



IGRGEA LETTER

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

IGRGEA

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

Brief news since the last letter of IGRGEA from May 2013.

BURKINA FASO

A school on Space Weather GPS/GNSS and new technologies is planned at the University of KOUDOUGOU in 2014 from November 10 to 21. This school is organized by the IGRGEA. The local coordinator is Frédéric OUATTARA. This school is financially supported by the program of CNRS PNST: 'Programme National Soleil Terre'.

Prof. Oumarou SIE is preparing the set-up of the National Education and Research Network (NREN) for mid-January 2014. It has been done in contact with AAU (Association of African Universities) and WACREN (West And Central African Research and Education Network).

CÔTE D'IVOIRE

Medard Niangoran MENE defended his PhD on June 21st, at the University Houphouët BOIGNY / ABIDJAN, on the theme: "Statistical study of the prompt penetration of the electric field of magnetospheric convection at the equator, DP_2' ". His PhD supervisor was Arsène KOBÉA.

THE MAGDAS/ ISWI school which took place at ABIDJAN from September 23 to 27 was organized by Georg MAEDA from SERC/Japan and Vafi DOUMBIA from the University Houphouët BOIGNY. This school was very successful. A report on this school will be soon sent by the organizers. The participants to this school were from Cameroon, Côte d'Ivoire, Egypt, Ethiopia, France, Japan, Nigeria, and Tanzania, below the group photo.



MAROC

The Master on GNSS started this year at CRASTE-LF, Center Regional of United Nations training in French Language. This Center is located at Rabat, see letter: Vol. 5 n°42 on the site:

<http://www.iswi-secretariat.org>

This year, there are 12 students of 6 different nationalities: Algeria, Cameroon, Côte d'Ivoire, Morocco, Senegal and Tunisia.

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Ilyasse AZZOUZI and Rolland FLEURY

Ilyasse AZZOUZI starts a PHD on *'the study of the middle ionosphere by using a dense network of GPS'*. He is registered in 2 universities: University Mohammed V of RABAT and University Pierre an Marie CURIE. His supervisors are Christine AMORY-MAZAUDIER, Rolland FLEURY and Abderrahmane TOUZANI.

Prof Aziza BOUNHIR is organizing the school ISWI/MARRAKECH which is planned at Marrakech from May 5 to 10, 2014.

<http://www.ucam.ac.ma/marrakechastro/oisa/>

The title of this school is : *'Space Weather: Solar Physics and Sun Earth environment'*

The FABRY interferometer RENOIR was installed by Joe MAKELA of the University of Illinois during the period 4-11 November 2013. On the photo below you can see Joe training the Moroccan team. Aziza is writing notes.



NIGERIA

The second edition of the school Cyril ONWUMECHILI was organized by Babatunde RABIU, at ABUJA June 23-27. This school was really successful. A report was sent to all the participants of the ISWI project.



DRC : REPUBLIC DEMOCRATIC CONGO

After the school on Space Weather which was held in September 2011 in DRC, 2 students from DRC obtained scholarship from the French embassy of KINSHASA.

Jean KIGOSTI is working with Serge SOLUA of the University of TOULOUSE on lightening. His Congolese supervisor is Albert KAZADI. Raphaël MUKANDILA is working with Frederic MASSON from the University of STRASBOURG on the tectonic motions of East AFRICA. His Congolese supervisor is Keto TONDOZI.

For their degree required projects, 2 students in informatics, Patient NTUMBA and Vianney LOTOY, converted the software for GPS data analysis, provided by Rolland FLEURY (ENST, Brest) to numerous African scientists, from the commercial software MATLAB to an open-source software OCTAVE, then built a mini-compute Grid (4PCs) to treat numerous GPS data files and developed a user-friendly Desktop or Android interface. They were



congratulated for this innovating project and graduated with an honorary mention. Their work was presented last April at the European Geosciences Union conference and during the SUCCES2013 workshop held in Paris (13-14 November 2013) gathering French users facing intensive computing, Clouds and Storage situations; an extended abstract is available.

SENEGAL

Idrissa Gaye from the University CHEIKH ANTA DIOP of DAKAR defended his thesis on June 22nd. The title is : "*Influence of Irradiation and coefficient of damage on the parameters of a silicon solar cell.*".



Pr C. Sene, Dr I. Gaye, P. G. Sissoko.

Professor Cheikh SENE is the head of the Department of Physics of the Faculty of Science and Techniques UCAD.

KENYA

The school SCOSTEP/ISWI organized by Nat GOPSLWAMY and Paul BAKI at Nairobi from October 21 to November 1st was very fruitful. The participants to this school were from: Ethiopia, France, Ghana, Kenya, Germany, Malawi, Nigeria, Norway, Uganda, Portugal, Rwanda, Tanzania and USA.

<http://www.tukenya.ac.ke/conferences/>

Group photo of the school in Kenya



The next SCOSTEP/ISWI school will take place in Peru from September 15 to 24, 2014.

RWANDA

A school is planned in RWANDA from June 30th to July 11th 2014.

The title: 'African school on Space Science: related applications and awareness for sustainable development of the region.'

This school is organized by ICTP (Italia), Boston University (USA) and the University of RWANDA.

To register see the website:

<http://agenda.ictp.it/smr.php?2631>

The deadline is February 28th 2014.

GHANA

The fifth conference: African Leadership was held in ACCRA from December 3 to 5, 2013.

Website: <http://alc2013ghana.com/>

A session was organized by Sharafat GADOMIVA from UNOOSA on GNSS. The speakers of this session were Babatunde RABIU (NIGERIA), Olivier OBROU (CÔTE D'IVOIRE), Mourad BOUZIANI (MOROCCO) and Christine AMORY-MAZAUDIER (FRANCE).

The talks of this session are on the website of OOSA:

<http://www.unoosa.org/oosa/en/SAP/gnss/icg/ALC2013/presentations.html>



Our main recommendations are the following:

- *To GNSS networks in AFRICA
- * Each country has to develop a GNSS network taking advantage of all the GNSS users
- * To share GNSS data

HAPPY NEW YEAR



WALL of THE PEACE

In November was held the 10th edition of the European space weather Week in Antwerp, Belgium. On this occasion, the definition of Space Weather has been translated into 56 languages (6 African languages: Afrikaans, Haoussa, Kinyarwanda, Kiswahili, Peulh et Zulu) and posted on a large sign in front of the Central train station. This initiative, called the "Wall of Peace", was supported by the United Nations (Office for Outer Space Affairs) and has benefited from the active support of GIRGEA, without which it would not have been possible.



Definition of Space Weather:

'Space weather is the physical and phenomenological state of natural space environments. The associated discipline aims, through observation, monitoring, analysis and modelling, at understanding and predicting the state of the sun, the interplanetary and planetary environments, and the solar and non-solar driven perturbations that affect them; and also at forecasting and nowcasting the possible impacts on biological and technological systems'.