Variability of the Sun and Its Terrestrial Impact (VarSITI)
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http://www.varsiti.org/

Vol. 5, May 2015

VarSITI Newsletter

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Project ISEST

Article 1:

Operational Space Weather Forecasting Services in National Space Science Center of China

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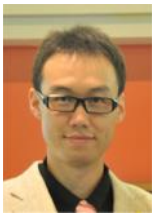
Siqing Liu


Bingxian Luo


Ercha Aa

The National Space Science Center (NSSC) was established in 1958 within the mandate to develop the first artificial satellite of China, the DFH-1. NSSC is China's gateway to space science and is the key institute responsible for planning, developing, launching, and operating China's space science satellite

Figure 1. Increasing needs for operational space weather services in China.

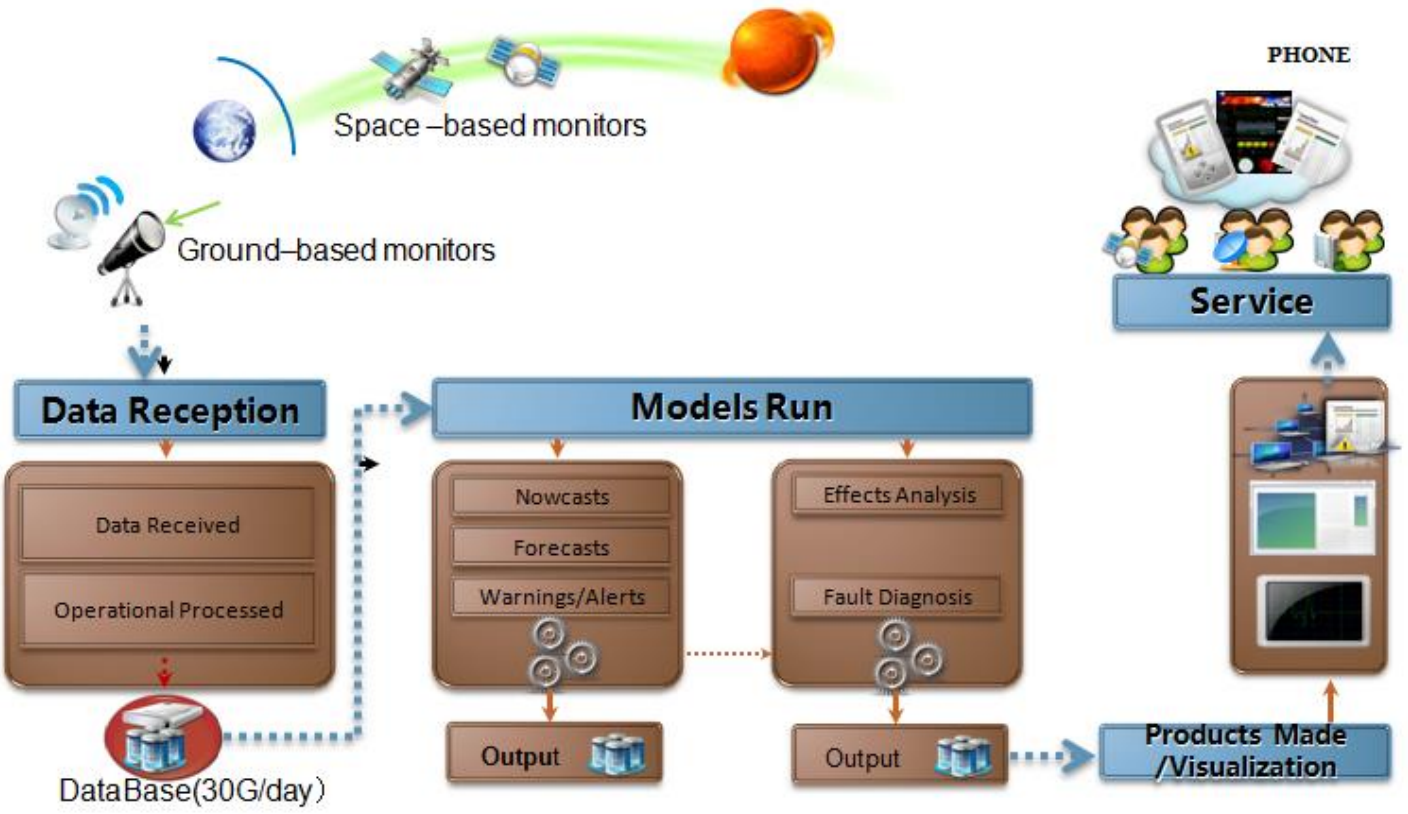


Figure 2. Framework of NSSC operational space weather forecasting services.

missions. With the development of space exploration mission in China, equally needed are the space weather forecasting services, which can greatly help to prevent or mitigate the risks caused by space environment disturbance or space debris collision. Therefore, one of the top tasks in NSSC is providing operational space weather forecasting services to fulfill the safety needs of national space mission and different space weather customers.

To meet the abovementioned space weather requirements, the Space Environment Prediction Center (SEPC) in NSSC was established in 1992, which became the first professional organization providing space weather services in China. The formal framework of operational space weather forecasting services was set up in 1998, since which time SEPC in NSSC has been issuing space weather prediction to the public 365 days/year and to customized users.

The aim of the operational forecasting services in SEPC/NSSC is to monitor, specify, and forecast space environment in order to provide timely, accurate, and reliable space weather services. The framework of the operational forecasting services can be divided into 4 parts: data reception, model running, products generating, and services delivery.

The space weather data used in forecasting services comes mainly from space-based and ground-based monitors. The space-based data is collected from both domestic meteorological satellites such as Fengyun series and applied satellites such as China Beidou navigation satellite system. The ground-based data are mainly from two monitoring networks in China. The first one is Space Environment Monitoring Network (SEMnet), which plays the role in supporting operational forecasting works in NSSC; the second one is Meridian Space Weather Monitoring Project, which is designed to supply data for space weather integrated modeling that will be translated into operational frameworks.

NSSC and other institutes have cooperatively engaged in developing operational models to analyze data and to provide accurate space weather specifications. Currently ten models have been applied to operational services, six in development stage, and two in a preliminary phase. The models can be put into operation and applied to the services for China's space mission as soon as successful development.

Figure 3. Space Environment Monitoring Network (upper right); Page-view of SEPC/NSSC Website for services delivery (upper left); Meridian Space Weather Monitoring Project (lower right); operational space weather models in NSSC (lower left).

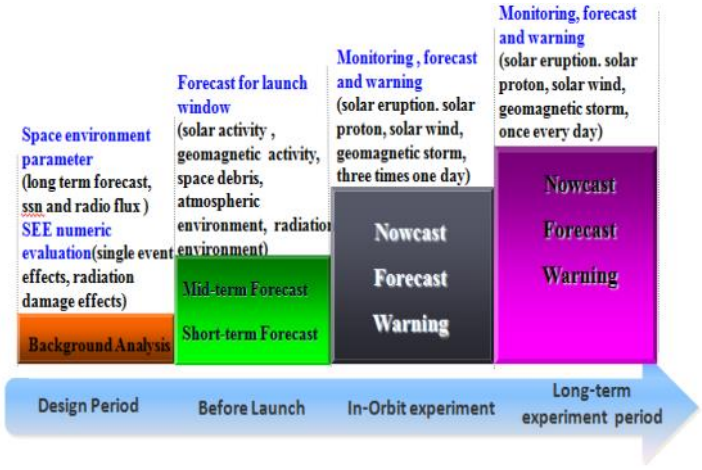


Figure 4. Space weather services for each stage of space missions in China.

The contents of space weather forecasting product include space weather event alerts, space weather parameters prediction, space environment effects evaluation, and space debris collision warning. The operational forecasting services are provided for general users and for special users. For general users, the above-mentioned operational forecasting products are delivered via the following approaches: SEPC/NSSC Website: http://eng.sepc.ac.cn, Text messages, Mobile Apps, and China's social-networking tools: Weibo and Wechat. For special users, SEPC/NSSC provides customer-tailored services according to their specific needs and delivering preference. Some of the typical users include China's manned space missions, China lunar explorations, and other satellite missions such as telecommunication or navigation satellites missions.

Project ROSMIC

Article 2:

Space and Atmospheric Communication and Informatics Research Group in Thailand

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Pornchai Supnithi


Prasert Kenpankho

Who are we?

In Thailand, there are a few research groups that mainly focus on the space and atmospheric research. The Space and Atmospheric Communication and Informatics Research Group is affiliated with King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand. This research group was founded with the goal of conducting experimental and analytical research in the space and atmospheric communication, signal processing and storage technology, to provide research opportunities for graduate and undergraduate students, and to demonstrate how research and development can solve the real world problems. Carrying out these objectives requires concentrating in the engineering and science expertise residing in the King Mongkut's Institute of Technology Ladkrabang (KMITL).

Figure 1. The Bangkok campus of KMITL.

What we research?

The Space and Atmospheric Communication and Informatics Research Group currently focuses on Satellite Communication, Ionospheric monitoring and data analysis in the equatorial region. We investigate the characteristics of ionospheric parameters such as foF2, h'F, foE, spread F, Sporadic E, and so on. The research targets are Total Electron Content (TEC) monitoring, TEC analysis, 2D TEC map on Thailand and ASEAN, scintillation, plasma bubble study, slant delay gradient analysis, and spherical harmonics model (SHM) and Neural Network (NN) model.

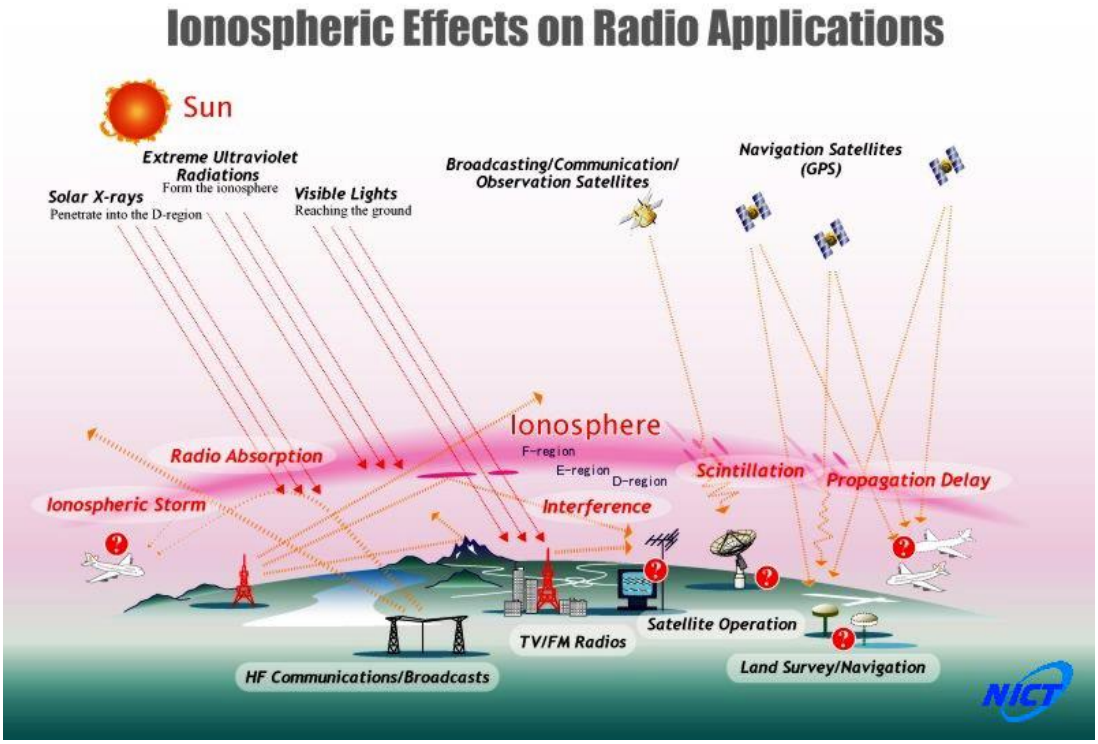

Figure 2. Effects of Ionosphere on Communication and Navigation (credit: http://wdc.nict.go.jp/IONO/index_E.html).

What we do?

We currently manages the Ionospheric Observation station in Chumphon, Thailand, as part of the SouthEast Asia Low-Latitude Ionospheric Observation Network (SEALION) initiated by NICT, Japan. Additionally, we operate a number of GNSS stations around Thailand and host the Ionospheric and GNSS data center in Thailand; it can be reached at the website http:/iono-gnss.kmitl.ac.th. We are also interested in the improvement of the International Reference Ionosphere (IRI) model as well as applications of ionospheric study such as in aeronautical navigation, better understanding of plasma bubble, effects on earthquake, scintillation and satellite communication.

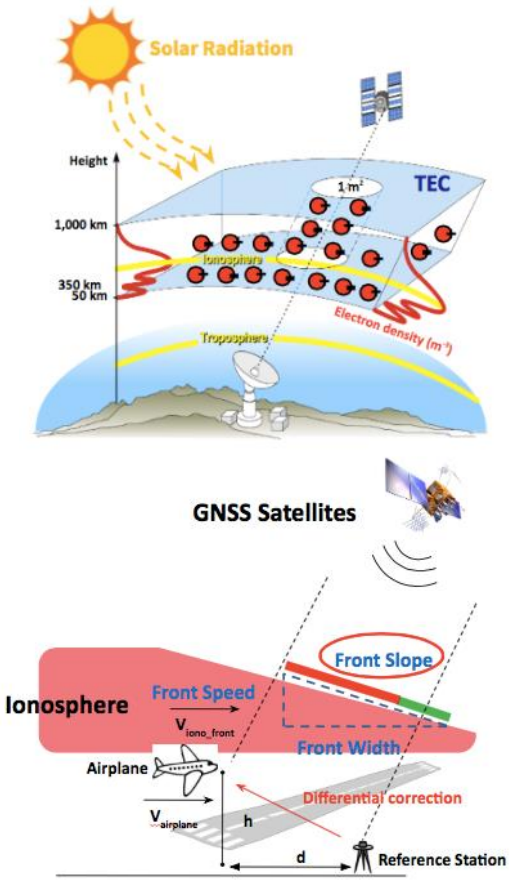

Figure 3. (Top) Total electron content (TEC). (Bottom) Delay gradient models.

Figure 4. International Reference Ionosphere (IRI) 2015 Workshop banner.

This year, KMITL will host the COSPAR Capacity-Building Workshop during 2-13 November, 2015. It consists of the Training session on Ionospheric Data Analysis during 2-6 November, 2015, and the IRI 2015 Workshop during 9-13 November, 2015. All international researchers and students are certainly welcome to participate in this event, and for further information, please go to http://www.iri2015.kmitl.ac.th.

Article 3:

Metadata database and data analysis software of the upper atmospheric data developed by the Inter-university Upper atmosphere Global Observation NETwork (IUGONET) project

Y. Tanaka[1, 2], A. Shinbori[3], Y. Koyama[4], S. Abe[5], N. Umemura[6], M. Yagi[7], S. UeNo[8] and IUGONET project team

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[3]Research Institute for Sustainable Humanosphere, Kyoto University, Kyoto, Japan

[4]Transdisciplinary Research Integration Center, Research Organization of Information and Systems, Tokyo, Japan

[5]International Center for Space Weather Science and Education, Kyushu University, Fukuoka, Japan

[6]Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, Japan

[7]Planetary Plasma and Atmospheric Research Center, Tohoku University, Sendai, Japan

[8]Kwasan and Hida Observatories, Graduate School of Science, Kyoto University, Takayama, Japan


Yoshimasa Tanaka


Atsuki Shinbori


Yukinobu Koyama


Shuji Abe


Norio Umemura


Manabu Yagi


Satoru UeNo

The Variability of the Sun and Its Terrestrial Impact (VarSITI) program aims at understanding the current extremely low solar activity and its influence on the Earth for various time scales and locations. So, it is required to comprehensively analyze various types of data from multiple regions, such as solar surface, interplanetary space, Earth's magnetosphere, ionosphere, and atmosphere. However, such interdisciplinary studies are often tough because there are many difficulties in finding, getting, visualizing and eventually analyzing a variety of data set. Thus, it is important to develop the infrastructure such as database and integrated analysis software.

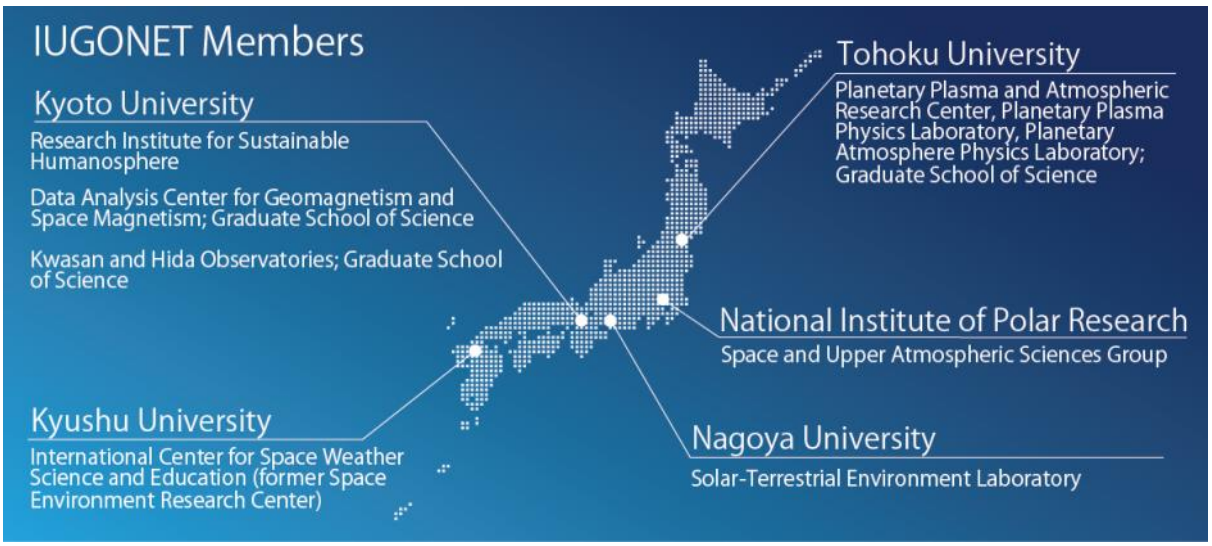

Figure 1. Japanese universities and institutes that belong to the IUGONET project. Details of the IUGONET project are available at http://www.iugonet.org/en/.

The Inter-university Upper atmosphere Global Observation NETwork (IUGONET) project has developed a metadata database and a data analysis software to facilitate the interdisciplinary studies. The IUGONET is an inter-university project by five Japanese universities and institutes (Tohoku University, Nagoya University, Kyoto University, Kyushu University, and the National Institute of Polar Research; see Figure 1) that have been developing a worldwide ground-based observation network of the upper atmosphere, Sun and planets (Figure 2).

The IUGONET metadata database is a system that enables cross-searching of data distributed across the members of IUGONET. Figure 3 shows a snapshot of the IUGONET metadata search page. The metadata database provides an easy-to-use interface for cross-searching the upper atmospheric data by specifying keywords, date and time, and location in geographic coordinates (or heliographic coordinates for solar data). Our metadata format was created on the basis of the metadata model developed by the Space Physics Archive Search and Extract (SPASE)

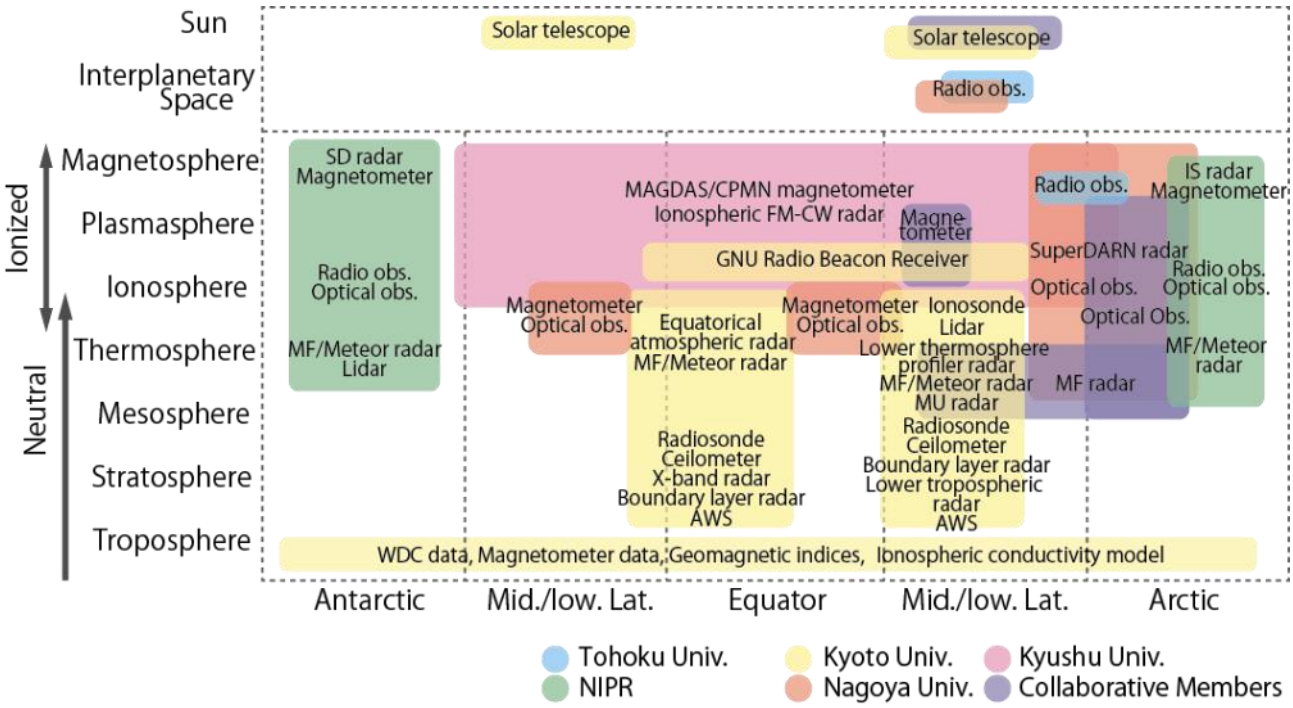

Figure 2. Ground-based observational network developed by the members of IUGONET.

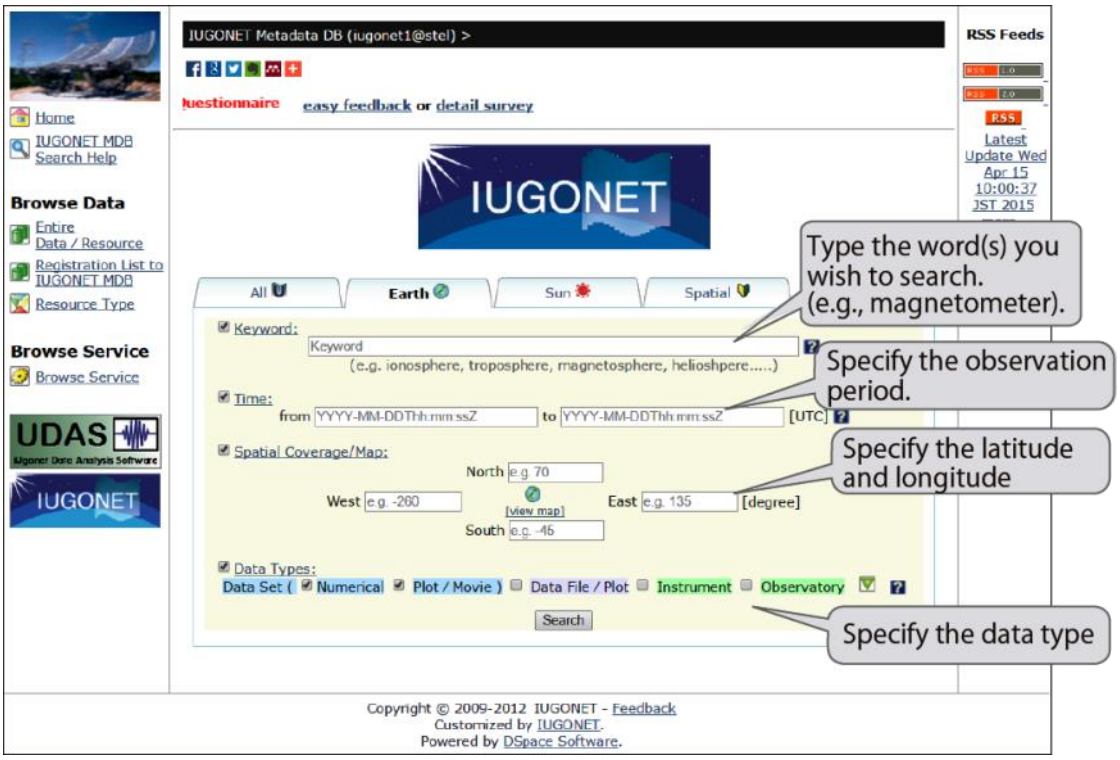

Figure 3. Snapshot of the IUGONET metadata search page (http://search.iugonet.org/iugonet/).

Consortium and was modified to suit data from ground-based upper atmospheric and solar observations.

The iUgonet Data Analysis Software (UDAS) is a plug-in software for the Space Physics Environment Data Analysis System (SPEDAS; formerly known as TDAS), which is an open-source data analysis tool developed by the THEMIS Science Support Team and other contributors using Interactive Data Language (IDL). The SPEDAS can download a variety of ground-based and satellite observation data from remote web servers via the Internet without specifying the data's location and easily visualize them. Figure 4 shows various kinds of data during the magnetic storm of March 17-18, 2015, plotted by the SPEDAS. You can make this kind of plot by only a few commands. In addition to the command line interface, a graphical user interface (GUI) is also available to those new to the SPEDAS. We have provided many routines to load the ground-based observational data from various types of instruments, including solar telescope, solar radio telescope, ionosphere radars (e.g., SuperDARN radars, EISCAT radar, ionosondes), atmosphere radars (e.g., MU radar, Equatorial Atmosphere Radar), imagers, magnetometers, and so on. The SPEDAS also includes a plug-in tool from a Japanese satellite mission, Energization and Radiation in Geospace (ERG), which will explore the dynamics of the radiation belts in the Earth's inner magnetosphere. Therefore, our tools will be useful for projects of the VarSITI, in particular, Specification and Prediction of the Coupled Inner-Magnetospheric Environments (SPeCIMEN) and Role Of the Sun and Middle atmosphere/thermosphere/ionosphere in Climate (ROSMIC).

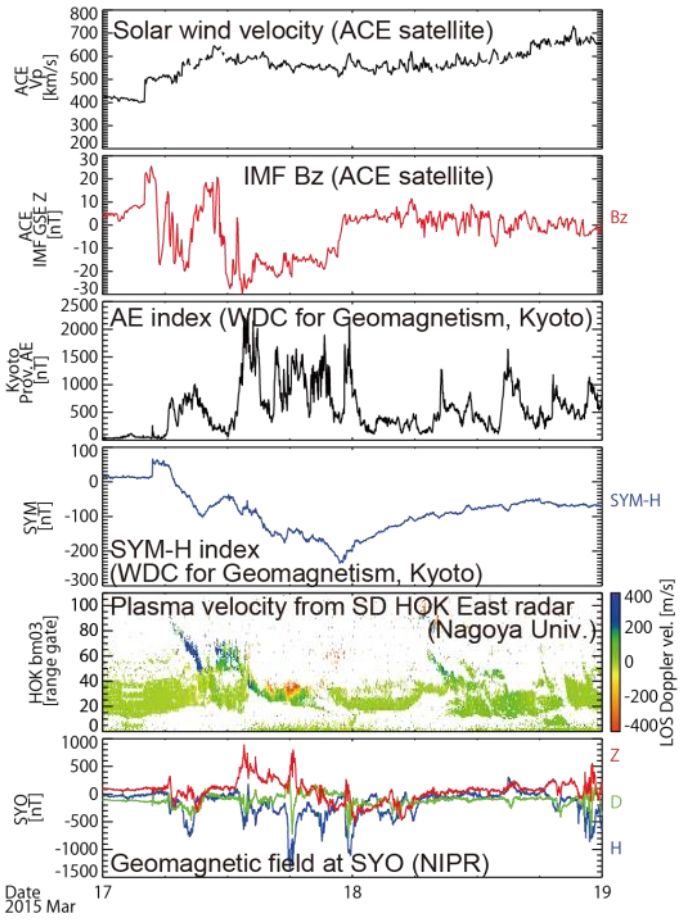

Figure 4. Satellite and ground-based observation data during the magnetic storm of March 17-18, 2015, plotted by using SPEDAS with the UDAS plug-in. The latest version of UDAS is available at http://www.iugonet.org/en/software.html.

Acknowledgments

The IUGONET project was supported by the Special Educational Research Budget (Research Promotion) [FY2009] and the Special Budget (Project) [FY2010-2014] from the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. We want to thank the NASA National Space Science Data Center, the Space Physics Data Facility, and the ACE Principal Investigator, Edward C. Stone of the California Institute of Technology, for usage of ACE data. SuperDARN radar data in CDF are distributed by ERG project science center (ERG-SC) at Solar-Terrestrial Environment Laboratory, Nagoya University, in collaboration with SuperDARN PI groups.

Highlight on Young Scientists 1:

Modeling large-scale magnetic fields and flows in the solar convection zone using MHD simulations

Bidya Binay Karak
Nordic Institute for Theoretical Physics, Nordita, Stockholm, Sweden

Bidya Binay Karak

My primary research interest is to understand the origin of the solar and stellar magnetic fields and their variations using dynamo models.

During my PhD period (2009-2013), I was involved in studying the features of irregular solar cycle using the flux transport dynamo model. A major portion of

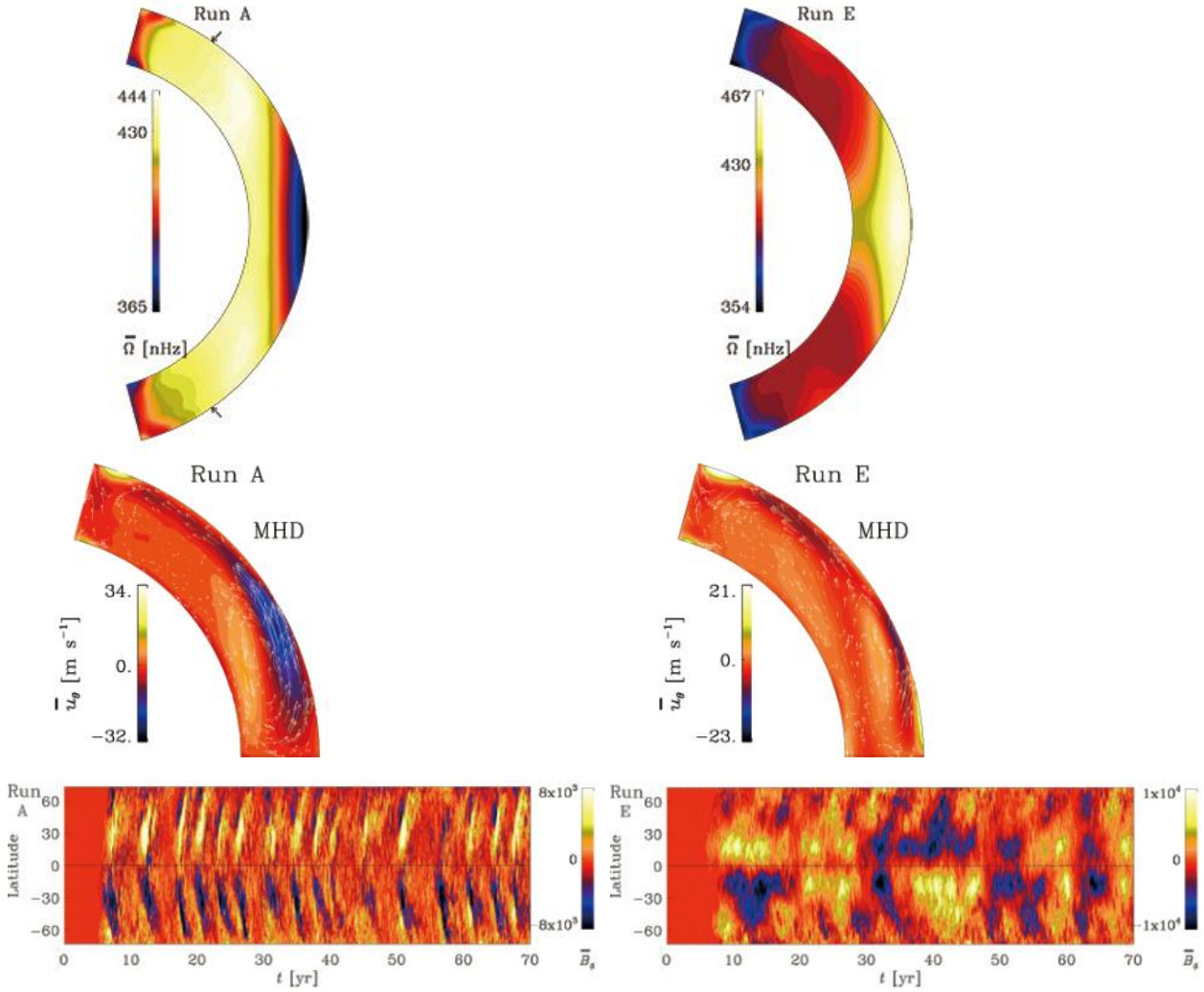

Figure 1. Results from two different global MHD convection simulations—Run A (left panels) and Run E (right panels). These two simulations are same except Run E is more rotation dominated than Run A. Top: Angular velocity in the meridional plan. Note that Run A produces anti-solar differential rotation whereas Run E produces solar-like rotation. Middle: Meridional circulation. The arrows show the direction of flow and the background colour shows the speed of the latitudinal motion. Run A produces single-cell flow whereas Run E produces multi-cell circulation. Lower: The magnetic butterfly diagram—the toroidal component of the magnetic field at the bottom of the convection zone from these two simulations as a function of latitide and time.

my thesis[1] was devoted to understand the origin of grand minima such as the Maunder minimum. Using a flux transport dynamo model, we have shown that the fluctuations in the Babcock-Leighton process and the meridional circulation can produce grand minima. With suitable assumptions we have also reproduced the correct frequency of occurence of grand minima in the past[2].

After my PhD period, I received Nordita fellowship and started working on 3D model of turbulence and global convections in stellar convection zone. We solve the full hydromagnetic equations numerically in a rotating spherical shell. As the flow is the driver for the dynamo action, we first modeled the differential rotations of solar-like stars. For Sun we know that the equator rotates faster than the poles—called the solar-like rotation. However the anti-solar differential rotation—the equator rotates slower than poles—is also observed in slowly rotating stars. In a recent work[3], we explore at what conditions a star produces solar or anti-solar rotation. Figure 1 shows the summary of this study. Usually in rotationally dominated convections, we observe solar-like differential rotation and the dynamo generated magnetic field helps to produce more solar -like rotation compare to the hydrodynamic case.

References

[1]Karak, B. B. PhD Thesis, Indian Institute of Science

[2]Choudhuri, A. R., & Karak, B. B. 2012, Physical Review Letters, 109, 171103

[3]Karak, B. B., Kapyla, P., Kapyla, M. J. Brandenburg, A., Olspert, N. & Pelt, J. 2015, Astronomy & Astrophysics, 576, 26

Project ROSMIC

Highlight on Young Scientists 2:

Application of Taiwan Ionospheric Model (TWIM) in Single-Frequency GPS Positioning

Ernest P. Macalalad

Ernest P. Macalalad
Ionosphere Sounding Laboratory, Center for Space and Remote Sensing Research
National Central University, Jhongli, Taiwan

My research deals with the measurement and modeling of the ionosphere using various radio sounding technologies, and its application to radio wave propagation.

During my dissertation, I did some work on the application of the TaiWan Ionosphere Model

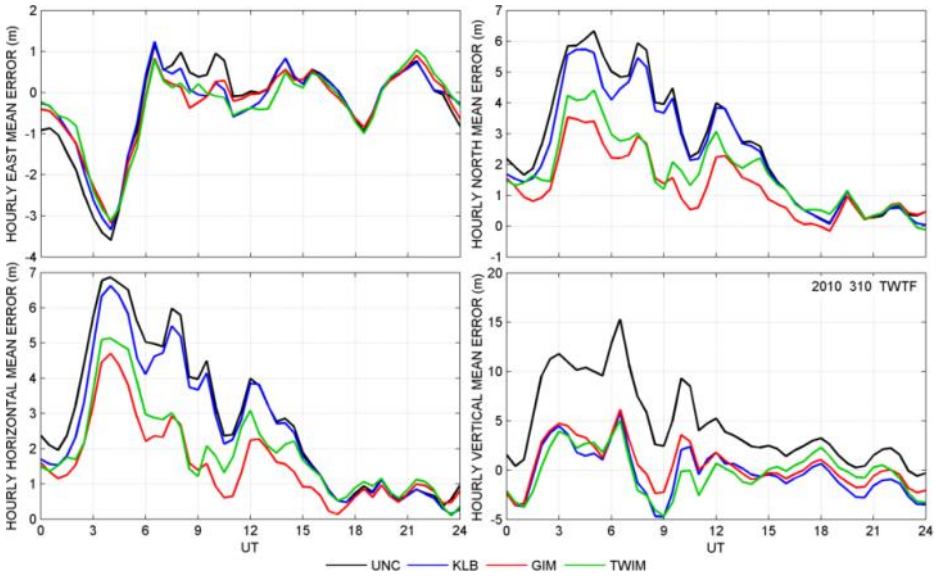

Figure 1. An example of diurnal variation of east (top-left), north (top-right), horizontal (bottom-left), and vertical (bottom-right) errors at station TWTF for DOY 310, Year 2010 using stand-alone positioning.

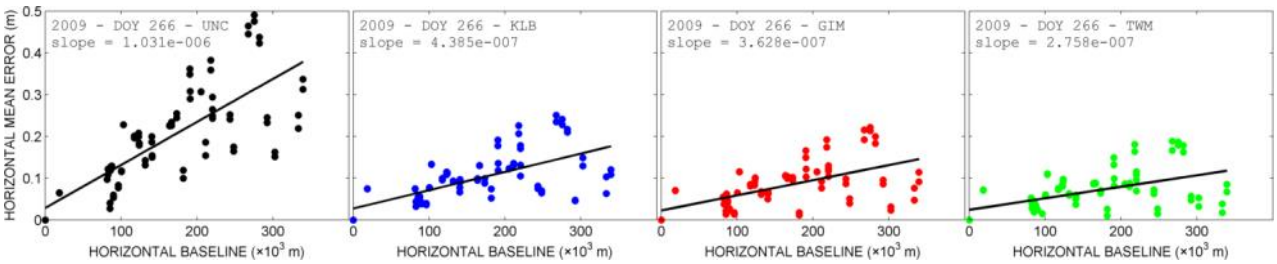

Figure 2. Scatter plot of the horizontal mean error versus baseline vector without differential ionospheric correction UNC (col 1) and with differential ionospheric corrections using KLB (col 2), GIM (col 3), and TWIM (col 4) for DOY 266 of 2009 using differential positioning.

(TWIM), a three-dimensional ionospheric electron density model derived from FormoSat3/COSMIC GPS Radio Occultation measurements, in providing ionospheric corrections to single-frequency GPS receiver using both stand-alone and differential positioning. Its positioning performance is compared with positioning results using other ionospheric models, such as the Klobuchar (KLOB) and the global ionospheric model (GIM). TWIM performs very well and can provide meter-to-decimeter and decimeter-to-centimeter level accuracy using stand-alone and differential positioning algorithms, respectively. Its results are very comparable with the results using GIM while KLOB showed to be the least accurate model. The similarity of the performance of TWIM and GIM demonstrates the applicability of TWIM in providing quality electron density and electron density gradients, which can be extended to other geodetic and space science applications.

Currently for my postdoctoral work, I use a vertical and oblique VIPIR ionosonde in Taiwan. With its capability of providing amplitude and phase information of ionospheric echoes, we could observe ionospheric irregularities associated with equatorial and low latitude spread F and study their properties such as echo location, angle of arrival, and Doppler velocity.

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Macalalad, E.P., L.C. Tsai, J. Wu, C.H. Liu, " Application of the TaiWan Ionospheric Model to single-frequency ionospheric delay corrections for GPS positioning", GPS Solutions, 17(3), DOI 10.1007/s10291-012-0282-8. 2013

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Project ISEST/ROSMIC

Meeting Report 1:

International School on Equatorial and Low-Latitude Ionosphere (ISELION)

C. Y. Yatini[1] and K. Shiokawa[2]
[1]Space Science Center, National Institute of Aeronautics and Space of Indonesia (LAPAN), Bandung, Indonesia
[2]Solar–Terrestrial Environment Laboratory, Nagoya University, Nagoya, Japan


Clara Y. Yatini


Kazuo Shiokawa

The International School on Equatorial and Low-Latitude Ionosphere (ISELION) was held at Bandung, Indonesia on 16-20 March 2015. Participants

Figure 1. Participants of ISELION.

are 39 students from 9 countries from Indonesia, Malaysia, Vietnam, Philippines, India, Japan, Taiwan, Egypt, and Kazakhstan. Four lecturers (R. Tsunoda, M. Yamamoto, K. Shiokawa, and H. Jin) introduced ionospheric dynamics, measurement techniques, Spread-F/plasma bubbles, and space weather for four days of Mon-Tue and Thu-Fri. A visit of Sumedang Observatory and practice of ionogram processing was held on Wednesday. Participants enjoyed lively discussions with the lecturers and mutual communications during this one-week school. Details of the school are available at http://iselion2015.sains.lapan.go.id/. This school was supported by LAPAN, STEL, JSPS core-to-core program B. Asia-Africa Science Platforms, Japan, Research Institute of Sustainable Humanosphere (RISH), Kyoto University, Japan, and SCOSTEP.

VarSITI

Meeting Report 2:

The 2nd Annual Conference of the Nigerian Geophysical Society (NGS)

E. O. Falayi[1] and O. S. Bolaji[2]
[1]Department of Physics, Tai Solarin University of Education, Ijebu Ode, Nigeria
[2]Department of Physics, University of Lagos, Akoka, Lagos, Nigeria


Elijah Olukayode Falayi


Olawale Segun Bolaji

NGS is a dynamic, innovative, and interdisciplinary international scientific association committed to the pursuit of understanding of Earth and Space Science. The 2nd annual conference held at


Figure 1. Group photograph taken immediately after the opening program of the NGS 2015.

Covenant University (CU), ota, Nigeria (March 17-20, 2015) titled the role of the Earth and its Atmosphere on our Technology. 102 participants registered and participated in the conference; include experts, upcoming scientists, post-graduate students and undergraduate students, from 21 Nigerian universities and agencies with a participant from Ivory Coast, a West African country. The meeting was successful with 24 oral presentations bringing together new ground measurement results and modeling studies. The conference breaks new ground of discussion between experts, upcoming scientists and post-graduate students. We at NGS thank CU, Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)/Variability of the Sun and its Terrestrial Impact (VarSITI), National Space Research and Development Agency (NASRDA) and Atmospheric and Space Environment Research Network (ASPERN) for their supports, which make the conference a successful one.

Meeting Report 3:

Sun-Climate Connections conference (Kiel, 16-19 March 2015)

Thierry Dudok de Wit

Thierry Dudok de Wit
University of Orléans,
Orléans, France

Figure 1. Group photo of the participants.

Over 90 participants attended the Sun-Climate Connections (SCC) conference, which addressed recent advances in our understanding of the multiple connections between solar variability, and the Earth's climate. This meeting provided new insight into several issues, such as the impact of energetic electrons precipitating into the atmosphere, the role of the global electric circuit, and the modelling of the ozone response to solar variability. The programme included a panel discussion with members from the broader climate community. This discussion highlighted the role of multidisciplinary interactions, the need for better including the various solar forcings in climate system studies, but also the importance of having a framework for pursuing such studies on the longer term. One day was also devoted to outreach activities, including a public debate; a team of highly motivated young scientists took care of 70 high school students, debating with them the causes of global warming, discussing solar impacts, and showing auroras on a Planeterrella aurora simulator.

Upcoming meetings related to VarSITI

Conference	Date	Location	Contact Information
Conference on Superflares and Activity of the Sun in the Cycle Formation Epoch	Apr. 28-May 1, 2015	Kazrin-Tel Aviv, Israel	http://www.tau.ac.il/institutes/advanced/cosmic/Conferences/2015-VarSITI_Superflares/VarSITI-2015_ISR.html
2015 African Geophysical Society Conference	Jun. 1-5, 2015	Nairobi, Kenya	http://www.afgps.org/
Seventh Workshop “Solar Influences on the Magnetosphere, Ionosphere and Atmosphere”	Jun. 1-5, 2015	Sunny Beach, Bulgaria	http://ws-sozopol.stil.bas.bg/
Geospace Environment Modeling (GEM) workshop	Jun. 15-19, 2015	Snowmass, CO, USA	http://aten.igpp.ucla.edu/gemwiki/index.php/Main_Page
2015 CEDAR Workshop	Jun. 21-25	Seattle, WA, USA	https://cedarweb.vsp.ucar.edu/wiki/index.php/2015_Workshop:Main
26th General Assembly of the International Union of Geodesy and Geophysics (IUGG) 2015	Jun. 22-Jul. 2, 2015	Prague, Czech Republic	http://www.iugg2015prague.com/
Climate, Space Climate, and Couplings Between NCAR Advanced Study Program (ASP) Summer Colloquium	Jul. 6-17, 2015	Boulder, CO, USA	http://www.asp.ucar.edu/colloquium/2015/
Asia Osceania Geosciences Society (AOGS) 12th Annual Meeting	Aug. 2-7, 2015	Suntec City, Singapore	http://www.asiaoceania.org/society/index.asp
12th International Workshop on Layered Phenomena in the Mesopause Region (LPMR) 2015	Aug. 10-13	Boulder, CO, USA	http://cires.colorado.edu/events/lpmr/
Unsolved Problems in Magnetospheric Physics (UPMP) Workshop	Sep. 6-11, 2015	Scarborough, UK	http://spacescience.org/upmpw/
SCOSTEP-WDS Workshop- “Global Data Activities for the Study of Solar-Terrestrial Variability”	Sep. 28-30, 2015	Tokyo, Japan	http://isds.nict.go.jp/scostep-wds.2015.org/.
Coimbra Solar Physics Meeting "Ground-based Solar Observation in the Space Instrumentation	Oct. 5-9, 2015	Coimbra, Portugal	http://www.mat.uc.pt/~cspm2015/overview.html
14th International Symposium on Equatorial Aeronomy	Oct. 19-23, 2015	Bahir Dar, Ethiopia	http://www.bdu.edu.et/isea14/
International Study of Earth-affecting Solar Transients (ISEST/MiniMax24) Workshop	Oct. 26-30, 2015	National Autonomous University, Mexico	http://cintli.geofisica.unam.mx/congreso/
Solar Variability and its Heliospheric Effects	Nov. 2-6, 2015	Athens, Greece	http://bbc-sws.astro.noa.gr/
International Reference Ionosphere 2015 Workshop	Nov. 2-13, 2015	Bangkok, Thailand	http://www.iri2015.kmitl.ac.th

Short News 1:

Announcement of Opportunity
The SCOSTEP Visiting Scholar (SVS) program

Marianna
G. Shepherd

Marianna G. Shepherd (SCOSTEP Scientific Secretary)
York University, Toronto, ON, Canada

Applications are invited to the SCOSTEP Visiting Scholar (SVS) program, a new capacity building activity of SCOSTEP (the Scientific Committee on Solar-Terrestrial Physics). The SVS program complements the current scientific program, VarSITI (Variability of the Sun and its Terrestrial Impact) and public outreach activities of SCOSTEP.

The objective

The objective of the SVS program is to provide training to young scientists and graduate students from developing countries in well-established solar terrestrial physics laboratories, for periods of between one and three months. Our aim is to fund four scholars each year, one related to each of the four SCOSTEP VarSITI themes (http://www.varsiti.org/). The training will help the young scientists to advance their career in solar terrestrial physics using the technique/skill they learned during the training. SCOSTEP will provide the airfare, while it is expected that the hosting lab will provide the living expenses (lodging, meals, ground transportation, visa fees and other incidentals). Trainees should have their own health insurance or arrange a provision with the host lab.

Frequency: At least four scholars each year, starting in 2015.

Application Procedure

Please contact one of the SVS program listed below and work out the details of the visit. Once the applicant and the host agree on a visit, please prepare an application package including the following details of the visit: (i) work to be performed; (ii) dates of the visit and an estimate of the airfare in economy class; (iii) letter from the applicant's supervisor, and (iv) letter from the host scientist. Prepare a single pdf file of the above materials and email it to: Dr. Marianna G. Shepherd (mshepher[at]yorku.ca). All applications should be sent to the SCOSTEP Secretariat by not later than May 31, 2015. The applicant will be informed within three months after this date.

List of hosts:

- **Leibniz Institute of Atmospheric Physics (IAF), Germany**

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- **The Solar-Terrestrial Environment Laboratory (STEL), Nagoya University, Japan**

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- **National Institute of Polar Research (NiPR), Japan.**

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- **National Space Science Centre (NSSC), Chinese Academy of Sciences, China**

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- **South African National Space Agency (SANSA), South Africa**

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The purpose of the VarSITI newsletter is to promote communication among scientists related to the four VarSITI Projects (SEE, ISEST/MiniMax24, SPeCIMEN, and ROSMIC).

The editors would like to ask you to submit the following articles to the VarSITI newsletter.

Our newsletter has five categories of the articles:

1. Articles— Each article has a maximum of 500 words length and four figures/photos (at least two figures/photos). With the writer's approval, the small face photo will be also added.

   On campaign, ground observations, satellite observations, modeling, etc.

2. Meeting reports—Each meeting report has a maximum of 150 words length and one photo from the meeting.

   On workshop/conference/ symposium report related to VarSITI

   With the writer's approval, the small face photo will be also added.

3. Highlights on young scientists— Each highlight has a maximum of 200 words length and two figures. With the writer's approval, the small face photo will be also added.

   On the young scientist's own work related to VarSITI

4. Short news— Each short news has a maximum of 100 words length.

   Announcements of campaign, workshop, etc.

5. Meeting schedule

Category 3 (Highlights on young scientists) helps both young scientists and VarSITI members to know each other. Please contact the editors if you know any recommended young scientists who are willing to write an article on this category.

TO SUBMIT AN ARTICLE

Articles/figures/photos can be emailed to the Newsletter Secretary, Ms. Mai Asakura (asakura_at_stelab.nagoya-u.ac.jp). If you have any questions or problem, please do not hesitate to ask us.

SUBSCRIPTION - VarSITI MAILING LIST

The PDF version of the VarSITI Newsletter is distributed through the VarSITI mailing list. The mailing list is created for each of the four Projects with an integrated list for all Projects. If you want to be included in the mailing list to receive future information of VarSITI, please send e-mail to "asakura_at_stelab.nagoya-u.ac.jp" (replace "_at_" by "@") with your full name, country, e-mail address to be included, and the name of the Project you are interested.

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