

Exercise 2: Analyze the data acquired during the first 4 days of the CONT14 campaign with VieVS

Target parameters:

- Station coordinates from single sessions

Processing steps:

- Load data (Vie_INIT)
- Calculate theoretical delays + partial derivatives (Vie_MOD)
- Estimate Parameters in a least squares adjustment (Vie_LSM)
- Look at the BLR of the result using the plotting tool in VieVS

The data - CONT14

- Continuous VLBI Campaign 2014 (CONT14)
- 2 weeks of continuous VLBI observation with a global 17 station network
- 6-MAY-2014 00:00 UT to 20-MAY-2014 24:00 UT → 15 * 24 hour sessions
- Goal: "... is to acquire state-of-the-art VLBI data over a time period of about two weeks to demonstrate the highest accuracy of which the current VLBI system is capable"



Processing steps

- 1) Find the sessions:

We prepared a process list of the first four CONT14 sessions. Select *File/set input files*, press on *Browse for process_list* and find the file *pl_first4ofCONT14.mat*.

- 2) Load a parameter file:

We also prepared a parameter file. Select *File/Parameter files/Load parameters...* and find the file *param_AVN_exercise.mat*.

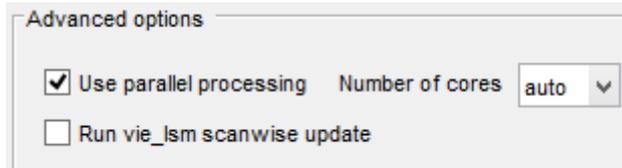
3) Create OPT and outlier files for the sessions

You can use your experience from Exercise 1 to correctly identify clock breaks and estimate outliers.
Hint: only one of the four files has a problem.

This may take a while. Don't forget to specify a Sub-directory at *Run/ Run options*.

Parallel processing

When you analyse a process list (more than one session) you can use the parallel processing option:
Go to *Run/Run options* and select the check box *Use parallel processing*.

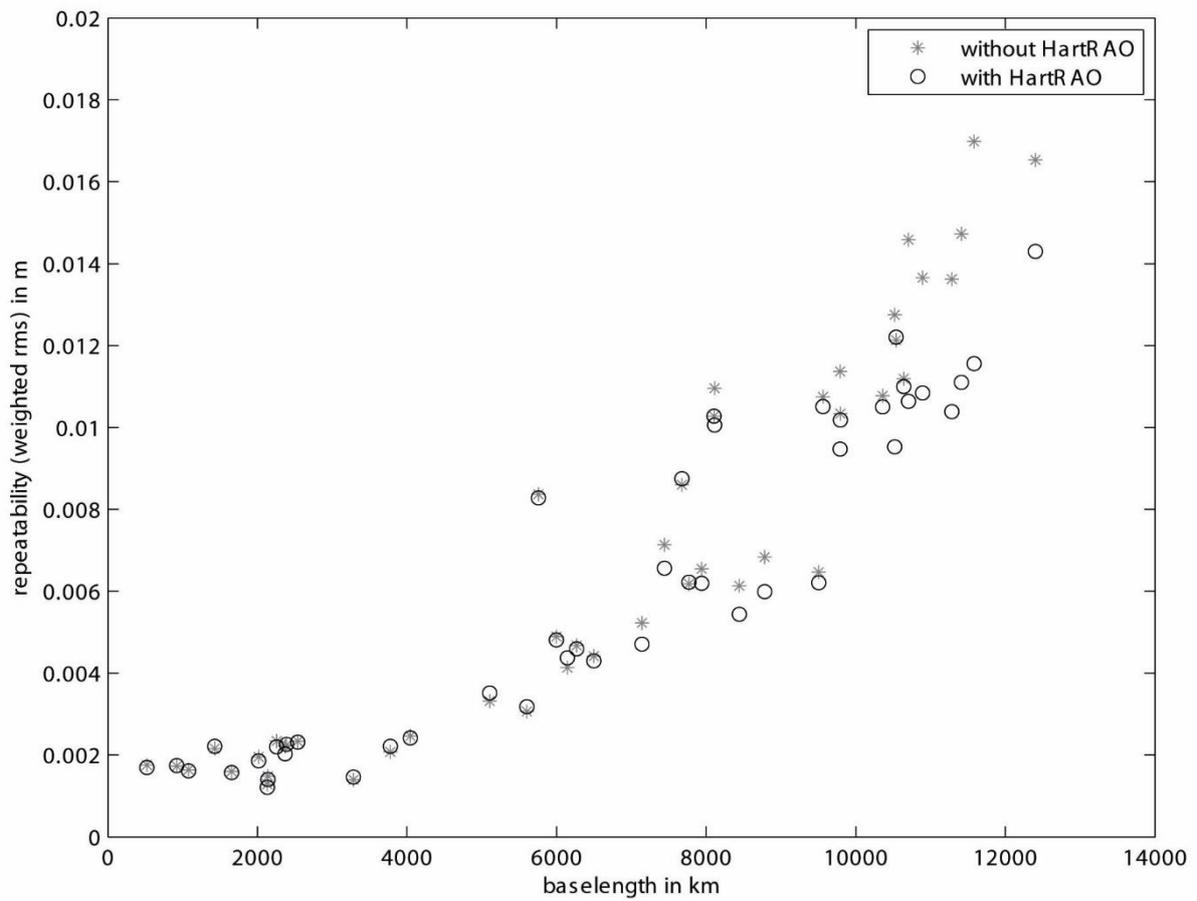


This will distribute the analysis of your sessions on the available cores of your processor you can save a lot of time by doing this. The disadvantage is that the output in the command window will be scrambled.

Baseline length repeatability

The BLR is a commonly used tool to investigate the quality VLBI results. It represents the precision of the baseline length measured with VLBI. On the x-axis we have the baseline length and on the y-axis we plot some sort of repeatability measure (standard deviation, RMS, WRMS...).

We use the measure of BLR to identify how consistent our solutions are. It is also a great tool to investigate the impact of models on the station coordinates.



4) Inspect BLR

You can inspect the BLR with the plotting tool. Go to *Plotting/Session analysis* select the folder you chose and press *load*. When you select the radio button *Basel. len. rep.* a plot of the BLR should appear.

