

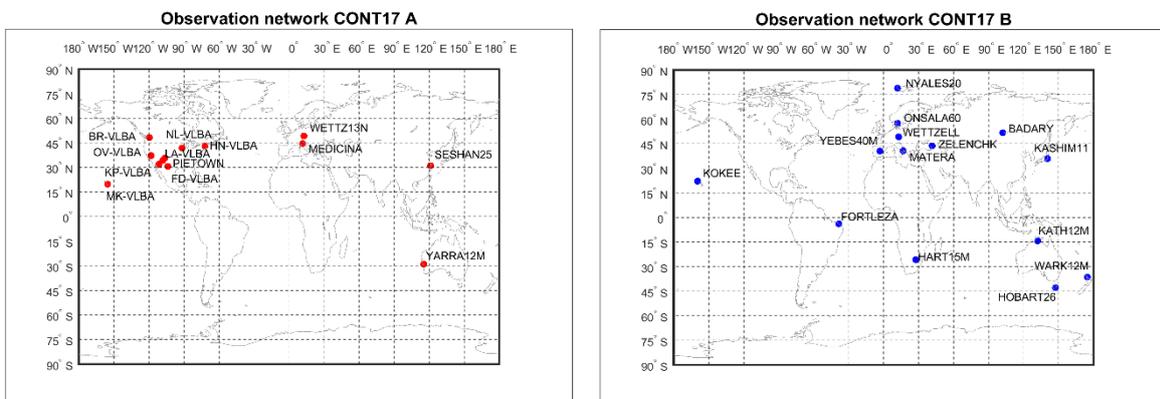
Exercise: Global solution

In brief

Run two single session solutions – prepare files for global solution – choose parameters for estimation – set a datum – run the global solution – look at results.

Data and target parameters

We will use the first seven days of the two simultaneously operated networks of CONT17 and calculate hourly polar motion and dUT1 series, stacked at midnights.



Processing steps – first part

1. Process two sessions of CONT17 A as single session solution. For 17DEC01XA and 17DEC02XA the OPT files and Outlier files are already prepared. Go to “File > Set input files” and select the two sessions. Tick *Use OPT files* and select the folder VIENNA, tick *Eliminate outliers*.
2. The default parameterization will be used, except that we will uncheck the estimation of source coordinates in “Estimation > Least squares > Source coordinates” and change the EOP estimation – in “Estimation > Least squares > EOP” deselect *Estimate nutdx and nutdy*, set the estimation interval to 60 min for Xpol, Ypol and dUT1 and the constraints to 2 mas each.
3. To prepare files for global solution we would have to do this: In “Estimation > Global parameters” tick Prepare N_global and b_global for global solution. We don’t need to do it for this exercise, because the files are already prepared.
4. Go to “Run > Run options” define a sub-directory for the results, for example “glob_first”. Click the button “Save + Run”.
5. We will now look at the results in “Plotting > Parameters”.

Processing steps – second part

1. Prepare the global solution for the XA network. Go to “Global solution > Select parameters”: fix antenna velocities, estimate xpol, ypol and dUT1, fix dX and dY, set max RMS to 5. Go to “Global solution > TRF/CRF parameterization and choose “datum_cont17A.txt” as datum definition file.
2. Go to “Run > Run options” deselect *Run vie_init*, *Run vie_mod* and *Run vie_lsm* and select *Run vie_glob*. In the panel VIE_GLOB directory settings enter “C17A_1hERP” as sub-directory and also as Output directory for VIE_GLOB.
3. Start the global solution, click the button “Save + Run”.
4. Follow step 1-3 for the XB network.

Investigate results

The results are stored in VLBI/OUT/GLOB/_ESTIMATES/yoursubfolder as text file and as mat file. Load the mat file for the A network to the Matlab workspace. The saved structure is called “globsol”. Save globsol to the variable A. Do the same for the B network. We can then create figures for xpol, ypol and dUT1 and compare the two solutions.

Text files with the estimated coordinates are stored in VLBI/OUT/GLOB/TRF.

figure

```
errorbar(A.xpol.mjd,A.xpol.val,A.xpol.sigma,'r'); hold on;  
errorbar(B.xpol.mjd,B.xpol.val,B.xpol.sigma,'b');
```

The result should look like this:

