# HARP

## news

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ALADIN WS & HIRLAM ASM
Helsinki, 3.-6. 3. 2017

Current status

Ongoing work

More to come

# Current status

HARP = Hirlam-Aladin R-package:
A system for NWP verification built upon R

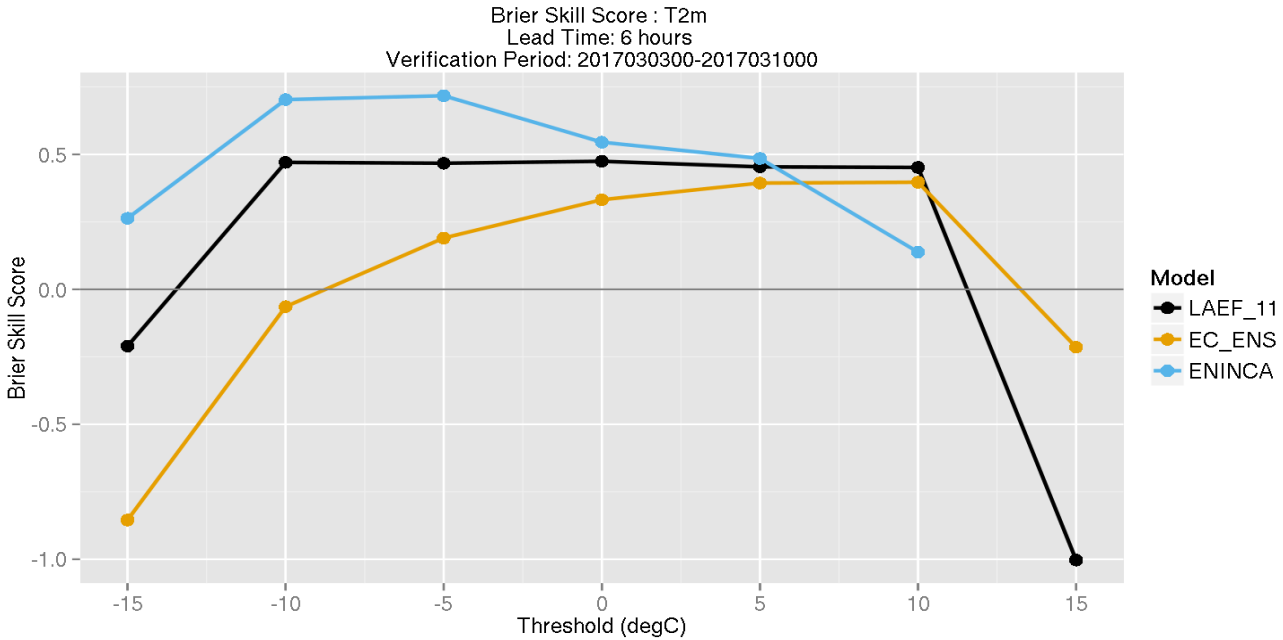
- Read forecast and observation data
- Calculate verification statistics
- Interactively plot verification scores and statistics

Version **1** (available since 2015)

- For EPS only
- On ecgate and as a local version (hirlam.org)
- Online documentation: docs.google.com

# Current status

As seen in many presentations on GLAMEPS, Harmoneps, LAEF, ...)



# Ongoing work

Towards version 2 until Summer …

- **Updates** in HARPeps
- **Release** of HARPspatial
- Adapting code for recent changes in standard R-packages
- Speed-up of verification routines of HARP-specific R-packages
- Cleanup in call of functions for better readability
- Update of installation-script (simplifications)

# Ongoing work - HARPeps

Observation error check:

- Realistic bounds of observation values
- Standard deviation check

Comparison of EPS-systems with overlapping areas

- Common stations / area
- Common dates

Adding a package for plotting maps

- leaflet package only works online

# Ongoing work – HARPspatial

Overhaul of code

- All configuration/setup and code is now in in R-scripts or R-packages
  - No setup or configuration in shell or python any more.
- New implementation of SAL (speed-up, R-package by Alex)
- FSS, HK and ETS are available (again in a much faster version by Alex)

Decoders for spatial data

- grib, FA, HDF5, netcdf, ascii (Inca)
- Spatial observations: Radar reflectivity / rainrate, Cloud BT, precipitation

# Ongoing work – HARPspatial

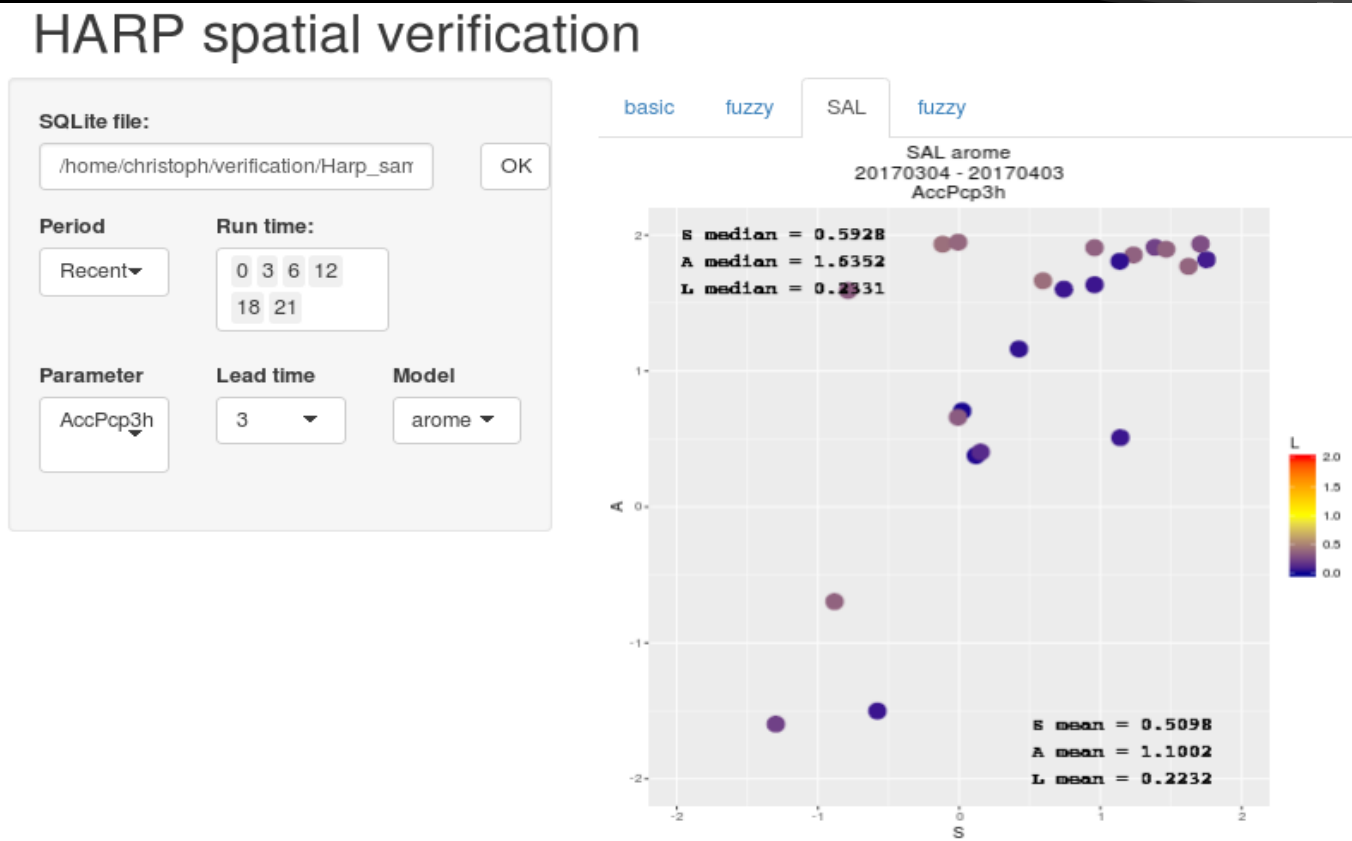
Running HARPspatial is already possible (beta)

- Configure forecast and observation properties
  (domain, format, range, increment, cycle, …)

- Set domain – forecast and observation separately

- Decoders for spatial data already exist
  grib, FA, HDF5, netcdf, ascii (Inca)
  Spatial observations: Radar reflectivity / rainrate, Cloud BT, accumulated rain

# Ongoing work – HARPspatial




Shiny:
Currently working on visualization inter-face

# Ongoing work – HARPspatial

HARPspatial ready before summer holiday?

- Clean code (config-file, decoder examples, …)
- Test fast versions of SAL and fuzzy scores (HARP R-packages)
- Work on shiny app needed
- Test in different environments and support preparation of decoders
- Feedback
- Documentation

# Ongoing work - additional

Some side - products

- Tool to visualize FA- and Grib-files directly
- HARPeps used for deterministic verification

# More to come

Spatial verification of EPS

- Join HARPeps and HARPspatial
- Research/develop for methods
- Structure of data tables

Further upgrade of HARPspatial

- Add selection of methods (HARP R-packages for speed)

HARPeps on the fly

- Work on efficiency of verification routines

HARPdeterministic

- Independent of HARPeps

# Summary

- Version 1 (EPS) used in the community
- Constant improvements added in HARPeps
- Activities to improve performance → HARP R-packages
- Complete overhaul of HARPspatial
- Version 2 (EPS + spatial) awaited until summer
- Side-products
- Ideas for joining EPS and spatial + adding a HARPdeterministic

# Thanks!