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## PRELIMINARY ANNOUNCEMENT

for the

Commemoration of the 10<sup>th</sup> Anniversary  
of the

# Establishment of SERC

(Space Environment Research Center, Kyushu University)



which will take place in Fukuoka, Japan, on 14 March 2012

### *Agenda*

- Commemorate the *10<sup>th</sup> anniversary of SERC*
- Inaugurate the *International Center for Space Weather Science and Education (ICSWSE)*
- Observe the significance of the *14<sup>th</sup> of March 2012*

The fundamental purpose of this event is to review where SERC has been, where it is today, and where it plans to go.

### **The First Ten Years of SERC (2002-2012)**

SERC was established at Kyushu University in 2002 as an *Institute for the Joint Use of Kyushu University* as a collaboration among the Faculty of Mathematics, the Faculty of Engineering Sciences, the Faculty of Engineering, the Faculty of Information Science and Electrical Engineering, and the Faculty of Sciences. It was decided that the first Executive Director of SERC would be Professor Kiyohumi Yumoto.

In the beginning, this Center promoted the diagnosis of the geospace plasma environment and examined the problem of space debris. Additionally, this Center undertook research on electromagnetic disturbances that originated with the Sun. The tools for this research were ground-based magnetometers (to observe the Earth's magnetic field) and radars (to observe the ionosphere). These magnetometers formed a network called CPMN (Circum Pacific Magnetic Network).

Over the past ten years, this Center developed into two main areas of research activities. One was to pursue research on fundamental aspects of plasma physics, which covers space plasmas, fusion plasmas, and industrial applications of plasmas. Additionally, there was a need to develop the mathematical and informatic aspects of plasmas. This entire effort, therefore, was a major inter-disciplinary undertaking inside of Kyushu University.

The other main area of effort at SERC during the past ten years was the deployment of MAGDAS (MAGnetic Data Acquisition System) on a global scale. Unlike the CPMN system, each MAGDAS magnetometer sends its data in real time to SERC for continuous monitoring of the Earth's magnetic field. The first MAGDAS magnetometer started operating at Hualien, Taiwan, in May of 2005. Today there are 63 MAGDAS magnetometers in operation all over the world -- this is an expansion rate of 10 magnetometers per year, or nearly one per month. Thus MAGDAS is *by far* the largest real time magnetometer network in the world. In addition, as part of this real time observation effort, SERC maintains FM-CW radars in Russia, Japan, and the Philippines.

*To summarize the first ten years of SERC:* SERC concentrated on establishing a foundation for research into basic plasma physics and it concentrated on deploying the world's largest real time network of magnetometers. Note that this was mainly a domestic enterprise – to shore up the essential skills and know-how of Japanese scientists and engineers. During the next ten years, SERC will extend this enterprise to a global scale.

**IHY (*International Heliophysical Year*, from 2005 to 2009)  
and  
ISWI (*International Space Weather Initiative*, from 2010 to 2012)**

[ conducted under the auspices of the United Nations ]

To ensure the success of the MAGDAS Project, SERC became heavily involved with IHY and ISWI, as a major purpose of IHY/ISWI is to get more developing nations involved in space science. Here, MAGDAS contributed enormously – through the installation of instruments in Asia and the Pacific, Africa, and Latin America and the Caribbean. SERC experts have trained local personnel (staff and students) to maintain MAGDAS instruments. SERC invited them to SERC for additional scientific and technical training. For this purpose, SERC conducted MAGDAS schools. Scholarships were provided to MAGDAS hosts so that they were able to attend IHY/ISWI workshops. All these efforts are part of SERC's *Capacity Building* agenda, which is also the agenda of IHY/ISWI.

**The Next Ten Years beyond 2012**

During the first ten years, SERC concentrated on two major areas of research activities as outlined above. During the next ten years, SERC will expand to the international stage. Accordingly, SERC will take the initiative on several new international enterprises that are being planned presently. Selected examples (five) are as follows:

1. *The next stage of ISWI.* The first stage of ISWI (2010-2012) will be concluded in 2012. This must be followed up with a new international

program, which is still in the planning stages. SERC intends to take a leading role in the new program.

2. *MAGDAS Schools*. SERC conducted a major MAGDAS School in Nigeria during the summer of 2011 at Redeemer's University near Lagos. The next one is scheduled for Bandung, Indonesia, during the summer of 2012.
3. *Capacity Building*. In support of the **MAGDAS Project**, SERC will continue to push forward with Capacity Building, which involves teaching MAGDAS instrument hosts the skills needed for (1) instrument operation, (2) data analysis, and (3) doing world-class science with the collected MAGDAS data.
4. *Establishment of ICSWSE*. This is the **International Center for Space Weather Science and Education**. Details of this new center are contained in the *Abuja ISWI Resolution*, which was adopted by the participants of the "UN/Nigeria Workshop on ISWI" (October 2011). Here reference is made to the ISWI Newsletter Volume 3, Number 101.
5. *Center of centers*. One role of ICSWSE is to cooperate (in the field of space weather) with the UN-affiliated **Regional Centres for Space Science and Technology Education** (located in Nigeria, Morocco, India, Brazil, and Mexico).

### The Significance of the 14<sup>th</sup> of March 2012

Albert Einstein (the man who created the Theories of Relativity) was born on 14 March 1879. It is well-known that in 1922 he undertook a tour of Japan with his wife, which included several speaking engagements, including a famous lecture at Kyoto University. But it is not well-known that he also visited Fukuoka and Kitakyushu, and gave a lecture at Kyushu University. During this 14<sup>th</sup> March 2012 event at SERC, it is being proposed to release some documents (regarding Einstein's visit to Fukuoka in 1922) that have always existed in Japanese, but never in English.

End of Preliminary Announcement.

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