

TABLE OF CONTENTS

PREFACE	vi
LIST OF PARTICIPANTS	vii
SCIENTIFIC PROGRAM	ix
SECTION I: CELESTIAL AND TERRESTRIAL REFERENCE FRAMES: TECHNIQUES, DEFINITIONS AND LINKS	1
Gubanov V.S.: Project of global analysis of the 1979-2003 VLBI data	3
McCarthy D.D., Petit G.: IERS Conventions	11
Capitaine N.: Microarsecond models for the celestial motions of the CIP and CEO .	18
Malkin Z.: Comparison of VLBI nutation series with the IAU2000A model	24
Finkelstein A., Gratchev V., Ipatov A., Malkin Z., Rahimov I., Skurikhina E., Smolentsev S.: The first results of VLBI observations at the Svetloe observatory in the framework of the IVS observing programs	32
Yatskiv Ya., Kuryanova A., Bolotin S.: ICRF consistency check by comparison of the ICRF-Ext.1 with the GAOUA series of RS catalogues	39
Ilyasov Yu.P., Rodin A.E.: Pulsar astrometry: state of the art and prospects	47
Gontcharov G.A.: Statistics of double stars for ICRS optic realizations	53
Kolesnik Y.B.: A new approach to representation of the catalogue systematic differences	59
Vityazev V.V.: Does Precession derived from FK5-HIPPARCOS agree with the VLBI?	65
Bagrov A.V., Kolesnik Y.B.: Scientific objectives of a small size catalogue based on the space-born optical interferometric mission	71
Bobylev V.V.: Kinematical test of the ICRS inertiality	73
Kharin A.S.: All-wave astrometry. Basic problems	75
Khovritchev M.Yu., Khrutskaya E.V., Bronnikova N.M.: The positions and proper motions of 58483 stars in the Pulkovo fields with galaxies on the Tycho-2 system	77
Khovritchev M.Yu., Khrutskaya E.V.: Comparisons of the USNO-B1.0 catalogue with Pul-3 and UCAC1 in selected fields	79
Kumkova I.I., Stepashkin M.V.: Transformation between ICRS and ITRS under IAU(2000) resolutions	81
Lopez J.A., Marco F.J., Martinez M.J.: A numerical method for the analysis of the systematic errors in reference systems from non-regular samples	83
Ogrizovic V.: A motorized system for rapid deflection of vertical determination	85
Shlyapnikova A., Vityazev V.: FK5-HIPPARCOS: systematic differences without assumption of rigid mutual rotation of the frames	87
Skurikhina E., Panafidina N., Sokolova Y.: GPS and VLBI baseline length variations .	89
Popov A., Tsvetkov A.: Tycho-2 and Hipparcos: intercomparison of the catalogues .	91
Yagudina E.I.: The problem of the dynamical reference system construction at the modern stage	93
Zhu Z.: NPM2 and Hipparcos proper motions	95
SECTION II: ROTATION OF THE EARTH AND OTHER PLANETS: OBSERVATIONS AND MODELS	97
Brzeziński A., Kosek W.: Free core nutation: stochastic modelling versus predictability	99
Krasinsky G.A.: Body tides in the Earth-Moon system and the Earth's rotation . . .	107
Fukushima T.: New formulae of relations among UT1, GAST and ERA	114
Korsun' A.: The history of the Orlov's sessions	120

Sôma M., Tanikawa K., Kawabata K.: Earth's rate of rotation between 700 BC and 1000 AD derived from ancient solar eclipses	122
Lerner M.-P., Debarbat S.: La Lune et sa rotation de l'antiquité au XVII ^e siècle	128
Eroshkin G.I., Pashkevich V.V.: High-precision numerical analysis of the rigid Earth rotation problem using a high performance computer	138
Ron C., Vondrák J.: Earth orientation parameters in 1899-1992 based on the new Earth orientation catalogue	144
Kolaczek B., Nastula J.: Impact of the addition of the ocean to the atmospheric excitation of polar motion on variability of spectra and correlation with polar motion	150
Bizouard Ch.: Interactive Earth rotation parameters through the Web	156
Wooden W.H., Johnson T.J., Carter M.S., Myers A.E.: Near Real-time IERS Products	160
Kosek W., McCarthy D. D., Johnson T., Kalarus M.: Comparison of polar motion prediction results supplied by the IERS sub-bureau for rapid service and predictions and results of other prediction methods	164
Rusinov Yu.L.: Generalized mean of individual EOP series by least-squares collocation technique	170
Pasynok S.L.: IAU2000: Comparison with the VLBI observations and other nutation theories	176
Shuygina N.V.: Determination of EOP from combination of SLR and VLBI data at the observational level	182
Kuzin S.P., Sorokin N.A., Tatevian S.K.: On the use of DORIS data for determination of the EOP and geocenter motion	189
Gayazov I.S.: Variation of \bar{C}_{21} , \bar{S}_{21} geopotential coefficients from SLR data of LAGEOS satellites	193
Ferrandiz J.M., Barkin Yu.V.: New approach to development of Moon rotation theory	199
Barkin Yu.V., Ferrandiz J.M.: Mercury resonant rotation	201
Bourda G., Capitaine N.: Temporal variations of the gravity field and Earth precession-nutation	203
Folgueira M., Souchay J.: A new formulation of the damping effect in the Earth's and Mars' free polar motion	205
Ivanova T.V., Shuygina N.V.: Variations of the second order harmonics of geopotential from the analysis of the Etalon SLR data for 1992-2001	207
Akulenko L.D., Kumakshev S.A., Markov Yu.G.: Motion of the Earth's pole	209
Lambert S.: Influence of Earth's rotation rate and deformations on precession-nutation	211
Lubkov M.V.: The definition of the forced nutations by finite element method	213
Zotov L.V.: High frequency variations of the Earth rotation from the VLBI and GPS observations	215

SECTION III: PLATE TECTONICS, CRUSTAL DEFORMATIONS AND GEO-PHYSICAL FLUIDS 217

Schuh H., Estermann G.: Atmospheric, non-tidal oceanic and hydrological loading investigated by VLBI	219
Sidorenkov N.S.: Influence of the atmospheric and oceanic circulation on the plate tectonics	225
Zharov V.E.: New models for reduction of the VLBI data	231
Gorshkov V., Shcherbakova N., Miller N., Prudnikova E.: Tidal variations from local astrometric EOP sets	236
Gozhy A.: On the expediency of creation in Eurasia network of united points of joint astronomical, geodetic and geophysical determinations of their position changes .	238

SECTION IV: SOLAR SYSTEM DYNAMICS	241
Pitjeva E.V.: Numerical ephemerides of planets and the Moon - EPM and improvement of some astronomical constants	243
Kudryavtsev: New harmonic development of the Earth tide-generating potential	251
Mioc V., Stavinschi M.: Stability of equatorial satellite orbits	255
Fienga A., Simon J.-L.: IMCCE planetary solution: overview and prospects	259
Souchay J.: Characteristics of EROS 433 rotation	263
Izmailov I.S., Khovritchev M.Yu., Khrutskaya E.V., Kiseleva T.P.: CCD-observations of Galilean satellites of Jupiter during their mutual occultations and eclipses in 2003 at Pulkovo Observatory	269
Arlot J.E., Gorel G. K., Hudkova L.A., Ivantsov A.V., Kozyrev Eu.S.: Photometric observations of the mutual events of the Galilean satellites of Jupiter made at Nikolaev Astronomical Observatory in 2002-2003	275
Bronnikova N.M., Vasil'eva T.A.: Astrometric observations of Uranus in 2002 with the normal astrograph at Pulkovo	279
Zhang H.: Internal structure models of Mars	281
Kazantseva L., Kislyuk V.: Comparison of Kyiv database of lunar occultation	284
Kholshevnikov K.V., Kuznetsov E.D.: Evolution of a two-planetary regular system on a cosmogonic time scale	286
Kiseleva T.P., Kalinitchenko O.A., Mozhaev M.A.: The determination of coordinates of Saturn by the observations of its satellites with 26-inch Refractor at Pulkovo .	288
Köcer M., Tichá J., Tichý M.: KLENOT- Practical use of solar system dynamics in follow-up astrometry observations of small solar system bodies	290
Sôma M., Hayamizu T., Setoguchi T., Hirose T.: Precise position of Saturn obtained from stellar occultation by Tethys	292
SECTION V: RELATIVITY AND TIME	295
Soffel M., Klioner S.: The BCRS and the large scale structure of the universe	297
Brumberg V., Simon J.-L.: Relativistic indirect third-body perturbation in the SMART Earth's rotation theory	302
Petit G.: A new realization of Terrestrial Time	314
Sekido M., Fukushima T.: Comparison between the finite VLBI model and the con- sensus model	318
Le Poncin-Lafitte C., Teyssandier P.: Light deflection and time transfer to the post- post Minkowskian order using SYNGE's world function	324
Soffel M.: The BCRS, GCRS and the classical astronomical reference system	330
Coll B., Tarantola A.: A Galactic Positionning System	333
Pireaux S., Barriot J-P., Balmino G.: Basis for a native relativistic software integrating the motion of satellites	335
SECTION VI: HIGHLIGHTS OF THE 25TH IAU GENERAL ASSEMBLY ON REFERENCE SYSTEMS AND FUNDAMENTAL ASTRONOMY	337
Capitaine N.: Highlights of the scientific meetings of Division I, "Fundamental Astron- omy"	339
McCarthy D. D.: A brief report on IAU Joint Discussion 16, "The International Ce- lestial Reference System, maintenance and future realization"	343
Seidelmann K.: Thoughts about the implementation of the IAU 2000 Resolutions . .	349
POSTFACE	355