



Status and Plans

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HARP v2 released in November 2017:

1) First official version of the harp spatial tools

- Deal with different spatial datasets: GRIB, RFA, netcdf4, hdf5, native INCA
- With your own native dataset you need to know about the properties to write a decoder (projection, grid size and distance, ...).
- Includes fuzzy (FSS, ETS), object oriented (SAL) and point verification scores (calculated on the grid)

2) Adjustments to the harp EPS tools

3) Updated documentation on google docs

- <https://docs.google.com/document/d/1hx6FRtKvwuiu5s8k5SKxsAkgcnYzBK2IUZsuy9Vsn5Bk/edit>



HARP v2 DOCUMENTATION

CONTENTS

1. Introduction

WARNINGS

2. Installation

How to get HARP

```
export https_proxy=http://proxy.ec...
```

```
GIT_SSL_NO_VERIFY=true git cl...
```

```
GIT_SSL_NO_VERIFY=true git pull
```

Quickstart on ecgb (ecgate)

```
HARPDIR=$PWD ./INSTALL
```

```
cd Rlib.src
```

If you haven't installed HARP at \$...

```
HARPDIR=$HOME/Harp
```

to the location of your HARP dow...

```
ksh ./rlib
```

NOTE:

docs.google.com/document/d/1hx6FRtKvwiu5s8k5SKxsAkgcnYzBK2IUZsuy9Vsn5Bk/edit

Extensive documentation

- How to get harp
- Installing harp and all other software it depends on (grib_api, eccodes, R-packages, ...)
- Setup of experiment and running harp EPS and spatial
- What do the SQLite output tables look like
- How to work with the shiny app for visualizing verification scores
- ... we know it is not perfect but we also rely on comments, questions and reported problems.

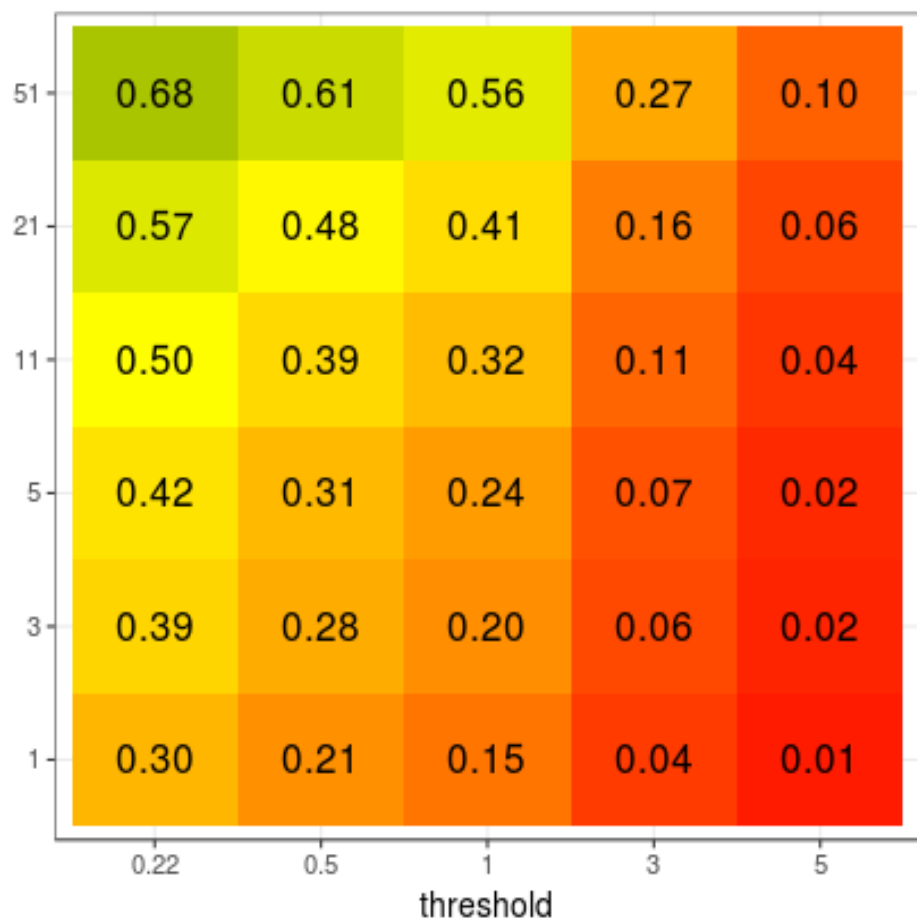


First official version of the **harp spatial** tools

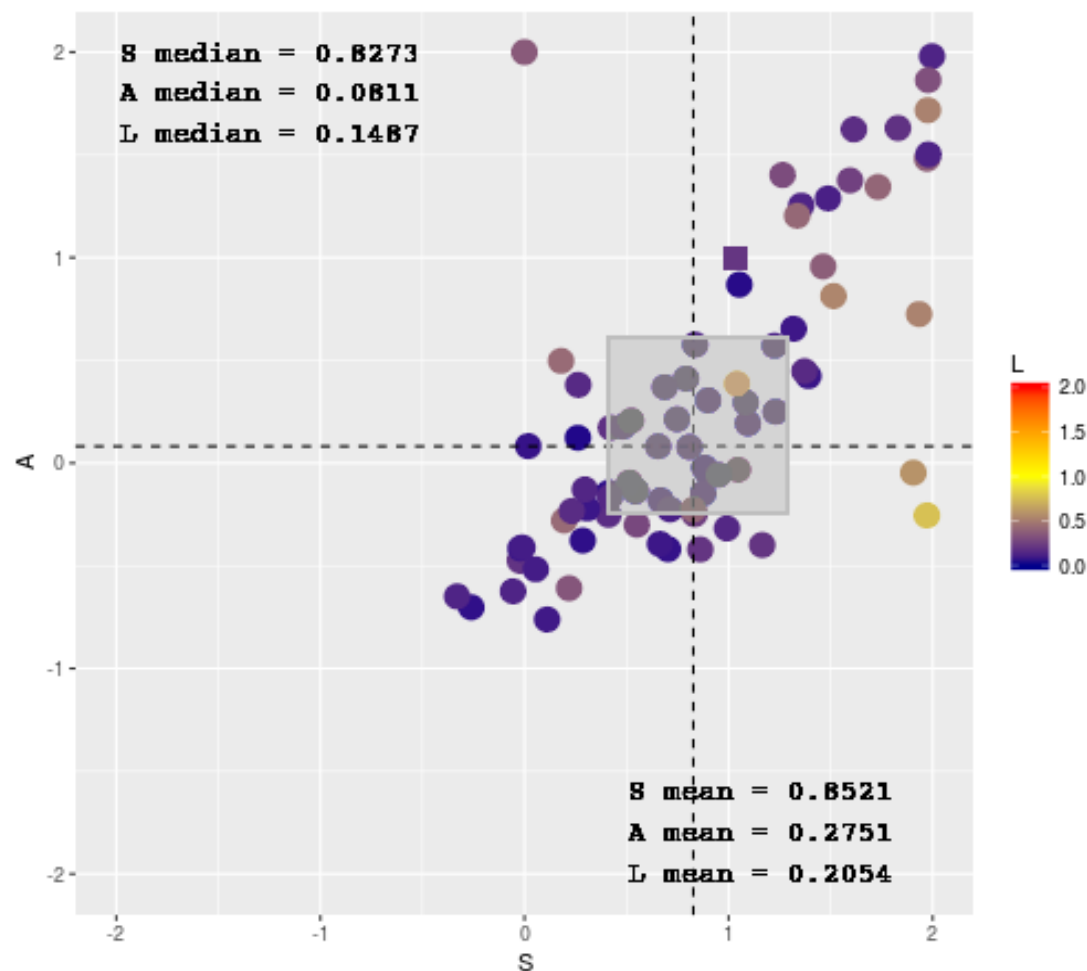
- Fully functional with GRIB, FA, netcdf4, hdf5 and native INCA format
- Shiny app for visualization included
- Usefulness of spatial scores is a question of:
 - quality of spatial observation data . A data-viewer would be nice
 - Parameter and selection of method!
 - **FSS is not meaningful for parameters having high frequency BIAS**
 - **Interpretation of SAL, CRA for scattered (non homogeneous) forecasts is tricky**
- Base for development and adding your own functionalities
 - Any kind of spatial observation (e.g. lightning data, AMV, brightness temperatures, ...)
 - Spatial verification methods (CRA, MODE, anything you think of yourself?)

Verification of lightning density forecast (summer, afternoon – night thunderstorms)

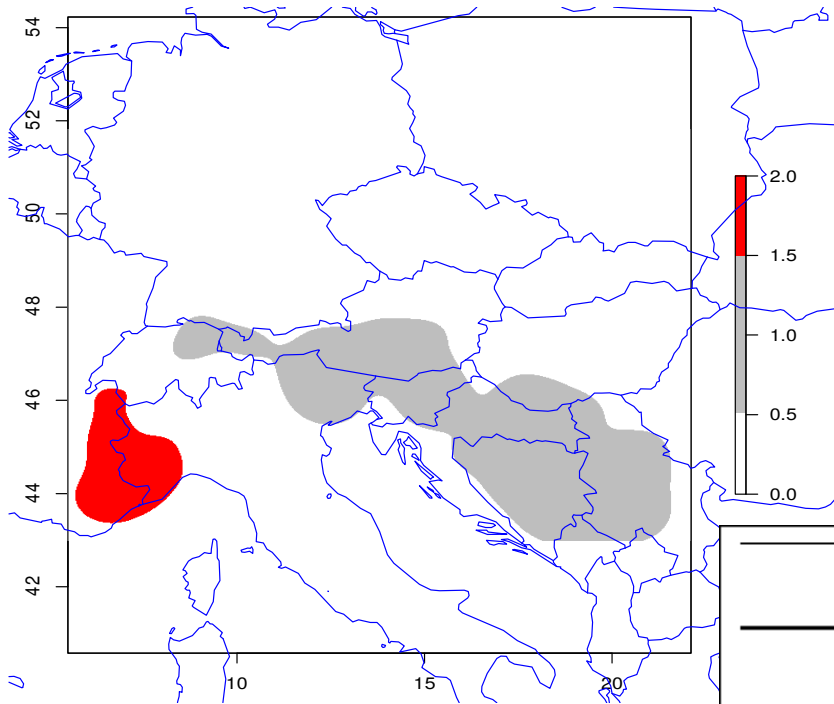
fss arome
2017-06-01 - 2017-08-31
Lightning



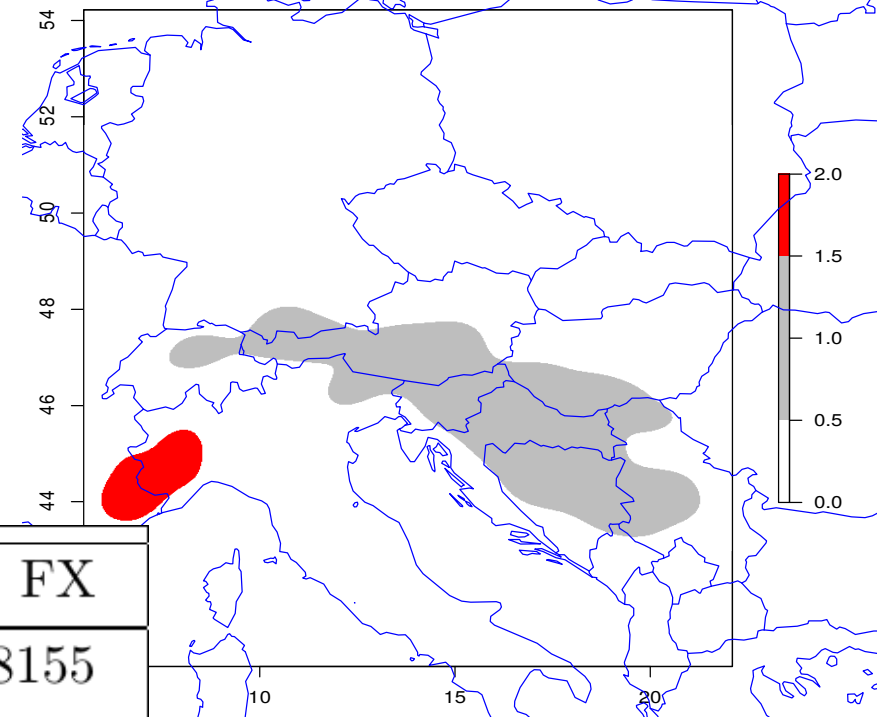
SAL arome
2017-06-01 - 2017-08-31
Lightning



Verification of lightning density forecast with CRA



forecast



observation

	FX
x	1.8155
y	-5.2715
MSE.total	0.2300
MSE.shift	0.2369
MSE.displacement	-0.0013
MSE.volume	0.0017
MSE.pattern	0.2352



Communication of **harp v2** with users

- Announcements are published via mailing list
- Not to many people are using harp spatial yet – lack of parameters supported?
 - ODIM format (OPERA) and decoder for hdf5 is working well
 - Other parameters can be added with your own decoders, without going into the code and change calculation of scores (e.g. wind speed, brightness temperature).
- Reported problems from users
 - Improve documentation
 - Help to find bugs
 - Issues for further development



Only little maintenance of **harp v2** still planned

- Decoders (**readers**) for spatial observations
 - Adding additional decoders (gridding of point e.g. lightning data)
 - More detailed instructions how to write a decoder
- Adaptions in the shiny app for spatial observations
- Check of spatial forecast and observation data
 - Make use tools available with harp installation (e.g. viewer for the spatial fields)
- Bug fixes
- Documentation of scores



Enhance usability

- Code organization as R-packages >>> **harpIO / harpPoint / harpSpatial / harpVis**
- Stricter rules of use of functions
- No interaction of users at code level
- Enhanced portability
- Enhanced package documentation necessary



Enhance usability

- Executing harp interactively
 - Follow the harp workflow
 - Visualize forecasts and observations
 - In line documentation of your verification work
 - Conditional verification



Enhance usability

- Docker (containers)
 - Run harp in a container on any system
 - Allows high grade of portability of harp setups in different environments
 - Develop setup for your operational environment
 - Static set of R, R-libraries, compilers, system libraries ...



Enhance usability

- Decoders >>> READERS
 - Extended documentation on readers
 - How to get information about your data into R
 - Example data
- Examples of setup and configuration files >>> vignettes
 - Extend harp online documentation



Looking forward to your participation in the side meeting on Thursday afternoon,

Merci!