

Slovenia
Status of ALADIN operational activities
(September 2017)

Computer system SGI ICE-X

Technical characteristics:

- 61 compute nodes installed in two racks, every compute node has 64 GB of memory and 2 eight core Sandy Bridge processors (E5-2670 @ 2.6 GHz) (976 cores)
- 11 Intel Broadwell compute nodes (308 cores)
- two infiniband FDR networks
- 500 TB of disk space (HA NFS)
- Robot tape library

Software:

- queueing system: Altair PBS Pro 13.2
- intel compiler 16.2, SGI mpt 2.13

OPERATIONAL SUITES

SIS4: 4.4 km RUC data assimilation suite:

- cy40t1bf7, ALARO-1vB
- 4.4 km, 87 vertical levels
- 421 x 421 points, (432 x 432 with extension zone), E224x224
- 180 s time step,
- four production runs per day: 00, 06, 12, 18, forecast up to 72 hours, additionally four production runs 03, 09, 15, 21 up to 36 hours
- space consistent coupling, no digital filter initialization,
- lateral boundary conditions from IFS model (time lagged coupling)
- coupling at every 3 hours

- 3 hour assimilation cycle,
- B matrix produced by downscaling IFS ensembles – created at ECMWF with Harmonie scripting system,
- CANARI surface analysis using surface observations (T and RH at 2 m),
- 3DVAR upper air assimilation,
- lateral boundary conditions from IFS (time lagged coupling for 03, 09, 15, 21)
- coupling every hour,
- observations: OPLACE data and local observations (SYNOP),
- assimilation of Mode-S aircraft data from Ljubljana airport,

SIS4ar: 4.4 km coupling with ARPEGE

- analysis from SIS4
- lateral boundary conditions from ARPEGE model
- four production runs per day: 00, 06, 12, 18, forecast up to 72 (60) hours
- the rest is the same as in SIS4 production run

- *LACE observational monitoring system installed from the first export package (used till August 2016)*
- INCA analysis and nowcasting system is operational under ecflo
 - temperature, humidity, wind and several convective indices are updated hourly
 - precipitation type, rain and snow rate products are updated every half an hour
 - INCA2 precipitation analysis updated every 10 minutes
 - INCA2 shortwave radiation analysis updated hourly
- CROCUS model (from SURFEX)
 - daily runs during winter 2016/17
 - snow cover analysis with the inputs (precipitation, radiation) from ALADIN and INCA
- LAEF
 - daily transfer of grib files from ECMWF
 - visualization in Visual Weather (EPSgram, each member)
 - precipitation and temperature data from each member are used as input data for running the flood forecasting system simulations on river basins
- Operational applications linked to ALADIN output
 - BOBER hydrological forecast for 241 river catchments in Slovenia
 - Ocean circulation models, wave models and storm surge models
 - CAMx photochemical dispersion model

The computer system and operational suite is controlled by NAGIOS supervision system. All operational suites are running inside ecflo workload manager.

MILESTONES

4 July 2017

- upgrade of the operational suites
 - cy40t1bf7
 - physics package ALARO-1vB
 - DA: new B matrix

August 2017

- hardware upgrade
 - additional memory: from 32GB to 64GB per node
 - 11 new nodes (28 cores, 128GB per node)
 - Robot tape library (700TB)
 - additional disk space (350 TB)
- software upgrade
 - IntelFortranCompiler 16.2, SGI mpt 2.13
 - Altair PBS Pro 13.4