

## SCIENTIFIC PROGRAMME

**Scientific Organizing Committee:** BRZEZIŃSKI Aleksander, Poland, CAPITAINE Nicole (Chair), France, DEFRAIGNE Pascale, Belgium, FUKUSHIMA Toshio, Japan, MCCARTHY Dennis, USA, SOFFEL Michael, Germany, VONDRÁK Jan, Czech Republic, YATSKIV Yaroslav

**Local Organizing Committee:** BAUDOIN Pascale, BECKER Olivier, BIZOUARD Christian, BOURDA Geraldine, GONTIER Anne-Marie, NGUYEN Jean-Baptiste, SOUCHAY Jean (Chair)

Monday 20 September, 9h00-13h00

### OPENING OF THE JOURNÉES 2004

Welcome from D. Egret, President of Paris Observatory

Introduction to the Journées 2004 by N. Capitaine (Chair of the SOC) and J. Souchay (Chair of the LOC)

### SESSION I: RECENT AND FUTURE DEVELOPMENTS IN THE REALIZATION OF THE ICRS, Chair: J. Vondrák

Ma C.: *Steps towards the next radio realization of the ICRS*

Petit G., McCarthy D.D.: *Updating the IERS Conventions to improve reference frames*

Bolotin S.: *Extension of the celestial reference frame*

Souchay J., Gaume R.: *Activities of the ICRS Product Center of the IERS*

Arias E.F., Bouquillon S.: *Maintenance of the ICRS: stability of the axes by different sets of selected radio sources*

Charlot P., Fey, A. L., Jacobs, C. S., Ma, C., Sovers, O. J., Baudry, A.: *Densification of the International Celestial Reference Frame: Results of EVN + Observations*

Yatskiv Y., Bolotin S., Kuryanova A.: *"GAOUA" realizations of the Celestial reference frame*

Discussion 1 on the tasks that were previously part of the ICRS working group of the IAU

Chair: T. Fukushima

Monday 20 September, 14h15-18h30

### SESSION II: MODELS FOR EARTH'S ROTATION: FROM POINCARÉ TO IAU 2000

Chair: A. Brzeziński

Dehant V., de Viron O., Van Hoolst T.: *Poincaré fluid in the Earth core (invited)*

Capitaine N.: *Improvements in the precession-nutation models*

Hilton J.: *Report on the IAU WG Precession and the ecliptic (invited) + Discussion*

Short oral presentations of posters

Chair: N. Capitaine

"Kickoff" meeting for the Project "Descartes-Nutation"

Chair: V. Dehant

### POSTER SESSION 1

Tuesday 21 September, 9h00-13h00

**SESSION II: CONTINUATION**

Chair: Ya. Yatskiv, V. Dehant

Salstein D., Chao, B., Ponte, R., Chen, J., Zhou, Y.: *Plans for high accuracy computations of Earth rotation/polar motion excitations (invited)*

Brzeziński A.: *Non-tidal oceanic excitation of diurnal and semidiurnal polar motion estimated from a barotropic ocean model*

Escapa A, Getino J, Ferrándiz J.M.: *On the effect of the redistribution tidal potential on the rotation of the non-rigid Earth: discrepancies and clarifications*

Efroimsky, M.: *A possible reason for the discrepancy between the Kinoshita-Souchay theory and the other theories of rigid-Earth rotation*

Pashkevich V.V., Eroshkin G.I.: *Spectral analysis of the numerical theory of the rigid Earth rotation*

Huang C-L.: *On the coupling between geomagnetic field and Earth nutation in numerical integration approach*

Chao B. F., Cox C. M.: *Length-of-Day and Polar Motion Excitation "Observed" by Time-Variable Gravity*

McCarthy D.D.: *The Free Core Nutation*

Zharov V.: *Model of the Free Core Nutation for improvement of the Earth nutation theory*

Ron C., Capitaine N., Vondrák J.: *A precession study based on the astrometric series and the combined astrometric catalogue EOC-2*

Shuygina N.: *UT1 variations obtained from the combination of LLR, SLR and VLBI data at the observation level*

Varga P., Gambis D., Bizouard C., Bus Z.: *What can we say on the relationship between the global seismicity and the rotation vector of the Earth?*

Mueller J.: *Earth Rotation and Global Dynamic Processes - Joint Research Activities in Germany*

Tuesday 21 September, 14h00 - 18h30

**POSTER SESSION 2**

**SESSION III: NOMENCLATURE IN FUNDAMENTAL ASTRONOMY**

Chair: D.D. McCarthy

Capitaine N.: *Report of the NFA Working Group*

de Viron O., Dehant V.: *3D representation of the Non-Rotating Origin*

Hohenkerk C.: *Implementation of the new nomenclature in the Astronomical Almanac*

Wallace P.: *Post-IAU-2000 nomenclature for the telescope pointing application*

Soffel M., Klioner S.: *The ICRS, BCRS and GCRS: astronomical reference-systems and frames in the framework of Relativity, problems of nomenclature*

Discussion 2 on Nomenclature in fundamental astronomy

Chair: N. Capitaine

Wednesday 22 September, 9h00-13h00

**SESSION IV: ASTRONOMICAL REFERENCE SYSTEMS**

Chair: M. Soffel

Soffel M., Klioner S.: *Relativity in the problems of astronomical reference systems and Earth rotation: status and prospects (invited)*

Mignard F.: *Inertial frame with Gaia : selection of sources and limitations (invited)*

Leponcin-Lafitte C., Teyssandier P.: *Influence of the multipole moments of a giant planet on the propagation of light: application to Gaia*

Vondrák J., Ron C.: *Combined astrometric catalogue EOC-2 - an improved reference frame for long-term Earth rotation studies*

Chapront J., Francou G.: *The lunar libration, Comparison between various models*

Fukushima T.: *Efficient Orbit Integration by Integrating Orbital Longitude*

**SESSION V: FUTURE OF UTC: CONSEQUENCES IN ASTRONOMY**

Chair: T. Fukushima

McCarthy D.D.: *Future of UTC: Consequences in astronomy: Report on the UTC Working Group and the latest developments (invited)*

Arias E.F., Guinot, B.: *UTC: Historical background and perspectives*

Gambis D., Bizouard, C., Francou, G., Carlucci T., Sail M.: *Prediction of UT1 and length of day variations*

Wooden W.H., Johnson, T. J., Kammeyer, P. C., Carter, M. S., Myers, A. E.: *Determination and Prediction of UT1 at the IERS rapid service/prediction center*

Discussion

Chair: D.D. McCarthy

Closing of the Journées 2004 and Announcement of the Journées 2005

N. Capitaine, A. Brzeziński

**LIST OF POSTERS**

**SESSION I**

Bucciarelli B., Lattanzi M.G., Massone G., Poma A., Tang Z., Uras S.: *Realisation of faint Reference catalogues around ICRF radio sources from photographic observations*

Camargo J.I.B., Daigne G., Ducourant C., Charlot P.: *Precise near-IR astrometry and photometry of southern ICRF quasars*

Fey A.L.: *Improving the ICRF in the southern hemisphere*

Sokolova J.R.: *Influence of the early VLBI observations on the ICRF stability*

**SESSION II**

Akulenko L.D., Kumakshev S.A., Markov YU.G.: *The model and the prediction of the Earth's pole motion*

Bădescu O., Popescu P., Popescu P.: *A method for accuracy and efficiency increase of geodetic-astronomical determination of the vertical's deviation*

Bolotina O.V.: *Implementation of new models for Earth rotation in data analysis at the Ukrainian Centre of the determination of the EOP*

- Bourda G.: *Earth rotation and variations of the gravity field, in the framework of the “Descartes-Nutation” Project*
- Coulot D., Berio P., Biancale R. & al.: *Combination of space geodesy techniques for monitoring the kinematics of the Earth*
- Folgueira M., Capitaine N., Souchay J.: *The equations of the Earth’s rotation in the framework of the IAU 2000 resolutions*
- Koot L., de Viron O., Dehant V.: *Atmospheric angular momentum time series: Characterization of their internal noise and construction of a combined series*
- Kosek W., Kalarus M., Johnson T.J., Wooden W.H., McCarthy D.D., Popiński W.: *A comparison of UT1-UTC forecasts by different prediction techniques*
- Kudryavtsev S.M.: *KSM03 harmonic development of the Earth TGP in the ITRS*
- Lambert S.: *Non-linear terms in the non-rigid Earth’s nutation*
- Nastula J., Kolaczek B.: *Studies of regional atmospheric pressure excitation function of polar motion*
- Nastula J., Gambis D.: *Assessment of quality of polar motion series derived from space-geodetic techniques*
- Rambaux N., Van Hoolst T., Dehant V.: *Earth librations due to core-mantle couplings*
- Rogister Y., Rochester M.G.: *Normal mode theory of a rotating Earth model using a Lagrangian perturbation of a spherical model of reference*
- Sidorenkov N.: *The decade fluctuations of the Earth rotation velocity and of the secular polar motion*
- Stavinschi M., Gambis D., Maris G., Mioc V., Oncica A.: *Common periodicities in the solar activity and the Earth rotation*
- Stavinschi M., Mioc V.: *Astronomical researches in Poincaré’s and Romanian works*
- Zhang B., Li J.L., Wang G.L., Zhao M.: *A discussion on the solution of high frequency variations of ERP*

#### SESSION IV

- Andrei A.H., Fienga A., Assafin M., Penna J.L., Schulteis M., da Silva Neto D.N., Vieira Martins R.: *Véron & Véron based extragalactic reference frame*
- Damljanović G., Vondrák J.: *Improved proper motions in declination of some Hipparcos stars derived from observations of latitude*
- Kumkova I.I., Stepashkin M.V.: *Estimation of relativistic contributions in the GCRS-ITRS transformation*
- López J.A., Martínez M.J., Marco F.J.: *A new method for dynamical analysis of orientation errors from non regular samples*
- Marco F.J., Martínez M.J., López J.A.: *Infinitesimal variations in the Reference and their implications on the minor planets elements and masses*
- Martínez M.J., Marco F.J., López J.A.: *Two independent estimations for the  $\epsilon_z$  values in the Hipparcos-FK5 catalogues*
- Pireaux C.: *Relativistic modeling of the orbit of geodetic satellites equipped with accelerometers*
- Popescu R., Nedelcu A.: *Astrometrical positions of NEO inferred from CCD observations at Bucharest*
- Yu Y., Tang Z.H., Li J.L., Zhao M.: *Application of block adjustment of overlapping CCD frames*
- Zhu Z., Zhang H.: *Galactic warping motion from Hipparcos proper motions and radial velocities*

#### SESSION V

- Soma M., Tanikawa K.: *TT-UT obtained from ancient solar eclipses observed at plural sites*