N° 68 FEBRUARY 2025

IGRGEA LETTER

International Geophysical Research Group /Europe-Africa
International Geophysical Research Group /Europe-Asia

IGRGEA

At the end of the IEEY (International Equatorial Electrojet Year), in 1995, IGRGEA (International Geophysical Research Group Europe Africa) were organized to follow the research work initiated during IEEY, in 1992. Since January 2003 IGRGEA has been established at the Institute of Geophysics in Hanoï, Vietnam.

The last letter, No. 67, dated October 2023

BURKINA FASO

Saguedo SAWADOGO defended his thesis on December 21, 2024

Thesis title: "*Variability of the TEC during periods of recurring geomagnetic activity at the Koudougou GPS station during the solar cycle 24"*

Members of the Jury:

President and Rapporteur: Professor Saïdou MADOUGOU
Rapporteur: Professor Jean Louis ZERBO
Rapporteur: Professor Olivier Kouadio OBROU
Examiner: Doctor Doua Allain GNABAHOU
Thesis director: Professor Frédéric OUATTARA

From the left to the right : Dr Doua Allain GNABAHOU, Saguedo SAWADODO, Pr Frédéric OUATTARA et Pr Jean Louis ZERBO, Pr Saïdou MADOUGOU (Niger) et Pr Olivier Kouadio OBROU (Côte d'Ivoire) were remotely.

Tinlé PAHIMA defended his thesis on August 9,2024

Title of the thesis: "*Study of the variability of the TEC during periods of fluctuating activity at the Koudougou Station during solar cycle 24"*

Members of Jury :

President and Rapporteur : Professor Olivier Kouadio OBROU
Rapporteur : Professor Jean Louis ZERBO
Rapporteur : Doctor Christian ZOUNDI
Member: Doctor Doua Allain GNABAHOU
Thesis director: Professor Frédéric OUATTARA

From the left to the right : Dr Christian ZOUNDI ; Tinlé PAHIMA ; Pr Frédéric OUATTARA ; Dr Doua Allain GNABAHOU et Pr Jean Louis ZERBO, Pr Olivier Kouadio OBROU were remotely.

CÔTE D'IVOIRE

Interferometer of NCAR has been installed at the observatory of the **University of Korhogo**.

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FRANCE

Frédéric PITOUT has been awarded the Gemini 2024 prize for collaboration between professionals and amateurs (pro-am) by the SF2A and SAF.

The French Society of Astronomy and Astrophysics (SF2A) and the Astronomical Society of France (SAF) have awarded the Gemini 2024 prize to the application 'Solar observation at the Pic du Midi with CLIMSO' submitted by Frédéric Pitout from the Observatory Midi-Pyrénées and Franck Vaissière, an amateur astronomer and president of the Associated observers association. Every year since 2020, the Gemini prize has been awarded for outstanding collaboration between professionals and amateurs (pro-am). CLIMSO is a national observation service dedicated to solar monitoring. It comprises two sunglasses and two (soon to be 3) coronographs installed at the Pic du Midi observatory. Routine observations are carried out entirely by around eighty amateur (or extra-academic) volunteers who have formed an association known as the Associated Observers (OA). A few particularly experienced AOs are also involved in instrumental and IT development.

https://saf-astronomie.fr/remise-du-prix-gemini-2024/

FRANCE THAÏLANDE

Rungployphan Kieokaew and Frédéric PITOUT, both from IRAP in Toulouse, and their Thai counterparts from MKITL in Bangkok, have obtained 2 years' funding for mobility between France and Thailand (as part of Campus France's Siam 2025 programme).
In addition to developing a new collaboration, the scientific objective is to study magnetosphere-ionosphere-thermosphere coupling at low latitudes during violent solar events. To achieve this, the team will be relying to a large extent on instruments deployed in Thailand, which is ideally placed as it straddles the magnetic equator. The project involves senior researchers and PhD students from both countries.

GUINEA

The first school in Space Weather took place in Conakry from October 14 to 25. It was organized by Dr. René Tato LOUA and Dr. Jean Moussa KOUROUMA

René Tato LOUA Jean Moussa KOUROUMA

The opening ceremony was chaired by:
Mr. Ousmane Gaoual DIALLO, Minister of Transport, Spokesperson for the Government of the Republic of Guinea
and
Mr. Alpha Bacar BARRY, Minister of Higher Education, Scientific Research and Innovation of the Republic of Guinea.

Photo of the opening ceremony

Organizations that funded the school

The report of the school is on the site :
www.girgea.org

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ITALY_ICTP

Two professors and 10 students from GIRGEA participated in the workshop organized by ICTP. « *African Capacity Building Workshop on Space Weather and Ionospheric research*. »

From the left to the right : C. AMORY-MAZAUDIER (France), LOUFTI Amal (Morroco), SAWADODO Gédeon (Burkina Faso), KONATE Mustapha (Burkina Faso), OBROU Olivier (Côte d'Ivoire), KOUASSI Nguessan (Côte d'Ivoire), GUENOUKPATI Koffi Amewouga (Benin), KABORE Issiaka (Burkina Faso), DIABY Kassamba Abdel Aziz (Côte d'Ivoire), GUEYE Penda (Senegal), DIOUF Modou Khabane (Senegal), SAWADOGO Yacouba (Burkina Faso).

NIGERIA/ BRAZIL

Oladayo Olayiwola Afolabi defended his thesis on April, 17, 2014

Title of the PhD : « *Study and modeling of Brazilian equatorial and Low-latitude ionosphere during geomagnetic disturbances*. »
Thesis supervisors: Dr. Claudia M.N Candido, Dr. Fabio Becker Guedes, Dr C. Amory Mazaudier

Members of Jury :
President: Dr Maria Paulette Pereira Martin -INPE
Dr Fabio Becker Guedes – Thesis director -INPE
Dr Claudia M. N. Candido, Thesis Director – UNIVAP
Dr C. Amory-Mazaudier, Thesis Director, LPP/ France
Dr Mendes Junior Internal Member -INPE
Dr S. O. Lomotey External Examiner, UESD/Ghana
Dr B. Rabiu, External Examiner, NASRDA/Nigeria

NIGERIA

Aderonke AKERELE defended her thesis on September 26, 2024 at Bowen University
Thesis topic: *« Variability of the Doppler Frequency shift of ionospheric radio signal within the Nigerian Equatorial Anomaly*. »

Thesis Director: Professor Babatunde Rabiu
External Examiner: Professor Elijah O. Falayi

PAKISTAN

Waqar YOUNAS defended his thesis in Physics on May 31, 2023 at the university Quaid-I-Azam au Pakistan sur le thème : *Ionospheric and Magnetic Changes Induced by Space Weather at Low- and Mid-Latitudes*

Waqar won the
2024 NASA Jack Eddy Postdoctoral Fellows!
He is at Boston University.

SENEGAL

Amath NDAO is currently working on his thesis in Senegal at Iba Der Thiam University in Thiès, his thesis director is Idrissa Gaye.

Amath works on the relationship between the disturbed ionospheric dynamo and the ROTI index. He won the first prize for the best oral communication during the doctoral conferences coupled with the research days of the doctoral school of the Iba Der Thiam University of Thiès.

RDC

Dr Jean KIGOTSI KASEREKA who defended his thesis in 2017 became Budget Administrator at the University of Kinshasa.

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Emannuel KANDOLO defended his thesis on 27 April 2024 at the University of KINSHASA.
Title of thesis : 'Study of the temporal variability of lightning activity in InterTropical Africa'.

Photo of the defence

From left to right: **Pr Kisangala Muke Modeste**: Dean of the Faculty of Science and Technology, **Pr Kigotsi Kasereka Jean**: Budget Administrator, representing the Rector (unable to attend), **Ndiadia Kandolo Emmanuel**: Recipient, **Pr Phuku Phuati Edmond**: Chairman of the Jury, **Pr Ntombi muen Kabeya Médard**: Secretary of the Jury, **Pr Tondozi Keto François**: Promoter, **Pr Kabasele Yenga-Yenga**: Member of the Jury, **Pr Mbuyi Katshiatshia**: Member of the Jury, **Pr Mpia Nkanda Lobota** François: Member of the Jury.

RDC / BELGIQUE

Rodriguez YOMBO PHAKA defended his thesis on 11 January 2024 at the University of Liège in Belgium.
Title of the thesis defended in English: *« First MAX-DOAS observations of tropospheric NO_2 and H_2CO in Central Africa: impact on air quality and validation of the TROPOMI satellite instrument* »

Photo of the defence

From left to right Rodriguez Yombo, Dr Alexis Merlaud (researcher at BIRA-IASB), Pr Louis François (Université Liège), Pr Bertrand Tychon **(Université liège), Pr Mbungu Tsumbu (Université** de Kinshasa), Dr Gaia Pinardi (BIRA-IASB), Pr Emmanuel Mahieu (Université Liège : promoter)**.**

VIETNAM

Dung NGUYEN THANH defended her thesis on 6 December 2023 and was awarded his PhD on 28 June 2024.
Title of thesis: *'Plasma bubbles and characteristics of the equatorial ionisation anomaly over Vietnam and the adjacent region'.*
Supervisor: Dr. LE HUY Minh
Thesis co-supervisor: Dr. PHAM THI THU Hong.

Members of the Jury
President: Prof. Dr. BUI CONG Que
Rapporteur 1: Ass. Prof. Dr. NGO DUC Thanh
Rapporteur 2: Ass. Prof. Dr. LA THE Vinh
Rapporteur 3: Ass. Prof. Dr. PHAN THIEN Hương
Examiner, Secretary: Dr. NGUYEN VAN Duong
Examiner : Ass. Prof. Dr. VO THANH Quynh
Examiner : Dr. NGUYEN GIA Trong

Photo of the defence

From left to right Prof. Dr. NGUYEN VAN Tuyen, Dr. LE HUY Minh, PhD student NGUYEN THANH Dung, Prof. Dr. VU DINH Lam

PROJECT IMCP Europe-Africa-Pacific

The aim of the International Meridian Circle Europe-Africa-Pacific (IMCP-EAP) project is to carry out measurements of the neutral and ionised upper atmosphere along a meridian circle centred around longitudes 30° East and 150° West. It follows the same logic as the initial IMCP project,

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coordinated by the Chinese Academy of Sciences, which aims to operate along the 120° East and 60° West meridian that will cross East Asia and the Americas. Quadrangulating in longitude with this meridian, the meridian circle of the IMCP-EAP project crosses the continents of Europe and Africa on one side, and Alaska and the Pacific on the other. This project poses a major organisational challenge, with 4 'pillars': the scientific objectives to be pursued, the network of instruments to be coordinated, access to and use of the data, and collaboration between the various countries and communities to be managed. The scientific objectives are classified into 6 themes according to the different sources of disturbance acting on the upper atmosphere:

A. solar activity ;
B. geomagnetic variations ;
C. the lower atmosphere
D. natural hazards associated with the solid Earth;
E. Greenhouse gases and climate change;
F. atmospheric electricity.

The project has been presented to the International Space Weather Initiative (ISWI), which has agreed to take it under its wing. To get this ambitious project off the ground, the coordinators of the various countries involved have been contacted (it's not too late to respond), a survey of available instruments is under way and a series of webinars has been initiated. We are also planning a session dedicated to the project at the ISWI workshop in Nigeria next October.

SITE INTERNET

At www.girgea.org, you will find all the GIRGEA letters sent since May 1992.
You can also download all Rolland FLEURY's softwares for processing GPS data and some ionosonde data. To download the softwares you need a password, which Rolland will provide.
Mail from Rolland:
rolland.fleury@imt-atlantique.fr

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