12th International Symposium on Equatorial Aeronomy (ISEA-12)

Program

ISEA Sessions: Sunday 18 - Saturday 24, May 2008

Session S1  Tutorials I  *(In memoriam Tor Hagfors)*
Sunday Morning

Session S2  Tutorials II
Sunday Afternoon

Session S3  Equatorial Lower- and Middle- Atmosphere Studies
Monday Morning

Session S4  Equatorial and mid-latitude MLT dynamics
Monday Afternoon

Poster P1  Posters for Sessions S3 and S4
Monday - Tuesday

Session S5  E-region plasma physics
Tuesday Morning
SESSION S6  F-region plasma irregularities: causes and effects
Tuesday Afternoon

POSTER P2  Posters for Sessions S5 and S6
Monday - Tuesday

EXCURSION
Wednesday

SESSION S7  Ionospheric electrodynamics: Theory and numerical modeling
Thursday Morning

SESSION S8  Coupling processes at low- and mid-latitudes
Thursday Afternoon

POSTER P3  Posters for Sessions S7 and S8
Thursday – Friday

SESSION S9  New techniques, experiments, campaigns, and results
Friday Morning

SESSION S10  Ionospheric storms and space weather effects
Friday Afternoon

POSTER P4  Posters for Sessions S9 and S10
Thursday – Friday

SESSION S11  Where are we going? Outstanding questions, future trends and challenges
Saturday Morning
**Saturday May 17, 2008**

18:30 – 20:30  
Registration

**Sunday May 18, 2008**

07:30 – 08:30  
Registration

08:30 – 09:30  
Opening talks

**Session S1**  
**Tutorials I (In Memoriam Tor Hagfors)**

Conveners  
C. Haldoupis and E. Kudeki

Chair  
Vytanas Vasyliunas

09:30 – 09:50  
W. Kofman (Invited)  
*Tor Hagfors scientist and friend: his contribution to plasma physics and radar techniques*

09:50 – 10:15  
Coffee Break

10:15 – 11:00  
D. T. Farley (Invited)  
*The equatorial E region and its plasma instabilities: A tutorial*

11:00 – 11:45  
R. F. Woodman (Invited)  
*Spread F- An old equatorial aeronomy problem finally resolved?*

11:45 – 12:30  
R. A. Vincent (Invited)  
*Atmospheric waves and dynamics: A tutorial*

12:30  
End of Session

12:30 – 15:00  
Lunch Break
**Session S2**

**Tutorials II**

**Conveners**

C. Haldoupis and E. Kudeki

**Chair**

Shoiiho Fukao

15:00 – 15:45  
**M. C. Kelley** (Invited)  
*Mid-Latitude electrodynamics and plasma physics: A tutorial*

15:45 – 16:30  
**R. A. Heelis** (Invited)  
*Internal and external influences on ionospheric electrodynamics at low and middle latitudes*

16:30 – 17:15  
**U. S. Inan** (Invited)  
*Lower and middle atmospheric electrodynamics: A tutorial*

17:15  
**End Of Session**

18:00 – 20:00  
**Welcome Party**

20:00  
**End Of Day** (Sunday May 18)
Monday May 19, 2008

Session S3  Equatorial Lower- and Middle- Atmosphere Studies

Conveners  G. Swenson, T. Nakamura, and J. Röttger

Chair  Gary Swenson

08:00 – 08:20  K. Sato, Y. Kawatani, S. Watanabe, Y. Tomikawa, S. Miyahara, and M. Takahashi (Invited)
Dynamics of the QBO and SAO revealed by a gravity-wave resolving GCM simulation

08:20 – 08:40  P. Hoeg
Tropical GPS atmosphere turbulence

08:40 – 09:00  S. Kato
MST radar observation — capacity and limit —

09:00 – 09:20  M. Yamamoto, G. Hassenpflug, S. Saito, H. Luce, and S. Fukao (Invited)
MU radar 1D, 2D, and 3D imaging of atmosphere and ionosphere

09:20 – 09:40  R. Lieberman
Variability of mesospheric diurnal tides and tropospheric diurnal heating during 1997—1998

09:40 – 10:00  J. Meriwether (Invited)
New results in mesospheric aeronomy studies: a review

10:00 – 10:30  Coffee Break

Chair  Dave Fritts

Twin mesospheric bores

10:45 – 11:00  M. F. Larsen
Magnetized Rossby waves as a possible driver for the lower E region neutral wind maximum

11:00 – 11:15  D. Simonich and B. Clemesha
First results from the São José dos Campos temperature LIDAR

11:15 – 11:30  K. Cahoy
Zonal structure in the equatorial ionosphere: both sides of the GPS radio occultation story

11:30 – 11:45  K. Häusler and H. Lühr
Wave-4 structure in the thermospheric zonal wind at dip equator latitudes as observed by CHAMP
11:45 – 12:00  G. Lehmacher, E. Kudeki, A. Akgiray, and J. Chau  
Radar cross-sections for mesospheric echoes at Jicamarca: measurements and estimates from turbulence theory

12:00 – 12:15  G. D. Earle, A. M. Musumba, and S. L. Vadas  
In-situ evidence of nighttime midlatitude plasma density perturbations produced by gravity waves

Combined impedance probe and Langmuir probe studies of the low-latitude E Region

12:30  END OF SESSION

12:30 – 14:00  LUNCH BREAK

SESSION S4  EQUATORIAL AND MID-LATITUDE MLT DYNAMICS

Conveners  D. Pancheva, A. Smith, and J. Oberheide

Chair  DORA PANCHEVA

14:00 – 14:20  H.-L. Liu, J. Dudhia, and B. Kuo (Invited)  
Gravity wave distribution at low and mid-latitudes from the Nested Regional Climate Model

14:20 – 14:32  B. R. Clemesha and P. P. Batista  
Seasonal variations in gravity wave activity at three at three locations in Brazil

14:32 – 14:44  L.J. Gelinas, J.H. Hecht, R. Walterscheid, and R.G. Roble  
Seasonal and interannual variability of gravity waves at Adelaide and Alice Springs

Modeling the ring structures in the OH airglow layer from gravity waves excited by convection near Fort Collins, Colorado

Propagation and ducting of small-scale gravity waves in the mesospheric OH and O2 airglow emissions at low-latitudes

Long term variations and solar variability of atomic oxygen and hydrogen in the mesopause region

15:28 – 15:40  U. Das and H. S. S. Sinha  
Long term variations in oxygen green line emission over Kiso from ground based observations using continuous wavelet transform
15:40 – 15:52  
L. Hurd, M. F. Larsen, and A. Z. Liu  
*Overturning instability in the mesosphere and lower thermosphere: analysis of instability conditions in lidar data from New Mexico and Hawaii*

15:52 – 16:04  
J. Oberheide and J. M. Forbes  
*Tidal propagation of deep tropical cloud signatures into the thermosphere from TIMED observations*

16:04 – 16:30  
**COFFEE BREAK**

16:30 – 10:50  
W.E. Ward, J. Du, D.Y Wang, and the CAWSES Tidal Campaign Team (Invited)  
*Tidal characteristics from the Extended Canadian Middle Atmosphere Model and comparisons with CAWSES tidal campaign results*

16:50 – 17:02  
N. Grieger, U. Achatz, H. Schmidt, and W. Singer  
*Thermal tides as important coupling process in the atmosphere*

17:02 – 17:14  
R. Lieberman, J. Oberheide, D. Riggin, and R. Stockwell  
*Estimates of momentum deposition on the diurnal tide*

17:14 – 17:26  
D. Pancheva, P. Mukhtarov, and B. Andonov  
*Planetary waves and tides observed by TIMED/SABER in coupling the stratosphere-mesosphere-lower thermosphere during the major stratospheric warming in 2003/2004*

17:26 – 17:38  
*Mesospheric/lower thermospheric winds, tides and mesopause temperatures at low latitudes from meteor radar and satellite observations*

17:38 – 17:50  
L. Guo and G. Lehmacher  
*Equatorial middle atmosphere wind observations with the Jicamarca meteor radar*

17:50 – 18:02  
C. Haldoupis  
*On the seasonal dependence of midlatitude Sporadic E layers*

18:02 – 18:14  
T. Maruyama, S. Saito, M. Kawamura, and K. Nozaki  
*Thermospheric meridional winds as deduced from ionosonde network and midnight temperature maximum*

18:14 – 18:26  
J. Clemmons  
*The equatorial thermospheric anomaly: update on analysis of measurements from the ionization gauge on the Streak mission*

18:30  
**END OF SESSION**
**POSTER P1**

**Posters for Sessions S3 and S4**

Conveners: G. Swenson and D. Pancheva

Time: All day Monday and Tuesday, May 19-20

Author Attendance: Coffee breaks, 13:00 – 14:00 and 19:00 to 20:00

**Poster Chair**

GERALD LEHMACHER AND DENNIS RIGGIN

**S3- P1- 01**

J. O. Adeniyi, S. M. Radicella, I. A. Adimula, O. A. Oladipo, O. Olawepo, and A. A. Willoughby

*Analysis of March 29 2006 eclipse on the E and F1 region at Ilorin*

**S3- P1- 02**

H. C. Aveiro, C. M. Denardini, and M. A. Abdu

*Planetary waves in the equatorial electrojet obtained by wavelet analysis of magnetometer data*

**S3- P1- 03**

M. A. Ayoola, G. I. Olatona, E. O. Oladiran, and J. A. Adedokum

*The march 29, 2006 solar eclipse as observed at Ibadan, Nigeria*

**S3- P1- 04**


*Observations of zonal and meridional winds and diurnal and semidiurnal tides at 7.4°S by a meteor radar*

**S3- P1- 05**

M. Devi, A. K. Barbara, Yu. Ruzhin, A. Depueva, and V. Depuev

*Role of equatorial anomaly in assertion of low latitude earthquake-perturbations on ionosphere*

**S3- P1- 06**


*Climatology of low-latitude mesospheric dynamics using Gadanki VHF radar, rocket, and HRDI*

**S3- P1- 07**


*Gravity waves sources in the Brazilian equatorial region during SpreadFEX Campaign*

**S3- P1- 08**


*Gravity waves activities in the stratosphere and mesosphere over the Brazilian equatorial region*

**S4- P1- 09**


*A comparative study of the quasi-2-day wave observed at 7.4°S and 22.7°S, Brazil, during summertime*

20:00

**End of Poster Session**
20:00 – 21:00  ISEA SPECIAL LECTURE OF GENERAL INTEREST

J. H. Seiradakis
The Antikythera Mechanism

21:00  END OF DAY (Monday May 19)
TUESDAY MAY 20, 2008

**SESSION S5**

**E-REGION PLASMA PHYSICS**

Conveners

J.-P. St.-Maurice, A. K. Patra, and C. De Nardini

Chair

JEAN-PIERRE ST. MAURICE

08:00 – 08:15


*Lessons learned observing Farley Buneman waves at low, middle, and high latitudes*

08:15 – 08:27

L. M. Kagan and R.S. Kissack

*Inelastic electron energy exchange and altitude behaviour of a phase velocity spectrum of Farley-Buneman waves for equatorial electrojet*

08:27 – 08:39

J.-P. St.-Maurice

*The speed of type I and other fast moving echoes in the ionospheric E region*

08:39 – 08:51

D. Kovalev, A. Smirnov, and Y. Dimant

*Hybrid-model simulations of Farley-Buneman instability with electron thermal effects*

08:51 – 09:03

M. M. Oppenheim, Y. S. Dimant, and L. P. Dyrud

*Large-scale simulations of Farley-Buneman turbulence in 2D and 3D*

09:03 – 09:18

R. K. Choudhary and J.-P. St.-Maurice (Invited)

*What two-step Type I waves reveal about equatorial E region turbulence*

09:18 – 09:30

R. R. Ilma, M. C. Kelley, and J. L. Chau

*Intense stormtime equatorial electric fields and evidence for anomalous resistivity in the electrojet*

09:30 – 09:42

P. Muralikrishna and V. H. Kulkarni

*The effect of dust particles on the growth time and amplitude of type I and type II irregularities in the E-region*

09:42 – 09:54

F. Lu, D. T. Farley, and W. E. Swartz

*Aspect angle measurements of irregularities in the equatorial E region above Jicamarca*

09:54 – 10:06


*Counter electrojet features in the Brazilian sector: simultaneous observation on radar, digital sounder and magnetometers data*

10:06 – 10:30

Coffee Break
CHAIR

A. K. Patra

10:30 – 10:45
R. T. Tsunoda (Invited)
Irregularities in the low- and mid-latitude E region: A historical perspective

10:45 – 10:57
A. Bourdillon, P. Dorey, and S. Saillant
Quasi-periodic variation of the sporadic E layer reflection

10:57 – 11:09
Some intriguing features of QP echoes revealed by Gadanki radar observations and a mechanism that explains them

11:09 – 11:21
A. K. Patra, N. V. Rao, T. Yokoyama, Y. Otsuka, and M Yamamoto
Intriguing details of 150-km radar echoes revealed by off-equatorial observations made from Gadanki and Kototabang

11:21 – 11:33
R. T. Tsunoda and W. L. Ecklund
150 km echoes: Recent results from the Pacific sector

11:33 – 11:48
L. Dyrud, M. Oppenheim, E. Kudeki, S. Close, and D. Janches
(Invited)
The formation, evolution and radar reflection from meteor trail plasma irregularities

11:48 – 12:00
A. Malhotra, J. D. Mathews, and J. Urbina
Multi-Static Common Volume Radar Observations of Meteor Echoes at Jicamarca

12:00 – 12:12
E. Bass, M. Oppenheim, G. Sugar, and J. Chau
Meteor Observations as a Method of Determining Atmospheric Properties

12:12 – 12:24
S. P. Gupta
Plasma waves induced by meteors in equatorial E region - rocket borne results of Leonid meteor shower of Nov. 1999

12:30
END OF SESSION

12:30 – 14:00
LUNCH BREAK

SESSION S6

F-REGION PLASMA IRREGULARITIES: CAUSES AND EFFECTS

Conveners
A. Bhattacharyya, R. Woodman, and M. A. Abdu

CHAIR
ARCHANA BHATTACHARYYA

14:00 – 14:15
E. Kudeki (Invited)
Initiation of equatorial Spread F
<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15 – 14:27</td>
<td>M. A. Abdu</td>
<td>Equatorial spread F irregularity development conditions as diagnosed from conjugate point observations by digisondes and all-sky imagers in Brazil</td>
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<tr>
<td>14:27 – 14:39</td>
<td>R. T. Tsunoda</td>
<td>On the role of large-scale wave structure in the initiation of equatorial plasma bubbles</td>
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<td>14:39 – 14:51</td>
<td>C. Stolle, H. Lühr, B. Fejer, and J. Jensen</td>
<td>Relation between ESF occurrence rate and prereversal plasma drift velocity</td>
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<tr>
<td>14:51 – 15:06</td>
<td>B. G. Fejer (Invited)</td>
<td>Longitude dependent electrodynamic effects on equatorial F-Region plasma irregularities</td>
</tr>
<tr>
<td>15:06 – 15:18</td>
<td>Y. Otsuka, T. Ogawa, and Effendy</td>
<td>VHF radar observations of nighttime F-region field-aligned irregularities over Kototabang, Indonesia</td>
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<tr>
<td>15:18 – 15:30</td>
<td>J. Krall, J. D. Huba, and G. Joyce</td>
<td>Three-dimensional simulation of equatorial Spread-F with meridional winds</td>
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<td>15:30 – 15:42</td>
<td>R. Pfaff, C. Liebrecht, J.-J. Berthelier, M. Parrot, and J.-P. Lebreton</td>
<td>DEMETER observations of highly structured plasma density and associated ELF electric field and magnetic field irregularities at Middle and low latitudes</td>
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<tr>
<td>15:42 – 15:54</td>
<td>L. Sidorova</td>
<td>Topside plasma bubbles, seen as He+ density depletions, and thermosphere meridional wind influence</td>
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<td>15:54 – 16:25</td>
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<td>COFFEE BREAK</td>
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<tr>
<td>Chair</td>
<td>MANGALATHAYIL ALI ABDU</td>
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<tr>
<td>16:25 – 16:40</td>
<td>S. Fukao and M. Yamamoto (Invited)</td>
<td>New aspects of mid-latitude plasma plumes revealed by radio and optical observations</td>
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<td>16:40 – 16:52</td>
<td>S. Sripathi, S. Bose, A. K. Patra, T. K. Pant, B. Kakad, and A. Bhattacharyya</td>
<td>Observations of ESF irregularities using simultaneous radar and GPS over Indian region</td>
</tr>
</tbody>
</table>
17:04 – 17:16  T. Ogawa, Y. Miyoshi, Y. Otsuka, and T. Nakamura  
Relationship between GPS ionospheric scintillation occurrence over Indonesia and equatorial atmospheric waves

Stormtime convection and overshielding electric fields at the equator as observed with magnetometers and incoherent scatter radar

17:28 – 17:40  E. S. Miller, J. J. Makela, R. L. Bishop, and P. R. Straus  
Multi-year study of the altitude distribution of scintillation-causing irregularities and gradients

17:40 – 17:52  A. Bhattacharyya and B. Kakad  
Evolution of intermediate scale length equatorial spread F irregularities

17:52 – 18:04  J. A. Whalen  
The linear dependence of L-band scintillation on electron density observed in the anomaly

The large TEC fluctuations near the equatorial ionization anomaly during the equatorial spread F: observation from the GPS network over Brazil and simulation

18:16 – 18:28  P. C. Anderson and P. R. Straus  
GPS occultation observations of equatorial scintillation: dependence on magnetic field orientation, longitude, and season

18:30  END OF SESSION

Poster P2  Posters for Sessions S5 and S6

Conveners  J.-P. St-Maurice and A. Bhattacharyya

Time:  All day Monday and Tuesday, May 19-20

Author Attendance:  Coffee breaks, 13:00 – 14:00 and 19:00 to 20:00

Poster Chair  Alain Bourdillon and Glenn Hussey

S5- P2- 01  V. Belyey, C. La Hoz, J. Chau, and H. Pinedo  
First 3-dimensional radar interferometry observations of equatorial E region irregularities at Jicamarca

S5- P2- 02  J. L. Chau, R. F. Woodman, and M. A. Milla  
Perpendicular and off-perpendicular to B observations of 150-km echoes: evidence of meridional modulation and structure

S5- P2- 03  E. A. Kherani, E. R. de Paula, and F. C. de Meneses Jr.  
The possible role of inter-hemispheric-field-aligned current for the
generation of 150-km echoes

Unexpected rapid decrease in phase velocity of sub-meter Farley-Buneman waves with altitude

EEJ features based on coherent radar soundings in the Brazilian sector

S5- P2- 06  R. Pfaff
Comparative in situ measurements of plasma instabilities in the equatorial and auroral electrojets

S5- P2- 07  G.C. Hussey, C. Meek, C. Haldoupis, A. Bourdillon, and J. Delloue
Neutral winds in the mid-latitude E-region as deduced from coherent backscatter radar plasma irregularity observations

Evidence of neutral wind drivers for quasi-periodic echo structures in sporadic E layers based on observations from St. Croix and Puerto Rico

S5- P2- 09  N. V. Rao, A. K. Patra, and S. V. B. Rao
Low altitude Quasi-Periodic (LQP) echoes studied using long term Gadanki radar observations

S5- P2- 10  S. P. Gupta
Differences in the nature of E-region irregularities at the magnetic equator and at 6°N of magnetic equator

S5- P2- 11  S. Shalimov and T. Ogawa
On possible mechanisms of altitude-extended field-aligned irregularities (FAI), associated with quasi-periodic (QP) radar echoes

S5- P2- 12  L. N. Lomidze and G. G. Didebulidze
Formation and behaviour of sporadic E layers under the influence of vortical-type perturbation excited in the horizontal shear flow

S5- P2- 13  C. Arras, J. Wickert, C. Jacobi, S. Heise, G. Beyerle, T. Schmidt, and M. Rothacher
Sporadic E layer climatology derived from CHAMP, GRACE and COSMIC radio occultations – initial results from GFZ Potsdam

S5- P2- 14  D. Kouba, P. Šauli, J. Boška, and O. Santolík
E-region ionospheric drift measurements during sporadic E-layer occurrence using Digisonde DPS-4

S5- P2- 15  D. V. Phanikumar, A. K. Patra, K. Kishorekumar, and G. Yellaiah
Seasonal variations of low-latitude sporadic-E and field aligned irregularities and their relation to sporadic meteor flux

S5- P2- 16  A. Malhotra, J. D. Mathews, and J. Urbina
Sporadic-E observations at Jicamarca?!

S5- P2- 17  Y. S. Dimant, and M. M. Oppenheim
Meteor plasma trails in E region: diffusion, electric fields, and ionospheric disturbances
S5- P2- 18  G. Sugar, M. Oppenheim, E. Bass, Y. Dimant, and J. Chau  
Meteor trails in the ionosphere: day/night and altitude differences

S6- P2- 19  F. C. de Meneses, P. Muralikrishna, and E. A. Kherani  
The simultaneous rocket observation of electron density and temperature inside the equatorial spread-F bubble and their numerical simulation

S6- P2- 20  L. Biktash  
The solar wind and geomagnetic storm effects on generation of the equatorial scintillation

S6- P2- 21  C. M. N. Candido, A. A. Pimenta, C. M. Wrasse, Y. Sahai, and F. Becker-Guedes  
Observation of MSTIDs in the Brazilian sector possibly associated with tropospheric disturbances at mid-latitudes

A study of the mean properties of equatorial ionospheric plasma depletion drift velocities determined from far-ultraviolet spacecraft observations

S6- P2- 23  J. D. Huba and G. Joyce  
Three-dimensional equatorial Spread F modeling

S6- P2- 24  M. Ishii, T. Maruyama, and I. Kimura  
Characteristics of anomaly of HF radio wave arrival direction observed near the evening terminator

S6- P2- 25  A. T. Karpachev  
Peculiar properties of the topside ionograms at the equatorial latitudes

S6- P2- 26  L. Liu, M. He, W. Wan, and M.-L. Zhang  
An analysis of the lower topside ionospheric scale heights based on the electron density profile retrieved from FORMOSAT/COSMIC radio occultation measurements

S6- P2- 27  C. Martinis, J. Baumgardner and M. Mendillo  
The Simultaneous occurrence of airglow structures associated with ESF and MSTIDs in the Southern Hemisphere

S6- P2- 28  T. Maruyama, S. Saito, M. Kawamura and K. Nozaki  
Onsets of equatorial plasma bubble and ionosphere-thermosphere system

S6- P2- 29  M. Mascarenhas, E. A. Kherani, J. H. A. Sobral and E.R. de Paula  
Dynamical simulation of electromagnetic Spread F

Can equatorial Spread-F (ESF) occur on other planets?

S6- P2- 31  H. Nakata, Y. Kinoshita, Y. Otsuka, T. Takano, S. Shimakura, K. Shiokawa and T. Ogawa  
Reception of TV broadcast radio waves associated with equatorial plasma bubbles
M. Nishioka, A. Saito and T. Tsugawa  
**Occurrence characteristics of plasma bubble studied with global ground-based GPS receiver networks**

J. Park, C. Stolle, H. Luhr and M. Rother  
**Magnetic signatures of plasma blobs as observed by the CHAMP satellite**

A. A. Pimenta, C. M. N. Candido, D. C. M. Amorim, Y. Sahai, J. A. Bittencourt, P. R. Fagundes, and D. Gobbi  
**Relevant aspects of thermospheric dark band structures observed by ground-based optical and radio techniques over the Brazilian low-latitude sector under different solar activity conditions**

H. Pinedo, J. L. Chau, and D. L. Hysell  
**Using JULIA long dataset to find preconditioning evidence of ESF in bottom-type layers**

L. Sidorova  
**Plasma bubbles in the topside ionosphere: high solar activity period**

S. Sripathi, S. Bose, and A. Bhattacharyya  
**Morphological study of equatorial plasma bubbles using GPS L-band scintillations over Indian region**

D. Tiwari, B. Kakad, S. Sripathi, T.K. Pant, and A. Bhattacharyya  
**Magnetic activity effects on ESF irregularities: case studies**

S. Vadas and H. Liu  
**Neutral and Plasma variability in the F region from the dissipation of gravity waves from convection**

J.A. Whalen  
**Temporal and spatial regularities in the post-sunset equatorial anomaly, and their significance to scintillation**

20:00  
**END OF POSTER SESSION**

20:00  
**END OF DAY (Tuesday May 20)**
WEDNESDAY MAY 21, 2008

FULL DAY EXCURSION

PROGRAM

Group A

08:45  Start from the Hotel
09:30 –11:30  Visit Minoan Palace at Malia, and Kremasta Monasteri near Neapolis
12:00  Meet with group B at Elounda

Group B (morning tour is longer and more tiring)

08:30  Start from the Hotel
09:30 – 11:00  Visit Lasithi Plateau and Dikteon Andron
12:00  Meet with group A at Elounda

Group A and B

12:00 – 14:00  Boat trip to Spinaloga Island
14:00 – 16:00  Lunch at tavernas by the sea at the village of Plaka
16:00 – 17:00  Return by boat to Agios Nikolaos and spend there an hour
19:00  Arrive back to the Hotel
19:00  END OF DAY (Wednesday May 21)
THURSDAY MAY 22, 2008

SESSION S7  
IONOSPHERIC ELECTRODYNAMICS: THEORY AND NUMERICAL MODELING

Conveners  
C. Fesen, J. Huba, and T. Fuller-Rowell

CHAIR  
CASSANDRA FESEN

08:00 – 08:15  
V. Vasyliūnas and P. Song  
Do electric fields drive ionospheric plasma flows?

08:15 – 08:30  
J. D. Huba (Invited)  
Electrodynamics of the thermosphere-ionosphere-magnetosphere system

08:30 – 08:45  
M. Mendillo, H. Rishbeth, R. Roble, J. Wroten, and B. Foster (Invited)  
Approaches to the study of non-electrodynamical sources of ionospheric variability at equatorial and low latitudes

08:45 – 09:00  
C. H. Lin, A. D. Richmond, G. J. Bailey, and J. Y. Liu (Invited)  
Redistribution of the low-latitude ionospheric plasma structure during a major magnetic storm

09:00 – 09:15  
Low latitude storm time electric fields and their role in the coupled thermosphere-ionosphere-plasmasphere system

09:15 – 09:30  
M.V. Klimenko, V.V. Klimenko, and V.V. Bryukhanov  
Ionosphere electrodynamics and its influence on the equatorial anomalies

09:30 – 09:45  
J. Uemoto, T. Ono, T. Maruyama, S. Saito, M. Iizima, and A. Kumamoto  
Observations and model calculations of stratification of the F2 layer in the equatorial ionosphere

09:45 – 10:00  
N. Balan, H. Alleyne, S. V. Thampi, K. Lynn, Y. Otsuka, B. G. Fejer, and M. A. Abdu  
F3 layer during penetration electric field

10:00 – 10:30  
COFFEE BREAK

CHAIR  
JOE HUBA

10:30 – 10:45  
X. Pi, V. Akopian, A. Komjathy, B. D. Wilson, A. J. Mannucci, B. A. Ijima, and M. A. Dumett  
Modeling low-latitude ionosphere using GAIM assimilating GPS data
<table>
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<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>10:45 – 11:00</td>
<td>M. C. Kelley, J. Retterer, O. de La Beaujardière, and H. Kil</td>
<td>Assimilation of ROCSAT equatorial electric field data into the AFRL C/NOFS model</td>
</tr>
<tr>
<td>11:00 – 11:15</td>
<td>P. Alken and S. Maus</td>
<td>Estimating electric fields in the equatorial ionosphere from CHAMP observations</td>
</tr>
<tr>
<td>11:15 – 11:30</td>
<td>D. Anderson, E. Araujo-Pradere, A. Anghel, K. Yumoto, A. Bhattacharrya, M. Hagan, A. Maute, and L. Scherliess</td>
<td>Quantifying the daytime, equatorial ExB drift velocities associated with the 4-cell, non-migrating tidal structure</td>
</tr>
<tr>
<td>11:30 – 11:45</td>
<td>W. Wan, J. Xiong, L. Liu, M.-L. Zhang, F. Ding, and B. Ning</td>
<td>Diurnal, seasonal and solar cycle variations of the longitudinal wavenumber-4 patterns at low latitude ionosphere</td>
</tr>
<tr>
<td>11:45 – 12:00</td>
<td>T. W. Fang, A. D. Richmond, H. Kil, G. Millward, and J. Y. Liu</td>
<td>Model simulation of longitudinal density structure in the equatorial ionosphere</td>
</tr>
<tr>
<td>12:00 – 12:15</td>
<td>H. Kil, S.–J. Oh, and L. J. Paxton</td>
<td>The effect of the daytime ExB drift, interhemispheric winds, and pre-reversal enhancement on the formation of longitudinal density structure</td>
</tr>
<tr>
<td>12:15 – 12:30</td>
<td>T. Böninger, E. N. Ermakova, and C. Haldoupis</td>
<td>Search for magnetic inclination effects at low latitude in the spectral resonance structures of the ionospheric Alfvén resonator</td>
</tr>
<tr>
<td>12:30 – 14:00</td>
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<td>END OF SESSION</td>
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</table>

**Session S8 COUPLING PROCESSES AT LOW- AND MID-LATITUDES**

**Conveners**
M. Larsen, K. Shiokawa, and R. Cosgrove

**Chair**
MIGUEL LARSEN

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>14:00 – 14:15</td>
<td>H. Lühr and P. Ritter (Invited)</td>
<td>Response of the low-latitude ionosphere-thermosphere system to high-latitude activity</td>
</tr>
<tr>
<td>14:27 – 14:39</td>
<td>J. Meriwether, M. Faivre, C. Fesen, and O. Veliz</td>
<td>New results on equatorial thermospheric dynamics and the midnight temperature maximum</td>
</tr>
<tr>
<td>14:39 – 14:51</td>
<td>C. G. Fesen, R. G. Roble, and H. Liu</td>
<td>Simulations of the midnight temperature maximum with the NCAR TIME-GCM</td>
</tr>
</tbody>
</table>
14:51 – 15:03  
**T. K. Ramkumar**  
*Equatorial mesospheric planetary wave signatures in the equatorial electrojet*

15:03 – 15:18  
**S. Vadas** (Invited)  
*Penetration of gravity waves into the F region from the lower atmosphere at low and mid latitudes*

15:18 – 15:30  
**D. C. Fritts, and SpreadFEx colleagues**  
*Indications of gravity wave scales, amplitudes, and influences in the thermosphere and ionosphere from the Spread F Experiment (SpreadFEx)*

15:30 – 15:42  
**R. L. Bishop and P. Straus**  
*Equatorial and mid-latitude scintillation initiated from tropical storms, hurricanes, and typhoons*

15:42 – 15:54  
**C. Arras, J. Wickert, C. Jacobi, S. Heise, G. Beyerle, T. Schmidt, and M. Rothacher**  
*Semidiurnal tidal signature in sporadic E occurrence rates derived from GPS radio occultation measurements at mid-latitudes*

15:54 – 16:24  
**COFFEE BREAK**

**Chair**  
**KAZUO SHIOKAWA**

16:24 - 16:36  
**R. Cosgrove**  
*Neutral wind, sporadic E layer, and F layer coupling in the nighttime mid-latitude ionosphere*

16:36 - 16:48  
**J. Younger, I.M. Reid, and R.A. Vincent**  
*Observations of meteor trail diffusion using VHF radar*

16:48 – 17:00  
**J. D. Mathews, D. Livneh, I. Seker, F. T. Djuth**  
*Quasi-Periodic F-region MSTIDs at Arecibo: a magnetospheric link?*

17:00 – 17:12  
**J. Urbina, E. Kudeki, S. Franke, and R. Pfaff**  
*Analysis of meter-scale E-region plasma density irregularities from North Carolina and Puerto Rico*

17:12 – 17:24  
**R. Pfaff, C. Liebrecht, J. Urbina, and E. Kudeki**  
*Daytime observations of mid-latitude Sporadic-E and QP radar echoes*

17:24 – 17:36  
**G. Swenson and A. Liu**  
*Large amplitude waves at mid and low-latitude mesosphere; a summary of observations*

17:36 – 17:48  
**B. Martinis, M. Mendillo, and J. Baumgardner**  
*Unusual 630.0 nm airglow variations at midlatitudes*

17:48 – 18:04  
*Transient luminous events as lightning effects in the lower ionosphere: Recent progresses by ISUAL measurements on FORMOSAT-2 satellite*
*Particle simulations of optical emissions in sprite streamers*

*Investigations of effects of infrasound on the ionosphere*

18:30  END OF SESSION

**Poster P3**  
**Posters for Sessions S7 and S8**

Conveners  
C. Fesen and M. Larsen

Time:  
All day Thursday and Friday, May 22-23

Author Attendance:  
Coffee breaks, 13:00 – 14:00 and 19:00 to 20:00

**Poster Chair**  
**Russel Cosgrove and Tatsuro Yokoyama**

S7- P3- 01  
M. V. Klimenko, V. V. Klimenko, V. V. Bryukhanov  
*The behavior of the TEC and equatorial electrojet during April 8, 2005 solar eclipse*

S7- P3- 02  
M. V. Klimenko, V. V. Klimenko, V. V. Bryukhanov  
*Effects of substorms with different moments of the beginning in equatorial electrojet and parameters of F-region of Equatorial Ionosphere*

S7- P3- 03  
A. A. Namgaladze, M. V. Klimenko, V. V. Klimenko, I. E. Zakharenkova  
*Forming of the ionospheric precursors of the earthquakes by zonal electric field*

S7- P3- 04  
A. B. Rabiu  
*Comparative study of some parameters of equatorial electrojet in West African and Indian sectors*

S8- P3- 05  
H. Lühr, M. Rother, K. Häusler, P. Alken and S. Maus  
*The effect of non-migrating tides on the equatorial electrojet*

S8- P3- 06  
T. Yokoyama, Y. Otsuka, M. Yamamoto, and D. L. Hysell  
*Study on the Perkins instability by E-F coupled three-dimensional simulation model*

S8- P3- 07  
W. E. Swartz, M. C. Kelley, and N. Aponte  
*E and F region coupling between an intense sporadic E layer, an MSTID, and a neutral atom layer*

S8- P3- 08  
*Perspectives of electrostatic coupling on various manifestations of low-latitude E and F region irregularities related to equatorial plasma bubble studied in the Indian sector*
S8- P3- 09  
P. A. Bernhardt, J. Werne, and M. F. Larsen  
_Simulations of strong wind shears in the mesosphere and their effects on structure of the E-Layer_

S8- P3- 10  
T. Ogawa, N. Nishitani, Y. Otsuka, K. Shiokawa, T. Tsugawa, and A. Saito  
_E- and F-region coupling revealed by nighttime MSTID and sporadic E layer observations with the mid-latitude SuperDARN Hokkaido radar_

S8- P3- 11  
S. Shalimov, T. Ogawa, and Y. Otsuka  
_On the instability of sporadic E layer formation under vortical neutral wind motion at mid-latitude_

S8- P3- 12  
T. Sindelarova, D. Buresova, and J. Chum  
_Observations of acoustic-gravity waves in the ionosphere generated by severe tropospheric weather_

S8- P3- 13  
N. Christakis, C. Haldoupis, Q. Zhou, and C. Meek  
_Variability and descent of mid-latitude sporadic E layers at Arecibo_

S8- P3- 14  
S. Watanabe, H. Liu, and M-Y. Yamamoto  
_Ionosphere-thermosphere coupling in low latitude region_

S8- P3- 15  
_Inter-annual and long-term variations observed in the ITM system_

S8- P3- 16  
S. Sripathi, S. Bose, D. Tiwari, and A. Bhattacharyya  
_On the linking of large-scale wave like modulations in the TEC to the EEJ strength over India: Is it due to planetary scale waves?_

S8- P3- 17  
J. Xiong, W. Wan  
_The 7-day planetary wave oscillations in the ionosphere and MLT revealed by TEC, UKMO and AURA_

S8- P3- 18  
E. Pacheco and R. Heelis  
_Variability of vertical drifts during storm-times at equatorial latitudes_

S8- P3- 19  
L. Bankov, M. Parrot, R. Heelis, J-J. Berthelier, and A. Vassileva  
_Longitudinal signatures of tidal influence on topside ionosphere at low latitudes by means of DEMETER and DMSP-f15 data_

S8- P3- 20  
E. Astafyeva, K. Heki, E. Afraimovich, V. Kiryushkin, and S. Shalimov  
_Evolution of ionospheric disturbances generated by large earthquakes_

S8- P3- 21  
N. Ambrosiadi, C. Haldoupis, and A. Mika  
_More observations for testing the relationship between Sprites and subionospheric Early VLF signal perturbations_

S8- P3- 22  
E. A. Kherani, P. Lognonne, H. Herbert, and G. Occhipinti  
_The Sumatra tsunami induced ionospheric signatures from the CHAMP satellite: a manifestation of atmosphere-ionosphere coupling via acoustic-gravity waves_

S8- P3- 23  
M. Devi , A. K. Barbara , Yu. Ruzhin , A. Depueva , V. Depuev  
_Role of equatorial anomaly in assertion of low latitude earthquake_
perturbations on ionosphere

20:00         END OF POSTER SESSION
20:00 – 23:30  GALA DINNER – Aldemar Knossos Hotel
23:30         END OF DAY (Thursday May 22)
FRIDAY MAY 23, 2008

SESSION S9

NEW TECHNIQUES, EXPERIMENTS, CAMPAIGNS, AND RESULTS

Conveners
D. Hysell, J. Clemmons, and M. Mila

CHAIR
DAVE HYSELL

08:00 – 08:15
The new C/NOFS neutral wind instruments: laboratory and flight validation results

08:15 – 08:30
C. Coker, K. F. Dymond, S. A. Budzien and D. Chua
COSMIC observations of the equatorial ionosphere

08:30 – 08:45
J. Comberiate and L. J. Paxton
Coordinated UV imaging of equatorial plasma bubbles using TIMED/GUVI and DMSP/SSUSI

08:45 – 09:00
K. S. Kalogerakis, T. G. Slanger, and E. A. Kendall
Remote oxygen sensing by ionospheric excitation (ROSIE)

09:10 – 09:15
Space-based studies of low-latitude ionospheric forcing originating in the lower atmosphere

09:15 – 09:30
Effects of non-ideal biased grids on geophysical parameters obtained from RPA data

09:30 – 09:45
A. Saito and IMAP working group
Plan of imaging observation of the mesosphere, ionosphere, and plasmasphere by ISS-IMAP mission

09:45 – 10:00
C. E. Valladares, J. L. Chau, J. V. Eccles, and R. F. Woodman
The Low-latitude Ionospheric Sensor Network (LISN)

10:00 – 10:30
COFFEE BREAK

CHAIR
JIM CLEMMONS

10:30 – 10:45
M. Milla and E. Kudeki
Modeling the incoherent scatter radar spectrum perpendicular to \( \vec{B} \)

10:45 – 11:00
D. L. Hysell, F. S. Rodrigues, J. L. Chau, and J. D. Huba
Full profile incoherent scatter analysis at Jicamarca

11:00 – 11:15
P. Reyes, M. Milla, and E. Kudeki
Incoherent scatter measurements of F-region temperatures with the Jicamarca radar beam pointing perpendicular to \( B \)
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title / Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 – 11:45</td>
<td>C. L. Siefring and P. A. Bernhardt</td>
<td>First results on studies of the low latitude ionosphere with the CITRIS beacon receiver on STPSAT1</td>
</tr>
<tr>
<td>11:45 – 12:00</td>
<td>J. J. Makela, J. W. Meriwether, E. S. Miller, and S. J. Armstrong (Invited)</td>
<td>New optical experiments for studying equatorial irregularities</td>
</tr>
<tr>
<td>12:00 – 12:15</td>
<td>G. Swenson, C. Carlson, L. Waldrop, and P. Dragic</td>
<td>A thermospheric lidar for He 1083 nm, density and Doppler measurements</td>
</tr>
<tr>
<td>12:30 – 13:50</td>
<td>LUNCH BREAK</td>
<td></td>
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<tr>
<td><strong>SESSION S10</strong></td>
<td><strong>IONOSPHERIC STORMS AND SPACE WEATHER EFFECTS</strong></td>
<td></td>
</tr>
<tr>
<td>14:00 – 14:15</td>
<td>J. C. Foster (Invited)</td>
<td>Ionospheric storm fronts at low and mid latitudes</td>
</tr>
<tr>
<td>14:15 – 14:30</td>
<td>E. Astafyeva</td>
<td>Ionosphere TEC response to geomagnetic storms: seasonal and longitudinal features</td>
</tr>
<tr>
<td>14:30 – 14:45</td>
<td>L. Biktash, T. Maruyama, and K. Nozaki</td>
<td>The solar wind control of the equatorial ionosphere dynamics during geomagnetic storms</td>
</tr>
<tr>
<td>14:45 – 15:00</td>
<td>Y.O. Migoya Orué, S. M. Radicella and P. Coïsson</td>
<td>Low latitude ionospheric effects of major geomagnetic storms observed using TOPEX TEC data</td>
</tr>
<tr>
<td>15:00 – 15:15</td>
<td>Y. Goi, A. Saito, M. Nishioka, T. Tsugawa</td>
<td>Vertical distribution of electron density derived from TEC data of the GRACE satellite and the ground-based GPS receivers at mid- and low-latitudes</td>
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<td>Time</td>
<td>Speaker(s)</td>
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<td>15:15 – 15:30</td>
<td>W. J. Burke (Invited)</td>
<td>Some Consequences of Stormtime, Global Energy Budgets</td>
</tr>
<tr>
<td>15:30 – 15:45</td>
<td>A. M. Hasbi, M. Alauddin Mohd Ali, N. Misran</td>
<td>Ionospheric and magnetic field effects observed during the 2005 geomagnetic storms in the South-East Asian sector</td>
</tr>
<tr>
<td>15:45 – 16:00</td>
<td>D. Buresova, J. Lastovicka, L-A. McKinnell, T. Sindelarova, and D. Novotna</td>
<td>A comparative analysis of mid-latitude storm-time ionospheric peak parameters variability</td>
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<tr>
<td>16:00 – 16:30</td>
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<td>COFFEE BREAK</td>
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<td></td>
<td>Chair</td>
<td>Larry Paxton</td>
</tr>
<tr>
<td>16:30 – 16:45</td>
<td>M. C. Kelley and J. Retterer</td>
<td>New insights into prompt penetrating electric fields</td>
</tr>
<tr>
<td>16:45 – 17:00</td>
<td>C. Manoj, S. Maus, and H. Lühr</td>
<td>On the relationship between interplanetary electric fields (IEF) and equatorial-electroject (EEJ).</td>
</tr>
<tr>
<td>17:00 – 17:15</td>
<td>A.H. Depueva, A.V. Mikhailov, and V.H. Depuev</td>
<td>Morphology of quiet-time F2-layer disturbances at geomagnetic equator</td>
</tr>
<tr>
<td>17:15 – 17:30</td>
<td>T. Tsugawa, K. Shiokawa, H. Hayashi, N. Nishitani, Y. Otsuka, T. Ogawa, J. Lei, and A. Saito (Invited)</td>
<td>Large-scale traveling ionospheric disturbances observed by GPS receiver networks</td>
</tr>
<tr>
<td>17:30 – 17:45</td>
<td>C. Borries, N. Jakowski, and V. Wilken</td>
<td>Large scale TIDs observed in GPS derived differential TEC</td>
</tr>
<tr>
<td>17:45 – 18:00</td>
<td>A.T. Karpachev</td>
<td>IGW and electric field effects in the topside equatorial ionosphere</td>
</tr>
<tr>
<td>18:00 – 18:15</td>
<td>I. Tsagouri, K. Koutroumbas and A. Belehaki</td>
<td>A new ionospheric forecast model assimilating solar wind data and ground based ionosonde observations</td>
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<tr>
<td>18:30</td>
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**Poster P4**

**Posters for Sessions S9 and S10**

**Conveners**: D. Hysell and R. Pfaff

**Time**: Full day Thursday and Friday, May 22-23
Author Attendance: During coffee breaks, 13:00-14:00, and from 19:00 to 20:00

POSTER CHAIR: **MARCO MILLA AND PABLO REYES**

**S9- P4- 01**

**M. Yamamoto**
New development of digital beacon receiver based on GNU Radio

**S9- P4- 02**

The vector electric field instrument on the C/NOFS satellite

**S9- P4- 03**

**J. Clemmons**
Paired ionosphere-thermosphere orbiters (PITO): A general-purpose science mission with high capability

**S9- P4- 04**

**P. A. Bernhardt**
The precision expandable radar calibration sphere (PERCS) for improvement of the HF radar accuracy

**S9- P4- 05**

**P. Muralikrishna**
A new nitric oxide detector with absorption cells driven by a fast cam system

**S9- P4- 06**

**D. Kouba, J. Lastovicka, J. Boska, D. Buresova, P. Sauli, and Z. Mosna**
GEO-6 project and Czech participation in

**S9- P4- 07**

Longitudinal variation of the low-latitude ionosphere observed by FORMOSAT-3/COSMIC

**S9- P4- 08**

**A. J. Gerrard and J. W. Meriwether**
Continual 24-hour observations of thermospheric winds and temperatures made with the Second-generation Optimized Fabry-Perot Doppler Imager (SOFDI)

**S9- P4- 09**

**F. R. Galindo, K. M. Kuyeng, J. L. Chau, and D. L. Hysell**
Evaluation of topside equatorial spread F spectra estimators using Monte Carlo simulations

**S9- P4- 10**

**A. Saito and D. Yoshida**
Dagik: Data-showcase system to browse multi aeronomy data in four-dimension

**S9- P4- 11**

**S. Hawlitschka**
Observing the spatial characteristics of TIDs with broadband HF direction finding

**S9- P4- 12**

**H. Haralambous, G. Dekoulis, and P. Vryonides**
Installation of an ionospheric station in Cyprus

**S9- P4- 13**

**H. Haralambous, A. Mahrous, P. Vryonides, and A. Shemis**
Monitoring of ionospheric weather over Cyprus and Egypt

**S9- P4- 14**

**S. M. Radicella, L. Ciraolo, M. Mosert, O. Abarca, B. Zolesi, M. Pezzopane, R. Ezquer, and M. Cabrera**
An unusual night time ionospheric phenomenon observed at Tucumán, Argentina, under quiet geomagnetic conditions

O. A. Oladipo, S. M. Radicella, and J. O. Adeniyi
Comparisons between the observed electron density profile at the equatorial station of Ilorin, Nigeria, and the IRI model

E. Silvestre, J. Valverde, P. Condor, O. Veliz, and C. Valladares
Total electron content over South America using LISN GPS data: 2007 climatology and special events

A. B. Rabiu, K. Groves, R. S. Fayose, and O. R. Bello
Ground observation of ionospheric scintillation and TEC within EEJ borders

P. Høeg, X. Yin, L. Olsen, and A. Carlström
Low elevation measurements of GPS ocean reflections

M. Le Huy, R. Fleury, P. L. Duchesne, A. Bourdillon, C. Amory-Mazaudier, T. N. Chien, and L. Tran Thi
Some results of the GPS Tec observations in the southeast Asian region

O. K. Obrou, M. N. Mene, A. T. Kobea, K. Z. Zaka, B. Ouattara, and K. Groves
Study of the Total Electron Content (TEC) at an equatorial station

J. Valverde, E. Silvestre, and C. Valladares
Inside LISN, an engineering perspective to its avant-garde conception

Rabiu, A. B., Yumoto, K., Adimula, I. A., Adeniyi, J. O., and MAGDAS/CPMN Project group
Some contributions of MAGDAS to the understanding of equatorial geomagnetic field behavior

R. Pfaff, C. Liebrecht, J.-J. Berthelier, M. Parrot, and J.-P. Lebreton
Irregularities at sub-auroral, middle, and low latitudes in the topside ionosphere observed during geomagnetic storms with the DEMETER and DMSP satellites

H. Kil and L. J. Paxton
Equatorial ionospheric disturbances during the October 29-31, 2003 storms

A.V. Mikhailov, V.H. Depuev, and T.Yu. Leschinskaya
Formation mechanism of quiet-time F2-layer disturbances at geomagnetic equator

N. Balan, H. Alleyne, Y. Otsuka, and B. G. Fejer
Relative effects of electric field and neutral wind on positive ionospheric storms

J. Boska, D. Buresova, D. Kouba, and P. Šauli
E and F region midlatitude ionospheric drifts observed during geomagnetic storms.

K. Schlegel, H. Luehr, M. Rother, and K. Yumoto
Night-time Sudden Commencements observed with CHAMP and Ground-based Magnetometers

M.M.J.L. van de Kamp and P. S. Cannon

Study of ionospheric scintillation using GPS signals measured at Ascension Island

S10- P4- 30

S. Sripathi, S. Bose, D. Tiwari, S. Banola, B. Kakad, A. Bhattacharyya, and T. K.Pant

Response of equatorial and low latitude ionosphere in Indian region during some severe geomagnetic storms: A study

20:00 END OF POSTER SESSION

20:00 END OF DAY (Friday May 23)
**Saturday May 24, 2008**

**Session S11**

**Where are we going? Outstanding questions, future trends and challenges**

Conveners: M. C. Kelley and E. Kudeki

**Chair:** Michael Kelley and Erhan Kudeki

08:00 – 08:20

**D. C. Fritts** (Invited)

*Atmospheric wave dynamics and their effects on the equatorial ionosphere: What do we know, what are the unknowns, and which are the important topics?*

08:20 – 08:40

**J. D. Mathews** (Invited)

*Meteor science and layering phenomena in the lower thermosphere. Is there anything that we lack in basic knowledge and how should we go about getting it?*

08:40 – 09:00

**J. L. Chau et al.** (Invited)

*What else can we learn with coherent scatter radars about E and F region irregularities that we don’t know? What else can we learn about ESF and midlatitude SF?*

09:00 – 09:20

**J.-P. St-Maurice** (Invited)

*What are the objectives/needs for new theoretical work on E and F region plasma instabilities and electrodynamics?*

09:20 – 09:40

**K. Shiokawa** (Invited)

*Optical investigation of the ionospheric and atmospheric dynamics. How can we learn something more that is significant?*

09:40 – 10:00

**M. F. Larsen** (Invited)

*Accuracy issues of the existing thermospheric wind models. Can we rely on them in seeking solutions to wind driven problems?*

10:20 – 10:30

Closing remarks

10:30

**End of session**

10:30 – 11:00

**Coffee break**

11:00

**End of ISEA-12**