

Data Targeting System User Guide

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1. Introduction

The Data Targeting System (DTS) is an interactive web-based system to provide data targeting information and request additional observations to improve short range (1-3 day) forecasts of potentially high-impact or high uncertainty weather events in Europe. The development of the DTS has been performed by ECMWF in partnership with the UK Met Office. The DTS was developed under the EURORISK PREVIEW programme funded by EUCOS and the EC (under the 6th Framework Programme).

This project is the culmination of a decade of targeted observing field programme experiments which demonstrated the potential of data targeting. The DTS was planned to build on the lessons learnt from Atlantic-THORPEX Regional Campaign (A-TReC) which took place between October and December 2003, and attempted for the first time to control a complex set of observing platforms in a real-time (Leutbecher, 2004). Despite the success of this programme a significant manual effort was necessary to make it work. The DTS project has the ambition of making data targeting a practical and viable concept in the operational environment.

The DTS web page is:

http://www.ecmwf.int/research/EU_projects/PREVIEW/DTS/index.html

Access to the DTS is for registered users only. For further information contact the project team (contact information is provided in Section 12).

The aim of this document is to give the main guidelines on how to use the system.

2. Data Targeting System Components

The idea of observation targeting is to add observational data into specific regions of the atmosphere in order to improve a forecast for a particular weather event or area of interest. Those regions are called sensitive areas and predict where the forecast is sensitive to rapidly-growing errors in the initial conditions (using singular vectors) or where the analysis error is large (using ensemble methods). The DTS uses these two different methods to provide targeting guidance in the form of sensitive area predictions or SAPs.

The process of targeting observation involves the following main steps:

- (1) Case identification: which forecast/region has potential high impact or large uncertainty associated?
- (2) Sensitive area prediction: where might a more accurate definition of the initial state of the atmosphere benefit the quality of the forecast over the region in question?
- (3) Observation selection: which additional observations should be deployed?

The system consists of five main components which cover the targeting process: **Forecast displays, Case proposal, Sensitive Area Prediction Calculations, Extra Observation Proposal** and **Observation Monitoring**. This system allows three types

of access: general (view only); restricted (edit on-line forms); privileged (make decisions). The participating users (restricted access) and the privileged user are herein referred to as users and the lead user, respectively. The user can interact with the system at two levels (figure 1): suggesting a case or adding comments on a proposed case (Case Proposal) and on commenting on a proposed observation request (Extra Observation Proposal). The lead user is responsible for analysing all the proposed cases and deciding whether to accept it or not for SAPs (Case Evaluation). It is the lead user who based on SAP results and observation availability proposes the additional observations to be requested. The lead user also evaluates all the comments on the suggested extra observations and makes the final decision that notifies the observation providers (Observation Evaluation). The system time table is showed in table I. There is an extra component of the system (not shown in Figure 1) that is the DTS archive (see Section 10).

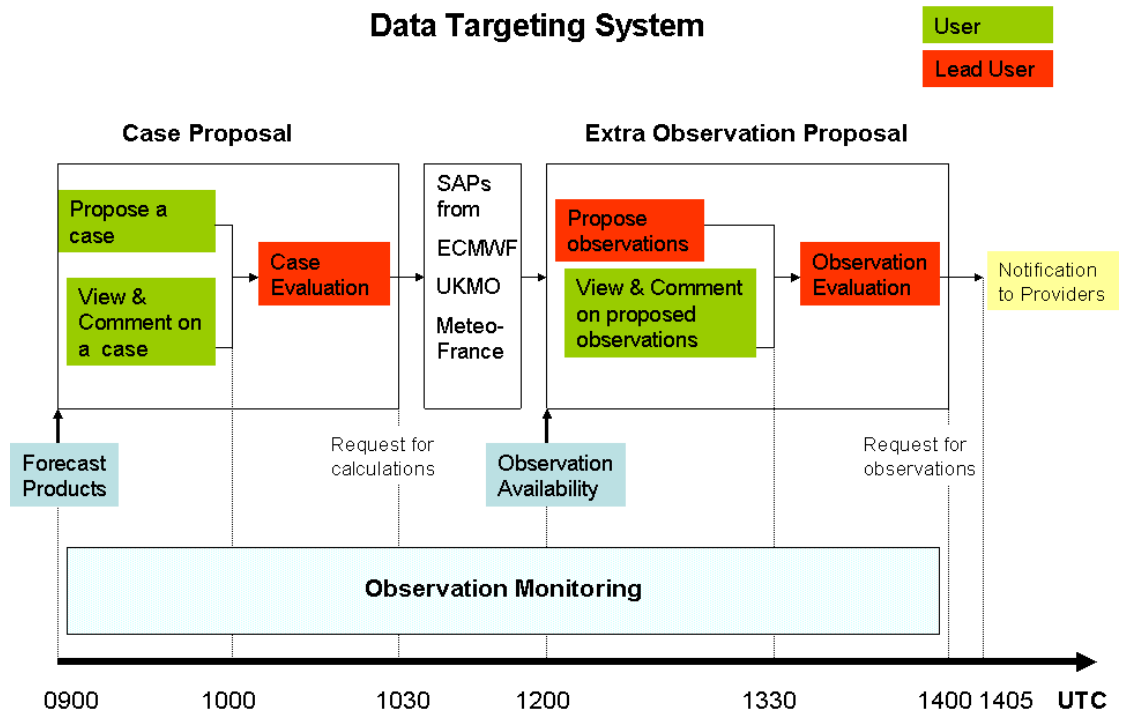


Figure 1- Main Components of DTS.

Table I - System timetable

Time (UTC)	Activity
9:00	Deterministic and ensemble products displayed for case assessment
9:00-10:00	Users' case suggestions
10:00-10:30	Lead user finalise case decision and submit request for SAP
10:40-12:00	SAP run
12:00	SAP results and observations availability displayed
12:00-13:30	Lead user suggestions for observation areas
12:05-14:00	Comments from users on proposed observations
14:00	Lead user finalise the request of targeted data
14:05	E-mails are sent with observation requests

3. Access to the DTS

Access to the DTS is for registered users only. For further information contact the project team (contact information is provided in Section 12).

To log in to your account go to <http://www.ecmwf.int/login/> and enter your login and password. You will then be able to view the DTS.

Links are provided from the DTS web page:

http://www.ecmwf.int/research/EU_projects/PREVIEW/DTS/index.html

The use of the DTS is described in the following sections. Direct links to the different components are also given in the relevant section.

Depending on your access level you may also be able to submit case proposals and comment on the cases.

4. Display of forecast products

The first step in the process of targeting observations is the event selection i.e. the identification of a potential significant weather event for which it might be important to improve the forecast. The DTS contains a selection of forecast products to help the

forecaster in this particular task. The forecast display webpage (Figure 2) includes products from both the deterministic and ensemble ECMWF forecast models as well as products from Met Office Global and Regional Ensemble Prediction System (table II) and can be accessed from:

<http://www.ecmwf.int/products/forecasts/d/charts/preview/>

The forecast products displayed are generated from the most recent analysis (00UTC run) and cover the range 60 to 120 hours with a 12-hour time interval.

There is also a collection of charts from Meteo-France deterministic forecast model Arpege (Figure 3) available; the link is provided from DTS web page. The forecast products displayed include the following charts: Temperature and Geopotential at 500hPa; MSLP and Total Precipitation; MSLP and 1.5 PVU isotachs; MSLP and 850hPa wet-bulb potential temperature. They are generated from the most recent analysis (00UTC run) and cover the range 60 to 96 hours with a 12-hour time interval.

The decision on which weather event should be selected for targeting is one of the main issues in the process. Forecast of events with potentially large societal impact are prime candidates to be selected especially if there is substantial uncertainty in these forecasts. However, cases of large uncertainty even if not associated with severe weather condition might be important because wrong forecasts of less extreme conditions may still have a considerable economic impact. So, the selection of events can be prioritised by following the criteria:

1. Severe life threatening weather with large degree of associated uncertainty;
2. High uncertainty in the forecast but less severe weather conditions;
3. Severe weather conditions with low uncertainty in the forecast.

The probabilistic forecast based on an ensemble can serve as a guide in the case selection.

The event should be identified by its time (**verification time, VT**), location (**verification area, VA**) and the parameter that is under scrutiny (i.e. heavy precipitation, high low level winds). In addition to identifying the verification region and time, users must also decide on the **targeting time** (i.e. the time at which the observations need to be deployed, **TT**). The choice of TT tends to be governed by the availability of observations and the minimum time needed to inform and prepare the observation platforms.

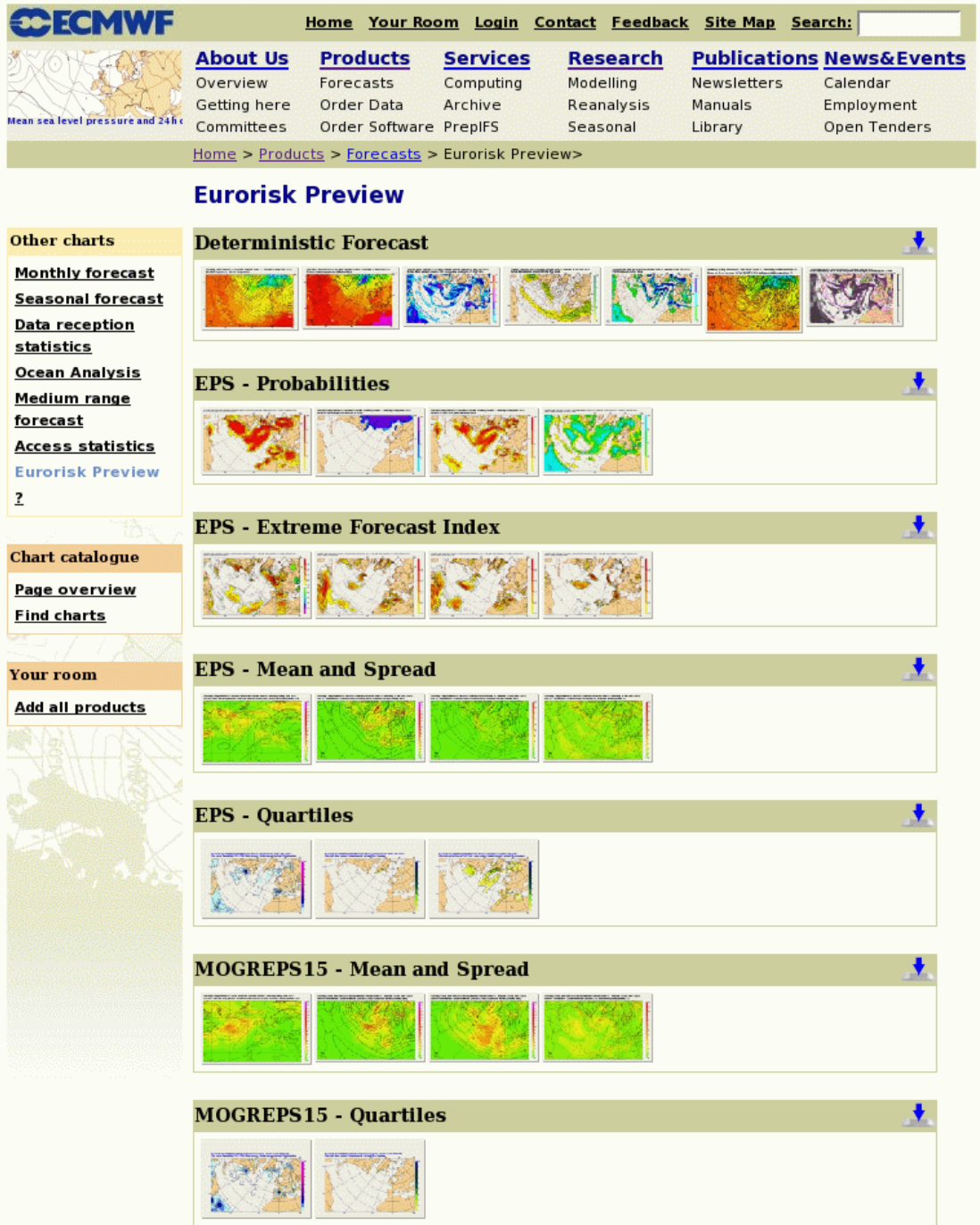


Figure 2 - The forecast display main webpage of Eurorisk Preview Data Targeting System

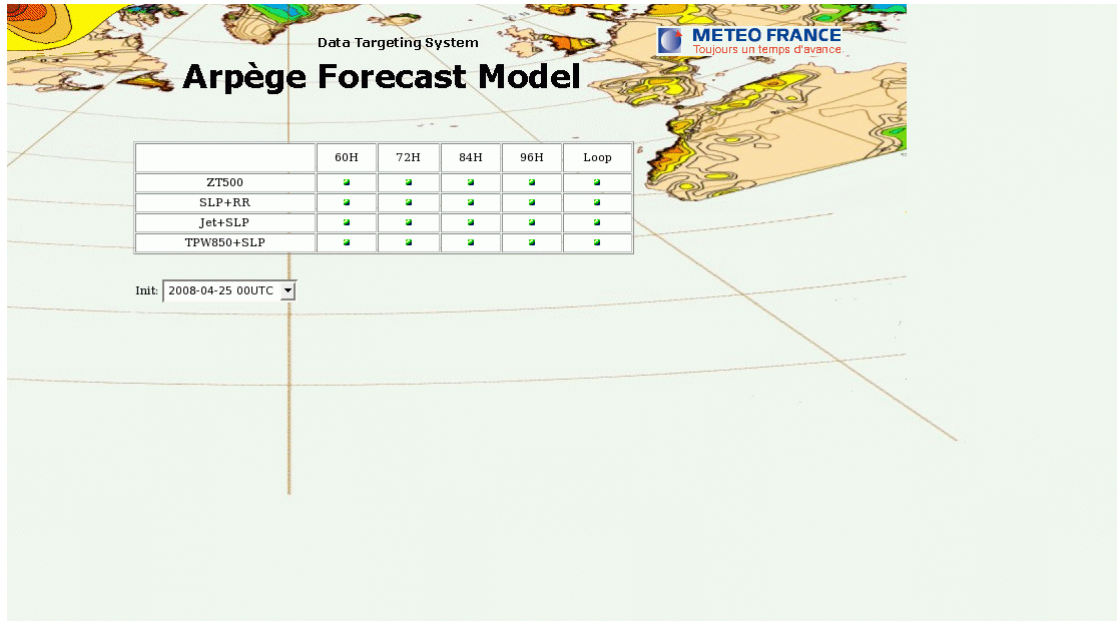


Figure 3 - The main webpage of Arpege forecast products available on Eurorisk Preview Data Targeting System

Table II - Forecast products

Display of ECMWF forecast products:
<p>Deterministic Products :</p> <p>T850 and Z500 T2m&30m wind MSLP& Total Precipitation MSLP& 200hPa wind speed 700hPa RH & Horizontal Wind 850hPa RH & Horizontal Wind MSLP and 850hPa wet-bulb potential temperature 850hPa RH and vertical velocity 700hPa RH and vertical velocity</p>
<p>Ensemble Prediction System:</p> <p>Probability charts</p> <p>10m wind gust probability above 15m/s 10m win gust probability above 25m/s 10m wind speed probability above 10 m/s 10m wind speed probability above 15 m/s</p>

Extreme Index Forecast Charts

T2m
10m wind speed
10m wind gust
precipitation

Ensemble Mean and Spread Charts

MSLP
500 hPa Geopotential
200 hPa Geopotential
850 hPa Temperature

Ensemble Quartiles Charts

Total Precipitation
10m wind speed
10m wind gust

Display of UKMO forecast products:

MOGREPS 15:**Ensemble Mean and Spread Charts**

MSLP
500 hPa Geopotential
200 hPa Geopotential
850 hPa Temperature

Ensemble Quartiles Charts

Total Precipitation
10m wind speed

5. Case proposal

After the identification of a potential significant weather event the next step in the targeting procedure is the request of sensitive area prediction. The DTS main webpage:

<http://www.ecmwf.int/products/preview/d/showcase>

provides an online form designed to enable users to select geographic areas over which the forecast event will occur (in the range $t+60$ to 120 hours) and propose a potential SAP (see Figure 4). After being submitted the case proposal will be recorded and displayed on the web page and accessible to every user. Other users can comment on proposed cases. The lead user should review all proposed cases and decide which ones should result in an SAP request.

5.1. Propose a case (09:00-10:00)

1. Start the case proposal by selecting the VT either by clicking on the date above the chart or choosing the date on the VT box.
2. Click on the chart over the verification region of interest. The box (fixed area) can be dragged with the mouse.
3. Choose the TT by selecting from the TT box below the VT one (under the chart).
4. Write a justification for the case in the case description box.
5. Complete the proposal by clicking on Submit button.

The case will appear on the list of proposed cases on the left-hand side of the page. A case name will automatically be assigned - the first proposed case will be U1.yyyymmddhh (yyymmddhh is the VT). The status of the case is indicated by the first letter: U (unknown) and later A (accepted) or D (discarded) depending on the choice made by the lead user.

5.2. View and comment on a case (09:00-10:00)

Click on one of the “proposed cases” list on the left-hand side of the page. Enter any comment on the form below the chart and click submit.

5.3. Case evaluation (lead user only; 10:00-10:30)

The lead user has to edit all the proposed cases and change their status from unknown to either accepted or discarded. Accepted cases will be submitted for SAP; discarded cases will not. This decision must be justified in the comment box.

Click on case evaluation under Administration menu on the left-hand side of the page. This will bring up the case evaluation page. The list of proposed cases will be shown on the left side of this page. Click on each case in turn and select the status, give a justification and submit.

Check the status of the case by looking at the case name in the menu on the LHS of the page. The first letter will have changed from U to A or D (see comments under 5.1).

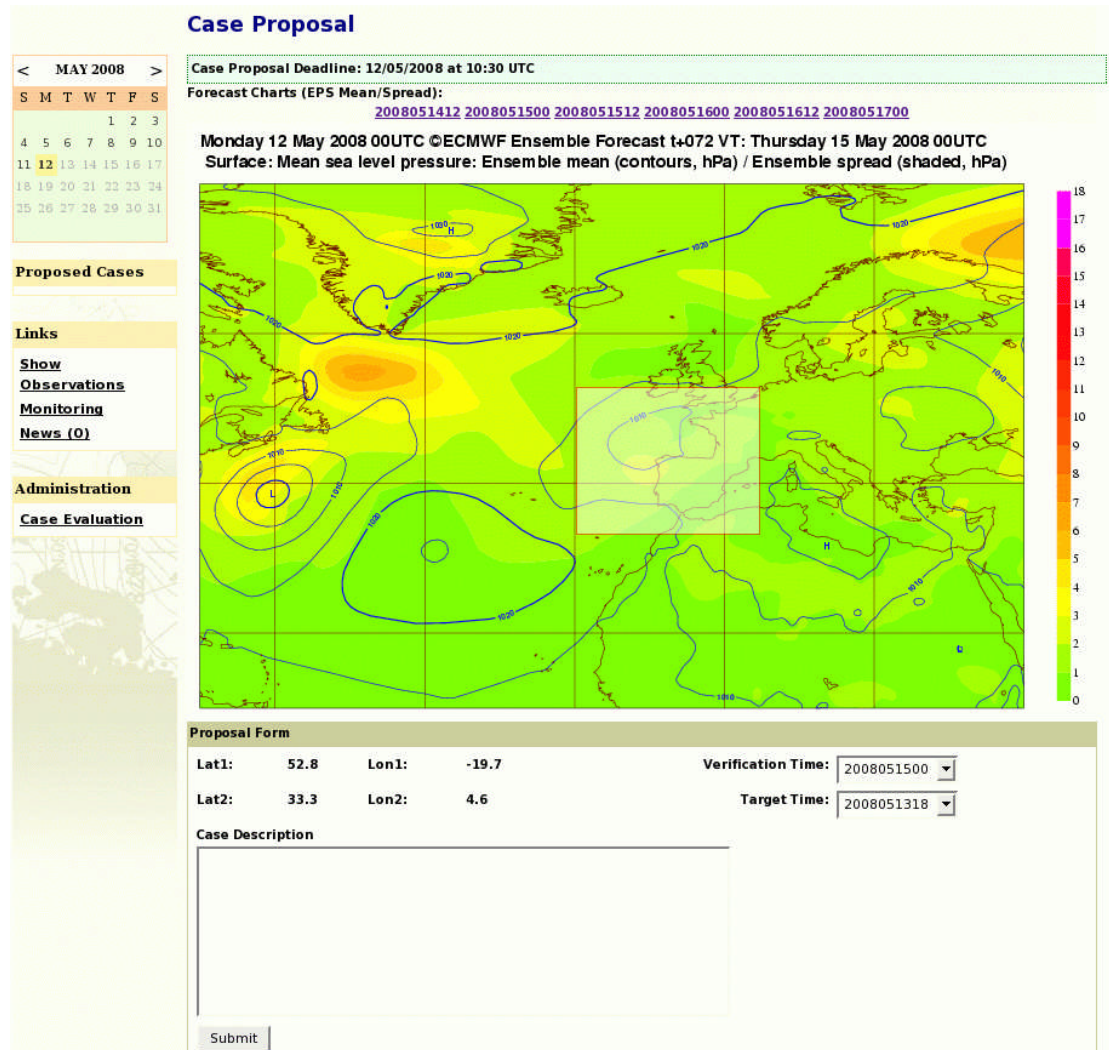


Figure 4 - DTS main page contains an online form that enables the user to select a particular area where potential significant weather events are forecasted to occur in the range t+60 to 120 hours and propose a potential SAP request.

6. Sensitive Area Prediction requests

Sensitive area prediction requests are automatically submitted for all accepted cases. The several available mathematical methods to determine the sensitive areas are either adjoint based (singular vectors (SV) and adjoint sensitivities) or are based on linear diagnosis of ensemble forecasts (e.g. Ensemble Transform Kalman Filter; ETKF). In

DTS, results obtained from both types are available; ECMWF is providing SAPs based on SV method, UKMO and Meteo-France provide SAPs based on ETKF method.

The ECMWF sensitive area predictions use singular vectors (Buizza and Montani, 1999) to depict the sensitivity of the forecast to the initial conditions at a future time by assimilating routine and supplementary observations. The computation of the singular vectors uses the ECMWF model and its tangent-linear and adjoint versions. The model is global and spectral with horizontal resolution T95 (~200km) and 62 hybrid levels. The target area is defined as the region where weighted average of the vertically integrated total energy of the first 10 SV exceeds a certain threshold value. Different sizes are obtained by choosing an appropriate threshold. In DTS sensitive areas of sizes 8, 4, 2 and 1×10^6 km² are computed (those regions are centred on locations of maximum SV amplitude). The optimal region to place additional observations is obviously linked to the region where the singular vectors have the largest amplitude at initial time. An example is shown in Figure 5 where increased sensitivity (from larger to small areas) is indicated by darker shading. Since TESVs are based on a dynamical approximation, the maxima are generally associated with mid-latitude baroclinic zones. The ECMWF SAPs are plotted in DTS overlaid with three different ECMWF forecast fields, mean sea level pressure (msl), temperature at 850hPa (t850) and geopotential at 500hPa.

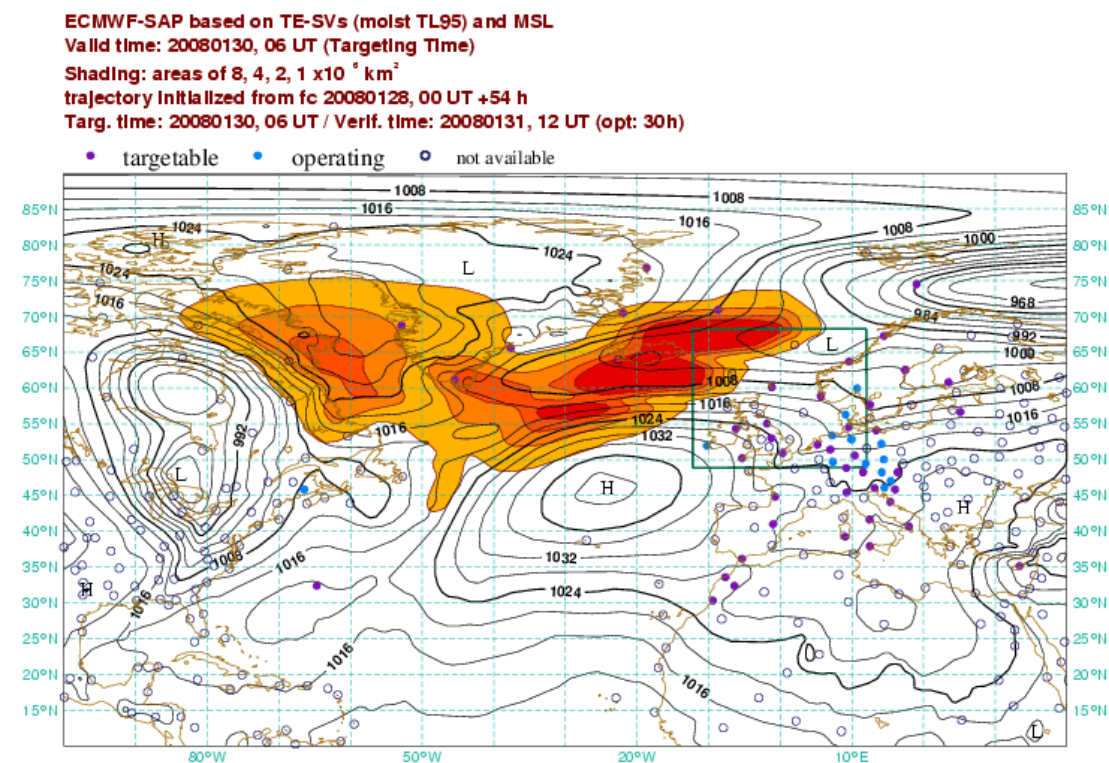


Figure 5 The sensitive areas predicted by TESV for additional observations on 30 January 2008 to improve forecasts in the region enclosed by the green contour and verifying at 12UTC on 31 January. Sensitive areas of sizes 8, 4, 2 and 1×10^6 km² are shaded; contours of MSLP are plotted every 4 hPa.

The ensemble transform Kalman Filter or ETKF (Bishop et al., 2001) combines error covariance information from ensemble forecasts with error statistics associated with the routine and targeted observation networks to predict the reduction in forecast error variance within a predefined forecast verification region.

ETKF sensitive areas are often found to be in regions in which strong zonal winds are expected, particularly at mid-tropospheric levels in areas near the jet stream. Sensitive regions are also associated with areas of large mid-tropospheric baroclinic instability, through the Eady index, and low to mid-level baroclinic regions due to the frequent spatial correlation with the horizontal temperature gradient (Peterson et al, 2007). The ETKF sensitive regions also tend to be associated with relatively low ensemble spread which amplifies into the verification region.

The ETKF calculations produced by UKMO uses MOGREPS15 ensemble forecast outputs (horizontal resolution 90km) and a total energy norm. The summary map is the vertical average of the total energy signal variance at 850, 500 and 200 hPa within the verification region produced assuming hypothetical targeted observations at the same three levels vertically aligned. Similarly to ECMWF maps, sensitive areas of sizes 8, 4, 2 and $1 \times 10^6 \text{ km}^2$ are plotted for ETKF results overlaid with three different MOGREPS15 forecast fields from control forecast run, mean sea level pressure (mslp), temperature at 850hPa (t850) and geopotential at 500hPa (see example in Figure 6).

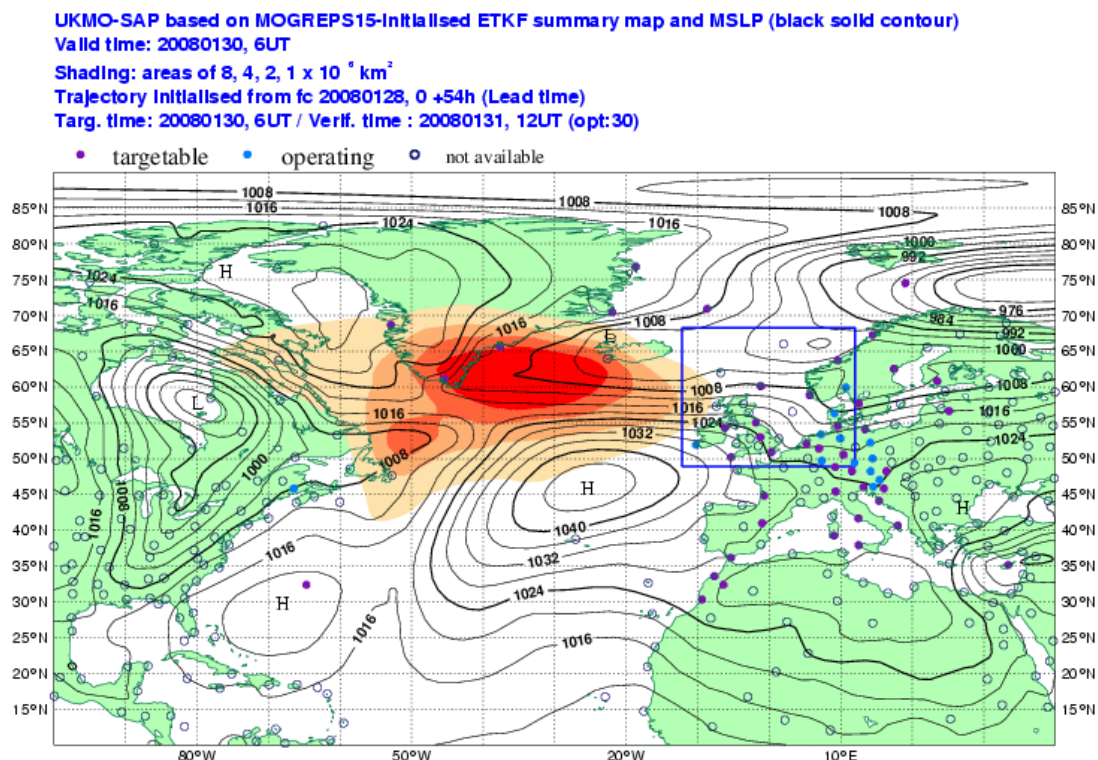


Figure 6 The sensitive areas predicted by ETKF based on MOGREPS15 for additional observations at 06UTC on 30 January 2008 to improve forecasts in the region enclosed by the blue contour and verifying at 12UTC on 31 January. Sensitive areas of sizes 8, 4, 2 and $1 \times 10^6 \text{ km}^2$ are shaded; contours of MSLP are plotted every 4 hPa.

The ETKF calculations produced by Météo-France are based on the 11 members of the PEARP ensemble (56 vertical levels, horizontal resolution between 23 km over Western Europe and about 150 km over Pacific) and a total energy norm. The summary map is the vertical average of the total energy signal variance at 850, 500 and 200 hPa within the verification region produced assuming hypothetical targeted observations at the same three levels vertically aligned. Similarly to ECMWF maps, sensitive areas of sizes 8, 4, 2 and 1×10^6 km² are plotted for ETKF results overlaid with three different PEARP forecast fields from control forecast run, mean sea level pressure (mslp), temperature at 850hPa (t850) and geopotential at 500hPa (see example in Figure 7) .

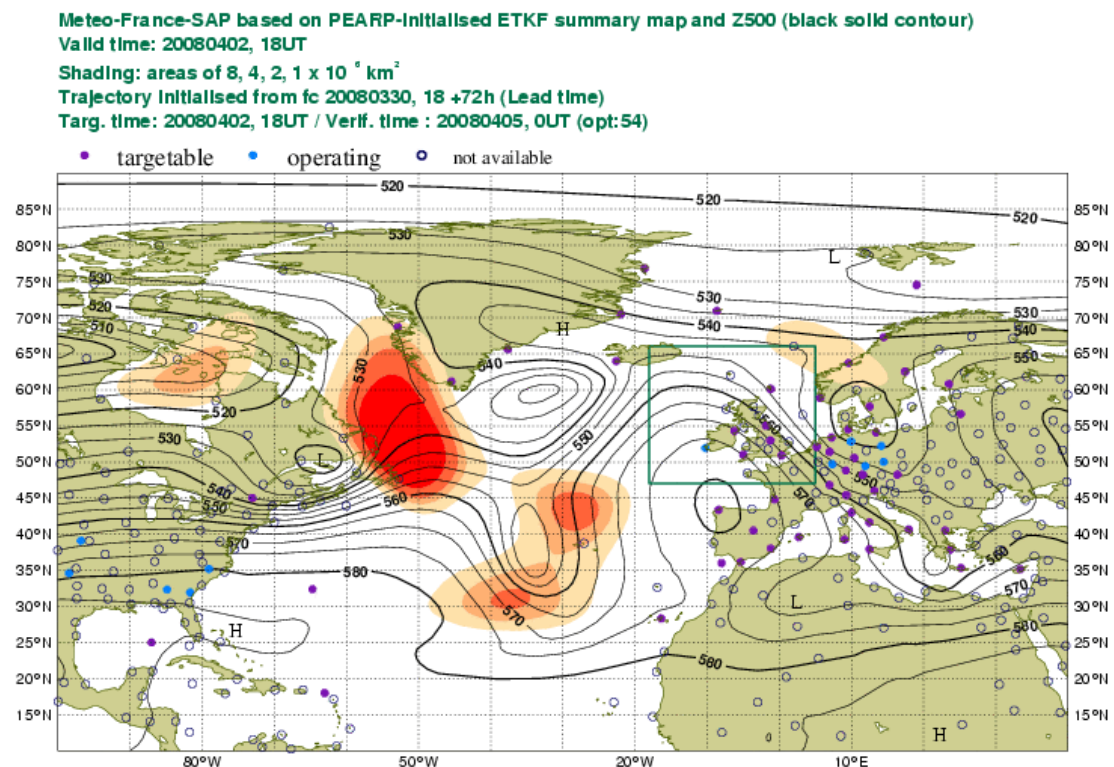


Figure 7 - The sensitive areas predicted by ETKF based on PEARP for additional observations at 18UTC on 02 April 2008 to improve forecasts in the region enclosed by the green contour and verifying at 00 UTC on 5 April. Sensitive areas of sizes 8, 4, 2 and 1×10^6 km² are shaded; contours of Z500 are plotted every 50 gpm.

7. Extra Observation Proposal

Once the sensitive area predictions are generated, they are displayed on DTS superimposed with available observational resources (Figure 5, 6 and 7). Targeted observations in DTS comprise additional radiosonde ascents, routed Aircraft Meteorological Data Reporting (AMDAR) aircraft and Automatic Shipboard Aerological Program (ASAP) ships.

The aim of this page is to allow the lead user to ask for additional observations based on the SAP results for each of the accepted cases. This page provides an online form which enables the lead user to suggest areas where extra observations should be requested accordingly to the availability of the observations (Figure 8). After being submitted the suggestions will be recorded and displayed on the web page and accessible to every user. In contrast to the case proposals, only the lead user can make observation proposals; however, other users may comment on the lead user suggestions.

The lead user has to review the comment suggestions and finalise the observation selection. The system will automatically generate and send emails to the observation providers.

This page can be accessed on:

<http://www.ecmwf.int/products/preview/d/showobs>

or by clicking on show observations on the case proposal page.

A list of the cases selected for SAP will be shown on the LHS. Click on a case to display the SAP result.

7.1. Propose an area for additional observations (lead user only 12:00-13:30)

Click on a case to display the SAP result (list on LHS of page).

1. Select an area for additional observations by clicking on the chart. A box will be displayed. This can be dragged and stretched to cover the required area.
2. The stations and ASAP ships available for extra observations in the selected region (purple bullets) will be listed in the box below. All 'targetable' stations and ships in the area will be automatically selected. The request of AMDAR observations for the selected area is by default considered and listed in the box as well. Edit the list in the box to deselect any individual station, ship or AMDAR.
3. Add a comment in the text box to justify the proposal.
4. Click submit

The suggestion will be displayed below Proposed Extra Observations on LHS of page.

NB Ships' positions plotted in the map correspond to the positions for the current day rather than forecasted positions for the TT. So lead user must be aware that what is displayed is a rough indication of 'targetable' ASAP ship.

By repeating the above steps, you can make more than one proposal for each case. This allows you to have more than one area for additional observations for the same case. The DTS will take care of any overlap in requests for observations.

Repeat the procedure for each case for which SAPs were requested. Again, the DTS will take care of any overlap in requests for observations between different cases.

7.2. Comment on proposed additional observations (12:05-14:00)

1. Click on a case to display the SAP result (list on LHS of page under Accepted Cases).
2. Look under Proposed Extra Observations on LHS. If the lead user has made any proposals for observations for this case, they will be listed here (there may be more than one if the lead user thinks that observations in different areas may be needed). Click on one of the list. NB if the lead user has not made any proposal, this list will be empty - there is nothing for the user to do.
5. Add a comment in the text box to below the chart.
6. Click submit

7.3. Observation evaluation - lead user (14:00)

The lead user must evaluate each proposal for extra observations and change their status from unknown to either accepted or discarded according to whether he wants to validate the request for additional observation or not. This decision must be justified in the comment box.

1. Click on each accepted case (list on LHS of page under Accepted Cases).
2. Go through the list of Proposed Extra Observations (underneath Accepted Cases on LHS)
3. Select accepted or discarded
4. Add justification in the text box.
5. Click submit

The status of the proposed observations will change from U to A or D depending on your choice to accept or discard. Look at the list on the LHS to check this status (see comments under 5.1).

Repeat for all Proposed Extra Observations and all Accepted Cases.

	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15
16	17	18	19
20	21	22	23
24	25	26	27
28	29	30	31

ukmo	msl	z500	t850
meteo-france	msl	z500	t850
ecmwf	msl	z500	t850

ECMWF-SAP based on TE-SVs (moist TL95) and MSL
Valid time: 20080514, 06 UT (Targeting Time)
Shading: areas of 8, 4, 2, 1 x10⁶ km²
trajectory initialized from fc 20080512, 00 UT +54 h
Targ. time: 20080514, 06 UT / Verif. time: 20080515, 12 UT (opt: 30h)

Accepted Cases

A.581.2008051512

Proposed Extra Observations

Links

Show Cases
Monitoring
News (0)

Administration

Observation Evaluation

Proposal Form

Lat1:	52.6	Lon1:	-39.2	Verification Time: 2008051512
Lat2:	27.5	Lon2:	0.9	Target Time: 2008051406

Observation List:

03882	50.9	0.32
07510	44.83	-0.68
08001	43.37	-8.42
08221	40.5	-3.58
08508	38.73	-27.07
08522	32.63	-16.9
08579	38.77	-9.13
60018	28.32	-16.38
ASEU03	42	-37

Extra Observation Description:

Observations excluded from the list:

60018	28.32	-16.38
08430	38	-1.17
08495	36.15	-5.35

Figure 8 Extra observation proposal main page.

8. Observation request

The DTS automatically generates and sends emails to providers according to the observation requests accepted by the lead user. A minimum of 24h notice is required for deployment of additional observations by most of the providers participating in DTS. The system issues the e-mails at 14:05UTC and the closest target time is 18UTC next day (so, roughly 28h minimum). The e-mails will request observations from three different systems participating in the PREVIEW data targeting activity: radiosonde operated by the National Meteorological Services, ASAP Ships operated by EUMETNET-ASAP Programme and AMDAR aircraft operated by EUMETNET-AMDAR Programme. One example for each type of provider is displayed in Figure 9 and 10.

<p>Station</p> <p>Subject: DTS Observation request - station ID – Obs. Date/Time Subject: DTS Observation request - 26435 - 23/01/2008, 18 UTC</p> <p>Dear Sir/Madam,</p> <p>Please find attached the extra observation request as part of the Data Targeting Project.</p> <p>Extra Observation Request based on 22/01/2008, 00 UTC run</p> <p>E-mailed to = provider_email_contact CC-ed to = moh@ecmwf.int, Station ID = 26435 Requested Date and Time = 23/01/2008, 18 UTC</p> <p>Data Targeting Project is a research project to improve NWP models by introducing extra observations on sensitive areas. It is jointly funded by EUCOS and the EU and is being developed and managed by ECMWF and the Met Office.</p> <p>Project Website: www.ecmwf.int</p> <p>For project related queries and questions, please contact: Stewart Turner, UKMO, stewart.turner@metoffice.gov.uk, David Richardson, ECMWF, david.richardson@ecmwf.int</p> <p>For technical queries and questions, please contact: ECMWF DTS Team, ECMWF, dts@ecmwf.int Doug Mansfield, UKMO, doug.mansfield@metoffice.gov.uk,</p> <p>----- Best Regards, DTS Team</p>	<p>ASAP-ship</p> <p>Subject: DTS-Sounding Request-ship_id Subject: DTS-Sounding Request-ASEU02</p> <p>Dear Sir/Madam,</p> <p>This is an automatic generated message. According to the numerical weather prediction models you are sailing in an area which some extra observations might be more important. Therefore we would appreciate it very much if you could perform the following additional launches (starting time 85-80 min earlier as usual).</p> <p>Requested Date and Time = 23/01/2008, 18 UTC</p> <p>Data Targeting Project is a research project to improve NWP models by introducing extra observations on sensitive areas. It is jointly funded by EUCOS and the EU and is being developed and managed by ECMWF and the Met Office.</p> <p>Project Website: www.ecmwf.int</p> <p>For project related queries and questions, please contact: Stewart Turner, UKMO, stewart.turner@metoffice.gov.uk, David Richardson, ECMWF, david.richardson@ecmwf.int</p> <p>For technical queries and questions, please contact: ECMWF DTS Team, ECMWF, dts@ecmwf.int Doug Mansfield, UKMO, doug.mansfield@metoffice.gov.uk,</p> <p>----- Best Regards, DTS Team</p>
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Figure 9 E-mail examples to request a particular observation to a station (left) and to a ASAP-ship (right).

<p>AMDAR</p> <p>Subject: DTS Observation request - AMDAR - Date and Time Subject: DTS Observation request - AMDAR - 23/01/2008, 18 UTC</p> <p>Dear Sir/Madam,</p> <p>Please find attached the extra observation request as part of the Data Targeting Project.</p> <p>Extra Observation Request based on 22/01/2008, 00 UTC run</p> <p>E-mailed to = provider_email_contact CC-ed to = moh@ecmwf.int, Station ID = AMDAR Requested Date and Time = 23/01/2008, 18 UTC Requested Area (AMDAR) = Top Left (Lat/Lon) :72.9/-49 Bottom Right (Lat/Lon) :52/-34.4</p> <p>Data Targeting Project is a research project to improve NWP models by introducing extra observations on sensitive areas. It is jointly funded by EUCOS and the EU and is being developed and managed by ECMWF and the Met Office.</p> <p>Project Website: www.ecmwf.int</p> <p>For project related queries and questions, please contact: Stewart Turner, UKMO, stewart.turner@metoffice.gov.uk, David Richardson, ECMWF, david.richardson@ecmwf.int</p> <p>For technical queries and questions, please contact: ECMWF DTS Team, ECMWF, dts@ecmwf.int Doug Mansfield, UKMO, doug.mansfield@metoffice.gov.uk,</p> <p>----- Best Regards, DTS Team</p>
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Figure 10 E-mail example of an AMDAR observation request.

9. Extra Observation Monitoring

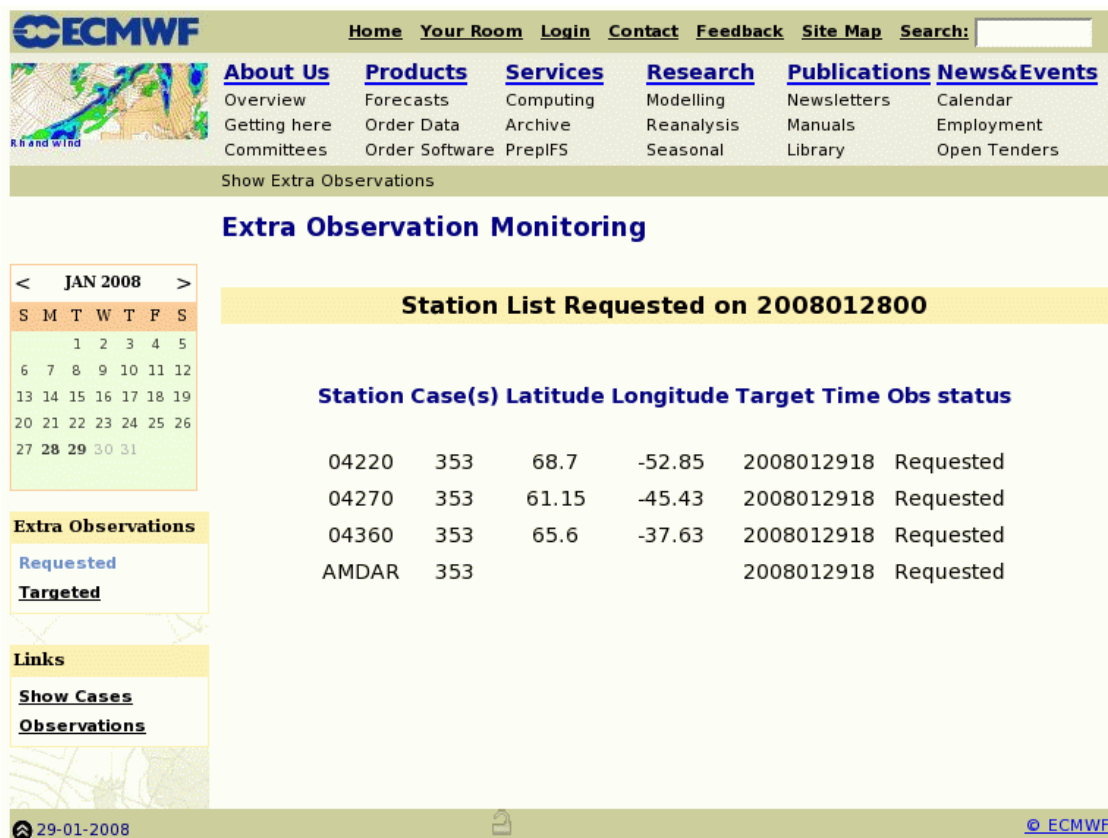
The DTS provides information on a daily basis about the additional observations requested by the system (Figure 11). The requested observations are listed and information about station id, case number (case from where the request was originally triggered), station's latitude and longitude, target time (i.e. time when the observations are to be deployed) and observation status (e.g. requested) is provided. This can be accessed on:

<http://www.ecmwf.int/products/preview/d/obsmon>

or by clicking on **monitoring** under links on the case proposal page.

On this page you can find the information about the observations requested on a particular day (click on **requested** on LHS of page) - by default is the current day but you can navigate on the calendar - and about the observations requested to be deployed for that same day (click on **targeted** on LHS of page).

The monitoring information will be updated every morning to show if requested observations have been made. The status of each observation that was requested for the previous day will be changed from "requested" to "deployed" or "not deployed".



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Show Extra Observations

Extra Observation Monitoring

< JAN 2008 >

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Extra Observations

[Requested](#)

[Targeted](#)

Links

[Show Cases](#)

[Observations](#)

29-01-2008 © ECMWF

Station List Requested on 2008012800

Station	Case(s)	Latitude	Longitude	Target Time	Obs status
04220	353	68.7	-52.85	2008012918	Requested
04270	353	61.15	-45.43	2008012918	Requested
04360	353	65.6	-37.63	2008012918	Requested
AMDAR	353			2008012918	Requested

Figure 11 - Observation Monitoring main page.

10. DTS Archive

The DTS archives all the data to provide a complete trace of each event in which target observations were considered, even if not requested. The information archived on a daily basis includes: case suggestions, comments on cases, case evaluation, SAP requests, observation availability, lead-user extra observation suggestions, user's comments, as well as extra observation requests. All this information is archived in DTS database (DTS DB) and available on the web. The only information that is kept just for 5 days are the forecast charts. The guidance plots of TESV and ETKF that results from the SAP request are also archived in DTS DB and available on the web; the corresponding grib files are archived in ECMWF operational archive MARS (<http://www.ecmwf.int/services/archive/d/catalog/class=dt/stream=seap/expver=14/>).

11. DTS News Facility

There is available a News tool to facilitate the communication among the users and particularly between the lead-user and the rest of users. The DTS News facility can be accessed from:

<http://www.ecmwf.int/products/preview/d/dtsnews/>

or from the links menu on the LHS of the DTS pages.

To use it click "Enter News" (see Figure 12).

There are 4 different categories: two labelled as "Announcement" ("technical" or "general") can only be edited by lead user or by ECMWF DTS team; the other two "ordinary" categories ("technical" and "meteorological" to be used according to the subject) are available to all users.

The two pairs of categories are treated differently. "Ordinary" news items are displayed only on the day they are posted. Old news items can be seen if you click on previous days on the calendar.

"Announcements" are shown for the next 7 days (i.e. if an announcement is issued today, then that message will appear in the news window tomorrow, the next day and so on).

The most recent news item will appear at the top of the page, older news will be shown underneath.

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DTS News

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Today's News

From: dts_meto3, 08/05/2008 at 10:19 UTC
Subject: Outlook
Category: Meteorological
Text: Heavy rain is beginning to develop across Spain as the upper trough edges east from the Atlantic. The rain is forecast to intensify across the Cataluna area of northwest Spain over the next two days with the risk of totals in excess of 100m in less than 24hrs. This was the subject of case proposals 574, 575 and 576 yesterday with at total of 28 land sondes and 6 ASAP ascents requested for 18UTC today and 06UTC tomorrow.
 There is doubt as to the extent to which the very heavy rainfall will continue through Saturday and extend north into the Perpignan region of southern France. EC deterministic run (80mm in 18hrs) and EPS (25% probability of 75-120mm in 24hrs) have stronger signal for this than yesterday as has the GFS (65mm/12hrs at Perpignan), but the MOGREPS ensemble still keeps the rain south of the Pyrenees. This uncertainty is the subject of Case proposal 577 today.
 The blocking high will maintain settled weather over much of Central and northwestern Europe through the weekend and early next week. A trough extending south across the northeast of Europe will bring some wind and rain there but not sever weather. The trough over Iberia will disrupt forming a cut off vortex which will remain slow moving over the western Mediterranean maintaining unsettled weather over southwest Europe. The rain after Saturday, though heavy in places, does not look extreme at present but will need to be watched over the next few days.

08-05-2008

Figure 12 - DTS News main page.

12. DTS relevant contacts

Project Website page:

http://www.ecmwf.int/research/EU_projects/PREVIEW/DTS/index.html

For project related queries and questions:

Stewart Turner, UKMO , stewart.turner@metoffice.gov.uk,
 David Richardson, ECMWF, david.richardson@ecmwf.int

For technical queries and questions:

ECMWF DTS Team, ECMWF, dts@ecmwf.int
 Doug Mansfield, UKMO, doug.mansfield@metoffice.gov.uk,

13. Glossy of Terms

AMDAR	Aircraft Meteorological Data Relay (wind speed and air temperature data from commercial aircraft)
ARPEGE	Action de Recherche Petite Echelle Grande Echelle - Meteo-France Numerical Weather Prediction Global Model
ASAP	Automatic Shipboard Aerological Programme (a EUMETNET programme established to provide radiosonde ascents from commercial ships)
A-TReC	Atlantic-THORPEX Regional Campaign
ETKF	Ensemble Transform Kalman Filter
DB	Data Base
DTS	Data Targeting System
LHS	Left Hand Side
MARS	Meteorological Archive Retrieval System
MOGREPS	Met Office Global and Regional Ensemble Prediction System
MSLP	Mean Sea Level Pressure
ODB	Operational Data Base
PEARP	Prevision d'Ensemble ARPege (ensemble model based on ARPEGE)
RH	Relative Humidity
SAP	Sensitive Area Prediction (a calculation of the location of the region where a more accurate understanding of the initial state of the atmosphere will benefit the quality of the target forecast over the validation region)
SV	Singular Vectors
T2m	Air Temperature at 2m
TESV	Total Energy Singular Vectors
TT	Targeting Time (the time when additional observations are to be deployed)
VA	Verification Area (the geographic region over which the forecast event will occur)

VT	Verification Time (the time at which the forecast event will occur)
Z500	Geopotential at 500hPa

14. References

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Buizza R, Montani A, 1999, Targeting observations using singular vectors, *J. Atmos. Sci.* **56** 2965-2985.

Leutbecher M., Doerenbecher A., Grazzini F., Cardinali C., 2004, Planning of adaptive observations during the Atlantic THORPEX Regional Campaign 2003, ECMWF Newsletter No. 102, winter 2004/05.

Peterson GN, Majumdar SJ, Thorpe AJ, 2007, The properties of sensitive area predictions based on the ensemble transform Kalman filter (ETKF), *Q. J. R. Meteorol. Soc.*, **133**, 697-710.