

# 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 Hanoï. After a stop of more than one year we edit again the letter of the IGRGEA.

## BURKINA FASO

Dr Frederic OUATTARA, of KOUDOUGOU University has read his Doctorate lecture on : “*Contribution to the study of the relation between the two components of the solar magnetic field and the equatorial ionosphere*”, on October 3, 2009 at the University CHEIK ANTA DIOP of DAKAR/SENEGAL. He was directed by Dr Christine AMORY-MAZAUDIER (LPP/UPMC/ Polyte-chnique/ CNRS).

Dr. Frédéric OUATTARA will continue his scientific work with Prof. Art RICHMOND from NCAR/USA.

Jean-Louis ZERBO of OUAGADOUGOU University, under the direction of Dr Frédéric OUATTARA is visiting the LPP (laboratoire de Physique des Plasmas)/Saint-Maur, during March and April, for a training course with Dr Christine AMORY-MAZAUDIER. He is preparing a thesis on the links between the solar wind and geomagnetic activity. He is financed by the French Ministry of foreign Affairs. Prof. J. RICHARDSON (MIT/USA) co-trains Jean-Louis ZERBO.

Dr Frédéric OUATTARA is organizing a group of research on Space Weather. Two students have joined this team:

Christian ZOUNDI who will use the West African GPS network to study the equatorial

ionosphere; he will be trained also by Prof. Rolland FLEURY (ENST- Bretagne).

Aristide GEBRE who will study the coupling between the solar wind and the auroral zone.

He will be also trained by Christine AMORY-MAZAUDIER.

Dr Pétronille KAFANDO, from the “Laboratory Physics and chemistry of environment” (LPCE) of the OUAGADOUGOU University prepare a ‘Super PhD’ on the climatology of gravity waves in tropical and equatorial AFRICA. Her third paper submitted to the Monthly Weather Review is in revision, to take into account the advises of the reviewers. Dr Pétronille KAFANDO is directed by Dr Monique PETITDIDIER.

## CONGO BRAZZAVILLE

An international GPS SIG school has been held at Marien NGOUABI University of BRAZZAVILLE (CONGO REPUBLIC), December 2-11, 2009. It taught to 35 participants of the Congolese Republic, RDC, IVORY COAST and FRANCE.

Professors E. NOMBO, B. DINGA, C. AMORY-MAZAUDIER and M. PETITDIDIER organized this school. This school was mainly sponsored by MICROSOFT-Research, IUGG and the Marien NGOUABI University.

## CÔTE D’IVOIRE

Dr. Zaka KOMENAN read his doctorate on : “*Disturbed Ionospheric Dynamo: characterization of the equatorial electrodynamics at the end of magnetic storm and modelization of the disturbed electric fields and currents*”, on February 2010 at the Cocody University of ABIDJAN. He was led by Prof. Arsène KOBÉA who is directing

the ABIDJAN group of 13 scientists (6 senior scientists and 7 students).

Dr Komenan ZAKA obtained an Assistant position at the University of COCODY/CÔTE D'IVOIRE. He will be able to spend next year in JAPAN, working with Prof. YUMOTO on the MAGDAS magnetometer network data.

Prof. Arsène KOBÉA is also directing a thesis student Mene NIANGORAN who studies the prompt penetration of the magnetospheric convection from high to low latitudes.

Dr Vafi DOUMBIA is training two students: Bernardin MOKASSA working on the D component of the earth magnetic field at the equator and Franck GRODJI who studies ionospheric electric fields.

Dr Olivier OBROU is training Jean Baptiste ACKA and Malan Sylvain HOUA on TEC data and GPS SCINDA scintillation reception.

Prof. Jean-Pierre ADOHI is training two students, Serge TANOÛ, for a statistical study of the F layer dynamics from KORHOGO ionograms and Sorro COULIBALY for the magnetic storm effect on F region dynamics.

Two engineers of 'Institut de Physique du Globe de Paris, IPGP', A. ANGLADE and T GABSI installed a magnetometer at LAMTO (IVORY COAST) in February 2010. The IPGP network is composed now by four magnetometers.

The three other magnetometers are at KORHOGO (IVORY COAST), SAN and SIKASSO (MALI).

IPGP gives a PC to the KORHOGO Observatory and now assumes the expenses concerning phone and internet as well as the salary of the keeper of the KORHOGO magnetometer station.

It is planned to install an INTERMAGNET magnetometer in Ivory Coast

## EGYPT

The year 2010 is an EGYPT-FRANCE year. The cooperation began more than 200 years ago under Napoléon 1<sup>er</sup>.

During the year 2010, the scientific cooperation will be increased in all domains of research. The IGRGEA organizes a school on Space Weather at HELWAN University from September 18 to October 3, 2010. It will address to students in master on Space Weather. This school is organized by Prof. Ayman MAHROUS and Christine AMORY-MAZAUDIER.

More activities will be started see:

<http://www.helwan.edu.eg/english/space>

Dr Suzan WASSEM SAMWEL STEPHAN who has read her PhD at CAIRO University in March 2009 on the subject : " *Space environment and its effects on spacecraft*", obtained a position at the HELWAN Observatory (near CAIRO).

She was directed by Prof. Ahmed HADY from CAIRO University.

## SENEGAL

Miss Ndeye THIAM of the University CHEIK ANTA DIOP at DAKAR is beginning a thesis on long term variations in ionization and geomagnetism in SENEGAL. She will be directed by Prof. Grégoire SISSOKO from CHEIK ANTA DIOP University and Dr Frédéric OUATTARA from BURKINA FASO with co-direction of Christine AMORY-MAZAUDIER and Arsène KOBÉA.

## RDC

A national workshop on GPS-SIG and Grid etc... will be organized in RDC at the KINSHASA University, from August 9 to 14, 2010, by Prof. B. KAHINDO and Prof. D. KALENDA.

In 2011, an international school on GPS-SIG, Grid etc... will be organized at KINSHASA from March 21 to April 2, 2011. This international school is in priority for the countries of Central AFRICA: CONGO

Republic, RDC, GABON, RCI, CAMEROUN, TCHAD.

### VIETNAM

Two students from the IGP/VAST/VIETNAM are preparing their PhD in France (founded by the Vietnamese Government):

- Hung LUU VIET, is working on the telluric electric fields Vietnamese data. He is directed by Prof. Michel MENVIELLE (LATMOS/IPSL),
- Hong PHAM THI THU is analysing ionospheric and magnetic Vietnamese data for her thesis on the regular ionospheric dynamo. She is directed by Dr. Christine AMORY-MAZAUDIER(LPP/UPMC/Polytechnique/CNRS)

### INDIA

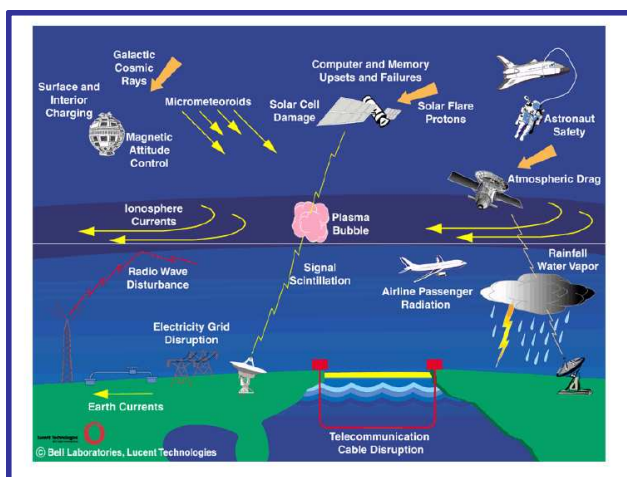
Dr Rajmohan KOMBIYIL obtained his PhD at TOKOHU University, JAPAN, in February 2008 with the subject : *"On the nature of the DP field during disturbances in Geospace : characterization and modelling"*.

He has obtained a position in Department off Physics of Amrita Vishwa Vidyapeetham on the campus AMRITAPURI at KOLLAM. He was directed by Prof. KASABA.

### ISWI PROGRAMME

ISWI, International Space Weather Initiative is held to understand the impact of natural phenomena like solar flares (for example) on the earth electromagnetic environment.

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



This programme is coordinated by Prof. Joseph DAVILA (NASA), and Prof. Nat GOPALSWAMY (NASA).

This programme is also sponsored by Han HAUBOLD for the United Nations organization (Commission for the peaceful application of the science to Space), NASA and JAXA (Japanese Space Agency)

In the frame of this project the deployment of scientific instruments will be developed, and particularly in AFRICA.

Next ISWI workshop, jointly organized by UN/ESA/JAXA/NASA will be held at Luxor between 6 and 10 November 2010.

The local organizing committee is presided by Prof. Ahmed HADY.

<http://iswi.cu.edu.eg>

An ISWI working group is prepared for the definition of the GNSS curriculum for the United Nations schools.

[www.unoosa.org/oosa/en/SAP/centres/index.html](http://www.unoosa.org/oosa/en/SAP/centres/index.html)

### MOROCCO-ISWI

In the frame of the ISWI Project a prospecting mission, organized by Prof. J. DAVILA, has been held at RABBAT / MOROCCO, in November 2009.

A school in French Language is in preparation and is planned in October or November 2011 at RABBAT. It will take place in the United Nation African Regional Centre for Space Studies and Technology Education.

This school training will be on the scientific notions necessary for Space Meteorology.

The French coordinator is Prof. Nicole VILMER, who is also the French ISWI coordinator.

The Moroccan coordinator of this school is Prof. Mohammed BENDOUIDA.

### GPS NETWORKS IN AFRICA

Different networks of GPS are existing.

The map below from Prof. Rolland FLEURY represents these networks.

Some are available on the web as:

\* Network IGS :

<http://igs.ensg.ign.fr>

\* Network NOAA :

<http://www.ngs.noaa.gov/CORS>

\* Network UNAVCO :

<http://www.unvaco.org>

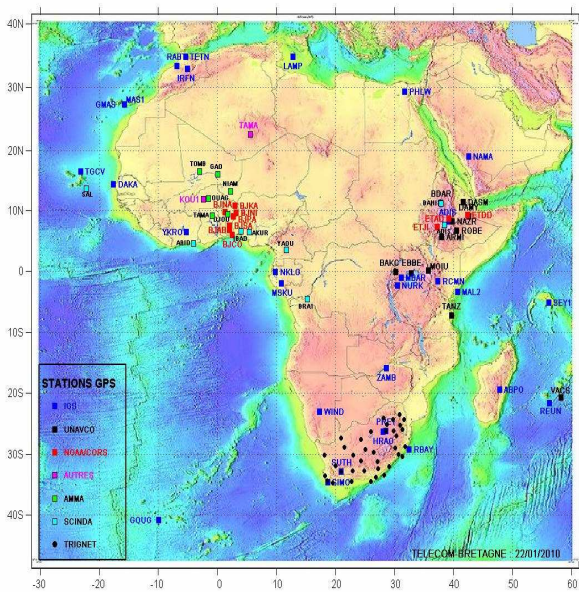
For other network the data are available though a cooperation with the leader of the project.

\* Network AMMA -> Olivier BOCK

<http://www.amma-international.org>

\*Network SCINDA -> Keith GROVES

[www.fas.org/spp/military/program/nssrm/initiatives/scinda.htm](http://www.fas.org/spp/military/program/nssrm/initiatives/scinda.htm)



### GNSS WORKSHOP IN TRIESTE / ITALY

From April 6 to 28, this will be teaching "Satellite navigator education, Science and Technology for AFRICA".

This is organized by Prof. Sandro RADICELLA of ICTP and Prof. Pat DOHERTY from BOSTON College.

<http://www.ictp.it>

### TOTAL LUNAR ECLIPSE CAMPAIGN December 20, 2010

World measurements of the Total Electron Content (TEC) allow observing planetary wave effects across the five continents, (the GPS receivers provide TEC variations).

The Lunar eclipse of December 20, 2010 will be an opportunity to study at a planetary scale the planetary waves due to this phenomena.

The aim is to understand the disturbance on atmosphere dynamics, and their influence on day-to-day variation in the ionosphere.

### GIRGEA INTERNATIONAL WEBSITE

The IGRGEA website will open in the next months. It will show for anyone the evolution of African research groups in Space Weather. The Thesis manuscript will be given on line. Two languages will be used French and English.

The responsible person for this site is Lea OUATTARA.

