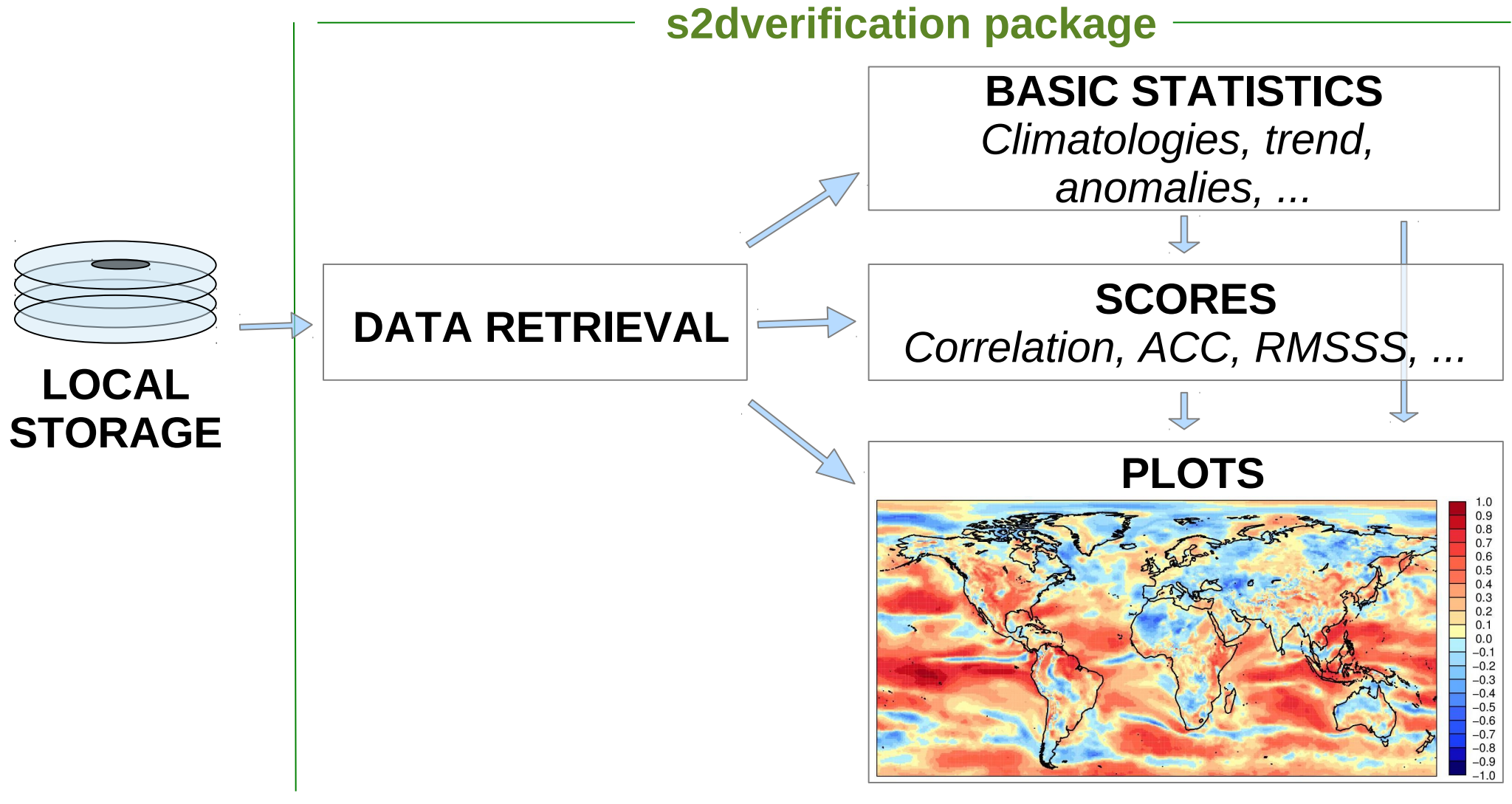


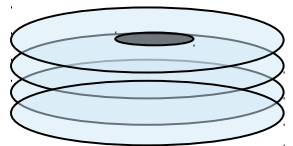
s2dverification: An R package for seasonal to decadal forecast verification

V. Guemas, N. Manubens, C. Prodhomme, V.
Torralba, M. Menegoz, O. Bellprat, N. Fuckar,
D.Volpi, P.A. Bretonniere,

SPECS General Assembly, Norrköping, SMHI, 15/09/2015

Set of tools to verify seasonal to decadal forecasts by comparing experimental data with observational data.





LOCAL STORAGE



DATA RETRIEVAL



```
Load('tos', c('i00k'), c('ERSST'),
c('19851101', '19901101', '19951101', '20001101', '20051101'),
nleadtime = 124, leadtimemin = 1, leadtimemax = 60,
sampleperiod = 1, output = 'areave', latmin = 30, latmax = 45,
lonmin = 0, lonmax= 40)
```



Data\$mod

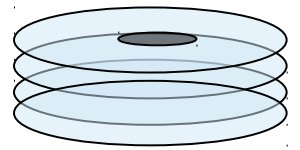
Data\$obs

[nbmodel/nobs, nbmember, nbstartdates, nbleadtime, nblat, nblon...]

Data\$lon

Data\$obs

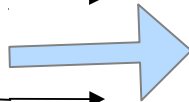
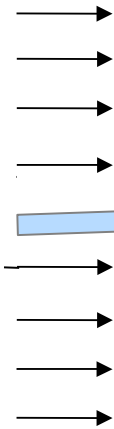
All functions of the package are working with this structure



**LOCAL
STORAGE**



**ESGF
NODE
or
THREDD
SERVER**



Configurable Load function:

- NetCDF 3 and 4
- file per member, per start dates, per month, full data in one file....
- configurable paths

DATA RETRIEVAL

```
#####
!!table_of_experiments
#####
#exp_name,      var_name[,      exp_main_path[,      exp_file_path[,
*,              *,
#special main paths and grids for some experiments
ECMWF_S4_sea,  .*,              $ROOTA$/0001/s004/m001,      *,
ECMWF_S4_ann,  .*,              $ROOTA$/0001/s004/m003,      *,
#special main and file paths and grids for some experiments
EnsEcmwfDec,   .*,              $ROOTA$/ecmwf/2005/s001/m001,  $STORE_FREQ$_mean/$VAR_NAME$/$EXP_FILE$,
EnsCerfacsDec, .*,              $ROOTA$/cerfacs/2002/s000/m001, ",
EnsIfmDec,     .*,              $ROOTA$/ifm/2002/s001/m010,   ",
EnsUkmoDec,    .*,              $ROOTA$/ukmo/2026/s001/m001,   ",
EnsEcmwfSeas, .*,              $ROOTB$/seasonal/ecmwf,       ",
EnsCerfacsSeas, .*,              $ROOTB$/seasonal/cerfacs,     ",
EnsIfmSeas,   .*,              $ROOTB$/seasonal/ifm,        "
```

ConfigShowTable

ConfigFileCreate

ConfigApplyMatchingEntries

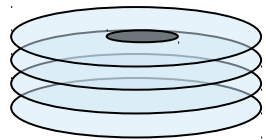
ConfigFileOpen

ConfigFileOpen

ConfigShowSimilarEntries

Contributions in the period 2014-2015:

s2dverification package



LOCAL STORAGE



**ESGF NODE
or
OPeNDAP
SERVER**

DATA RETRIEVAL

- Supports datasets stored in OPeNDAP servers.
- Exploits multi-core capabilities
- Can work with data in many formats:
 - NetCDF, NetCDF4
 - File per member, file per starting date, single file, ...
 - Supports specific folder and file naming conventions.

BASIC STATISTICS

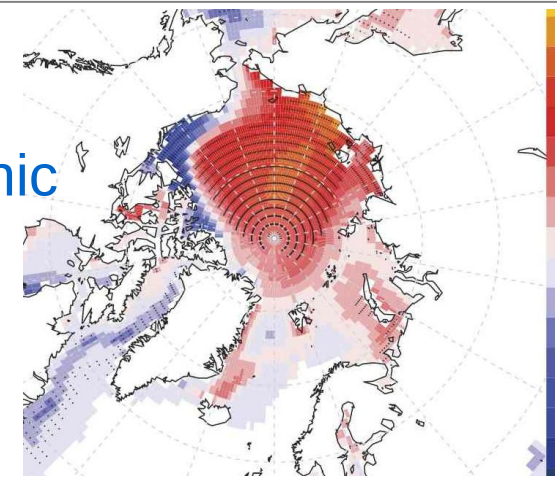
Categorization of ensemble data

SCORES

Ranked correlation, CRPS, ACC bootstrap confidence intervals

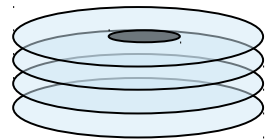
PLOTS

Stereographic projection



On-going and future work:

s2dverification package



LOCAL STORAGE



ESGF NODE
or
OPeNDAP
SERVER

DATA RETRIEVAL

- *Exploit sub-setting from THREDD*
- *Load file per chunk*
- *Generate obs member from obs uncertainties*
- *Improve the masking strategy*

BASIC STATISTICS

Clustering

SCORES

Brier Score, Bootstrap

PLOTS

