

# United Nations / Japan Workshop on Space Weather "Science and Data Products from ISWI Instruments"

# **Programme**

The Luigans Spa & Resort Fukuoka, Japan

Hosted by



International Center for Space Weather Science and Education, Kyushu University, on behalf of the Government of Japan

Co-sponsored by

Ministry of Foreign Affairs of Japan (MOFA),

Ministry of Education, Culture, Sports, Science and Technology-Japan (MEXT),

Japan Society for the Promotion of Science (JSPS),

National Institute of Information and Communications Technology (NICT),

Tohoku University, Nagoya University,

and Fukuoka Convention & Visitors Bureau

2 - 6 March 2015

#### **Honorary Committee:**

Prof. Chiharu Kubo President, Kyushu University, Japan

Ms. Simonetta Di Pippo Director, Office for Outer Space Affairs, United Nations

Dr. Takao Doi UN Expert on Space Applications, Office for Outer Space Affairs, United Nations

#### **Scientific Organizing Committee (SOC):**

Dr. Nat Gopalswamy NASA, ISWI, SCOSTEP, United States (Chair)

Dr. Akimasa Yoshikawa Kyushu University, Japan (Co-Chair)

Dr. Werner Balogh Office for Outer Space Affairs, United Nations (Co-Chair)

Dr. Christine Amory University Pierre and Marie Curie, France

Dr. Fairos Asillam ANGKASA, Malaysia

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Dr. Young-deuk Park
Dr. Babatunde Rabiu

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Tohoku University, Japan
KASI, Republic of Korea
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Dr. Manuela Temmer
Dr. Satoru Ueno
Dr. Rami Vainio

Nagoya University, Japan
University of Graz, Austria
Kyoto University, Japan
University of Turku, Finland

#### **Local Organizing Committee (LOC):**

Dr. Tsutomu Nagatsuma NICT, Japan

Dr. Satoru Ueno Kyoto University, Japan

ICSWSE, Kyushu University, Japan:

Dr. Akimasa Yoshikawa (Chair) Dr. Hideaki Kawano Dr. Masakazu Watanabe, Dr. Huixin Liu Dr. Shuji Abe Dr. Teiji Uozumi

Dr. Maria Gracita Cardinal Dr. Akiko Fujimoto

Mr. George Maeda Ms. Kayo Goto Ms. Chieko Furukawa

#### Focal Point: Local Organizers:

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# Monday, 2 March 2015

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Morning <b>08:00</b>	Registration		
09:00	Opening Ceremony  Master of Ceremony: Tohru Hada, Director of I	ICSWSE, Kyushu University, Japan	
09:00	Welcome / Opening Remarks	<ul> <li>Chiharu Kubo, President, Kyushu University, Japan</li> <li>Kimikazu Iwase, Deputy Director-General for Policy Evaluation, Government of Japan (MEXT)</li> <li>Takao Doi, United Nations Expert on Space Applications, United Nations Office for Outer Space Affairs</li> <li>Nat Gopalswamy, Chair of SOC, Executive Director of ISWI, NASA, United States</li> </ul>	
10:00	<u>Keynote Addresses</u> Chairperson: Tohru Hada, Director of ICSWSE,	Kyushu University, Japan	
10:00	ICSWSE and the MAGDAS Project	Akimasa Yoshikawa ICSWSE, Kyushu University Japan	
10:30	NASA's effort to characterize, understand and predict space weather events and international cooperation in space weather	Madhulika Guhathakurta NASA Heliophysics United States	
11:00	Coffee/Tea Break – Group Photo		
11:30	Workshop Introduction		
11:30	United Nations Programme on Space Applications, Workshop Objectives and Practical Arrangements	Werner Balogh United Nations Office for Outer Space Affairs	
12:15	Lunch		
Afternoon 13:15	Session 1: Space Weather Instrumentation Chairperson: Takao Doi, United Nations Office Rapporteur: Maria Gracita Cardinal, Philippine		
13:15	Solar radio spectrometer network e-Callisto	Christian Monstein ETH Zurich Switzerland	
13:30	Current status of the space weather study using the Global Muon Detector Network (GMDN)	Kazuoki Munakata Shinshu University Japan	

13:45	The MITRA as a solar and ionospheric instrument	Girish Beeharry Mauritius Radio Telescope/Physics Dept. University of Mauritius Mauritius
14:00	The TNU-SuperSID teaching module: enhancing student's knowledge in space science	Tan Le Department of Physics TayNguyen University Vietnam
14:15	CHAIN project: Typical Solar Active Phenomena Obtained with CHAIN's Instruments and a New Solar Station in Saudi Arabia	Satoru Ueno Kyoto University Japan
14:30	Role of the ISWI - MAGDAS Bac Lieu Observatory in the space weather studies in Vietnam	Ha Duyen Chau Institute of Geophysics Viet Nam
14:45	e-CALLISTO Station in Sri Lanka	Janaka Adassuriya Arthur C Clarke Institute for Modern Technologies Sri Lanka
15:00	Coffee/Tea Break	
15:30	Contributions of the Nobeyama Radioheliograph to space weather research	Satoshi Masuda Solar-Terrestrial Environment Laboratory Nagoya University Japan
15:45	Using the NASA Heliophysics Virtual Observatories (VxOs) to Distribute ISWI Instrument Data	Shing Fung NASA Goddard Space Flight Center United States
16:00	Recent MAGDAS activities in Australia	Richard Marshall Bureau of Meteorology Australia
16:15	Study on the effects of space weather by complex measurements at Yakutsk Meridional Chain Stations	Dmitry Baishev IKFIA Russia

#### 16:30 **Panel Discussion 1:**

ISWI Instrument Network and Future of ISWI

#### Chair:

- Nat Gopalswamy, NASA, United States Rapporteur:
- Elijah Olukayode Falayi, Nigeria Participants:
- Christine Amory, University Pierre and Marie Curie, France
- Vafi Doumbia, l'Université Felix Houphouët-Boigny, Cote d'Ivoire
- Hans Haubold, United Nations Office for Outer Space Affairs (retired)
- Christian Monstein, ETH Zurich, Switzerland
- Akimasa Yoshikawa, ICSWSE, Kyushu University, Japan

18:30 *Ice Breaker Reception* 

# Tuesday, 3 March 2015

Morning <b>09:00</b>	Session 2: Solar Weather/National Activities Chairperson: Terry Onsager, NOAA, United State Rapporteur: Emad M. H.Takla, Egypt	es
09:00	Report of Space Weather Expert Group of Long-Term Sustainability Working Group under UN COPUOS	Takahiro Obara Tohoku University Japan
09:15	An overview of National Space Agency of Malaysia (ANGKASA) space weather research activities: past, present and future	Nyanasegari Bhoo Pathy National Space Agency of Malaysia (ANGKASA) Malaysia
09:30	Current status of space weather program in Indonesia	Clara Yono Yatini LAPAN Space Science Center National Institute of Aeronautics and Space Indonesia
09:45	Variability of the Sun and its terrestrial impact (VarSITI): SCOSTEP's scientific program in 2014-2018	Kazuo Shiokawa Solar-Terrestrial Environment Laboratory Nagoya University Japan
10:00	UN COPUOS: New Space Weather Expert Group	Ian Mann University of Alberta, Canada
10:15	International Space Weather Initiative in Africa: Benefits, implications and some new scientific results	Babatunde Rabiu Center for Atmospheric Research CAR National Space Research and Development Agency NASRDA, Nigeria
10:30	Network and products of the INPE's Space Weather program (EMBRACE)	Joaquim Rezende Costa INPE - National Institute for Space Research Brazil
10:45	Coffee/Tea Break	

11:15	Session 3: Weak Solar Activity Chairperson: Madhulika Guhathakurta, NASA Heliophysics, United States Rapporteur: Magdi Elfadil Yousif Suliman, Sudan				
11:15	Solar energetic particles and accompanied solar phenomena - statistical studies in solar cycle 23 and the rising half of solar cycle 24	Rositsa Miteva Space Research and Technology Institute Bulgarian Academy of Sciences Bulgaria			
11:30	Declining Solar Polar Fields and their Signatures in the Solar Wind: Implications to near Earth Space	Janardhan Padmanabhan Physical Research Laboratory India			
11:45	Weak Solar Activity in Cycle 24 and the Consequent Mild Space Weather	Nat Gopalswamy NASA Goddard Space Flight Center United States			
12:00	93 Years of Geomagnetic Data Acquisition at Huancayo Observatory	Jose Kaname Ishitsuka Geophysical Institute of Peru Peru			
12:15	Session 4: Coupling Processes Chairperson: Young-deuk Park, Korea Astronom, Korea Rapporteur: Mohamad Huzaimy Jusoh, Malaysia				
12:15	Sun impacts on ionized layers and transient variations of the Earth magnetic field	Christine Amory University Pierre and Marie Curie France			
12:30	Observations of equatorial ionization anomaly over Africa during a year of deep minimum	Segun Olawale Bolaji University of Lago Nigeria			
12:45	TEC variability of low latitude ionosphere and role of dynamical coupling: quiet and storm time characteristics	Gebregiorgis Fikade Mekelle University Ethiopia			
13:00	Coordinated optical, radio and magnetic investigations of wave dynamics in the daytime upper atmosphere	Deepak Karan Physical Research Laboratory India			
13:15	Lunch				

Afternoon 14:00	Session 5: Magnetosphere, Ionosphere and Atmosphere Chairperson: Ian Robert Mann, The University of Alberta, Canada Rapporteur: Nurul Shazana binti Abdul Hamid, Malaysia					
14:00	Role of ULF Waves in Ultra-relativistic Radiation Belt Dynamics: Explaining the 3rd belt	Ian Robert Mann The University of Alberta Canada				
14:15	On the correlation between geo-electric fields and GPS positioning errors	Paul Baki Olande Technical University of Kenya Kenya				
14:30	Characteristics of TEC perturbations observed over the mid-to-low latitude regions during geomagnetic storms	Patrick Sibanda University of Zambia Zambia				
14:45	Problems associated with ionosphere study by using tiny satellite	Koichiro Oyama National Cheng Kung University/Kyushu University Japan				
15:00	Ionospheric Scintillations and TEC Characteristics at Solar Minimum in a West African Equatorial Region Using GPS Data	Jean-Baptiste Ackah University of Felix Houphöuet Boigny Cote d'Ivoire				
15:15	Some variations of the ionospheric scintillation in Vietnam	Tran Lan Institute of Geophysics Vietnam				
15:30	Coffee/Tea Break					
16:00	Signatures of solar event at middle and low latitudes in the Europe-African sector, during geomagnetic storms, October2013	Ilyasse Azzouzi Laboratoire de Physique des Plasmas (LPP) Ecole Polytechnique, Paris Morocco				
16:15	Semiannual Variations of Ionospheric Chaoticity and Dynamical Complexity over the Equatorial Ionization Anomaly Region	Babalola Ogunsua Department of Physics Federal University of Technology, Akure Nigeria				
16:30	Spatio-temporal characteristics of the Equatorial Ionization Anomaly (EIA) in the East African sector using ionospheric tomography	Gogie Tsegaye Washera Geospace and Radar Science Laboratory, Bahir Dar University Ethiopia				
16:45	Geospace Exploration Project ERG	Yoshizumi Miyoshi Solar-Terrestrial Environment Laboratory Nagoya University Japan				

#### 17:00 **Panel Discussion 2:**

International Cooperation in Space Weather

#### Chair:

- Terry Onsager, NOAA, United States Rapporteur:
- Nurul Shazana Abdul Hamid, Malaysia Participants:
- Babatunde Rabiu, National Space Research and Development Agency NASRDA, Nigeria
- Ivan Dorotovic, Slovak Central Observatory, Slovakia
- Madhulika Guhathakurta, Office of Space Science, NASA, United States
- Koichiro Oyama, National Cheng Kung University/Kyushu University
- Joaquim Rezende Costa, INPE National Institute for Space Research, Brazil

18:30 Adjourn

#### Wednesday, 4 March 2015

#### Morning

09:00-18:00

#### Full Day Workshop: Solar-Terrestrial Environment Data Analysis

The solar-terrestrial environment (STE) data analysis workshop is promoting collaborative analyses of observation and simulation data to study the cause-effect activities from the Sun to the Earth using latest space weather events. The workshop is held twice a year in Japan. We select three or four scientifically interesting events during the periods for detailed analysis. Presentations of analysis on the past remarkable geoeffective events are also welcome.

18:00 Adjourn/Banquet

#### Thursday, 5 March 2015

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09:00	<b>Session 6:</b>	Space	Weather	<b>Impact</b>	and Awareness

Chairperson: Hans Haubold, United Nations Office for Outer Space Affairs (retired)

Rapporteur: Estelle Dirand, France

09:00 Geomagnetic disturbance effects in the geo-

electric field variations at low latitude

Vafi Doumbia UFR SSMT

*Universite Felix Houphouet Boigny* 

Cote d'Ivoire

09:15 Magnetic and ionospheric observations in the

Russian far East region during the magnetic

storm of 5 April 2010

Dimitry Baishev

Yu.G.Shafer Institute of Cosmophysical

Research and Aeronomy SB RAS

Russian Federation

09:30	Forecasting the electron fluxes at geosynchronous orbits via latitudinal global-mode Pc 5 pulsations: A statistical analyses comparison study	Magdi Elfadil Yousif Suliman Sudan University of Science and Technology Sudan
09:45	The role of MAGDAS-Sumatra to study Earthquake Precursors In Sumatra	Suaidi Ahadi STMKG Meteorological Climatological and Geophysical Agency Indonesia
10:00	Possible Physical Mechanism between Solar Activity and Earthquake Events	Mohamad Huzaimy bin Jusoh Universiti Teknologi MARA Malaysia
10:15	Nonadditive Entropies: From Einstein to Space Weather	Constantino Tsallis National Institute of Science and Technology for Complex Systems Brazil
10:45	Coffee/Tea Break	
11:15	Probing electromagnetic state of interplanetary space through measurements of cosmic ray diurnal anisotropy with GRAPES-3 tracking muon detector	Mohanty Pravata Tata Institute of Fundamental Research India
11:30	Panel Discussion 3 Space Weather Data Utilization and Operational Use	<ul> <li>Chair:         <ul> <li>Shing Fung, NASA Goddard Space Flight Center, United States</li> </ul> </li> <li>Rapporteur:         <ul> <li>Maria Gracita Cardinal, Philippines</li> </ul> </li> <li>Participants:         <ul> <li>Richard Marshall, Bureau of Meteorology, Australia</li> </ul> </li> <li>Satoshi Masuda, Nagoya University, Japan</li> <li>Christian Monstein, ETH Zurich, Switzerland</li> <li>Terry Onsager, NOAA, United States</li> </ul>
13:00	Lunch	
Afternoon	Cultural Event – Excursion/Free Afternoon	

# Friday, 6 March 2015

Morning						
9:00	Session 7: Sun to Earth Space Weather Modelling Chairperson: Akimasa Yoshikawa, ICSWSE, Kyushu University, Japan					
	Rapporteur: Elijah Olukayode Falayi, Tai Solarin	, I				
9:00	Statistical study of the relationship between the solar energetic particle events and associated	Susan Stefan NRIAG				
	solar phenomena	Egypt				
9:15	The Development of LEO-NEqO Trapped Particles Forecasting System	Gusrizal Space Science Center Universiti Kebangsaan Malaysia Indonesia				
9:30	Session 8: Hands-On Workshop organized by I	<u>ICSWSE</u>				
	Lecturers: Shuji Abe (ICSWSE, Kyushu University), Norio U University), Satoru Ueno (Kwasan and Hida Obse (Kyushu University) and students of Kyushu University)	ervatories, Kyoto University), Shun Imajo				
09:30	Introduction to the IUGONET					
09:50	How to install SPEDAS					
10:10	How to operate SPEDAS VM – Part1					
11:00	How to operate SPEDAS VM – Part2					
11:50	Free discussion					
12:30	Lunch					
Afternoon 13:30	Session 9: Observations, Recommendations and Chairperson: Nat Gopalswamy, NASA, United Sta					
13:30	Workshop Review, Observations and Recommendations	All Workshop Participants				
15:00	Coffee/Tea Break					
15:30	Discussion of Future Space Weather Activities	All Workshop Participants				

### 16:00 Closing Session

Master of Ceremony: Akimasa Yoshikawa, Kyushu University, Japan

Closing Remarks by the organizers  $\circ$  *ICSWSE* 

o ISWI

O United Nations Office for Outer Space

Affairs

17:00 Adjourn - Transfer to the hotel and end of the

Workshop

# **Poster Presentations**

Chairperson: George Maeda, ICSWSE, Kyushu University, Japan

No.	Name1	Name2	Institution	Country	Poster Title
UN-01	Abdul Hamid	Nurul Shazana	National University of Malaysia	Malaysia	Local Time and Longitudinal Dependence of Equatorial Electrojet Calculated from Ground-based Magnetometer
UN-02	Ahmad	Siti Noor	Universiti Teknologi Mara (UiTM)	Malaysia	Characteristics of Ultra Low Frequency (ULF) and Very Low Frequency (VLF) due to the Space Weather Conditions
UN-03	Ahmed Abdalla	Ahmed	King Saud University, Faculty of Science	Saudi Arabia	Installation of the Flare Monitoring Telescope in Saudi Arabia as a New Member of CHAIN Project (Continuous H- alpha Imaging Network Project)
UN-04	Ayaka	Tano	Dept. of Earth and Planetary Sciences, Kyushu University	Japan	The Comparison Between Champ Data and Gaia Model about Electron Density in the Ionosphere
UN-05	Cabezas	Denis	Centre for Radio Astronomy and Astrophysics, Sao Paulo	Peru	A "Dandelion" Filament Eruption and Coronal Waves Associated with the 2011 February 16th Solar Flare
UN-06	Dorotovic	Ivan	Slovak Central Observatory, Hurbanovo	Slovakia	Solar Radio Spectrometers in Slovakia Status Report
UN-07	Estelle	Dirand	ENSTA ParisTech	France	Computer simulation on formation of ionospheric current system accompanied by the incidence of shear Alfvén waves to the ionosphere
UN-08	Falayi	Elijah Olukayode	Tai Solarin University of Education	Nigeria	A Study of variation in horizontal geomagnetic field during geomagnetic substorms at different latitudes
UN-09	Gogie	Tsegaye	Bahir Dar University, Washera Geospace and Radar Science Laboratory	Ethiopia	Spatio-temporal characteristics of the Equatorial Ionization Anomaly (EIA) in the East African region via ionospheric tomography during the year 2012
UN-10	Grodji	Oswald Didier	Université Félix Houphouët Boigny de Cocody	Cote d'Ivoire	Study of the Equatorial Electrojet (EEJ) effects along 210° meridian magnetic, comparison results in West Africa (meridian 5°W)
UN-11	Hasanudin	Hasanudin	BMKG	Indonesia	Magnetic Calculator

No.	Name1	Name2	Institution	Country	Poster Title
UN-12	Hiroki	Matsushita	Dept. of Earth and Planetary Sciences, Kyushu University	Japan	The features of vertical component of daily geomagnetic field during geomagnetic storm
UN-13	Kaisei	Akimoto	Dept. of Earth and Planetary Sciences, Kyushu University	Japan	Characteristics of equatorial Pc 5 during electron flux enhancement
UN-14	Keiichiro	Fukazawa	Kyoto University	Japan	Optimization of MHD Simulation for Space Weather to Many Core Processor
UN-15	Kryakunova	Olga	Institute of Ionosphere	Kazakhstan	Ground-based experimental complex for Space Weather study in Kazakhstan: science and data product
UN-16	Minobu	Iwaki	Dept. of Earth and Planetary Sciences, Kyushu University	Japan	The terrestrial magnetosphere under the solar wind with no interplanetary magnetic field
UN-17	Mohanty	Pravata	Tata Institute of Fundamental Research	India	Probing electromagnetic state of interplanetary space through measurements of cosmic ray diurnal anisotropy with GRAPES-3 tracking muon detector
UN-18	Mohd. Kasran	Farah Adilah	Universiti Teknologi Mara (UiTM)	Malaysia	Correlation between Extraterrestrial and Geophysical Effects
UN-19	Moiseev	Aleksei	Yu.G. Shafer Institute of Cosmophysical Research and Aeronomy SB RAS	Russian Federation	Features of long-period geomagnetic pulsations excitation at high latitudes penetrating from the interplanetary medium during an impact of interplanetary shock on the Earth's magnetosphere
UN-20	Musafar Kilowasid	La Ode Muhammad	National Institute of Aeronautics and Space (LAPAN)	Indonesia	Usage of MAGDAS data for space weather science in Indonesia: study of outer electron belt acceleration
UN-21	Nozomu	Nishitani	STEL, Nagoya University	Japan	SuperDARN HOkkaido Pair of (HOP) radars: accomplishments, present status and future perspectives
UN-22	Pranoto	Setyanto Cahyo	National Institute of Aeronautics and Space (LAPAN)	Indonesia	Study of Pc3 Magnetic Pulsations
UN-23	Shuji	Abe	ICSWSE, Kyushu University	Japan	The IUGONET and its products for space weather study

No.	Name1	Name2	Institution	Country	Poster Title
UN-24	Shun	Imajo	Dept. of Earth and Planetary Sciences, Kyushu University	Japan	Nature of dayside ionospheric current system of Pi2 pulsations: Comparison between equivalent currents and numerical simulation
UN-25	Sugon	Quirino Jr.	Manila Observatory	The Philippines	EEJ / CEEJ current distributions from Philippine MAGDAS data
UN-26	Suzuki	Shin	Solar-Terrestrial Environment Laboratory, Nagoya University	Japan	CHAMP and ground-based airglow measurements of plasma density perturbations in the top-/bottom-side ionosphere associated with MSTID
UN-27	Takla	Emad	National Research Institute of Astronomy and Geophysics	Egypt	Latitudinal dependence of Pc 3-4 amplitude in the African sector using MAGDAS data
UN-28	Ward	Jonathan	South African National Space Agency	South Africa	SuperDARN or e-Callisto

#### **Publication Plan**

The papers to be presented at the UN/Japan Workshop on Space Weather: Science and Data Products from ISWI Instruments will be published in "Sun and Geosphere" as a special issue. The papers will undergo the usual peer-refereeing process and published in Volume 10, Number 2 of the Journal.

The submission deadline is June 30, 2015. Since we are planning to have the issue brought out within 2015, please adhere to the deadline. There is no page limit. On-line submission can be made starting June 1, 2015 at the web site: http://sungeosphere.org/. Detailed information on the manuscript preparation and submission can be found on this web site.

Kindly note that /Sun and Geosphere/ has published papers from previous ISWI workshops.