



ČESKÝ  
HYDROMETEOROLOGICKÝ  
ÚSTAV

## Observation processing in ALADIN/LACE

Alena Trojáková

# Outline

---



- Overview of observation processing
- OPLACE
- Observation monitoring

# Observations

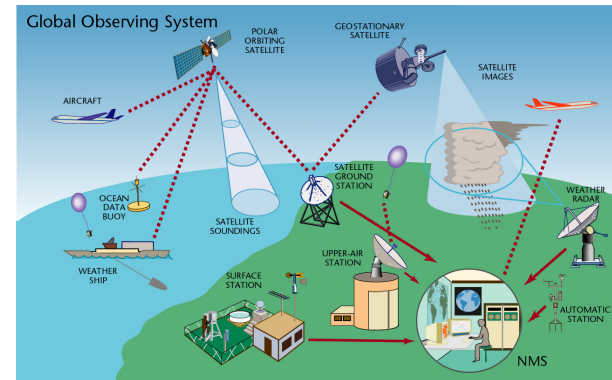


## Observations

- **Surface & Marine - SYNOP, SHIP,...**  
( $p, T_{2m}, RH_{2m}, v_{10m}, v_{10m}, RR, SST$ )
- **Upper-air - TEMP, AMDAR, AMV,...**  
( $u, v, T, q, \phi$ )
- **satellite - ATOVS, IASI, SEVIRI,...**  
( $T_b$ )
- **other platforms - radar, GNSS,...**  
( $DOW, Z, ZTD$ )

## Sources & formats

- GTS, EUMETCAST, other sources
- TAC (ASCII), BUFR, HDF5,



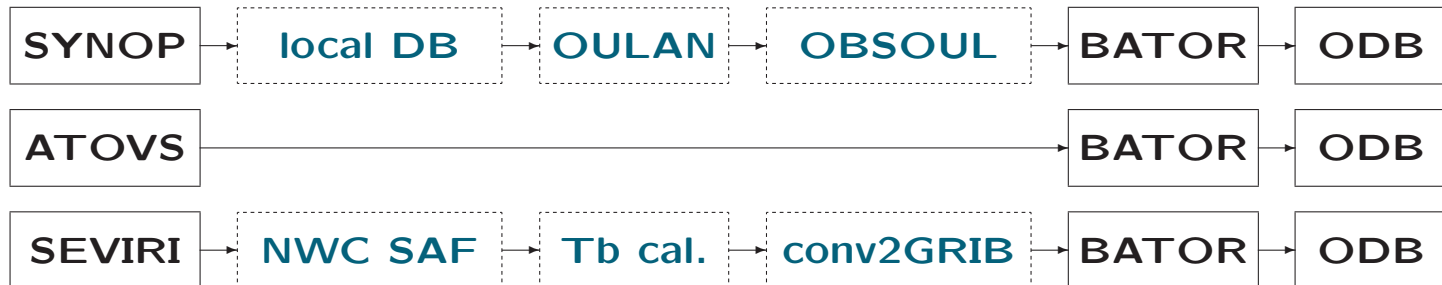
observing system (@WMO)

# Pre-processing



## Observation pre-processing

- decoding
- handling of GTS correction and amendment (duplications)
- conversion to the local database (various data formats)
- simple QC
- SAF NWC (SEVIRI, AMV)
- conversion to the suitable format for ODB conversion BATOR (BUFR, GRIB, OBSOUL/ASCII)





- **BATOR**

- conversion to ODB-1 format
- simple QC & filtering
- obs error (and/or other flags) assignment
- blacklisting
- geographical (LAM) selection
- supported input file formats:
  - **OBSOUL/ASCII** - conventional data (SYNOP, TEMP, ...)
  - **BUFR** - satellite (ATOVS, IASI,...), radar data
  - **GRIB** - SEVIRI radiances
- developed and maintained mainly by Meteo France
  - planned extensions for other formats (HDF5, netCDF)
  - to include the prep-processing of the OPERA radar data



## Observation Pre-processing system for LACE (OPLACE)

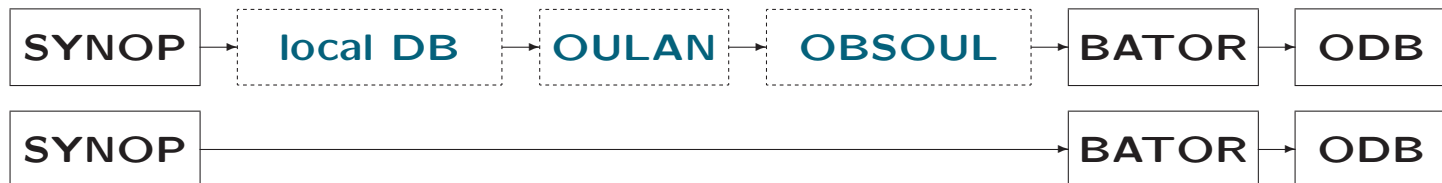
- observation pre-processing is demanding on local installations and maintenance mainly for small NMS
- common system for LACE Members (AT,CZ,HU,SI,SL,SK,RO) operated at Hungarian Meteorological Service (OMSZ) since 2009
- aimed to provide real-time obs for NWP and verification purposes and to share efforts on installation and maintenance
- based on already existing obs processing infrastructure of OMSZ (data acquisition,databases of conventional observations from GTS and satellite data processing from EUMETCAST, local netCDF databases are widely used)
- OPLACE uses following programs and libraries:
  - OULAN (soon to be removed)
  - simple tools to parse, split and merge ASCII and BUFR data
  - GRIB, BUFRDC libraries, (soon ecCodes)
  - EUMETSAT NWCSAF package (SEVIRI, HRW)
- OPLACE pre-processing itself takes ~3min
- OPLACE is not (or hardly) effected by the changes of the cycles.



- observations provided in hourly (+/- 30 min) time-slots with a quasi-continuous update in appropriate formats for BATOR

TYPE	TEMP	SYNOP, SHIP, DRIBU	PILOT, WPROF	AMSU, MHS, IASI	AMDAR, MODES-MRAR	GGEOWIND, HRW AMV	MSG-HR SEVIRI
Parameter /Channels	U,V,T,Q,Z	MSLP, T2m, RH2m, U10m	U,V	Tb amsua n15 mhs n5 iasi n500	U,V,T,(Q)	U,V	Tb n8
Incoming Format	TAC, BUFR	TAC, BUFR	BUFR	BUFR	BUFR	BUFR	HDF5
OMSZ database Format	netCDF	netCDF			netCDF		
Output OPLACE Format	ASCII (OBSOUL)	ASCII (OBSOUL)	BUFR	BUFR	ASCII (OBSOUL)	BUFR	GRIB

- progress has been made to simplify observation pre-processing and ongoing TAC2BUFR migration for conventional observation (SYNOP & TEMP) will further simplify OPLACE



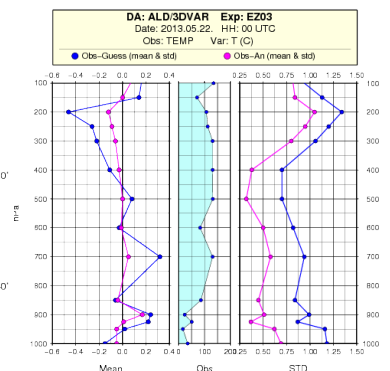
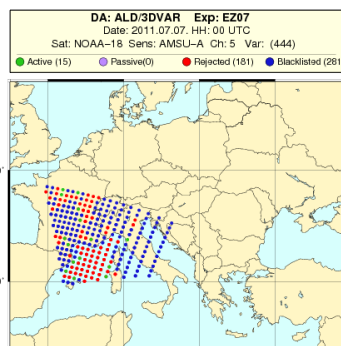
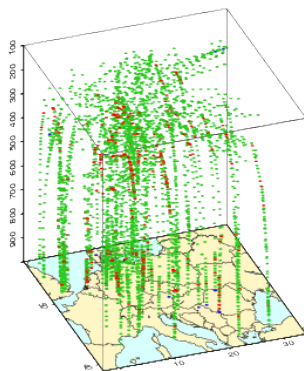


- OPLACE is a good example how to work together in an effective way and to save manpower
- LACE is opened to a cooperation with non-LACE countries, but OPLACE access is conditioned by manpower & contract





- An interactive web-based observation monitoring system for ALADIN variational data assimilation systems (3D-VAR, 3D-FGAT) was developed by Sandor Kertesz and is maintained by LACE DM
- allows visualizing the location, status and departure statistics for a given analysis date or for a selected set of analysis dates. As for the graphical products, various types are available: maps (2D, 3D), profiles, time-series, time-height cross sections, observation usage charts.
- both batch mode and data browsing through a web interface are possible
- Installation requirements:
  - bash, g++ compiler
  - GMT, netCDF library
  - web-server and PHP should be installed and enabled



- see <http://www.rclace.eu/forum/viewforum.php?f=40>



---

**Thank you for your attention.**