



status and plans

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5 years of Harp (v1 and v2)



HARP: continuous development since 2013:

Developing **EPS** and **spatial verification tools** in a common effort
(**Hirlam-Aladin R** & **Python** tools for verification)

- Based on available R-packages
- Shell/Python scripts
- Deal with spatial data-formats (GRIB, FA, netcdf4, hdf5) and station data (SYNOP, local networks)
- Decoder for native data-formats (INCA, lightning data, local radar data, ...)
(projection, grid size and distance, ...).
- Lots of scores for EPS, few spatial methods (FSS, ETS, SAL)
- Documentation on google docs

5 years of Harp (v1 and v2)



Quite sufficient tools ... BUT

- Install R
- Install package dependencies
 - install system libraries
- Download and install harp
 - “in-house” R-packages
 - suite of shell scripts
 - Configuration files
- Edit configuration file(s)
- Script to interpolate forecasts to stations or observation grid
- Run script to convert observations to sqlite or observation to forecast grid
- Run script to compute verification scores
- Visualise results (interactive)

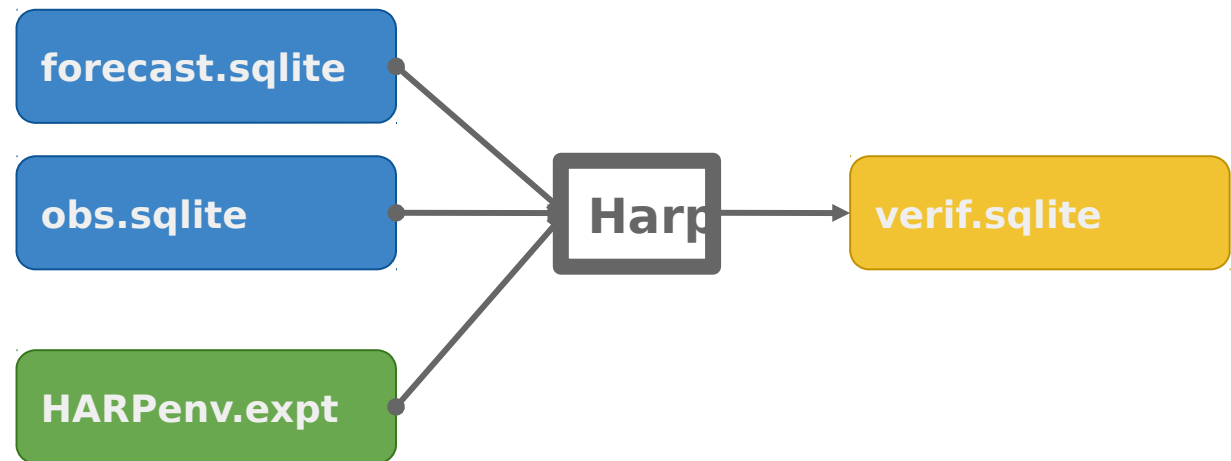
5 years of Harp (v1 and v2)



courtesy of
Andrew Singleton

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- Visualize results



Harp v1 and v2: recap

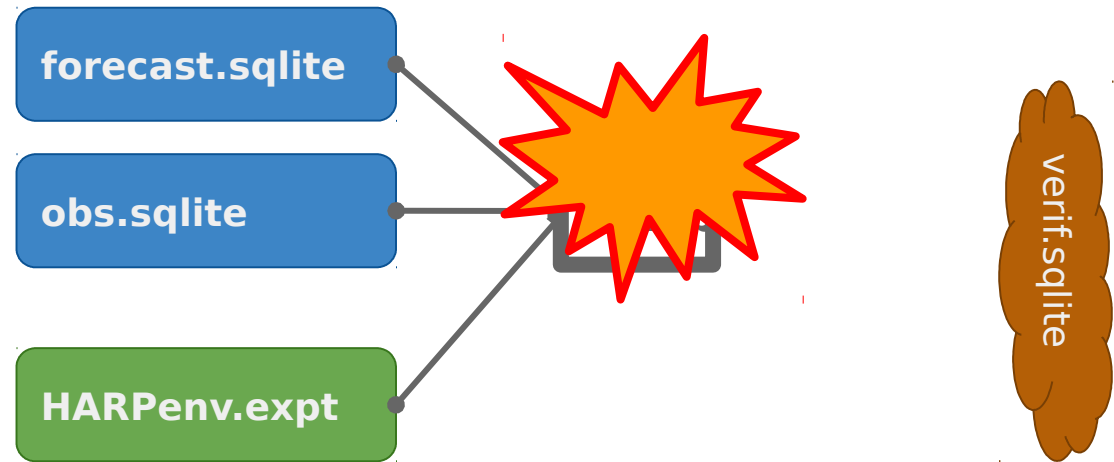


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BUT ...

When Harp fails:

- Installation
- Scripts
- Platform
- Environment
- ...



Frequent interaction between user and developers



Enhance usability ... for developers

- From R-scripts to R-packages >>> **harpIO / harpPoint / harpSpatial / harpVis**
- Stricter rules of use of functions
- Reduce interaction of users at code level (packages)
- Portability between platforms
- Documentation at package / function level
- Tutorials and examples
- Making packages easily available (GitHub)



Enhance usability ... for users

- Installation handled by R (mainly packages)
 - Get it from GitHub
- No complex scripts ...
- Executing harp interactively
 - Follow the harp workflow
 - Visualize verification results AND forecasts and observations
 - In line documentation of your verification work (markdown)



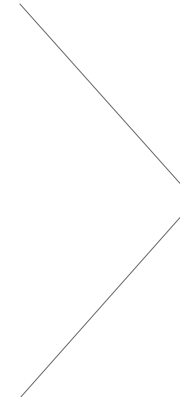
R packages for harp:

harpIO

harpPoint

harpSpatial

harpVis



harp



R packages for harp:

harpIO

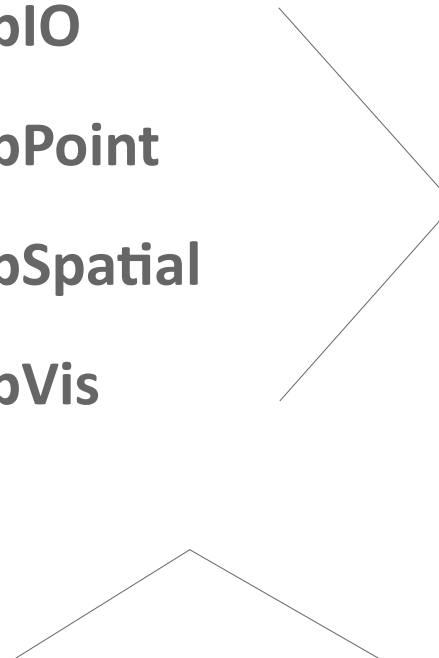
harpPoint

harpSpatial

harpVis

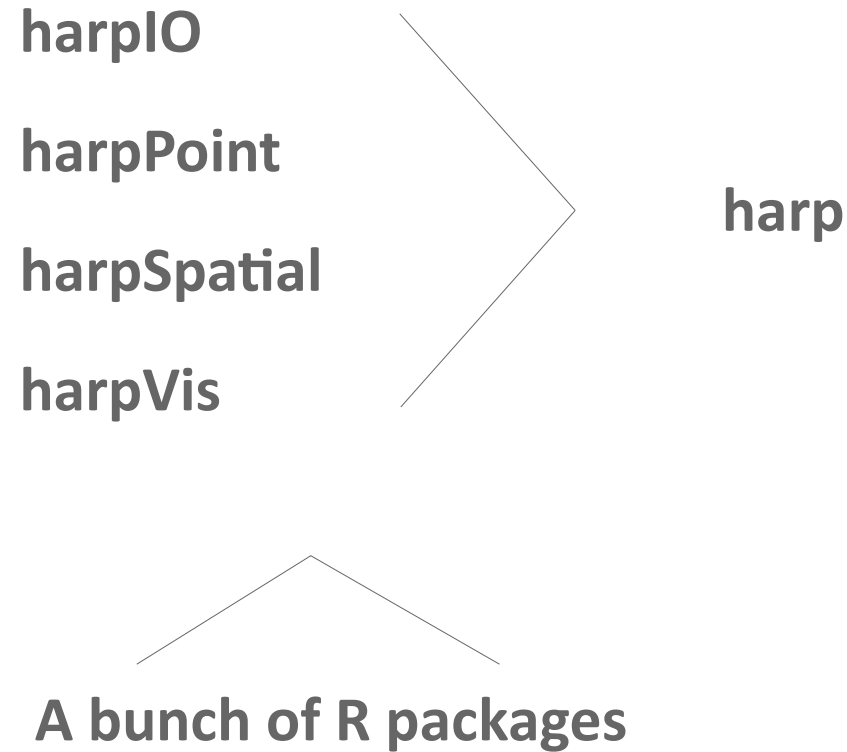
harp

A bunch of R packages





R packages for harp:



- Independence of platform
- Documentation inside R
- Interactive use of R packages within Rstudio, markdown, ...



Main task during last months:

- From R-scripts to **R-package(s)**
 - Complete re-organization of
 - EPS (harpPoint) and
 - Spatial verification (harpSpatial)
 - Tidy verification data (tidyverse)
 - Inclusion of deterministic verification (explicit functions)
- Turn IO-scripts into R-package with IO-functions (harpIO)
- Update of visualization (harpIO)
 - Universal plotting functions for scores and observations / forecasts



Available? Alpha version

harpIO



Functions to **read** (& interpolate) meteorological data

grib

netcdf

FA

vfld / vobs

Functions to **write** station & verification data

Sqlite database files

R Data files



Available? Alpha version

harpPoint



Functions for **point** verification

EPS scores

Deterministic scores

Statistical tests



Available? Alpha version

harpSpatial

Functions for **spatial** verification

FFS

SAL





Available? Alpha version

harpVis



Functions for **potting** scores

Functions for **plotting** meteorological data

Maps

"Metograms"

Experimental probabilistic visualizations

Interactive **shiny** app(s)



Ready for testers?

- Contact us and get it from GitHub
- Don't expect it to be perfect
- Play around and help us improve it



What is still wanted

- Cleaning of packages
 - Improve and finish inline documentation
 - Bug-fixing
- Extend tutorials
- Add examples
- Have a user workshop (planned for mid September 2019)
- Add / develop more methods for spatial verification
- Get an official OK for the GitHub

install.packages("harp")

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Thanks!