Vienna VLBI Software VieVS - Version 1 released

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Introduction:
The Vienna VLBI Software (VieVS) is a new VLBI data analysis software developed at the Institute of Geodesy and Geophysics (IGG) at the University of Technology in Vienna. Written in MATLAB, VieVS is characterized by a distinct source code, easy handling due to attractive graphical user interfaces, and implementation of the most recent IERS Conventions to the highest degree. VieVS is perfectly suited for research work, as its many built-in tools to MATLAB as well as its modular structure make it easy to expand and adopt the software for specific tasks. On the other hand the new software should attract people who have not been dealing with VLBI analysis before (e.g. students), since several conversion and plotting tools enable even less experienced users to achieve attractive results.

After one year of evolution, VieVS Version 1 is now ready for routine geodetic VLBI processing. The basic workflow as well as an insight into present and future possibilities of VieVS are given.

The novel aspects of VieVS are

- the single processing mode VieVS will be expanded for the multi-user version VieVS Server
- an easy way to define kmva, kmvd and kmvr files in /DATA/LEVEL3/subdirectory/
- the OLD and NEW estimation mode can be selected in VieVS.
- the calculation mode can be performed in parallel.
- the possibility to perform VLBI analysis for all epoch VLBI data.

Get it:
VieVS is located and maintained at a local server at IGG. There the automatic processing of new VLBI sessions is done and required a priori information (e.g. Earth Orientation parameters) are updated regularly. However, once downloaded from the server, VieVS can be run independently on a standard PC or notebook. External users are welcome to use VieVS or parts of it on condition of scientific and non-commercial purpose. Registered users receive a password to access the server via FTP.

For more information please visit: http://mars.hg.tuwien.ac.at/~vievs/

Add-ons:

Due to its modular structure it is easy to expand VieVS and involve additional tools in the calculation process. The following are developed at IGG:

- VieGlob: Estimation of global parameters (Earth rotation, pole coordinates) by stacking of the normal equations. This may be used to provide an initial estimate to the IERS Earth Orientation Parameters.

Performance:

EOP: VieVS has been successfully used to estimate Earth orientation parameters. The level of accuracy is comparable with those of other software. The figure on the right shows an example of the effect of VieVS on the determination of coordinates in the ITRF. We currently process the last decade of DORIS observations for the determination of earth orientation parameters in the ITRF.

Troposphere: Pioneering low order offsets of zenith wet delays and troposphere gradients can be estimated in line with IERS conventions. In doing so, VieVS is a powerful tool to estimate these parameters reliably. VieVS provides results with comparable precision to other software although it is based on a much smaller number of input data. VieVS results are validated against and compared with those of other software. For more information please visit: http://mars.hg.tuwien.ac.at/~lplank/DeDeCC.

DICECC: The Delay and Pseudorange Deviation Comparison Campaign was created as a result of the various campaigns during the development of IERS conventions for the Earth Orientation Parameters. VieVS is part of this project and is used to estimate DICECC parameters. The project is described in more detail in the EGU General Assembly 2010, Vienna, Austria | 02 - 07 May 2010.