

題名 ISWI Newsletter – Vol. 2 No. 3  
 差出人 George Maeda

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* ISWI Newsletter – Vol. 2 No. 3                      11 January 2010 *
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*           I S W I = International Space Weather Initiative      *
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* This newsletter is published by Professor K. Yumoto           *
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* - PI of the MAGDAS Project                                   *
* - Chair of ULTIMA (link near bottom of www.serc.kyushu-u.ac.jp) *
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* (The ISWI website is maintained independently of the ISWI Newsletter.) *
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* The Editor-in-Chief of the ISWI Newsletter is Mr. George Maeda *
* (maeda@serc.kyushu-u.ac.jp). If you wish to contribute a piece to *
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*                                                                 *
* Views expressed in this newsletter do not necessarily reflect official *
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* does not have any fixed release schedule -- it is issued when the need *
* arises. It is archived at the ISWI website (see above for URL). *
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Attachment:

43 KB pdf --- Meeting Notes from Rabat (Morocco) Year 2009.

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Dear ISWI Participant:

The "Morocco-ISWI Workshop in Rabat 2009" was held at University Mohammed V, Souissi, over a 2-day period from 19-20 November 2009 between representatives of Moroccan universities and a delegation of international scientists offering collaborative research projects in space-weather related subject areas.

----> Attached are the Meeting Notes from Dr Joe Davila (GSFC/NASA).

I think bringing in Morocco is a very good start for ISWI, which runs during the years of 2010, 2011, and 2012. If you want to "initiate" something, please let us know. Three years will zip by quickly.

Cordially yours,  
 George Maeda  
 Editor-in-Chief, ISWI Newsletter  
 Fukuoka, Japan.

## NOTES FROM THE MOROCCO-ISWI WORKSHOP IN RABAT 2009

Joseph M. Davila

Erratum: Year 2009.  
ISWI Newsletter editor.

The subject workshop was held at University Mohammed V, Souissi over a two day period from November 19-20, 2010 between representatives of Moroccan Universities and a delegation of international scientists offering scientific collaborations. Formal presentations were given the first day, and the second day was devoted to group discussions. These discussions were both fruitful and frank. The meeting was extremely successful from my point of view, far exceeding my expectations.

Several potential collaborations were identified. It is important to recognize that this is not the end. Additional instruments are available and interested, and I believe that additional Moroccan researchers will also be interested in the future.

I propose that sometime in the late summer or early fall of 2010 we have a follow-up workshop to discuss additional collaborations and to confirm the tentative agreements reached at the Workshop.

During the meeting, I made a number of observations:

1. There is considerable technical expertise in Morocco that can be usefully engaged in Space Research.
2. In addition, there is considerable interest in the Moroccan research community to develop international collaborations with scientists studying Space Weather Effects.
3. Individuals from each university should consider themselves as representatives of their institutions to carry back information to their home institution.
4. Training was a major concern that was raised repeatedly during the meeting.
5. Information on a program to train African scientists at ICTP, Trieste, Italy was presented.
6. Already, a need for an ISWI Space Weather School in Rabat taught in French was identified, and plans to hold the school will progress during the year.
7. The ISWI UN Workshops as vehicles for training was discussed.
8. Individual instrument special workshops for training were discussed.
9. Perhaps a 1-2 week speaking tour could be sponsored to present talks on basic Space Weather research at all Moroccan Universities to provide a foundation for deeper scientific understanding.
10. Data, instrument experience, and scientific expertise should be shared among related disciplines (geodesy, space physics, etc.) because similar instrumentation is required.

The ISWI represents 14 instrument groups provided by scientists from 6 nations (see the Tables below), and data/numerical modeling of heliophysical phenomena. At this meeting 5 instruments from 3 countries were represented.

#### SCINDA (USA)

- Many groups are interested in GPS receivers (nearly all research organizations).
- Contacts being explored for SCINDA include Profs Abderrahame Touzani and Driss Ouazar from Mohammed V University in Agdal, Rabat and Profs Abdelmajid Belafhal from Chouaib Doukkali University in El Jadida and Naja Jamal from Hassan 1er University in Settat.
- The goal is to install two GPS systems, one in Central Morocco and one in the south, perhaps in Dakhla near the equatorial anomaly.
- Installation is likely in 2010.
- Identify lead researcher(s) by March 2010 to participate in Kenya.
- If additional SCINDA instruments are desired to improve the usefulness for other applications like seismology, or plate tectonics they should be purchased by Morocco.
- Software is available free of charge.
- Training is available from several sources.
  - Space Science school is planned for Rabat, coordinated by Christine Mazaudier and Nicole Villmer that will be taught in French. Collaboration with the UN Education Center in Rabat.
  - ISWI Workshop in Luxor, Egypt November 6-10, 2010. Limited travel support available, usually 1-2 scientists/country.
  - Special SCINDA Workshop in Kenya (July 2010).

#### RENOIR (USA)

- Several research groups expressed interest in hosting a RENOIR instrument.
- Location is CRITICAL for this instrument because dark and clear sky is needed.
- Jon Makela (Univ. Illinois) will prepare a document specifying site requirements.
- One imager is available for installation by summer 2010. Most promising site seems to be Marakesh.
- A site evaluation will be conducted during 2010.
- Existing instrument (Fabry-Perot for wind measurements) will remain in Brazil for several more years, if near term installation is desired an instrument would need to be purchased by Morocco. Instrument cost \$100 K, no decision required until site survey is complete.
- Software is available free of charge, additional development is desired. Morocco may wish to participate in the software development.
- Contact information was exchanged.

#### CALLISTO (Switzerland)

- Four groups interested in possible installation of CALLISTO radio spectrometer.
- Christian Monstein (SWISS) to prepare instrument requirements document and provide it to interested groups by the beginning of Jan 2010.
- Radio QUIET site is required.
- Site selection will proceed in 2010.
- Maximum of 1-2 spectrometers make sense for CALLISTO.

#### MAGDAS (SERC, Kyushu University, Fukuoka, Japan)

- Experimenter is very pleased with expressions of interest.
- Tentative agreement to install 2 magnetometers.
- A MOU between Kyushu University the Moroccan university will be prepared.
- The number of graduate students from Kyushu University to help install the magnetometers is the limiting resource for installation in Morocco. Current commitments are for 10 more magnetometers for Africa, 10 for Sumatra (western Indonesia), and 10 for Siberia. Details of installation schedule will be worked out in the next few months.
- Scientific materials will be exchanged by email.
- Software and training are an issue. Prof. Yumoto will seek to develop a student exchange program to train Moroccan students, and develop student-to-student collaborations.

#### AWESOME (Stanford Univ.)

- Five interested University groups.
- Skills required include EE, RF, Instrument Design, Signal processing, teacher training (secondary and elementary schools).
- The need for training was noted
  - Sharja, UAE AWESOME Workshop in March 2010 will provide tutorials and hands-on experience.
  - Similar training at the ISWI Workshop in Luxor, Egypt, November 2010.
  - Limited travel support available for both workshops.
  - Potential for student exchanges, one-week training trips (Shared cost? Maybe airfare paid by Morocco, local cost by Stanford University).
- Deborah Scherrer will provide existing tutorial and educational material to the interested groups by the end of December.

## MODELING

- Modeling is often critical for understanding the physical processes involved in heliophysics.
- Therefore modeling should be a part of the collaboration between Morocco and ISWI scientists.
- Many US groups have a modeling component. Many times the modeling guided by the data answers scientific questions.
- Eduardo Araujo (NOAA) volunteered to facilitate the contacts between Moroccan and US scientists.

ID	INSTRUMENT	Lead Scientist	Country	Objective
1	Scintillation Network Decision Aid (SCINDA)	K. Groves <a href="mailto:keith.groves@hanscom.af.mil">keith.groves@hanscom.af.mil</a> (Hanscom AFRL)	USA	Study equatorial ionospheric disturbances to aid in the specification and prediction of communications degradation due to ionospheric scintillation in the Earth's equatorial region
2	Coherent Ionospheric Doppler Radar (CIDR)	T. Garner <a href="mailto:garner@arlut.utexas.edu">garner@arlut.utexas.edu</a> (U Texas)	USA	To tomographically reconstruct the ionosphere and to provide input to data assimilation models
3	Atmospheric Weather Education System for Observation and Modeling of Effects (AWESOME ) and Sudden Ionospheric Disturbance monitor (SID)	U. Inan <a href="mailto:inan@stanford.edu">inan@stanford.edu</a> D. Scherrer <a href="mailto:deborah@solar2.stanford.edu">deborah@solar2.stanford.edu</a> (U Stanford)	USA	Lightning, sprites, elves, relation to terrestrial gamma ray flashes, whistler induced electron precipitation, conjugate studies
4	Remote Equatorial Nighttime Observatory for Ionospheric Regions (RENOIR)	J. Makela <a href="mailto:jmakela@illinois.edu">jmakela@illinois.edu</a> (U Illinois)	USA	Study the equatorial/low-latitude ionosphere/thermosphere system, its response to storms, and the irregularities that can be present on a daily basis
5	African GPS Receivers for Equatorial Electrodynamics Studies (AGREES)	E. Yizengaw <a href="mailto:ekassie@igpp.ucla.edu">ekassie@igpp.ucla.edu</a> M. Moldwin (UCLA)	USA	Understand unique structures in equatorial ionosphere, low/mid latitude plasma production, effect of ionospheric and plasmaspheric irregularities on communications
6	African Meridian B-field Education and Research (AMBER)	M. Moldwin <a href="mailto:mmoldwin@igpp.ucla.edu">mmoldwin@igpp.ucla.edu</a> E. Yizengaw (UCLA)	USA	Understand low latitude electrodynamics, ULF pulsations, effect of Pc5 ULF on MeV electron population in inner radiation belts

ID	INSTRUMENT	Lead Scientist	Country	Objective
7	Compound Astronomical Low-cost Low-frequency Instrument for Spectroscopy and Transportable Observatory (CALLISTO)	A.Benz <a href="mailto:benz@astro.phys.ethz.ch">benz@astro.phys.ethz.ch</a> C. Monstein <a href="mailto:monstein@astro.phys.ethz.ch">monstein@astro.phys.ethz.ch</a> (ETH-Zentrum)	Switzerland	Study the magnetic activity of a wide range of astrophysical objects with emphasis on the Sun and cool stars
8	South Atlantic Very Low frequency Network (SAVNET)	J.-P. Raulin <a href="mailto:raulin@craam.mackenzie.br">raulin@craam.mackenzie.br</a> (U Presbiteriana)	Brazil	Study of the SAMA region at low ionospheric altitudes and its structure and dynamics during geomagnetic perturbations
9	Magnetic Data Acquisition System (MAGDAS)	K. Yumoto <a href="mailto:yumoto@serc.kyushu-u.ac.jp">yumoto@serc.kyushu-u.ac.jp</a> (Kyushu U)	Japan	Study of dynamics of geospace plasma changes during magnetic storms and auroral substorms, the electromagnetic response of iono-magnetosphere to various solar wind changes, and the penetration and propagation mechanisms of DP2-ULF range disturbances
10	African Dual Frequency GPS Network	C. Amory-Mazaudier <a href="mailto:christine.amory@lpp.polytechnique.fr">christine.amory@lpp.polytechnique.fr</a> (CETP/CNRS)	France	To increase the number of real-time dual-frequency GPS stations worldwide for the study of ionospheric variability, response of the ionospheric total electron content (TEC) during geomagnetic storms over the African sector

11	Space Environmental Viewing and Analysis Network (SEVAN)	A.Chillingarian <a href="mailto:chili@aragats.am">chili@aragats.am</a> (Aragats)	Armenia	A network of particle detectors that aims to improve fundamental research of the particle acceleration in the vicinity of the Sun and the space environment, as well as to provide forewarnings of dangerous consequences of space storms
12	Global Muon Detector Network (GMDN)	K. Munakata <a href="mailto:kmuna00@gipac.shinshu-u.ac.jp">kmuna00@gipac.shinshu-u.ac.jp</a> (Shinsu U)	Japan	To identify the precursory decrease of cosmic ray intensity that takes place more than one day prior to the Earth-arrival of shock driven by an interplanetary coronal mass ejection
13	Flare Monitoring Telescopes (FMT) under the Continuous H-alpha Imaging Network (CHAIN)	S. UeNo <a href="mailto:ueno@kwasan.kyotou.ac.jp">ueno@kwasan.kyotou.ac.jp</a> K. Shibata (Kyoto U)	Japan	Time variation and 3D velocity field of solar activity, flares, filament eruptions and shock waves (Moreton waves) by using multi-wavelength H-alpha images of the full-disk Sun.
14	Optical Mesosphere Thermosphere Imager (OMTI)	K. Shikawa (Nagoya U)	Japan	Dynamics of the upper atmosphere through nocturnal airglow emissions