
Tutorial: Observational Handling and Monitoring ECMWF, Classroom 7th June 2011

Outline

- **Introduction: (D. Vasiljevic)**
- **MARS Data Access (M. Fuentes and P. Kuchta)**
- **ODB Tools (P. Kuchta and A. Fouilloux)**
- **METVIEW (S. Kertesz)**
- **OBSTAT (M. Dahoui)**

Observation Handling and Monitoring Project

- **This project has been set up about two and half years ago with 2 main aims:**
 - **to archive the ODB content in MARS instead of BUFR FB (FeedBack)**
 - **to unify, and further develop, all observation monitoring tools**
- **In order to achieve this, a new software needed to be designed and developed as well as the existing one to be reorganised**
- **Staff from RD (DA, Sat, ERA) and OD (MetApps, MetOps, Data Services, Graphics)**

Observation Handling and Monitoring - Archiving

- **Systematic, long-term and secure archiving of observation input and feedback information**
- **Flexible and fast retrieval of data including refined data queries, to allow fairly fine-grained extraction of subsets of data**
- **Improved access of the archived feedback data to make retrievals of several months of data a realistic prospect**
- **Improved description of the archive content through comprehensive documentation and the appropriate meta data**
- **Enable data discovery, by navigation through a browseable web catalogue**
- **Making maximum use of the current archiving facilities in MARS**
- **MARS software to be independent of changes in ODB contents**
- **Meet monitoring requirements**

- **Unified monitoring tool for all obs.: conventional, satellite, wave, GEMS etc., and all purposes: RD/OD/ERA with OBSTAT as a baseline:**
 - **SATMON and MetOps monitoring tools to be fully integrated**
 - **Built in automatic warnings system (data acquisition stage too)**
 - **Observation collocation functions to be included and developed**
 - **Monitoring statistics to be archived: 2D products in GRIB and 1D products in ASCII formats**
 - **Monitoring Web Page: all products, frequent updates, new events**
 - **Extensive use of Metview which is to be developed further to include more functionality for observation monitoring**
 - **Rely on Magics and MARS**

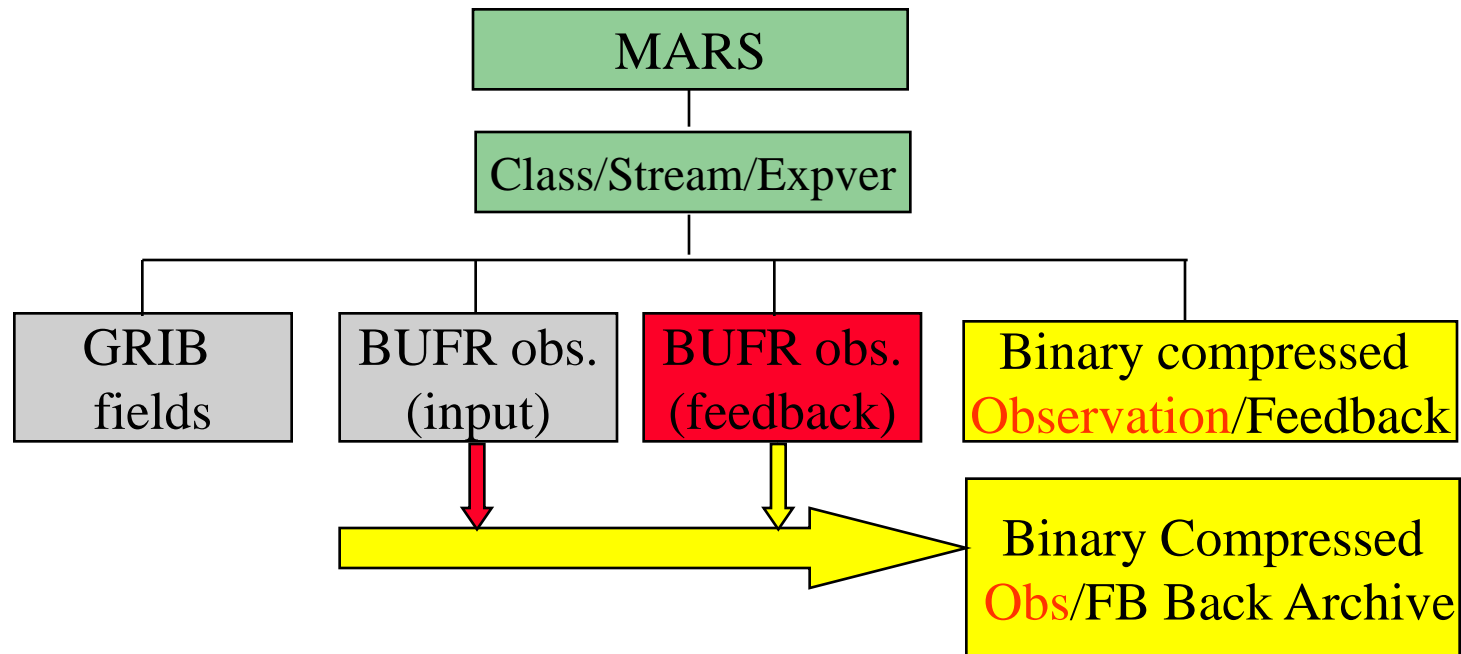
Observation Handling and Monitoring

Observation Handling and Monitoring - What do we want to archive?

- **Contents to be transferred to MARS via a *datum-oriented* data ‘dump’**
 - **Roughly a dozen observation-type dependent dumps – one per ‘*Group*’**
 - **Columns of data extracted from ODB**
 - **Entire data matrix + sql + data precision info. = archive object**
 - **To be compressed *ad hoc* (method to be defined)**
- seqno@hdr date@hdr time@hdr lat@hdr lon@hdr stalt@hdr statid@hdr status@hdr obstype@hdr codetype@hdr sensor@hdr bufrtype@hdr subtype@hdr entryno@body press@body varno@body obsvalue@body an_depar@body fg_depar@body status@body anflag@body

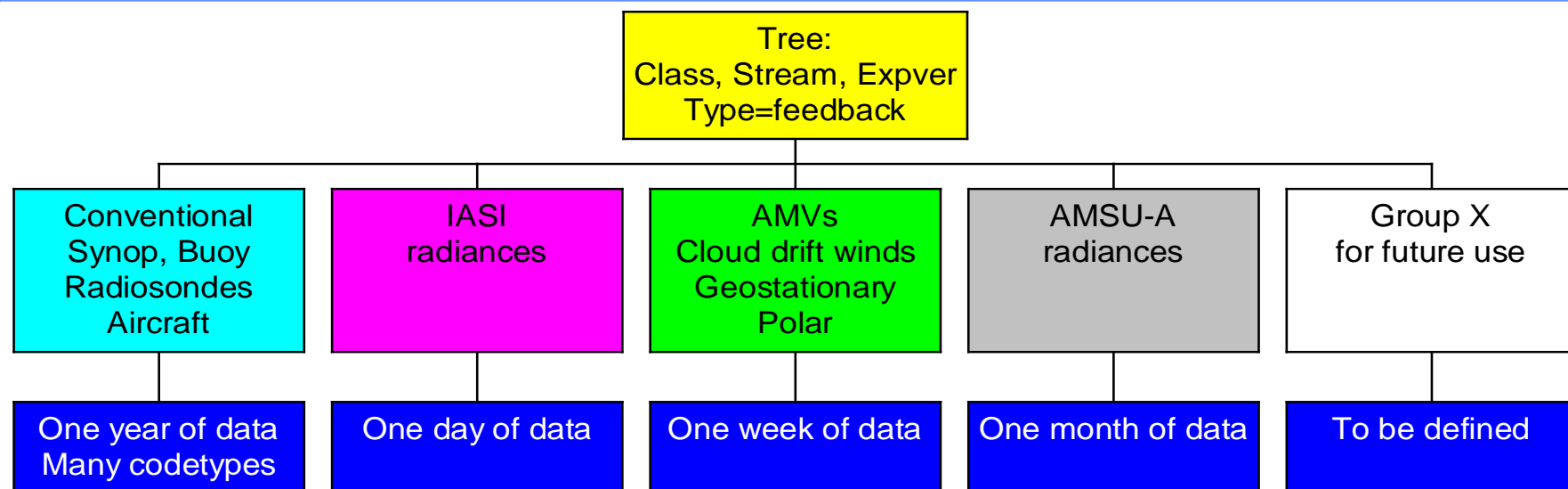
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Observation Handling and Monitoring Project - MARS



- At the moment neither the archive format nor the data volume are a big issue
- Should foresee decades of use and its evolution
- Data contents must be: self-described, accurate, tightly governed and permanent

Observation Handling and Monitoring Project – Archiving Groups



- Each blue box will be a 'File' on tape: ~ 10-100 Gb
- The 'Schema' of each box may be different
- Each box is filled from one ODB
- The contents of each box will be displayed in the browseable catalogue, listing
 - dates, hours, (which variables, obs. types,...)
- Optional filtering

- Based on how the data are processed, assimilated, diagnosed and monitored, the most natural way to archive observation would be by **Groups**
- **Groups** to be defined by obstype, codetype, sensor, or their combination
- Possible groups: AIRS, AMSUA, AMSUB, CONV, GEOS, HIRS, IASI, SATOB, REO3, SCATT, GPSRO etc.
- SQL + filtering would allow more specific retrieval e.g. selective by var no., lat, lon, station ID, time,...
- The smallest possible item that can be filtered/delivered is one **line** in the archive