

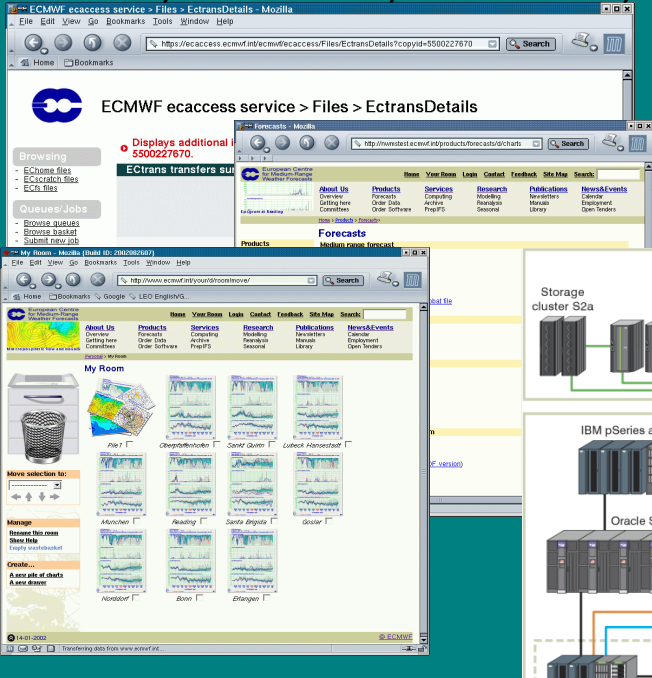
Introduction to computing resources

Paul Dando
User Support

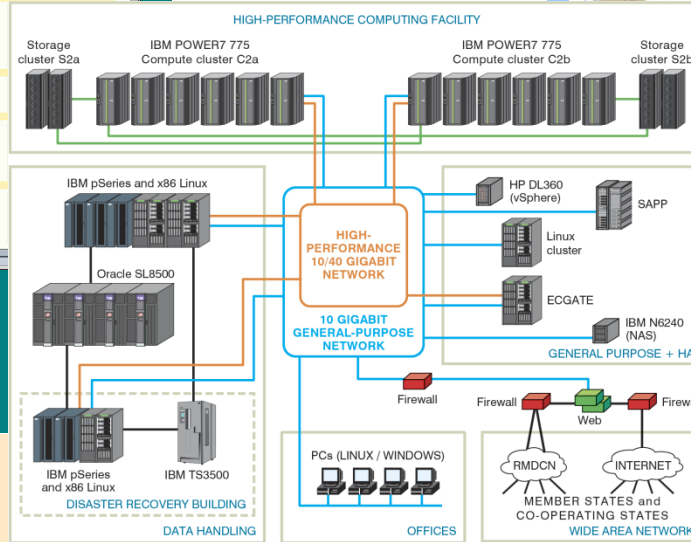
advisory@ecmwf.int

Overview

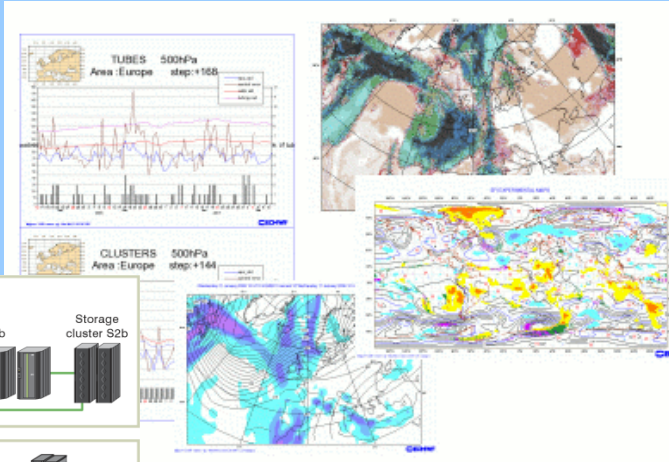
Web services
(EAccess, webMARS, Your Room,..)



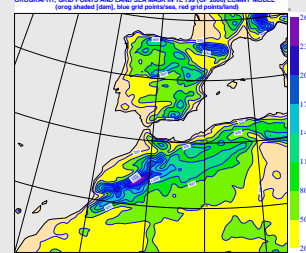
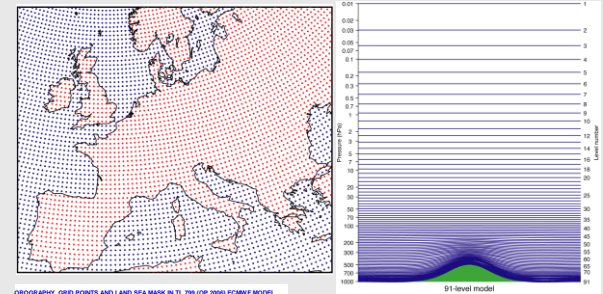
Computer facilities



Meteorological software & libraries



mars,
EMOS,
grib_api,
Metview,
Magics++,
etc.

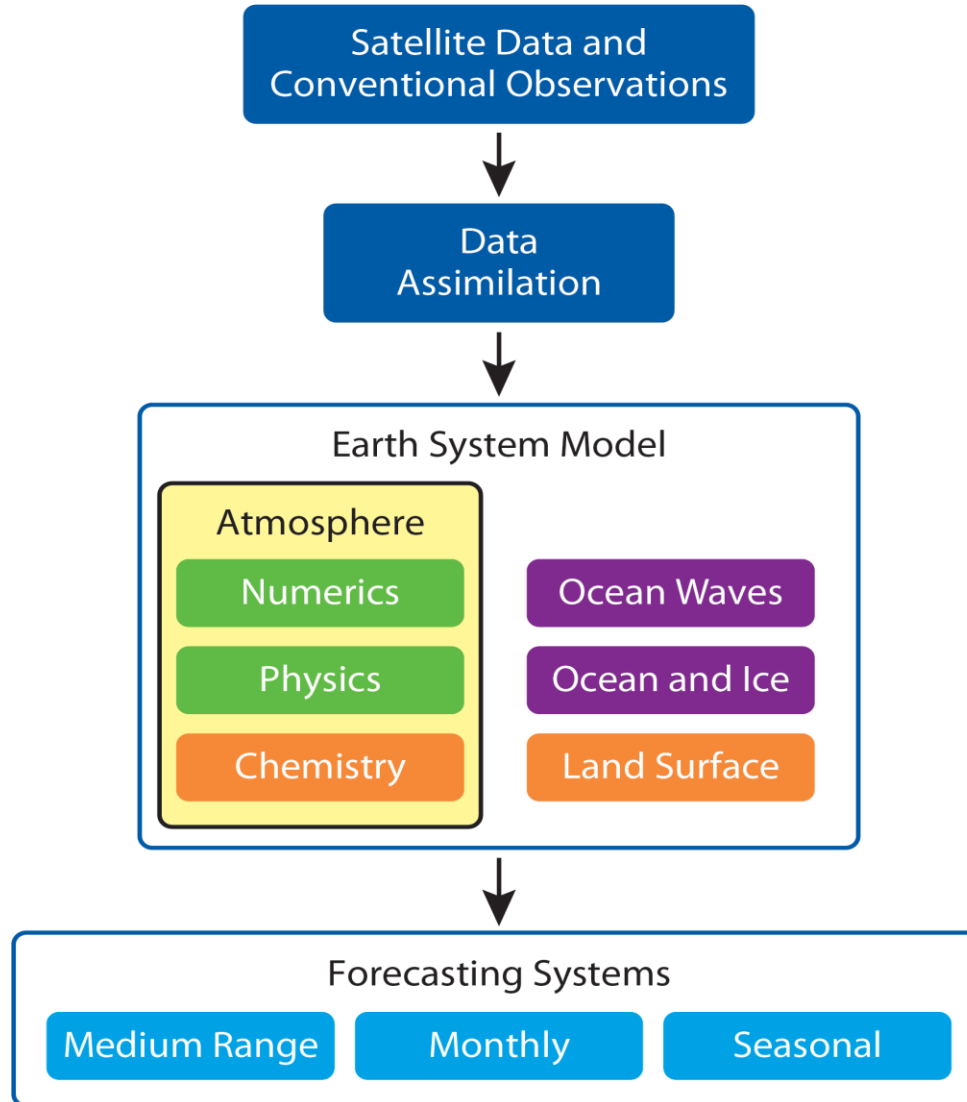


IFS model



Call Desk { Fault reporting,
Service queries
User Support { Advice on the use
of ECMWF computers

The forecast process



ECMWF main meteorological products (1/3)

- High resolution forecast and analysis (HRES, 4DVAR, EDA)
 - ~16 km resolution and 137 levels (T1279 L137)
 - Analysis at 00, 06, 12 and 18 UTC
 - Forecast to 10 days at 00 and 12 UTC
 - Availability of products: 5:35-6:55 for run at 00 UTC (17:35-18:55 for 12 UTC)
- Global ocean wave forecast and analysis (WAM HRES)
 - coupled with atmospheric model
 - Analysis at 00, 06, 12 and 18 UTC
 - Global forecast to 10 days from 00 and 12 UTC at ~28 km resolution
 - Availability of products: 5:35-6:55 for run at 00 UTC (17:35-18:55 for 12 UTC)
- European shelf (Mediterranean) limited-area wave forecasts (LAM WAM)
 - ~10 km resolution
 - Analysis plus forecast to 5 days from 00 and 12 UTC
 - Availability of products: 7:20-7:35 for run at 00 UTC (19:20-19:35 for 12 UTC)

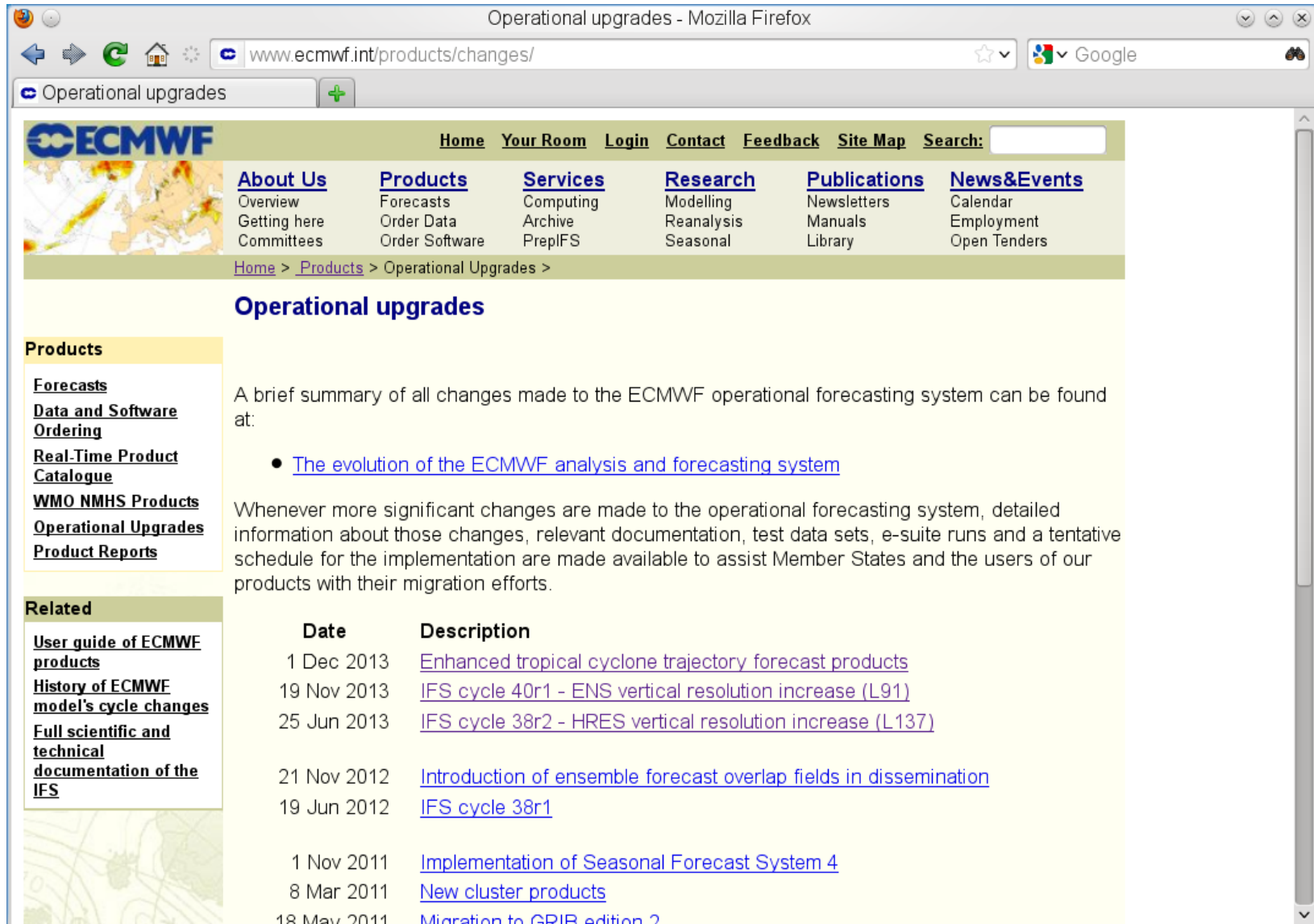
ECMWF main meteorological products (2/3)

- **Boundary conditions for Limited Area Models - Optional Programme (BC)**
 - Short cut-off forecast at ~16 km resolution (T1279 L137) at 06 and 18 UTC to 90 hours
 - 00 and 12 UTC analysis and forecast taken from the main deterministic model
 - Hourly steps up to 90 hours and *Full fields* are available
 - Availability of products: 5:40-6:08 for run at 00 UTC
- **Ensemble forecast (ENS) with 50+1 members at 00 and 12 UTC:**
 - **With ocean coupling from initial time (since 19 Nov 2013)**
 - Day 1-10 at ~32 km (T639 L91)
 - Day 11-15 at ~64 km (T319 L91)
 - Availability of products: 7:40-8:40 for run at 00 UTC
 - Extension of 00 UTC ENS to 32 days (T319 L91 from day 11) twice a week (*on Monday & Thursday*)
 - Availability of products: 22:00 UTC for real-time data, 10:00 UTC for re-forecasts

ECMWF main meteorological products (3/3)

- **Seasonal System 4 (SEAS)** – atmosphere-ocean coupled model (51 members)
 - Global forecasts from 00 UTC to 7 months: *(once a month)*
 - **atmosphere**: ~75 km resolution, 91 levels (T255 L91)
 - **ocean**: NEMO – ORCA1 grid (~1°x1° with equatorial refinement), 42 levels
 - In February, May, August and November, 15 of the 51 members are extended to 13 months
 - Re-forecasts: 15 members (0-13m) covering 30 years (1981-2010)
 - Part of the EUROSIP system, with UK Met Office, Météo France and NCEP
 - Availability of products: 12:00 on the 8th of each month
- **Monthly Means** – atmospheric and wave averaged over each calendar month
- **ECMWF Re-Analysis** (ERA-15, ERA-40, **ERA-Interim**)
 - ERA-Interim: covers 1 Jan 1979 to 31 Dec 2013

Operational upgrades – www.ecmwf.int/products/changes



Operational upgrades - Mozilla Firefox

www.ecmwf.int/products/changes/

Operational upgrades

ECMWF Home Your Room Login Contact Feedback Site Map Search:

[About Us](#) Overview Getting here Committees
[Products](#) Forecasts Order Data Order Software
[Services](#) Computing Archive PreplIFS
[Research](#) Modelling Reanalysis Seasonal
[Publications](#) Newsletters Manuals Library
[News&Events](#) Calendar Employment Open Tenders

Home > Products > Operational Upgrades >

Operational upgrades

Products

- [Forecasts](#)
- [Data and Software Ordering](#)
- [Real-Time Product Catalogue](#)
- [WMO NMHS Products](#)
- [Operational Upgrades](#)
- [Product Reports](#)

Related

- [User guide of ECMWF products](#)
- [History of ECMWF model's cycle changes](#)
- [Full scientific and technical documentation of the IFS](#)

A brief summary of all changes made to the ECMWF operational forecasting system can be found at:

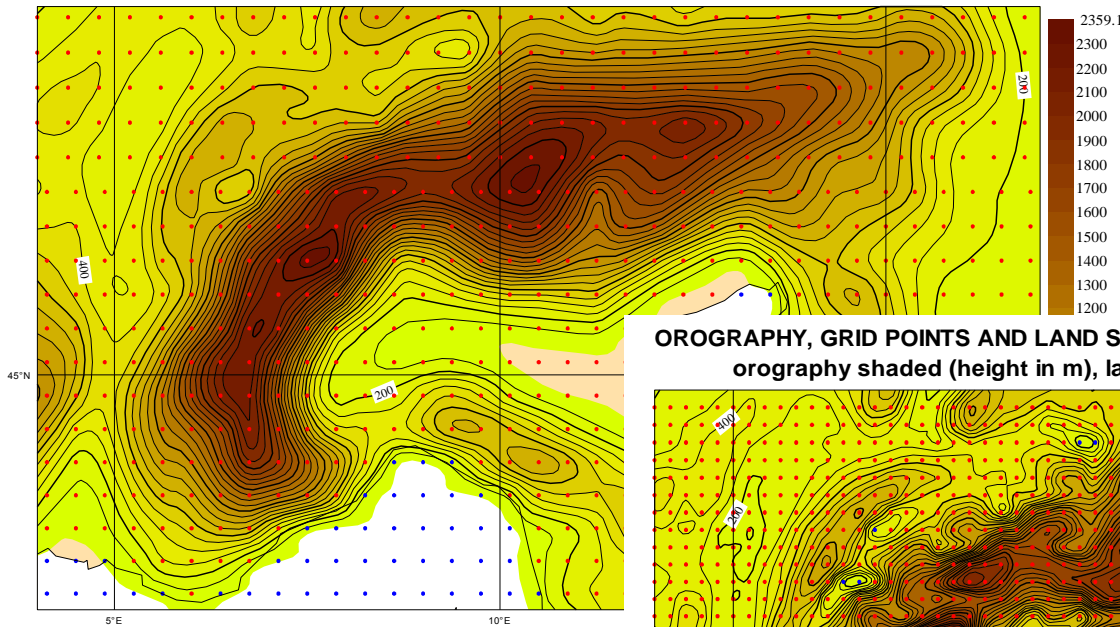
- [The evolution of the ECMWF analysis and forecasting system](#)

Whenever more significant changes are made to the operational forecasting system, detailed information about those changes, relevant documentation, test data sets, e-suite runs and a tentative schedule for the implementation are made available to assist Member States and the users of our products with their migration efforts.

Date	Description
1 Dec 2013	Enhanced tropical cyclone trajectory forecast products
19 Nov 2013	IFS cycle 40r1 - ENS vertical resolution increase (L91)
25 Jun 2013	IFS cycle 38r2 - HRES vertical resolution increase (L137)
21 Nov 2012	Introduction of ensemble forecast overlap fields in dissemination
19 Jun 2012	IFS cycle 38r1
1 Nov 2011	Implementation of Seasonal Forecast System 4
8 Mar 2011	New cluster products
18 May 2011	Migration to GRIB edition 2

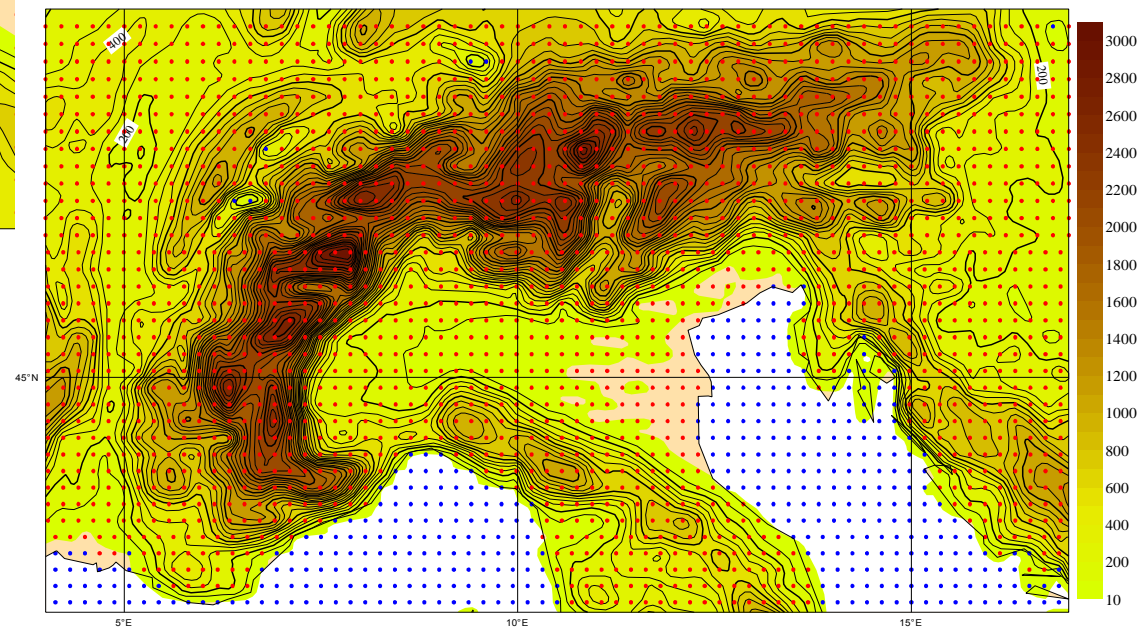
Model grids for ENS (32 km) and HRES(16 km)

OROGRAPHY, GRID POINTS AND LAND SEA MASK IN TL 639 (EPS 2010) ECMWF MODEL
orography shaded (height in m), land grid points (red), sea grid points (blue)



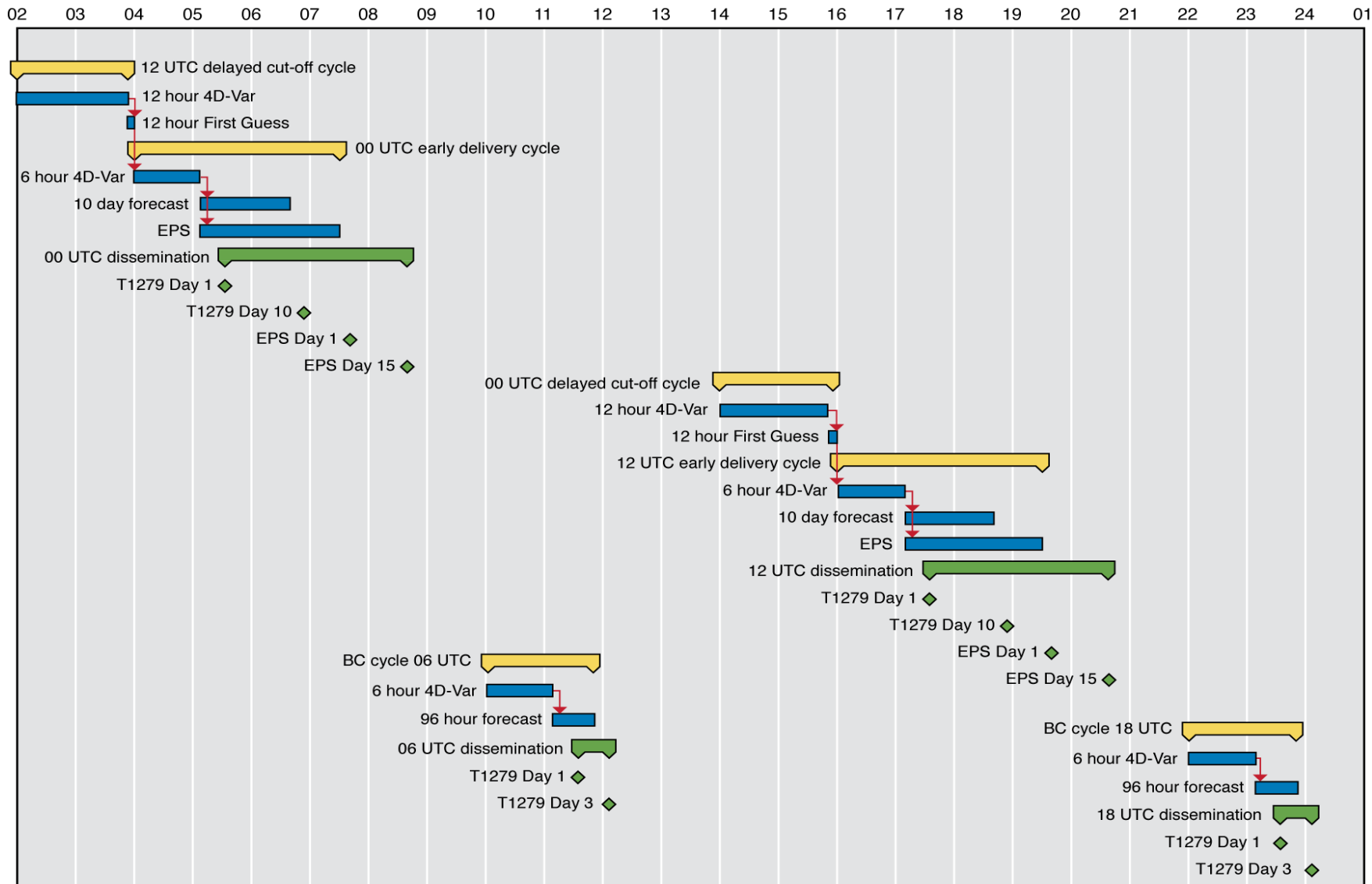
**ENS: 91 x 542,080 =
49,329,280 grid points**

OROGRAPHY, GRID POINTS AND LAND SEA MASK IN TL 1279 (OP 2010) ECMWF MODEL
orography shaded (height in m), land grid points (red), sea grid points (blue)



**HRES: 137 x 2,140,702 =
293,276,174 grid points**

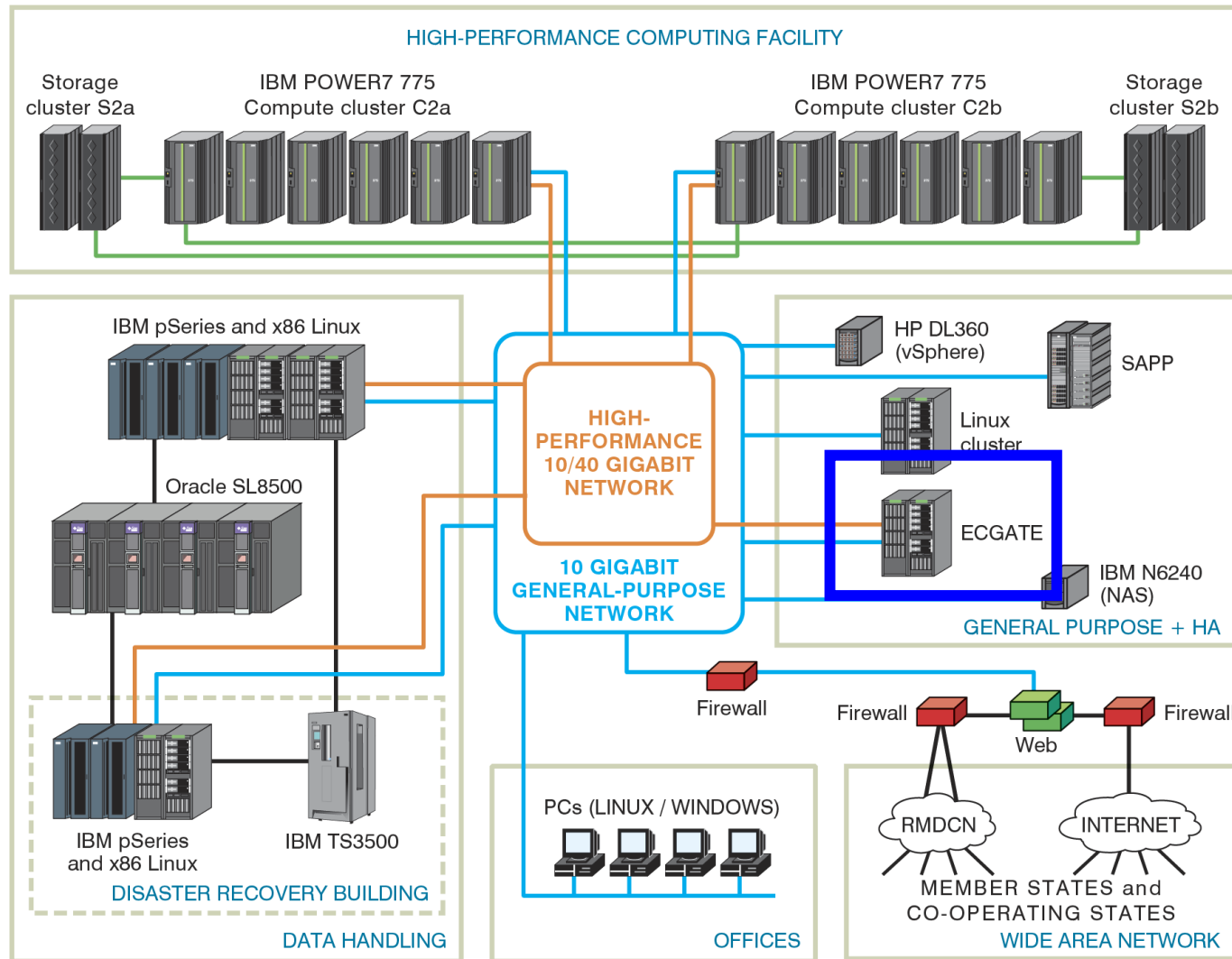
The main operational suites on ECMWF's HPCF



Computing Services

Unix server – ecgate

Web documentation: www.ecmwf.int/services/computing/ecgate/



ecgate – configuration

- 8 compute nodes each with
 - 2 Intel Xeon processors (Sandy Bridge-EP): 16 core at 2.7 GHz
 - 128 GB memory
 - 2 x 900 GB SAS HDD
- Hyper threading is used providing 32 virtual CPUs per node
- One (+one as backup) of these nodes serves as a "login" node
- RedHat Enterprise Linux Server 6.4
- 4 I/O server nodes
- 8 DS3524 with 24 x 3 x 300 GB 10k SAS HDD storage subsystem
 - provides 172.8 TB raw disk space
- Available to ~2700 users at more than 300 institutions



ecgate – file systems and user quotas

- About **130 TB** of usable disk space
 - Not all allocated as user space !
 - All file systems are GPFS (General Parallel File Systems)
 - File systems use RAID 5 for speed and resilience
- User quotas
 - **3 GB** on \$HOME
 - **300 GB** on \$SCRATCH
 - **30 GB** on \$PERM
 - These quotas CAN be increased on request
- Select / delete
 - running on **\$SCRATCH** whenever a threshold is reached
 - runs once per month to remove files older than one year

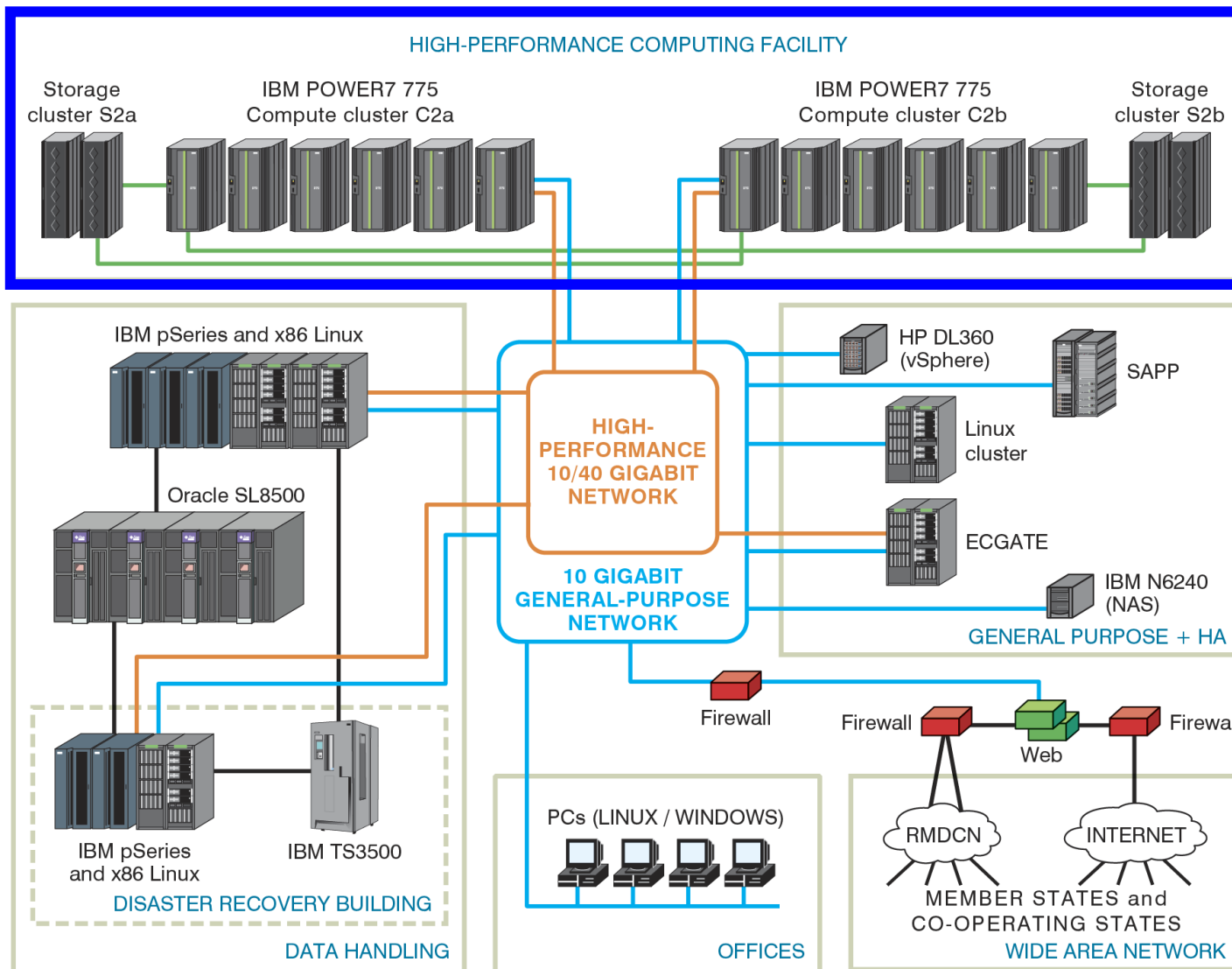
ecgate – purpose

- Access to archives (**MARS** & **ECFS**)
- Batch job submission (SLURM, ECaccess tools)
- Data transfer between ECMWF and MS: **ectrans**, **ftp**, **sftp**
- Program development
- Visualization
- Submission and control of “time-critical” applications
 - Jobs under option 1
 - Suites under option 2
 - e.g. COSMO-LEPS, UKMO MOGREPS-15, ALADIN LAEF, BCEPS-MUMO

ecgate – software environment

- General software and libraries: ECLIB, EMOSLIB, GRIB_API
- Numerical Libraries: NAG, GSL
- Data Formats tools and libraries: netCDF, HDF, HDF5
- Archives: MARS, ECFS
- Graphics: www.ecmwf.int/services/computing/docs/graphics/
 - ECMWF: Metview, Magics++
 - External data analysis and Visualization tools:
 - ncview, view_hdf, panoply
 - IDL, PV-Wave (limited number of licenses)
 - CDO, NCO, R, NCL, GrADS, gnuplot
- Debugging: Totalview
- Supervisor Monitor Scheduler: SMS/CDP/XCdp ecFlow

Web documentation: www.ecmwf.int/services/computing/hpcf/



Current HPCF – IBM POWER7

- 2 identical clusters IBM Cluster 1600
 - 2 x compute cluster
 - 2 x storage cluster
 - water-cooled
 - ~1,500 Teraflops peak (in total)
- Per cluster
 - 752 p7 compute nodes
 - 32 POWER7 processors (at 3.8 GHz) per node
 - ~24,000 processor cores
 - 50 TB memory
 - proprietary HFI interconnect
 - 1.5 PB of usable disk space attached to each storage cluster
- Service contract with IBM covers the period to mid-2014



Cray XC30 HPCF



- Contract with Cray signed on 24 June 2013
- 2 compute clusters
2 storage clusters
- 3x sustained performance on ECMWF codes as existing HPCF
- Performance coming from more rather than faster cores
 - ~3,500 nodes each with 2x 12-core Intel Ivy Bridge processors and 64GiB memory per node
 - ~84,000 cores per cluster
 - Ivy Bridge about 20% less sustained performance than POWER7 per core

Current *versus* New HPCF

Per Cluster	Current IBM POWER7	New CRAY XC30
Compute nodes	739	~3,500
Compute cores	23,648	~84,000
Total memory	46 TiB	~210 TiB
Pre-/post-processing nodes	20	~64
Operating System	AIX 7.1	SuSE Linux/CLE
Scheduler	IBM LoadLeveler	Altair PBSpro/ALPS
Interconnect	IBM HFI	Cray Aries
High performance storage	1.5 PB	> 3 PB
Filesystem technology	GPFS	Lustre
General purpose storage	N/A	38 TB
Filesystem technology	GPFS	NFS via NetApp

HPCF – purpose

- Running meteorological models
 - Member State models (HIRLAM, Harmonie, COSMO, UM, WRF, ...)
 - ECMWF's IFS via prepIFS
- Batch job submission
 - Using LoadLeveler (IBM), PBSpro (Cray) or Eaccess tools
- Time-critical activities ([options 1, 2 and 3](#))
- Access to archives ([MARS](#) and [ECFS](#))
 - Use serial batch jobs!
- Data transfer between Member States and ECMWF
 - [ectrans](#), [ftp](#), [sftp](#)
 - Use serial batch jobs!

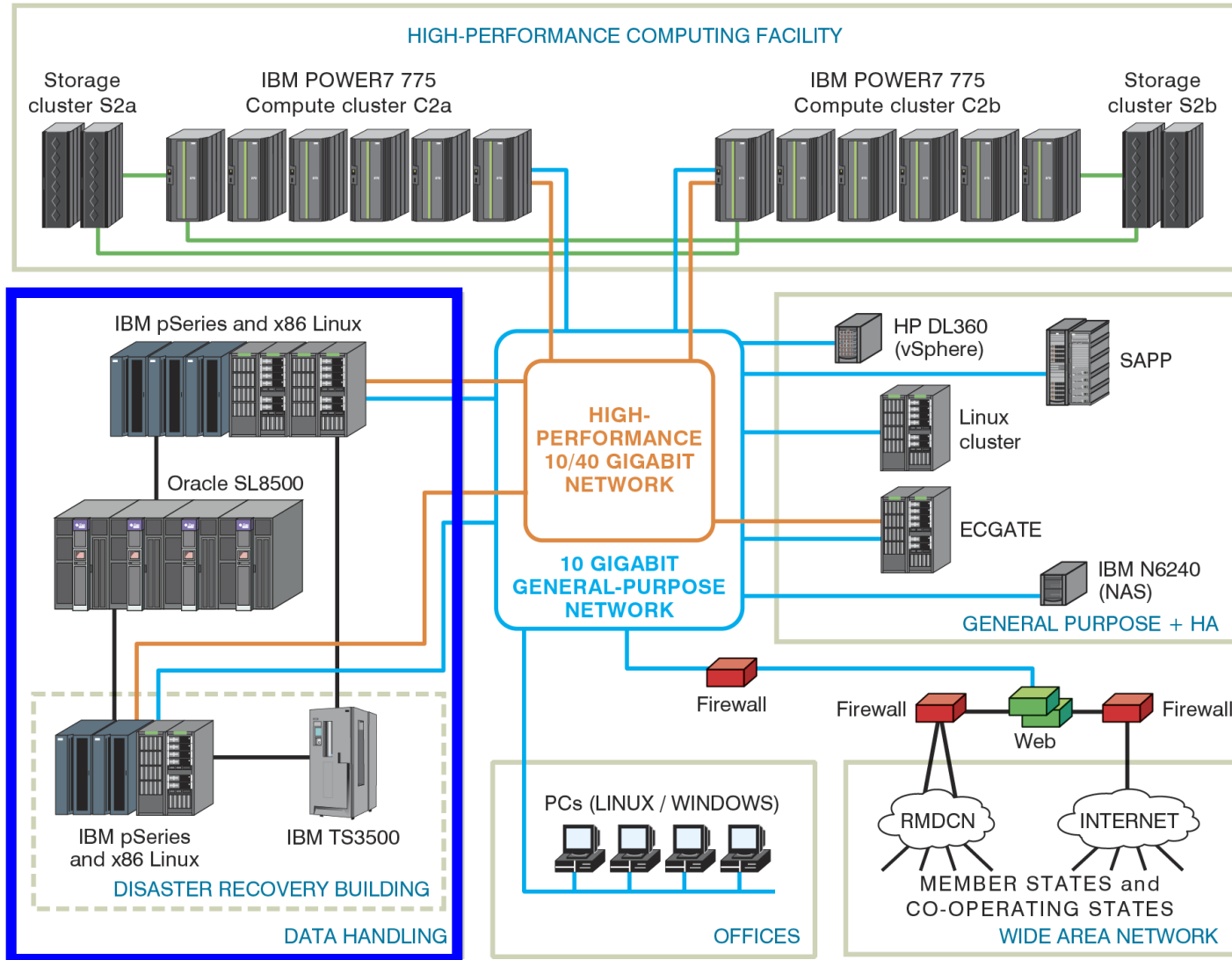
HPCF – software environment

- General software and libraries:
 - ECLIB, EMOSLIB, GRIB_API
- Archives:
 - MARS, ECFS
- Data Formats tools and libraries:
 - netCDF, NCO, HDF, HDF5
- Debugging:
 - Totalview www.ecmwf.int/publications/manuals/totalview/
- Numerical Libraries: www.ecmwf.int/services/computing/docs/libraries/
 - essl, (p)essl, MASS (IBM only)

NO GRAPHICS!

Data Handling System (DHS)

Web documentation: www.ecmwf.int/services/computing/overview/datahandling.html



DHS – configuration



- DHS Hardware

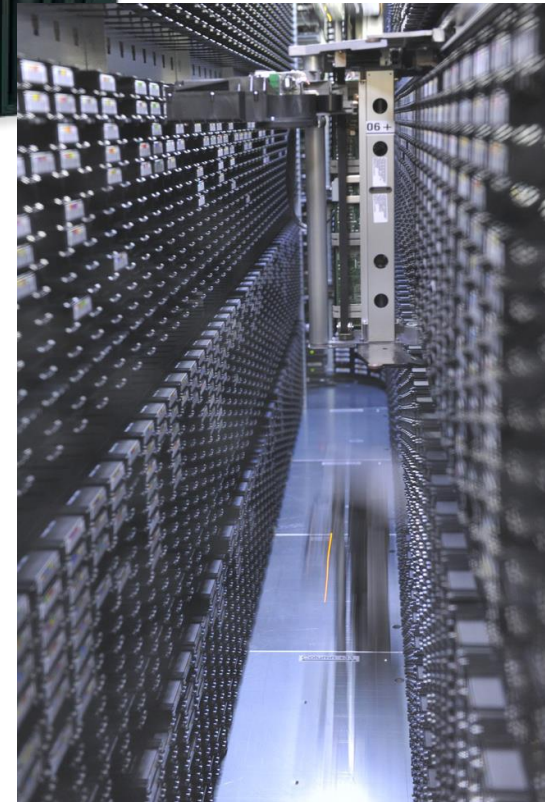
- Intel-based Linux servers
- Some IBM p650/p660 servers
- 4 Sun SL8500 automated tape libraries

- DHS Software

- Based on HPSS (High-Performance Storage System)

- Comprises two archives

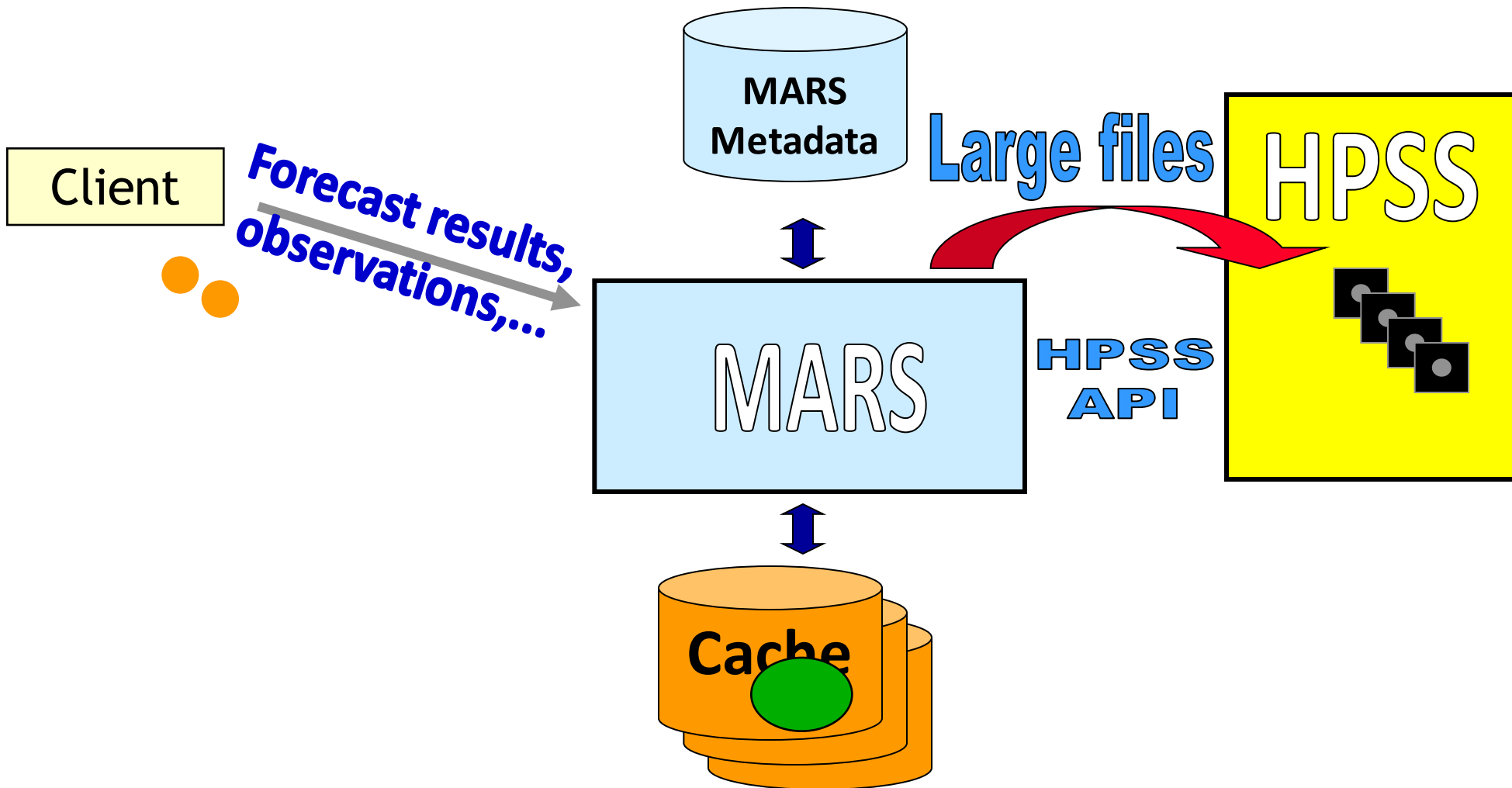
- **MARS** Meteorological archive
- **ECFS** User archive



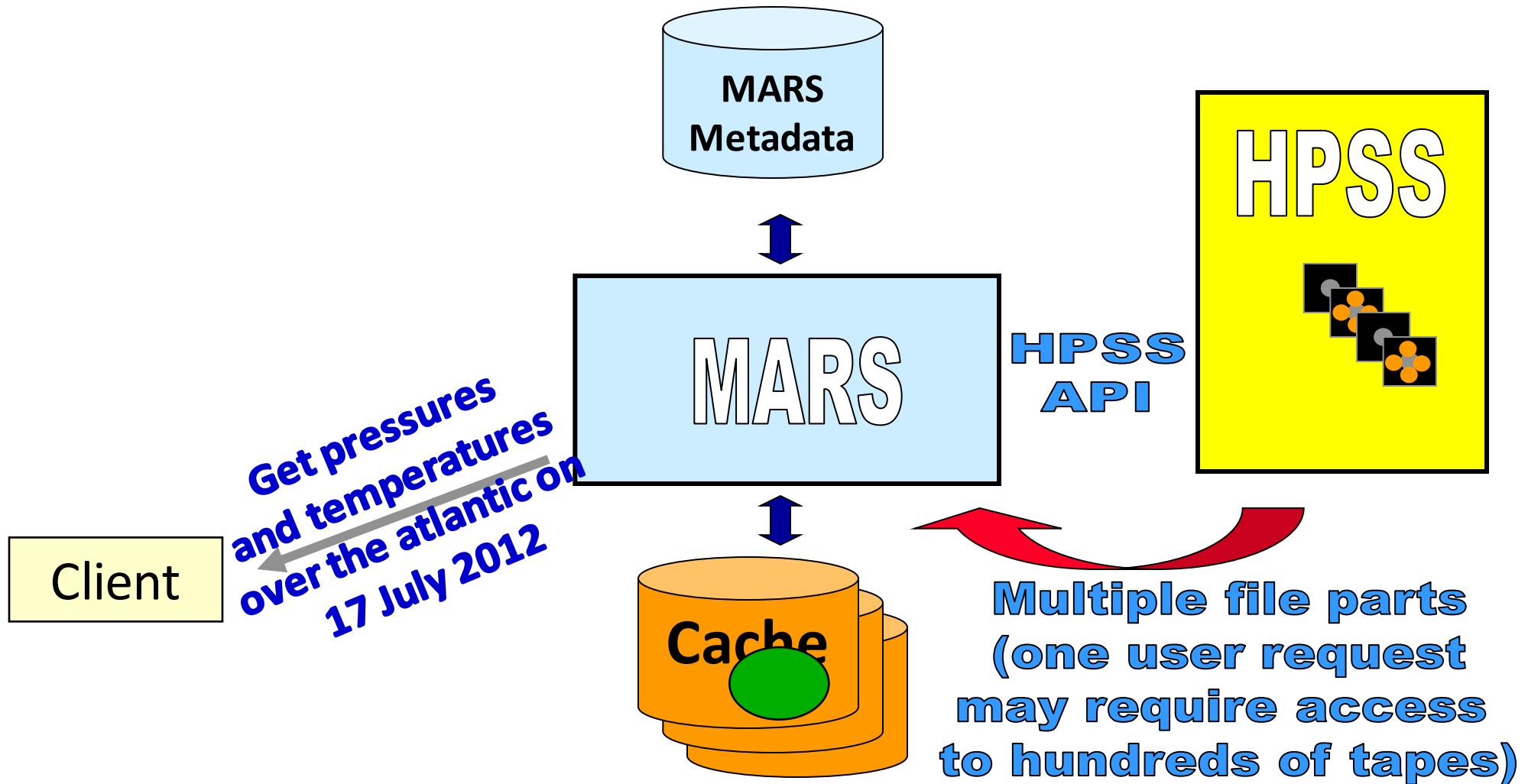
DHS Services

- MARS – **M**eteorological **A**rchive and **R**etrieval **S**ystem
 - Data is accessed via a meteorological meta-language interface
 - Bulk of the data, few files (but holding billions of fields in total)
 - Relies upon excellent tape drive performance when retrieving lots of small parcels of data from tape
- ECFS – **E**CMWF **F**ile **S**ystem
 - HSM-like (Hierarchical Storage Management) service for “ad-hoc” files that are not suitable for storing in MARS
 - Data is accessed via an rcp-like interface
 - Millions of files, many very small
- HPSS
 - Both MARS and ECFS rely on HPSS as the underlying data management system that is used to store the data
 - Users do not have direct access to HPSS, only via MARS and ECFS

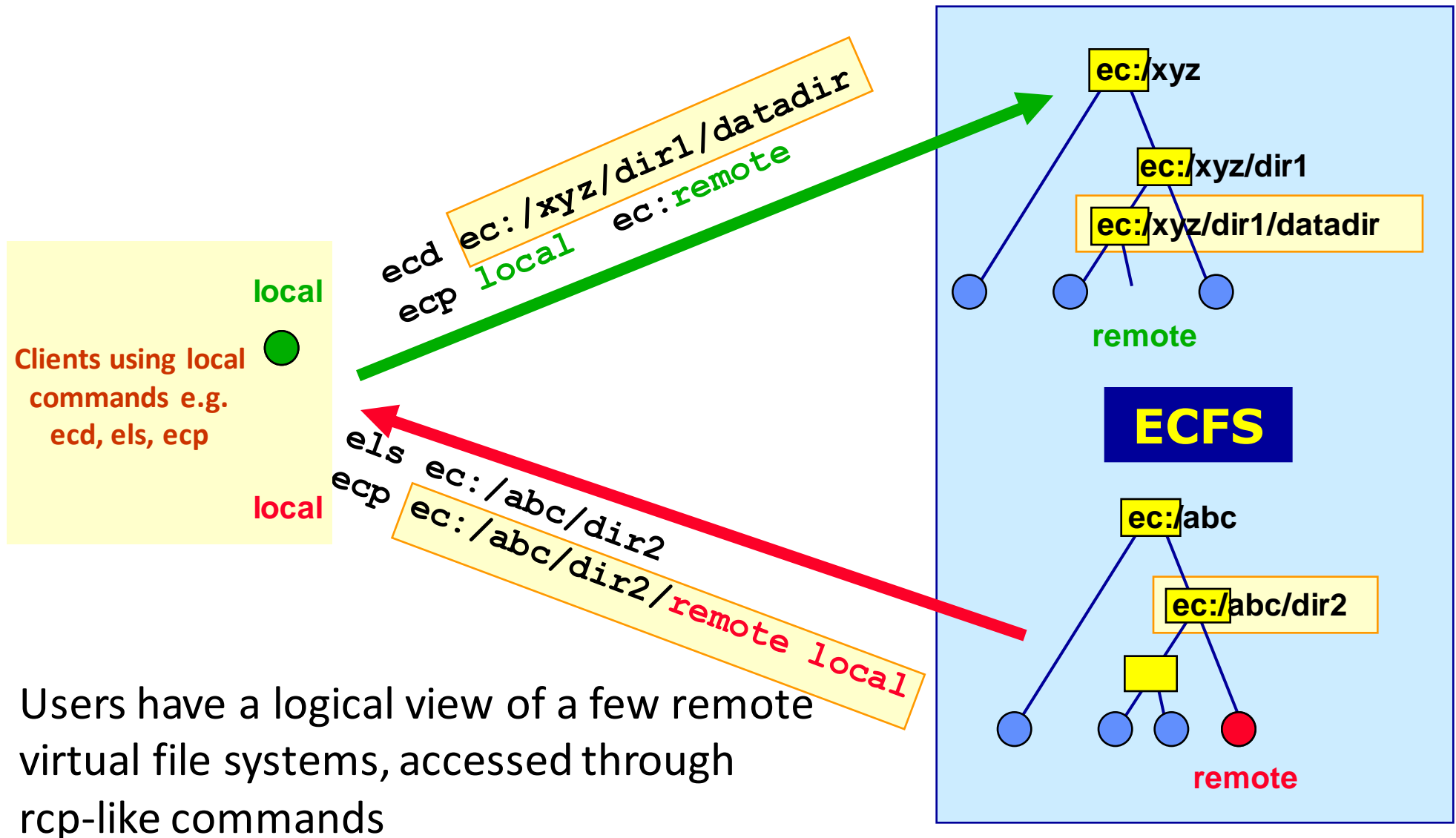
MARS archiving



MARS retrieval



ECFS – the user's view



Users have a logical view of a few remote virtual file systems, accessed through rcp-like commands

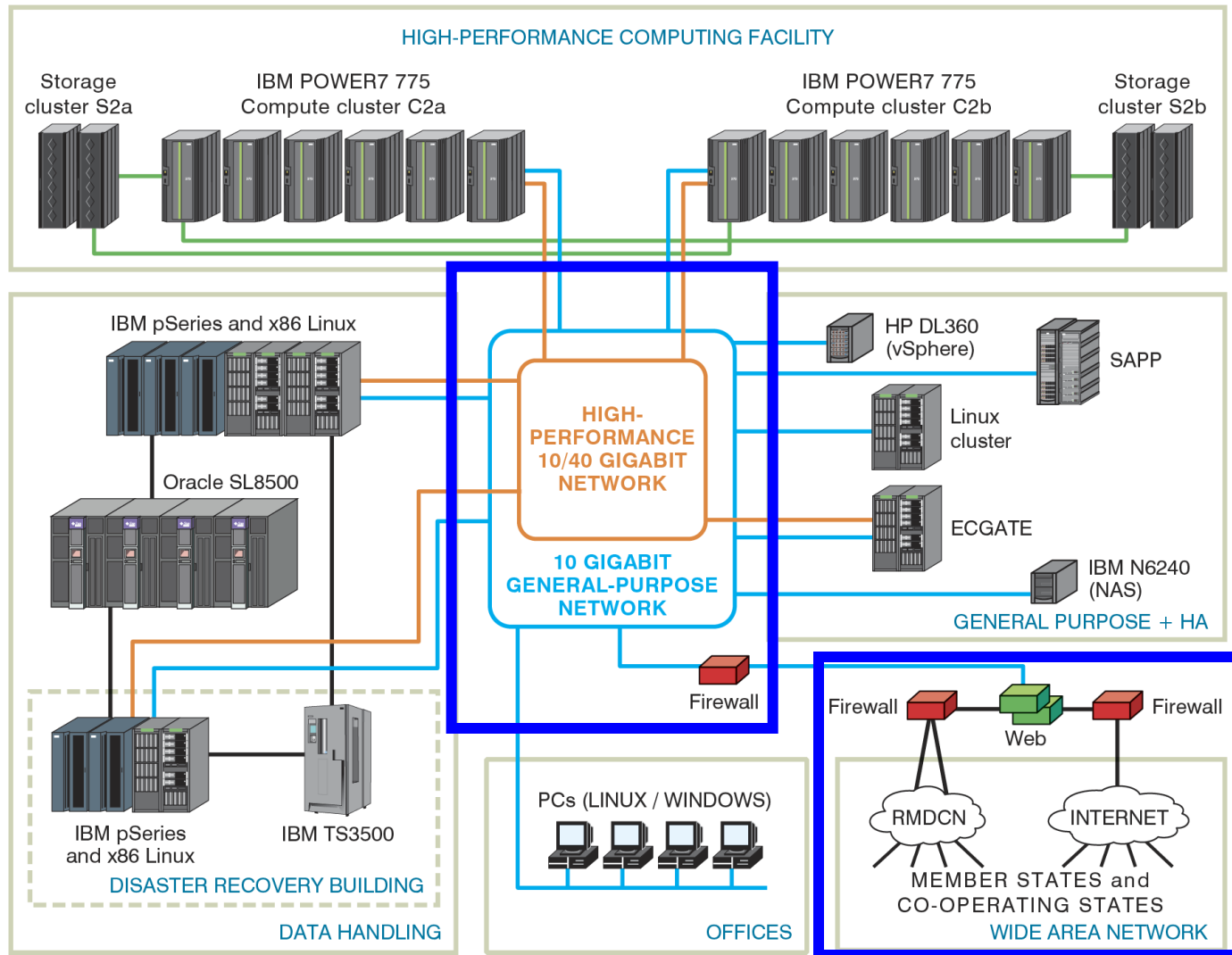
The ECMWF Archive – statistics

- The DHS provides access to over 59PB of primary data
- An additional 14.5PB of backup copies of part of the primary data are stored in the DRS
- In a typical day the archive grows by ~65TB
- ~9,000 tape mounts on average per day
 - On some days this can peak at around 15,000
- MARS data:
 - ~10% of the files (over 12 million files)
 - ~75% of the data volume
- ECFS data:
 - ~90% of the files (over 134 million files)
 - ~25% of the data volume

Networks

www.ecmwf.int/services/computing/overview/local_area_network.html

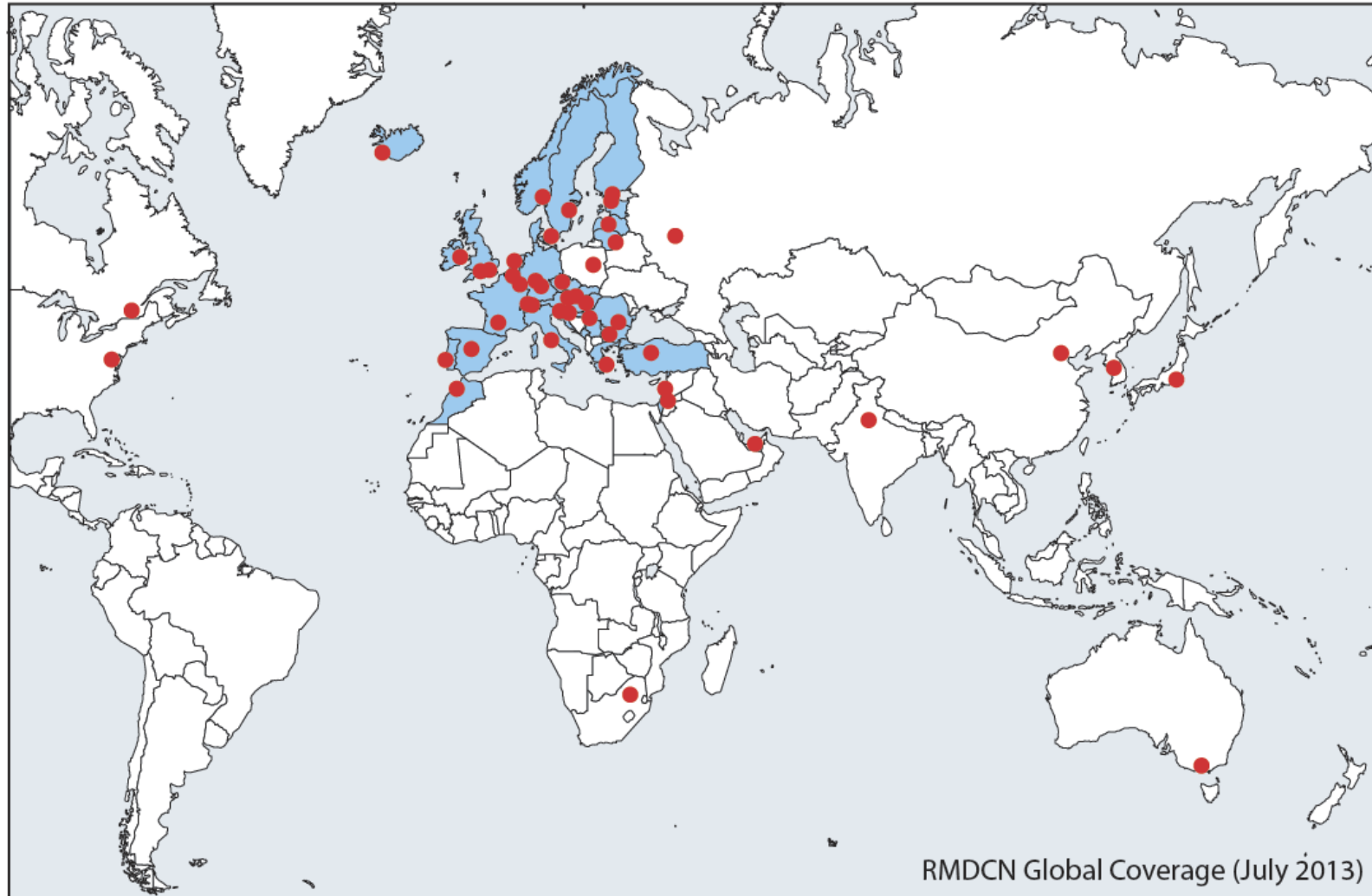
www.ecmwf.int/services/computing/overview/wide_area_network.html



Networks

- Internal (LAN)
 - High Performance Network: 40 Gbit/s
 - General Purpose Network: 10 Gbit/s
- External (WAN)
 - Internet
 - Dual 10 Gbit/s connection to SuperJANET, the UK Education and Research Network
 - RMDCN (Regional Meteorological Data Communications Network):
 - Secured VPN provided through MPLS (Multi Protocol Label Switching)

RMDCN Connections



- 49 sites currently connected (July 2013)

Access to ECMWF resources

All interactive login access to ECMWF requires *security token* authentication



Interactive access via Internet link

```
ssh -X -I <UID> ecaccess.ecmwf.int
```

or with **FreeNX** from NoMachine (the desktop Virtualization Company)

Through your Web browser at <http://ecaccess.ecmwf.int/> (or local gateway)

Or by installing **nxclient** on your local machine

Access to the **ECMWF website** can happen using the same *token*, a *password* or a *certificate*

Web Services

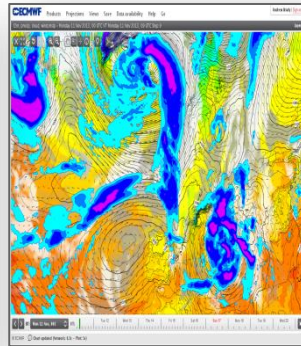
www.ecmwf.int

Web Services – Overview

- Five key service areas:



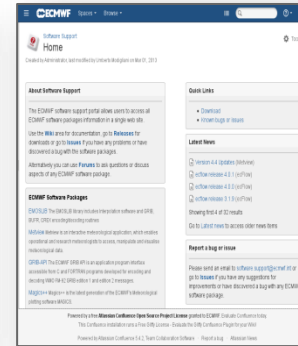
www
Everyone



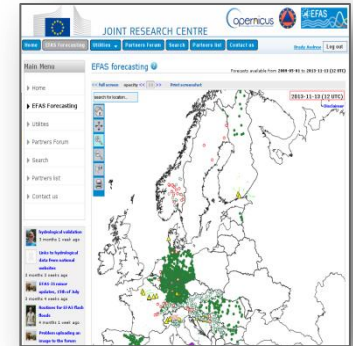
ecCharts
Forecasters



Data
Web data users



Software
Everyone



EFAS
EFAS Partners

Web Services – www.ecmwf.int/products/forecasts

This page will look different depending on the user who is viewing it and possibly WHERE from.

The page is currently being viewed by an *NMS domain user*.

Forecasts - SeaMonkey

File Edit View Go Bookmarks Tools Window Help

http://www.ecmwf.int/products/forecasts/d/charts

Home Bookmarks ECMWF Web EMS/Backdoor Actividentity Comp. Rep. ECMWF Google

ECMWF

Home Your Room Login Contact Feedback Site Map Search:

About Us Products Services Research Publications News&Events
Overview Forecasts Computing Modelling Newsletters Calendar
Getting here Order Data Archive Reanalysis Manuals Employment
Committees Order Software PreplFS Seasonal Library Open Tenders

Home > Products > Forecasts >

Forecasts

Products

- Forecasts
- Data and Software
- Ordering
- Catalogue
- Additional GTS
- Products

See also

- Archive
- Dissemination
- Your room
- Model id

Chart catalogue

- Find charts

Medium range forecast

- Analysis
- Deterministic forecast
- Ensemble Prediction System
- Verification
- Epsgrams (ECMWF Member States)
- Epsgrams (WMO Members)
- Special
- Tropical cyclones
- User Guide: online or acrobat file

Monthly forecast

- Introduction
- Forecast
- Verification
- Documentation

Seasonal forecast

- Forecast
- Verification
- Documentation

Ocean Analysis

- Real time
- Reanalysis
- Documentation

Monitoring of the observing system

Epsgrams

These are made on demand using a database created twice daily

Extreme forecast index

Our new product for severe weather prediction.

Stamps maps

"Stamp maps" show individual member forecasts of mslp and geopotential at 500 hPa.

Nino-3 SST anomaly plumes

Our sea surface temperature anomaly ensemble forecast.

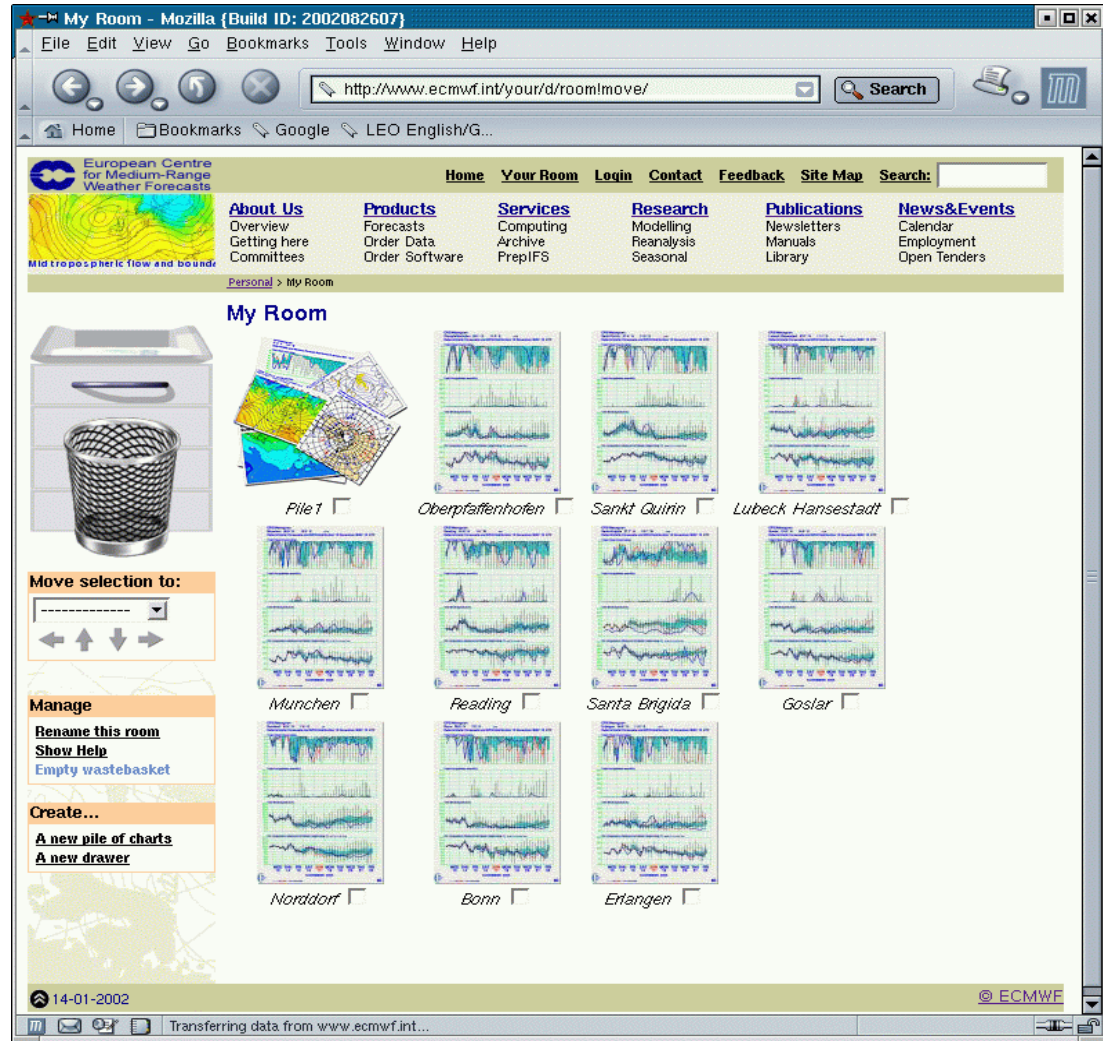
Hovmoller diagram

Latest diagrams from the real-time ocean analysis.

Web Services – My Room

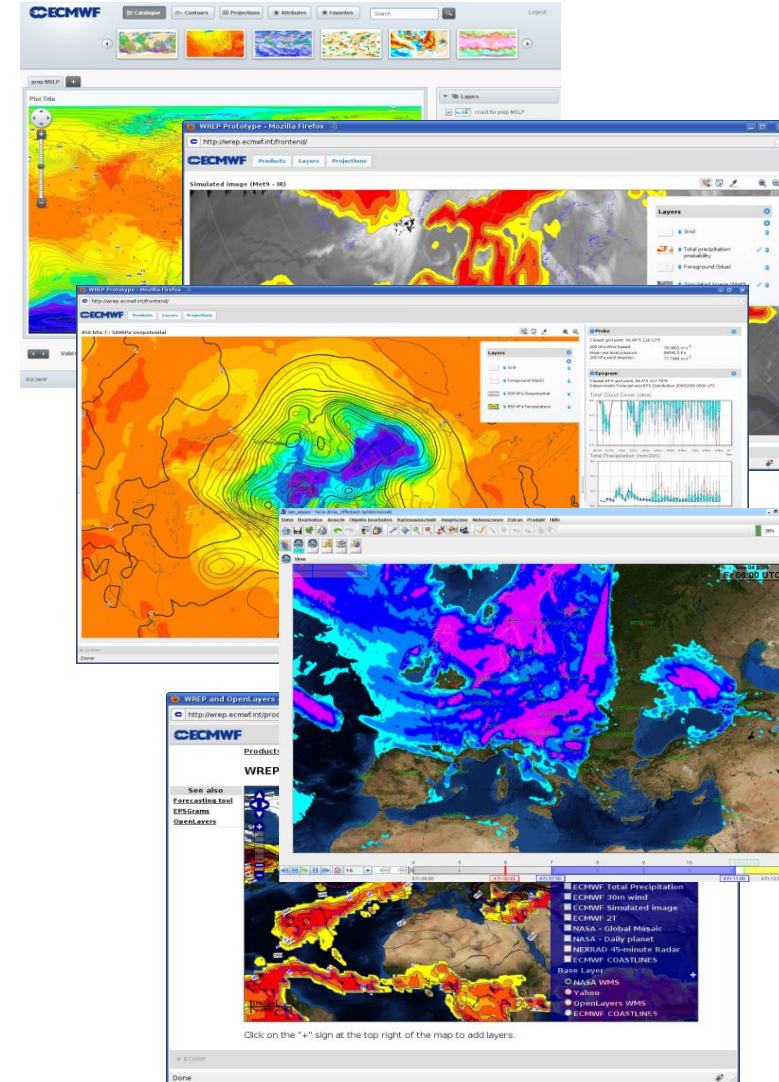
“My Room” is not available to unregistered users e.g.:

- External users
- Anonymous domain users (started web browser from NMS but did not identify themselves)



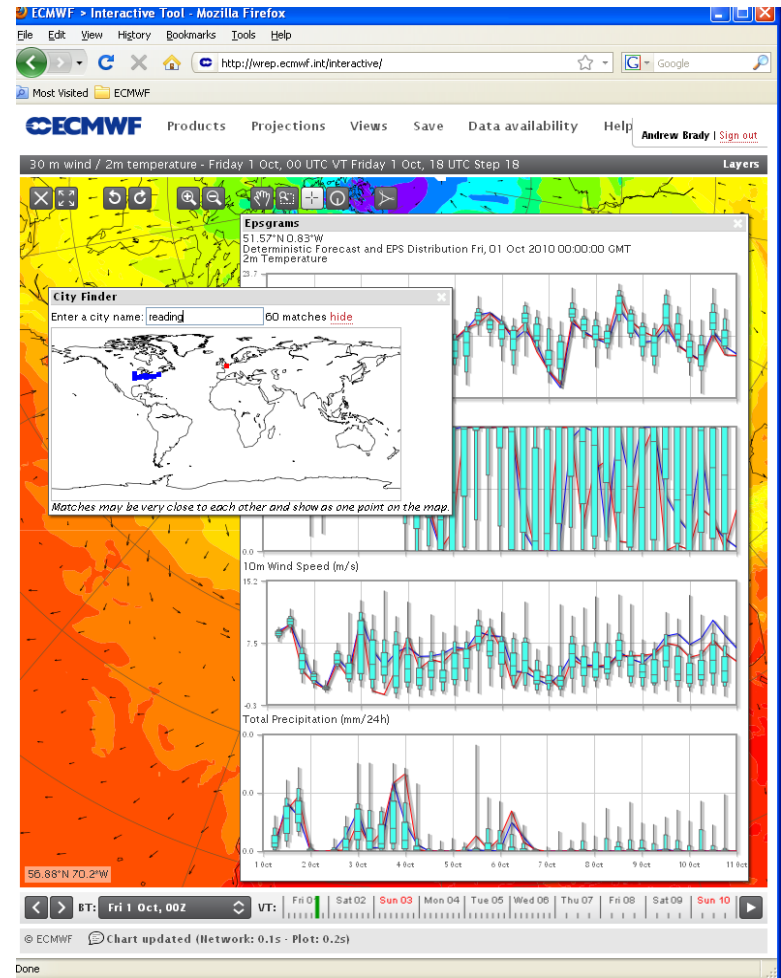
Web services – ecCharts

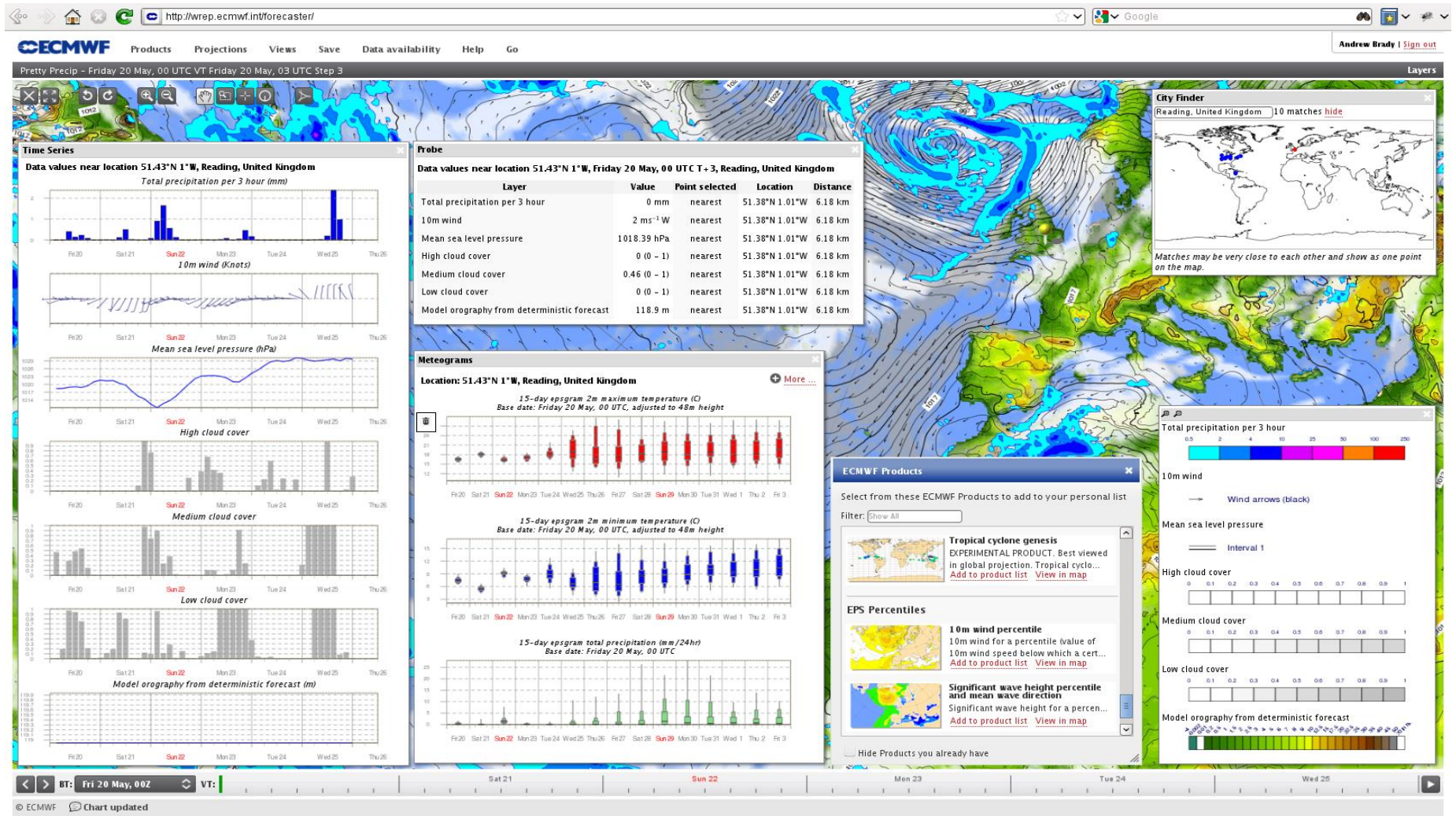
- Highly interactive (products created on-demand)
- Highly available
- Operationally supported (24x7)
- Appropriate for bench forecasters
- Suitable to deploy as standard web services
- Operational status since 15.10.2012



ecCharts – overview

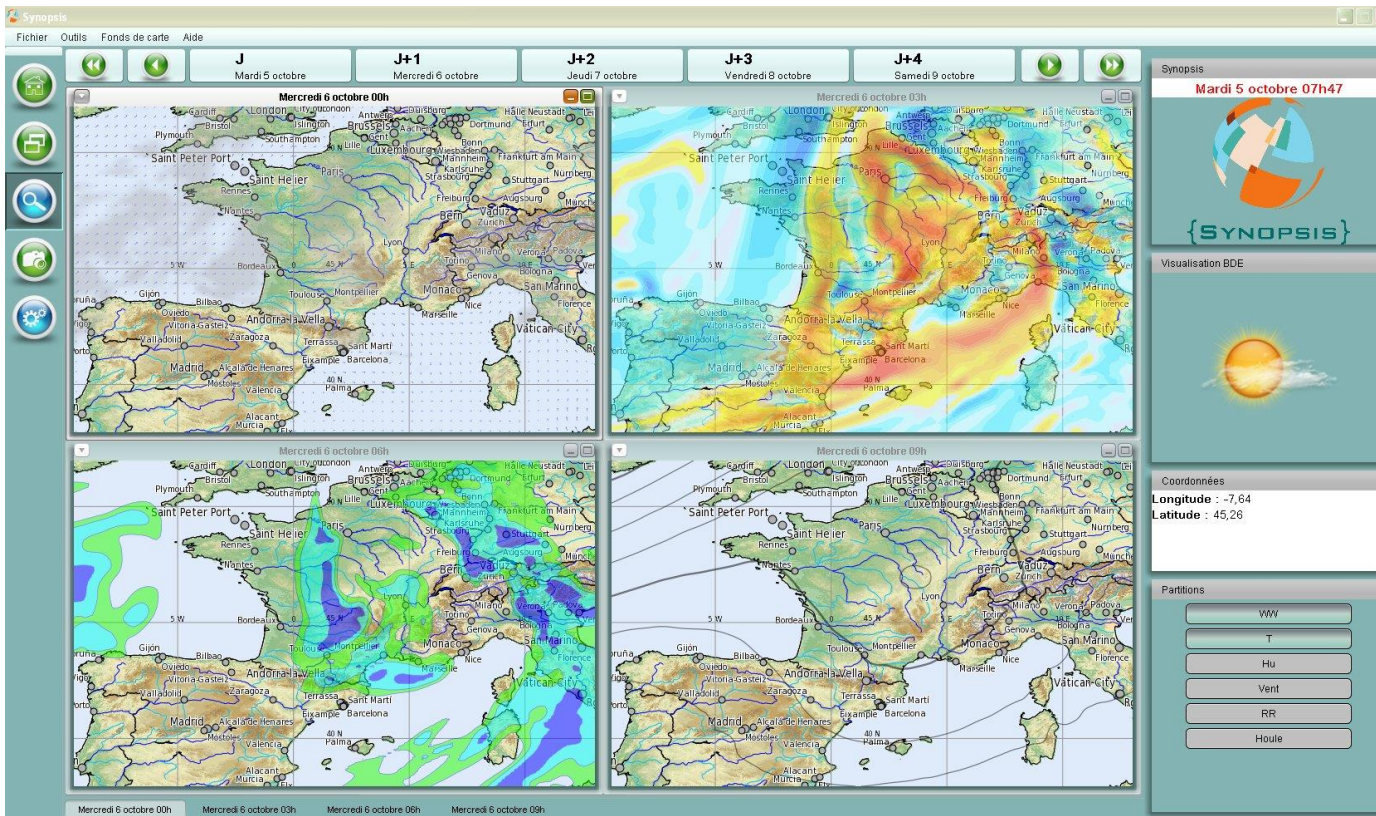
- Features:
 - Interactivity (zoom-pan)
 - Layer customisation (e.g. thresholds)
 - Charts with bespoke layers
 - Optional styles for layers
 - Animation of charts
 - HRES, ENS, WAM products
 - Standard and bespoke EPSgrams
 - Extreme Forecast Indices (EFI)
 - Point probing to explore data
- Use of agreed dissemination schedule
- OGC WMS standards for machine-to-machine access





ecCharts – OGC Web Map Service (WMS) Charts :

from ecCharts to Synopsis



- Easy to implement
- Uses embedded access control tokens checked against IP domain of request
- Response is very good
- Applicable to IBL Visual Weather, Ninjo, Synopsis, etc

Web Services – webMARS www.ecmwf.int/services/archive/

MARS, the ECMWF archive - SeaMonkey

File Edit View Go Bookmarks Tools Window Help

http://www.ecmwf.int/services/archive/ Search

Home Bookmarks ECMWF Web EMS/Backdoor Actividentity Comp. Rep. ECMWF Google

ECMWF Home Your Room Login Contact Feedback Site Map Search:

About Us Overview Getting here Committees
Products Forecasts Order Data Order Software
Services Computing Archive PrepIFS
Research Modelling Reanalysis Seasonal
Publications Newsletters Manuals Library
News&Events Calendar Employment Open Tenders

Home > Services > Archive >

MARS, the ECMWF archive

The **M**eteorological **A**rchival and **R**etrieval **S**ystem (MARS) is the main repository of meteorological data at ECMWF. It contains terabytes of operational and research data as well as data from special projects.

MARS data is freely available to registered users in the Member States and Co-operating States.

There is no public access to MARS. For research and commercial use, data can be obtained through our [Data Services](#). For research use only, some datasets are freely available on our [Data Server](#).

Services

- Computing
- Archive
- PrepIFS
- Dissemination
- EAccess

ECMWF Data

- Data Services
- Data Server

- Overview
- Catalogue
- Data Finder
- Last Update
- Parameter database
- Changes in the archive
- Server Activity
- MARS documentation

“Public area”

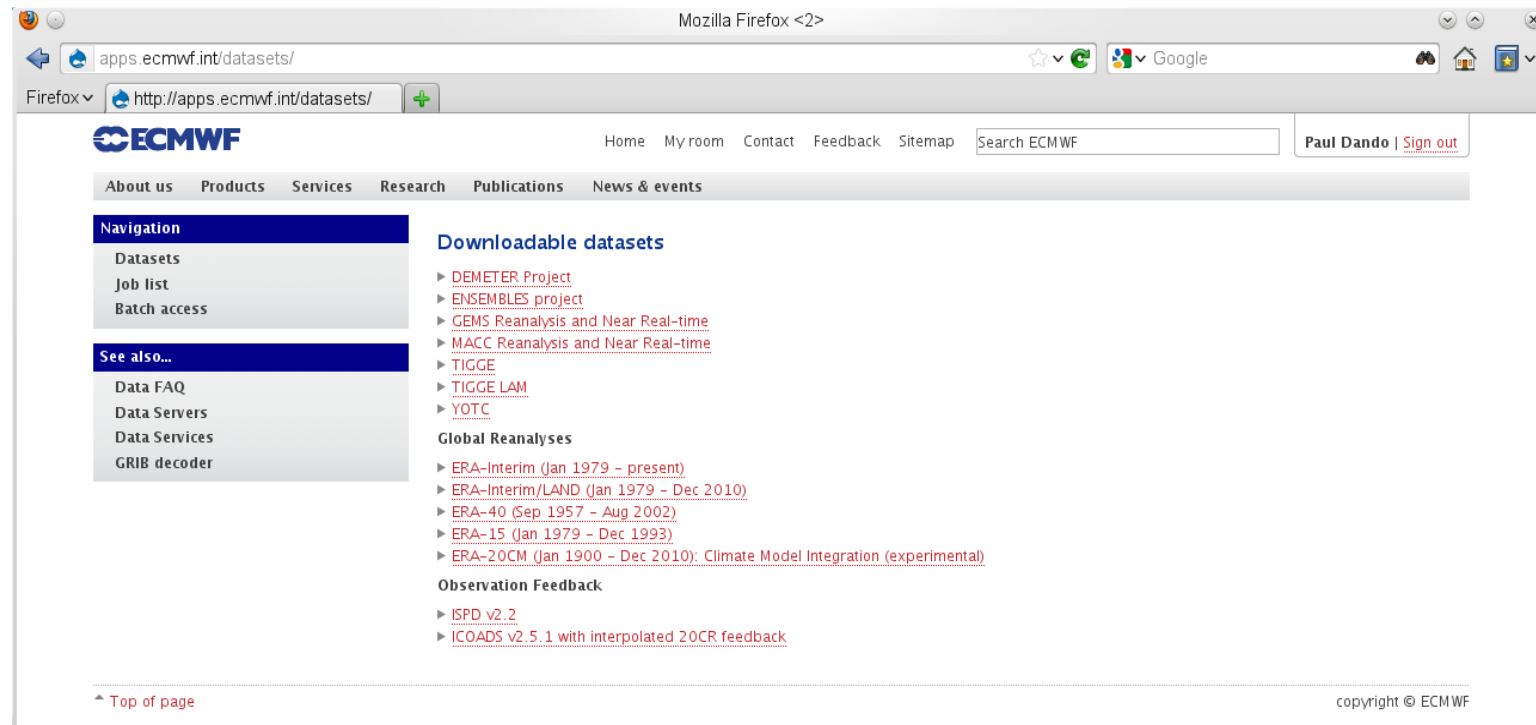
- Web based interface to MARS
- Content browsing via “views” (not available to the public)
 - Overview, Catalogue, Data Finder, Last Update, Parameter database, Archive history/changes, etc.
- Retrievals (GRIB and netCDF), available to registered users
- Plots (limited functionality)
- Monitoring of activity
- Documentation
- New interface has been developed and is undergoing beta testing

Data Server – <http://apps.ecmwf.int/datasets/>

- A standalone system outside the firewall
- Public (non-commercial) distribution of data
 - Self-registration

- Batch access possible with Python, Perl, Java

- GRIB or netCDF



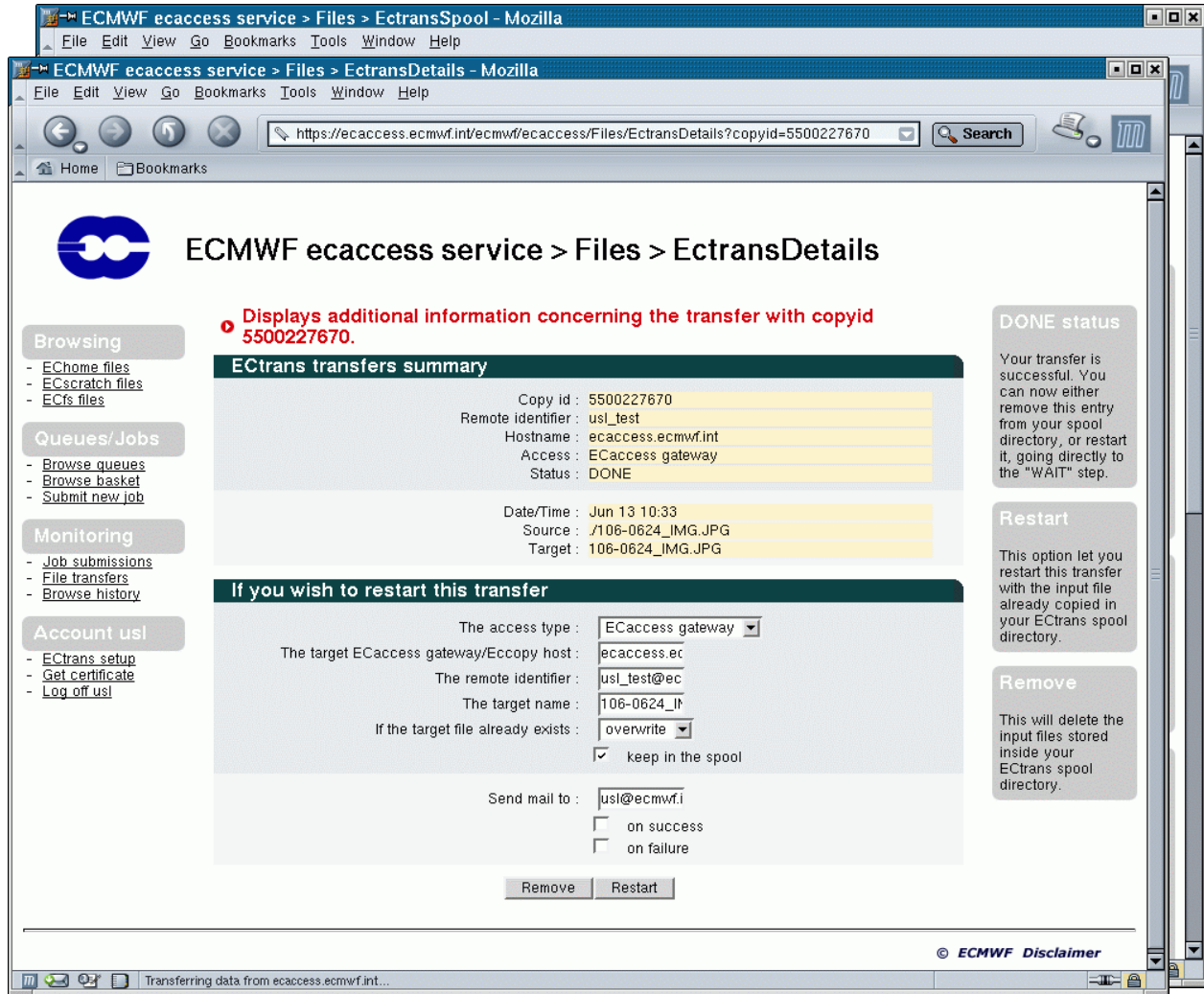
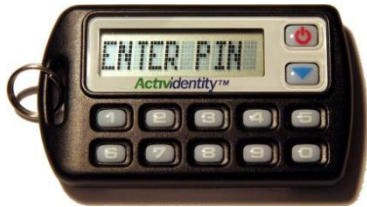
TIGGE Data Portal – <http://tigge.ecmwf.int>

- THORPEX Interactive Grand Global Ensemble
- Global ensemble forecasts to around 14 days generated routinely at different centres around the world
 - Already sending data routinely: ECMWF, JMA (Japan), Met Office (UK), CMA (China), NCEP (USA), MSC (Canada), Météo-France (France), BOM (Australia), CPTEC (Brazil), KMA (Korea)
- Data is available to Research and Education after 48 hours
 - Self registration by agreeing to the terms and conditions
- Data portal based on webMARS
- Data archived in GRIB edition 2 format

Web Services – prepIFS

The image displays two overlapping windows from a software interface. The top window, titled 'XCdp', shows a hierarchical tree structure of workflow components. The tree starts with 'make' at the root, which branches into 'eps_varfc' and 'main'. 'eps_varfc' further branches into 'sv' and 'fc'. 'main' branches into 'inigroup', 'ensemble', and 'lag'. 'inigroup' branches into 'ensemble' and 'lag'. 'lag' has a text field containing the expression: `((ensemble:YMD >= lag:YMD) or (ensemble == complete or ensemble == unknown)) and ((inigroup:YMD > lag:YMD), (lag:YMD == - 1)`. Below this, 'YMD=2008021112' is shown. 'archive' branches into 'cv' and 'cf'. 'cv' branches into 'arch000'. 'arch000' branches into 'arch', 'ml', and 'fdb'. The bottom window, titled 'PrepIFS', shows a file explorer on the left with a tree structure: 'cu9' -> '32r3' -> 'ID a01d' -> 'Ty eps_varfc'. The right pane shows the 'Description' form for '32r3/a01d/eps_varfc/Description'. It contains three checkboxes: 'DESCRIPTION - Brief description of experiment (Please use the latin alphabet, underscores, punctuation and spaces only)', 'CONTROL - This run is a control experiment', and 'COMPARE_TO_CONTROL - Specify here the control experiment to compare with'. The 'COMPARE_TO_CONTROL' field has a text input containing 'zzzz'.

- Interface to browsing, transfers, editing, submission of files to ECMWF
- Online help
- Security token needed



The screenshot shows a Mozilla browser window displaying the ECMWF ecaccess service interface. The page title is "ECMWF ecaccess service > Files > EctransDetails". The URL in the address bar is <https://ecaccess.ecmwf.int/ecmwf/ecaccess/Files/EctransDetails?copyid=5500227670>. The page content includes a navigation menu on the left with sections for Browsing, Queues/ Jobs, Monitoring, and Account us1. The main content area features a red warning icon and text: "Displays additional information concerning the transfer with copyid 5500227670." Below this is a table titled "Ectrans transfers summary" with the following data:

Copy id:	5500227670
Remote identifier:	us1_test
Hostname:	ecaccess.ecmwf.int
Access:	ECaccess gateway
Status:	DONE
Date/Time:	Jun 13 10:33
Source:	/106-0624_IMG.JPG
Target:	106-0624_IMG.JPG

Below the table is a section titled "If you wish to restart this transfer" with the following fields:

The access type:

The target ECaccess gateway/Eccopy host:

The remote identifier:

The target name:

If the target file already exists:

keep in the spool

Send mail to:

on success

on failure

Buttons: Remove, Restart

On the right side, there are three panels: "DONE status" (Your transfer is successful. You can now either remove this entry from your spool directory, or restart it, going directly to the "WAIT" step.), "Restart" (This option let you restart this transfer with the input file already copied in your Ectrans spool directory.), and "Remove" (This will delete the input files stored inside your Ectrans spool directory.).

At the bottom of the browser window, the status bar shows "Transferring data from ecaccess.ecmwf.int..." and the footer contains "© ECMWF Disclaimer".

NX – web access – <http://ecaccess.ecmwf.int/>

• You can open an interactive session on an ECMWF system, with support for GUI applications.

NX interactive session

ECMWF server :

Or workstation :

Network link speed :

Initial application :

Window option (NX3) :

Virtual desktop resolution (NX3) :

• You can access NX through your Web browser

• You can select the:

- Host (ecgate / c2a)
- Internet connection speed
- Type of window (“virtual desktop” or “floating window”)
- Application
- Virtual desktop resolution



Login requires a token

Web Services – documents and documentation

- Official documents (restricted access)
www.ecmwf.int/about/committees/
- ECMWF publications
www.ecmwf.int/publications
- Research at ECMWF
www.ecmwf.int/research
- Computing Services
www.ecmwf.int/services/computing
- And much more ...



Computing Services - SeaMonkey <2>

File Edit View Go Bookmarks Tools Window Help

http://www.ecmwf.int/services/computing/ Search

Home Bookmarks ECMWF Web EMS/Backdoor Actividity Comp. Rep. ECMWF Google

Services

Computing

Getting started

- ◆ [New User Pack](#)
- ◆ [Introduction to computing facilities](#)
- ◆ [Guidelines for ECMWF users](#)

System Status & Statistics

- ◆ [System status](#) (in new browser window)
- ◆ [MOTD \(ecgate\)](#)
- ◆ [Operational reports](#)

Using the computing services

- ◆ [Overview of computing systems](#)
- ◆ [Access](#)
- ◆ [Ecgate](#) - Member State server
- ◆ [HPCF](#) - High Performance Computing Facility
- ◆ [Batch job examples](#)
- ◆ [File systems](#)
- ◆ [Programming](#)
- ◆ [Fortran](#)
- ◆ [Libraries](#)
- ◆ [Time-critical applications](#)

Archives

- ◆ [MARS](#) - Meteorological archive
- ◆ [ECFS](#) - User archive

Data formats

- ◆ [GRIB API](#) - GRIB 1/2 encoding/decoding software
- ◆ [BUFR and CREX manuals](#)
- ◆ [EMOS library](#) (GRIB and BUFR handling)
- ◆ [NetCDF](#) - NCO - HDF - HDF5

How to login

the various methods of accessing the computing facilities

Time-critical jobs

How to submit jobs linked to the schedule of the operational forecast

File system overview

this figure shows the structure of ECMWF file systems

GRIB table 2 versions

showing parameter names, abbreviations, availability in MARS etc.

Fortran compiler versions

on ecgate and HPCF

MARS User Guide

comprehensive documentation of the MARS system

GRIB tools

try these new command line tools whenever you need to handle GRIB data

http://www.ecmwf.int/services/computing/overview/index.html

Click to get more documentation

Main list of computing services

Shortcuts to highlight important and useful documents

Service status: www.ecmwf.int/services/computing/status/

The screenshot shows the ECMWF Service Status page for C1A computing resources. The page is divided into two main sections: Notifications and System Sessions. A modal window is open for a recent notification.

Notifications

Date Created	Service	Notification Type	Title	User Action Required
Mon 05/Mar/2012 12:25:39 UTC	C1A	End	Interactive node on C1A back in service	
Mon 05/Mar/2012 12:12:09 UTC	C1A	Start	Problems on C1A interactive node	
Wed 22/Feb/2012 09:55:47 UTC	C1A	End	C1A system session has finished.	
Wed 22/Feb/2012 07:55:15 UTC	C1A	Start	C1A system session has started.	
Wed 14/Dec/2011 09:43:46 UTC	C1A	Announcement	C1A interactive node crashed	
Wed 07/Dec/2011 13:19:55 UTC	C1A	Announcement	Please restart serial jobs on C1A	<input checked="" type="checkbox"/>
Wed 23/Nov/2011 09:10:20 UTC	C1A	End	C1A is now available	
Wed 23/Nov/2011 08:29:53 UTC	C1A	Start	C1A Emergency system	

c1a reboot for minor GPFS upgrade and configuration change

Start Time
Wed 22/Feb/2012 07:45:00 UTC

Duration
2 hours 15 mins

Title
c1a reboot for minor GPFS upgrade and configuration change

Description
definite service downtime on c1a compute cluster. Filesystems from storage cluster s1a will remain available on c1b. - no impact expected from configuration changes

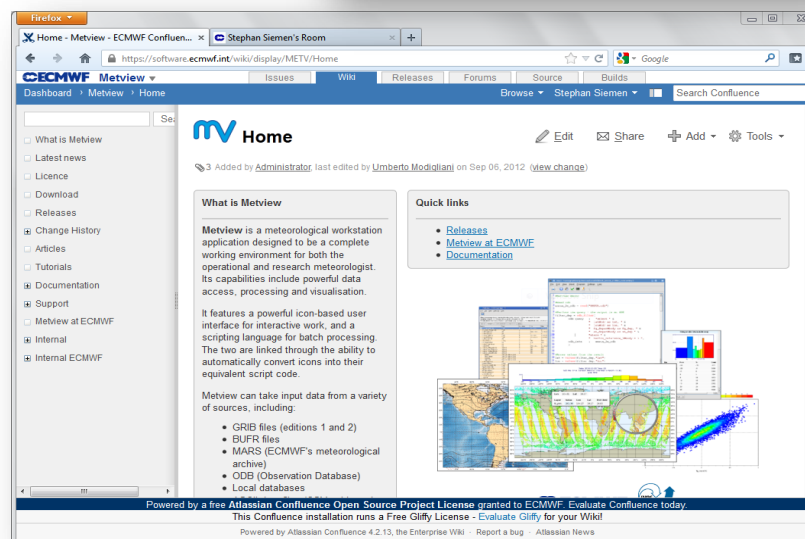
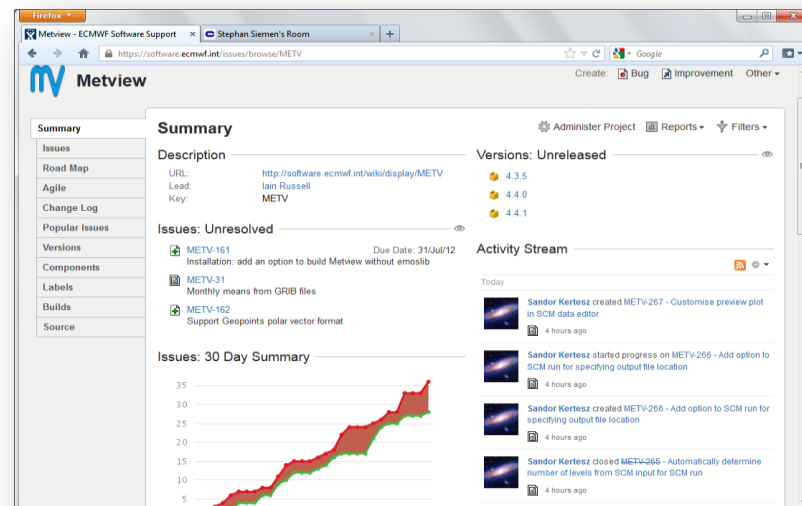
System Sessions

Start Time	Duration	Service	Title	User Impact
Wed 22/Feb/2012 10:00:00 UTC	30 mins	C1A C18 ECGATE	Make Python 2.7 the default Python version for user scripts and applications	
Wed 22/Feb/2012 07:45:00 UTC	2 hours 15 mins	C1A	c1a reboot for minor GPFS upgrade and configuration change	<input checked="" type="checkbox"/>
Tue 29/Nov/2011 10:00:00 UTC	30 mins	C1A C18	Update to module file for NAG library on c1a and c1b	

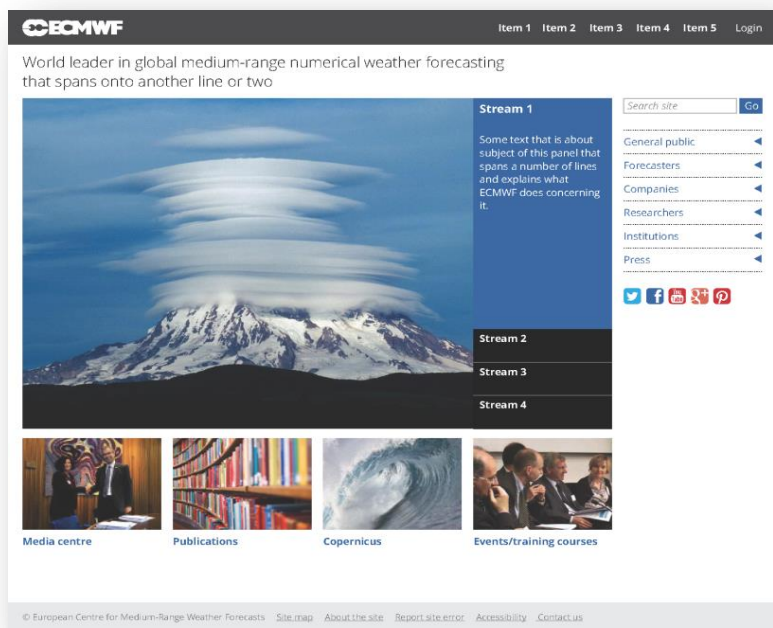
- Email sent only if user action is required
- For announcements of upcoming system sessions see also /etc/motd on ecgate

Software Support

- Available at <http://software.ecmwf.int/>
- Aim is to improve support for external users
 - Keep track of issues in a central place
 - Spread knowledge throughout the Centre
- Based on Atlassian Suite
 - JIRA (issues)
 - Confluence (documentation wiki)
 - Bamboo (Builds)



Web2013 – ECMWF's new website



Key changes

New web content management system

New design and content organization

New web search

New charts functionality

Revised and updated content

Release strategy

Start with minimum viable release

Progressively migrate areas after release

Maintain old content for one year

User impact

Bookmarks, references to URLs not redirected

curl, wget service to be replaced

Enhanced “your room” service (but not migrated)

Release dates (to be confirmed)

1 Feb 2014

Public beta

1 Apr 2014

Official release

ECMWF Help & Support – who to contact?

Reason to contact	Who	Availability	How
Urgent Dissemination problems, issues with model output	Call Desk	24h/7d	Email: calldesk@ecmwf.int
Generic fault reporting, general service queries etc.	Call Desk	24h/7d	Tel: +44 118 9499 303
Specific advice or user query	User Support	8h/5d	Email: advisory@ecmwf.int Tel: +44 118 9499 000 (switchboard)
Changes in dissemination requirements	Data & Services	8h/5d	Email: data.services@ecmwf.int
Requests for software	Data & Services	8h/5d	Email: software.services@ecmwf.int
Software problems / bug reports	Software Support	8h/5d	Email: software.support@ecmwf.int
Specific graphics queries	Development Section	8h/5d	Email: metview@ecmwf.int magics@ecmwf.int

Questions?