Variability of the Sun and Its Terrestrial Impact (VarSITI)
SEE / ISEST-Minimax24 / SPeCIMEN / ROSMIC
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VarSITI Newsletter

Inside this issue

Project ISEST

Article 1:

ISEST (International Study of Earth-Affecting Solar Transients) Working Group on Data – An Introduction

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Jie Zhang

The ISEST, one of the four projects in the SCOSTEP/VarSITI program (2014-2018), is charted with an overaching goal of understanding the origin, propgation and evolution of solar transients through the space between the Sun and the Earth, and developing the prediction capability of space weather. In this article, we make a brief introdiction to Working Group (WG) 1, the data group, of the ISEST project. The event data of the group effort are stored and can be publicly accessed in the WIKI website at http://solar.gmu.edu/heliophysics/index.php/Main_Page

We are living in an era of having rich and unprecedented solar and heliospheric data from multiple spacraft (Figure 1). In particular, STEREO Ahead and Behind provide the opportunity of observing CMEs from two different viewing angles, allowing a true three-dimensional measurement. Based on these data, the specific scientific objectives of WG1 are to (1) identify all Earth-affecting ICMEs during the STEREO era (2007 to present), (2) track these events from the Sun to the Earth, and fully measure, characterize and quantify their properties and evolution from the Sun to the Earth, (3) provide a comprehensive event database for other working groups, other projects, and the entire community, and (4) Identify and characterize other Earth-affecting transients, including CIRs (Corotating Interaction Regions) and SEPs (Solar Energetic Particles). Several ICME catalogs have been created by research groups around the world, who have found different numbers of ICMEs varying from 60 to 140 during the period from 2007 to 2014. A joint effort is needed

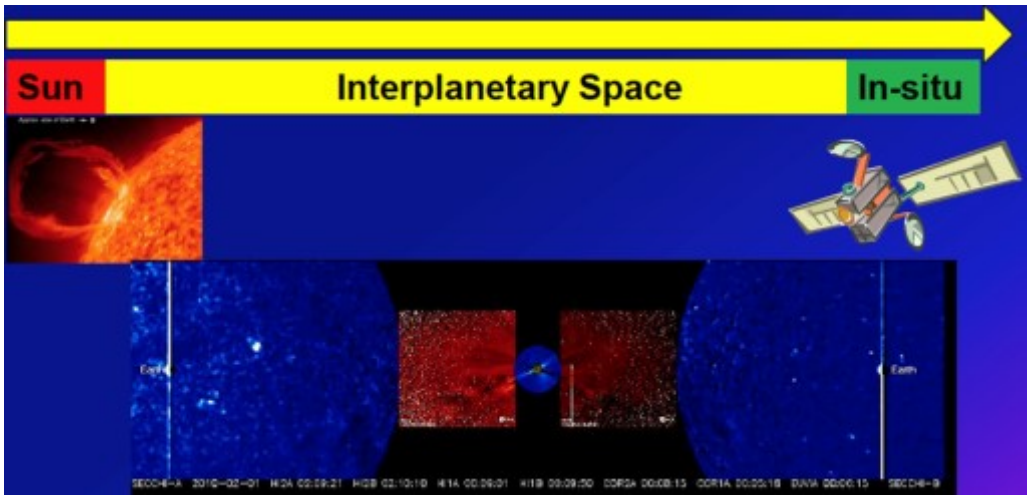

Figure 1: Observations and continuous tracking of CMEs from the Sun to the Earth by a suite of space telescopes, including from SOHO, SDO, STEREO Ahead/Behind, ACE and WIND (credit: Jie Zhang).

to create a unified and uniform ICME/CME catalog. In recent years, significant progress has been made to increase the prediction accuracy of the arrival time of CMEs (Figure 2).

WG1 has identified many scientific questions that can be addressed with the available data. These questions are grouped into: (1) What kind of solar eruptions, CMEs/flares, could reach the Earth and be geoeffective? (2) How do CMEs propagate in the interplanetary space? (3) How well can we predict the time of arrival, hit or miss and geo-effectiveness of CMEs?

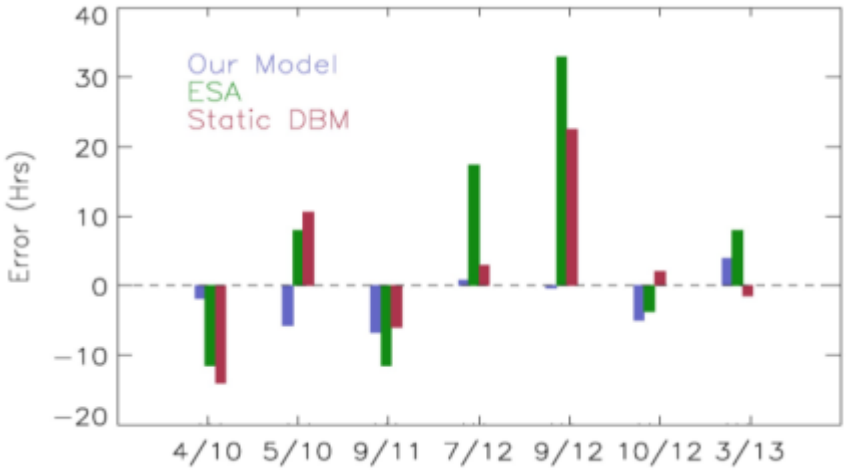

Figure 2: The prediction of CME arrival at 1 AU. The time of Arrival (TOA) prediction errors are shown for the Empirial Shock Arrival model (ESA), static drag-based model (DEM), and advanced drag-based model. (adopted from Hess & Zhang 2015).

VarSITI

Article 2:

SPEDAS
Common Data Analysis Software for Solar-Terrestrial Physics Community

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[2]THEMIS project / UCLA, USA
[3]IUGONET project / NIPR, Japan

SPEDAS: V. Angelopoulos, and J. Lewis
ERG-Science Center: Y. Miyoshi, T. Hori, Y. Miyashita, K. Keika, M. Shoji, T. Segawa, I. Shinohara and K. Seki
IUGONET: Y. Tanaka, A. Shinbori, S. Abe, N. Umemura, Y. Koyama, S. UeNo and M. Nosé


Y. Miyoshi


V. Angelopoulos


Y. Tanaka

Integrated data analysis using distributed, diverse data sets is essential for a comprehensive understanding of Geospace processes and conducting interdisciplinary research programs like VarSITI. Recently, many kinds of data from satellite, ground-based, and simulations have become readily accessible on-line due to the growth of internet bandwidth and storage/server technologies. However, it has not been easy for individuals to use these diverse datasets to their full potential, because learning the data file format and developing tools to access and process the particular datatype of interest is often a time-consuming work to do before detailed analysis can proceed.

Common data formats and the availability of common data analysis software can reduce these problems. For example, the common data format like NASA/CDF (Common Data Format) has considerably standardized the data storage and data access methods. Additionally, the metadata embedded in a CDF are useful to visualize the data and to understand characteristics of data. Recently, the solar-terrestrial physics community has developed common data analysis software to analyze different kinds of data for integrated studies. SolarSoft, developed by Lockheed Martin has been used in the solar physics community for more than a decade (http://www.lmsal.com/solarsoft/) owing to continuous support by a series of instruments and missions developed by that institution. SolarSoft is written in Interactive Data Language (IDL), which has been a widely used programming language in the community. The software has considerably improved efficiency and increased science productivity in solar physics. An environment to develop data analysis software that is applicable for the solar-terrestrial physics community is the Space Physics Environment Data Analysis Software (SPEDAS). SPEDAS, also an IDL-based package, was originally developed for the THEMIS project, as the THEMIS Data Analysis Software (TDAS) (Angelopoulos, 2008). Motivated by SolarSoft, the SPEDAS user community and the THEMIS team have extended TDAS into a multi-mission, grass-roots programmers' development environment to "host" mission-specific codes as "plug-ins" with benefit of a robust quality-assurance program. SPEDAS provides an environment for visualizing and comprehensively analyzing both satellite and ground-based space physics-related data. An important advantage is that users can easily obtain

remote data files and automatically load physical quantities on an IDL session without developing their own programs. The data are imported into the user's session as "tplot variables", IDL structures, which can then be analyzed and visualized with common tools across all missions. Thus simply by adding plug-ins for a mission, users can easily create plots of the mission data with data from other missions.

The Japanese Geospace Exploration Project ERG (Miyoshi et al., 2012) and the Inter University Project for solar-terrestrial physics IUGONET (Hayashi et al., 2013) have used SPEDAS as their project analysis tool and they have developed SPEDAS plugins in cooperation with the THEMIS project (e.g., Hori et al., 2015). Figure 1 is an example of combined plots for a substorm event presented in Angelopoulos et al.[2013] using SPEDAS; THEMIS spacecraft data, ground-based SuperDARN radar data at Kodiak, Alaska, ground-based magnetometer data at Ashibetsu, Japan provided by 210MM network (Yumoto, K., and the 210 (deg) MM Magnetic Observation Group, 1996), and at Syowa, Antarctica, provided by National Institute for Polar Research, Japan. These plots are realized with plugins provided by ERG and IUGONET project. SPEDAS has already included plugins for loading data from many missions or data sets such as GOES, WIND, ACE, STEREO, FAST, POES, Akebono, ERG, Van Allen Probes, MMS, MAVEN, OMNI, BARREL, IUGONET, SuperDARN, EISCAT, Geomagnetic/Solar indices, etc. other than the THEMIS mission. The APIs for SPEDAS are provided from the SPEDAS project, which would facilitate the plugin development at each project. Moreover, "crib sheets" that are sample scripts are a good reference to learn how to use the SPEDAS procedures.

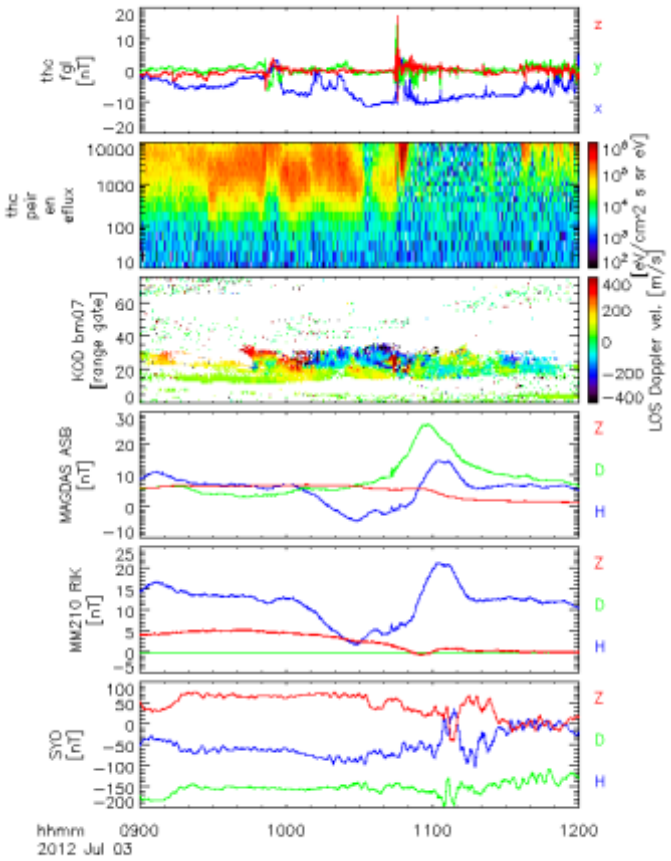


Figure 1:(a) Example of the combined plot using SPEDAS on July 3, 2012. From top to bottom; [Satellite] THEMIS magnetometer data, THEMIS electron energy spectrum data, [Ground] SuperDARN radar data at Kodiak, Alaska (US), Magnetometer data at Ashibetsu (Japan) provided by MAGDAS/CPMN, at Rikubetsu(Japan) provided by 210MM network, and at Syowa, Antarctica, provided by NIPR, Japan.

Recently, the ERG project has developed a new plugin to visualize the three-dimensional plasma distribution function for in-situ satellite data, which would be helpful to analyze the data for current satellite data; THEMIS, MMS, Van Allen Probes, and ERG. As an application by using SPEDAS programs, the ERG Science Center has also developed an interactive data analysis tool using web (ERGWAT) that uses SPEDAS for downloading data and visualization (Figure 2). The combination with the metadata database has been realized by IUGONET, which automatically retrieves the URL information of the data file.

SPEDAS is useful for integrated studies to realize easy download of data files and easy visualization for different kind of data. Moreover, SPEDAS can contribute to capacity-building of the solar-terrestrial physics community, because SPEDAS easily provides the opportunity to learn space physics data analysis if users can use IDL and the internet. In fact, ERG Science Center and IUGONET have had tutorial lectures to demonstrate SPEDAS in many countries (Figure 3 and Table 1), and they are starting to use that. Since a graphical user interface (GUI) is also available in addition to the command line interface, SPEDAS is suitable for international researchers to plot space physics datasets for the first time even with their minimal resources. We expect that SPEDAS will contribute to the VarSITI project as a common platform for the data analysis by providing good opportunity to learn space physics data, and we hope that many researchers and projects join further SPEDAS developments.

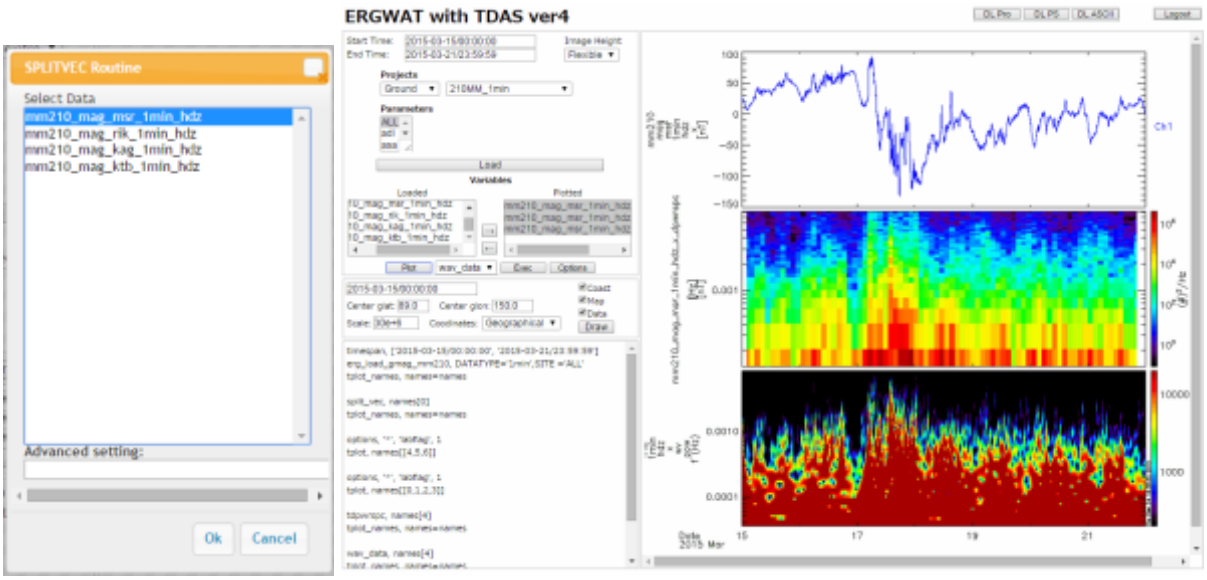


Figure 2: Example plots of ERGWAT. (http://ergsc.stelab.nagoya-u.ac.jp/analysis/ergwat/index.shtml.en)

Figure 3: Photo of SPEDAS tutorial lecture by IUGONET in Nigeria, Sep. 2015.

'UN (in United Nations/Japan Workshop on Space Weather "Science and Data Products from ISWI Instrument")', 6 March, 2015, Fukuoka, Japan

Organizers	United Nations Office for Outer Space Affairs (UN), International Center for Space Weather Science and Education (ICSWSE, Kyushu Univ.), Japan Society for the Promotion of Science (JSPS), National Institute of Information and Communications Technology (NICT), Tohoku University, Solar-Terrestrial Environment Laboratory (STEL, Nagoya Univ.), Fukuoka Convention & Visitors Bureau, Ministry of Foreign Affairs of Japan (MOFA), Ministry of Education , Culture, Sports, Science and Technology (MEXT)
Participants	From the following 33 countries: Australia, Brazil, Bulgaria, China, Côte d'Ivoire, Egypt, Ethiopia, France, India, Indonesia, Israel, Japan, Kazakhstan, Kenya, Malaysia, Mauritius, Morocco, Nigeria, Pakistan, Peru, Republic of Korea, Russia, Saudi Arabia, Slovakia, South Africa, Sri Lanka, Sudan, Switzerland, Thailand, the Philippines, the United States of America, Vietnam and Zambia.
The Number of Participants	118

'SPEDAS Training Session on Taiwan ERG Mission Science Workshop', 10 April, 2015, Taipei, Taiwan

Organizers	The Institute of Astronomy and Astrophysics of Academia Sinica (ASIAA), National Cheng Kung University (NCKU), ERG Science Center (Solar-Terrestrial Environment Laboratory, Nagoya Univ. and ISAS/JAXA)
Participants	The Institute of Astronomy and Astrophysics of Academia Sinica (ASIAA), National Cheng Kung University (NCKU), Institute of Space and Plasma Science (ISAPS, National Cheng Kung Univ)
The Number of Participants	41

'International School on Equatorial and Low-Latitude Ionosphere', 17 September, 2015, Abuja, Nigeria

Organizers	Centre for Atmospheric Research, National Space Research and Development Agency (NASRDA, Nigeria), Solar-Terrestrial Environment Laboratory (STEL, Nagoya Univ.), JSPS core-to-core program B. Asia-Africa Science Platforms, Japan, International Center for Space Weather Science and Education (ICSWSE, Kyushu Univ.), SCOSTEP's Capacity Building program
Participants	From 7 countries: Nigeria, Rwanda, Kenya, Egypt, Côte d'Ivoire, Tanzania, and Brazil
The Number of Participants	65

'Workshop on the IUGONET data analysis', 22-23 October, 2015, Bandung, Indonesia

Organizers	National Institute of Aeronautics and Space (LAPAN), Research Institute for Sustainable Humanosphere (RISH, Kyoto Univ.)
Participants	LAPAN (Space and atmospheric science group), Institut Teknologi Bandung (ITB), Bogor Agricultural Univ. (IPB), Widyatama Univ.
The Number of Participants	130

'A meet on 'Inter-university Upper atmosphere Global Observation NETwork (IUGONET)', 13-14 November, 2015, Thiruvananthapuram,India

Organizers	Space Physics Laboratory (SPL), Research Institute for Sustainable Humanosphere (RISH, Kyoto Univ.)
Participants	Space Physics Laboratory (SPL)
The Number of Participants	26

'A one day workshop on 'Inter-university Upper atmosphere Global Observation NETwork (IUGONET)', 15 November, 2015, Gadanki, India

Organizers	National Atmospheric Research Laboratory (NARL), Research Institute for Sustainable Humanosphere (RISH, Kyoto Univ.)
Participants	National Atmospheric Research Laboratory (NARL)
The Number of Participants	27

'The Quich Training of SPEDAS', 18 December, 2015, Lima, Peru

Organizers	Instituto Geofísico del Perú (IGP)
Participants	Instituto Geofísico del Perú (IGP), Universidad Nacional Agraria de la Selva
The Numbers	4

Table 1: List of recently international tutorial lectures by ERG Science Center and IUGONET.

Related websites:
SPEDAS: http://spedas.org/
THEMIS project: http://themis.ssl.berkeley.edu/index.shtml
ERG Science Center: http://ergsc.isee.nagoya-u.ac.jp/
IUGONET project: http://www.iugonet.org/
CDF: http://cdf.gsfc.nasa.gov/

Acknowledgements:
ERG Science Center has been operated by ISEE, Nagoya University and ISAS/JAXA. 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.

References:
Angelopoulos (2008), The THEMIS Mission, Space Sci. Rev., 141, 5-34,doi:10.1007/s11214-008-9336-1.
Angelopoulos et al., (2013), Electromagnetic energy conversion at reconnection fronts, Science, 341, 1478, doi:10.1126/science.1236992.
Hayashi et al. (2013), Inter-university Upper Atmosphere Global Observation Network (IUGONET), Data Sci. J., 12, WDS179-WDS184, doi:10.2481/dsj.WDS-030.
Hori et al. (2015), CDF data archive and integrated data analysis platform for ERG-related ground data developed by ERG Science Center (ERG-SC), J. Sp. Sci. Info. Jpn.,JAXA-RR-14-009, 75-90.
Miyoshi et al.(2012), The Energization and Radiation in Geospace (ERG) Project, in Dynamics of the Earth's Radiation Belts and Inner Magnetosphere, Geophys. Monogr. Ser., vol 199, edited by D.Summers, I.R. Mann,D.N.Baker,and M.Schulz, pp.103-116, AGU, Washington, D.C. doi:10.1029/2012BK001304.
Yumoto, K., and the 210 (deg) MM Magnetic Observation Group (1996), The STEP 210 (deg) magnetic meridian network project, J. Geomag., Geoelectr., 48, 1297-1309.
Yumoto K. and the MAGDAS Group (2006), MAGDAS project and its application for space weather, Solar Influence on the Heliosphere and Earth's Environment: Recent Progress and Prospects, Edited by N. Gopalswamy and A. Bhattacharyya, ISBN-81-87099-40-2, pp. 309-405.

Highlight on Young Scientists 1:

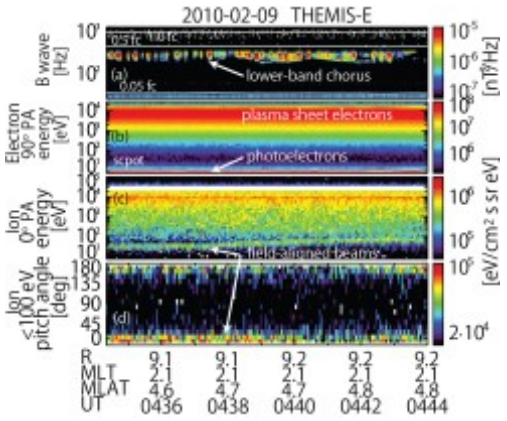
Chorus intensity modulation driven by time-varying field-aligned low-energy plasma

Toshi Nishimura

Toshi Nishimura

Department of Atmospheric and Oceanic Sciences, University of California, Los Angeles, USA

Whistler-mode chorus waves are responsible for scattering and precipitating energetic electrons, and chorus waves often show ~10 s intensity modulation that is also seen in the conjugate ionosphere as pulsating aurora. While several ideas on the cause of periodic nature have been proposed, there has been no direct observations of plasma parameters that modulate chorus wave growths. Our recent study has examined low-energy plasma density variations in the plasma sheet and topside ionosphere, and found that low-energy ions of ~100 eV show density modulation that is correlated with chorus intensity modulation. Those low-energy ions and electrons are field-aligned with major peaks in 0 (for northern hemisphere winter event) and 180 (for northern hemisphere summer event) deg pitch angle, indicating that outflowing plasma from the sunlit hemisphere is the source of the low-energy plasma density modulation near the equator. Assuming charge neutrality, the low-energy ions can be used to represent cold plasma density, and the enhancements of the low-energy plasma density are found to contribute effectively to chorus linear growth rates. These results suggest that chorus intensity modulation is driven by a feedback process where outflowing plasma due to energetic electron precipitation increases the equatorial density that drives further electron precipitation.



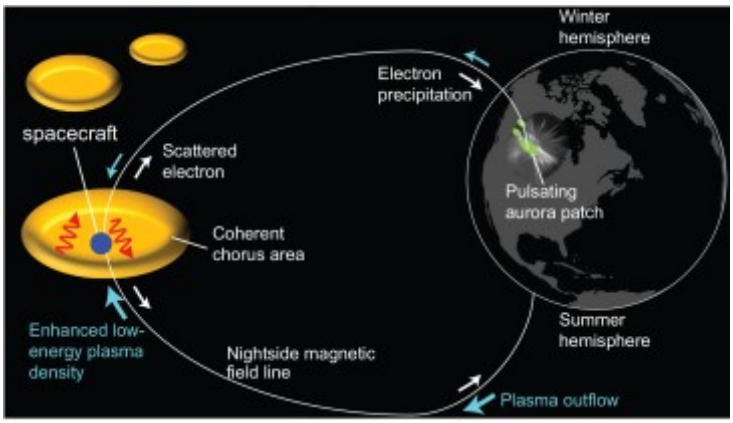


Figure 1: (left) THEMIS-E satellite observations of (a) frequency spectra of the magnetic field, (b) electron energy spectra of 90° pitch angle, (c) ion energy spectra of 0° pitch angle, and (d) pitch angle distribution of <100 eV ions. Figure 2: (right) Schematic illustration of the chorus intensity modulation mechanism proposed in this study.

References:

Nishimura, Y., J. Bortnik, W. Li, J. Liang, R. M. Thorne, V. Angelopoulos, O. Le Contel, U. Auster, J. W. Bonnell, Chorus intensity modulation driven by time-varying field-aligned low-energy plasma, J. Geophys. Res., 120, 7433–7446, 120, 7433–7446.

Liang, J., E. Donovan, Y. Nishimura, B. Yang, E. Spanswick, K. Asamura, T. Sakanoi, D. Evans, R. Redmon, Low-energy ion precipitation structures associated with pulsating auroral patches, J. Geophys. Res., 120, 5408–5431.

Highlight on Young Scientists 2:

Solar Cycle Influences on Climate

Stergios Misios
Aristotle University of Thessaloniki, Greece

Stergios Misios

The detection and physical explanation of climate response to the periodic 11-yr solar cycle irradiance variability has been a long standing topic of research. Climate models with interactive chemistry, high spectral resolution radiation codes and interactive atmosphere-ocean coupling have been proven to be indispensable tools to advance our understanding on the key mechanisms. Recently, I contributed to the Solar Model Inter-comparison Project (SolarMIP) which aimed at improving our understanding of possible solar-related mechanisms for influencing climate and assessing the impacts of solar forcing on global and regional climate. By considering all models that participated to the Coupled Model Inter-Comparison Project (CMIP5), we investigated influences of the total and spectral solar irradiance variability in the course of the 11-yr solar cycle in the stratosphere, troposphere and surface and highlighted common signatures and uncertainties between the different models (Misios et al., 2015; Mitchell et al., 2015). A companion study demonstrated the simulated ozone responses (Hood et al., 2015). One of the lessons learned from this type of analysis is that the current generation of earth system models do reproduce qualitatively some observed solar cycle signatures albeit with weaker magnitude.

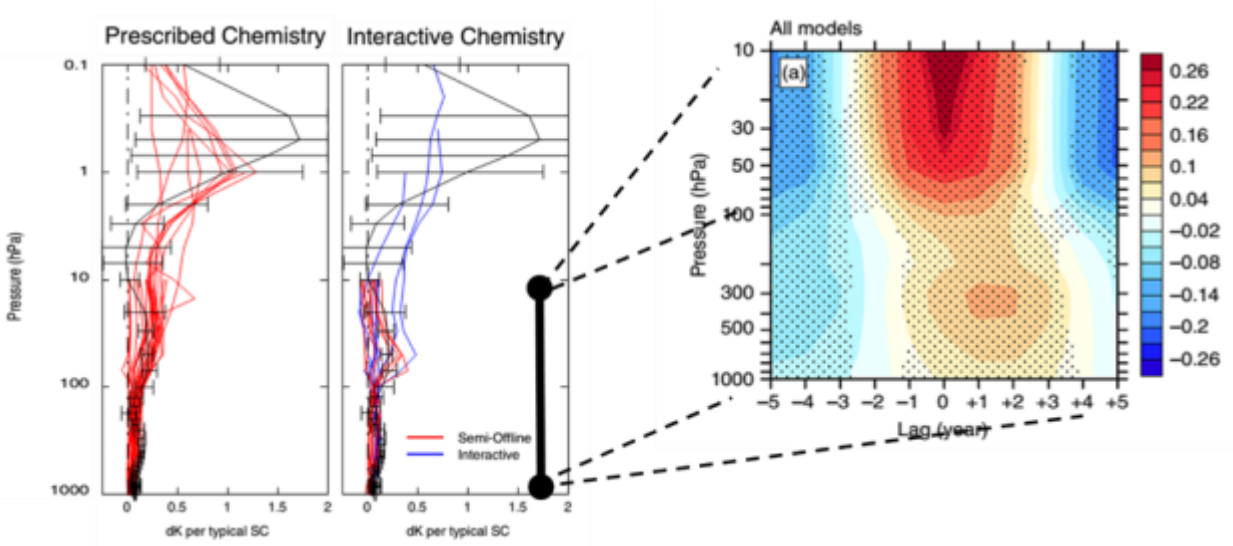


Figure 1: (left) The annual temperature response to the 11 year solar cycle in the Tropics (25N–25S) from ~1850–2005 as a function of height for all CMIP5 models with prescribed and interactive ozone chemistry (adapted from Mitchell et al., 2015). Figure 2: (right) Multi-model mean lagged solar regression coefficients of global mean air temperature below 10 hPa (adapted from Misios et al., 2015). Units in K assuming 1 W/m^2 TSI increase of a typical solar cycle. Positive lags (in years) mean that the solar forcing leads the response. Shading indicates a multi-model agreement higher than 80%.

References:

Hood, L., Misios, S., Mitchell, D.M., Gray, L.J., Tourpali, K., Matthes, K., Schmidt, H., Chiodo, G., Thieblemont, R., Rozanov, E., Shindell, D., Krivolutsky, A., 2015. Solar Signals in CMIP-5 Simulations: The Ozone Response. Q. J. Roy. Meteorol. Soc. 141, 2670–2689.

Misios, S., Mitchell, D.M., Gray, L.J., Tourpali, K., Matthes, K., Hood, L., Schmidt, H., Chiodo, G., Thieblemont, R., Rozanov, E., Shindell, D., Krivolutsky, A., 2015. Solar Signals in CMIP-5 Simulations: Effects of Atmospherre Ocean Coupling. Q. J. Roy. Meteorol. Soc.

Mitchell, D.M., Misios, S., Gray, L.J., Tourpali, K., Matthes, K., Hood, L., Schmidt, H., Chiodo, G., Thieblemont, R., Rozanov, E., Shindell, D., Krivolutsky, A., 2015. Solar Signals in CMIP-5 Simulations: The Stratospheric Pathway. Q. J. Roy. Meteorol. Soc. 141, 2390-2403.

Project ISEST/ SPeCIMEN

Meeting Report 1:

SCOSTEP/COSPAR/ILWS 2016 "Science for Space Weather" Workshop, 24-29 January 2016, Goa, India

Robert F. Wimmer-Schweingruber[1] and Dibyendu Nandi[2]

[1]University of Kiel, Kiel, Germany

[2]CESSI/IISER Kolkata, India

Robert F. Wimmer-Schweingruber

Dibyendu Nandi

Understanding and being able to forecast space weather is increasingly important for our modern technology-reliant society. This workshop treated all aspects of space weather, from solar origin of transient events to their propagation through the heliosphere and effects on Earth and other planetary bodies, from particle energization to forecasting the particle environment and its effects on technological and biological systems, as well as solar-cycle effects and coupling of space weather to atmospheric response. Metrics to assess predictions were also discussed.

Figure 1. Group photo of participants.

105 participants (incl. 25 students) from 21 countries contributed 35 invited and 22 contributed talks, 47 posters, and participated in a lively panel discussion. The final workshop program can be found on the workshop web pages: http://www.cessi.in/ssw/. The workshop also included a two-day school for MSc- and PhD students which offered 15 overview talks and two hands-on tutorials on two afternoons. This workshop was sponsored by ILWS, SCOSTEP-VarSITI, COSPAR, ISRO, Physical Research Laboratory (Ahmedabad), Christian Albrechts University (Kiel) and CESSI-IISER Kolkata. For more information see: www.cessi.in/ssw/.

VarSITI

Meeting Report 2:

The Report of the 3rd International Annual Conference of the Nigerian Geophysical Society

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

E. O Falayi

O. S Bolaji

The 3rd Annual International Conference on Space-Earth Environment for National Sustainable Development organized by the Nigerian Geophysical Society was held at Landmark University, Omu-Aran, Kwara State, Nigeria between 2nd and 5th February, 2016. In attendance, over 150 participants registered and participated in the 3rd conference, which include undergraduate and post-graduate students from 22 Higher Institutions of learning in Nigeria (Universities, Polytechnics and Colleges of Education). The meeting was successful with over 50 Oral Presentations covering almost all the areas of content. The conference has unveiled solutions to important problems in the area of Space Physics and Geophysics. The NGS appreciates the Landmark University, 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 support, which make the conference a successful one.

Figure 1. Group photo of participants.

Project SEE

Meeting Report 3:

Solar activity in the following decades, ISSI/VarSITI Forum on future evolution of solar activity, 01-03 March 2016, ISSI, Bern, Switzerland

V.N. Obridko[1] and K. Georgieva[2]
[1]IZMIRAN, Moscow, Russian Federation, Russia
[2]Space Research and Technologies Institute, Bulgarian Academy of Sciences, Sofia, Bulgaria


V.N. Obridko


K. Georgieva

One of the main questions to be solved by the SEE/VarSITI project is: "For the next few decades, what can we expect in terms of extreme solar flares and storms, and also absence of activity?" So, a joint ISSI/SEE brain-storming meeting was held in Bern, 01.03-03.03.2016, to assess the future evolution of solar activity. We had 3 days of very passionate discussion and arrived at some conclusions. We expect that the next two cycles will not be high, but not a beginning of a grand Maunder type minimum. It is most likely that cycle 25 will be of the same height as cycle 24, and the next one may be a bit lower. There is some probability of a Dalton type minimum, which is inferred by the absence of the polar branch of "torsional oscillations" and hemispheric asymmetry in activity. Abstracts and presentations will be accessible on the VarSITI site.


Figure 1. Group photo of participants.

Project ISEST/ ROSMIC

Meeting Report 4:

IAGA-IV Symposium titled "Influence of short and long term solar variability on climate", held in Hurghada, Egypt, 20 -24 March 2016

Ahmed A. Hady
Professor of solar physics in Cairo University, IAGA-IV SOC -Chairman, Egypt


Ahmed A. Hady

The Symposium held for the 4th time, with about 70 attendances from nine centuries: Cameroon – Egypt – England - France – Germany – Mali – Morocco - Russia – Saudi Arabia.
Via the Symposium website: http://iaga.cu.edu.eg, we received 49 abstracts. The Scientific Organizing Committee selected 9 papers as review or invited speakers' one. In addition 15 papers were accepted as oral contributions and poster contributions included 25 papers. The scientific program of the Symposium has been divided into 6 scientific sessions distributed in 4 days as follows: Solar and Space missions for Space Weather and solar variability observations - Solar activity/variability effects on the lower, middle and upper atmosphere – Modeling climate consequences of solar activity influence and suggested mechanisms- Modeling and predicting large flares, super flares, CMEs and other extreme events- Solar energetic particles and Solar wind influence on the Earth's inner magnetosphere and atmosphere – and Societal impact of solar variability, Education. The articles issued from these presentations and posters, upon review, will be published in a special issue of the Cairo University Journal of Advanced Research, an Elsevier publication. Articles are expected in within three months after the Symposium, July 30, 2016 deadline.


Figure 1. Group photo of the participants taken out-side the meeting hall in Hotel Golden-5 in Hurghada, Red Sea.

Upcoming meetings related to VarSITI

Conference	Date	Location	Contact Information
EGU General Assembly 2016	Apr. 17-22, 2016	Vienna, Austria	http://meetingorganizer.copernicus.org/EGU2016/session/20495
Space Wether, Space Climate, and VarSITI Session at JpGU2016	May 22-26, 2016	Makuhari, Japan	http://www.jpgu.org/meeting_e2016/
The First VarSITI General Symposium	Jun. 6-10, 2016	Albena, Bulgaria	http://newserver.stil.bas.bg/VarSITI2016/
6th International HEPPA-SOLARIS Workshop	Jun. 13-17, 2016	Helsinki, Finland	http://heppa-solaris-2016.fmi.fi/
6th IAGA/ICMA/CAWSES Workshop on Vertical Coupling in the Atmosphere-Ionosphere System	Jul. 25-29, 2016	Tainan, Taiwan	
41st COSPAR Scientific Assembly	Jul. 30-Aug. 7, 2016	Istanbul, Turkey	http://www.cospar-assembly.org
AOGS 13th Annual Meeting	Jul. 31-Aug. 5, 2016	Beijing, China	http://www.asiaoceania.org/aogs2016/
HESPERIA Summer School	Aug. 29-Sep. 2, 2016	Kiel, Germany	http://hesperia-space.eu/
International Symposium on Recent Observations and Simulations of the Sun-Earth System III	Sep. 12-16, 2016	Golden Sand, Bulgaria	http://www.isroses.lanl.gov/
International Symposium on the Whole Atmosphere (ISWA)	Sep. 14-16, 2016	Tokyo, Japan	http://pansy.eps.s.u-tokyo.ac.jp/iswa/
ROSMIC/IAGA workshop on trends and long term variations	Sep. 19-23, 2016	Kühlungsborn, Germany	https://www.iap-kborn.de/1/trends2016/
7th workshop of the VLF/ELF Remote Sensing of Ionospheres and Magnetospheres (VERSIM) working group	Sep. 19-23, 2016	Hermanus, South Africa	http://events.sansa.org.za/versim-information
14th Hvar Astrophysical Colloquium	Sep. 25-30, 2016	Zagreb, Croatia	http://oh.geof.unizg.hr/index.php/en/xivth-hac
International Astronomical Union Symposium 328: Living around Active Stars	Oct. 17-21, 2016	Maresias, SP, Brazil	http://www.sab-astro.org.br/IAUS328

Project ROSMIC

Short News 1:

Trend workshop in Kühlungsborn: 19-23 September 2016

Franz-Josef Lübken
Chairman of the local and science organizing committees, Germany


Franz-Josef Lübken

The 9th IAGA - ICMA/IAMAS - ROSMIC/ VarSITI/SCOSTEP workshop on 'Long-Term Changes and Trends in the Atmosphere' will be held on 19-23 September 2016 in the Leibniz-Institute of Atmospheric Physics in Kühlungsborn, probably the most beautiful sea resort in Germany.
Some topics of this workshop are i) trends and long term variations in the middle atmosphere, ionosphere and thermosphere, ii) dynamical, physical, chemical and radiative coupling mechanisms, iii) role of the middle atmosphere in climate. The workshop is co-sponsored by IAGA, ICMA/IAMAS, ROSMIC/VarSITI, the German Space Organisation (DLR), and the German ROMIC research initiative of BMBF.
More information is available at www.iap-kborn.de/1/trends2016
Important deadlines:
Submission of abstracts: 20 May 2016
Early bird registration: 30 June 2016
Travel support application: 20 May 2016
We are looking forward to welcoming you in Kühlungsborn.

VarSITI

Short News 2:

International Astronomical Union Symposium 328: Living around Active Stars 17-21 October 2016 Maresias, SP, Brazil

Dibyendu Nandi
CESSI/IISER Kolkata, India


Dibyendu Nandi

First Announcement: The variable activity of stars such as the Sun is mediated via stellar magnetic fields, radiative and energetic particle fluxes, stellar winds and magnetic storms. This activity influences planetary atmospheres, climate and habitability. This Symposium will bring together scientists from diverse, interdisciplinary scientific areas to review the current state of our understanding of solar and stellar environments.

Financial support application deadline: 30 April 2016

Abstract submission deadline: 16 June 2016
Early Registration deadline: 16 July 2016

For further details see: http://www.sab-astro.org.br/IAUS328

On behalf of the Organizing Committees we welcome you to the IAUS 328 and look forward to hosting you in Maresias, Brazil.

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

   On workshop/conference/ symposium report related to VarSITI

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. Miwa Fukuichi (fukuichi_at_isee.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 "fukuichi_at_isee.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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