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The GINS software for VLBI analyses and geodetic technique combinations: EOP and Reference Systems determination

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The GINS software is a multi-technique software developed initially by the GRGS/CNES in Toulouse for analyzing satellite geodetic data. GPS (Global Positionning System), Doris, SLR (Satellite Laser Ranging), LLR (Lunar Laser Ranging) and VLBI (Very Long Baseline Interferometry) data can now be analyzed, in order (i) to compute the orbit of a satellite around the Earth or another body of the solar system, or (ii) to determine some geophysical parameters (e.g. gravity field coefficients, Earth Orientation Parameters). In the framework of the IERS (International Earth Rotation and Reference Systems Service) multi-technique combination project for determining the Earth Orientation Parameters (EOP) and the reference systems, GINS allows us to combine all the geodetic techniques available for these investigations in a global consistent analysis. This is more homogeneous and reliable, because the physical models and the basic constants used for each technique are the same. In this paper we investigate further the VLBI part of GINS, comparing its capabilities to those of the well-known MODEST VLBI software (Sovers and Jacobs, 1996). We present the results obtained for the EOP and the station positions for the year 2005. We compare (i) our EOP solution with that of the IVS (International VLBI Service) Analysis Coordinator, and (ii) our station positions with the new ITRF2005.