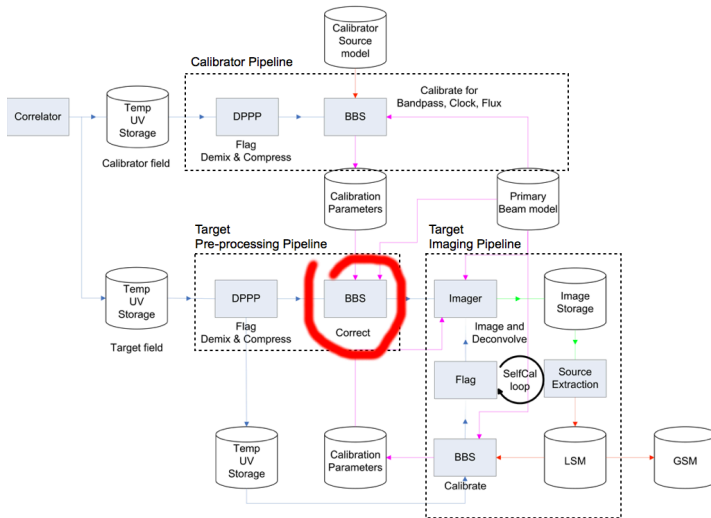# Applying direction independent calibration in NDPPP

Tammo Jan Dijkema

LSM, October 2, 2013

# Motivation, imaging pipeline

## What's new in NDPPP

- DPPP-step: **correct** (or **applycal**)
  - Not new: produces the same results as BBS with **correct** step.
  - Difference from BBS: weights are updated in weights column.
  - Slight difference from BBS: will complain about parameters that are not in the parmdb (BBS would assume they were 0).
  - Will flag **inf** and **NaN**.
- NDPPP-**correct** applies one correction at a time, multiple corrections can be done through multiple steps (order is important user responsibility).
- NDPPP can now write to different data column (CORRECTED_DATA)
- Also different weight column (CORRECTED_WEIGHT) is possible.
- New step **out** makes it possible to write to multiple data columns. (Only one data stream is passed on between the steps.)

# Usage: apply gain + clock calib. to existing MS

```
Parset for updating existing MS

msin    = myinput.MS

steps = [gaincorr,clockcorr]

gaincorr.type       = correct
gaincorr.correction = gain
  # Can be one of gain, tec, clock, commonscalarphase, commonrotationangle
gaincorrect.parmdb  = bbs_solutions.parmdb

clockcorr.type       = correct
clockcorr.correction = clock
clockcorrect.parmdb  = bbs_solutions.parmdb

msout = . # Same as input
msout.datacolumn   = CORRECTED_DATA
msout.weightcolumn = CORRECTED_WEIGHT
```



CORRECTED_DATA
CORRECTED_WEIGHT
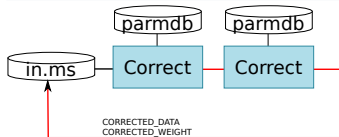
# Usage: apply gain calib. to averaged MS

```
Parset for writing two columns to new MS
msin  = in.MS
msout = out.MS

steps = [flag, demix, average, out, correct]

out.type          = out
out.name          = out.MS
out.datacolumn    = DATA # Default
out.weightcolumn  = WEIGHT_SPECTRUM # Default

correct.type       = correct
correct.correction = gain
correct.parmdb     = bbs_solutions.parmdb

msout.datacolumn   = CORRECTED_DATA
msout.weightcolumn = CORRECTED_WEIGHT
```
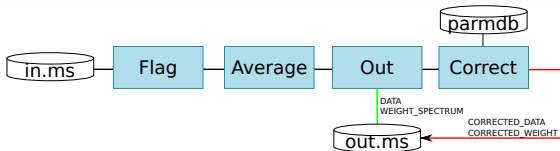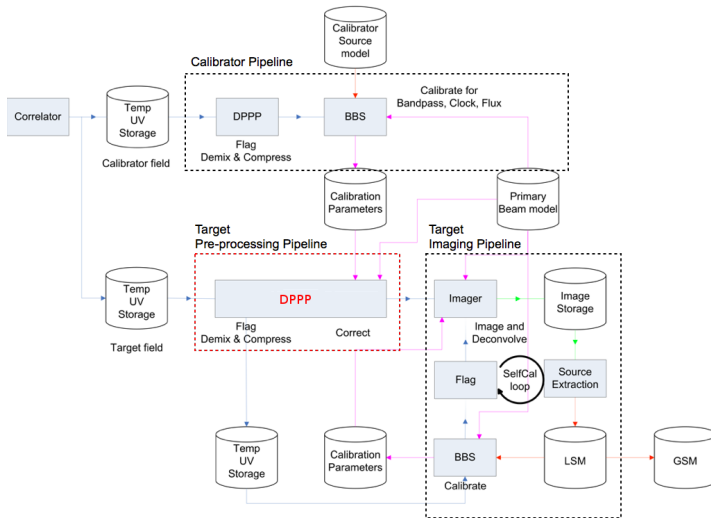
# Possible new imaging pipeline

# Status

### Applycal
- Available in `LofIm`
- Needs testing in realistic use cases

### Reading / writing different data, weight columns
- Available in `LofIm`
- Needs some testing

### New step `out`
- Not available yet
- Workaround: write to one file, launch NDPPP again

Documentation:
http://www.lofar.org/wiki/doku.php?id=engineering:
software:tools:ndppp