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＊所属・職名は2026年3月現在

＊Affiliation and Department displayed are current as of March 2026.

研究代表者 Principal Investigator	所属機関* Affiliation	所属部局* Department	職名* Job title	研究課題名 Project Title	頁 Page	備考 Remarks
Babatunde Rabiu	National Space Research and Development Agency, Nigeria	Directorate	Professor/Research Director	International Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI) 2025	391	
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International Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI 2025)

Babatunde Rabiu (National Space R & D Agency, Nigeria; and Network of Space-Earth Environmentalists)

Preamble: The International Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI 2025) is an annual capacity building workshop geared towards understanding of the Sun and its impact on space weather; the dynamics of the equatorial ionosphere, its complexities and high level of dynamics which results in phenomena such as spread F, ionospheric anomaly, equatorial electrojet, equatorial plasma fountain, etc; and how space weather impact on telecommunications, navigation, satellite operations, and other space-based technologies. The Colloquium metamorphosed from a summer school-like programme tagged International School on Equatorial and Low Latitude Ionosphere (ISELLI) which held in Abuja and Ota, Nigeria in 2015 and 2017 respectively. Since 2019, ICELLI has been held as an annual event. This 2025 edition of the colloquium was the 9th edition of this capacity building gathering in Nigeria.

Date: Monday 28th July - Friday 1st August 2025
Venue: Bowen University, Iwo, Osun State, Nigeria & Everywhere online

Achievements: The International Colloquium on Equatorial and Low-Latitude Ionosphere (ICELLI), was held at Bowen University, Iwo, Osun State, Nigeria between 28th July and 1st August 2025. At prime, 33 physical and 45 virtual participants from 21 countries participated in the Colloquium. The 9th edition like others, featured lectures, tutorials and hand on sessions on topics geared towards understanding of the Sun and its impact on space weather; the dynamics of the equatorial ionosphere, and how space weather impact on space-dependent technologies. This year's edition focused on emerging topics of interest such as applications of Artificial Intelligence, Machine Learning, open-source programming languages and non-linear tools towards understanding and predictability of complex atmospheric and space weather processes for effective operational systems.

Opening and Day to day activity of the workshop

The workshop was declared open by the Vice Chancellor, Bowen University, Prof. Jonathan Oyebamiji Babalola, FAS, on Tuesday 28th July 2025. Thereafter, an introductory speech was made by Professor Babatunde Rabiu FAS (National Space Research and Development Agency, Nigeria) and the convener of ICELLI. Goodwill messages were delivered by Prof. Kazuo Shiokawa President-SCOSTEP, ISEE, Nagoya University, Japan, Prof. Christine Amory Mazaudier, Sorbonne Universities, Paris, France; Prof. Kazuo Shiokawa ISEE, Nagoya University, Japan; Prof. Olivier Obrou, President, African Geophysical Society; Prof. Prof. Wojciech J. Miloch, University of Oslo, Norway; Dr. Bruno Nava, ICTP, Trieste, Italy; and Prof. B. O. Adebesin - Hillside University of Science and Technology Okemesi Ekiti State. Also at the opening session, award of excellence was presented to twenty (20) individuals who have featured as resource persons in the past 8 editions and 9th edition of ICELI for more than 2 times.

Topics of papers presented at the activity are: Space Weather events in low latitudes ionosphere and on Earth's magnetic field; Data Preprocessing & Exploratory Data Analysis with Python; Plasma bubble evolution during Mother's Day 2024 geomagnetic storm; Data Visualization with Python; CNN-Based Detection of Equatorial Plasma Bubbles for Space Weather Monitoring; Ionospheric disturbances within equatorial anomaly region using HF Doppler sounding; The status of VT-NigerBEAR and its science potentials for characterisation of equatorial ionosphere; Time Series Analysis with Python; Investigation of Complexities of the ionosphere using Chaos theory; Swarm Satellite-Based Evaluation of Empirical and Machine Learning Ionospheric Models' On the Spatio-temporal Variation of the Atmosphere; Next-Gen AI for Atmospheric Science; Application of AI in time series data analysis; AGATA project and implications for studies at the low latitudes; Introduction to LoLa Radar network and its scientific opportunities; Application of non-linear tools in atmospheric sciences; Tutorials on ionosonde and some results on equatorial ionosphere; Applications of Machine learning in atmospheric science. A special tribute session was held in honour of Prof. Olayinka Adeniji Olawepo (23rd February 1964 – 3rd August 2024) on Wednesday 30th July 2025. Fifteen (15) trainees whose abstracts were approved during the application stage, also presented contributed quality papers. Some of the lectures came with hands-on training. The workshop ended on Friday 1st August 2025 with a technical tour of the Campus facilities and departures by the participants. In all 33 papers were delivered by experts and trainees and the papers are available at www.nspee.org/icelli

Attendance: A total of 79 participants from 21 countries participated in the Colloquium with breakdown as follows:
Total of number of physical participants: 34 (Including 7 on-site experts that participated as instructors)
Total number of online participants: 45 (Including 8 experts that gave lectures online)

Participants Countries:
Australia, Brazil, Burkina Faso, Canada, Cote D'Ivoire, Ethiopia, France, Germany, Ghana, India, Italy, Japan, Kenya, Mali, Morocco, Nigeria, Norway, Pakistan, South Africa, Uganda and Zambia (21)

Number of participants by Country:

Australia	1	Japan	2
Brazil	1	Kenya	2
Burkina Faso	4	Mali	1
Canada	1	Morocco	2
Cote D'Ivoire	1	Nigeria	48
Ethiopia	1	Norway	1
France	1	Pakistan	1
Germany	2	South Africa	1
Ghana	1	Uganda	3
India	2	Zambia	2
Italy	1		

(Form15-2)

2025 IMCP Space Weather School

Liwen Ren
National Space Science Center(NSSC), Chinese Academy of Sciences(CAS)

The 2025 IMCP Space Weather School was successfully held from November 10 to 16 in Haikou, Hainan Province, and concluded smoothly on November 16.

Approximately 80 participants from 23 countries attended the training, including 42 participants from 21 countries such as Peru, Malaysia, Brazil, Russia, Argentina, and Thailand. The teaching team consisted of 14 experts in the fields of space weather and space physics, including five international lecturers: Professor Joaquim Eduardo Rezende Costa from the National Institute for Space Research (INPE) of Brazil, Associate Professor Yuichi Otsuka from Nagoya University, Professor Juha Vierinen from the University of Tromsø (UiT) in Norway, Professor Jayachandran P. Thayyil from the University of New Brunswick, Canada, and Professor Michael Kosch from the South African National Space Agency (SANSA), as well as nine experts from various research institutions and universities in China.

The training aimed to cultivate young scholars' understanding of the entire physical process of space weather through systematic courses and field visits, and to promote international exchange and collaboration within the International Meridian Circle Program (IMCP).

In terms of course design, in addition to lectures, field visits and hands-on assignments were arranged. The assignments were completed in groups by the students, with ample time for Q&A sessions. Finally, the scientific committee of the training school selected the top three groups, based on their assignment presentations, to receive the Outstanding Participant Award.

This International Meridian Circle Space Weather Training School was a great success and made a positive contribution to international cooperation in the field of space weather. The lecturers meticulously prepared the courses and assignments, and the students learned earnestly and benefited greatly. Based on this training, the IMCP collaboration network has been expanded, allowing more institutions to become familiar with IMCP. In the future, we will continue to summarize our experiences, improve continuously, and build a high-quality brand for the International Space Weather Training School.

(Form15-2)

国際 EISCAT レーダースクール

大山 伸一郎 （宇宙地球環境研究所 電磁気圏研究部）

近い将来に段階的に運用が開始される新型レーダー「EISCAT_3D」の利用を見据え、若手研究者の教育を目的とした国際 EISCAT レーダースクールが毎年開催されています。宇宙・電離圏・プラズマ物理学・レーダー科学等を専攻する学生・若手研究者を参加者として想定しているスクールです。最新鋭の観測装置を使いこなすための実践的な準備を目的として、現行システムの科学的応用やハード・ソフトの概要に加え、次世代のフェーズドアレイ技術について講義されます。

本募集に対して、博士課程後期学生（九州大学所属）からの申請を採択し、派遣に向けた手続きを行っておりましたが、派遣前に当該指導教員から支援辞退の申し出がありました。それを受けて、本事業予算を全額所に返還して本事業を完了しました。

(Form15-2)

Cross-scale Coupling of Heliophysics Systems

Simone Di Matteo (The Catholic University of America / NASA–GSFC)

Organized by Consorzio Area di Ricerca in Astrogeofisica, The Catholic University of America, Università di Firenze, University of Athens, Università dell'Aquila, Dipartimento di Scienze Fisiche e Chimiche, the school "Cross-scale Coupling of Heliophysics Systems" took place at the Congress Center "Luigi Zordan" of the University of L'Aquila (Italy) during 12 – 16 May 2024. It was directed by Prof. I. Daglis (University of Athens, Greece), Dr. S. Di Matteo (The Catholic University of America / NASA–GSFC, USA), and Prof. M. Romoli (Università degli Studi di Firenze, Italy).

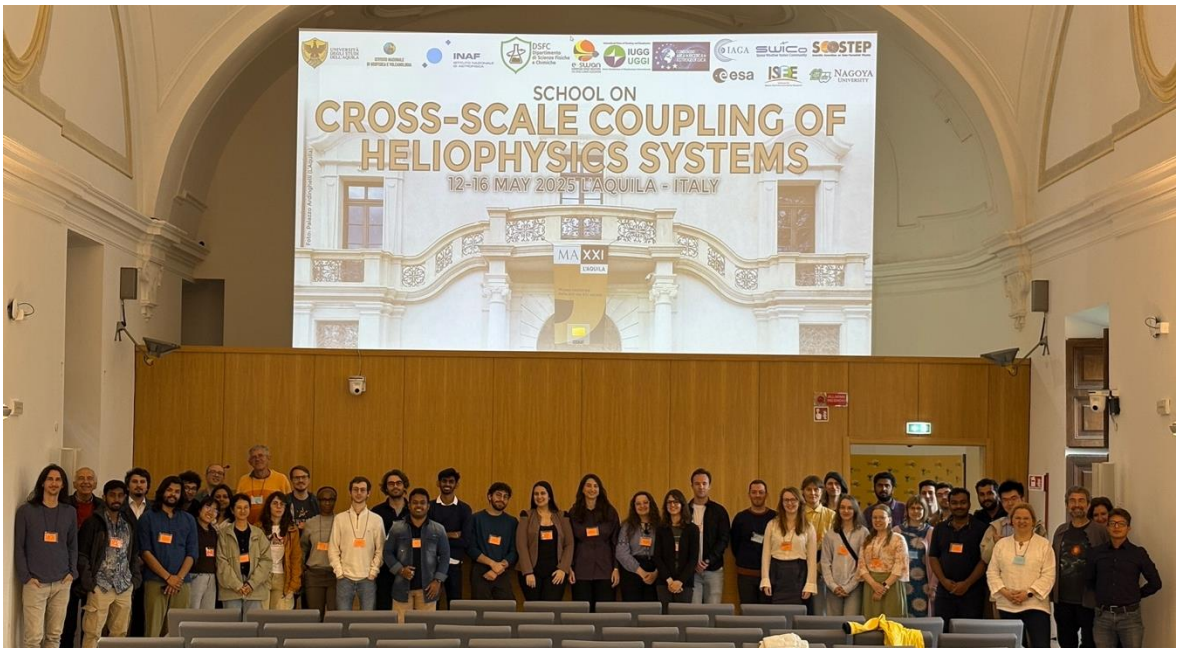
The course consisted of 10 lectures of 90-min length, 1 lecture of 60-min length, and 2 lectures of 45-min length (including questions and discussion), given by 13 leading scientists of the sector (10 from European institutions and 3 from USA), providing a comprehensive introduction on the inter-connectivity of heliophysics systems (covering solar-heliospheric, magnetospheric, and ionospheric topics) mediated through cross-scale processes. The lectures introduced each main system (sun, solar wind, Earth's magnetosphere and ionosphere) while breaking down their properties from the macro- to kinetic-scales and the relative cross-scale coupling. More interdisciplinary lessons discussed universal phenomena in heliophysics across the various systems. As such, the school provided to the next-generation researchers a view of cutting-edge fundamental research of "system of systems" phenomena currently at the center of international efforts aimed at stimulating their participation in future research and community activities on the topic. Three of these lectures were complemented with hands-on activity, including the analysis of data from recently launched missions, with the direct and active involvement of the attendees. At the end of the school, a slot of one hour was dedicated to a round table between lecturers and students on the current coordination and networking efforts among the international community to advance cutting-edge fundamental research of "system of systems" phenomena in heliophysics. The round table included two scene setting talks by top experts on this topic in Europe and the US including useful resources on how to get involved in these activities. All lessons will also be available at the school's website: https://www.astrogeofisica.it/cchs

The course was attended by 43 students selected based on their curriculum: 9 were from Italy, 9 from India, 4 from Finland, 3 from France, 2 from USA, 2 from UK, 2 from Greece, 2 from China, 1 from Azerbaijan, Chile, Croatia, Egypt, Kenya, Marocco, Mexico, South Korea, Spain, and Thailand. Additionally, 25 of them were PhD students, 11 were Postdoctoral researchers, 5 were Master's degree students, and 2 were Engineers. A virtual option was made available for 4 students who faced impediments for the in-person participation. The Course took place in a friendly atmosphere with continuous opportunities for close interactions among students and lecturers, also during social events (coffee breaks were provided by the school organization, as well as two cultural events aimed at team building among the participants through the discovery of the area from a social, architectural, and historical perspective). Additionally, specific sessions of the school (5 sessions of 45-min)

were dedicated to students' presentations and networking with 27 students who agreed to deliver a brief presentation of themselves and their interests.

The ISEE contribution was used to support the travel expenses of two PhD students, one from Mexico and one from India, and one Research Fellow from India, who had provided a valid reason for requesting financial support and had an adequate academic record, to participate in the school.

Considering the success of this first edition of the school, the co-directors, along with the organizers, are contemplating the possibility of organizing a new school in a few years with updates on the topic addressed.



The Directors of the Course
Prof. Ioannis Daglis (University of Athens, Greece)
Dr. Simone Di Matteo (The Catholic University of America / NASA – GSFC, USA)
Prof. Marco Romoli (Università degli Studi di Firenze, Italy)