

Minutes – ISWI Steering Committee Meeting 2020 – February 7, 2020  
Meeting held at the Vienna International Centre (VIC), Vienna Austria  
Minutes Submitted by Patricia Doherty, ISWI Meeting Coordinator

Dr. Nat Gopalswamy (ISWI Steering Committee Chair) called the meeting to order at 10AM. Twenty-two participants were in attendance including 10 steering committee members, achieving the necessary quorum for the meeting.

Dr. Gopalswamy presented the agenda as follows with the caveat that item 11 will take place when the Skype call from India is received in the meeting room.

- 1. Introduction & Report (chair)
- 2. Secretariat update (Pat Doherty, Katya Georgieva)
- 3. Steering Committee update (welcome Manuela Temmer and Mamoru Ishii)
- 4. ISWI National Coordinators (Discussion by Christine Amory)
- 5. ISWI Instruments update (Christian Monstein, Keith Groves, Jean-Pierre Raulin)
- 6. Data Subcommittee Report (Shing Fung)
- 7. ISWI – UNOOSA Collaboration (Sharafat Gadimova)
- 8. Expert Committee on Space Weather – summary of activities (Ian Mann)
- 9. ISWI/NASA report
- 10. ISWI/ICTP 2019 Workshop report (Nat Gopalswamy)
- 11. ISWI Workshop Nov 2020, India Skype presentation from india: Dr. Ramachandran
- 12. Space weather agenda in WMO (Werner Balogh)
- 13. VarSITI Report (Katya Georgieva)
- 14. SCOSTEP/PRESTO report (Kazuo Shiokawa)
- 15. Discussion on ISWI School in Portugal, future activities

Prior to starting the formal agenda, Nat began with a short report on the success of the Parker Solar Probe. The success is evident in the new wave of research papers that have been recently published in a special issue of the Astrophysical Journal. The Parker Solar Probe has successfully made its 4<sup>th</sup> closest approach to the Sun and it is deemed healthy and operational. For updates on the Parker Solar Probe, visit the website: <http://parkersolarprobe.jhuapl.edu/News-Center/>

The Parker Solar Probe launched on August 12, 2018. We can now anticipate even further information about the Sun with the launch of the Solar Orbiter on Sunday February 9, 2020. The mission of the Solar Orbiter is to study the solar poles.

#### #11. ISWI Workshop Nov 2020, Skype presentation from VSSC, ISRO, India

A SKYPE call was held with Dr. Radhika Ramachandran and Dr. Tarun Pant of the Space Physics Laboratory (SPL), Vikram Sarabhai Space Centre (VSSC), ISRO. Dr. Ramachandran is the Director of SPL. Dr. Pant is a member of SPL and will be the local host for the upcoming ISWI workshop to be held in Trivandrum, India.

The skype conversation confirmed the agreement of ISRO to host the next ISWI Workshop in collaboration with UNOOSA and ISWI. The workshop will be held at the VSSC in Thiruvananthapuram (Trivandrum), Kerala, India on November 2-6, 2020. Details

including the anticipated number of participants to be sponsored by UNOOSA, ISWI and ISRO were discussed together with plans for UNOOSA to host the application and registration website.

A number of scientific sessions are anticipated to include traditional sessions together with some new ones. As always, ISWI has requested that sessions on capacity building and outreach be included in the program. In addition, Nat requested space for poster sessions and possible meetings with local science teachers in high schools to enable interaction with students. At this time, we anticipate 100 participants including Indian and international participants. Presenters in the workshop will have an opportunity to publish in a peer-reviewed journal. In the past we have used Sun and Geosphere.

All were in agreement on the plans for the workshop. Final agreements were made to host teleconference discussions once/month for planning purposes. Nat will assemble an announcement of the meeting soon.

ISWI also recognized the statement made from the Indian Delegation to the STSC on 4 February on the Space Weather Agenda Item. This statement specifically included the plan to host the the workshop in 2020.

## # 2. Secretariat update

Pat Doherty presented a recap of the ISWI schools and workshops held in 2019. These included:

- ISWI Workshop 2019, Trieste, Italy, 20-24 May 2019
  - Information/presentations on: <http://indico.icti.it/event/8682/>
- African Geophysical Society Conference on Space Weather, Cairo, 25-28 March 2019; Information on: <http://spaceweather.edu.eg/AGS2019.html>
- Space Weather Meeting, San Juan, Argentina, 2 July 2019, on the occasion of the total solar eclipse
- COSPAR Capacity Building Workshop, Kodaikanal Solar Observatory, 6-17 January 2020

Katya Georgieva provided an update on the ISWI website at: [iswi-secretariat.org](http://iswi-secretariat.org). The site is quite active reporting on all ISWI activities and hosting the newsletters. The webmaster for the site is Mitko Danov of SRTI at the Bulgarian Academy of Science. The steering committee expressed appreciation for Mitko's work on the website and for George Maeda's work on the ISWI Newsletters.

## #3. Steering Committee update

Nat Gopalswamy welcomed Manuela Temmer and Mamoru Ishii to the steering group. Dr. Temmer will represent Europe but could not attend this meeting. Dr. Ishii was present and will be representing NiCT, Japan and AOSWA (Asia Oceania Space Weather Alliance).

## #4. ISWI National Coordinators - Updates

Christine Amory introduced the following names as new ISWI coordinators.

Sri Lanka: Dr. D.D.G.L. Nahanayaka, The Open University of Sri Lanka (2<sup>nd</sup> coordinator)

Nepal: Dr. Narayan Prasad Chapagain, Tribhuvan University, Kathmandu ((2<sup>nd</sup> coordinator)  
 Pakistan: Dr. Najam Abbas Naqvi, Institute of Space Technology, Islamabad  
 Vietnam: Dr. Minh LE HUY, Vietnam Academy of Science and Technology, Hanoi  
 Benin: Dr. ADECHINAN Adebisi Joseph, Universite d'Abomey-Calavi, Benin  
 South Africa: Dr. John Bosco Habarulema, SANSA, Hermanus

Christine provided details on the qualifications of all of these coordinators. Nat will send the information to Mitko Danov to add these names to the website.

Christine also provided updates from GIRGEA. GIRGEA aims to develop space physics in developing countries. This report provided highlights on relevant successes and activities in Algeria, Burkina Faso, Cameroon, Cote d'Ivoire, Morocco, Senegal, Democratic Republic of the Congo.

Richard Marshall provided an update on activities in the Asian region. This included a few slides from national coordinators in China, the Philippines, Kazakhstan, Malaysia and Australia.

- China: Siqing Liu provided information on the International Meridian Circle Program where over 1000 instruments have been deployed along the 120°E to 60°W Meridian. An international forum was held in September 2019 in Beijing. Construction has begun on an IMCP headquarters in the Huairou Science City of Beijing - with a data center, control center, training room, etc.
- Philippines: Q. Sugon, C. Bennett, J. Bernard, O. Simpasi and Daniel McNamara – report on the recent installation of a VIPIR ionosonde at the Manila Observatory. They also report on maintenance performed on the MAGDAS magnetic observatory by a team from Kyushu University, Japan.
- Kazakhstan: Olga Kryakunova provided slides on measurements from the eCALLISTO spectrometer in Almaty. A report on the Kazakhstan Space Weather Prediction Center was also provided. The Center issues short-term and long-term forecasts of magnetic indices and solar activity, together with forecast of probability of large proton enhancements.
- Malaysia: Zahira Mohd Radzi of the Malaysia Space Agency reported on the instruments in operation in Malaysia. These instruments include MAGDAS magnetometers, eCALLISTO, and GPS receivers throughout the region. Malaysia is also working towards establishing a capability for space weather monitoring.
- Australia: Richard Marshall provided details on the locations of MAGDAS installations at Bureau of Meteorology. Australia recently joined the ACFJ (Australia, Canada, France and Japan) consortium to provide SWx advisory services for ICAO. Richard discussed the many preparations that are taking place for the 43<sup>rd</sup> COSPAR Scientific Assembly that will be held in Sydney in August 2020. This program will feature several sessions on space weather. A new data product is in development for AMPERE by the University of Newcastle. A very exciting new BS in Space Science program is commencing at RMIT Melbourne that includes components of Space Weather. Richard concluded that there are a number of ISWI instruments at the sites in Australia not producing data – due to maintenance or support issues. If these are not fixed, the Bureau of Meteorology cannot continue to support them.

Ukraine: Activities in the Ukraine were presented by Aleksei Parnowski of the Space Research Institute, Ukraine. This presentation focused on plans to create an operational space weather center; to expand and integrate the space weather instrument network and to utilize the current and future ground instruments to support national and international missions.

Mamoru Ishii of NICT, Japan described space weather research and operations in Japan. NICT hosts a fully staffed Space Weather services center since December 2019. Dr. Ishii also described the Asia-Oceania Space Weather Alliance (AOSWA). AOSWA is comprised of 13 countries; workshops are held every one and a half years. The next workshop will be held in August 2020 in Malaysia. NICT also contributes to ICAO as part of space weather global centers. This presentation also presented PSTEP (Project for Solar-Terrestrial Environment Prediction) – a nation-wide project in Japan for space weather and space climate studies.

Vincenzo Romano discussed the many space weather activities performed in Italy. In addition to what we have already learned about the activities at INGV and ICTP; Vincenzo spoke of the solar physics group in Catania that has a solar flare prediction method. One of the instruments on-board the Solar Orbiter is METIS (Multi Element Telescope for Imaging and Spectroscopy) – realized in Italy. METIS was designed for the detailed observation of solar coronal structures. Finally, Vincenzo revealed that INGV has recently been invited by SANSa to join PECASUS (Pan-European Consortium for Aviation Space Weather).

## **#5. ISWI Instrument Updates**

6 presentations were made on instrument updates. The following includes just a few highlights of the presentations.

e-CALLISTO: Christian Monstein

- The e-CALLISTO network is still growing with current interest from Cote d'Ivoire, Ecuador, Nigeria, Cuba, Oman, Azores, Tenerife, South Africa, Argentina, DLR and Ethiopia.
- RFI situation is getting worse worldwide
- No funding is available to further support instruments and training due to the retirement of the PI – Christian Monstein. However, Dr. Monstein is willing to continue his efforts and hopes that alternate funding can be identified.

SCINDA Update: Keith Groves

- There is improved outlook for new ground systems support to revitalize SCINDA. The initial phase of this new activity will focus on demonstration of capabilities and evaluation of the new GNSS sensors. The new version of SCINDA will have a less restrictive data access policy.

EMBRACE: Jean-Pierre Raulin

- New EMBRACE sites were revealed together with a view of equatorial plasma bubbles detected with GPS TEC maps and All-sky imagers. Additional studies using SAVNET were presented together with studies on the Great American Solar Eclipse.

German ISWI Activities: Jens Berdermann

- An update of Global Ionospheric Flare Detection Systems (GIFDS) and Solar Flares detected by Ionospheric Effects (SOFIE) was presented.

Report on Space Weather Related Activities in Africa: Babatunde Rabi

- Newly designed magnetometers were built in Africa and deployed to monitor space weather. Other magnetometer networks, such as AMBER and MAGDAS, are having problems mainly with lack of support (both financial and physical). An update on Space Weather monitoring facilities was presented ([www.carnasrda.com](http://www.carnasrda.com)).
- Workshops in Kenya and Nigeria took place in 2019 and will occur again in 2020. These workshops are taking up the challenge of space weather education in Africa

#### ISWI Instrument Update: Shing Fung

- Shing provided updates on other networks with short presentations on:
  - The AWESOME instruments (info supplied by Morris Cohen)
  - GMDN+ - Global Muon Detector Network (info provided by Chihiro Kato, Japan)
  - OMTIs – Optical Mesosphere Thermosphere Imagers (info provided by Kazuo Shiokawa)
  - SEVAN –Space Environment Viewing and Analysis Network (info provided by Ashot Chilingarian)

Nat commented that he is working to set up a small trust fund at the UNOOSA to cover the cost of instrument procurement and maintenance. This fund could also cover travel expenses for Christian Monstein and other similar expenses.

#### **#6. Data Subcommittee Report**

Shing Fung provided an update on the ISWI Open Data Policy. The policy is to facilitate unrestricted flow of ISWI data across geo-political and organizational boundaries. 19 instruments are adhering to the policy but there are still 4 missing (CIDR, RENOIR, SCINDA, AMMA).

Shing presented the International Heliophysics Data Environment Alliance (IHDEA) established in December 2019. Through its international collaboration and coordination, the IHDEA can help promote and distribute ISWI instrument data. Finally, Shing presented the ISWAT (International Space Weather Action Teams) as part of 2020 COSPAR activities. The ISWAT inaugural meeting was to be held in Florida on Feb 10-14. The COSPAR scientific assembly to be held in Australia in August will also host the COSPAR-20-PSW.4: Space Weather Information Architecture and Its Roles in Enhancing Data Access and Utilization. All agreed that ISWI can certainly benefit by collaborating with COSPAR on these activities. Nat has been invited to give a talk on ISWI at the COSPAR ISWAT meeting in Florida.

#### **#7. ISWI – UNOOSA Collaboration**

Sharafat (Shafa) Gadimova (co-chair of the ISWI group) stated continued commitment from UNOOSA and the ICG. Shafa is actively working on the upcoming ISWI workshop to be held in India in November 2020.

#### **#8. Expert Committee on Space Weather**

Nat read Ian Mann's report on the expert committee on Space weather. This group met earlier this week at UNOOSA. The full report can be found on the ISWI-Secretariat website. In summary, the expert group will continue to operate by reviewing space weather related activities and work plans of relevant UN organizations, including the WMO and ICAO. The group will promote increased and expanded member state involvement in providing space weather monitoring, from the ground and in-space, and in developing, advancing and sharing space weather services.

### **#9 and #10 ISWI/NASA Report**

Nat presented a report from Jim Spann on Space Weather strategy at NASA together with NASA partnerships with NOAA, NSF and the U.S. Air Force to develop the space weather forecasting capability that the Nation requires. The presentation called out the ROSES calls for proposals in Space Weather Operations-to-Research (SWO2R)

Nat then presented a review of the ISWI workshop that was held in May 2019 at the ICTP in Trieste, Italy. This was a very successful event. All of the presentations are available at:

<https://www.unoosa.org/oosa/en/ourwork/psa/schedule/2019/2019-iswi-workshop.html>

The workshop resulted in a Special Issue of Sun & Geosphere – co edited by Susanna Finn (USA), Sneha Yadav (India), Babatunde Rabi (Nigeria), Pertti Mäkelä (USA) and Nat Gopalswamy (USA). Final publication is expected in 1-2 months.

The COSPAR Capacity Building School was similarly successful. This was held in January at the Kodaikanal Solar Observatory. A detailed report is available at:

[https://www.iiap.res.in/COSPAR\\_KSO2020/](https://www.iiap.res.in/COSPAR_KSO2020/)



Participants of the COSPAR Capacity Building School.

### **#12 Space Weather Agenda in WMO**

Werner Balogh's presentation stressed the importance for the space weather community to engage with their WMO representatives. WMO has engaged in space weather work since 2009. It is presently revising its workplan in line with the "Four-Year Plan for WMO Activities Related to Space Weather 2020-2023". Space weather is included in the WMO technical and regulatory framework – manuals and guidelines have been produced. Werner also presented OSCAR – Observing Systems Capability Analysis and Review Tool. OSCAR is a resource developed by WMO in support of Earth Observation applications, studies and global coordination.

For more information: <http://www.wmo.int/sat>

### **13. VarSITI Report**

Katya Georgieva made a presentation on VarSITI (Variability of the Sun and Its Terrestrial Impact)– SCOSTEP's scientific program that ran from 2014-2018. VarSITI held its closing symposium on June 10-14, 2019 in Sofia, Bulgaria. It was attended by 98 participants from 24

countries. VarSITI was quite a success – even though it operated under extreme solar minimum conditions. Presentations from the closing symposium are available online: <http://newserver.stil.bas.bg/VarSITI2019/>.

#### **14. SCOSTEP/PRESTO Report**

On behalf of Dr. Kazuo Shiokawa, Nat presented a report on SCOSTEP and its new 5-year Scientific Program PRESTO (Predictability of the variable solar terrestrial coupling) which will run from 2020-2024. PRESTO's mission is to identify predictability of the variable solar-terrestrial coupling performance metrics through modeling, measurements and data analysis to strengthen the communication between scientists and users. The chairs of PRESTO include: Ramon Lopez (Chair), Katja Matthes and Jie Zhang (co-chairs).

Detailed documentation for PRESTO can be found online:

[http://www.issibj.ac.cn/Publications/Forum\\_Reports/201404/W020190620592906717714.pdf](http://www.issibj.ac.cn/Publications/Forum_Reports/201404/W020190620592906717714.pdf)

#### **#15. Future Activities**

Nat recapped some ideas for future ISWI activities. These include:

- ISWI Workshop in Uganda: March/April or late Oct/Nov 2021 – Florence Dujanga is the local POC
- Iberian Space Science Summer School 2021 (POCS: Teresa Barata and Consuelo Cid)
  - First Edition with ISWI. Future schools annual, alternating between Portugal and Spain.
- A possible COSPAR Capacity Building workshop in Sri Lanka – 2021.

#### **#16. Other Business**

A final presentation was contributed on Space Weather Monitoring in Pakistan by Muhammad AYYAZ Ameen of SUPARCO. This presentation identified that Pakistan is active in Space Weather research and fully supports a Pakistan Space Weather Centre (PSWC). They host an ionosonde, eCallisto, variometer and TEC receivers. Daily space weather summaries are provided for a variety of users. Pakistan is involved in a number of international cooperations. They are supporting capacity building an workshops.

.....  
Nat and Shafa thank all for their contributions and the meeting was adjourned at 5:00PM. A group dinner was held at Zwolf Apostelkeller.

Note that many of the presentations described in this report can be found on the website: [www.iswi-secreatariat.org](http://www.iswi-secreatariat.org).