



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.

AFRICAN GEOPHYSICAL SOCIETY :AGS

At the next meeting of the AGS [2-6 June 2014] to be held in Abuja, Nigeria, a post mortem AWARD will be presented to Prof. Ousseini FAMBITAKOYE for his contribution to Earth Science and Space in Africa.



Ousseini Fambitakoye.

ALGERIA

After the school on Space Weather held in May 2013 in Algiers, the cooperation between Algeria and France developed. The laboratories involved are USTBH (Prof.

Naima ZAOURAR) LATMOS (Jean- Jacques BERTHELIER), the LPP (Christine AMORY - MAZAUDIER) IPAG (Jean LILENSTEIN) and IRAP (Frédéric PITOUT) .

Here are the exchanges during past and future: The PhD student Soraya MAKHLOUF is working with J-J BERTHELIER and Naima ZAOURAR on '*the electric field measurements of the satellite DEMETER*'. She completed a research internship in LATMOS in January 2014 and will return in October 2014.

The PhD student Sabrina TAIR is working with Frédéric PITOUT and Naima ZAOURAR on "*inter hemispheric asymmetries from observatory radar and satellite data*". She did a research internship of 15 days in IRAP in January 2014.

The PhD student Rachid BESSAOUDI is working with Christine AMORY - MAZAUDIER and Naima ZAOURAR on '*Magnetic disturbances associated with jets of fast solar wind from coronal holes*'. Naima ZAOURAR and Rachid BESSAOUDI will come in France in LPP the first half of October 2014.

The PhD student Youcef ABED from the Tamanrasset unit of the CRAAG will participate to the school on GPS to be held in Brest from 9 to 16 June 2014.

Jean LILENSTEIN was invited by the Laboratory of Theoretical Physics), Faculty of Physics (USTHB) to Algiers to give lectures to USTHB and CRAAG in June 2014.

Frédéric PITOUT is invited by the Faculty of Earth Sciences of USTHB, to give lectures in the framework of the LMD/PhD in May 2014.

BURKINA FASO

Two students of Pr. Frédéric OUATTARA defended their thesis at the University of Ouagadougou:

Allain Doua GNABAHOU defended his thesis on January 18, 2014, on the theme:

'Variability and long-term variation of the ionosphere in Equatorial African region'.

Christian ZOUNDI defended his thesis on 18 January 2014 on the theme:

'Analysis of the variability of total electron content (TEC) from the Koudougou and Ouagadougou GPS stations in Burkina Faso and the Niamey GPS station in Niger and comparison with predictions CODG.'



Allain Doua



Christian

Dr. Jean-Louis ZERBO, who got his PhD on October 20, 2012 received a Fulbright scholarship to work at MIT with Professor J.RICHARDSON on the solar wind.

CÔTE D'IVOIRE

A magnetometer of the network AMBER was installed in Abidjan in August 2013. During the period August 3-17, 2013. Professor ENDAWOKE and Miss KATHRYN stayed in Côte d'Ivoire and Guinea Conakry.

The GPS equipment for project SCINDA was reinstalled on November 21, 2013.

A magnetometer of the network MAGDAS was reinstalled at Abidjan the week of September 30 to October 4, 2013. Coming soon: an interferometer of NCAR and a GPS station of ESA will be installed in Côte d'Ivoire, at the observatory of KORHOGO.

Magnetometer AMBER



Antenna SCINDA



Magnetometer MAGDAS



The round thing is the sensor. It is set in a heavy structure that was built by Yumoto/Kakinami/Maeda in year 2006 with the help of local laborers. It is set in a jungle environment, which keeps off a lot of sunlight. So diurnal temperature variation is not large.

Dr Niangoran MENE who defended his thesis on 20 June 2013 obtained a position at the University of KORHOGO.

FRANCE

A school on GPS/GNSS will be held from 9 to 16 June 2014, by Prof. Rolland FLEURY in



TELECOM BREST. It is intended for students using GPS data for their thesis. The group of participants is limited to a few students. 4 students will participate from Morocco (1), Algeria (1) and Republic of Congo (2).

A scientific conference on Space Weather and GPS applications was held on Wednesday, 29 January 2014 by Prof. Babatunde RABIU, Christine AMORY-MAZAUDIER and Olivier OBROU for children in Kogi State.

110 children participated. Here are some photos of some schools

EGYPTE

Amira SHIMEIS from the SWMC will defend her thesis on *'The Equatorial Fountain'* in October. She got a job as a researcher at NRIAG. She will be at LPP from May 20 to June 20, 2014 to work with Christine AMORY-MAZAUDIER.

Ibrahim FATHY, PhD student from SWMC, trained by Christine AMORY-MAZAUDIER and Prof. Ayman MAHROUS should defend his thesis within a year. He has published an article in JGR: *'Ionospheric disturbance dynamo Associated to coronal hole: a case study 5-10 April 2010'*

CMML secondary school Anyigba



Royal success Academy Anyigba



MAROC

The next school on Space weather will be held in Marrakech (Morocco) from 4 to 11 May. You can view the program on the site: www.ucam.ac.ma/marrakechastro/oisa/

NIGERIA

The 3rd edition of the School of Meteorology Space was organized by Prof. Babatunde Rabiou and his team at the University of Bells 21 to 25 January 2014. There were 70 participants from Nigeria, Ghana, Benin and France.

Isah memorial Islamic Academy Anyigba



Group photo





DRC: Democratic Republic of Congo

The proposed development of meteorology Space at the University of Kinshasa, DRC continues. On 8 students selected 5 have defended their master; two students should defend before the end of June this year, the last one will defend his master in December. Christine AMORY-MAZAUDIER stayed in DRC from February 23 to March 4, 2014 to review progress on the project and will work towards establishment of a graduate school by Prof. Albert KAZADI head of the physics department of the University Kinshasa. A scientific conference on Space Weather and GPS applications was organized on February 27, 2014 by Bruno KAKINDO Christine AMORY-MAZAUDIER and Raphael MUKANDILA at the school Mont Amba. 300 youth participated in this conference

Photo of the school of Mont Amba



Instruments for scientific measurements will be installed in the DRC:

Serge SOULA from the University of Toulouse will install a camera for the study of atmospheric electricity (PhD of Jean KIGOSTI).

Frédéric MASSON from the University of Strasbourg will install 3 GPS stations for geodetic studies (PhD of Raphael MUKANDILA).

Creativity in DRC : in Kinshasa, a robot traffic rule is a world first.



CONFERENCES FOR SCHOOLS

Relations EARTH SUN /Space Weather

- SUN and SOLAR SYSTEM
 - SUN and its properties
 - Prominences, solar flares*
 - Coronal Mass Ejection*
 - Sunspots -> solar magnetic field*
- EARTH and its magnetic field
 - SUN-EARTH / particles
 - SUN-EARTH/radiations
 - DAILY LIFE / GPS system

NEXT SCHOOLS-SPACE WEATHER

KIGALI/Rwanda - June 30 to July 11, see the website of ICTP

KOUDOUGOU/Burkina Faso – November 10 to 21: the inscriptions will begin soon.

Received at ISWI Newsletter on 2 May 2014 from Christine Amory of France (translated from the original French).