19th International Beacon Satellite Symposium

27 June – 1 July, 2016

The Abdus Salam International Centre for Theoretical Physics
Trieste, Italy

Beacon Satellite SYMPOSIUM 2016

A triennial event organized by the Beacon Satellite Studies Group of URSI Commission G – an interdisciplinary group, servicing science, research, applications and engineering aspects of satellite signals observed from the ground and in space.

Dear Colleagues,

Welcome to the 19th International Beacon Satellite Symposium. This distinctive symposium represents the efforts of the Beacon Satellite Studies group sponsored by Commission G of the International Union of Radio Scientists (URSI). The current meeting has attracted a wide variety of international researchers from over 40 countries who use Beacon satellites to study the earth's ionosphere and thermosphere for basic research and applications with societal impacts. This worldwide level of interest is unprecedented in the history of the Beacon Satellite Symposiums. We think it exemplifies the ever growing importance of ionospheric radio wave propagation in the modern world.

We are delighted to have Dr. Paul Cannon, URSI President, as our keynote speaker in the opening session. Dr. Cannon will share his thoughts on the progress and continued importance of the Satellite Radio Beacon community and its relevance and importance to URSI. In our scientific sessions, we will hear a variety of innovative research presentations that cover scintillation, electron content measurements, low and high latitude ionospheric phenomena, ionospheric modeling, space weather effects, monitoring natural hazards, radio occultation studies using low earth orbit satellites and ionospheric effects on navigation systems.

Unfortunately, we are hosting this symposium without our long time Beacon Satellite Symposium co-chair, Dr. P.V.S. Rama Rao. Dr. Rama Rao passed away in July 2014. He was a brilliant scientist, a great professor, a lifetime mentor to his students and a good friend to all of us in the international Beacon community. In recognition of his long time support of the Beacon Satellite Symposia, we dedicate this 19th symposium to Dr. P.V.S. Rama Rao.

This symposium is an exceptional opportunity to initiate international collaborations and research that spans the globe. We sincerely hope that you find this meeting an enriching and productive event.

Sincerely,

Patricia Doherty, USA, Chair, Beacon Satellite Studies Group
Sandro Radicella, Italy, Local Chair, Beacon Satellite Symposium 2016
Bruno Nava, Italy, Local Co-chair and Co-chair of the Beacon Satellite Studies Group
Andrzej Krankowski, Poland, Co-chair of the Beacon Satellite Studies Group

This Beacon Satellite Symposium is dedicated in Memory of

Dr. P.V.S. Rama Rao

1940-2014

Dr. Rama Rao served as co-chair of the Beacon Satellite Studies group for many years until his passing in 2014. We miss his counsel, scientific excellence, friendship and warm smile.

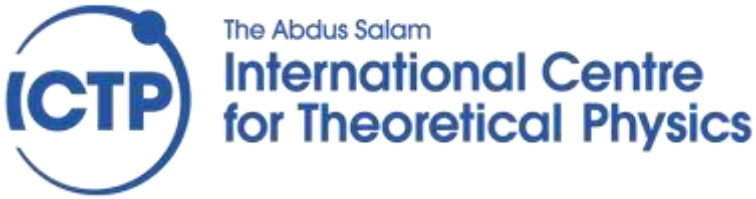
Rest in peace dear friend.

Local Organizing Committee

We thank the Abdus Salam International Centre for Theoretical Physics for their gracious and generous support as hosts of this symposium.

We specifically thank the Local Organizing Committee for their tireless efforts.

Sandro Radicella
Bruno Nava
Yenca Migoya Orue
Stanka Tanaskovic
Pandora Malchose



Scientific Organizing Committee

This meeting was designed an organized by an international group of radio scientists:

Patricia Doherty, Boston College, USA
Bruno Nava, ICTP, Italy
Andrzej Krankowski, University of Warmia and Mazury in Olsztyn, Poland
Sandro Radicella, ICTP, Italy
Matthew Angling, University of Birmingham, UK
Francisco Azpilicueta, National University of La Plata, Argentina
Anthea Coster, MIT Haystack Observatory, USA
Giorgiana De Franceschi, INGV, Italy
Keith Groves, Boston College, USA
Norbert Jakowski, German Aerospace Center, Germany
Cathryn Mitchell, University of Bath, UK
Babatunde Rabiu, National Space Research and Development Agency, Nigeria

Sponsors

With generous support from our sponsors, this symposium has assisted travel and participation for over 60 participants from developing countries. Sponsors have also enabled us to defray the cost for student and retiree participants.

WELCOME RECEPTION

19:00 to 20:30 – Sunday 26 June 2016

Adriatico Guesthouse

Via Grignano, 9 – 34151 Trieste

REGISTRATION DETAILS

Please register and pick up materials at the following times:

18:30 – 20:00 – Sunday 26 June at the Adriatico Guest House Reception

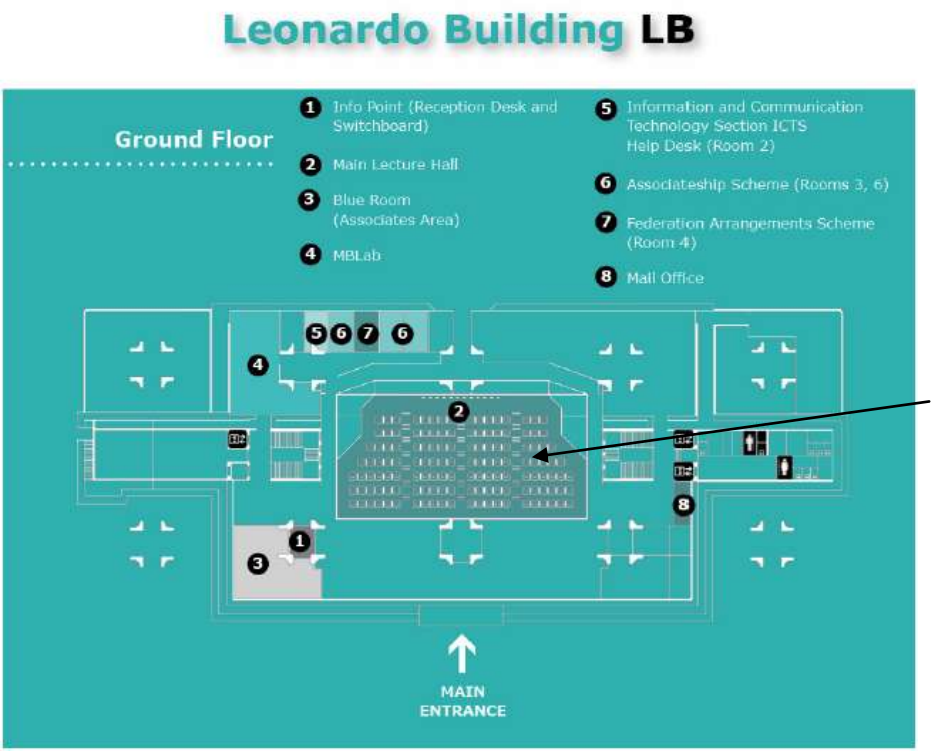
8:00 to 10:00 – Monday 27 June at the Leonardo Building

Main Entrance Area

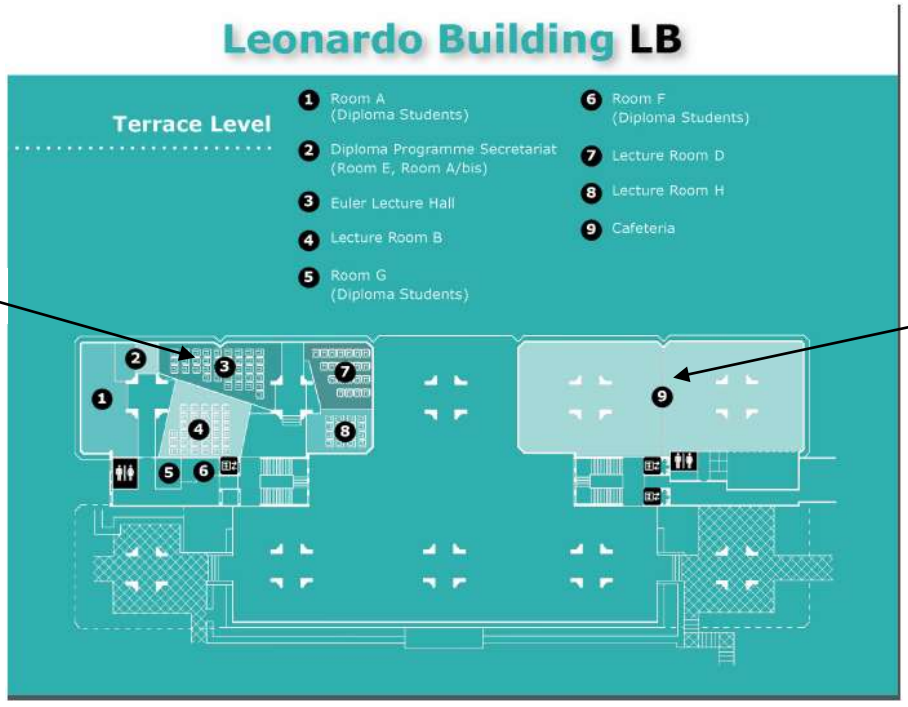
ICTP MAP

MEETING ROOMS

All sessions will be held in the Budinich Lecture Hall (Main Lecture Hall) and Euler Lecture Halls in the Leonardo Building.



Budinich (Main) Lecture Hall



Euler Lecture Hall

Cafeteria

OPENING SESSION

Beacon Satellite Symposium 2016

Monday 27 June, 2016

10:00 – 12:20

Main Lecture Hall, Leonardo Building
Welcome, Professor Fernando Quevedo, Director, ICTP
Introduction, Professor Sandro Radicella, ICTP
The Beacon Satellite Symposium 2016, Ms. Patricia Doherty (BC)
Greetings and Acknowledgments, Mr. Bruno Nava (ICTP)
Remarks by Ms. Sharafat Gadimova, UNOOSA - BSS2016 Sponsor
Remarks by Dr. Kent Miller, AFOSR/EOARD - BSS2016 Sponsor
Dedication to Dr. P.V.S. Rama Rao
Keynote Lecture, Dr. Paul Cannon, President of URSI
Thank you and we hope you enjoy the symposium!

12:20 – 13:30 Lunch Break

Participants may utilize the Leonardo Building Cafeteria and Coffee Bar

Beacon Satellite Symposium 2004, ICTP, Trieste, Italy

Session 1 – Monday 27 June 2016 (13:30–18:10)

Budinich Lecture Hall

(Papers are listed with the principal author)

Space and Ground Based TEC and Measurements Chairs: Sandro Radicella (Italy), Andrzej Krankowski (Poland), Babatunde rabiu (Nigeria), Francisco Azpilicueta (Argentina)	
13:30	New IGS Ionospheric Analysis Centers (CAS- IGG, NRCan and WHU), A. Krankowski - *Invited Presentation*
13:50	Evaluation of Different GPS Calibration Techniques, D. Bilitza - *Invited Presentation*
14:10	An updated vision of availability of TEC GNSS derived ground observations in Africa, B. Rabiu - *Invited Presentation*
14:30	Evaluation of GIMs of TEC as indicators of ionospheric variability at low latitudes, Y. Migoya-Orue - *Invited Presentation*
14:50	An approach to study TEC gradients variability and their role in driving scintillations, C. Cesaroni - *Invited Presentation*
15:10	Estimation of Global Ionosphere VTEC Maps by the Combination of Satellite Observation Techniques based on Kalman-Filtering, E. Erdogan
15:30	**Coffee Break**
15:50	Real-Time Global Ionospheric Weather Monitoring by GIRO and IGS, I. Galkin
16:10	PROPCUBE Radio Beacons in Low Earth Orbit for Ionospheric and Radio Astronomical Applications, P. Bernhardt
16:30	Realtime three-dimensional tomography of the ionosphere over Japan based on the GEONET GPS-TEC, M. Yamamoto
16:50	The New Technique for Calculating the Ionospheric Phase Advance and the Mapping Function for TEC Built on the Basis of NeQuick Model of the Ionosphere, N. Zernov
17:10	Ionospheric TEC disturbance during the Mediterranean tropical-like cyclone occurred on November 2014, M. Rodriquez Bouza
17:30	Monitoring the Ionosphere using new GNSS, R. Warnant
17:50	Day-to-day variability of Equatorial Electrojet and its role on the day-to-day characteristics of Equatorial Ionization Anomaly over the Indian an Brazilian Sectors, V. Kavutarapu
18:10	**End**

Session 2 – Tuesday 28 June 2016 (08:30–12:30)
Budinich Lecture Hall

Irregularities and Scintillation Measurements and Effects Chairs: Keith Groves (USA) and Eurico de Paula (Brazil)	
8:30	A Wide Bandwidth Channel Probe for Space Situational Awareness, D. Knepp - *Invited Presentation*
8:50	Estimating $C_k L$ from Space Based Synthetic Aperture Radar Images, P. Cannon
9:10	GPS measurements onboard Swarm satellites to study occurrence of the equatorial irregularities in the topside ionosphere, I. Zakharenkova - *Invited Presentation*
9:30	High-speed and supersonic equatorial vertical plasma drifts: recent results from the DMSP mission, E. Astafyeva - *Invited Presentation*
9:50	Coherent backscatter interferometric radar images of equatorial spread F structures using Capon's method, F. Rodrigues - *Invited Presentation*
10:10	The Possible Suppression of Natural Ionospheric Irregularities with Artificial Plasma Injection, K. Groves
10:30	**Coffee Break**
10:50	A comparative study of VHF to S band scintillations around the northern EIA crest of the Indian zone, S. Chakraborty
11:10	Understanding Large-Scale Wave Structure and Equatorial Plasma Bubbles: Mission of the Tandem-Beacon Explorer (TBEx), R. Tsunoda
11:30	Latitudinal characteristics of strong VHF scintillations due to ESF irregularities and their implication for occurrence of L band scintillations, A. Bhattacharyya - *Invited Presentation*
11:50	Characterization of GPS L-band scintillations under different types of ESF irregularities using co-located ionosonde observations, S. Samireddipalle
12:10	Low latitude ionospheric scintillation climatology around the equatorial anomaly crest over Kenya and its contribution to errors in GPS, J. Olwendo
12:30	**Lunch Break**

A group photo will be taken just before the lunch break

12:30 – 13:40 Lunch Break

Participants may utilize the Leonardo Building Cafeteria and Coffee Bar

Sessions 3A and 3B: Tuesday 28 June 2016 (13:40–17:40)

Session 3A: Budinich Lecture Hall			Session 3B: Euler Lecture Hall
Monitoring Natural Hazards Chairs: Attila Komjathy (USA) and Sergey Pulinets (Russian Federation)			**Theory and Modeling of Ionospheric Scintillation and Irregularities Chairs: Chuck Rino (USA) and Yannick Beniquel (France)**
13:40	New in the Ionospheric Seismology: Recent Advances in the Space Detection of Earthquakes, Tsunamis and Volcano Eruptions, E. Astafyeva - *Invited Presentation*		Constrained And Unconstrained Power Law Irregularity Models for Interpreting Strong Scintillation Data, C. Carrano**,** *Invited Presentation*
14:00	Evaluation of Ionospheric Earthquake Precursor Signatures: Statistical and Tomographic Approaches over Japan Area, K. Hattori - *Invited Presentation*		Regional short-term forecasting of ionospheric TEC and scintillation, L. Spogli
14:20	Seismo-ionospheric Precursors Probed by Global Navigation Satellite System during the 12 May 2008 M8.0 Wenchuan Earthquake, J.Y. Liu - *Invited Presentation*		Extension of the Hybrid Scintillation Propagation Model to the Case of Field Propagation along the Magnetic Field, V. Gherm, *Invited Presentation*
14:40	Large Area Sea Mapping with Ground-Ionosphere-Ocean-Space (GIOS), P. Bernhardt - *Invited Presentation*		3D to 2D approximation effect on propagation modeling, impact on scintillation indices in polar region, V. Fabbro
15:00	Atmosphere-Ionosphere Coupling: The role of boundary layer in generation of ionospheric precursors of earthquakes, S. Pulinets		Modelling of ionospheric scintillation at high and low latitudes as an input in explaining its different characteristics between these regions, H. Strangeways**,** *Invited Presentation*
10..5	**Coffee Break**		**Coffee Break**
15:40	Real-Time Detection of Tsunami Ionospheric Disturbances Using a VARION approach: Results for the 2011 Tohoku-Oki and 2012 Queen Charlotte Island (Haida Gwaii) Events, G. Savastano		Modelling of ionospheric irregularities during geomagnetic storms over African low latitude region, P. Mungufeni
16:00	Seismic and Ionospheric Signatures for the Study of Underwater Earthquakes: Modeling Developments, L. Rolland		Analysis of data recorded in the frame of ESA Monitor project, Y. Beniguel, *Invited Presentation*
16:20	Observation of Lithosphere-Atmosphere-Ionosphere Variability during Japan Earthquakes, S. Choudhary		Alternate Formalism for Computing Likelihood of Scintillation Effect fromInferred Vertical Drift in the Absence of Direct Measurements, Babatunde Adebesin
16:40	Ionospheric gravity waves observed using radio occultation: climatology and detection of tsunami-driven event, P. Coïsson		Wavelet analysis of radio scintillation inhibition at low latitudes, M. Materassi
17:00	Using Ionospheric Transients to Detect Multiple Natural Hazards: Measurements and Modeling Results, A. Komjathy		On the Geometric Dependence of Scintillation and Stochastic Structure Models, C. L. Rino, *Invited Presentation*
17:20	Signatures of large earthquakes in the atmosphere and ionosphere, G. Seemala		Using EISCAT incoherent scatter radar co-aligned with GPS satellites to obtain details about plasma structures and originating scintillation at L-Band, B. Forte

Poster Session and Reception Begins After the Sessions

Poster Session and Reception

Tuesday 28 June –17:30 – 19:30

Leonardo Building




Pictures from BSS 2007 Poster Session – Boston College

Please have posters up today before the coffee break.

Whiteboards, pins or tape will be provided.

Whiteboard size is 122 cm wide (48.03") x 125cm high (49.2")

A0 format can fit perfectly vertical or landscape.

Refreshments will be served.

List of posters are at the end of this program.

Sessions 4A and 4B: Wednesday 29 June 2016 (8:30–12:50)

	Session 4A: Budinich Lecture Hall		Session 4B: Euler Lecture Hall
Polar (high-latitude) Effects on GNSS Chairs: Cathryn Mitchell (UK), Giorgiana De Franceschi (Italy)			**Data Assimilation Modeling Chairs: Bruno Nava (Italy) and Matthew Angling (UK)**
8:30	Three-Dimensional Modeling of High-Latitude Scintillation Observations, A. T. Chartier, *Invited Presentation*		Assimilation of Sparse Continuous Ionosonde Data into Real-Time IRI, I. Galkin, *Invited Presentation*
8:50	Raw GNSS data grabbing and software receivers: a solution to make an Ionospheric Scintillation Monitoring Receiver a multifold analysis platform, F. Dovis, *Invited Presentation*		Electron density topside profile estimate with NeQuick model ingesting bottomside parameters, C. Scotto, *Invited Presentation*
9:10	Demogrape: Demonstrator for GNSS Research and Application for Polar Environment, L. Alfonsi, *Invited Presentation*		3D kriging of the ionosphere based on maximum likelihood and restricted maximum likelihood estimation of a non-stationary covariance model, D. Minkwitz
9:30	Observation of auroral optical emissions through co-located GPS, riometers, and all-sky imagers, B. Forte		An Ionospheric Multimodel Ensemble Prediction System, X. Pi, *Invited Presentation*
9:50	Empirical statistical model relating scintillation indices with solar and geomagnetic activity for L band GNSS, J. Lemorton		Assimilative Model for Ionospheric Dynamics Driven by TEC-related data from Beacon Satellites as well as by Skywave HF Propagation Data from Multiple HF Channels, S. Fridman, *Invited Presentation*
10:10	Modelling plasma structures in the high-latitude ionosphere, A. Wood		Ionospheric Forecast Based on Ingestion of TEC Measurements into the NeQuick 2 Model, L. Chen
10:30	**Coffee Break**		**Coffee Break**
10:50	Analysis of Traveling Ionospheric Disturbances during Stratospheric Warming Events, A. Coster		Ionospheric Data Assimilation and Forecasting During Storms, A. T. Chartier, *Invited Presentation*
11:10	Multi-Instrument Observations of Geomagnetic Storms in the Arctic Ionosphere, T. Durgonics		A comparison of LPIM-COSMIC and IRI(CCIR) F2 peak parameters determinations, F. J. Azpilicueta
11:30	Overview of the 2015 St. Patrick's day storm and its consequences for RTK and PPP positioning in Norway, K.S. Jacobsen		The USU-GAIM Data Assimilation Models for Ionospheric Specifications and Forecasts, L. Scherliess

Continued on next page

Sessions 4A and 4B: Wednesday 29 June 2016 (8:30–12:50)

	Session 4A: Budinich Lecture Hall		Session 4B: Euler Lecture Hall
11:50	Geomagnetic storm of March 17, 2015: global RT-IGS GPS phase irregularities and effects in the Canadian auroral region, R. Ghoddousi		Initial Results of the Advanced European electron density (Ne) Assimilation System (AENeAS), S. M. Elvidge
12:10	Establishing local TID climatology for Antarctic Peninsula region, V. Paznukhov		Climatology of Low Latitude Ionosphere Under Effect Of Varying Solar Flux During Solar Cycle 23 And 24, N. Dashora
12:30	Scintillation and TEC Measurements using Low Earth Orbiting Beacon Signals Propagating through the Disturbed Ionosphere above HAARP and Arecibo, C. Siefring		Comparison of GPS Derived TEC with the TEC Predicted by IRI 2012 Model Over the Eastern Africa Region, E. D. Sulungu
12:50	**Lunch Break**		**Lunch Break**

Participants may utilize the Leonardo Building Cafeteria and Coffee Bar

Excursion to Aquileia.

Transportation will be provided.

14:00 to approximately 18:00

Aquileia is listed by UNESCO as a World Heritage Site and is undoubtedly one of the standouts of the Region of Friuli Venezia Giulia.

Go to http://whc.unesco.org/en/list/825 for more information

View of Archeological Area of Aquileia

Sessions 5A and 5B: Thursday 30 June 2016 (8:30–12:50)

	Session 5A: Budinich Lecture Hall		Session 5B: Euler Lecture Hall
Advances in Ionosphere-Thermosphere Modeling and the Challenge of Validation Chairs: Tim Fuller-Rowell (USA) and Dieter Bilitza (USA)			**Radio Occultation Techniques and Measurements Chairs: Tiger Liu (Taiwan), Endawoke Yizengaw (USA) and Angela Aragon-Angel (Italy)**
8:30	Direct forcing of the thermosphere-ionosphere by small-scale gravity waves of lower atmospheric origin, E. Yigit, *Invited Presentation*		COSMIC GPS Radio Occultation Observations: Algorithm Improvements and Science Applications, N. Pedatella, *Invited Presentation*
8:50	Validation of Equatorial Ionization Anomaly with IRI-2012 and NeQuick-2 Models during a Sudden Stratospheric Warming, A.P. Jidele		Improved model for correcting the ionospheric impact on bending angle in radio occultation measurements, M. Angling
9:10	Modeling the Daily Variability of the Midlatitude Ionosphere with SAMI3/WACCM-X, K. Zawdie		A new approach for LEO receiver bias estimation and TEC calibration for LEO-GNSS paths, M. Mainul Hoque
9:30	Comprehensive assessment of ionospheric electron content models: Methodology, M. Hernandez-Pajares, *Invited Presentation*		Ionospheric New Findings and Space Weather by FORMOSAT-3/COSMIC Radio Occultation Sounding, J-Y. Liu
9:50	Intercomparison of LIEDR and NeQuick ionospheric modeling using radio occultation and ionosonde, S. Stankov		Assessment of the F2-layer electron density peak inferred from Formosat-3/COSMIS radio occultations over half a Solar Cycle, M. A. Aragon Angel
10:10	A Community Wide Ionosphere/Thermosphere Modelling Test, S. M. Elvidge		Hemispheric and Annual asymmetry of Nmf2 observed by FORMOSAT-3/COSMIC Radio Occultation observations, S.G. Valluri
10:30	**Coffee Break**		**Coffee Break**
10:50	GLIMPSE: A GLobal Ionosphere Modeling Prediction and Specification Environment, G. Bust		Imaging the global vertical density structure from the ground and space, E. Yizengaw
11:10	The performance evaluation of TEC variations over two equatorial stations and the three topside options in IRI-2012 Model, B. W. Joshua		Monthly Climatology of Thermospheric Neutral Winds Obtained from COSMIC Radio Occultation Measurements, L. Scherliess, *Invited Presentation*
11:30	Database of Jason-2 Plasmaspheric Electron Content for Validation and Correction of IRI-Plas Model, T. Gulyaeva		GPS Radio Occultation for Global Scintillation Specification, R. Caton and K. Groves

Continued on next page

Sessions 5A and 5B: Thursday 30 June 2016 (8:30–12:50)

	Session 5A: Budinich Lecture Hall		Session 5B: Euler Lecture Hall
11:50	Variations of the Topside Ionospheric and Plasmaspheric Electron Content Derived from the COSMIC podTEC Observations and Comparison with the IZMIRAN_Plas Model Results, M. Zhang		New digital beacon receiver for the study of ionosphere with satellites TBEx, FORMOSAT-7/COSMIC, and PROPCUBE, M. Yamamoto
12:10	Topside ionospheric response to geomagnetic storms: multi-instrumental observations, E. Astafyeva, *Invited Presentation*		First ionospheric radio occultation measurements from GNSS Occultation Sounder on the Chinese Feng Yun 3C satellite, T. Mao
12:30	Modeling Storm-Time Plasma Stuctures, T. Fuller-Rowell		CASSIOPE e-POP Radio Occultation Observations of High Latitude Ionization Structures, C. Watson
12:50	**Lunch Break**		**Lunch Break**

Participants may utilize the Leonardo Building Cafeteria and Coffee Bar

Session 6 will begin at 14:00 in the Main Lecture Hall

Beacon Satellite Symposium 2001, Boston College, USA

Session 6 – Thursday 30 June 2016 (14:00-17:20)
Budinich Lecture Hall

Ionospheric Effects on Satellite Based Navigation Systems Chairs: Bertram Arbesser-Rastburg and Patricia Doherty	
14:00	Equatorial Plasma Bubble Effects on Ground-Based Augmentation Systems and Its Mitigation Techniques, J. Lee, *Invited Presentation*
14:20	Status of NeQuick G after the Solar Maximum of Cycle 24, R. Orus Perez, *Invited Presentation*
14:40	Key points for Precise Navigation under Scintillation Conditions, J. Sanz Subirana, *Invited Presentation*
15:00	Ionospheric research for space weather service support, I. Stanislawska, *Invited Presentation*
15:20	Algorithms for the mitigation of space weather threats at low latitudes, contributing to the extension of EGNOS over Africa, B. Forte
15:40	**Coffee Break**
16:00	EGNOS performance during ionospheric disturbances at high latitudes. Results from the Arctic Testbed Project, Y. L. Andasvik
16:20	Monitoring the Occurrence Probability of Steep Ionospheric TEC Gradients Associated with Equatorial Plasma Bubbles using Network of GNSS Receivers in South America, R. Pradipta
16:40	Assessment Study of Ionosphere Threat Model using Multi-Shell Algorithm Approach over Sub-Saharan African Region, O.E. Abe
17:00	Investigation on the performance of a low-cost single frequency GNSS receiver for PPP application, R. Alves Borges

The Ionospheric Effects on Satellite Based Navigation Systems will resume on Friday morning 1 July at 8:30

Enjoy a little free time before the banquet. It begins at 19:00.

Please join us for the Symposium Banquet

Le Terrazze Restaurant

Hotel Riviera & Maximilian's

Address: Strada Costiera, 22, Trieste

Walking distance from the Adriatico Guest House

19:00 – 21:00

Session 6 continued – Friday 01 July 2016 (8:30–9:30)

Budinich Lecture Hall

Ionospheric Effects on Satellite Based Nagivation Systems (Continued) Chairs: Bertram Arbesser-Rastburg (Austria) and Patricia Doherty (USA)	
8:30	The Long Time Variation of the Estimated GPS Satellite Differential Code Bias and its Possible Connection with Ionosphere, D. Zhang
8:50	GNSS based air navigation, equatorial space weather, lessons learned in Peru, J.D. Taramona
9:10	Ionospheric Effects on SBAS, T. Walter, *Invited Presentation*

Session 7 – Friday 01 July 2016 (9:30–12:50)

Budinich Lecture Hall

Space Weather Effects Chairs: Norbert Jakowski (Germany) and Anthea Coster (USA)	
9:30	Thirteen Years of Progress in Ionospheric Forecasting Captured in Space Weather Journal, D.J. Knipp, *Invited Presentation*
9:50	GPS as a Solar Flare EUV flux-meter, M. Hernandez-Pajares, *Invited Presentation*
10:10	Solar flare caused ionospheric disturbances measured with a dense GPS TEC network and an incoherent scatter radar, S. Zhang
10:30	**Coffee Break**
10:50	Impacts of ULF wave power on the Ionosphere, E. Yizengaw
11:10	Sunspot activity dependence of ionospheric variability in the low latitude, S. O. Ikubanni
11:30	Statistical Comparison of the Occurences of Geomagnetic Storms during the Rising Phases of Solar Cycles 21-24, O. Ojo
11:50	First Results on Climatological Response of Indian Low Latitude Ionosphere to Geomagnetic Storms during Solar Cycles 23 and 24, S. Suresh
12:10	Dynamics of the ionospheric irregularities during severe geomagnetic storms in 2015 by the ground-based GPS Measurements, I. Cherniak
12:30	Modelling and Multi-Instrumented Observations of Traveling Ionospheric Disturbances, I. Azeem
12:50	**Lunch**

Participants may utilize the Leonardo Building Cafeteria and Coffee Bar

Sessions resume at 14:00.

Session 7 – Friday 01 July 2016 (14:00-15:00)
Budinich Lecture Hall

Space Weather Effects (Continued) Chairs: Norbert Jakowski (Germany) and Anthea Coster (USA)	
14:00	The Examples of the Large-Scale Electron-Density Features Revealed by the Radio Tomogtaphic Methods in the Distribution of the Ionospheric Plasma During the Space Weather Disturbances, E. Andreeva
14:20	Characterization of Equatorial Ionosphere in South East Asia in the ERICA Project: a case study, G. Povero
14:40	Ionospheric response to the 17-18 March 2015 geomagnetic storm, R. Hazarika

Coffee Break (15:00 – 15:20)

Beacon Satellite Symposium 2010, Barcelona, Spain

Beacon Satellite Symposium 2013, Bath, UK

Closing Ceremony – 15:20 – 16:00
Presentation of Awards Best Presentation and Young Scientist Awards (winners selected by the session chairs)
Beacon Satellite Studies Group Discussion
Plans for Proceedings and Special Issue of Radio Science
New Chairs – Beacon Satellite Studies Group
What can we do better?
BSS2019 – where will it be?

Thank you to ICTP for hosting this symposium!

Thank you for attending the 19th International Beacon Satellite Symposium

Beacon Satellite SYMPOSIUM 2016

June 27 – July 1, 2016

The Abdus Salam International Centre for Theoretical Physics

Hope you will join us for BSS 2019!

Please join our mailing list and watch our website for future announcements.

http://isrconferences.bc.edu/beacon/

POSTER SESSION AND PAPERS

Chairs:
Katy Alazo-Cuartas, ICTP
Gopi Seemala, IIG, India
Yenca Migoya-Orue, ICTP

Poster Session and Reception will be held in the Leonardo Building

Tuesday 28 June
17:30 – 19:30
Refreshments will be served

Posters are organized by the session most relevant to the topic as illustrated in the following pages.

Presenters: please have your posters up before the afternoon sessions begin at 14:00.

Space and Ground Based TEC and Measurements		Irregularities and Scintillation Measurements and Effects
Characteristic ionospheric variations over North America during geomagnetic quiet and storm conditions, S. Zhang		Early morning equatorial irregularities detected with space-borne GPS measurements in the topside ionosphere: A multi-satellite case-study, I. Zakharenkova
Real Time Global Ionospheric Maps: a low latency alternative to traditional GIMs,. M. Hernandez-Pajares		First observations of ionospheric scintillations from SANAE by means of the DemoGRAPE scintillation receivers, P.J. Cilliers
A web-based interactive application for the LISN database, J.C. Espinoza Guerra		Towards Ionospheric TEC and GPS Scintillation Monitoring from the Oceanic Region, I. Azeem
Multifractal behaviour of ionospheric Total Electron Content (TEC) time series, Kamlesh Pathak		Radiotomography and HF-raytracing of the Artificially Disturbed Midlatitude Ionosphere, E. Andreeva (presented by A. Padokhin)
Comparative Study of the Variations of Ionospheric Total Electron Content and Geomagnetic Field over Abuja, Nigeria, Aderonke Adekemi Akerele		Statistical study of nineteen years of GPS S4 scintillation data over the Brazilian territory, I.J. Kantor
Study of Total Electron Content And Electron Density Profile using COSMIC Satellite, Narayan Chapagain		Mapping and investigating phase anomalies in GPS data onboard Low Earth Orbiters, W. Gilles
Total Electron Content and Peak Electon Density at F2 Region over an Equatorial Station, Olumide Olayinka Odeyemi		Variability in Occurrence of Ionospheric Irregularities over Sub-Saharan Africa, Olanike O. Folarin
Ionospheric TEC estimations with the signals of geostationary GNSS and SBAS satellites, A. Padokhin		Longitudinal Variability of Equatorial Electrodynamics and Scintillations, E. Yizengaw
Alternative Interpolation Methods For Regional TEC Maps in Local Content, Kacper Kotulak		Observation of high latitude ionospheric disturbances and distortion of L-band radar satellite images, H. Sato
TEC measurements over the Peruvian sector using space and ground-based instrumentation, E. Pacheco		GNSS observations in equatorial Africa at two spatially dispersed locations, A. O. Odour
Design and development of a Dual-frequency radio beacon for CubeSat missions to measure the Total Electron Content (TEC), Jose Chavez		GNSS Receiver Performance under environment of Ionospheric Scintillation, Liang Chen
Developing a Dual radio satellite station receiver to estimate differential Total Electron Content (TEC), J. Gomez-Socola		Equinoctial Asymmetry in the East-west Distribution of Scintillation Occurrence Observed by GPS Receivers in Indonesia, P. Abadi
Temporal and spatial variation of TEC around the northern crest of EIA along 95°E, G. Kakoti		Monitoring of plasma bubble occurrence by multi-frequency observations, K. Watthanasangmechai
The Designing of Ionospheric Coherent Beacon Receiver, Rui Lui		Characteristics of ionospheric scintillation and its relation to vertical drift using CADI ionosonde at Tirunelveli, S. Banola
		Post midnight plasma irregularities observed during low solar activity in Brazil, C. Candido

Monitoring Natural Hazards-Posters
Forecasting Strong Earthquakes in Indonesia and Philippines from Space, C. Fidani
Ionospheric anomaly before the Mw6.1 earthquake in Greece, January 26, 2014, M. Rodrigues Bouza
Wavelet Study of ionospheric anomalies prior to the two earthquakes in Sumatra Island, S. Verma
Study of Ionospheric perturbation at the epicenter and at the conjugate point by integrated wavelet transform, for M6.6 China earthquake, H. Kaur
Solar Quiet Current Response in the African sector due to a 2009 Sudden Stratospheric Warming Event, S. O. Bolaji
Atmospheric Anomalies prior to the Nepal Earthquake in April 2015, S. Karia
Polar (high-latitude) Effects on GNSS-Posters
Bayesian statistical ionospheric multi-instrument 3D tomography, L. J. Johannes Norberg
Monitoring of ionospheric irregularities over the Northern Hemisphere, Iurii Cherniak
GPS-TEC Fluctuations and Auroral Activity, I. Shagimuratov
Characteristics of GPS TEC Variations in the Polar Cap Ionosphere, C.J. Watson
Diagnostics of Ionospheric Disturbances over the Antarctic Peninsula using GNSS TEC Measurements and Coherent HF Ionospheric Sounding, A. Sopin
GPS anistropy measurement on high latitude, M. Pozoga
GPS phase scintillation during the geomagnetic storm of March 17, 2015: The relation to auroral electrojet currents, P. Prikryl

Theory and Modeling of Ionospheric Scintillation and Irregularities-Posters
Brazilian Ionospheric Scintillation Model (BISM), E. de Paula
Investigating the effect of geomagnetic storm and equatorial electrojet on equatorial ionospheric irregularity over east African sector, Ephrem Beshir Seba
Characterization of Ionospheric Total Electron Content on radio frequency in Ghana equatorial region under the SKA project site, Linda Abakah Sikafo
Advances in Ionosphere-Thermosphere Modeling and the Challenge of Validation-Posters
Daytime MSTIDS Observed at Conjugate Geomagnetic Points of Low Latitude Regions using TEC Perturbation, Olusegun Folarin Jonah
The study of the Residual of the Klobuchar Model in TaiWan, Jinghua Li
Evaluation of NeQuick model performance using ATS-6 STEC satellite data, Y. Migoya-Orue
The capabilities of the Coupled Thermosphere Ionosphere Plasmasphere electrodynamics (CTIPe) physics based model in reproducing the extreme geomagnetic storm on the 20th of November 2003, Isabel Fernandez-Gomez
Observations of the three-peak equatorial ionization anomaly, E. Astafyeva
Radio Occultation Techniques and Measurements- Posters
IGOSat student satellite project to measure ionospheric occultations and gamma rays, Pierdavide Coisson
Statistical Distribution of Seasonal Variation of Refractivity Gradient in Lagos, Nigeria, Oluropo Feyisayo Dairo
Aspects of Ionospheric measurements and Latitude Dependent Discrepancy of foF2 extracted from Ionosondes and COSMIC satellites. Tanmay Das
Characterizing Blanketing Sporadic E in the Vicinity of Magnetic Dip Equator Using Ground-Based Station and GNSS Radio Occultation Measurements, Aramesh Seif

Ionospheric Effects on Satellite Based Navigation		Space Weather Effects - continued
An Educational Commercial off-The Shelf GNSS Receiving Station for Monitoring Ionospheric Effects on Positioning Systems, Raydel Abreu Espinet		Study of the ionospheric response to the super storm of 16-22 March 2015 using the chain of GPS stations in Benin and Côte d'Ivoire in West-Africa, Olivier Obrou
A Systematic Amplitude Scintillation Analysis on GPS Aviation Receiver during Non-Precision Approach through a Spirent Simulator, Aiffah Mohd Ali		VTEC Modelling using Space Geodetic Techniques with different latencies and Sun Observations, E. Erdogan
SBAS or GBAS System for Peru (Southamerican Region), Jorge Garcia Villalobos		An investigation of Solar Radio Bursts impact on ionospheric Total Electron Content, Jean Uwamahoro
Novel technique of SBAS support in development of GBAS Ionospheric threat model over Equatorial and Low Latitude Region, Surendra Sunda		MImOSA2: Monitoring Ionosphere Over South America to support high precision applications, C. Cesaroni
GPS Timing: Investigating Ionospheric Effects on Receiver Timing Accuracy, Heba Alsaleh		Ionospheric Reaction to Solar Flared in the Brazilian Sector, Fabio Becker Guedes
Characterization of Atmospheric Responses during Solar Events from GNSS Measurements in the low Equatorial African Region, Olalekan Adekunle Isioye		A Novel Method of Simulating Space Weather and Scintillation Effects on GPS within a Spirent GNSS Simulator, Talini S. Pinto Jayawardena
Study of multi-frequency GNSS scintillations and relative robustness of multi-constellation signals under adverse ionospheric conditions from an anomaly crest station, Ashik Paul		Variability of TEC and scintillation near the northern EIA crest under the extreme space weather event, Ashish Kumar DasGupta
Space Weather Effects		High time resolution TEC and ionosonde observations at Dourbes, Belgium, during the March 2015 solar eclipse, T. Verhulst
Study of the effect of March 17-18, 2015 geomagnetic storm on the equatorial ionosphere using GPS, VHF satellite beacon and C/NOFS, Sarbani Ray		Variability of TEC and scintillation near the northern EIA crest under the extreme space weather event, Ashish Kumar DasGupta
Simultaneous Response of NmF2 and GPS-TEC to Storm Events at Ilorin, Nigeria, Jacob Adeniyi		Ionospheric Disturbance Dynamo Associated to coronal hole during Geomagnetic Storm 1-5 August 2002, Ibrahim Fathy Abdelghafar
LOFAR as a new tool for monitoring and diagnostics near Earth's Environment, Hanna Rothkaehl		Response of the ionosphere to high-speed solar wind streams during 20-31 August 2010, Naima Boulasbaa-Zaourar