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Results from the VLBI Analysis Software Comparison Campaign 2015

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The IERS Conventions contain recommendations, definitions and models for space geodetic techniques including geodetic VLBI. In practice, different analysis software packages follow different estimation methods, use a variety of different correction models and sometimes adhere to conventions that might not be the latest. This may lead to differences in the results that should not appear among the software packages dealing with the same observational data-set. Consistency of geodetic VLBI analysis is especially important for the VLBI Global Observing System (VGOS), for which we need station position and velocity accuracies of 1 mm and 0.1 mm per year, respectively.

The aim of the VLBI Analysis Software Comparison Campaign 2015 (VASCC2015) was to compare different VLBI analysis software packages on the basis of computed theoretical delays. Two networks, one in the northern and one in the southern hemisphere, were scheduled in a way so that in each network a single source could be tracked continuously. In total fifteen consecutive 24 hour sessions with one minute observation resolution formed the base of this comparison campaign. More than eight research groups and institutes participated in this project, which allowed us to compare software packages that are used in operational VLBI analysis as well as those being currently under development.

We are going to present the first results and the outcomes of this project and we show how well the individual software packages agree. We will discuss discrepancies between analysis software packages and reveal where those differences are coming from. Moreover, we are going to evaluate whether these discrepancies are small enough to be neglected for reaching the VGOS goals.

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