

# MARS project at METEO-FRANCE

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# Current status of data storage

- Volume of the archives
  - Operational models: now 7 PB, expected up to 40 PB in 2018
  - Research models: now 15 PB, expected up to 75 PB in 2018
  - Archive of the operational model database (BDAP archive, subset of the operational model archive): now 250 TB
  - On average data is kept in the archives for 3-5 years
- Organisation of the archives
  - Operational and research models: set of files on HPSS
    - Internal storage format (FA files)
    - Data encoded using a modified version of grib0
  - BDAP archive: set of files on HPSS, indexes stored in the operational model database.
    - Data encoded in grib1

# Objectives of the MARS project at MF

- To improve management of model archives
  - To harmonize the management of the archives
  - To provide a better service to access data than browsing through a huge filesystem
  - Optimized data access
    - MARS allows to optimize requests for data using physical storage information
    - Reduction of data transferred over the network: only requested data is transferred to the user
  - To ease opening of archives
  
- Better productivity expected!

# Technical aspects

- Current storage system at MF: IBM HPSS
  - Operating since february 2015
  - Will be upgraded periodically until 2018
    - Stored data volume increases on average by 60% each year
  
- Data formats
  - Model archives use an internal file format
    - modified grib0 encoding
    - Spectral coefficients fields for global and limited area models
    - Need to upgrade data format -> grib2 was chosen
      - Need for some evolutions of grib2 format.
  - Data stored in the BDAP archive is encoded in grib1
    - May be better to migrate to grib2
      - To reduce the use of local grib tables

# Project plans

- Not yet fully defined!
- The project should start in september 2016
  - Project details still have to be defined
- Main project tasks:
  - Set up of a prototype for lat/lon data (bdap archive or research models)
    - To become familiar with MARS software
    - To validate the archive organisation
    - To validate the use of MARS client with a user group
    - To prepare the infrastructure for ingestion of spectral data
  - Needed evolution of data formats
    - Probable cooperation with ECMWF on ECCodes (grib aspects)
  - Set up of spectral data archives
    - Interfaces with numerical model chains:
    - Development of a tool to convert internal file format to/from grib2
    - Conversion of older data for ingestion into MARS archive

Questions?



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