Barcelona Supercomputing Center
Centro Nacional de Supercomputación

EXCELENCIA
SEVERO
OCHOA

s2dverification

Update meeting – 13/09/2016

Mailing list:
s2dverification@bsc.es

Wiki:
https://earth.bsc.es/wiki/doku.php?id=tools:s2dverification

- Current state
- Features in testing phase
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- Vignettes
- Compatibility break
- Issues and comments
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Current state

- Current version: s2dverification v2.7.1
  - Will be uploaded on CRAN after 3 months.
  - Updated configuration file (since v2.6.0):

BEFORE:
```
data <- Load('tos', exp = 'i00k', obs = NULL, sdates = '19901101')
```

AFTER:
```
data <- Load('tos', exp = 'i00k', obs = NULL, sdates = '19901101')
```
or
```
data <- Load('tos', exp = 'ecearth/i00k', obs = NULL, sdates = '19901101')
```

BEFORE:
```
data <- Load('tos', exp = NULL, obs = 'HadISST', sdates = '19901101')
```

AFTER:
```
data <- Load('tos', exp = NULL, obs = 'ukmo/hadisst_v1.1', sdates = '19901101')
```
or
```
data <- Load('tos', exp = NULL, obs = 'hadisst_v1.1', sdates = '19901101')
```

Current state

- Current version: s2dverification 2.7.1
  - Updated configuration file (since v2.6.0):

BEFORE		AFTER

```
exp = 'ECMWF_S4_Sea'          |     exp = 'ecmwf/system4_m1'
                              |        (or exp = 'system4_m1')
                              |
exp = 'EnsMetfrSeas'          |     exp = 'meteofrance/ensembles-seasonal_2002s001'
exp = 'EnsEcmwfSeas'          |     exp = 'ecmwf/ensembles-seasonal_2001s001'
exp = 'EnsIfmSeas'            |     exp = 'ifm/ensembles-seasonal_2001s001'
exp = 'EnsCerfacsDec'         |     exp = 'cerfacs/ensembles-decadal_2002s000
exp = 'EnsIfmDec'             |     exp = 'ifm/ensembles-decadal_2002s001'
exp = 'DePreSysAsimDec'       |     exp = 'depresys/ensembles-decadal_2502s051'
exp = 'cancm4dec1'            |     exp = 'cancm4/cmip5-decadal_i1p1'
                              |        (or exp = 'cmip5-decadal_i1p1')
exp = 'cancm4dec2'            |     exp = 'cancm4/cmip5-decadal_i2p1'
                              |        (or exp = 'cmip5-decadal_i2p1')
                              |
obs = '20thCv2'               |     obs = 'noaa/20thcr_v2'
                              |
var = 'tasmin_q90'            |     var = 'tasmin_q90'
var = 'sieN'                  |     var = 'sieN'
var = 'sia_RegionName'        |     var = 'sia_RegionName'
var = 'moc_40N55N_1-2km'      |     var = 'moc_40N55N_1-2km'
```

Current state

- Current version: s2dverification 2.7.1
  - Changes in v2.6.1 to v2.6.5:
    - Small bug fixes and enhancements in Load(), configuration file and example scripts.
  - Changes in v2.7.0 to v2.7.1:
    - Enhancements and new features in map plot functions.
    - Added PlotLayout() function.

```
library(s2dverification)

data <- Load('tos', 'i00k', NULL, '19901101', leadtimemax = 4, output = 'lonlat')
ens_mean <- Mean1Dim(data$mod, 2)

layout <- PlotLayout(fun = c('PlotEquiMap', 'plot', 'PlotStereoMap'),
                     plot_dims = c('lat', 'lon'),

                     var = list(ens_mean, NA, ens_mean),

                     lon = data$lon, lat = data$lat,
                     fill = 'black', sizetit = 0.5, axes_label_scale = 0.6,
                     boxlim = list(c(60, 80, 120, 70), c(200, 70, 230, 60)),
                     boxlwd = c(5, 2), boxcol = c('purple', 'red'),
                     coast_color = 'yellow',

                     titles = paste('Fig.', 1:9), toptitle = 'Multipanel',
                     row_titles = paste('Row', 1:3), col_titles = paste('Col', 1:3),
                     drawleg = 'E', units = 'K', units_scale = 2,
                     bar_limits = c(275, 300), brks = 26,
                     bar_extra_labels = 281:284,
                     width = 10, fileout = 'multipanel_demo.pdf')
```
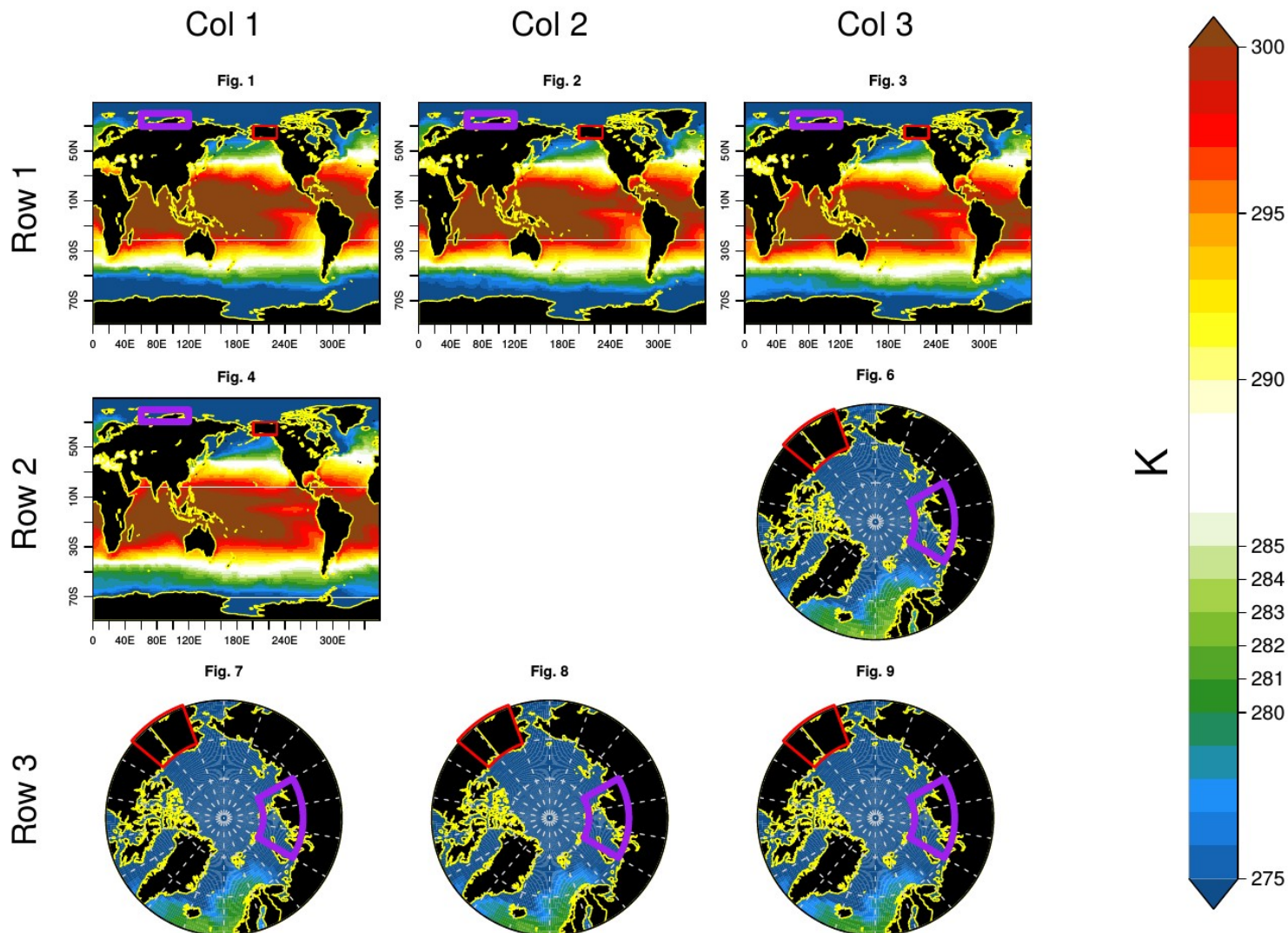
Multipanel

Features in testing phase

Branch name	Pending testers	Deadline
develop-RMSE_boot	Chloé, Omar	2016-10-01
develop-SeaIceModes	Jean-Philippe	2016-10-01
develop-AreaWeights	Chloé, ???	2016-10-01
develop-PlotClim	Nico, Valentina	2016-10-01

🟥 Stuck at the developer's side

- Sections pending to write:
  - All written.
- Some comments pending to review.
- Looking for another journal than JSS. Too focused in climate science.
- Paper now paused: working on interaction with THREDDS servers and file-per-chunk in Load().

Vignettes

- Paused at the moment. Current version available at https://earth.bsc.es/gitlab/es/s2dverification/blob/develop-vignettes/README.md

- Nico to re-write some parts.

- List of responsibles:
  - Overview: LP
  - Data retrieval: LP
  - Statistics: Javi, Neven
  - Visualisation: François
  - Example: Valentina
  - Tutorial: Chloé

Compatibility break

- Towards s2dv v3.0.0
  - A compatibility break will happen in Jan 2017 approx.
  - The name of the new version will change to 's2dv'.
  - Both packages will be available simultaneously in the machines. You will be able to adapt your scripts gradually.
  - Some releases of v2.7.X will happen with enhancements to load CMORized and THREDDS data and new time-series plot functions.
  - Plan available at:
    https://docs.google.com/spreadsheets/d/1zj5_VEAJGVhc0mZ7n-5u313IjXEFjow9iqTX9fGd21g/edit#gid=0

Compatibility break

- Towards s2dv v3.0.0
  - Nicola: how will we be able to use s2dverification and s2dv simultaneously if the function names are the same.
  - Nicolau: by default, the functions from the last loaded package will be used. To use functions from the first loaded package, one can use s2dverification::FunctionName() or s2dv::FunctionName().

Compatibility break

- Can switch versions with:

```bash
#!/bin/bash

# Old old version
module load s2dverification/2.4.6-foss-2015a-R-3.2.0

# Old version
module load s2dverification/2.6.5-foss-2015a-R-3.2.0
```

- If documentation is not clear for any function, discuss with developer and improve:

create a GIT branch > improve > push > merge request

- Ongoing developments?
  - Chloé's correlation difference.
  - Jean-Philippe's hurricane density and track plot.
  - Nicola's enhancements of `PlotEquiMap()`.
  - Martin's enhancements of `PlotStereoMap() and PlotSection().`
  - François developing plot of JoCoMo matrix (for September approx.).
  - ...?

- Other issues?

Useful links

- How to develop in s2dverification

https://earth.bsc.es/wiki/doku.php?id=tools:s2dverification#development

- GitLab

https://earth.bsc.es/gitlab/s2dverification

- Script to test or try features in development

/shared/earth/software/scripts/test-s2dverification feature

- Script to upgrade configuration files (v2.4.6 → >= v2.4.7)

/shared/earth/software/scripts/convertConfig.R file.conf

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Thanks for your attention

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