The present status of radar data assimilation in RC LACE

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Overview

- Radar network

- Data conversion problem

- Quality control

- Recente status

- Radar data collection

- To do list

Radar network

23 Doppler radars

Country	C-band	S-band	Dual pol.	Range (km)
Austria	5	0	1	224
Croatia	0	2	0	260
Czech	2	0	0	260
Hungary	3	0	0	240
Slovakia	3	0	1	200 - 250
Slovenia	1	0	0	250
Romania	3	5	0	230 - 240

Data conversion problem

- BATUR input

    - MF BUFR

    - PPI volume scan

    - Cartesian coordinates

- CONRAD

    - Converts other data formats in to the MF BUFR

    - Implemented formats: Prorad, OPERA BUFR, HDF-5

- CONRAD-RC

    - C++ classes for reading radar data

    - Works as plug in for CONRAD

Data conversion problem (*cont.*)

- CONRAD-RC

  - PPI volume scan

  - Polar coordinates (converted in Cartesian before entering CONRAD subroutines)

  - Implemented formats: BUFR (Austria), IRIS RAW (Croatia, Slovenia)

  - It is easy to implement other formats.

- Direct conversion to MF BUFER

  - Hungary: national data format converted directly in MF BUFR

- INCA

  - National format is converted in ODIM HDF-5 (Slovakia, Czech)

Quality control and flags

- Non meteorological signals must be removed or recogniyed.

  - Ground and see clutter, anomalious propagation, birds …

- Flags

  - Ground clutter, orographic beam blockage, no signal, rain, …

- Radar software usualy removes many wrong signals

  - Doppler radars: removal of ground clutter

- There is no QC in LACE radar data assimiolation.

- Possible choices:

  - BALTRAD QC (data must be in ODIM HDF-5)

  - Slovak QC for INKA (reads ODIM HDF-5).

Quality control and flags (*cont.*)

- Flags in CONRAD-RC

    - Rain flag

    - No data flag

    - Beam blockage by orography must be there, at least

- Present usage of radar data

    - Data are cleaned by radar software

    - Radial wind can still remain aliased.

- There is a problem of radar calibration

    - There is no common method of calibration.

    - Two radars could gie differente values of reflectivity.

Recent results

- Data conversion

  - Austria, Croatia and Slovenia: with CONRAD-RC

  - Hungary: conversion with their software

  - Romania: data format is not yet known

- BATOR

  - With CONRAD-RC can be used without modifications

- Screening and minimization

  - For AROME: Austria and Hungary

  - For ALARO: Croatia, all data rejeccted in screening (technical problem)

  -

Radar data collection

- Period: 1 May to 30 June 2012

- Operational PPI volume scans

- Frequency: 1 hour

- Tasks

  - to do quality control

  - To compare for differences due calibration

  - To see how screening and minimization work with these data.

  - To do passive assimilation.

  - To do impact studies

To do list

- Solve the problem of data conversion

    We must be able to get data from all countries in ODB

- To decide about quality control

- To solve technical problems with ALARO

- To do tests with collected data

- To do impact studies

- To develope data exchange for operational use.