

Report of the Subgroup “Data Analysis” of Working Group 3 VLBI2010 (Outline)

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Abstract

By mid March 2004 the subgroup on data analysis of WG3 VLBI2010 has written a rather detailed report which will be finished in another 6 weeks. Thus, for these Proceedings the preliminary outline of the subgroup report is given to inform the IVS components about the present state of the work.

1. Geodetic and Astrometric Data Analysis

1.1. Data Analysis: Improved Models

- Loading corrections
- Antenna deformation
- Implementation of IAU Resolutions 2000 and IERS Conventions 2003
- Source structure effects
- Improved variance-covariance modeling of VLBI observations

1.2. Data Analysis: New Strategies

- Robust and Reliable VLBI Solutions
- Consistency of TRF, EOP and CRF
- Intra-VLBI Combinations of Complete Solutions
- Investigations of Differences in Analysis Software Packages
- Phase Solutions for All Baseline Lengths

1.3. Automation of the VLBI Data Analysis Procedure - Impacts, Requirements, and Concept

- Impacts of the Automation
- Requirements for the Automation
- Experiences from a research project on the automation of VLBI data analysis

2. Atmosphere, Ancillary Data and Models

2.1. Use of Numerical Weather Models

- New mapping functions
- Gradient models
- Ionospheric parameters

2.2. Long Term Perspectives Beyond 2010

2.3. Use of Other Instruments

- Microwave radiometry and GPS: independent techniques for atmospheric corrections
- Clock synchronisation

3. New Goals to be Aimed at by VLBI

3.1. ICRF

3.2. ITRF

3.3. Linking of Dynamical and Quasi-Inertial Reference Frames

3.4. Earth Orientation Parameters

3.5. Contribution to Climatology

3.6. Contribution to Relativity

4. New VLBI Configuration and Observing Systems

5. Goals and Tasks

5.1. Key Issues Before 2010

5.2. Visions After 2010

5.3. Feedback to Other Subgroups

6. References