

# 1st Colloquium Scientific and Fundamental Aspects of the Galileo Programme

## PRELIMINARY PROGRAMME

### Day 1 - Monday, 1 October 2007

12.00	Participants Arrival
12.20	Lunch Break
14.00	Registration
15.00	Opening Speech by Air and Space Academy President <i>Mr. Georges Ville</i>
15.30	Impact of Global Navigation Satellite Systems on Geodesy and Geophysics <i>G. Beutler</i>
16.30	Coffee Break
16.50	Scientific Exploitation of GNSS and Galileo <i>Mr. Michel Courtois, Director of ESTEC</i>
17.15	Galileo Overview and Links to the Scientific Community <i>Mr. Joerg Hahn, Galileo Project</i>
17.40	Cold Atom Space Clocks and Fundamental Tests <i>Mr. Christophe Salomon</i>
18.30	Bus Transport
19.00	Cocktail at Town Hall

### Day 2 - Tuesday, 2 October 2007

08.30	Invited IMAX Amph.: Giulio Ruffini	
	<b>Geodesy and Geodynamics</b> Conveners: J. Dow (ESOC), N. Capitaine (Observatoire de Paris) <b>Room Vega</b>	<b>Clocks and Timing</b> Convener: F. Arias (BIMP) <b>Room Sirius</b>
09.20	<b>The Global Geodetic Observing System and Galileo</b> <i>Rothacher, M.1; Neilan, R.2; Plag, H.P.3; 1GFZ (Germany); 2JPL (United States); 3University of Nevada (United States)</i>	<b>The Use of Galileo for Time Dissemination</b> <i>Achkar, J.1; Bauch, A.2; 1LNE-SYRTE, Observatoire de Paris (France); 2PTB (Germany)</i>
09.40	<b>Past, Present and Future GNSS Applications for Geodynamics</b> <i>Nocquet, J.-M.; CNRS - University of Nice Sophia-Antipolis (France)</i>	<b>Advanced Real-Time Synchronisation for Networks of Sensor Stations with High Accuracy and Integrity</b> <i>Hernández, C.; Catalán, C.; Curiel, A.M.; Sardón, E.; GMV Aerospace and Defence S.A. (Spain)</i>
10.00	<b>Scientific Applications in Geodesy and Geodynamics – Innovations Offered by the New GALILEO Signals</b> <i>Weber, R.; University of Technology, Vienna (Austria)</i>	<b>HORACE: A Compact Cold Caesium Atom Clock for Next Galileo's Generation</b> <i>Esnault, F.X.1; Tremine, S.1; Holleville, D.1; Guerandel, S.1; Perrin, S.1; Dimarcq, N.1; Delporte, J.2; Hermann, V.3; 1LNE-SYRTE (France); 2CNES (France); 3Thales Electron Devices (France)</i>
10.20	Coffee Break	
10.40	<b>New Capabilities of High Precision Geodesy with Galileo</b> <i>Perosanz, F.2; Loyer, S.1; Valette, J.J.1; Rhakis, S.2; 1Collecte Localisation Satellites (France); 2CNES/GRGS Centre National d'Etudes Spatiales (France)</i>	<b>Role of International Time Reference UTC in the Definition of Galileo System Time</b> <i>Lewandowski, W.; Arias, F.; BIPM (France)</i>
11.00	<b>Estimating Subdaily Earth Rotation Parameters using Galileo</b> <i>Hugentobler, U.; Heinze, M.; Svehla, D.; Technische Universität München (Germany)</i>	<b>Last Updates of GLONASS Program and GLONASS Interoperability with GALILEO and GPS</b> <i>Koshelyaevsky, N.B.; VNIIFTRI (Russian Federation)</i>
11.20	<b>Developments in Precise Point Positioning for GPS and Galileo</b> <i>van der Marel, H.; Le, A.Q.; Delft University</i>	<b>Algorithms for the Atomic Clock Prediction within the Galileo System</b> <i>Panfilo, G.1; Tavella, P.2; 1BIPM (France); 2INRIM</i>

	<i>of Technology (Netherlands)</i>	<i>(Italy)</i>
11.40	<b>Global Navigation System Based on Master Clocks and Two-way Links in Space</b> <i>Svehla, D.; Technische Universitaet Muenchen (Germany)</i>	<b>Global / Regional Advance Autonomous Localization (GRAAL)</b> <i>Clerino, A.1; Fernet, C.1; Peyrotte, C.1; Damidaux, J.-L.1; Brocard, D.2; 1Thales Alenia Space (France); 2CNES (France)</i>
12.00	Lunch Break	
	<b>Ionospheric Effects</b> <u>Conveners:</u> C. Mitchel (University of Bath), H. van der Marel (TU Delft), B. Lobert (Alcatel Alenia Space) <b>Room Vega</b>	<b>Fundamental Physics</b> <u>Conveners:</u> P. Wolf (Obs. Paris Meudon), E. Peik (PTB), C. Barbieri (University of Padova), P. Bouyet (CNRS) <b>Room Sirius</b>
14.00	<b>New Approach for The Real Time Detection of Scintillations and Potential Applications</b> <i>Hernández, C.; Catalán, C.; Rodriguez, I.; Sardón, E.; GMV Aerospace and Defence S.A. (Spain)</i>	
14.20	<b>Ionospheric Modelling and Validation for Satellite Based Augmentation Systems: the European EGNOS System Example</b> <i>Arbesser-Rastburg, B.1; Prieto-Cerdeira, R.1; Orus, R.1; Brocard, D.2; Toran, F.2; Ventura-Traveset, J.2; Charlot, B.3; Vidal, R.3; Berenguer, X.3; Debailleux, D.3; Chambre, E.3; Hernandez-Pajares, M.4; Juan, J.M.4; Sanz, J.4; 1European Space Agency (The Netherlands); 2European Space Agency, EGNOS Project Office (France); 3Thales Alenia Space (France); 4gAGE/UPC (Spain)</i>	<b>Time and Frequency Transfers to Order <math>1/c^4</math></b> <i>Le Poncin-Lafitte, Ch.; Observatoire de Paris (France)</i>
14.40	<b>Assessment of the NeQuick Model at Mid-latitudes using GPS TEC and Ionosonde Data</b> <i>Bidaïne, B.1; Warnant, R.2; 1University of Liège (Belgium); 2Royal Meteorological Institute (Belgium)</i>	<b>Engineering the Spectrum of Photons for Quantum Metrology Applications</b> <i>Valencia, A.; Torres, J.P.; ICFO-Institut de Ciències Fotoniques (Spain)</i>
15.00	Coffee Break	
15.20	<b>Ionosphere Scintillations and their Effect on the Positioning Errors</b> <i>Beniguel, Y.; Adam, J.-P.; IEEEA (France)</i>	<b>The Utilization of the Galileo Timing Signals for Quantum Communications</b> <i>Capraro, I.1; Occhipinti, T.2; Zoccarato, P.2; Bonato, C.1; Tamburini, F.3; Barbieri, C.3; Villoresi, P.1; 1Department of Information Engineering, University of Padova, and CNR/INFM LUXOR (Italy); 2Department of Information Engineering and Department of Astronomy, University of Padova (Italy); 3Department of Astronomy, University of Padova (Italy)</i>
15.40		<b>Quantum Enhancement of Time Transfer between Remote Clocks</b> <i>Lamine, B.; Treps, N.; Fabre, C.; Laboratoire Kastler Brossel (France)</i>
16.00	<b>Changes of Electron Density Profiles during Extreme Manifestation of Solar Activity</b> <i>Boska, J.; Sauli, P.; Buresova, D.; Institute of Atmospheric Physics ASCR (Czech Republic)</i>	<b>Astronomical Intensity Interferometry</b> <i>Ribak, E.N.; Israel Institute of Technology (Israel)</i>
16.20	<b>Radio Tomography of the Ionosphere: Analysis of an Under-determined, Ill-posed Inverse Problem, and Regional Application</b> <i>Garcia, R.1; Crespon, F.2; 1Laboratoire de Dynamique Terrestre et Planétaire, Observatoire Midi-Pyrénées (France); 2Noveltis (France)</i>	<b>Polarization Transformations on Qubits in a Earth-to-Space Quantum Communication System Involving Galileo Satellites</b> <i>Bonato, C.1; Occhipinti, T.1; Pernechele, C.2; Barbieri, C.1; Villoresi, P.1; 1Universita' di Padova (Italy); 2INAF Cagliari, Capoterra (Italy)</i>
16.40		<b>Quantum Information and Quantum Physics in Space</b> <i>Ursin, R.1; Jennewein, Th.2; Schmitt-Manderbach,</i>

		<i>T.3; Weier, H.4; Perdignes, J.5; Rarity, J.6; Barbieri, C.7; Weinfurter, H.8; Zeilinger, A.1; 1Austrian Academy of Sciences (Austria); 2Ludwig-Maximilians-University (Germany); 3Institute for Experimental Physics (Austria); 4IQOQI (Austria); 5ESA/ESTEC (Netherlands); 6University of Bristol (United Kingdom); 7University of Padova (Italy); 8University of Vienna, IQOQI (Austria)</i>
17.00	Poster Sessions	

### Day 3 - Wednesday, 3 October 2007

08.30	Invited IMAX Amph.	
	<b>GNSS Remote Sensing</b> <i>Conveners: G. Beyerle (GFZ), G. Ruffini (Starlab), C. Reigber (GFZ)</i> <b>Room Vega</b>	<b>Reference Frames</b> <i>Conveners: M. Rothacher (GFZ), N. Capitaine (Obs. Paris Meudon)</i> <b>Room Sirius</b>
09.20	<b>Ionospheric Gravity/tsunami Waves and Future Tsunami Systems Coupled to GNSS Networks</b> <i>Lognonné, Ph.1; Occhipinti, G.1; Kherani, A.1; Mimoun, D.1; Hebert, H.2; Crespon, F.3; Jeansou, E.3; 1Institut de Physique du Globe de Paris (France); 2Commissariat à l'Energie Atomique (France); 3Noveltis (France)</i>	<b>The International Terrestrial Reference System, Galileo and other Global Navigation Satellite Systems</b> <i>Boucher, C.1; Arias, F.2; Bessero, G.3; Capitaine, N.4; Guinot, B.5; Kovalevsky, J.6; Le Mouel, J.-L.7; Willis, P.8; 1CGPC (France); 2BIPM (France); 3SHOM (France); 4Observatoire de Paris (France); 5BDL (France); 6Observatoire de la Cote d'Azur (France); 7IPG Paris (France); 8IGN/IPG Paris (France)</i>
09.40	<b>Seismic Source Characterization by Ionospheric Sounding from GPS Data</b> <i>Rolland, L.; Lognonné, P.; Kherani, A.E.; Institut de Physique du Globe de Paris (France)</i>	<b>GGSP - Realisation and Maintenance of the Galileo Terrestrial Reference Frame</b> <i>Gendt, G.1; Soehne, W.2; Rothacher, M.1; 1GeoForschungsZentrum Potsdam (Germany); 2Bundesamt fuer Kartographie und Geodaesie (Germany)</i>
10.00	<b>Considerations in Utilizing Galileo Signals for GNSS-R Ocean Sensing</b> <i>Garrison, J.L.; Beyerle, G.; Ruffini, G.; School of Aeronautics and Astronautics (United States)</i>	<b>The International Terrestrial Reference Frame: ITRF2005 and Future Developments</b> <i>Altamimi, Z.; Institut Geographique National (France)</i>
10.20	Coffee Break	
10.40	<b>Soil Moisture Monitorization Using Galileo Reflected Signals</b> <i>Egido, A.; Ruffini, G.; Caparrini, M.; Martin, C.; Farres, E.; Banque, X.; Starlab Barcelona S.L. (Spain)</i>	<b>The Transformation between the Terrestrial and Celestial Reference Systems: Needs and Potential of GPS and Galileo</b> <i>Capitaine, N.1; Wallace, P.T.2; 1Observatoire de Paris/SYRTE (France); 2SST Department, STFC Rutherford Appleton Laboratory (United Kingdom)</i>
11.00	<b>Remote Sensing Soil Moisture &amp; Classification by using Reflected GPS Observations, L1 &amp; L2 Reflectivity</b> <i>Shen, L.-C.1; Juang, J.-C.2; 1Earth Science Academy, National Cheng Kung University (Taiwan); 2Electronic Machine Department, National Chung Kung University (Taiwan)</i>	<b>Determination and Maintenance of Navigation Systems Reference Frames: The EGNOS Example</b> <i>Plag, H.P.3/4; Charlot, B.1; Brocard, D.2; Bockmann, L.3; Berenguer, X.1; Chambre, E.1; 1Thales Alenia Space (France); 2CNES member of ESA GNSS1 (EGNOS) Project Office (France); 3Norwegian Mapping Agency (Norway); 4now at Nevada Bureau of Mines and Geology &amp; Seismological Laboratory (United States)</i>
11.20	<b>GNSS Reflectometry to Complement SMOS-like Measurements</b> <i>Cardellach, E.1; Rius, A.1; Reul, N.2; 1ICE (IEEC-CSIC) (Spain); 2IFREMER (France)</i>	<b>GPS - Galileo Interoperability Performance with the GPS - Galileo Time Offset</b> <i>Vanschoenbeek, I.; Bonhoure, B.; Boschetti, M.; Legenne, J.; CNES (France)</i>
11.40		<b>The ESA "GNSS+" Project. Inter-satellite Ranging and Inter-satellite Communication Links in the Frame of the GNSS Infrastructure Evolutions</b> <i>Amarillo Fernandez, F.1 (TEC-ETN); Gerner, J.L.1; Rodriguez, R.L.1; Dow, J.2; 1ESA/ESTEC (Netherlands); 2ESA/ESOC (Germany)</i>
12.00	Lunch Break	

	<b>Troposphere</b> <u>Conveners:</u> C. Mitchel (University of Bath), H. van der Marel (TU Delft), B. Lobert (Alcatel Alenia Space) <b>Room Vega</b>	<b>General Relativity</b> <u>Conveners:</u> C. Lammerzhal (Zarm Inst.), O. Bertolami (IST) <b>Room Sirius</b>
14.00	<b>Assessment of Using GNSS for the Monitoring of the Atmospheric Water Vapour Content over Long Time Scales</b> <i>Elgered, G.; Chalmers University of Technology (Sweden)</i>	<b>Gravitational Time Delay for Galileo</b> <i>Laemmerzahl, C.; Laemmerzahl, C.; Dittus, H.; ZARM, University of Bremen (Germany)</i>
14.20	<b>Slant Water Vapour Retrievals using GNSS</b> <i>van der Marel, H.1; De Haan, S.2; De Vries, J.2; 1Delft University of Technology (Netherlands); 2KNMI (Netherlands)</i>	<b>Possible Detection of the Gravity Field Disturbance with Help of Gradiometer on the Galileo Orbit and Higher</b> <i>Zielinski, J.B.1; Galazka, R.R.2; Peron, R.3; 1Space Research Centre of the Polish Academy of Sciences (Poland); 2Institute of Physics, Polish Academy of Sciences (Poland); 3Istituto di Fisica dello Spazio Interplanetario, Istituto Nazionale di Astrofisica (Italy)</i>
14.40	<b>Innovative Atmospheric Remote Sensing: GNSS Radio Occultation</b> <i>Wickert, J.1; Beyerle, G.1; Heise, S.1; Jakowski, N.2; Michalak, G.1; Rothacher, M.1; Schmidt, T.1; Viehweg, C.1; 1GFZ Potsdam (Germany); 2DLR Neustrelitz (Germany)</i>	<b>LAGEOS Satellites: Relativistic Measurements in the Earth's Field</b> <i>Peron, R.; Lucchesi, D.M.; IFSI-INAF (Italy)</i>
15.00	Coffee Break	
15.20	<b>Treatment of Refractivity Fluctuations by Fully Populated Variance-covariance Matrices</b> <i>Schön, S.1; Brunner, F.K.2; 1Institut für Erdmessung, Leibniz Universität Hannover (Germany); 2Engineering Geodesy and Measurement Systems, Graz University of Technology (Austria)</i>	<b>The Chrono-geometrical Structure of General Relativity and Clock Synchronization</b> <i>Lusanna, L.; INFN (Italy)</i>
15.40	<b>Improving GNSS Tropospheric Tomography by Better Knowledge of Atmospheric Turbulence</b> <i>Nilsson, T.; Chalmers University of Technology (Sweden)</i>	<b>A Relativistic Framework for Positioning Systems</b> <i>Pascual-Sánchez, J.-F.; Universidad de Valladolid (Spain)</i>
16.00	<b>Meteorological Applications of GPS Signals with Ground- and Space-based Receivers</b> <i>Poli, P.1; Pailleux, J.1; Ducrocq, V.1; Moll, P.1; Rabier, F.1; Mauprivez, M.1; Dufour, S.1; Grondin, M.2; Issler, J.-L.2; de Latour, A.2; 1Meteo France (France); 2CNES (France)</i>	<b>What Galileo can Learn from the Scientific Investigations and Some of the Controversies on GPS and Relativity</b> <i>Spallicci, A.; Universite d'Orleans (France)</i>
16.20	<b>Benefits for the Atmospheric Remote Sensing by Integrating GPS and GALILEO Systems</b> <i>Vespe, F.; Agenzia Spaziale Italiana (Italy)</i>	<b>The Effect of Cosmic Gravity on the Time Measured by Clocks Moving through the Universe</b> <i>Unnikrishnan, C.S.; Tata Institute of Fundamental Research (India)</i>
17.00	Poster Sessions (presentations of posters will start during the coffee break)	
17.30-18.30	Mr. Didier Faivre (D/TEN representative), Mr. J.C. Husson (ANAE) in the Round Table	
18.45	Bus to Conference Dinner departure	
20.30	<b>Conference Dinner at Holiday Inn Toulouse Centre</b>	

#### Day 4 - Thursday, 4 October 2007

	<b>Geodesy &amp; Orbits</b> <u>Conveners:</u> N. Capitaine (Observatoire de Paris), M. Rothacher (GFZ) <b>Room Sirius</b>	<b>Troposphere, Ionosphere and Magnetosphere</b> <u>Conveners:</u> C. Mitchell (University of Bern), H. van der Marel (TU Delft), R. Lobert (Alcatel Alenia Space) <b>Room Vega</b>
09.20	<b>Stability of the Galileo Constellation, and Long Term Evolution of Disposal Orbits</b>	<b>GPS Ionospheric Scintillations Monitoring at INGV: Scientific Aims and Space Weather Applications</b>

	<i>Deleflie, F. J.1; Valk, S.2; Guzzo, M.3; Lemaitre, A.2 1OCA-GRGS; 2FUNDP; 3University of Padova</i>	<i>De Franceschi, G.; Alfonsi, L.; Romano, V.; Istituto Nazionale di Geofisica e Vulcanologia (Italy)</i>
09.40	<b>GIOVE-A Precise Orbit Determination based on SLR and Radio Tracking Data</b> <i>Melachroinos, S.A.1; Perosanz, F.2; Flavien, M.3; Biancale, R.2; 1GRGS (France); 2GRGS/CNES (France); 3CNES (France)</i>	<b>Real Time TEC Monitoring using Triple Frequency GNSS Data: A Three Step Approach</b> <i>Spits, J.; Warnant, R.; Royal Meteorological Institute of Belgium (Belgium)</i>
10.00	<b>GIOVE-A Precise Orbit Determination from Microwave and SLR Data - First Perspectives for the Scientific Use of Galileo</b> <i>Schoenemann, E.1; Dow, J.2; Springer, T.2; Otten, M.2; Becker, M.1; 1Institute of Physical Geodesy, Technische Universitaet Darmstadt (Germany); 2Navigation Support Office, European Space Operations Center (Germany)</i>	<b>Observation of Space Weather from the Galileo Medium Earth Orbit</b> <i>Dyer, C.1; Ford, K.1; Morris, P.1; Taylor, B.2; Underwood, C.2; Rodgers, D.3; Mandorlo, G.3; Evans, H.3; Daly, E.3; Gatti, G.3; 1QinetiQ (United Kingdom); 2University of Surrey (United Kingdom); 3ESA (Netherlands)</i>
10.20	Coffee Break	
10.40	<b>Precise Orbitography: A Foundation for EGNOS Performance</b> <i>Berenguer, X.1; Alcantarilla Medina, I.2; Chambre, E.1; Ventura Traveset, J.3; Charlot, B.1; 1Thales Alenia Space (France); 2Grupo de Mecanica del Vuelo (Spain); 3European Space Agency (Spain)</i>	<b>Implementation and impact of second-order ionospheric term in GPS</b> <i>Hernandez-Pajares, M.; Juan, J.M.; Sanz, J.; Orus, R.; Research group of Astronomy &amp; Geomatics, Technical Univ. Catalonia (gAGE/UPC)</i>
11.00	<b>The Computations of Near Real-time GNSS Precise Orbit and High-Rate Clock</b> <i>Zhang, Q.1; Moore, P.1; Hanley, J.2; Martin, S.2; 1Newcastle University (United Kingdom); 2LogicaCMG (United Kingdom)</i>	<b>Fast Kalman Processing of Carrier-Phase Signals from Global Navigation Satellite Systems for Water Vapor Tomography</b> <i>Lange, A.A.; Finnish Meteorological Institute (Finland)</i>
11.20	<b>Novel GALILEO Applications in the LEO Orbit</b> <i>Svehla, D.1; Rotacher, M.2; Salomon, C.3; Wickert, J.2; Helm, A.2; Beyerle, G.2; Montenbruck, O.4; Ziebart, M.5; Dow, J.6; 1Technische Universität München, (Germany); 2GeoForschungsZentrum (Germany); 3Laboratoire Kastler Brossel (France); 4DLR (Germany); 5University College London (United Kingdom); 6ESA/ESOC (Germany)</i>	<b>Near Real Time Data Set of Ground Based GPS Tropospheric Estimates</b> <i>Pacione, R.1; Vespe, F.2; 1e-GEOS s.p.a (Italy); 2Agenzia Spaziale Italiana (Italy)</i>
11.40	<b>Receiver/Payload Hardware Biases Stability Requirements for Undifferenced Widelane Ambiguity Blocking</b> <i>Mercier, F.; Laurichesse, D.; CNES (France)</i>	<b>Quantification of Tropospheric and Ionospheric Activity according to Double Differences Analysis of GNSS Phases Records</b> <i>Brenot, H.; Lejeune, S.; Wautelet, G.; Bavier, M.; Spitz, J.; Warnant, R.; Royal Meteorological Institute of Belgium (Belgium)</i>
12.00	Close - Prolongated lunch at the Astronaut Café	
	<b>Poster Session</b>	
	<b>Incoherent Scatter Radar Measurements as a Calibration Tool for Ionospheric Models</b> <i>Behlke, R ; La Hoz, C.; University of Tromsø (Norway)</i>	
	<b>Navigation in Multipath Environments for Suburban Applications</b> <i>Steingass, A.; Lehner, A.; DLR (Germany)</i>	
	<b>Towards Quantum Space Systems</b> <i>Jacinto de Matos, C.1; Maria Perdigues Armengol, J.2; 1ESA (Portugal); 2ESA (Spain)</i>	
	<b>Quantum Correlations, Nonlocality and the Fundamental Conservation Laws</b> <i>Unnikrishnan, C.S.; Tata Institute of Fundamental Research, (India)</i>	
	<b>Inter-vehicule Coarse Positioning Radio-frequency Subsystem</b> <i>Thevenet, J.-B.; Mehlen, C.; Perriault, N.; Peyrotte, C.; Furlan, S.; Wilhelm, N.; Ensenat, C.; Jaulhac, Y.; Thales Alenia Space (France)</i>	

**Two-way Satellite Time and Frequency Transfer for Galileo**

*Piester, D.1; Schlunegger, C.2; Becker, J.1; Staliuniene, E.1; Bauch, A.1; 1PTB (Germany); 2METAS (Switzerland)*

**SPECTRE: A Web Service for Ionospheric Products**

*Crespon, F.1; Jeansou, E.1; Helbert, J.1; Moreaux, G.1; Lognonné, P.2; Godet, P.E.2; Garcia, R.3; 1NOVELTIS (France); 2IPGP (France); 3LDTP/OMP (France)*

**Assessment of the Influence of Azimuthal Asymmetry on the Tropospheric Signal Propagation Delays in GNSS Positioning**

*Fund, F.1; Mocquet, A.2; Morel, L.3; 1Ecole Supérieure des Géomètres et Topographes (France); 2Planetology and Geodynamic Laboratory / University of Nantes (France); 3Geodesy and Geomatic Laboratory / Ecole Supérieure des Géomètres et Topographes (France)*

**On the Use of GNSS-Reflectometry to Improve Sea Surface Salinity Measurements by Means of Microwave Radiometry**

*Camps, A.; Bosch-Lluis, X.; Marchan-Hernandez, J.F.; Ramos-Perez, I.; Rodríguez, N.; Universitat Politècnica de Catalunya (Spain)*

**The GNSS Occultation, Reflectometry and Scatterometry Space Receiver GORS: Current Status and Future Plans Within GiteWS**

*Helm, A.1; Beyerle, G.1; Stosius, R.1; Montenbruck, O.2; Yudanov, S.3; Rothacher, M.1; 1GeoForschungsZentrum Potsdam (GFZ) (Germany); 2German Aerospace Center (DLR) (Germany); 3JAVAD GNSS (Russian Federation)*

**GRGS-CLS GNSS Precise Orbit Determination**

*Loyer, S.2; Perosanz, F.1; Capdeville, H.2; 1CNES (France); 2CLS (France)*

**The Utilization of the GALILEO Timing Signals for Advanced Astronomical Applications**

*Zoccarato, P.1; Occhipinti, T.1; Facchinetti, C.1; Bolli, P.2; Messina, F.2; Capraro, I.1; Tamburini, F.1; Dalla Torre, A.3; Čadež, A.4; Zanello, R.5; Barbieri, C.1; 1University of Padova (Italy); 2INAF OA Cagliari (Italy); 3SEPA (Italy); 4University of Ljubljana (Slovenia); 5Thales Alenia Space (Italy)*

**Non-geodetic Motion and Extensions of General Relativity**

*Páramos, J.; Bertolami, O.; Instituto Superior Técnico (Portugal)*

**Influence of Ionospheric Higher Order Errors on Precise Positioning Derived from Dual Frequency GPS Receivers**

*Lassudrie-Duchesne, P.; Clemente, M.; Fleury, R.; ENST Bretagne (France)*

**A Method for Cycle-slip Detection of Multifrequency GNSS Data**

*Lacy, M.C.1; Gil, A.J.1; Moreno, B.2; Reguzzoni, M.3; Rodríguez, G.4; Sansò, F.5; Venuti, G.5; 1Universidad de Jaén (Spain); 2Instituto Geográfico Nacional (Spain); 3Geophysics of the Litosphere Dept. Italian National of Oceanography and Applied Geophysics (OGS) (Italy); 4Universidad Complutense de Madrid (Spain); 5Politecnico di Milano (Italy)*

**Potential Short-periodic Variations in Coordinates of Galileo Permanent Station – Comparison with GPS Experience**

*Hefty, J.; Bezručka, J.; Hipmanova, L.; Gerhatova, L.; Slovak University of Technology (Slovakia)*

**The Italian SLR Contribution to ITRF**

*Luceri, V.1; Sciarretta, C.2; Bianco, G.3; 1e-GEOS (Italy); 2Telespazio S.p.A. (Italy); 3Agenzia Spaziale Italiana (Italy)*

**ACES Orbitography Requirements and MicroWave Link Data Analysis**

*Duchayne, L.1; Mercier, F.2; Wolf, P.1; 1Observatoire de Paris (France); 2CNES (France)*

**Continuous Real-Time Time Transfer Using GNSs Carrier Phase Observations on Multiple Frequencies**

*Rieck, C.; Jarlemark, P.; Jaldehag, K.; Johansson, J.; SP (Sweden)*

**Evaluation of GPS Signal Ionospheric and Tropospheric Corrections in the Effective Dielectric Permittivity Concept**

*Klos, Z.1; Stanislawski, I.2; Kiraga, A.2; 1Space Research Centre PAS (Poland); 2Space Research Centre Polish Academy of Science (Poland)*

**Monitoring the Geospace Environment by Using Space Based GNSS Measurements**

*Jakowski, N.; Mayer, C.; DLR (Germany)*

**ACES Mission: Scientific Objectives and Applications**

*Reina-Barragán, F.1; Cacciapuoti, L.1; Nasca, R.1; Feltham, S.1; Much, R.1; Daganzo, E.1;*

	<i>Dimarcq, N.2; Salomon, C.3; 1ESA/ESTEC (Netherlands); 2Syrtrre (France); 3Laboratoire Kastle-Brossel (France)</i>
--	--