Real-time and archive data services at ECMWF

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ECMWF data services

- Background
- Definitions and rules
- What data services do we provide?
- What products are available?
- When is data available?
- How to get data?
- How much does it cost?
- How to become a customer?
- What support do we provide for customers?
- Future plans

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Background

- ECMWF provides data to Member States
  - Real-time data through dissemination and web
  - NMSs have open access to archive data
- ECMWF was allowed to sell archive data
- Making ECMWF Real-Time Products commercially available
  - Increased interest from commercial world
  - Creation of Advisory Committee for Data Policy (at ECMWF)
  - Creation of Data and Services Section
  - Lowering of maximum charge for commercial users
  - Delegation of delivery of data to ECMWF
  - Harmonising rules and costs with ECOMET

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ECMWF Data services

- Real-Time
  - Dissemination on a daily bases

- Archive data
  - By order from Data.Services@ecmwf.int
  - Direct MARS access (granted to maximum charge commercial customers)

- Web products
  - Updated on a daily bases

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Definitions

ECMWF

NMS

End user

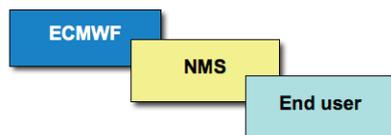- **Users**
  - Service provider (acquires data to supply Value Added Services)
  - End user (uses data for own commercial, industrial or personal purpose)
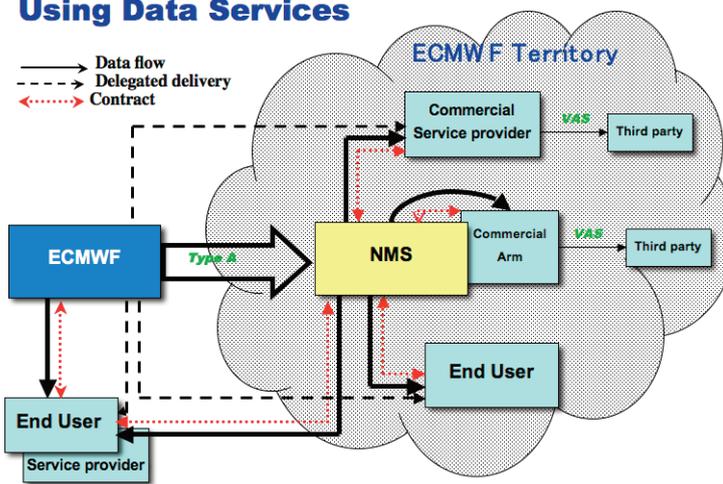 - Research and education (no re-distribution or Value Added Service)
- **Types of products – in line with ECOMET definitions**
  - Type A Products – raw products
  - Value Added Services (VAS) – derived or processed products
- **Licensor – ECMWF or NMS of an ECMWF's Member State or Type 1 Co-operating State**

Using Data Services

→ Data flow
- - → Delegated delivery
··· → Contract

ECMWF Territory

Commercial Service provider → VAS → Third party

ECMWF → Type A → NMS → Commercial Arm → VAS → Third party

End User

End User
Service provider

Level playing field

- **Rules set by ECMWF Council**
- **Real-Time Products are available to all users receiving data directly from ECMWF at the same time through**
  - **Dissemination**
  - **Web**
  - **No real-time ('Valid') data is available through direct MARS access**
- **Commercial arm of NMS is treated as a commercial customer**
  - **They pay the same price**
  - **They pay for the data**
  - **Commercial catalogue applies**

Products

- **Real-Time**
  - Data in field form and single point time series
  - Products are listed in *The Catalogue of Real-Time Products* www.ecmwf.int/products/catalogue/
- **Archive data**
  - *Archive Catalogue* contains all operational archived data (including ERA-40,…) www.ecmwf.int/products/data/archive/ECMWF_catalogue/
  - All available except valid data (analysis time + step <= yesterday)
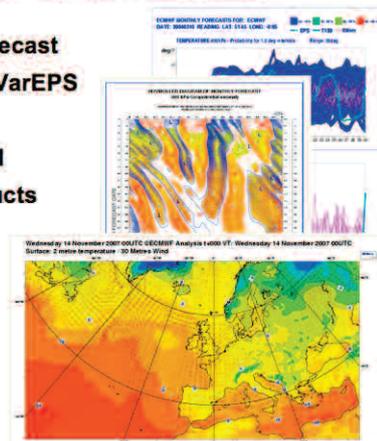 - Observations (limited set)
- **Web**
  - Products are available on 'As is' bases
  - Multi-Images, EPSgrams, Animations, …
    www.ecmwf.int/products/forecasts/d/catalogue_content
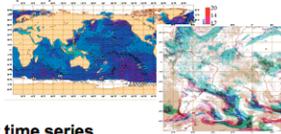
Catalogue of Real-Time Products

- **Main deterministic forecast**
- **Ensemble Prediction VarEPS**
- **Global Wave Model**
- **European Wave Model**
- **Wave ensemble products**
- **Seasonal forecast**
- **Monthly forecast**

Data types

- **Analysis**
- **Forecast**
- **Perturbed forecast**
- **Weather parameter**
- **Derived data types**
  - Forecast probabilities
  - Cluster means
  - Extreme forecast index
  - Anomalies
  - Ensemble means
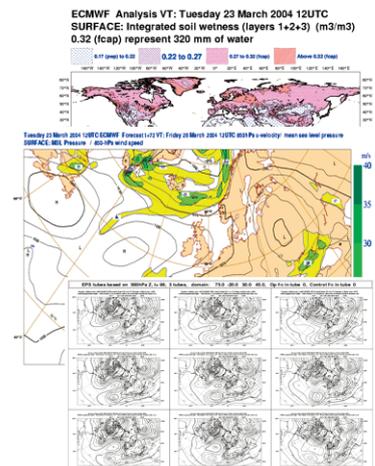
Times and steps

- 00, 06, 12 and 18 UTC based analysis

	Run	Duration	Frequency
Deterministic Global wave	Daily 00UTC, 12UTC	10 days	3 hourly up to 72, 6 hourly to 240
VarEPS Wave EPS	Daily 00UTC, 12UTC	15 days	6 hourly
European wave	Daily 00TC, 12UTC	5 days	6 hourly
Monthly forecast	Weekly	1 month	6/12 hourly
Seasonal forecast	Monthly	7 months	6/12 hourly

Vertical levels

- **Model levels**
  - Deterministic L91
  - EPS L62

- **Pressure levels**
  - Deterministic
  1000 to 10 hPa 15 levels
  - EPS
  1000 to 200 hPa 6 levels

- **Single level parameters**
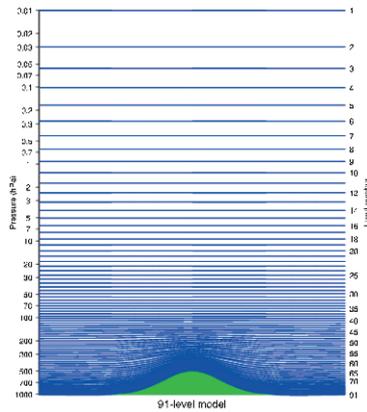
Data Representation and resolution

	Spherical harmonics	Gaussian grid	Latitude-Longitude
Deterministic	T799	N400	0.25/0.25
VarEPS	T399/T255	N200/N128	0.5/0.5
European Wave	/	/	0.25/0.25
Monthly	T159	N80	1.5/1.5
Seasonal	T159	N80	1.5/1.5

- Any sub-area
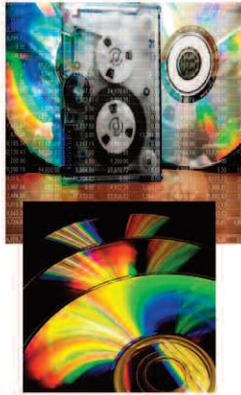- Frames and Bit-map based products

Format

- WMO FM-92 GRIB-1
- WMO FM-94 BUFR
- GRIB-2

Media for archive data

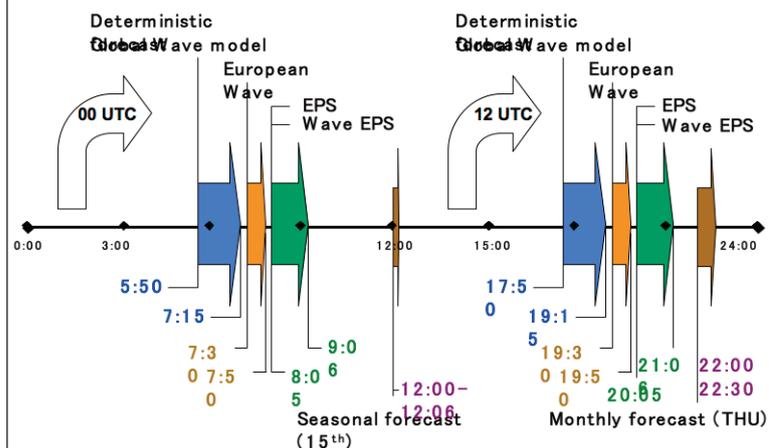- Tapes SDLT, DDS4, LTO2
- CD, DVD
- USB LaCie
- FTP push, download

Current Real-time data Dissemination schedule

Seasonal forecast (15th)

Monthly forecast (THU)

Getting Real-Time Products from ECMWF

- **Data can be provided**
  - Over INTERNET (up to 75GB daily at no extra cost)
  - Over dedicated private line (financed by user)
- **ECMWF disseminates products as one file per forecast/analysis time step**
- **Dissemination files have unique names**
- **We push data according to dissemination schedule**
- **Users can**
  - Set transmission priority for each data set
  - Split request into several logical entities - dissemination streams
  - Have backup host configured
  - Chose number of parallel transmissions, ...

Tariffs

- **Price = Information cost + Handling charge**
- **Information cost**
  - Cost of data – determined by ECMWF Council
- **Handling charge**
  - **Real-Time Products:** Cost of labour, computer resources and network
  - **Archive data:** Cost of labour, retrieval, post-processing, postage and media
- **Type of user**
  - Research or non-research
- **Handling charge is determined by Licensor**

Information cost

- **Costing formula based on the ratio between resolution of the current operational deterministic model and the resolution and area requested**
- **Cost differs for Real-Time and Archive data for the 'Valid factor'**
  - Valid factor is 1 for Real-Time Products
  - Valid factor is 0.2 for Archive data
- **Same from NMS or ECMWF**
- **No information charge for research and educational users**
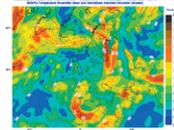
Handling charge - Archive data

- **If data is supplied by ECMWF**
  - **Costing formula includes two factors**
    - Number of requested days – factor different for each data set
    - Volume of requested products
  - The cost of media is fixed for any amount (except for USB LaCie) and is inclusive of postage
  - Minimum handling charge applies
  - www.ecmwf.int/products/data/archive/charges/handling_charge.html
- **If data is supplied by NMS**
  - NMS's handling charge applies
- **Some NMSs do not provide archive data service but delegate provision of archive data to ECMWF**

Handling charge - Real-Time Products

- **If Licensor is ECMWF**
  - Support fee + Contract and Set-up fees
  - Some fees are waived for maximum charge customers
  - More information from Data.Services@ecmwf.int

- **If licensor is NMS of an ECMWF's Member State**
  - NMS's handling charge applies

Web products tariff

- **The price is EUR 28,000 per year**
- **Web products are available 'as whole'**
- **On 'as is' bases**
- **No download**
- **For maximum charge customers web cost is included in the price**
- **Products can be added or discontinued at the discretion of ECMWF**

Maximum charge customer

- **Price per year is sum of**
  - EUR 140,000 information cost and
  - Licensor's handling charge

- **Daily real-time dissemination of up to 75GB at no extra cost if data provided over Internet**
- **Access to web products included**
- **Direct access to MARS included**
- **Open access to all products in the catalogue**
- **Can change Real-Time Products request over time to suit their changing needs and get test data**

How to become user of ECMWF Data Services

- **Within ECMWF territory**
  - Via NMS of an ECMWF's Member State or Type 1 Co-operating State
- **Outside ECMWF territory**
  - Directly to ECMWF Data.Services@ecmwf.int
  - Via NMS of an ECMWF's Member State or Type 1 Co-operating State
- **For information**
  - Go to www.ecmwf.int/products/data/
    - Browse the products, try the costing yourself, …
  - Send e-mail to Data.Services@ecmwf.int
    - To ask for more detailed information, to start the procedure, to organise free trial, to get data, …

Support that we provide

- **For users receiving Real-Time Products directly from ECMWF including delegated delivery**
- **Operational 24/7 Call-Desk support as for Member States**
- **We inform customers of**
  - Scheduled/non-scheduled interruptions to the service
  - Forthcoming Model changes effecting data sets
- **One week free trial for web data service for prospective customers**

Telephone	email
+44 118 9499 303	calldesk@ecmwf.int

Future

- **For maximum charge customers extend our on-line dissemination system to provide same support as for Member States**
  - Access and change dissemination requirements
  - Control transmission
  - Do testing

- **Further expand and improve on-line costing system for archive data**