Report on DM Activity

Alena Trojáková

DHMZ   SHMU   OMSZ   ZAMG   ROMANIA ANM

Outline

- OPLACE
  - status
  - surface data exchange
- ODB support
  COPE
- Questions & problems

OPLACE

- maintenance & development is essential for progress in DA

- recent OPLACE extensions:
    - TEMP observation at 03UTC were added

    - migration of TEMP from the Traditional Alphanumeric Codes (TAC) to the Table Driven Code Forms (TDCF) such as BUFR is planned for November 2014

    - upgrade to handle TEMP data from BUFR format was prepared, but due to reported quality issues (BUFR encoded data are of lower quality due to coding mistakes) we propose to wait until the data quality stabilizes

    - new data: High Resolution Wind (HRW) developed by AEMET in the framework of NWC SAF to provide detailed AMVs is ongoing and extension of BATOR was prepared to allow technical reading of the HRW

- monthly monitoring updates:
    - extended for passively assimilated channels from NOAA 19 and METOP-A/B satellites

- there was one major issue (27-28 July 2014) Do we need a backup ?

- provide stable and reliable bases for the operational purposes

OPLACE

- access for non-LACE countries

  The non-LACE countries showed an interest to access OPLACE and RC LACE Council expressed willingness to cooperate, but the data policy must be carefully defined.

  Proposal: As data policy of surface synoptic data is problematic let's keep only essential surface data in OPLACE and to move all synoptic data to dedicated ftp (OPLACE_national).

  cons: It changes downloading procedure for Members, which anyway have to be adapted for the national data exchange
  pros: There will be no data policy issues on OPLACE data for non-LACE countries assuming being EUMETSAT member

  The procedure for OPLACE access for non-LACE countries is required and there are ongoing discussion of MG, LSC and Council.

Data exchange

- substantial number of local surface synoptic observations is available in LACE countries
- the agreement for the surface data exchange was approved by the end of 2013
- implementation has progressed and overview of the data, requested by Council, was prepared for August 2014

Data exchange overview - OPLACE

- the surface synoptic data available in OPLACE (Appendix-Sheet1)
- extracted at HMS from GTS
- comprise essential (RBSN) and additional stations

	RBSN	additional	only small updates
Austria	7	95	
Czech Rep	8	28	+1/-1 station ; hourly availability
Slovakia	4	22	
Hungary	7	24	
Slovenia	12	4	+1 station; 10 additional changed to RBSN
Croatia	7	33	
Romania	23	1	hourly availability

Data exchange – OPLACE

Hourly overview of the additional stations available in OPLACE

Data exchange OPLACE-national
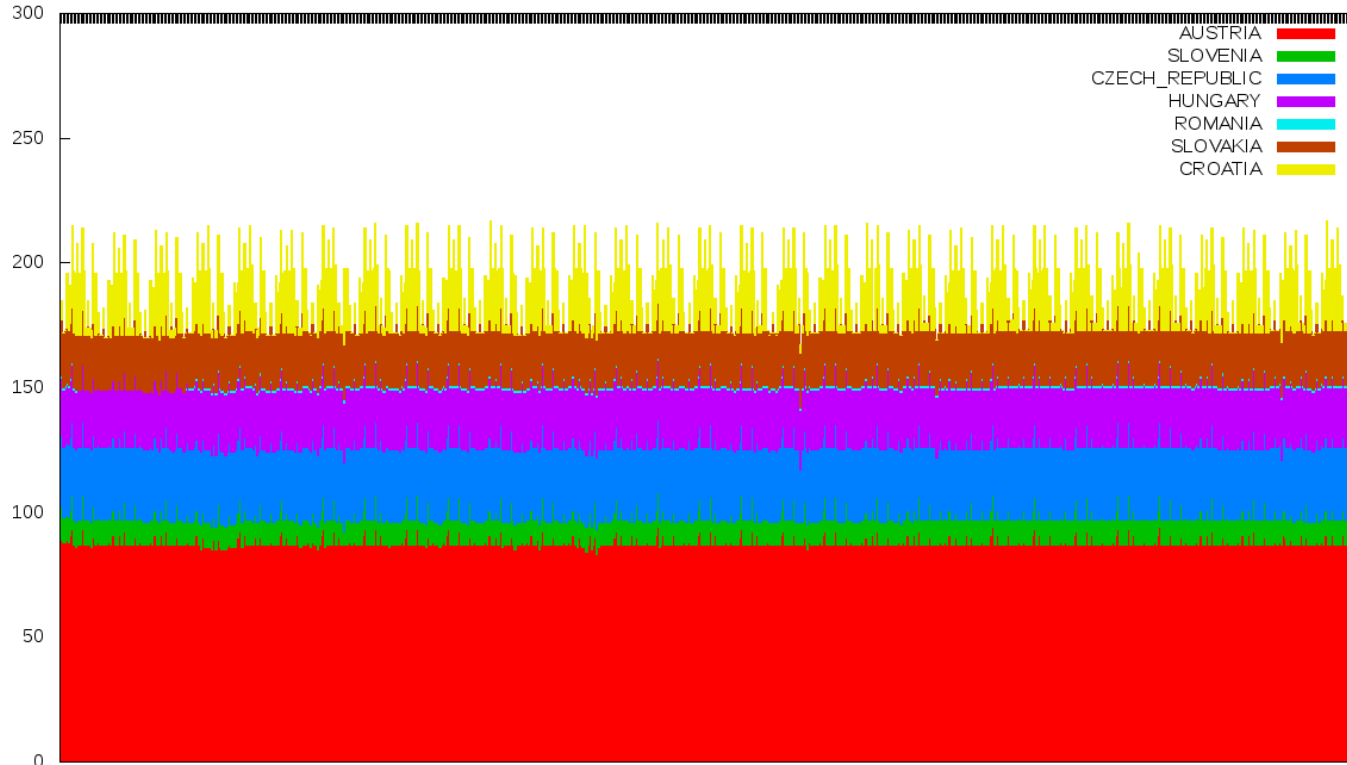
Data exchange – OPLACE-national

- the surface synoptic data in OPLACE-national (Appendix-Sheet2)

- the data uploaded by Members, except Romania (processed at HMS)

- the data comprise mainly national stations; Croatia and Slovenia provide also some additional and RBSN ones

- the stations list from 2010 was not optimal and Members reviewed (suppressed/added) some stations;

    – 16 Slovenian stations at SYNOP location is provided with IDs 14????

    – Croatia provides also additional and RBSN stations and it would be helpful to remove CR prefix from additional&RBSN stations

    – Slovakia started data provision in September 2014

	update	total number
Austria	-12/+7	167
Czech Rep	0/+1	92
Hungary	-7/+15	89
Slovenia	-11/+8	23
Croatia	-4/+29	37
Romania	-1/+27	134

Data exchange OPLACE-national

- time availability is good – data provided hourly;
- a few drop-outs in data provision, but the system is ready for an operational use.
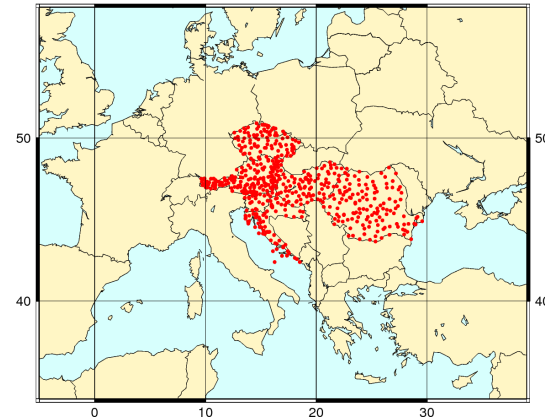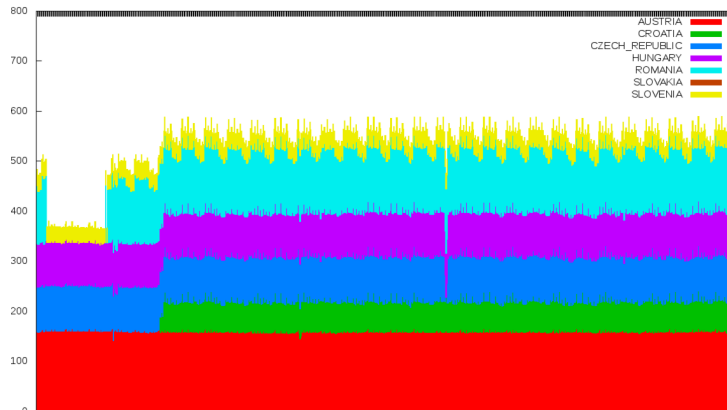
Members are invited to use all surface synoptic data from OPLACE-national to avoid the reduction of the data due to plan to open access to non-LACE countries to the OPLACE, which will provide only essential data thereafter.

Practically: stop download obsoul_1_xxxxxx from OPLACE and get both obsoul_1_xxxxxx and obsoul_1_xxxxxy from OPLACE-national

ODB support

- ODB support
    - support was provided upon request and LACE forum was updated;
    - do you have more requirements for ODB support and/or LACE Forum?
    - main efforts were dedicated to the COPE project. The DM has been involved in discussions and a kick-off meeting on status of the COPE and areas of possible collaboration between ECMWF, Météo France, ALADIN, RC LACE and HIRLAM.

COPE

The ECMWF project of Continuous Observation Processing Environment

- The main goals are to perform a substantial part of the observation processing earlier, to perform most of observation processing tasks using the ODB rather than BUFR format and to enhance early detection and handling of observation anomalies

- The COPE project is ongoing, but the full design is not yet set. In 2014 the project will focus on building infrastructure components, and create a proof-of-concept prototype

- The project will require a long term development. More advanced components that rely on background information would only be tackled in the coming year(s)

- To explore more options of software development the COPE is planned as "a community project", using Apache-2 as software license. The ECMWF is ready to facilitate the development, but the project will not necessarily be mainly driven by ECMWF staff, and contribution by other partners is more than welcome.

- Several areas of collaboration were identified during discussions on possible collaboration between partners:
  - decoders (telecom message to BUFR)
  - obs2ODB (bufr2ODB)
  - filters, facilitating pre-obs treatment and quality control.

Observation handling

ALADIN/LACE observation handling is closely linked with Meteo France

```
┌──────────────┐      ┌──────────────────┐      ┌──────────┐      ┌──────────┐
│     GTS      │      │                  │      │          │      │          │
│  EUMETCAST   │ ───▶ │  pre-processing  │ ───▶ │  BATOR   │ ───▶ │   ODB    │
│     ...      │      │                  │      │          │      │          │
│ local sources│      │                  │      │          │      │          │
└──────────────┘      └──────────────────┘      └──────────┘      └──────────┘
```
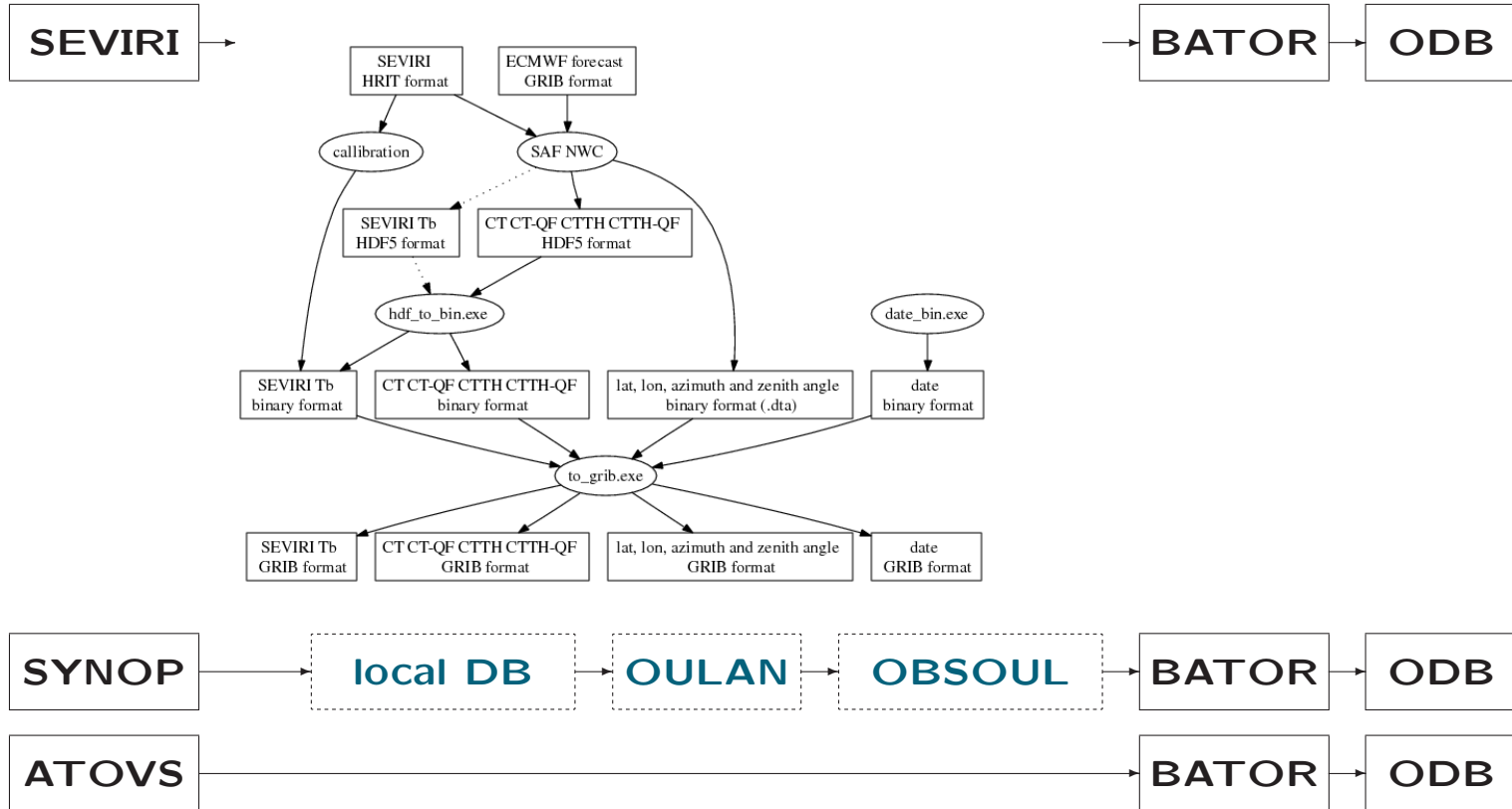
- pre-processing
    - decoding and simple checks
    - conversion to the local database (various data formats)
    - SAF NWC (SEVIRI, AMV)
    - conversion to the suitable input file format for BATOR
- BATOR
    - conversion to ODB-1 format
    - simple QC & filtering
    - obs error, eventually other flags, assignment
    - blacklisting
    - geographical (LAM) selection
    - supported input file formats:
        OBSOUL/ASCII - conventional data (SYNOP, TEMP, ...)
        BUFR   - satellite (ATOVS, IASI,...), radar data
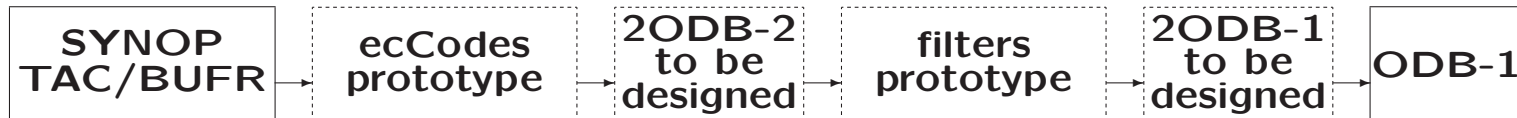   GRIB   - SEVIRI radiances

Observation handling

SEVIRI

BATOR → ODB

SEVIRI
HRIT format → callibration

ECMWF forecast
GRIB format → SAF NWC

SEVIRI Tb
HDF5 format

CT CT-QF CTTH CTTH-QF
HDF5 format

hdf_to_bin.exe

date_bin.exe

SEVIRI Tb
binary format

CT CT-QF CTTH CTTH-QF
binary format

lat, lon, azimuth and zenith angle
binary format (.dta)

date
binary format

to_grib.exe

SEVIRI Tb
GRIB format

CT CT-QF CTTH CTTH-QF
GRIB format

lat, lon, azimuth and zenith angle
GRIB format

date
GRIB format

SYNOP → local DB → OULAN → OBSOUL → BATOR → ODB

ATOVS → BATOR → ODB

Observation handling

ALADIN/LACE processing chain:

| SYNOP TAC/BUFR | → | "old" decoding | → | local databases | → | OULAN | → | BATOR | → | ODB-1 |

COPE processing chain main components:

- ecCodes: supporting GRIB, BUFR, and try to include ODB,
- Harmonized ODB libraries and interfaces, ideally following ecCodes concepts,
- Simplified filter interfaces, and
- MARS interfaces.

| SYNOP TAC/BUFR | → | ecCodes prototype | → | 2ODB-2 to be designed | → | filters prototype | → | 2ODB-1 to be designed | → | ODB-1 |

Main features:

- use ODB rather than BUFR format
- conceptually,observation processing can be seen as a sequential application of various transformations on each report in the observation database;
- the idea is to break the complex processing task into smaller, manageable steps that can be chained one after another

COPE & OPLACE

Relevance to the OPLACE

- currently and most probably also in a short term (1-2 years) there is no consistency issue between the COPE and the OPLACE

- the COPE is expected to provide a new frame-work for observation processing and conversion to ODB, but the project is in an early stage of development and there are still open questions regarding design and ODB

- RC LACE heavily relies on Météo France regarding the development of observation processing and conversion to ODB (BATOR) and it would be good to take the COPE project as an opportunity to get more involved

Proposal

- collaboration on the COPE project is of an interest for RC LACE

- main area for possible collaboration was identified as work on identification and externalization of the filters included in ALADIN/LACE observation processing components (OULAN, BATOR, screening)

- only limited resources were identified within RC LACE at the moment. The collaboration on COPE will be advertised during the DAWD. There is a need to find contributor(s). Some programming experience with C++ and/or Python would be an advantage

Questions & issues

- **Questions**

    Do we need a backup for OPLACE ?

    Do we have more requirements for ODB support and/or Forum?

- **Issues**:

    The non-LACE countries showed an interest to access OPLACE and a decision of the Council is awaited in order to finish necessary data policy restriction to the OPLACE.

    The Members are kindly invited to use all (essential&additional) synoptic data from OPLACE-national to avoid the data reduction due to plan to open the non-LACE countries access to the OPLACE, which will provide only essential data thereafter.

    The Members are kindly invited to consider a contribution to the COPE project.

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Thank You for Your attention !