

**2nd International Colloquium -  
Scientific and Fundamental Aspects of the Galileo Programme**

**Programme**

**Day 1 - Wednesday, 14 October 2009**

08:00	Registration	
09:00	Welcome Address - Prof. Giuseppe Zaccaria (Rector of the University of Padova)	
09:10	Opening by Prof. Guenther Hein (ESA)	
09:30	Introduction by Sponsors	
09:50	Galileo's Discovery of a New World in the Heavens - Prof. William Shea	
10:20	Coffee	
10:40	<b>Invited Speaker</b> Radio orbital angular momentum and space physics <i>Bo Thide</i>	
11:20	<b>Invited Speaker</b> Mutual Relation Between the GALILEO (and other GNSS) System and the Science Community <i>Veronique Dehant</i>	
12:00	Lunch break	
	<b>Session 1a - Ionosphere</b>	<b>Session 1b - Clocks</b>
14:00	GIOVE Mission Experimentation: Ionospheric and Interfrequency Bias Analysis and Results <i>Hidalgo, I.1; Rodriguez, D.1; Cueto, M.1; Prieto-Cerdeira, R.2; Binda, S.2</i> 1GMV S.A. (Spain); 2ESA ESTEC (Netherlands)	Comparisons of Remote Primary Frequency Standards by Global Navigation Satellite System <i>Uhrich, P.1; Rovera, G.D.1; Abgrall, M.1; Valat, D.1; Laurent, P.1; Mercier, F.2; Leger, B.2; Yaigre, L.3</i> 1LNE-SYRTE, Observatoire de Paris (France); 2CNES (France); 3SOGETI (France)
14:20	Total Electron Content Monitoring Using Triple Frequency GNSS Data <i>Spits, J.; Warnant, R.</i> Royal Meteorological Institute (Belgium)	Compact Clock Using Pulsed Optical Pumping for Ground and Space Applications <i>Filippo, L.1; Calosso, C.E.2; Micalizio, S.2; Godone, A.2</i> 1Istituto Nazionale di Ricerca Metrologica (Italy); 2INRIM (Italy)
14:40	Ionosphere Monitoring Using Galileo: First Results and Future Prospects <i>Mayer, C.; Becker, C.; Jakowski, N.; Meurer, M.</i> German Aerospace Center (Germany)	GPS Carrier-Phase Time and Frequency Comparisons: Applications and Uncertainty Estimation <i>Feldmann, T.; Bauch, A.; Piester, D.</i> Physikalisch-Technische Bundesanstalt (PTB) (Germany)
15:00	Coordinated Ground-based Optical and Space-based Radio Investigations of Equatorial Aeronomy using GNSS Capabilities <i>Martinis, C.; Baumgardner, J.; Wroten, J.; Mendillo, M.</i> Center for Space Physics - Boston University (United States)	GIOVEA and B - Precursors of a New Era: Signal and Clock Quality and the Achievable Orbit Accuracy <i>Schonemann, E.1; Dilssner, F.2; Svehla, D.2; Springer, T.2; Becker, M.3; Dow, J.2; Zandbergen, R.</i> 1Technische Universitaet Darmstadt / Navigation Support Office, ESOC (Germany); 2Navigation Support Office, ESOC (Germany); 3Technische Universitaet Darmstadt (Germany)
15:20	Coffee	
15:40	Ionosphere Equatorial Scintillations Characteristics <i>Beniguel, Y.; Adam, J.P.</i> IEEA (France)	ACES Mission Status and Recent Test Results <i>Cacciapuoti, L.1; Much, R.1; Daganzo, E.1; Feltham, S.1; Nasca, R.1; Salomon, C.2</i> 1European Space Agency (Netherlands); 2Laboratoire Kastler Brossel, ENS, Paris (France)
16:00	Ionosphere Scintillations Monitoring and Modelling <i>Romano, V.1; Beniguel, Y.2</i> 1INGV (Italy); 2IEEA (France)	HORACE Clock: a Compact Cold Atom Clock for GALILEO Programme <i>Holleville, D.1; Rossetto, N.1; Esnault, F.-X.1; Dimarcq, N.1; Lambert, R.1; Delporte, J.2</i> 1SYRTE (France); 2CNES (France)
16:20	Ionospheric Scintillations: Simulation,	Trapped Atom Clock on a Chip

	Performance Verification and Analysis of Detection Algorithms on GNSS Receivers <i>Prieto-Cerdeira, R.1; Schubert, F.2; Amarillo, F.1; Crisci, M.1</i> <i>1ESA ESTEC (Netherlands); 2DLR / ESA ESTEC (Germany)</i>	<i>Rosenbusch, P.1; Deutsch, C.2; Lacroute, C.3; Ramirez-Martinez, F.3; Reichel, J.2; Reinhard, F.2; Schneider, T.2</i> <i>1SYRTE, Observatoire de Paris (France); 2LKB, ENS, Paris (France); 3Syrte, Observatoire de Paris (France)</i>
16:40	Climatology of GNSS Ionospheric Scintillation at High Latitudes <i>Spogli, L.1; Alfonsi, L.1; De Franceschi, G.1; Aquino, M.H.O.2; Dodson, A.2</i> <i>1INGV - Istituto Nazionale di Geofisica e Vulcanologia (Italy); 2IESSG Institute of Engineering Surveying and Space Geodesy, University of Nottingham (United Kingdom)</i>	Overview and Performances Of Galileo On-Board Clocks <i>Waller, P.1; Gonzalez, F.1; Binda, S.1; Hidalgo, I.2; Sesia, I.3; Tavella, P.3</i> <i>1ESA/ESTEC (Netherlands); 2GMV S.A. Madrid (Spain); 3Istituto Nazionale di Ricerca Metrologica, I.N.Ri.M, Torino (Italy)</i>
17:00-18:00	<b>Poster Session 1 &amp; Welcome Reception</b>	
	<p>Moving the EPN from a GPS-only to Multi-GNSS Network: Challenges and Pitfalls <i>Bruyninx, C.; Bergeot, N.; Legrand, J.; Pottiaux, E.</i> <i>Royal Observatory of Belgium (Belgium)</i></p> <p>The Impact of Microwave Absorber and Radome Geometries on Geodetic Measurements with Ground-Based GNSS Antennas <i>Ning, T.; Elgered, G.; Johansson, J.</i> <i>Chalmers University of Technology, Onsala Space Observatory (Sweden)</i></p> <p>First Experience with Inclusion of GLONASS Observations into the Precise Point Positioning Algorithms <i>Hefty, J.; Gerhatova, L.; Burgan, J.</i> <i>Slovak University of Technology (Slovakia)</i></p> <p>The Apparently Boundless Multi-Frequency Combinations and their Impact on Geodetic Positioning <i>Santos, M.C.</i> <i>University of New Brunswick (Canada)</i></p> <p>Influence of Pseudorange Measurement Errors and Space Segment Geometry on GNSS Fixes Distribution - Mathematical Model <i>Nowak, A.</i> <i>Polish Naval Academy (Poland)</i></p> <p>The State of the Art of a New Approach in Precise Point Positioning <i>Moreno, B.1; Rodriguez-Caderot, G.1; de Lacy, M.C.2; Gonzalez, F.3</i> <i>1Complutense University of Madrid (Spain); 2University of Jaen (Spain); 3European Space Agency (Netherlands)</i></p> <p>Diurnal, Seasonal, Solar Cycle Variations in GPS TEC near the Dip Equator <i>Lee, C.-C.</i> <i>General Education Center, Ching-Yun University (Taiwan)</i></p> <p>Ionosphere Modelling Based on the NeQuick Model and GNSS Data Ingestion <i>Bidaine, B.1; Warnant, R.2</i> <i>1University of Liège / FNRS (Belgium); 2Royal Meteorological Institute (Belgium)</i></p> <p>Ionospheric Experiments-of-Opportunity Enabled by Communications and Navigation Satellite Systems <i>Mendillo, M.; Baumgardner, J.; Smith, S.; Wroten, J.; Martinis, C.</i> <i>Center for Space Physics - Boston University (United States)</i></p> <p>Predictive Space Weather Through Information Theory <i>Materassi, M.; Ciraolo, L.; Consolini, G.; Smith, N.</i> <i>Istituto dei Sistemi Complessi ISC-CNR (Italy)</i></p> <p>Ionospheric Precursors of Earthquake Observed in April 2009 <i>Karia, S.; Pathak, K.</i> <i>S.V. National Institute of Technology (India)</i></p> <p>Topside Electron Density from NeQuick_2_0_1 Model Versus In Situ Data from the ACTIVE, APEX and CORONAS-I Satellites <i>Kiraga, A.</i> <i>Space Research Center (Poland)</i></p>	

Ionospheric Waves Detected from Geostationary Satellites TEC Measurements

*Katamzi, Z.T. 1; Mitchell, C. 1; Spalla, P. 2*  
*1University of Bath (United Kingdom); 2IFAC-CNR (Italy)*

New Ionospheric Instrumentation for Antarctica

*Mitchell, C. 1; Yin, P. 1; Kinrade, J. 1; Jarvis, M. 2; Rose, M. 2; Maxfield, D. 2; Prior-Jones, M. 2*  
*1University of Bath (United Kingdom); 2British Antarctic Survey (United Kingdom)*

Estimation of Tropospheric Parameter

*Namaoui, H.*  
*Center of Space Technics (Algeria)*

Investigation into the Effects of Snow on GPS Signal Strength

*Tong, J.; Watson, R.; Mitchell, C.*  
*University of Bath (United Kingdom)*

Overlapping of Optic and Radar Images in Study of a Land-cover

*Bakasheva, A. 1; Shagarova, L. 1; Muratova, G. 1; Akilbekov, A. 2*  
*1National Center of Space Research and Technologies (Kazakhstan); 2Eurasian National University (Kazakhstan)*

Technology of Forming Mosaics of the Territory of Kazakhstan Using High Resolution Remote Sensing Data

*Bakasheva, A. 1; Shagarova, L. 1; Muratova, G. 1; Akilbekov, A. 2*  
*1National Center of Space Research and Technologies (Kazakhstan); 2Eurasian National University (Kazakhstan)*

Sea Level Monitoring Using a GNSS-Based Tide Gauge

*Lofgren, J.; Haas, R.; Johansson, J.*  
*Chalmers University of Technology (Sweden)*

TheGPS Radio Occultation ROSA-ROSSA Software: Preliminary Results

*Perona, G. 1; Notarpietro, R. 1; Paoletta, S. 1; Cucca, M. 1; Casotto, S. 2; Zoccarato, P. 2; Nardo, A. 2; Bordini, I. 3; Suter, A. 3; Petitta, M. 3; Tartaglione, N. 4; Speranza, A. 4; Nava, B. 5; Radicella, S. 5; Gallipoli, A. 6; Vespe, F. 7*  
*1Politecnico di Torino (Italy); 2CISAS, Padova (Italy); 3La Sapienza, Roma (Italy); 4Universita' di Camerino (Italy); 5ICTP, Trieste (Italy); 6INNOVA, Matera (Italy); 7Italian Space Agency (Italy)*

SWORD - An Orbit Determination Software System for Application to GNSS Radio Occultation

*Casotto, S.; Zoccarato, P.; Bardella, M.; Nardo, A.*  
*University of Padua (Italy)*

The SMIGOL GNSS-R Reflectometer for Soil Moisture Retrieval over Crops

*Rodriguez Alvarez, N. 1; Marchan Hernandez, J.F. 2; Valencia Domenech, E. 2; Bosch Lluís, X. 2; Ramos Perez, I. 2; Camps, A. 2*  
*1University Politechnical of Catalonia (Spain); 2Politechnical University of Catalonia (Spain)*

Sea Surface Roughness Correction in the Ocean Salinity Retrieval Using GNSS-R Techniques

*Valencia, E.; Marchan-Hernandez, J.F.; Rodriguez-Alvarez, N.; Bosch-Lluís, X.; Ramos-Perez, I.; Camps, A.*  
*Universitat Politècnica de Catalunya (Spain)*

Optical Clocks for Future Global Navigation Satellite Systems

*Hugentobler, U. 1; Bedrich, S. 2; Klein, V. 2; Heinze, M. 1; Plattner, M. 2; Schmid, R. 1; Voithenleitner, D. 1*  
*1Technische Universitaet Muenchen (Germany); 2Kayser-Threde GmbH (Germany)*

Combining Single Differences of GPS and GLONASS data for Time and Frequency Transfer

*Baire, Q.; Defraigne, P.; Aerts, W.*  
*Royal Observatory of Belgium (Belgium)*

Stable Time & Frequency Transfer via Fiber Optics

*Zanella, R. 1; Marcer, A. 2; Siccardi, M. 3*  
*1Thales Alenia Space Italia (Italy); 2Thales Alenia Space Italia - External (Italy); 3SKK (Italy)*

Time Transfer by Laser Link, a First Experience On-Board the Jason-2 Satellite

*Exertier, P. 1; Samain, E. 1; Guillemot, P. 2*  
*1OCA - GRGS (France); 2CNES (France)*

GNSS Integrity Monitoring Based On Inter-Satellite Links

	<p>Rodriguez-Perez, I.1; Garcia, C.1; Catalán, C.1; Mozo, Á.1; Tavella, P.2; Galleani, L.3; Amarillo, F.4 1GMV (Spain); 2INRIM (Italy); 3Politecnico Torino (Italy); 4ESA (Netherlands)</p> <p>Improved Signal In Space Accuracy based on Matrix Indicators and Clock Parameters Catalan, C.1; Fernandez, L.1; Mozo, A.1; Amarillo-Fernandez, F.2 1GMV Aerospace and Defence, S.A. (Spain); 2ESA (Netherlands)</p> <p>Relationship Between GPS Satellite Elevations and GPS Timing Accuracy Under Variable Ionospheric Conditions Rose, J.; Tong, J.; Allain, D.; Mitchell, C. University of Bath (United Kingdom)</p> <p>Space Missions to Measure the Equivalence Principle - STEP and GAUGE Sumner, T. Imperial College London (United Kingdom)</p> <p>Developing a Multi-GNSS Analysis Software for Scientific Purposes Meindl, M.1; Dach, R.1; Schaer, S.2; Hugentobler, U.3; Beutler, G.1 1Astronomical Institute, University of Bern (Switzerland); 2Swiss Federal Office of Topography Swisstopo (Switzerland); 3Technische Universität München (Germany)</p> <p>Cosmic Rays: Space Weather Perspective Agarwal, R.1; Mishra, R.K.2 1Department of Physics, Govt. Model Science College (Autonomous) (India); 2Computer and Information Technology Section, Tropical Forest Research Institute (India)</p> <p>Modulation of Galactic Cosmic Rays and Geomagnetic Activity by Interplanetary Magnetic Field and Solar Wind Mishra, R.K.1; Agarwal, R.2 1Computer and IT Section, Tropical Forest Research Institute (India); 2Department of Physics, Govt. Model Science College (Autonomous) (India)</p> <p>On the Feasibility of Quantum Key Distribution between a LEO Satellite and Earth Tomaello, A.1; Bonato, C.2; Da Deppo, V.1; Naletto, G.1; Villaresi, P.1 1University of Padova (Italy); 2Huygens Laboratory, Leiden University (Netherlands)</p> <p>Which Cesium Second is Better in an Optically-pumped Beam Clock for Galileo? Boiko, D.L.; Ruffieux, R. CSEM Centre Suisse d'Electronique et de Microtechnique (Switzerland)</p> <p>Stability Analysis of the Hardware Delays of Geodetic GPS Receivers for Clock Comparisons Weinbach, U. Institut für Erdmessung, Leibniz Universität Hannover (Germany)</p>
20:00	Piano Concert

## Day 2 - Thursday, 15 October 2009

08:30	Invited Speaker	
	<b>Session 2a - Remote Sensing</b>	<b>Session 2b - General Relativity</b>
09:20	<p>Retrieval of GALILEO and GPS Ocean Reflected Signals Høeg, P.1; Carlstrom, A.2 1Technical University of Denmark (DTU) (Denmark); 2RUAG Aerospace (Sweden)</p>	<p>Recent Results on Lorentz Symmetry Breaking and Quantum Gravity with Photons from Astrophysical Sources Jacholkowska, A.; Bolmont, J. IN2P3/CNRS (France)</p>
09:40	<p>GRAS Radio Occultation onboard of Metop von Engeln, A.1; Healy, S.2; Marquardt, C.1; Andres, Y.1; Sancho, F.1 1EUMETSAT (Germany); 2ECMWF (United Kingdom)</p>	<p>GPS Coordinates in General Relativity: Theoretical Significance or Practical Application? Rovelli, C. Centre de Physique Théorique de Luminy (France)</p>
10:00	<p>The Italian GPS Radio Occultation Experiment on Board Oseansat-2: Space and Ground Segment Vespe, F.1; De Cosmo, V.1; Perona, G.2; Molinaro, M.3; Notarpietro, R.2; Casotto, S.4; Sutura, A.5; Tartaglione, N.6; Radicella,</p>	<p>Galileo and Modifications to the Inverse-Square Law for Gravitation Paramos, J. Instituto de Plasmas e Fusão Nuclear (Portugal)</p>

	S.7; Gallipoli, A.8 1Italian Space Agency (Italy); 2Politecnico di Torino (Italy); 3ISMB, Turin (Italy); 4CISAS, Padua (Italy); 5La Sapienza, Rome (Italy); 6University of Camerino (Italy); 7ICTP, Trieste (Italy); 8INNOVA, Matera (Italy)	
10:20	Coffee	
10:40	PARIS Interferometric Technique: Proof of Concept Rius, A.1; Nogues-Correig, O.1; Serni, R.1; Cardellach, E.1; Camps, A.2; Marchán, J.F.2; Valencia, E.2; Nereida, R.2; van der Marel, H.3; Naeije, M.3; Mart in-Neira, M.4 1ICE, CSIC/IEEC (Spain); 2UPC (Spain); 3TU Delft (Netherlands); 4ESTEC / ESA (Netherlands)	Galileo and the Gravitomagnetic Clock Effect Laemmerzahl, C.1; Dittus, H.2 1University Bremen (Germany); 2DLR-Ry Bremen (Germany)
11:00	From Greenland to Antarctica: IEEC Results on Sea-ice, Dry-Snow, Soil-Moisture and Ocean GNSS Reflections Cardellach, E.1; Belmonte-Rivas, M.2; Fabra, F.1; Nogues-Correig, O.1; Oliveras, S.1; Ribó, S.1; Rius, A.1 1ICE (IEEC-CSIC) (Spain); 2KNMI (Netherlands)	Relativistic vs Newtonian Frames: Emission Coordinates Pascual-Sanchez, J.-F.; San Miguel, A.; Vicente, F. Universidad de Valladolid (Spain)
11:20	Simulation Study on Tsunami Detection from Space Using GNSS-Reflectometry Including GALILEO Stosius, R.; Beyerle, G.; Hoehner, A.; Wickert, J.; Lauterjung, J. Helmholtz-Centre Potsdam GFZ German Research Centre for Geosciences (Germany)	Mapping the Spacetime Geometry with a Relativistic Positioning System Delva, P.; Olympio, J. European Space Agency (Netherlands)
11:40	The ACES GNSS Subsystem and its Potential for Radio-Occultation and Reflectometry from the ISS Helm, A.1; Hess, M.-P.1; Minori, M.1; Schuettauf, A.1; Gribkov, A.2; Yudanov, S.2; Montenbruck, O.3; Beyerle, G.4; Cacciapuoti, L.5; Nasca, R.5 1Astrium Space Transportation (Germany); 2JAVAD GNSS (Russian Federation); 3DLR (Germany); 4GFZ-Potsdam (Germany); 5ESA (Netherlands)	A New General Relativistic Effect de Felice, F. University of Padova (Italy)
12:00	Lunch break	
	<b>Session 3a - Troposphere</b>	<b>Session 3b - Time</b>
14:00	Potential Improvements in GNSS-based Troposphere Monitoring by Use of Upcoming GALILEO-signals Weber, R.1; Karabatic, A.2 1Univ. of Technology, Vienna (Austria); 2Inst. of Geodesy and Geophysics (Austria)	Current Use of GNSS Time Transfer in TAI and Future Strategies Petit, G. BIPM (France)
14:20	Use of GNSS Radio Occultation Data for a Refined Estimation of Troposphere Delays on Ground Stations Vespe, F.1; Amoroso, M.2; Benedetto, C.1; Sacco, P.2 1Agenzia Spaziale Italiana (Italy); 2Consorzio INNOVA -Matera (Italy)	GEOSTAR: A Proposal for Global Earth and in-Orbit Synchronisation of Time Atomic References Dimarq, N. SYRTE (France)
14:40	German GNSS Water Vapour Tomography - Expected Improvements by Galileo Bender, M.1; Stosius, R.2; Dick, G.2; Wickert, J.2 1Helmholtz-Centre Potsdam GFZ German Research Centre for Geosciences (Germany); 2GFZ German Research Center for Geosciences (Germany)	Ionospheric Perturbations in GNSS Time Transfer Defraigne, P. Royal Observatory of Belgium (Belgium)

15:00	GPS Radio Occultation Technique for Measurement of Water Vapour at the Tropopause above Tropical Cyclones <i>Biondi, R.1; Neubert, T.1; Syndergaard, S.2; Nielsen, J.K.2</i> 1National Space Institute, Technical University of Denmark (Denmark); 2Danish Meteorological Institute (Denmark)	The Use of GNSS Geodetic Receivers for Time and Frequency Transfer Applications <i>Cerretto, G.1; Lahaye, F.2; Tavella, P.1</i> 1INRIM (Istituto Nazionale di Ricerca Metrologica) (Italy); 2Natural Resources Canada (Canada)
15:20	Coffee	
15:40	Combination Methods of Tropospheric Time Series <i>Pacione, R.1; Pace, B.2; de Haan, S.3; Vedel, H.4; Vespe, F.5</i> 1e-GEOS/CGS (Italy); 2Telespazio S.p.A./CGS (Italy); 3Royal Meteorological Institute (Netherlands); 4Danish Meteorological Institute (Denmark); 5Agenzia Spaziale Italiana/CGS (Italy)	Galileo Time in Scientific Domains: The ACTS Study and Prototyping <i>Cantelmo, C.; Zanello, R.; Bianchi, M.; Bagnato, F.</i> Thales Alenia Space (Italy)
16:00	GNSS Based Troposphere Zenith Wet Delay Estimation Comparison with Microwave Radiometer at Cabauw <i>Graziani, A.1; Bertacin, R.1; Tortora, P.1; Martellucci, A.2; De Haan, S.3</i> 1Università of Bologna (Italy); 2ESA/ESTEC (Netherlands); 3KNMI (Netherlands)	Precise Timing Facility: the Time Scale for Galileo <i>Zanello, R.1; Detoma, E.2; Villabruna, D.3; Bianchi, M.4</i> 1Thales Alenia Space (Italy); 2SEPA (Italy); 3AleniaSIA (Italy); 4TASI (Italy)
16:20	Water Vapour Map Tomography from GNSS Receiver Networks: The Experience Performed During the ESA Metawave Project <i>Notarpietro, R.; Genta, P.; Perona, G.</i> Politecnico of Turin (Italy)	Requirements on GNSS Receivers from the Perspective of Timing Applications <i>Defraigne, P.1; Petit, G.2; Urich, P.3</i> 1royal observatory of Belgium (Belgium); 2Bureau International des Poids et Mesures (Belgium); 3LNE-SYRTE, Observatoire de Paris, LNE, CNRS, UPMC (France)
16:40	Air Flow Parameters over Mountainous Areas and GNSS Tomography <i>Rohm, W.; Bosy, J.</i> Wroclaw University of Environmental and Life Sciences (Poland)	Laser Time Transfer and Its Application in the Galileo Programme <i>Prochazka, I.1; Schreiber, U.2; Schaefer, W.3</i> 1Czech Technical University in Prague (Czech Republic); 2BKG & Technical University Munich (Germany); 3TimeTech GmbH (Germany)
17:00-18:00	<b>Poster Session 2</b>	
20:00	<b>Conference Dinner</b>	

### Day 3 - Friday, 16 October 2009

08:30	<b>Invited Speaker</b> The International Terrestrial Reference Frame and its Applications in GNSS Geosciences <i>Altamimi, Zuheir</i> Institut Geographique National (France)	
	<b>Session 4a - Geodesy</b>	<b>Session 4b - Advanced Topics</b>
09:20	GALILEO Onboard the International Space Station <i>Svehla, D.1; Rothacher, M.2; Salomon, C.3; Beyerle, G.4; Wickert, J.4; Ziebart, M.5; Dow, J.6; Cacciapuoti, L.7; Boerner, T.8; Rius, A.9; Cardellach Gali, E.9; Montenbruck, O.8; Rivas, R.8; Gruber, T.10; Shum, C.K.11; Hoeg, P.12; Neubert, T.12; Helm, A.13; Hahn, J.7; Prochazka, I.14; Schreiber, U.10; Lauber, P.10; Hugentobler, U.10; Schaefer, W.15</i> 1ESA/ESOC, formerly at TU Muenchen (Germany); 2ETH Zuerich (Switzerland); 3ENS Paris (France); 4GFZ Potsdam (Germany); 5University College London (United Kingdom); 6ESA/ESOC (Germany);	Ionospheric Seismology by GPS and Galileo <i>Rolland, L.1; Lognonne, P.1; Occhipinti, G.1; Kherani, A.2; Crespon, F.3; Munekane, H.4</i> 1Institut de Physique du Globe de Paris (France); 2Institute de Nacional Pesquisais Espaciais (Brazil); 3Noveltis (France); 4Geographical Survey Institute of Japan (Japan)

	7ESA/ESTEC (Netherlands); 8DLR (Germany); 9IEEC/ICE-CSIC (Spain); 10TU Muenchen (Germany); 11Ohio State University (United States); 12DTU Space/Technical University of Denmark (Denmark); 13Astrium (Germany); 14Czech Technical University in Prague (Czech Republic); 15TimeTech GmbH (Germany)	
09:40	The Geodetic Reference Antenna in Space (GRASP) Mission Concept <i>Bar-Sever, Y.1; Haines, B.1; Wu, S.1; Willis, P.2</i> 1JPL (United States); 2Institut de Physique du Globe de Paris (France)	The Importance of Accurate Timing for Quantum Key Distribution <i>Occhipinti, T.1; Villoresi, P.1; Capraro, I.1; Cantelmo, C.2; Barbieri, C.1</i> 1University of Padova (Italy); 2Thales Alenia Space (Italy)
10:00	Stochastic Modelling Analyses for GNSS Relative and Absolute Positioning <i>Silva, H.1; Camargo, P.1; Monico, J.1; Aquino, M.2; Marques, H.1; De Franceschi, G.3; Dodson, A.2</i> 1Sao Paulo State University (Brazil); 2Institute of Engineering Surveying and Space Geodesy (IESSG), University of Nottingham (United Kingdom); 3Istituto Nazionale di Geofisica e Vulcanologia (INGV) (Italy)	The Crab Pulsar seen from Asiago-Cima Ekar Observatory <i>Zampieri, L.1; Germana', C.2; Barbieri, C.2; Naletto, G.2; Capraro, I.2; Occhipinti, T.2; Verroi, E.2; Zoccarato, P.2</i> 1INAF-Astronomical Observatory of Padova (Italy); 2University of Padova (Italy)
10:20	Coffee	
10:40	GGSP: Realisation and Maintenance of the Galileo Terrestrial Reference Frame <i>Gendt, G.1; Altamimi, Z.2; Dach, R.3; Sohne, W.4</i> 1GFZ Potsdam (Germany); 2Institut Geographique National, Saint-Mande (France); 3Astronomisches Institut der Universitaet Bern (Switzerland); 4Bundesamt für Kartographie und Geodaesie (Germany)	Accurate Timing of Astronomical Photon Detections <i>Zoccarato, P.1; Occhipinti, T.1; Cadez, A.2; Naletto, G.P.1; Capraro, I.1; Cantelmo, C.3; Barbieri, C.1</i> 1University of Padova (Italy); 2University of Ljubljana (Slovenia); 3Thales Alenia Space (Italy)
11:00	On the Monitoring of GNSS Reference Stations with Independent Geodetic Techniques <i>Lindenthal, N.1; Schon, S.1; Neuner, H.2; Kutterer, H.2; Jahn, C.-H.3</i> 1Institut für Erdmessung (IfE), Leibniz Universitaet Hannover (Germany); 2Geodaetisches Institut (GIH), Leibniz Universitaet Hannover (Germany); 3Landesvermessung und Geobasisinformation Niedersachsen (Germany)	Validation of Climate Models Using European Ground-Based GNSS Observations <i>Elgered, G.1; Emardson, R.2; Jarlemark, P.2; Johansson, J.1; Kjellstrom, E.3; Ning, T.1; Willen, U.3</i> 1Chalmers Univ. (Sweden); 2SP Swedish Technical Research Institute (Sweden); 3Swedish Meteorological and Hydrological Institute (Sweden)
11:20	GALILEO-2 Space and Time Reference Frames from GEO Orbit: Unification of Positioning and Timing Systems <i>Svehla, D.</i> ESA/ESOC (Germany)	Climate Applications of GNSS Radio Occultation in European Global Reanalysis <i>Poli, P.; Dee, D.; Healy, S.</i> ECMWF (United Kingdom)
11:40	Detection of Ground Deformation in the Area of the 2009 Abruzzo Earthquake by GNSS Techniques <i>Caporali, A.</i> University of Padova (Italy)	ESA ADVISE Project. New Developments on Inter-Satellite Ranging for Orbit and Clock Determination <i>Amarillo, F.</i> ESA/ESTEC (The Netherlands)
12:00	Lunch break	
14:00-15:20	<b>Round Table (GSAC/ESA) - Closing Ceremony</b>	