7.5

FAS: AN AWIPS-LIKE PROTOTYPE FORECASTER WORKSTATION AT KOREA METEOROLOGICAL ADMINISTRATION

Young-Sun Jung[1], D.I. Lee [1], S.J. Kim[1], S.K. Park[1], B.H. Lim[1],
J.S. Chung[1], R. J. Kahn[2], P. C. Kucera[2], W. F. Roberts[2], H.H. Lee[1] and S.K. Chung[1]
[1]Korea Meteorological Administration, Seoul, Korea
[2]NOAA/Forecast Systems Laboratory, Boulder, Colorado, USA

1. INTRODUCTION

For the past several years, the Korea Meteorological Administration (KMA) has been engaged in an effort to provide improved weather information to the public by extending and modernizing its meteorological systems. New observational systems have been established, including a lightning detection system and several new Doppler radars. Also, a new communication system was installed to support the meteorological systems.

With those modernization activities, KMA has developed a web-based data display system called Meteorological Information System (MIS) for several years. MIS displays weather warning, short-, long- and mid-range forecast, weather chart and climate and seasonal analysis data. It also displays observational data from satellite, radar, lightning detection system, automatic weather station (AWS), surface synoptic station, sounding, aviation, buoy, Global Telecommunication System (GTS) and World Area Forecast System (WAFS) (Fig. 1). MIS directly accesses the KMA database so that users can download any data. Although MIS has many excellent features, it offers very limited capabilities to overlay, combine, and animate different types of data and analyses. Also, it does not allow a flexible customization to users.

Those limitations created the need for a new forecaster workstation system that could integrate a wide variety of observational and numerical model data. This initiated the Project Group-NOWcasting (PG-NOW), which took charge of developing and implementing the forecaster workstation system in KMA.

* *Corresponding author address*: Young-Sun Jung, Korea Meteorological Administration, 460-18, Shindaebang-Dong, Dongjak-Gu, Seoul, 156-720, Korea; e-mail: jysun@kma.go.kr.

Fig. 1 The main frame of KMA web-based Meteorological Information System. There are menus on the top.

2. OUTLINE OF THE PROJECT

NOAA/FSL (Forecast Systems Laboratory) and KMA/METRI (Meteorological Research Institute) signed the *Memorandum of Understanding* for the technical cooperation in April 2000, which describes the cooperation between two Institutes to develop a Forecaster Workstation with new forecast preparation concepts and interactive display tools.

This project has officially started in July 2000 to develop an AWIPS D-2D-like workstation called the Forecaster's Analysis System (FAS[*]) (Bier, 1998; Lim et al, 2000; Lee et al, 2001) and is planned to continue for the next 6 years.

During the first year of project, the outline of FAS development was designed and the capability of FAS was tested using some KMA archived data. During the second year, other types of KMA data were included in FAS for the real-time based test. Onsite user's training for forecasters was conducted by experienced trainers dispatched from FSL. Every year during this project, PG-NOW dispatches two KMA staffs to FSL for the cooperation development of FAS.

[*] It was formerly called KMA/WFO-Advanced System

3. THE STRUCTURE OF FAS

FAS is the experimental version of AWIPS 5.1 operated on the Linux platform. Linux is much faster and cheaper than HP platform. D-2D is successfully being ported on Linux system. FAS is being used in a testing mode at KMA since 15 June followed by a 2-week training course for forecasters.

FAS consists of five D-2D workstations for individual five senior forecasters and servers for data processing, application, and communication (Fig. 2). The application server is a Compaq machine, which is the only non-Linux component of FAS.
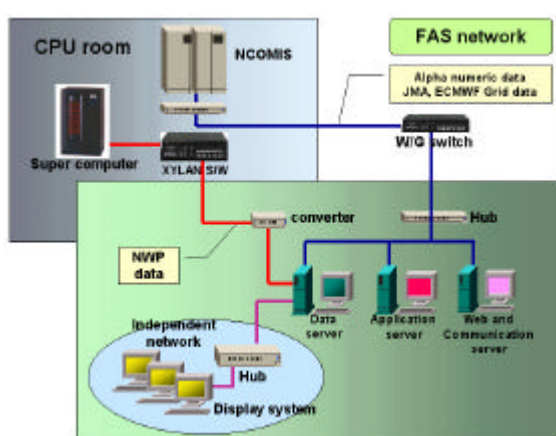

Fig. 2 Schematic diagram of FAS.

FAS receives all input data, except for those from numerical models, through Combined Meteorological Information System (COMIS), which is KMA official communication system. Numerical model outputs are directly transmitted from the super computer to shorten data transfer time, and all data are decoded on the data server.

4. CURRENT STATUS OF FAS

FAS provides various data to forecasters, including observational data from radar, satellite (GMS, NOAA), AWS mesonetwork, surface synoptic station, RAOB soundings, and buoy and various global, regional and ocean model outputs such as GDAPS, ECMWF, MM5 and ReWAM. Fig. 3 shows an example of meteorological data display with various background maps around Korea. FAS is currently being operated without a notification server, but we are planning to develop alternative notification methods for FAS, whose function is automatically updating data.

5. FUTURE PLANS

FAS still needs to be improved to become operational at KMA. The operational FAS is scheduled to be launched in 2002. We are expecting that FAS can improve forecasts at KMA by providing forecasters with a wide variety of meteorological data on an integrated workstation.

Additionally, lightning data, typhoon tracking application, and outputs from models used in KMA will be integrated into FAS by the end of 2001. KMA and FSL software developers have been focused their efforts on decoding the different source and format of meteorological data from those on AWIPS for last two years. For the next 4-year development phase, they will work on language encoding from English to Korean, unit change to SI and development of additional analysis tools such as an object analysis tool for point data. Also, 3-dimensional display, warning dissemination, and a graphical forecast editor will be integrated into FAS.

ACKNOWLEDGMENT

REFERENCES

Bier, M., 1998: WFO-advanced two-dimensional display software design, *Preprints*, Fourteenth International Conference on Interactive and Processing Systems

for Meteorology and Oceanography, AMS, Phoenix, AZ.

Lee, S.Y., S.J. Kim, S.K. Park, D.I. Lee and Y. Jung, 2001: The development of KMA/WFO-Advanced System II, *Atmosphere*, **11**, 426-429, Written in Korean.

Lim, B.H., D.I. Lee, Y. Jung, J.W. Lee, H.H. Lee, J.H. Oh and S.K. Chung, 2000: The development of KMA/WFO-Advanced System I, *Proceedings,* Seoul, Korea, Korean Meteorological Society, Written in Korean.
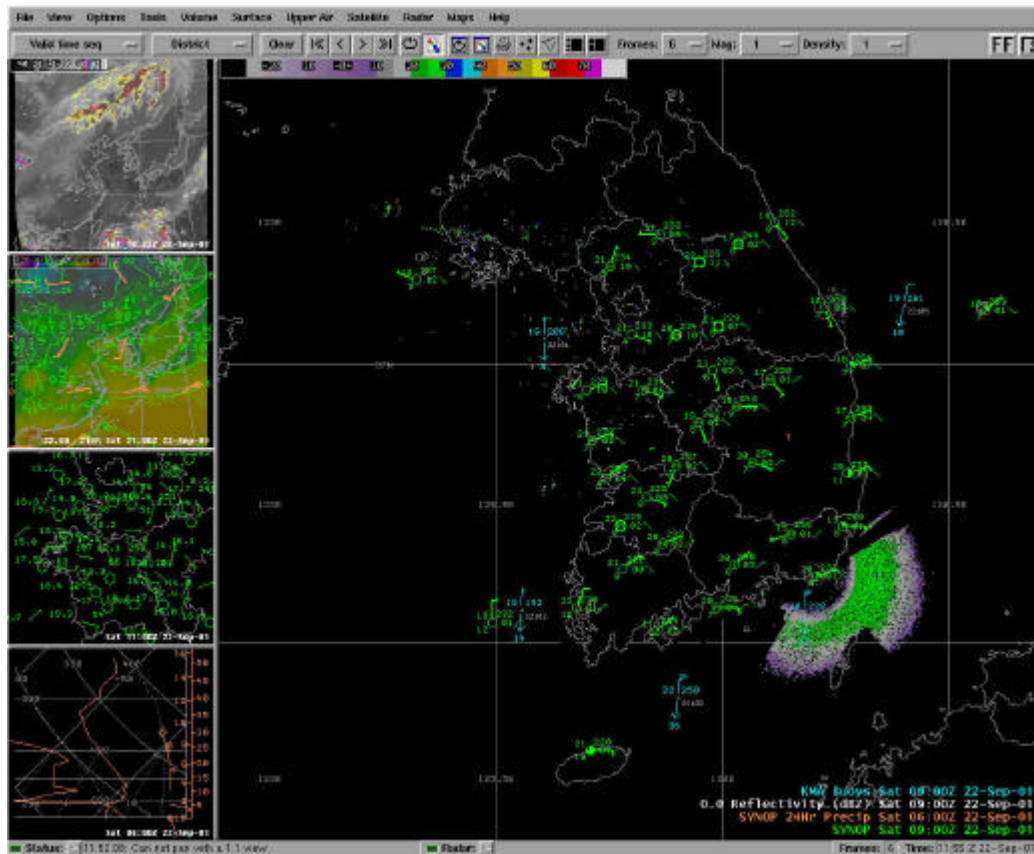
Fig. 3 The main frame of FAS with various meteorological data on background maps around Korea.