OPERATIONAL USE OF ECMWF PRODUCTS THROUGH SAIDAS

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1. INTRODUCTION

SAIDAS is a part of the Spanish integrated weather surveillance system.**SAIDAS** is a satellite data adquisition and analysis system.

The data base management is based on the **McIdas** software and accepts all types of meteorological data.

The distinctive feature of McIdas is its capability to ingest real time meteorological satellite and conventional weather data,and also for its ability to easily access and interactively analyze this large quantity of data.

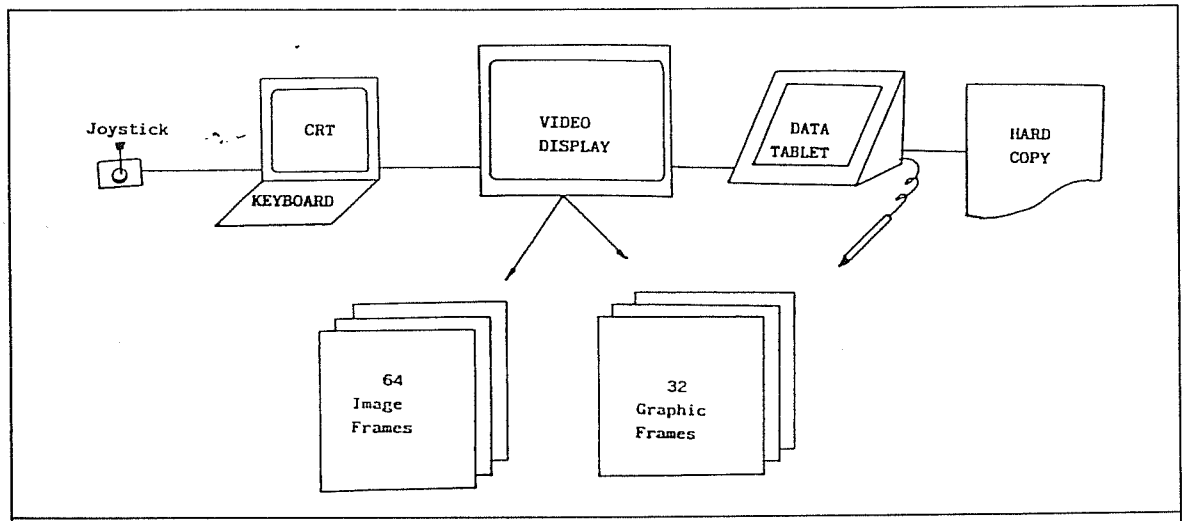


Figure 1. INTERACTIVE SAIDAS WORKSTATION
INTERFACE:*COMMANDS
*User defined character strings
*DATA TABLET
*Application Programs (McBASI)

For example with McIdas you can

View a time sequence of satellite images and overlay graphics on the loop.

Color-enhance the digital data and pass it through a filter.

Overlay direct or derived fields from a NWP model on the imagery.It's possible to perform the same process for plotted or contoured fields from conventional data.

Display thermodynamics diagrams.

Analyze conventional data using a guess from a NWP model.

And so on...

McIdas does not have a menu to follow,so the choice of commands,input via the keyboard or the tablet,is completely up to the user,making the system extremely flexible.

The data tablet allows the user to enter commands by pressing a pen onto preprogrammed areas of the tablet.

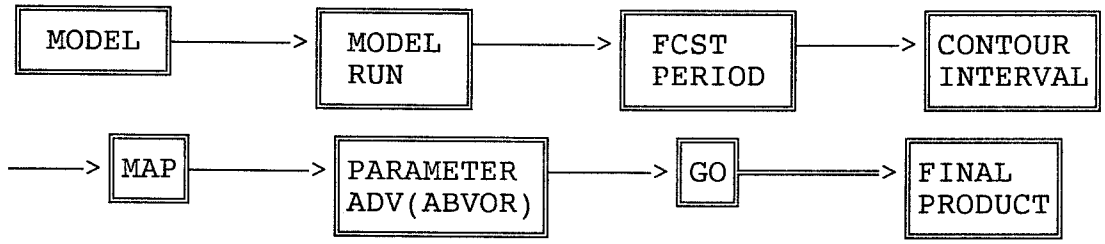
The data tablet is especially useful operationally

where a number of commands are used repeatedly.

For instance,a medium range forecaster needs to display on the screen the Quasi-geostrophic absolute vorticity advection for 500 mb from a 72 hr. ECMWF model forecast.

The forecaster does not need any knowledge about McIdas software.

All the forecaster must do is to punch on the tablet a logical sequence based on the choice that has been made.



Everyday the ECMWF model run is ingested in McIdas with a 1.5 degrees resolution and kept in Gridfiles.Thus,a single Gridfile will contain the fields for a forecast period.You can keep up to 159 Grids in a single Gridfile.

When the model has been ingested in McIdas the first step is to check the 12 hr. forecast versus the reanalyzed fields and imagery for 00.UTC in order to establish the credibility gap of the model run.This step is very easy to perform using a McIdas tablet.

The next step is to analyze the model's self-consistency by comparing the last two runs.Again,this is a rather trivial task with McIdas.

For a quick look and assesment of the complete model run the system runs a scheduled program that shows the basic fields in 11 graphic frames,each of them containing 4 panels.

2. BASIC USE OF ECMWF MODEL FOR SHORT/MEDIUM RANGE FCST

In Spain there are 9 Prediction Groups with available McIdas terminals.

All of them have the same computation power as the Central Group in Madrid and can perform the same operational tasks related to images load and enhancement of the digital data besides the complete available facilities in accessing to the whole data base (Fig.2).

SAIDAS DATA BASE

SATELLITE	MODEL OUTPUT	OBSERVATIONS
500 images 120 on line	16.000 Grids 2.400 on line	94.000 reports 24.000 on line

Figure 2.

Products for the 24 hr. fcst are used for short range fcst and compared with Spanish LAM.In particular MSLP fcst is often used as a guess to analyze MSLP with real data (Synops) through a Barnes analysis.

Second day forecasts are used in a Regional scale frame.

D+3,D+4 and D+5 products are used for Regional and National forecasts.

The next fcst periods are used only as guidance highlighting the evolution patterns with some degree of continuity in the last runs.

3. SUBJECTIVE EVALUATION OF THE MODEL PREDICTIVE SKILL FOR SPAIN

*SFC winds are underestimated where the wind is chanelled by a complex orography.

*T2m is useful only as guidance for SFC temperature trend.

*In cases of Mesoscale Convective Systems the precipitation is underestimated.This fact is not surprising because in such cases heavy rains with amounts up to 200 mm/day are quite frequent.

In figure 3 are depicted a number of fields from a ECMWF 72 hours forecast for Octuber 26th 1991 when a MCS developed over Cataluña on the Northeastern part of the Iberian Peninsula.

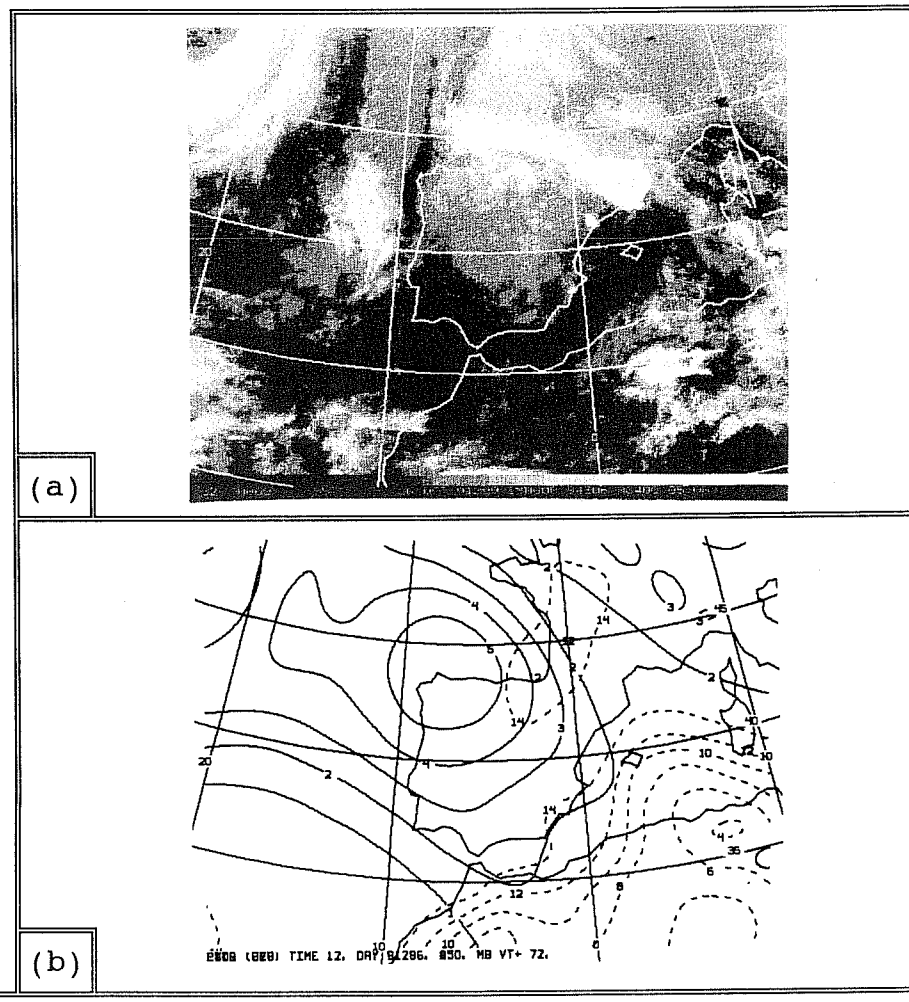


Figure 3. a)METEOSAT Infrared image 26/10/91 12.z
b)Potential vorticity 250 mb (PVU) (full lines)
Static stability 850 mb<14*1.E(-7)J*Kg-1*Pa-2
(dash).ECMWF 72 hr. fcst Valid:26/10/91 12.Z

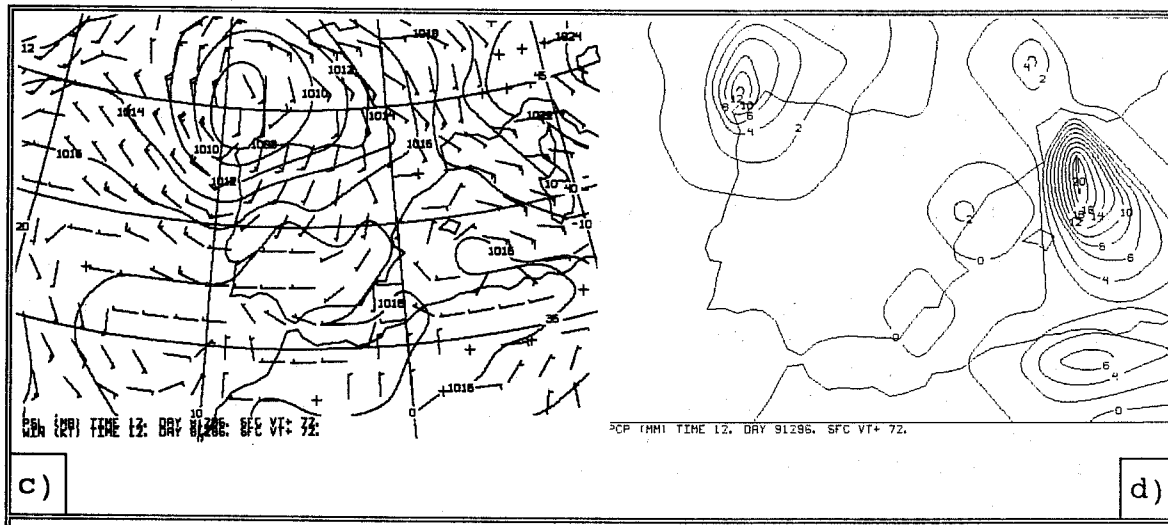


Fig.3 c)MSLP+SFC wind (KT)ECMWF 72 hr fcst:26/10/91 12.z
d)72 hr fcst PCP from 26/10/91 12.z to 27/10/91 00.z (mm)

and in figure 4 the precipitation as given by synoptic stations.

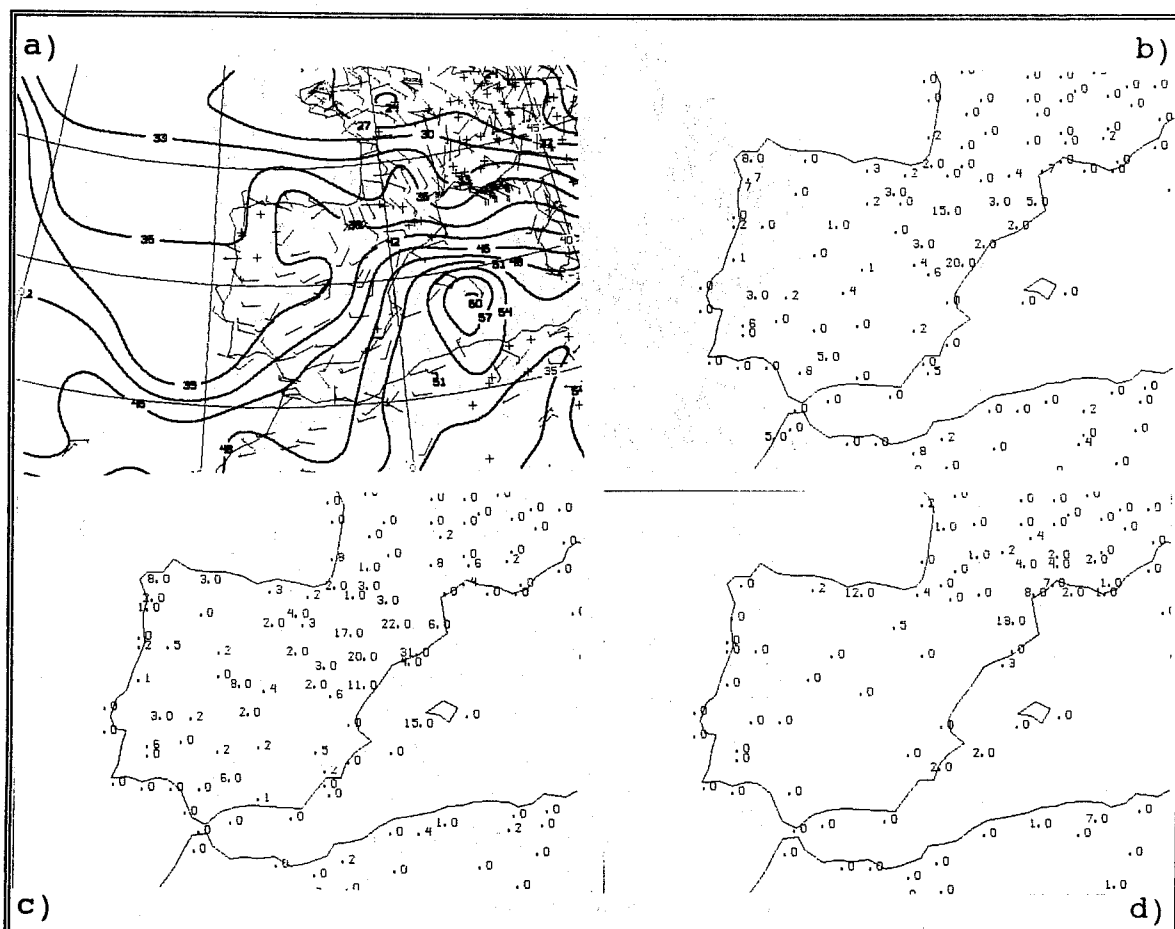


Fig.4.-a)Equivalent Pot.Temp.(ºC)+winds(KT) SFC:Synops 26/10/91 12.z
b),c),d)PCP(mm):Synops 26/10/91 12,18.z;27/10/91 00.z

*The 500 mb temperature is often 2 or 3 degrees warmer than the analyzed one.