THE GRID EDITOR AND OTHER NEW DEVELOPMENTS AT FMI

Juha Kilpinen
Finnish Meteorological Institute
Vuorikatu 24, P.O.BOX 503, FIN-00101 Helsinki, FINLAND,
email: Juha.Kilpinen@fmi.fi

1. NEW FEATURES OF THE AVIATION (TAF) WORKSTATION

The original features of the system are the display of METARs, TAFs and AutoTAFs and the editor with message checking. The system keeps record of the task lists and timetables of all local offices. So a warning is given for the forecaster when he has to do his next TAFs. In the editor the user can choose between first guess TAFs (see Kilpinen and Pietarinen, 1998).

If the editor finds a syntax error or a conflict between the TAF and the ICAO regulations, the particular erroneous string is highlighted and a short description of the error is given. After the correction of the message, it can be sent out to AFTN network. The system has been operational since late 1997.

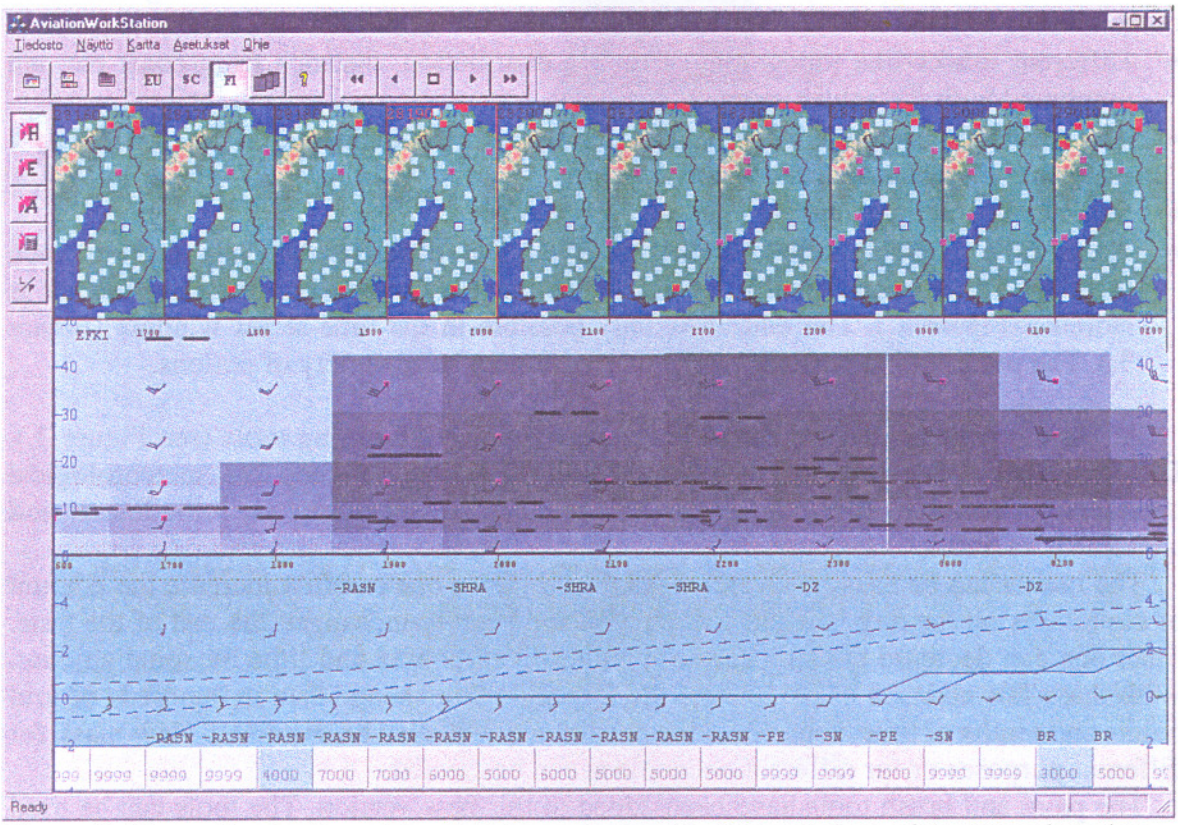

Figure 1. The outlook of combined status and visualisation window of TAF workstation. The model output data is visualised with observations.

As a new feature for the workstation the model data visualisation has been added. The parameters are temperature/dew point and relative humidity/wind vectors in vertical/time display. Also icing conditions are indicated with red dots near wind arrows (see Fig. 1).

A comprehensive statistical verification of TAFs is also included to the system. The output of the verification results is in the intranet.

2. THE NEW GRID EDITOR

The forecasters are able to edit the grid data with the new editor. The first operational version was introduced early this year (Kilpinen, 1999). The prototype editor had features for graphical editor but in the first operational version these features were excluded. The present version has again some graphical editing features.

The user can get model data or previously edited data for editing. After editing is finished the data can be stored locally or to the database. Once the data has been stored to database it is available for those application that are connected to database. At the moment HIRLAM (High Resolution Limited Area Model) and ECMWF data can be used operationally.

The idea of the editor is to edit time-series of different variables using masks or combinations of masks.

- Different masks like topography, land/sea distribution, distance from coast etc. are combined with the actual variables
- The masks are used like the way that ... temperature is increased on the daytime by 4 degrees if cloudiness is less than 3/8
- Smoothing and time shifting features are included
- Areas of e.g. precipitation can be modified and different data can be combined together. The user can see the data on text format (as symbols or number values) or as isolines (Figure 2.). The editing is only possible in the time-series window (Figure 3.). The presentation outlook can be chosen from a large variety of options.

At the moment the data is edited only using time-series editing tools (see Figure 3.). Different masks are used to make the editing fast and to keep the meteorological consistency between the edited parameters (e.g. temperature vs. cloudiness and cloudiness vs. rain).

The masks can be used in several ways. For instance one can first increase the amount of cloudiness on the daytime and chosen area and keep it unchanged the rest of the time. Then one can decrease the temperature within the mask area and time by some amount. With these few changes of parameters the forecaster can change data in hundreds of grid points and tenths of time steps while the consistency will also be sustained. New mask for different purposes or for different phenomena can be created.

The paint and brush tools have been added to this new version. The tools can be used only within one field. Also some test have been made to blend different data together. The data of two different numerical models may be blend by this software. Some tests to blend rainfall intensities of weather radar and numerical model have also been made. These results have been very promising.

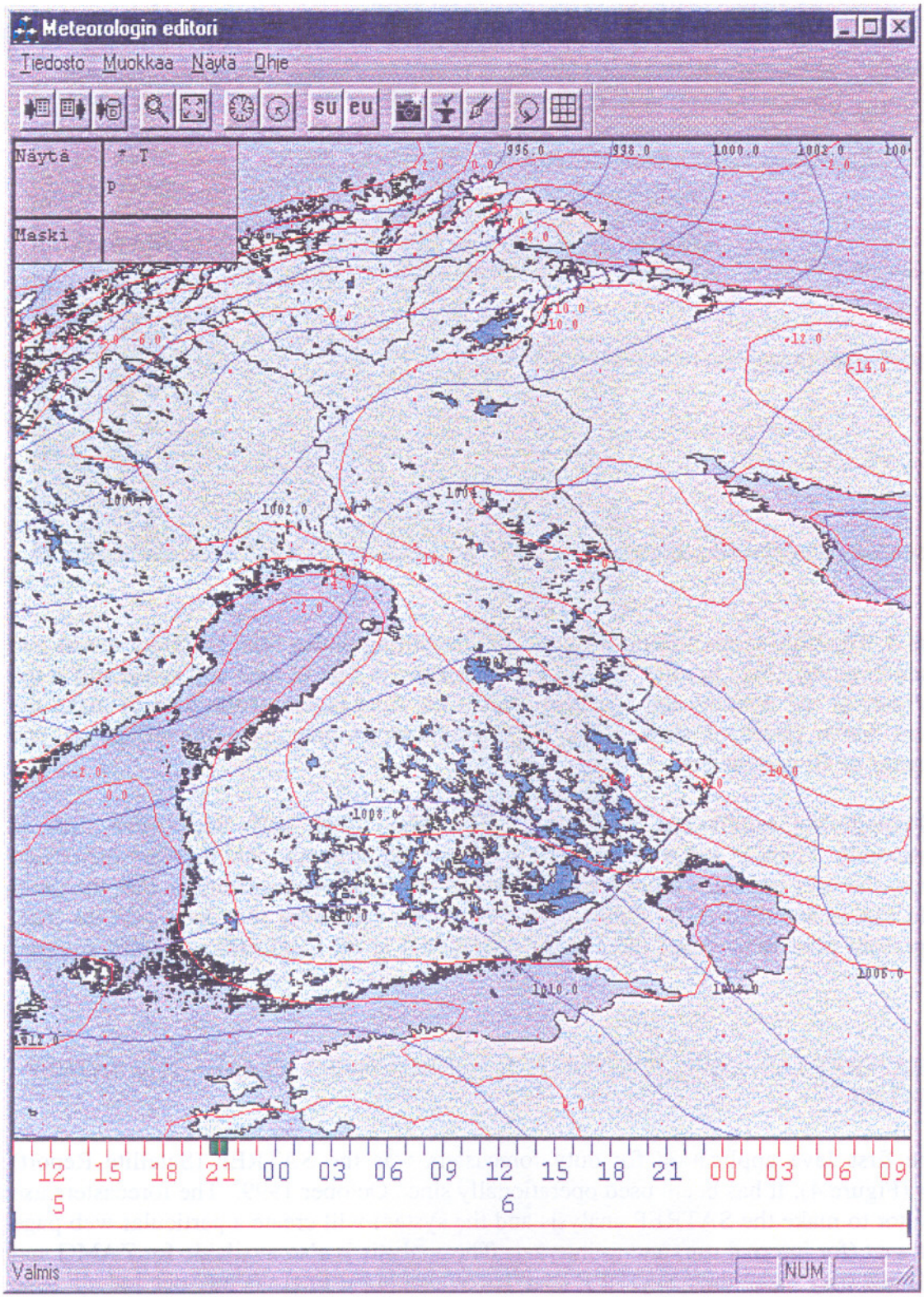

Figure 2. In this window the data is visualised with isolines. The time ruler at the lower part of the window indicates the valid time. The bottoms in the upper part of the window open dialog boxes for time series editing, paint and brush as well as other tools.

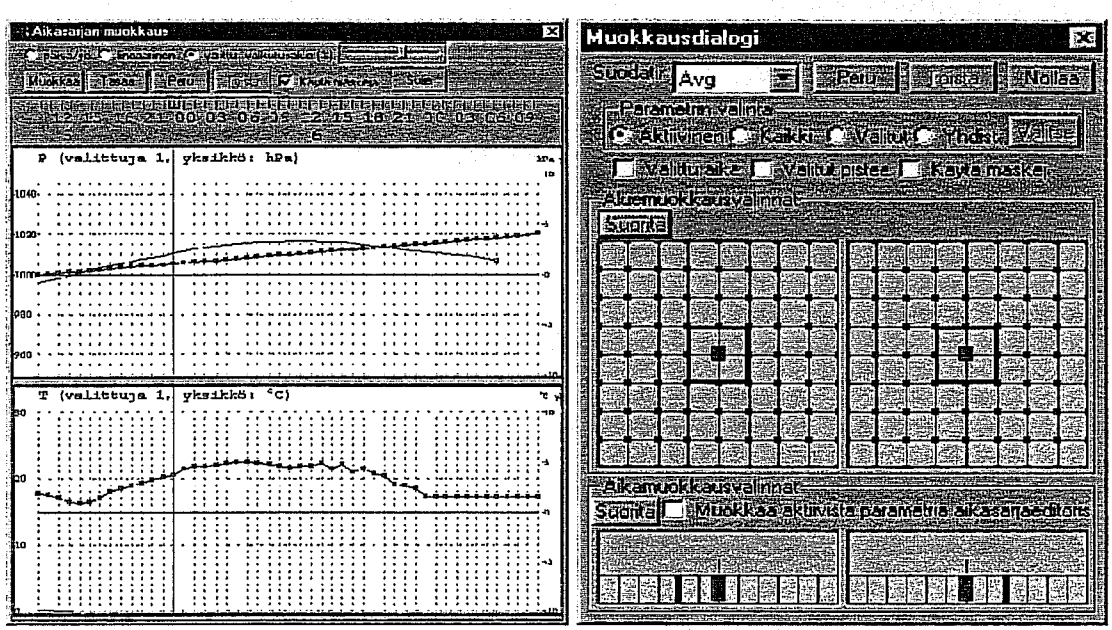

Figure 3. The time series editing window and the editing dialog box. Different masks can be used to modify data in time. The user can smooth the data in time and space and at the lower part of the window the user can change the time labels of the data to make the systems move faster of slower. All the manipulations may have the affect on one parameter or all parameters.

Although the editor has been used since May 1999 only one office uses is operationally. There is still a lot of work to do to make it operational in every office and to make the user interface more friendly. One of the main requirements is that the users should like to see final result (some of end products) right after they have edit the data. The present plan is to make the system operational at all local offices before summer 2000.

3. THE FIRST JAVA APPLICATION FOR FORECASTERS AT FMI - THE SATREP EDITOR

The first Java application for duty forecasters was the SATREP (Satellite Report) editor (Figure 4). It has been used operationally since October 1999. The forecasters use the editor to make the SATREP analysis and the system will create a particular web page to extranet (for internal use) and to internet. The analysis is also available for ZAMG and KNMI and they make their SATREP analyses available for FMI via internet and all these products are widely used by the forecasters at FMI.

Figure 4. The SATREP editor is a simple Java application with an IR Meteosat picture on a background. The user can drag the relevant conceptual model indicator above the phenomenon and he/she can then write a short description of the case to a window below.

4. NEW AUTOMATED PRODUCTION CHAINS CONNECTED TO EDITED DATA

One of the new automated products is weather service using short text messages (SMS) of mobile (GSM) phones. The first operational application at FMI originates from 1995 and it included only marine forecasts. The new service includes also other forecasts and observations internationally.

The customer sends a request like "weather helsinki" to a certain phone number (dedicated to this service by the telephone operator) as a text message. After a few seconds the system sends the weather forecast back to customers phone as a text message. The customer can then have weather services and warnings independent of time and place.

The most recent new service has been built for WAP (Wireless Application Protocol) mobile phones. In WAP phones the user can navigate with a WWW like interface and have access to text type products and simple graphics. This is the first serious step towards real personal mobility in weather services. The next generation systems with

more bandwidth and better graphics will finally make mobile WWW and weather services a reality.

FMI introduced the first operational WAP based weather service in the world at Cebit99 exhibition in Hannover, Germany with some partners. Since that several commercial WAP service trials have been carried out with mobile phone operations in Finland and elsewhere (see Fig. 5.).

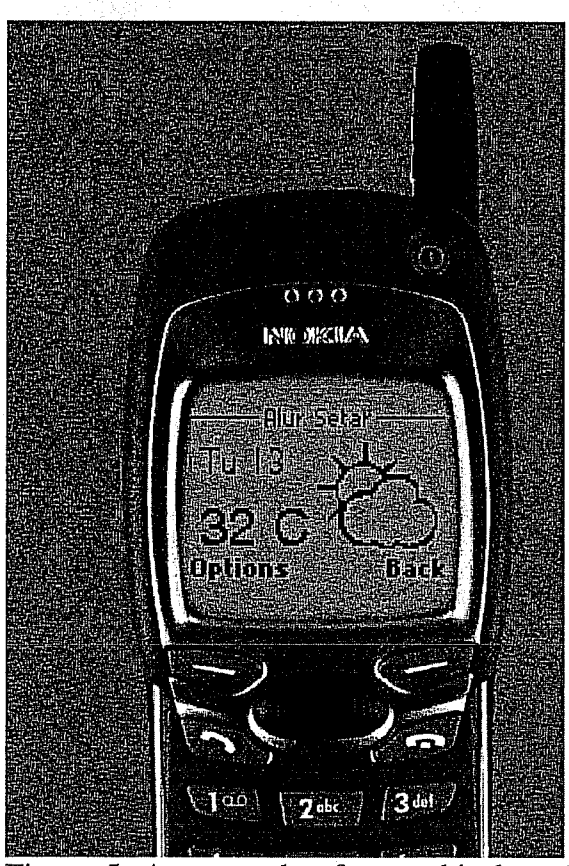

Figure 5. An example of a graphical product on the display of a wireless Application protocol (WAP) mobile phone.

5. REFERENCES

Kilpinen J., and M. Pietarinen, 1998: The New Workstation Software for Aviation Forecaster. 14th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, 11 - 16 January, 1998, Phoenix, Arizona, pp 445-446.

Kilpinen Juha, 1999: The latest developments of meteorological workstations and Production tools at FMI, Report of the 10th EGOWS Meeting held at KNMI, De Bilt, Netherlands, 7-10 June 1999.