT-logP analysis tool were the first to be converted to SI units. Units on the display can be controlled easily because most of the meteorological calculation is done in SI units, which are converted later with a coefficient in the program control display. Otherwise, English units can be reverted to SI units later by multiplying the conversion coefficient right before displaying.

Figure 2 shows the skewT-logP display on FAS with the Korean menu.
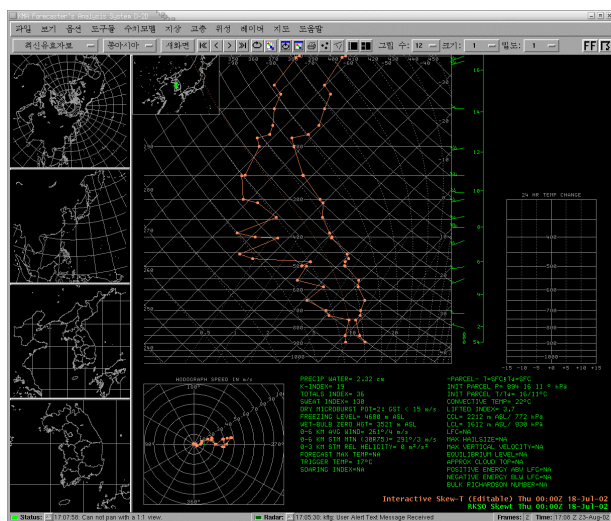
Fig. 2 The skewT-logP display on FAS with various calculated variables expressed in terms of SI units. All menus on the top are converted into Korean.

3. CONCLUSION AND FUTURE PLANS

Through this menu and unit conversion work, the AWIPS system became more capable of being configured for international use and is more easily accessible for any country in the world. For KMA, AWIPS has now been successfully implemented in a format suitable for its forecasting needs.

The operational FAS is scheduled to be launched at the end of 2002, and then over the next 3 years, nowcasting tools, including SCAN, will be integrated. After they are implemented, we hope FAS will be the forecasters' primary tool and will contribute to improving forecasts in KMA.

ACKNOWLEDGMENT

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