

## *SCIENTIFIC PROGRAMME*

**Scientific Organizing Committee:** A. Brzeziński (Poland, Co-chair), N. Capitaine (France, Chair), P. Defraigne (Belgium), T. Fukushima (Japan), D. D. McCarthy (USA), M. Soffel (Germany), J. Vondrák (Czech Republic), Y. Yatskiv (Ukraine)

**Local Organizing Committee:** W. Baran, A. Brzeziński (Vice Chair), B. Kołaczek (Chair), J. Kryński, J. Nastula (Secretary), J. Nawrocki, S. Oszczak, J. Rogowski, M. Rutkowska, S. Schillak, J. B. Zieliński

### *Opening Session of the Journées 2005*

Monday 19 September, 10h00-10h45

**Opening** by Chairperson of the Local Organizing Committee : Prof. Barbara Kołaczek

Welcome addresses:

- Director of the Space Research Centre : Prof. Zbigniew Kłos
- Chairman of the Division III of the Polish Academy of Sciences - Prof. Henryk Szymczak
- Attaché pour la Science et la Technologie of French Embassy - Monsieur Pierre Michel
- Chairman of the Committee of Geodesy of the Polish Academy of Sciences - Prof. Włodzimierz Baran

Introduction to the Journées 2005:

- Scope of the history of the Journées Systèmes de Référence Spatio-Temporels - Prof. Barbara Kołaczek
- Scientific cooperation of the Paris Observatory and the Space Research Centre - Prof. Nicole Capitaine
- Presentation of the scientific programme of the Journées 2005 - Prof. Aleksander Brzeziński

Monday 19 September, 11h15-13h00

## SESSION 1: CELESTIAL AND TERRESTRIAL REFERENCE SYSTEMS

### 1.1. Astrometry / The International Celestial Reference Frame

*Chairperson:* T. Fukushima

#### Invited

A. L. Fey - *Recent and future extension of the International Celestial Reference Frame*

J. Kovalevsky - *Prospects for an optical celestial reference frame using GAIA*

#### Oral

O. Titov - *On the selection of radiosources for the next ICRF realization*

Y. Yatskiv, A. Kuryanova and S. Lytvyn - *New combination solution for RS position RSC (GAO UA) 05 C 05*

A. H. Andrei, R. Vieira Martins, M. Assafin and D.N. Silva Neto - *Astrometric detection of faint companions*

#### Posters

M. Sekido and T. Fukushima - *VLBI delay model for radio sources at finite distance*

S. Lytvyn - *Comparison of various runs of combination solutions for constructing the GAO UA combined catalogue of RS positions*

P. Popescu, R. Popescu and A. Nadelcu - *Contribution to the establishment of local reference frames around ICRF optical sources*

G. Damljjanovic - *Method of calculation to improve proper motions in declination of HIPPARCOS stars observed with Photographic Zenith Tubes*

A. V. Popov, A. S. Tsvetkov and V. V. Vityazev - *Spectral parallaxes of the TYCHO-2 stars*

S. Mouret, F. Mignard and D. Hestroffer - *Asteroid mass determination with the GAIA mission*

A. H. Andrei, V. A. D'Avila, E. Reis Neto, J. L. Penna, S. C. Boscardin and M. Assafin - *The Heliometric Astrolabe, a new instrument for solar diameter observations*

R. Popescu, P. Popescu and O. Badescu - *Comparative study between two astrogeodetic methods used in determining vertical deflection*

A. Shuksto and V. Vityazev - *Vectorial harmonics: from link of frames to stellar kinematics*

Monday 19 September, 14h00-18h00

### 1.2. Realization of the systems and scientific applications

*Chairperson:* D.D. McCarthy

#### Invited

Z. Altamimi - *Status of the ITRF 2004*

P. Charlot - *The European VLBI Network: a powerful instrument for high-resolution science*

#### Oral

S. Debarbat - *Public and scientific time at Paris Observatory: evolution over three centuries*

D. Gambis, Ch. Bizouard and M. Sail - *Earth orientation monitoring at IERS, current situation and prospects*

R. Biancale, D. Gambis, J.-M. Lemoine, J.-C. Marty, S. Loyer, L. Soudarin, T. Carlucci, N. Capitaine, Ph. Berio, D. Coulot, P. Exertier, P. Charlot and Z. Altamimi - *Global combination from Earth geodetic techniques*

*Chairperson:* P. Defraigne

**Oral** (cont.)

S. Bouquillon, J. Chapront and G. Francou - *Contribution of satellite laser ranging results to lunar laser ranging analysis*

S. Schillak and P. Michałek - *Monitoring the International Terrestrial Reference Frame 2000 by Satellite Laser Ranging in 1999-2003*

**Posters**

M. O. Lytvyn and O. V. Bolotina - *Determination of the collocated IERS sites coordinates with combination of GPS and SLR data*

S. P. Kuzin and S. K. Tatevian - *Determination of seasonal geocenter variations from DORIS, GPS and SLR data*

T. V. Ivanova and N. V. Shuygina - *Variations of the geopotential second order harmonics from the Lageos SLR data*

J. Kostelecky and I. Pesek - *Determination of the Earth orientation parameters and station coordinates from combination of IERS CPP data - internal comparisons*

V. Mioc, E. Pérez-Chavela and M. Stavinschi - *Equatorial satellite dynamics in Fock's relativistic model*

M. Soma - *Results from the recent lunar occultations of Upsilon Geminorum and Antares*

M. Medvedsky and V. Pap - *New system for building telescope error model*

K. Kurzyńska and R. Janicki - *Some remarks on accuracy of atmospheric model used in laser ranging observations*

M. Rutkowska - *The orbit estimation of Larets satellite*

**Tuesday 20 September, 9h00-12h30**

**SESSION 2: PRECESSION, NUTATION AND POLAR MOTION**

**2.1. Recent developments of observation and modeling**

*Chairperson:* A. Brzeziński

**Invited**

M. Rothacher, P. Steigenberger and D. Thaller - *Earth Orientation Parameters from reprocessing and combination efforts*

J. L. Hilton and N. Capitaine, J. Chapront, J.M. Ferrandiz, A. Fienga, T. Fukushima, J. Getino, P. Mathews, J.-L. Simon, M. Soffel, J. Vondrák, P. Wallace, and J. Williams - *Progress report of the IAU Working Group on Precession and the Ecliptic*

**Oral**

P. Wallace and N. Capitaine - *P03-based precession-nutation matrices*

T. Fukushima - *Application of manifold correction methods to numerical integration of rotational motion*

V. Pashkevich and G. Eroshkin - *Choice of the optimal spectral analysis scheme for the investigation of the Earth rotation problem*

A. Dermanis - *Compatibility of the IERS Earth rotation representation and its relation to the NRO conditions*

*Chairperson:* M. Soffel

**Oral** (cont.)

N. Capitaine, M. Folgueira and J. Souchay - *Earth rotation based on the celestial coordinates of the celestial intermediate pole*

M. V. Kudryashova and S. D. Petrov - *Diurnal/semidiurnal polar motion from VLBI observations*

W. Kosek, A. Rzeszótka and W. Popiński - *Phase variations of oscillations in the Earth Orientation Parameters detected by the wavelet technique*

**Posters**

J. Sokolova - *Influence of the unstable radiosources on the nutation offset estimation*

J. M. Ferrandiz and Yu. V. Barkin - *Nutations and precession of elastic Earth in angle-action variables*

Ya. Chapanov - *On the long-periodical variations of the Earth rotation*

A. Korsun' and G. Kurbasova - *Nonstability of the Earth rotation in 1833-2000 yy*

M. Soma and K. Tanikawa - *Abrupt changes of the Earth's rotation speed in ancient times*

R. R. Dasaev - *Research of evolution of oscillation of the Earth's pole*

V. V. Perepelkin - *Rotationally-oscillatory motion of the deformable Earth in case of a three body problem*

L. V. Zotov and S. L. Pasynok - *Analysis of discrepancies of the nutation theories MHB2000 and ZP2003 from VLBI observations*

Ya. Chapanov, J. Vondrák and C. Ron - *On the accuracy of the trigonometric solution for the periodical components of the polar motion*

W. Kosek and W. Popiński - *Forecasting pole coordinates data by combination of the wavelet decomposition and autocovariance prediction*

**Tuesday 20 September, 13h30-17h00**

**2.2. Implementation of the IAU 2000 Resolutions and new nomenclature**

*Chairperson:* J. Vondrák

**Invited**

N. Capitaine and C. Hohenkerk, A.H. Andrei, M. Calabretta, V. Dehant, T. Fukushima, B. Guinot, G. Kaplan, S. Klioner, J. Kovalevsky, I. Kumkova, C. Ma, D.D. McCarthy, K. Seidelmann, P. Wallace - *Latest proposals of the IAU Working Group on Nomenclature for fundamental astronomy*

S. A. Klioner and M.H. Soffel - *Recent progress in astronomical nomenclature in the relativistic framework*

**Oral**

C. Hohenkerk and G. Kaplan - *Progress on the implementation of the new nomenclature in 'The Astronomical Almanac'*

M. Sękowski - *Astronomical Almanac of Institute of Geodesy and Cartography against the IAU 2000 Resolutions*

**Discussion**

*On the status of the implementation of the IAU 2000 Resolutions and on the latest proposals of the IAU Working Group on "Nomenclature for fundamental astronomy"*

**Posters session**

Wednesday 21 September, 9h00-12h15

### 2.3. Presentations of progress in the “Descartes-Nutation” projects

Chairperson: Ya. Yatskiv

#### Invited

V. Dehant - *Next decimal for nutation modeling*

#### Oral

M. Folgueira, N. Capitaine and J. Souchay - *On the research progress of Descartes-Subproject: “Advances in the integration of the equations of the Earth’s rotation in the framework of the new parameters adopted by the IAU 2000 Resolutions”*

S. Bolotin - *Computation of the ‘geodetic’ excitation function of nutation*

M. Kalarus, B. Luzum, S. Lambert and W. Kosek - *Modelling and prediction of the FCN*

#### Posters

M. Folgueira, J. Souchay and N. Capitaine - *Discussion on the most adequate sets of variables for the study of the Earth’s rotation in the framework of IAU 2000 Resolutions*

L. Koot, O. De Viron and V. Dehant - *Nutation model with Earth interior parameters adjusted on the time series data*

G. Bourda, J. Boehm, R. Heinkelmann and H. Schuh - *Analysis and comparison of precise long-term nutation series, strictly determined with OCCAM 6.1 VLBI software*

L. Fernandez and H. Schuh - *Polar motion excitation analysis due to global continental water redistribution*

### SESSION 3: EXCITATION OF EARTH ROTATION BY GEOPHYSICAL FLUIDS

Chairperson: N. Capitaine

#### Invited

D. A. Salstein and J. Nastula - *Excitation of Earth rotation by geophysical fluids*

#### Oral

M. Thomas, H. Dobslaw and M. Soffel - *The ocean’s response to solar thermal and gravitational tides and impacts on polar motion and nutation*

J. Nastula, B. Kołaczek and W. Popiński - *Comparisons of regional Hydrological Angular Momentum (HAM) of the different models*

A. Brzeziński and S. Bolotin - *Atmospheric and oceanic excitation of the free core nutation: observational evidence*

J. Vondrák and C. Ron - *Resonance effects and possible excitation of Free Core Nutation*

Yu. V. Barkin - *Pole trend due to the core ocean rising bulge and tectonic process*

Wednesday 21 September, 13h15-18h15

Chairperson: D. Salstein

#### Oral (cont.)

N. Sidorenkov - *Long term changes of the variance of the Earth orientation parameters and of the excitation functions*

Ch. Bizouard - *Influence of the earthquakes on the polar motion with emphasis on the Sumatra event*

P. Varga, D. Gambis, Ch. Bizouard, Z. Bus and M. Kiszely - *Tidal influence through LOD variations on the temporal distribution of earthquake occurrences*

L. Zotov - *Excitation functions reconstruction using observations of the polar motion*

## Posters

- Y. Masaki - *Comparison of two AAM functions calculated from NCEP/DOE and ERA-40 re-analyses data sets*
- Yu. V. Barkin - *Explanation of nontidal acceleration of the Earth axial rotation*
- E. A. Spiridonov and Y. V. Akimenko - *Modeling of the polar motion from data on the atmospheric and oceanic angular momenta*
- O. G. Kudlay - *About excitation of wobble for 3-axis body rotation*

## SESSION 4: TIME AND TIME TRANSFER: RECENT DEVELOPMENTS AND PROJECTS

*Chairperson:* B. Kołaczek

### Invited

- D. D. McCarthy - *Evolution of time scales*
- E. F. Arias - *Recent improvements in international time keeping*
- P. Defraigne and C. Bruyninx - *GPS time transfer: state of the art*
- W. Lewandowski and J. Nawrocki - *Satellite time-transfer: recent developments and projects*

### Posters

- V. Solovyov, O. Tkachuk and A. Korsun' - *On local atomic time scale TA(UA)*
- J. Nawrocki, P. Nogaś, R. Diak, A. Foks and D. Lemański - *TTS-3, multi-channel, multi-system GPS/GLONAS/WAAS/EGNOS receiver*

## SESSION 5: GLOBAL REFERENCE FRAMES AND EARTH ROTATION: impact of the gravitational satellite missions (CHAMP, GRACE, GOCE), new techniques (ring laser etc.), new international projects (IAG-GGOS, GALILEO)

*Chairperson:* V. Dehant

### Invited

- T. Klüegel, U. Schreiber, A. Velikoseltsev, W. Schlüter and M. Rothacher - *Estimation of diurnal polar motion terms using ring laser data*

### Oral

- J. Kryński, A. Brzeziński and J. Nastula - *Recent development in the Global Geodetic Observing System at the IUGG Dynamic Planet 2005*
- M. Rothacher - *Present status and future of the IAG Project GGOS*
- J. M. Pozo and B. Coll - *Some properties of emission coordinates*
- A. Krankowski, W. Kosek, T. Hobiger and H. Schuh - *Wavelet analysis in TEC measurements obtained using dual-frequency space and satellite techniques*

### Posters

- R. Weber and S. English - *Potential contribution of GALILEO to the TRF and the determination of ERPs*

## CLOSING SESSION