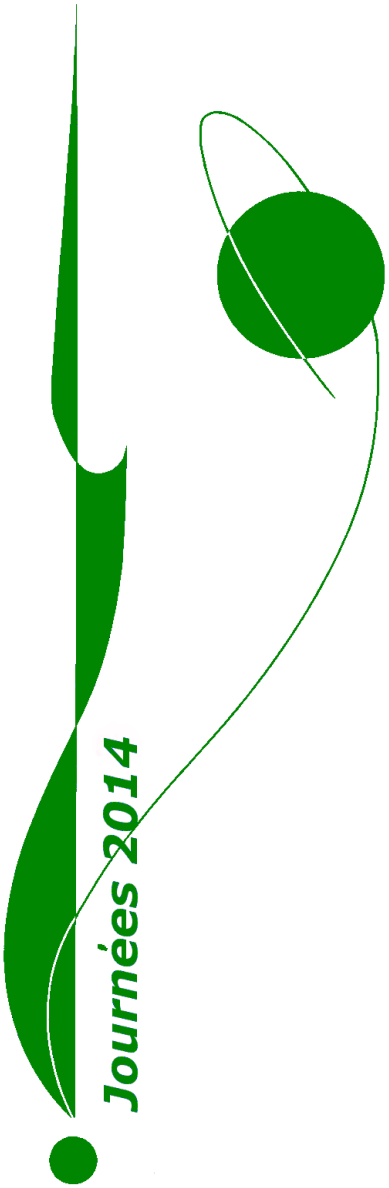
JOURNÉES 2014

SYSTÈMES DE RÉFÉRENCE SPATIO-TEMPORELS

Recent developments and prospects
in ground-based and space astrometry



PROGRAMME

Pulkovo Observatory
St. Petersburg, Russia
22-24 September 2014

Monday 22 September 2014

This day in history of astronomy

b. ***Thomas Wright***, English astronomer (1711)
b. ***Pehr Wilhelm Wargentin***, Swedish astronomer (1717)
b. ***Edison Pettit***, American astronomer (1889)
Official opening of the ***Crimea Astrophysical Observatory*** (1955)

08:00-09:00: Registration

09:00-09:20: Opening of the Journées 2014 and Welcome Speeches

09:20-09:50: Special session on the History of the Pulkovo Observatory

Stepanov A. 175 years of the Pulkovo Observatory

09:50-10:30: Session 1. Celestial reference system and frame

(Chair: N. Capitaine)

Malkin Z., Jacobs C., and IAU ICRF3 Working Group *(invited).* The ICRF-3: Status, plans, and progress on the next generation International Celestial Reference Frame

Lambert S. *(invited).* The stability of the ICRS axes

10:30-11:00: Coffee break

11:00-13:00: Session 1. (continuation)

(Chair: A. Andrei, S. Lambert)

Raposo-Pulido V., Lambert S., Capitaine N., Nilsson T., Heinkelmann R., Schuh H. On the systematics in apparent proper motions of radio sources observed by VLBI

Andrei A., Coelho B., Anton S. Morphology of QSO host galaxies — a look at the SED

Damljanovic G., Taris F., Boeva S. Some preliminary photometric results of QSOs useful for the link between future Gaia CRF and ICRF

Iddink A., Jacobs C., Artz T., Nothnagel A. First results of S/X and X/Ka-band catalogue combinations with full covariance information

Tsvetkov A., Vityazev V. Comparison of astrometric catalogues UCAC4, XPM, PPMXL

Popadyov V., Tolchelnikova S. Some common problems in geodesy and astrometry after establishing ICRF

Ding P., Liu J.-C., Zhu Z. The Galactic coordinate system based on multi-wavelength catalogues

Discussion *(Chair: Z. Malkin)*

13:00-13:45: Lunch-break

13:45-14:00: Group photo at the portico in the center of the Observatory building
(the time and place may change depending on the weather conditions)

Please switch off your phone in all meeting rooms!

14:00-15:30: Session 2. Relativity and time scales

(Chair: M. Soffel, O. Titov)

Hees A., Bertone S., Le Poncin-Lafitte C., Teyssandier P. *(invited).* The Time Transfer Function as a tool to compute range, Doppler and astrometric observables

Klioner S. *(invited).* Relativistic aspects of Gaia mission

Capitaine N., Soffel M. On the definition and use of the ecliptic in modern astronomy

Tang K., Soffel M., Tao J.-H., Tang Z.-H. Relativistic precession model of the Earth for long time interval

Soffel M. Work for IAU C52 (RIFA)

Litvinov D., Bartel N., Biriukov A., Kauts V., Kulagin V., Rudenko V. Gravitational red-shift experiment with the space radio telescope RadioAstron

15:30-16:00: Coffee break

16:00-16:40: Session 2. (continuation)

(Chair: F. Arias)

Titov O., Girdiuk A. The deflection of light induced by the Sun gravity field and measured with geodetic VLBI

Le Poncin-Lafitte C., Delva P., Meynadier F., Guerlin C., Wolf P., Laurent P. Time and frequency transfer with a microwave link in the ACES/PHARAO mission

Discussion (Chair: S. Klioner)

16:40-18:00: POSTER SESSION

18:00-19:30: WELCOME DRINK

Please switch off your phone in all meeting rooms!

Tuesday 23 September 2014

Equinox at 06:29 (St. Petersburg local time, UTC+4h)

This day in history of astronomy

b. ***Johann Franz Encke***, German astronomer (1791)
Discovery of ***Neptune*** (1846)
d. ***Jean Chacornac***, French astronomer (1873)
d. ***Urbain Jean Joseph Le Verrier***, French astronomer (1877)
b***. Alfred Harrison Joy***, American astronomer (1882)

09:00-10:30: Session 3. Solar and extrasolar systems dynamics

(Chair: V. Dehant, A. Devyatkin)

Kudryavtsev S. *(invited).* Development of orbital elements of the Moon and planets to compact analytical series

Shevchenko I. *(invited).* Resonances in the Solar and exoplanetary systems

Devyatkin A., Gorshanov D., L'vov V., Tsekmeister S., Petrova S., Martyusheva A., Slesarenko V., Naumov K., Sokova I., Sokov E., Zinoviev S., Karashevich S., Lyashenko A., Rusov S., Kouprianov V., Bashakova E. Investigation of asteroids in Pulkovo Observatory

Sokov E., Sokova I., Roschina E., Rastegaev D., Balega Yu. The binary asteroid 22 Kalliope: Linus orbit determination on the basis of speckle interferometric observations

Pitjeva E. Evolution of ephemerides EPM of IAA RAS

Girdiuk A. Improvement of the Pluto orbit using additional new data

10:30-11:00: Coffee break

11:00-12:00: Session 3. (continuation)

(Chair: A. Escapa, D. Hestroffer)

Kudryashova M., Rosenblatt P., Marty J.-Ch. Phobos mass estimations from MEX and Viking1 data: influence of different noise sources and estimation strategies

Perminov A., Kuznetsov E. Expansion of the Hamiltonian of the planetary system into the Poisson series in all elements

Guseva I. Some orbital peculiarities of observed comets

Kuznetsov E., Zakharova P. Long time dynamical evolution of highly elliptical satellites orbits

Yagudina E., Vasilyev M., Torre J.-M., Feraudy D. Planned LLR station in Russia and its impact on the lunar ephemeris accuracy

Please switch off your phone in all meeting rooms!

12:00-13:00: Sub-Session on the "IAU/IAG Joint Working Group on Theory of Earth Rotation"

(Chair: J. Ferrandiz, R. Gross)

Ferrandiz J., Gross R. Report on the activities of the IAU/IAG Joint Working Group on Theory of Earth Rotation

Getino J., Escapa A. Report on activities of the Sub-Working Group 1 "Precession/Nutation" of the IAU/IAG Joint Working Group on Theory of Earth Rotation.

Brzeziński A. Report on activities of the Sub-Working Group 2 "Polar motion and UT1" of the IAU/IAG Joint Working Group on Theory of Earth Rotation

Heinkelmann R. Report on activities of the Sub-Working Group 3 "Numerical Solutions and Validation" of the IAU/IAG Joint Working Group on Theory of Earth Rotation

Discussion *(Chair: J. Ferrandiz, R. Gross)*

13:00-14:00: Lunch-break

14:00-15:30: Session 4. Earth's rotation and geodynamics

(Chair: C. Ron, R. Heinkelmann)

Schindelegger M., Boehm J., Salstein D. *(invited).* The global S1 tide and Earth's nutation

Dehant V. Refinements on precession, nutation, and wobble of the Earth

Liu J., Capitaine N. Possible improvements in the IAU 2006 precession based on recent progresses

Zharov V. Towards new nutation theory

Bizouard C., Zotov L., Sidorenkov N. Moon influence on equatorial atmospheric angular momentum and consequences for nutation

Tercjak M., Boehm J., Brzeziński A., Gebauer A., Kluegel T., Schreiber U., Schindelegger M. Estimation of nutation rate from combination of ring laser and VLBI data

Brzeziński A., Wielgosz A., Boehm B. On application of the complex demodulation procedure for monitoring Earth rotation: comparison with the standard approach using the long periodic EOP components estimated from VLBI data analysis by the VieVS CD software

15:30-16:00: Coffee break

16:00-17:40: Session 4. (continuation)

(Chair: A. Brzeziński, V. Zharov)

Ferrandiz J., Baenas T., Escapa A., Getino J. Effects of the tidal mass redistribution on the Earth rotation

Pashkevich V. New high-precision Earth and Moon rotation series at long time intervals

Filippova A., Markov Yu. Numerical-analytical modeling of the Earth's pole oscillations

Please switch off your phone in all meeting rooms!

Nastula J., Winska M., Birylo M. Comparison of polar motion excitation functions computed from different sets of gravimetric coefficients

Ron C., Vondrák J. Geomagnetic excitation of nutation

Sidorenkov N. The Chandler wobble of the poles and its amplitude modulation

Zotov L., Bizouard C. Prediction of the Chandler wobble

Pasynok S., Bezmenov I., Kaufman M. Operative EOP activities in VNIIFTRI

18:00-20:00: CONFERENCE DINNER

Please switch off your phone in all meeting rooms!

Wednesday 24 September 2014

This day in history of astronomy

d. ***Hermann of Reichenau***, German astronomer (1054)
d. ***Johann Matthias Hase***, German astronomer and cartographer (1742)
d. ***Dmitry Gedeonov***, Russian astronomer and geodesist (1908)
The first automated return of lunar material to the Earth by ***Luna-16*** (1970)

09:00-10:20: Session 4. (continuation)

(Chair: C. Huang, W. Kosek)

Huang C., Zhang M. *(invited).* Do we need various assumptions to get a good FCN? — A new multiple layer spectral method

Kosek W., Wnek A., Zbylut-Gorska M., Popinski W. Application of the wavelet semblance filtering to determine the geocenter motion stochastic model

Gorshkov V., Petrov S., Scherbakova N., Smirnov S., Mohnatkin A., Trofimov D., Guseva T., Perederin V., Rosenberg N. Deformation of the South-Eastern Baltic Shield from GNSS observations

Discussion *(Chair: C. Huang)*

10:20-10:50: Coffee break

10:50-12:00: Session 5. Astronomical almanacs and software

(Chair: C. Hohenkerk, E. Pitjeva)

Bell S., Nelmes S., Prema P. *(invited).* Future of almanac services

Pavlov D., Skripnichenko V. Rework of the ERA software system: ERA-8

Galushina T., Bykova L., Letner O., Baturin A. The software "IDA" for investigation of asteroid dynamics and its use for study of some asteroid motion

Discussion *(Chair: S. Bell)*

12:00-13:00: General discussion and closing the Journées 2014

(Chair: N. Capitaine, Z. Malkin)

13:00-14:00: Lunch-break

14:00-16:00: Splinter meetings of the IAU Commissions and Working Groups
Excursion on the Pulkovo Observatory (1st group)

16:00-18:00: Excursion on the Pulkovo Observatory (2nd group)

Please switch off your phone in all meeting rooms!

Posters

Session 1. Celestial reference system and frame

1.1. ***Kurdubov S., Skurikhina E.*** Core sources set selection

1.2. ***Lambert S., Roland J.*** Binary black hole systems and the ICRF

1.3. ***Lipovka A., Lipovka N.*** On the transition to the radio system coordinates ICRF

1.4. ***Lopez Yu.*** Further study of correlation information impact on the mutual orientation between celestial reference frames

1.5. ***Malkin Z.*** On the selection of the common VLBI/Gaia sources

1.6. ***Medvedev Yu., Kuznetsov V.*** Using positional observations of numbered minor planets for determination of star catalog errors

1.7. ***Taris F., Damljanovic G., Andrei A.*** Optical monitoring of QSOs in the framework of the Gaia space mission

1.8. ***Vityazev V., Tsvetkov A.*** Kinematics derived from Northern and Southern Galactic hemispheres of huge ICRS optical catalogues

Session 2. Relativity and time scales

2.1. ***Avramenko A.*** Parametric invariance of the relativistic pulsar time scales

2.2. ***Heinkelmann R., Soja B., Schuh H.*** Gravitational effects from a series of IVS R&D VLBI-sessions with observations close to the Sun

Session 3. Solar and extrasolar systems dynamics

3.1. ***Hestroffer D., David P., Hees A., Le Poncin-Lafitte C.*** Local test of general relativity with Solar system objects

3.2. ***Hestroffer D., Arlot J.-E., Lainey V., Robert V.*** Taking the opportunity of the Gaia reference star catalogue for observing the Solar system in the past

3.3. ***Kovalenko I., Hestroffer D., Doressoundiram A.*** Statistical inversion method for binary asteroids' orbit determination

3.4. ***Popova E.*** Diagrams of stability of circumbinary planetary systems

3.5. ***Sigismondi C., Regoli V., Andrei A.*** Measures of the Earth obliquity during 1701 winter solstice at the Clementine meridian line in Rome

3.6. ***Soffel M., Panhans M.*** Bodies with higher spin-multipole moments

3.7. ***Vavilov D., Medvedev Yu.*** Method of determining the orbits of the small bodies in the Solar system based on an exhaustive search of orbital planes

Session 4. Earth's rotation and geodynamics

4.1. ***Bezmenov I., Pasynok S.*** GLONASS orbit/clock combination in VNIIFTRI

4.2. ***Escapa A., Baenas T., Ferrandiz J., Getino J.*** On the minimization properties of the Tisserand systems

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4.3. ***Gorshkov V.*** Study of the pole tide triggering of seismicity

4.4. ***Gross R., Nastula J.*** Estimating the period and Q of the Chandler Wobble from observations and models of its excitation

4.5. ***Heinkelmann R., Belda-Palazon S., Ferrandiz-Leal J., Schuh H.*** The consistency of the current conventional celestial and terrestrial reference frames and the conventional EOP series

4.6. ***Hui H., Rui W, Malkin Z.*** Application of Titius-Bode law in earthquake study

4.7. ***Miller N.*** Long periodical regularities of polar motion in the Pulkovo latitude variations

4.8. ***Perepelkin V., Bondarenko V.*** Irregular effects in the oscillatory process of the Earth's pole and temporal variations of the geopotential

4.9. ***Petrov S.*** Bretagnon fundametal arguments in the nutation theory

4.10. ***Richard J., Biancale R., Gambis D.*** Astro-geodetic techniques combination at the normal equation level for global space reference determination

4.11. ***Skurikhina E., Ipatov A., Smolentsev S., Diakov A., Olifirov V.*** High-frequency Earth rotation variations from VLBI observations CONT14

4.12. ***Spiridonov E., Tsurkis I., Kuchay M., Sinyukhina S.*** The probabilistic approach to the description of the Chandler wobble

4.13. ***Sun R., Shen W.*** Triaxial Earth's rotation: Chandler wobble, free core nutation and diurnal polar motion

4.14. ***Tsyba E., Kaufman M.*** Improvement of the software Bernese for calculation of the Earth rotation parameters according to the data of satellite laser ranging (Lageos 1, Lageos 2) in the Main Metrological Centre of the State Time and Frequency Service

Session 5. Astronomical almanacs and software

5.1. ***Andrei A., Boscardin S., Penna J., Sigismondi C., Reis Neto E., d'Avila V.*** Astrometry and numerical methods for the solar heliometer

5.2. ***Brattseva O., Gayazov I., Kurdubov S., Suvorkin V.*** SINCom – the new program package for combined processing of space geodetic observations

5.3. ***Chuvashov I., Bordovitsyna T.*** Application of software package "Numerical model of motion artificial earth satellite" for study the earth artificial satellite dynamics by measurements

5.4. ***Hohenkerk C.*** SOFA & Astrometry

5.5. ***Lukashova M., Glebova N., Netsvetaeva G., Sveshnikov M., Skripnichenko V.*** Russian astronomical ephemeris editions and software

5.6. ***Mosenkov A., Savchenko S., Sotnikova N.*** Decomposition of galaxy images and galaxy rotation curves

5.7***. Nelmes S., Whittaker J.*** Almanac services for celestial navigation

5.8***. Skripnichenko P., Galushina T., Loginova M.*** EROS – automated software system for ephemeris calculation and estimation of probability domain

5.9. ***Suvorkin V., Kurdubov S., Gayazov I.*** GNSS processing in Institute of Applied Astronomy RAS

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