

Data services: Archiving of UERRA data in MARS and dissemination

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ECMWF archive facilities

- **MARS** - (Meteorological Archive and Retrieval System) a managed archive. GRIB, BUFR and ODB (in future NetCDF).

Managed archive means the data has to follow a certain structure, based on archiving and retrieval patterns (needs to know how the data is going to be produced/used before deciding how to store it)

- **ECFS** - a file based archive, where users store files and it is up to them to describe the contents and tell other users

At ECMWF, any data which is not ready for MARS, is archived in ECFS. Once the data is understood, access patterns defined, then data modelling for the archiving in MARS is done.

Challenges in UERRA (Exeter, 1st GA)


- Re-Analysis data: observations and fields => Define the datasets and parameters to be archived (**IN PROGRESS**)
- Ensembles of Data Assimilations => May need proposal for standard GRIB2 templates (**IN PROGRESS**)
- Do we need to archive an experimental version before we consolidate into the final dataset? (**YES**)
- Sample data needed as soon as available to prepare for timely ingestion in the UERRA archive (**DONE/IN PROGRESS**)
- Technical contact point from each data provider (**DONE**)

TIGGE-LAM archive (Exeter, 1st GA)






Lessons learnt.. (and now including UERRA experience..)

- Good support web site with clear instructions and progress information helps coordinating archiving (**DONE/IN PROGRESS**)
- Partners should provide the data as closest to the final format as possible (**IN PROGRESS**)
- There can be a long way from the first data sample to the production archiving (**YES**)
- Output data quality control in many forecast systems is not often fully implemented so even simple data value ranges checking can discover interesting things (**IN PROGRESS**)

UERRA website at ECMWF




Spaces ▾ Calendars Browse ▾ **Create**







Dataset-Public

- + S2S
- + TIGGE
- + TIGGE-LAM
- + **UERRA**



UERRA
Home


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@ Created by Daniel Varela Santoalla, last modified by Richard Mladek on Nov 13, 2014

UERRA, Uncertainties in Ensembles of Regional ReAnalysis, is a project related to meteorological observations funded under EU - Framework Programme 7. It includes recovery of historical (last century) data, estimating uncertainties in the re-analyses and user friendly data services. It aims to contribute to the future Copernicus climate change service.

This site contains further links to:

- **News**
- **Description**
 - project information
 - participating models
 - archived parameters
- **Support**
 - general contact information
 - contacts to the data providers
- **Resources**
 - list of research papers
 - tools for data access and monitoring
 - archive and usage statistics
 - all information from the development phase of the archive




Quick links (Devel.phase)

- [Progress status](#)
- [Meeting notes](#)

Quick links

ECMWF

- [Support](#) 
- Data portal
- History page
- Monitoring
- UERRA project

External

- [UERRA project](#)

Navigate this space

EURO4M testbed

- Archive some data from EURO4M before UERRA samples are available
- Minimal effort solution chosen:
 - Original data in GRIB1 (no common definitions of the parameters)
 - Selected parameters only
 - Only test data portal for MO dataset (but standard MARS retrieval tools available)
- Sample data received from SE/DE/FR (+UK)

EURO4M testbed

15 selected parameters:

- 10 meter u-velocity
- 10 meter v-velocity
- Convective precipitation
- Large-scale precipitation
- Orography
- Snow depth water equivalent
- Snow fall water equivalent
- Surface air maximum temperature
- Surface air minimum temperature
- Surface air relative humidity
- Surface air temperature
- Time-integrated surface net solar radiation
- Time-integrated surface solar radiation downwards
- Total cloud cover
- Total precipitation

EURO4M testbed

EURO4M data from MetOffice in MARS:

- Only one dataset under class=euro4m
- No MARS key word originatingCentre was defined

Current solution for EURO4M datasets:

class=uk/se/de/fr
expver=eu4m

OR:

class=euro4m
expver=0001 => MetOffice
expver=0002 => SMHI
expver=0003 => MESCAN/MeteoFrance
expver=0004 => DWD/Cosmo

BUT NOT PREFERRED:

class=euro4m
OriginatingCentre = metoffice/smhi/dwd/meteofrance
Expver = 0001/0002/...

Type of level

Pressure levels

► Surface

About

► Conditions of use

Documentation

Navigation

Datasets

Batch access

See also...

FAQ

Accessing forecasts

GRIB decoder

EURO4M

Please **login** before retrieving data from this dataserver.

Select date

☒ Select a date in the interval 2008-01-01 to 2009-12-31

Start date: 2008-01-01

End date: 2009-12-31

Reset

☐ Select a list of months

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2009	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Select All or Clear

Select time

☐ 03:00:00 ☐ 09:00:00 ☐ 15:00:00 ☐ 21:00:00

Select All or Clear

Select step

☐ 0 ☐ 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

Select All or Clear

Select parameter

- | | |
|--|--|
| <input type="checkbox"/> 1.5m specific humidity | <input type="checkbox"/> 1.5m temperature over land |
| <input type="checkbox"/> 10 metre wind gust in the last 24 hours | <input type="checkbox"/> 10m U wind over land |
| <input type="checkbox"/> 10m V wind over land | <input type="checkbox"/> Clear-sky (II) down surface sw flux |
| <input type="checkbox"/> Clear-sky (II) up surface sw flux | <input type="checkbox"/> Convective precipitation |

EURO4M testbed

<http://apps.ecmwf.int/datasets/data/euro4m/> (not public)

Dataset-Public

- S2S
- TIGGE
- TIGGE-LAM
- UERRA
 - News
 - Description
 - Support
 - Resources
 - Development phase
 - Progress status
 - EURO4M testbed
 - Meeting notes



UERRA / ... / Development phase

Progress status

Created by Richard Mladek, last modified just a moment ago

Identified datasets

EURO4M

Model	Data status	Next milestone	By when	Progress log
COSMO (DWD)	Test data received	Archive	Feb 2015	<input type="checkbox"/> UER-4 - COSMO (EURO4M) OPEN
HIRLAM (SMHI)	Test data received	Archive	Feb 2015	<input type="checkbox"/> UER-2 - HIRLAM (EURO4M) OPEN
MESCAN (MF)	Test data received	Archive	Feb 2015	<input type="checkbox"/> UER-1 - MESCAN (EURO4M) OPEN
UM/4DVAR (MO)	Data archived			<input type="checkbox"/> UER-5 - 4DVAR/UM (EURO4M) OPEN

UERRA

Model	Data status	Next milestone	By when	Progress log
COSMO (DWD)	Test data received	Convert to GRIB2	Feb 2015	<input type="checkbox"/> UER-4 - COSMO (EURO4M) OPEN
COSMO/En (DWD)	Test data expected			
HARMONIE/V1 (SMHI)	Test data available	Convert to GRIB2	Feb 2015	
HARMONIE/V2 (SMHI)	Test data expected			
MESAN (SHMI)	Test data expected			<input type="checkbox"/> UER-6 - MESAN (UERRA) OPEN
MESCAN (MF)	Test data expected			
UM/4DVAR (MO)	Test data expected			
UM/En4DVAR (MO)	Test data expected			

Identified datasets

Feature	HErZ	HErZ	Met Office	SMHI	Météo France
Boundary conditions (forcings)	3 hourly ERA-Interim analyses and forecasts	3 hourly ERA-Interim and/or ERA-20C fields	6 hourly ERA-Interim fields	6 hourly ERA-Interim fields	HARMONIE
Model	COSMO	COSMO	Unified Model	HARMONIE	MESCAN forced by a downscaled (11km to >5.5km) HARMONIE (SMHI) or by ALADIN at 5.5km
Grid (projection) and Domain	CORDEX EU-11	CORDEX EU-11	CORDEX EU-11	Lambert, Europe-Atlantic 11km, as CORDEX-EU	Lambert
Ensemble members	1	10-20	20	1 (2 for a period)	1
DA method	Continuous nudging; Kalman filter analyses for soil moisture; Interpolation methods for SST, sea ice, and snow cover	Hybrid Ensemble Nudging / Ensemble Kalman Filter	4D Ensemble Variational	3D Variational upper-air / OI surface analysis	OI surface re-analysis after a static or dynamical downscaling
Short-term forecast	forecast basetime and steps	forecast basetime and steps	forecast basetime and steps	forecast basetime and steps	forecast basetime and steps
Time range	1978 to present	5 years	1978 to present	1961 to 2011	1961 to 2011

From the document „Deliverable D3.2 Preliminary table summarizing common evaluation procedures shared among WP3 partners“

UERRA datasets for MARS

Still varying demands what to archive

- **EURO4M:** 15 parameters
- **Deliverable D3.2** Preliminary table summarizing common evaluation procedures shared among wp3 parthners (in the paranthesis what's needed for verification): (~95 parameters)
 - model levels: 12 parameters (4)
 - pressure levels: 11 parameters (6)
 - surface/1D: 62 parameters (18)
- **COSMO** full data samples: ~120 parameters (all levels)
- **HIRLAM/HARMONIE** inventory (by Sébastien Villaume) (in the paranthesis what's expected for UERRA): (~87 parameters)
 - AROME/ALARO: 391 (68)
 - SURFEX: 386 (19)

UERRA datasets for MARS

What's archived for similar projects

- **TIGGE (GLOB)** (~37 parameters)
 - 8 pressure levels: 5 parameters
 - PT level: 1 parameter
 - PV level: 3 parameters
 - Single level: 28 parameteres
- **TIGGE-LAM** (10 parameters)
 - Single level: 10 parameteres
- **S2S** (~42 parameters)
 - 1-6 pressure levels: 6 parameters
 - PT level: 1 parameter
 - Single level: 35 parameteres

UERRA ODB datasets for MARS

- Cooperation with WP1 to archive rescued observations in MARS has started
 - Some issues found in the provided converted files (need to recode the data following ERA-CLIM recommendations to achieve MARS compliant ODB format)
 - Preliminary discussions with MetOffice colleagues how to archive observation feedbacks in MARS has started
- => need for clear instructions how to proceed but significant problems are not expected

Summary

Done:

- New GRIB2 class=ur (uerra) approved by WMO
- UERRA website at ECMWF
- Preliminary work on 4 EURO4M datasets archiving in MARS

In progress:

- Finish archiving of EURO4M
- Gathering first UERRA data sample
- GRIB2 common definitions and conversion tools to achieve identical UERRA/WMO compliant format for all datasets
- Data checking tool amendment (tigge_check)
- **TOP PRIORITY:** Inventory of all UERRA parameters & datasets' metadata to be able to start MARS and GRIB_API related developments