METVIEW IN A MEMBER STATE: A DREAM OR A REALITY?

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Summary: ECMWF's own Meteorological visualisation software, Metview (*Daabeck et al*, 1995), developed together with INPE/CPTEC (Brazil) and MeteoFrance has been used internally at ECMWF since December 1993. Metview was officially released on an as-is basis to ECMWF Member States (MS) at the TAC meeting October 1995. Since then ECMWF has received a lot of questions/requests about Metview. In this presentation I will try to answer some of the questions that MS most probably want answers to. So here we have several hypothetical questions:

1. QUESTIONS ABOUT THE ESSENCE OF METVIEW

1.1 What Metview is?

Metview is a versatile Meteorological Visualisation Tool. It visualises fields data, observation data and satellite images. It overlays data, has several different geographical projections and a really rich set of visualisation attributes.

Technically Metview is a graphical wrapper around two reliable workhorses: MARS (ECMWF database access) and MAGICS (ECMWF meteorological graphics library), augmented with a very powerful meteorological macro language.

Metview is easy to learn, thanks to its advanced, icon based user interface.

Last but not least: Metview has a very open design meaning that it is easily modifiable and extendible.

1.2 What Metview is not?

Metview, in its present form, is not a tool for nowcasting (remember it was originally designed for ECMWF): it is not capable of showing traditional radar images and it lacks the ability to handle observations in real time.

Metview is a Visualisation Tool. It is not designed to be a Production Tool for interactive manipulation of meteorological data in order to create value-added commercial merchandise.

2. QUESTIONS ABOUT METVIEW REQUIREMENTS

2.1 What is required to run Metview?

You must have your data in GRIB or BUFR format (or in one of Metview specific formats) and you need a Unix Workstation running X-Windowing and Motif. Currently Metview is running on SGI, HP, Sun and DEC Alpha platforms.

In addition to standard Unix tools, you need C++ and Fortran compilers, S-GKS graphics package (commercial), Conicon contouring package (from Bath Univ.) and MAGICS and EMOSLIB libraries (from ECMWF) to build Metview.

2.2 What is required to get Metview installed?

You have to make an official request for the Metview software. Then you will get Metview Distribution File(s) from ECMWF.

On your computer system you need some 70+ MB free disk space (up to ~300 MB with 'version saving' on).

A Metview Installation Course will be held at ECMWF in November 1995.

2.3 What is required to learn to use Metview?

Metview has a steep learning curve: it is fast and easy to learn, most intuitive once you have comprehended how to work with Metview icons.

Current User Manuals are unfortunately somewhat out-dated, but we have plans to rewrite them. We have a "Step-by-Step" guide to help you to get started. For the powerful Metview Macro language we have an up-to-date User Manual. And remember that Metview has On-Line Context Sensitive Hypertext Help to assist you.

Some knowledge of MAGICS makes life easier even though it is not essential.

3. QUESTIONS ABOUT LOCALISING METVIEW

3.1 How about "The Data We Have In Our Local Database"?

You have several possibilities to visualise your own local data. One nice feature of Metview is that it detects new files appearing into a Metview folder (i.e. a subdirectory). This feature gives you two external possibilities:

- The simplest way to begin is to use external GRIB/BUFR files, which you copy to a Metview folder.

- The next step is to write a Unix script to get data from your database to a subdirectory (a Metview folder) and use this script outside Metview.

- An integrated solution, which is not too difficult, is to use the above script inside your Metview. The example in the Distribution File uses this method. Or you may write a new application in C++ (maybe using your existing C or Fortran functions) to access your local database. In both cases the application becomes a part of your Metview system.

In the beginning of 1996 there will be a new MARS Proxy Server that will allow your Metview to access MARS data at ECMWF (will be available for MS Services only).

3.2   How difficult is it to write an own DB access module?

The Metview design philosophy makes it fairly easy and within the Distribution File you will get an example application which you can edit to access your own database. Whether you use this example or write your application from scratch, these are the steps required:

①   Specify the parameters required to define the data you want from your local database. Using these parameters write the definition file for your Metview Local DB Editor. You will have a simple example within the Distribution File.

②   Build your database access application. Thanks to C++ and inheritance this step is easier then you might think. Metview comes with "Metview Application Framework". Using this framework you normally have to rewrite only one virtual method. The Distribution File contains a working C++ programme for the "script method". All you have to do is to customise editor (in step ①) and supply your own database access Unix script.

③   Create a nice icon. This is a creative job and maybe the most challenging one of these steps. You may use the icon that comes with the Distribution File.

④   Metview reconfiguration. Add a few lines to the configuration files to tell Metview about your new application. No recompilation of any existing module is required! The Distribution File contains example lines.

3.3   What about those radar images for our nowcaster?

Yes, it is possible, but it requires deeper knowledge of Metview, because a new data type has to be implemented into the Visualisation Module.

3.4   What about three dimensional graphics?

Not impossible at all, but this really requires deeper knowledge of Metview because current GKS+MAGICS is two dimensional i.e. this requires a second Visualisation Module.

4.   CONCLUSIONS

I hope these questions and answers have given you enough information to decide if it is worth testing Metview at your institute.

Reference:

Daabeck, J., B. Norris and B. Raoult, 1995: Metview - Interactive Access, Manipulation and Visualisation of Meteorological Data on Unix Workstations. ECMWF Newsletter, 68, 9-28.