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Status of UA verification with MEC+Rfdbk at MCH

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Workflow MEC+Rfdbk

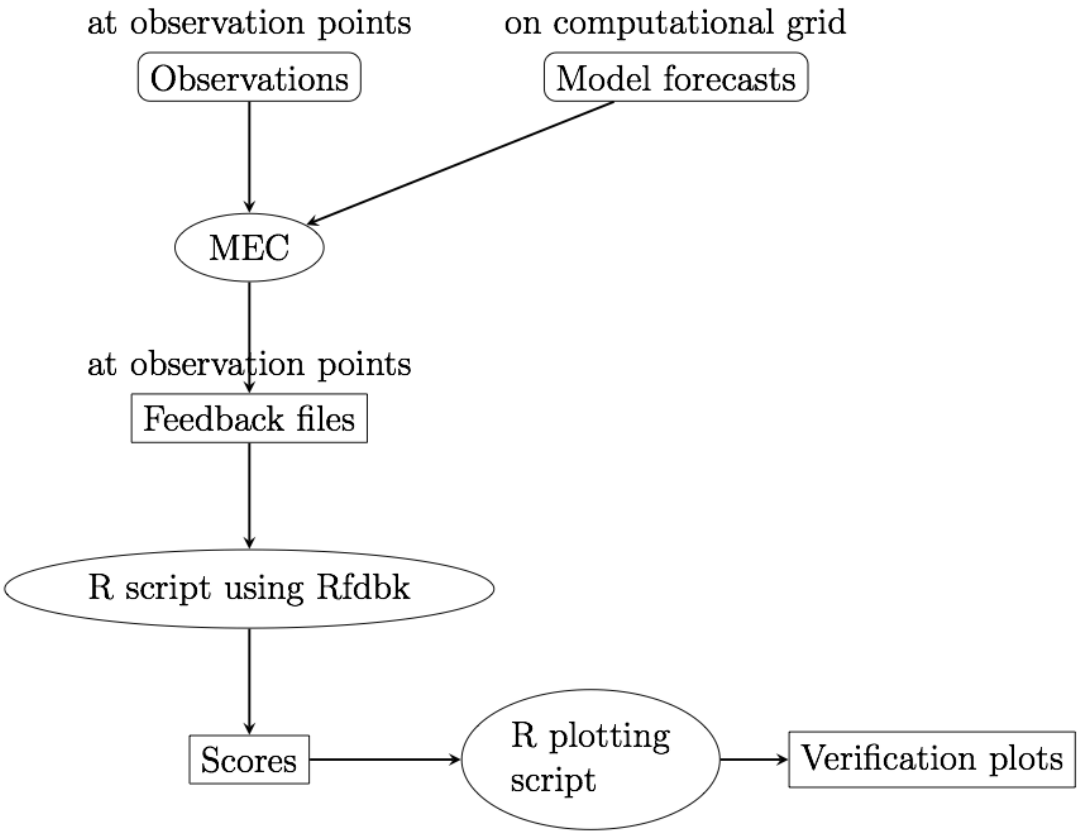


Figure 1: Steps from the obsverations and model forecats to the verification plots

Current usage and plan

- MEC is run daily to generate feedback files from the latest operational run
  - currently COSMO-1 and 7
  - Observation types: TEMP, PILOT, AIREP, SYNOP

- Rfdbk verification package is used for upper-air seasonal verification of operational forecast:
  - COSMO-1, COSMO-7 (TEMP only – will start for JJA 2016)
  - COSMO-E (currently only control tested – investigation needed for probabilistic scores)

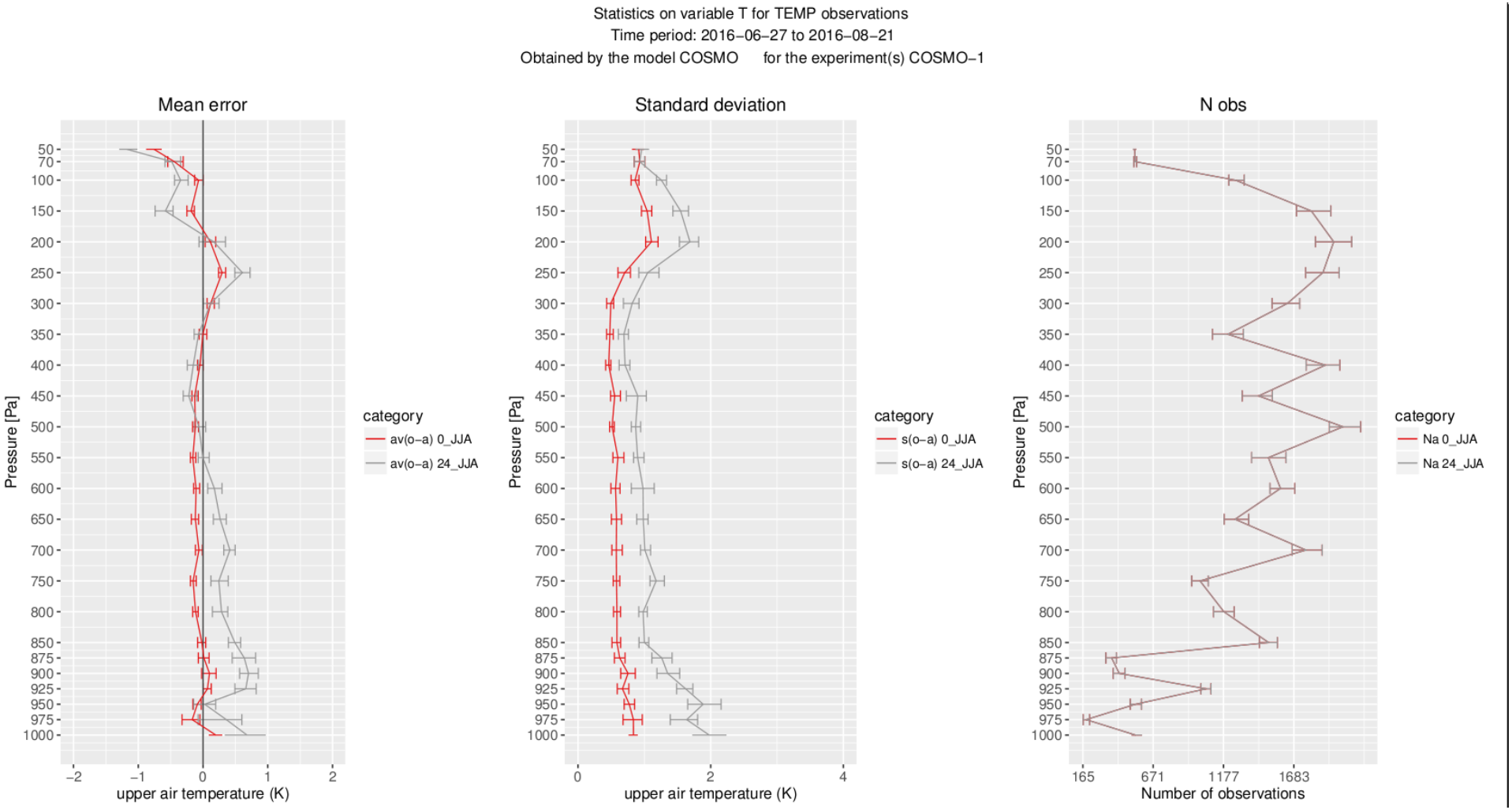
New feature : bootstrapping per day sampling

- Verification data set features random fluctuations -> one particular data set might not be representative
- Resampling with replacement (grouping by observation per day)
- Confidence interval drawn from the 5th and 95th percentile of the bootstrap samples

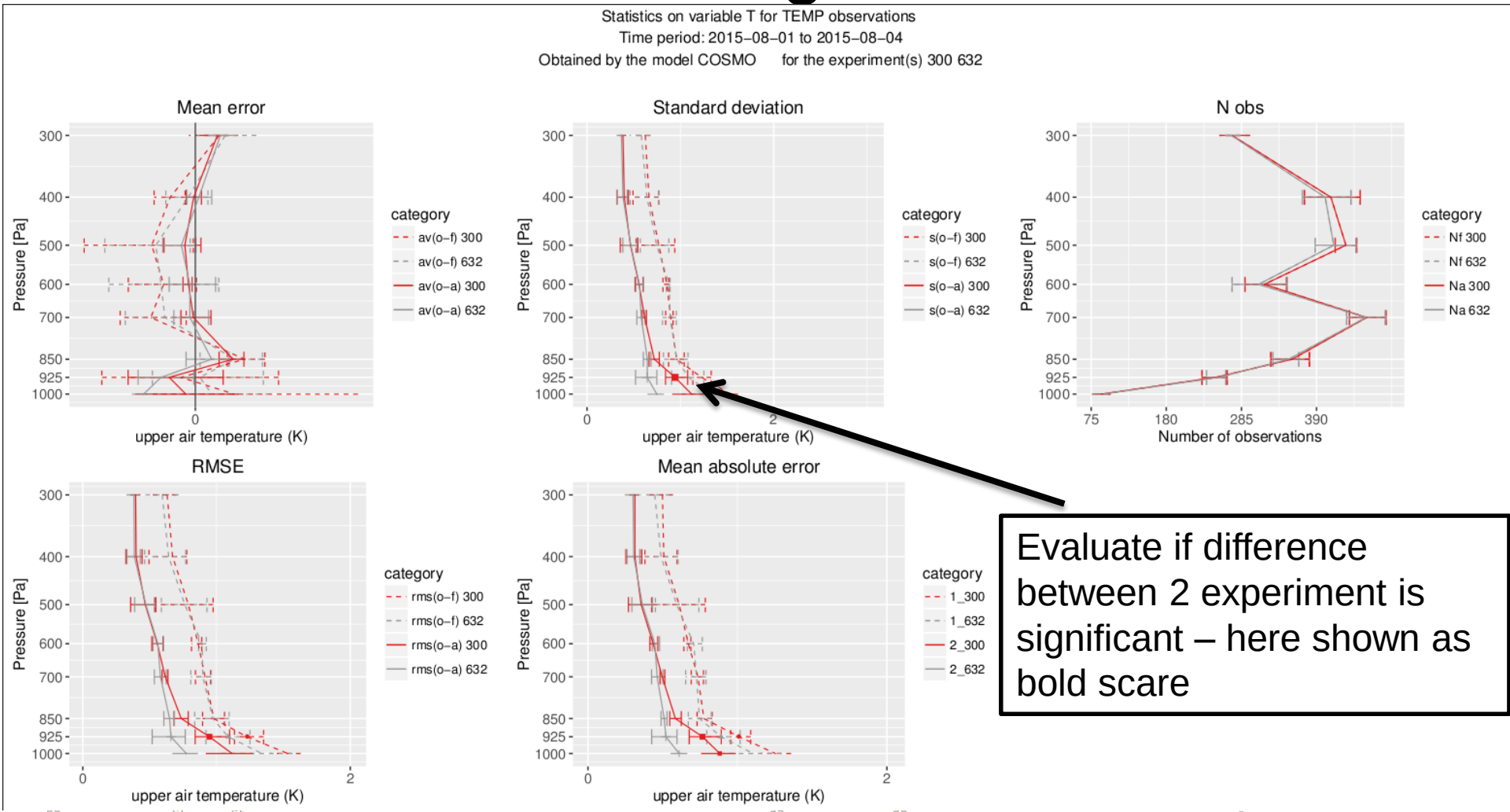
Other nice implemented features :

- Parallel read of input files
- Parallel computation of bootstratping

COSMO-1 verification example

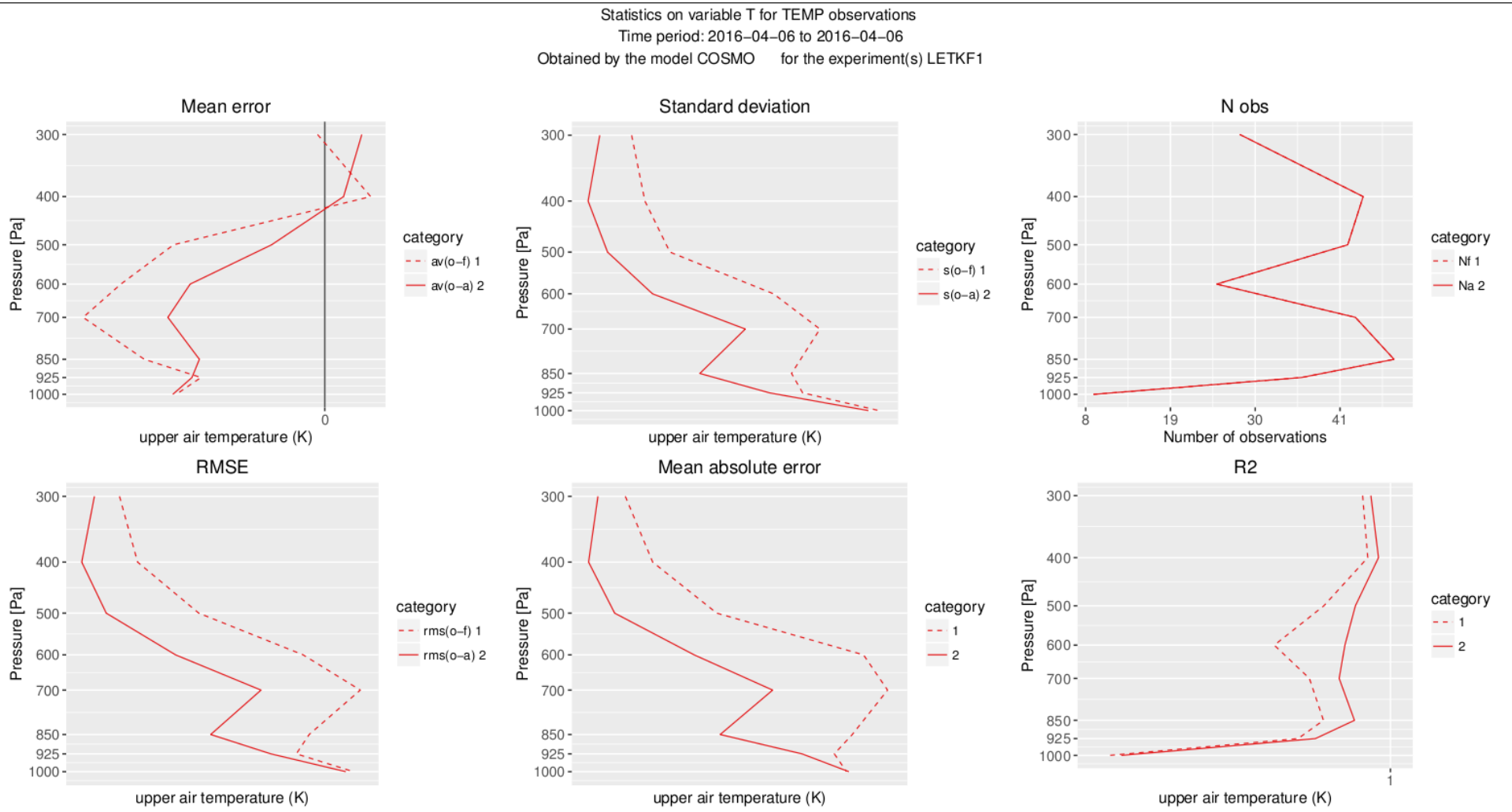


Other features: significant difference



Evaluate if difference between 2 experiment is significant – here shown as bold scare

Other features: Ekf file verification



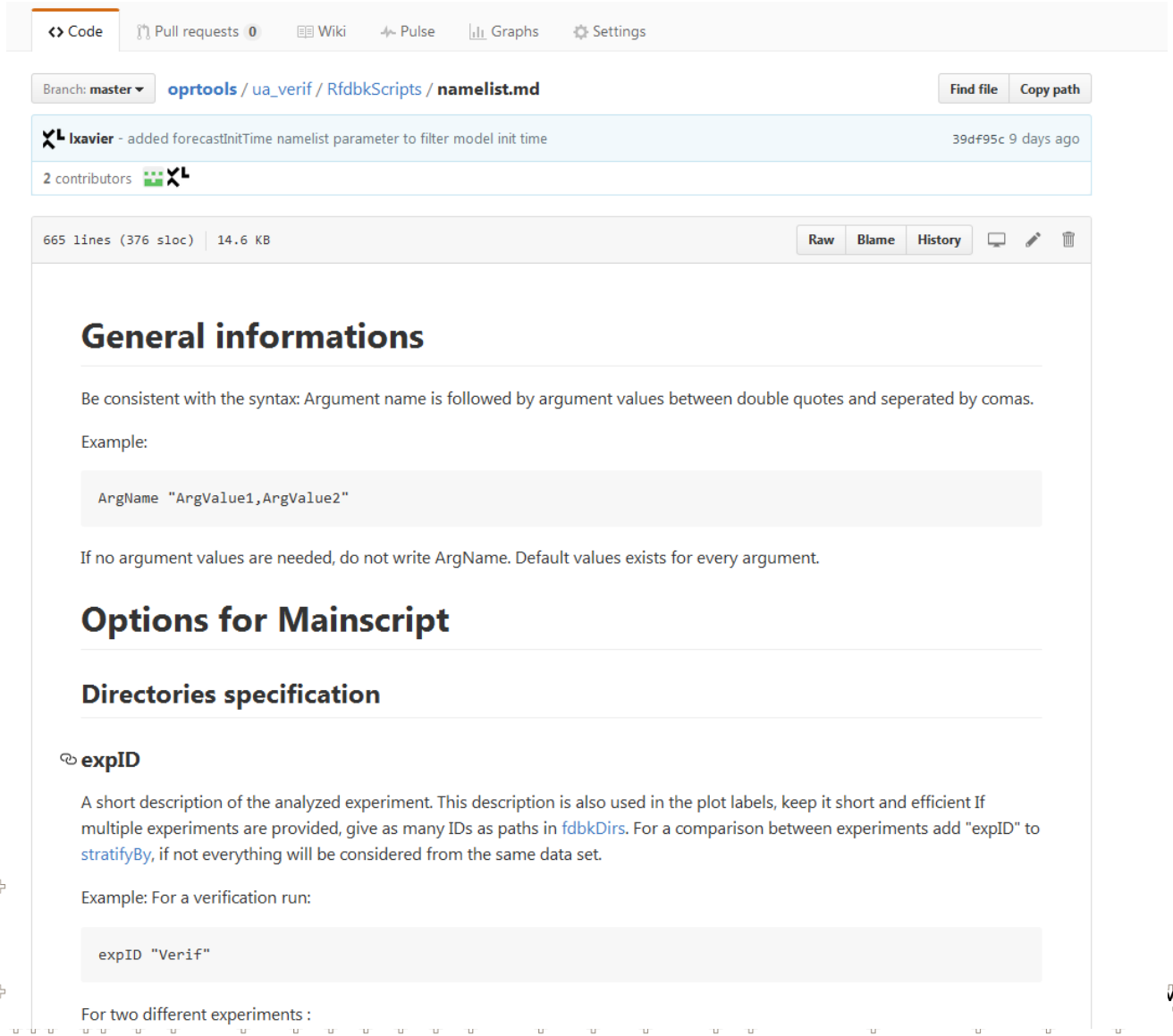
User experience

- MEC : learning curve for using it. The software is still not used in many configurations. We had some issues with MCH specific configurations (e.g. sleeve – now fixed thanks to Andreas Rhodin)

- Rfdbk : powerful and flexible package – however it requires to invest time in learning “R” in order to use it efficiently

- We have developed our own functions/driver scripts/unittests that we could share (currently on private github at MCH)

Github repo



Code | Pull requests 0 | Wiki | Pulse | Graphs | Settings

Branch: master ▾ **oprtools** / ua_verif / RfdbkScripts / **namelist.md** — Find file | Copy path

lxavier - added forecastInitTime namelist parameter to filter model init time — 39df95c 9 days ago

2 contributors

665 lines (376 sloc) | 14.6 KB — Raw | Blame | History

General informations

Be consistent with the syntax: Argument name is followed by argument values between double quotes and seperated by comas.

Example:

```
ArgName "ArgValue1,ArgValue2"
```

If no argument values are needed, do not write ArgName. Default values exists for every argument.

Options for Mainscript

Directories specification

expID

A short description of the analyzed experiment. This description is also used in the plot labels, keep it short and efficient If multiple experiments are provided, give as many IDs as paths in fdbkDirs. For a comparison between experiments add "expID" to stratifyBy, if not everything will be considered from the same data set.

Example: For a verification run:

```
expID "Verif"
```

For two different experiments :

Future plan

- COSMO-E ua-verification : probabilistic scores
- Verification using other observation Types
- Evaluate MEC+Rfdbk for SYNOP verification

Thank you for your attention