Joint Discussion 16

NOMENCLATURE, PRECESSION AND NEW MODELS IN FUNDAMENTAL ASTRONOMY. APPLICATIONS AND SCIENTIFIC CONTRIBUTION TO ASTRONOMY

Tuesday 22 (full day) & Wednesday 23 (a.m.) August 2006, Room Club H

Organized by Division I; Participating Division/Commissions: X/4, 5, 7, 8, 19, 31

Scientific Organizing Committee: A. Brzezinski (Poland), M. Calabretta (Australia), N. Capitaine (France, Co-Chair), V. Dehant (Belgium), T. Fukushima (Japan), J. Hilton (USA, Co-Chair), K. Johnston (USA), I. Kumkova (Russia), A. Milani (Italy), R. Nelson (USA), K. Seidelmann (USA), M. Soffel (Germany), J. Vondrák (Czech Rep., Co-Chair)

Chair, Local Organizing Committee: C. Ron

Tuesday 22 August (a.m.)

9:00 Introduction to the Joint Discussion N. Capitaine

Session 1. State of the art of the implementation of the IAU Resolutions and the ICRS Chair, J. Vondrák

9:10 Present status of the celestial reference system and frame (Invited) C. Ma

9:30 Tools for implementing the recent IAU resolutions: USNO Circular 179 and the NOVA software package (Invited) G. Kaplan & J. Bangert

9:55 Selecting highly-compact radio sources for the definition of the celestial reference frame P. Charlot et al.

10:05 Véron & Véron based optical extragalactic reference - progress report A. Andrei et al.

10:15 Problems of the reference radio source selection O. Titov

10:30 Coffee break

Session 2. Precession and the Ecliptic Chair, T. Fukushima

11:00 Review on the work of the “Precession and ecliptic” Working Group (Invited) J. Hilton

11:20 Long-term solution for the insolation quantities of the Earth (Invited) J. Laskar

11:45 Using the P03 precession model P. Wallace & N. Capitaine

11:55 Long-periodic precession parameterization J. Vondrák

12:05 Numerical theory of rotation of the deformable Earth with the fluid core: fitting to VLBI data and deriving corrections to IAU 2000 theory G. Krasinski

12:20-12:30: Short poster review

12:30-13:00: Poster session

13:00-14:00: Lunch

XXVIth IAU GA, Prague, Czech Republic, 14-25 August 2006
Session 3. High accuracy models for reducing astronomical observations
Chair, J. Hilton
14:00 Models for high precision spacecraft and planetary ephemerides (Invited) M. Standish & J.G. Williams
14:20 Relativistic aspects of the Earth’s rotation (Invited) S. Klioner & M. Soffel
14:45 The dynamical model of the planet motions and EPM ephemerides E. Pitjeva
14:55 INPOP06: A new planetary ephemeris A. Fienga et al.
15:05 Accurate harmonic development of lunar ephemeris LE-405/406 S. Kudryavstev
15:15 The solar quadrupole moment from planetary ephemerides: present state of the art S. Pireaux et al.
15:30 Coffee break

Session 4. New terminology in fundamental astronomy, time and relativity
Chair, M. Soffel
16:00 Proposed terminology in fundamental astronomy based on IAU 2000 Resolutions (Invited) N. Capitaine et al.
16:20 Implementation of the new nomenclature in The Astronomical Almanac (Invited) C. Hohenkerk
16:45 TDB or TCB: does it make a difference? S. Klioner
16:55 From atomic clocks to coordinate times G. Petit
17:05 Pulsars as barycenter coordinate clocks V. Zharov et al.
17:15 General relativity theory: tests through time Ya. Yatskiv
17:30 Poster session (continuation)

Wednesday 23 August (a.m.)

Session 5. Scientific applications of high accuracy astronomy Chair, V. Dehant
9:00 Accurate optical reference catalogs (Invited) N. Zacharias
9:20 Scientific potential of the future space astrometric missions (Invited) L. Lindegren
9:45 Space astrometry with the milli-arcsecond pathfinder Gaume et al. survey (MAPS): mission overview and science possibilities
9:55 Astrometric science with SIM planetQuest M. Shao
10:05 Does the magnetic field in the fluid core contribute a lot to Earth nutation? C.-L. Huang et al.
10:15 Retrieving diurnal and semi-diurnal signals in polar motion A. Brzezinski and UT1 from analysis of the routine VLBI observations & S. Bolotin
10:30 Coffee break

Session 6. General Discussion and educational efforts Chair, N. Capitaine
11:00 Education in astrometry (Invited) W. van Altena
11:20 The 3D representation of the new transformation from the terrestrial to the celestial system (Invited) V. Dehant et al.
11:45 The small telescopes still useful for astrometry M. Stavinschi
11:55 Discussion
12:20 Concluding remarks J. Vondrák

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Poster papers

Session 1. State of the art of the implementation of the IAU Resolutions and the ICRS

Searching candidate radio sources for the link with the future GAIA frame
P. Charlot et al.

New data of linking optical and radio reference frames
Z. Aslan et al.

Systematic errors and combination of the individual CRF solutions in the framework of the IVS ICRF pilot project
J.R. Sokolova

Kinematic control of the inertiality of the ICRS/Tycho-2 system on the base of the Tycho-2 and UCAC2 star proper motions
V.V. Bobylev & M. Yu Khovrichev

VLA Radio Star Measurement of the Rotation of the Hipparcos Frame with Respect to the ICRF
D. A. Boboltz et al.

Deep Astrometric Standards
I. Platais et al.

Better accuracy of Hipparcos proper motions in declination for stars observed with 10 photographic zenith tubes
G. Damjanovic & J. Vondrak

TOPP in the CNS
R.L. Smart et al.

The influence of choice of fundamental catalogue on calculated apparent places of stars
M.S. Sekowski

Connection between ICRS and ITRS consistent with IAU 2000 Resolutions
I. Kumkova & M. Stepashkin

Earth orientation catalogue EOC-3 - An improved optical reference frame
V. Sterka & J. Vondrak

Catalogue of reference stars for observation of extragalactic radio sources of the northern sky
V. Ryl'kov et al.

Estimation of CRF and TRF from VLBI observations by the least square collocation method
S. L. Kurdubov

Computation of the veritable inclination between FK5 and Hipparcos equators: a critical discussion
M.J. Martínez Usó et al.

The Russian astronomical yearbooks and IAU 2000 Resolutions
N.I. Glebova et al.

Session 2. Precession and the Ecliptic

Precession/nutation solution consistent with the general planetary theory
V.A. Brumberg & T.V. Ivanova

New expressions for the celestial coordinates of the CIP
M. Folgueira et al.

Comparison of the nutation theories with the VLBI observations
V. Zharov & S. Pasynok

Selected sets of nutation parameters for estimation over limited observation spans
Ya. Chapanov

Variations of the main nutation terms according the precession-nutation model IAU 2000A
Ya. Chapanov

Comparison of nutation series from GPS and VLBI observations using IAU1980 and IAU2000 nutation models
K. Snajdrova et al.

To determination and explanation of the secular change of inclination of the Earth equator to ecliptic
Yu. Barkin

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Session 3. High accuracy models for reducing astronomical observations

Limitations on some physical parameters from position observations of planets E. Pitjeva
About mechanism of variations of the Earth rotation and natural processes with hour periods Yu.V. Barkin
Geodetic rotation of the Sun, major planets, and the Moon V.I. Eroshkin & V.V. Pashkevich
Model of atmospheric radiation for large field radioastronomical data reduction & M. Urbanik
Relativistic ray tracing applied to a rotating optical system G. Anglada-Escude et al.
VLBI antenna thermal deformation E. Skurikhina

Session 4. New terminology in fundamental astronomy, time and relativity

About the reference axis of the rotation of the Earth R.O. Vicente
Stability of pulsar time scale M.V. Sazhin & M.S. Pshirkov
Relativistic angular distance using Synge's world function C. Le Poncin-Lafitte & P. Teyssandier
Positioning systems and relativity J.-F. Pascual-Sánchez

Session 5. Scientific applications of high accuracy astronomy

Ten years timing of millisecond pulsars at Kalyazin Yu. Ilyasov & V. Oreshko
The Parkes Pulsar Timing Array R.N. Manchester
Preliminary results in asteroid mass determinations Z. Aslan et al.
Evidences of correlations between masses and minor planets elements. analysis of the error sources F.J. Marco Castillo et al.
On geophysical excitation of prograde diurnal polar motion M. Kudryashova et al.
Atmospheric excitation of UT1 variations during CONT05 campaign Y. Masaki
High frequency variability in Earth rotation from VLBI and GNSS data S. Englich et al.
Optimum parameterization in estimating sub-diurnal Earth rotation parameters with Very Long Baseline Interferometry P.J. Mendes Cerveira et al.
Variations of the second order harmonics of geopotential from the analysis of the Lageos and Etalon SLR data for 1988-2003 T.V. Ivanova & N.V. Shuygina
Comparison of velocity field and baseline length variations for the European stations derived from GPS and VLBI data N. Panafidina et al.
Hydrological excitation of polar motion J. Nastula, B. Kolaczk
CONT05: High-frequency Earth rotation variations from VLBI observations E. Skurikhina
Estimation of Earth interior parameters from a Bayesian inversion of nutation data in the time domain L.Koot et al.