

*Issue 9, July 2019*

We hope the AOSWA framework helps  
our activities for improving space weather.

<http://aoswa.nict.go.jp/>

# AOSWA *Link*

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**AOSWA session and exhibition booth in AOGS 2019 will be held**

## **Your contribution is always welcome!**

If you wish to submit an article, you are greatly appreciated. The articles should be approximately 500 words and contain either figures or pictures. Also It is available for use as a means of spreading information, such as upcoming conference and so on. Your feedback is always welcome.

Contact : [sw-project-office@ml.nict.go.jp](mailto:sw-project-office@ml.nict.go.jp)

# EVENT REPORT

## The PSTEP session in European Space Weather Week 2018

By Dr. Mamoru ISHII, Director, Space Environment Laboratory, Applied Electromagnetic Research Institute, NICT

From November 5th to 9th 2018, the 15th European Space Weather Week (ESWW 2018) was held in Leuven, BELGIUM. The Japanese collaborative research project “Project for Solar-Terrestrial Environment Prediction (PSTEP)” has been hosting a “Topical Discussion Meeting (TDM)” in ESWW from 2016 as an opportunity to considering the collaborative research with European institutes. In the past TDMs, the geomagnetically induced current (GIC) which can affect the electric grid was discussed in 2016, spacecraft charging was considered in 2017. This time, as the 3rd TDM, “Radiation at Aviation Altitudes as a Result of Space Weather” was featured as the

session theme. The session was jointly hosted by Dr. Marcin Latocha from Seibersdorf Laboratories (Austria), Dr. Erwin De Donder from BIRA-IASB (Belgium) and Dr. Mamoru Ishii from NICT (Japan).

Prior to the TDM, the general session “Aviation Meets Space Weather – Roadmap towards space weather services for Aviation” was held. Dr. Kornyanat Hozumi from NICT gave a presentation about the radio propagation simulator named as “HF-START”, which is one of the products of the PSTEP.



Figure left and right : The venue, Katholieke Universiteit Leuven



After the general session, TDM was started at 17:15 with approximately 50 attendees. The session was proceeded by free-discussion style with the following themes.

1. “Practical space weather scales and risk indicators/indices regarding enhanced radiation levels at flight altitudes for easy-to-understand information dissemination”

(Moderator: Dr. Marcin Latocha)

2. “Space weather forecasts for aviation: confidence levels and lead times for future radiation dose forecast” (Moderator: Dr. Erwin De Donder)

3. “Potential international scientific collaborations on subjects related to radiation due to space weather” (Moderator: Dr. Mamoru Ishii)

In the session, opinions such as “The currently available indicators are too specialized and difficult to understand for the users.”, “Collaborating with COSPER is necessary. They are considering standardization about some ionospheric indicators.”, “On a flight with cabin Wi-Fi,

passengers might be able to have more information than pilots. Unclear Space Weather information might lead them to a panic. We need to be more studiously to announce the radiation condition on the WEB.” were raised and there was a lively discussion.

In the “international collaboration” part, Dr. Ishii introduced the summary of the PSTEP, then Dr. Tatsuhiko Sato, Japan Atomic Energy Agency explained about current status of “WASAVIES“, a simulation model which developed in the “PSTEP”, and considered about collaborations to compare “WASAVIES” and the other simulation models.

In conclusion, considering about the necessity to keep the discussion with users about how to provide the easy-understandable Space Weather information for the users, it is decided that the next TDM session will be held in the ESWW 2019.



Figure left : Dr. Hozumi in the General session

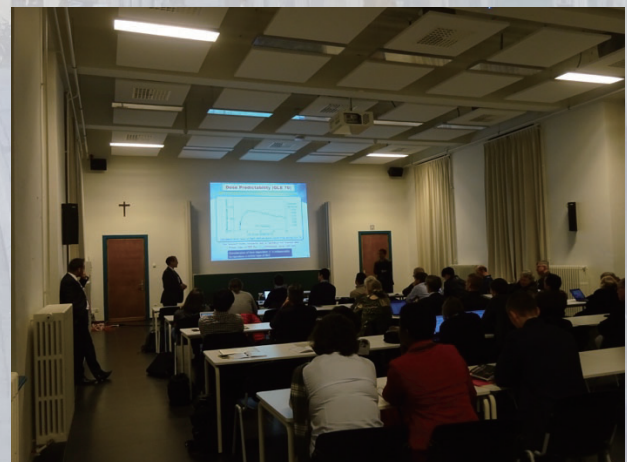


Figure right : Dr. Ishii in the TDM session



## European Geosciences Union (EGU) General Assembly 2019

Text by Naoto Nishizuka / National Institute of Information and Communications Technology

The “European Geosciences Union (EGU) General Assembly 2019” was held in Vienna, Austria, from April 8th to 12th, 2019. EGU is the largest Earth science conference in Europe, with more than 10,000 participants gathered to discuss interdisciplinary topics every year. In this year, it was held at the Austria Center by the Danube River.

I hosted and chaired a session "Predictions of Solar Flares and Eruptions: Observation, Theory and Modeling" together with Dr. Mamoru Ishii, the Principal Investigator of the A01 Space Weather Forecast System Group of “Project for Solar-Terrestrial Environment Prediction (PSTEP)”. In

“Inter-Programme Team on Space Weather Information, Systems and Services (IPT-SWeISS)” of the World Meteorological Organization (WMO), the importance of "bridging science and operation", "the forecast evaluation" and "linking the space weather and climate on the Earth" under international cooperation are pointed out, and various activities are being carried out. This session was planned as a part of its activities. In the first half, the presentations were given by people involved in the space weather forecast operation, and the second half was about solar ultraviolet and the climate change.



Figure left and right: The venue, Austria Center, Vienna, Austria



Figures: "Predictions of Solar Flares and Eruptions: Observation, Theory and Modeling" session with 60 audiences

The oral session was started with an invited talk by Prof. Kanya Kusano, the project leader of PSTEP, and then each speaker gave his/her presentation from the standpoint of theory, observation and operation. The participants of the session were not only solar physicists, but also researchers of the ionosphere and the climate, and there was a lively discussion with about 60 audiences.

My interested session in EGU was the machine learning session. There were about 80 presentations in 3 sessions, all of which

were a big success with full of audience including standees. The targets of the presentations were diverse, such as prediction and classification of geological, atmospheric, ocean and space environments, but the common method and thinking through the sessions were applicable and very helpful. I presented a poster, "Operation of Solar Flare Prediction by Deep Flare Net". About 15 people who were interested in machine learning came to see my poster, and their comments and questions inspired me a lot.

(Naoto Nishizuka / National Institute of Information and Communications Technology)

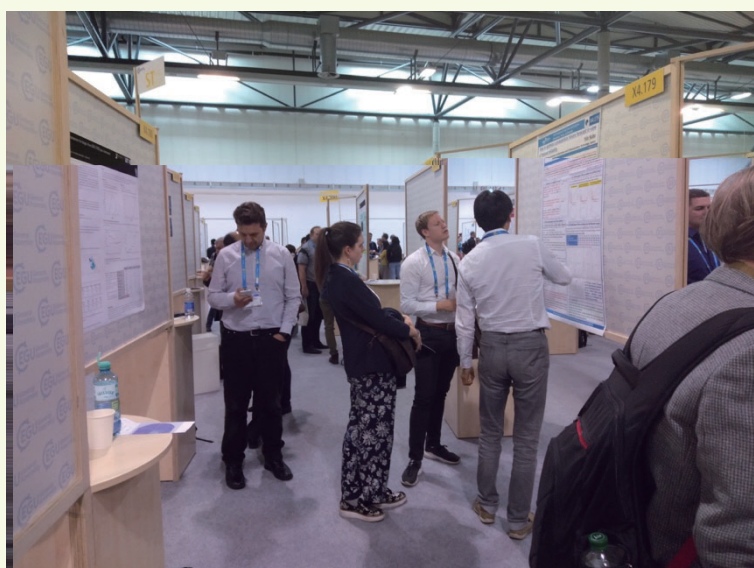


Figure left: The poster session



# The 7th Space Weather Users Council

宇宙天気ユーザー協議会  
SPACE WEATHER USER'S COUNCIL

Held on March 19th, 2019. Text by Kenji Nakayama / National Institute of Information and Communications Technology

On March 19th, 2019, the 7th Space Weather Users Council was held at the headquarter of National Institute of Information and Communications Technology (NICT), Tokyo, JAPAN. This meeting is intended to enlighten and to share the latest status of the SWx research with the users. The twenty-five participants were mainly consisted by business operators who use/or will use the space weather information. In this meeting, the current status and future development of the space weather information were discussed with a focus on the activities of PSTEP A01 Space Weather Forecast System Group.

The meeting was started with the opening remark by Dr. Mamoru Ishii from NICT, the Principal Investigator of PSTEP A01 group. He introduced the activities of PSTEP, a consideration in the “UNISPACE + 50” at “UN / COPUOS”, international trends such as AOSWA that is served a secretariat by NICT, and the activity towards the space weather services for ICAO. Subsequently, the status of the study on the spacecraft charging was reported, a brief tour to the daily space weather forecast meeting in NICT was taken place, then the status reports of GIC, radio wave propagation, aircraft exposure, and the hazard map were explained by the PSTEP members.

In this meeting, questions from the space weather users were raised actively, such as on the topic of ICAO, “what is the structures and the characteristics of each three global centers?”, and introduced that Japan is



Figure left: Dr. Ishii explaining about PSTEP.



Figure right: the 7<sup>th</sup> Space Weather Users Council

attracting attentions as the only country which can provide equatorial plasma bubbles information, it can affect the satellite positioning. On the spacecraft charging, satellite operators asked that "can our satellites use the model?", thereby, the importance and difficultness to disclose satellite specifications were discussed. On GIC, due to the items to be prioritized to improve the prediction accuracy are dependable on the user's demand, the importance of exchanging information with users was featured. On radio wave propagation, the necessity of a scintillation

prediction model was discussed as a future perspective. On the hazard map, the next solar cycle prediction was discussed. Lastly, the meeting was concluded with a closing remark by Dr. Kazumasa Taira, the director of Applied Electromagnetic Research Institute, NICT.

The activity period of PSTEP is a half year left, but in order to provide more usable space weather information, the importance of the discussions with users is still high. We hope to continue the Space Weather Users Council even after PSTEP will be finished.

(Kenji Nakayama / National Institute of Information and Communications Technology)

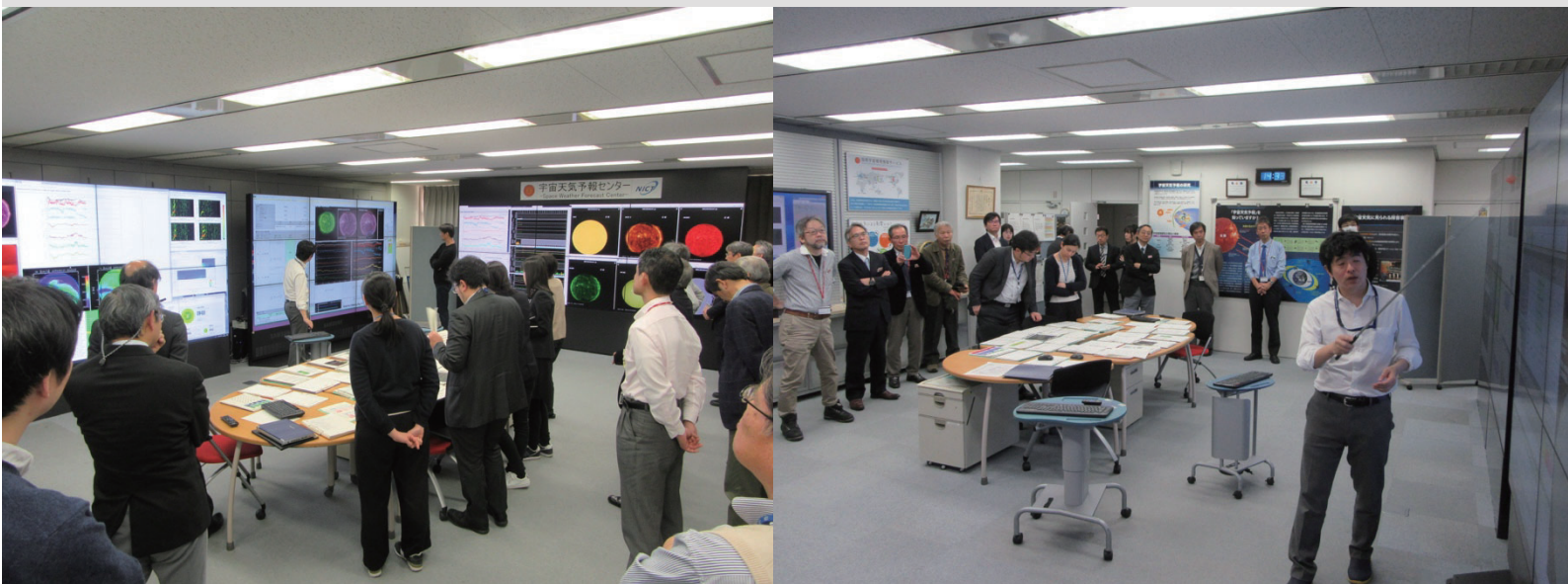


Figure left and right: the brief tour to the daily space weather forecast meeting.





AOSWA session and exhibition booth in AOGS 2019 will be held soon!

URL: <http://www.asiaoceania.org/aogs2019/>

### AOSWA session in AOGS 2019

Date & Time: 29 July 2019, 8:30 AM – 10:30 AM (120 min)

Venue: SUNTEC Singapore Convention & Exhibition Centre, Room 311

Session name: ST22 Space Weather Research and Operation in Asia Oceania

Main Convener & session chair: Dr. Mamoru Ishii (NICT, Japan)

Agenda:

Slot	Title	First Author	Duration
1	The Recent Activities of R20 Transition in Korean Space Weather Operation	Dr. Seung Jun Oh (SELab, Inc, Korea, South)	15 min
2	Current Status of Ionospheric Space Weather Products in Taiwan	Dr. I-Te Lee (CWB, Taiwan)	15 min
3	NICT Ionospheric Observations in Japan and Southeast Asia	Dr. Takuya Tsugawa (NICT, Japan)	15 min
4	Radio Propagation Simulator to Translate Ionospheric Effect on High Frequency Waves	Dr. Kornyanat Hozumi (NICT, Japan)	15 min
5	The Relationship Between Equatorial Plasma Bubble and Evening Counter Electrojet Current Measured in West of Southeast Asia	Dr. Nurul Shazana Abdul Hamid (UKM, Malaysia)	15 min
6	ROTI Map Generation over Thailand	Prof. Pornchai Supnithi (KMITL, Thailand)	15 min
7	Low-latitude Ionospheric Irregularities in June Solstice Observed by Equatorial Atmosphere Radar and GPS Receivers	Dr. Prayitno Abadi (LAPAN, Indonesia)	15 min
8	Equatorial Ionosphere Disturbance Index Based on BDS-GEO Data	Dr. Artem Padokhin (MSU, Russia)	15 min

### AOSWA exhibition booth

Date & Time: 29 July 6:30 PM - 1 Aug 2019 Afternoon

Venue: Suntec Singapore Level 3 – A03

Content: Presentation slides of the activities of AOSWA associates, poster

Exhibition theatre: 1 Aug 3:30 PM – 4 PM



## *Editor's notes*

*Kenji Nakayama, Editor of AOSWA LINK*

*As you know, we will have the AOSWA session and a exhibition booth in AOGS 2019 at Suntec Singapore.*

*I strongly hope as a AOSWA secretariat, to boost up the lively discussions about space weather in Asia Oceania region, it is necessary that we will provide the opportunity to gather more closer and more frequently.*

*I hope that this opportunity will be a help for all the AOSWA friends.*

*Sincerely,*

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**AOSWA LINK is issued by AOSWA Secretariat**

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