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差出人 maeda@serc.kyushu-u.ac.jp

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Attachment(s):
(1) "Simonton13.ScientificGeniusIsExtinct", 400 KB pdf, one page.
(2) "S002_Blickpunkt_006-007", 105 KB pdf, 2 pages.
(3) "Program for MAGDAS-CPMN Talk in Sabah", 1.3 MB pdf, 12 pages.

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:                      Re:
:                      (1) Scientific highlights of
:                          the UNBSSI (BSS, IHY, ISWI)
:                      (2) MAGDAS Installation at Sabah, Malaysia.
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Dear ISWI Participant:

There are two items today:

(1)
This year is a big transition year for ISWI, the Space Weather Agenda of UN-COPUOS, and the involvement of the UN in outer space affairs. Hence, from Prof. Hans Haubold of the United Nations Office for Outer Space Affairs, I present two questions for the entire ISWI community:

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:
:    1. What have been the scientific highlights
:       of the UNBSSI (BSS, IHY, ISWI) in the past 25 years?
:    2. Did the UNBSSI create a worldwide scientific
:       network in the past 25 years?
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The first 2 attachments (one in English and one in German) are food for thought -- also from Hans. Hans and I invite you to think about the two questions above and if possible to write a comment. I shall be happy to reprint your comment on this newsletter for all ISWI participants to see.

(2)
Recently, the International Center for Space Weather Science and Education dispatched a team to Indonesia and Malaysia for magnetometer field work. The team consisted of one staff (Dr. S. Abe) and four students (Mr. Imajyo, Mr. Uetani, Mr. Tanaka, and Mr. Mohamad Huzaimy Jusoh of Malaysia).
Their mission:
(a) Upgrade the old magnetometer at Kupang, Indonesia, to the state-of-the-art MAGDAS 9 magnetometer. Photos will be provided in a future newsletter.
(b) Install (new site) a MAGDAS-9 magnetometer at Sabah,

on an island that was once known as "Borneo". Sabah is now a part of Malaysia. Photos will be provided later.

At the Sabah, the host university arranged a special research talk which helped the installation team explain to Sabah faculty and students the scientific motivation for deploying MAGDAS magnetometers all over the world. Attached, as the 3rd pdf, is the program for this research talk. It was created by the host university, Universiti Malaysia Sabah.

Cordially yours,
: George Maeda
: The Editor
: ISWI Newsletter

Scientific genius is extinct

Dean Keith Simonton fears that surprising originality in the natural sciences is a thing of the past, as vast teams finesse knowledge rather than create disciplines.

Many scientists devote their careers to studying phenomena that they can assume will not go away anytime soon. Life forms will always undergo change across generations, so evolutionary biologists will always have a job. But the very phenomenon that I investigate might have actually ceased to exist.

I have devoted more than three decades to studying scientific genius, the highest level of scientific creativity[1]. The creative scientist contributes ideas that are original and useful. The scientific genius, however, offers ideas that are original, useful and surprising. Such momentous leaps — be they theories, discoveries or inventions — are not just extensions of already-established, domain-specific expertise: the scientific genius conceives of a novel expertise.

Albert Einstein's special theory of relativity met these three criteria and required introductory-level textbooks to be rewritten. Einstein overthrew the Newtonian concept of absolute space and time, and revealed a groundbreaking relationship between matter and energy, denoted in his famous equation, $E = mc^2$.

Geniuses have played a decisive part in science in two main ways. First, they have founded new scientific disciplines, such as Galileo's creation of telescopic astronomy. Second, geniuses have revolutionized established disciplines. Charles Darwin, for instance, proposed that species evolve by natural selection at a time when many biologists believed that life forms were fixed from the moment of Biblical creation.

Yet, in my view, neither discipline creation nor revolution is available to contemporary scientists. Our theories and instruments now probe the earliest seconds and farthest reaches of the Universe, and we can investigate the tiniest of life forms and the shortest-lived of subatomic particles. It is difficult to imagine that scientists have overlooked some phenomenon worthy of its own discipline alongside astronomy, physics, chemistry and biology. For more than a century, any new discipline has been a hybrid of one of these, such as astrophysics, biochemistry or astrobiology. Future advances are likely to build on what is already known rather than alter the foundations of knowledge. One of the biggest recent scientific accomplishments is the discovery of the Higgs boson — the existence of which was predicted decades ago.

PETE ELLIS/DRAWGOOD.COM

The days when a doctoral student could be the sole author of four revolutionary papers while working full time as an assistant examiner at a patent office — as Einstein did in 1905 — are probably long gone. Natural sciences have become so big, and the knowledge base so complex and specialized, that much of the cutting-edge work these days tends to emerge from large, well-funded collaborative teams involving many contributors.

SCIENCE OLYMPIANS

At this point, let me add three clarifications. First, I am not saying that scientific progress will cease. On the contrary, I believe that the scientific enterprise will continue to get "faster, higher, stronger". Textbook chapters will continue to be updated. At worst, some disciplines will asymptotically approach some ill-defined limit of precision and comprehensiveness, much as seems to be happening in many competitive sports. Just as athletes can win an Olympic gold medal by beating the world record only by a fraction of a second, scientists can continue to receive Nobel prizes for improving the explanatory breadth of theories or the preciseness of measurements. These laureates still count as 'Olympian scientists'.

Second, I am not arguing that science is becoming 'dumbed down', or that modern investigators are less intelligent than Nicolaus Copernicus, René Descartes, Isaac Newton, Marie Curie or Louis Pasteur. Contemporary scientists generally have very high IQs[2]. If anything, scientists today might require more raw intelligence to become a first-rate researcher than it took to become a genius during the 'heroic age' of the scientific revolution in the sixteenth and seventeenth centuries, given how much information and experience researchers must now acquire to become proficient. It is hard to know whether Pierre-Simon Laplace or James Clerk Maxwell would have been bright enough to master the formidable mathematics of superstring theory, for instance.

Finally, I am not asserting that brilliant scientists can no longer attempt to introduce new paradigms, or even to devise original disciplines. It is just that such innovations seem less likely to catch on. According to Thomas Kuhn's classic analysis of scientific revolutions, a discipline within the physical and biological sciences should not even be receptive to a paradigm shift unless the discipline is in a state of crisis, produced by the accumulation of critical findings that continue to resist explanation[3]. For example, special relativity resolved the impasse set in motion by, among other things, the 1887 experiment by US physicists Albert Michelson and Edward Morley that failed to detect the universal 'ether' assumed to help propagate electromagnetic waves .

Most, if not all, disciplines in the natural sciences do not seem close to this crisis state. The core disciplines have accumulated not so much anomalies as mere loose ends that will be tidied up one way or another. A possible exception is theoretical physics, which is as yet unable to integrate gravity with the other three forces of nature.

Of course, I hope that my thesis is incorrect. I would hate to think that genius in science has become extinct and that my research speciality has become obsolete. It takes only one new scientific genius to prove me wrong. ■

Dean Keith Simonton *is professor of psychology at the University of California at Davis, California 95616, USA.*
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1. Simonton, D. K. *Scientific Genius: A Psychology of Science* (Cambridge Univ. Press, 1988).
2. Simonton, D. K. *Creativity in Science: Chance, Logic, Genius, and Zeitgeist* (Cambridge Univ. Press, 2004).
3. Kuhn, T. S. *The Structure of Scientific Revolutions* (Univ. Chicago Press, 1996).

Wir müssen ein weltweites Netz knüpfen

In seinem Buch „Die Welt ist flach" beschreibt Thomas L. Friedman, Pulitzer-Preisträger und Kolumnist der New York Times, wie Globalisierung und elektronische Netze unser Leben radikal verändern: Amerikanische Wirtschaftsprüfer und Steuerberater lassen Steuererklärungen anonymisiert in Indien ausführen, Radiologen von US-Krankenhäusern delegieren die Auswertung von CT-Scans an Ärzte – in Indien. Das Land ist inzwischen einer der größten IT-Dienstleister der Welt und wird – analog zu China, das gerne als „Werkbank der Welt" bezeichnet wird – das „Backoffice der Welt" genannt. Computer, die schnelle Datenübertragung via Glasfaserkabel und Workflow-Softwarelösungen haben dazu geführt, dass wir immer besser im globalen Rahmen kooperieren und konkurrieren. Nicht nur wirtschaftliche, sondern auch wissenschaftliche Aktivitäten zeigen heute ein beschleunigtes, komplexeres und geografisch breiteres Muster von internationalem Austausch und Kooperation.

Wie sollen wir auf diese Dynamik reagieren? Die Entscheidung von Unternehmen für einen Standort hängt von der Verfügbarkeit lokaler Fähigkeiten, der Infrastruktur und dem Zugang zu neuem Wissen ab. Um als Standort attraktiv zu bleiben, muss Deutschland deshalb zu einer ersten Adresse für die besten Forscherinnen, Forscher und Studierenden aus aller Welt werden. Schon heute sind qualifizierte MINT-Kräfte in Deutschland Mangelware – laut Handelsblatt fehlen derzeit rund 150 000 Akademiker nur in den Fächern Mathematik, Informatik, Naturwissenschaft und Technik. Bis zum Jahr 2030 wird sich diese Situation aufgrund des demografischen Wandels weiter verschärfen – nach einem Zwischenhoch wird die Absolventenkurve von 2020 an wieder abflachen. Gleichzeitig steigt die Mobilität international Studierender. So verlassen jährlich mehr als eine halbe Million Inderinnen und Inder ihr Land für ein Studium im Ausland. Weil in Indien massenhaft Studienplätze fehlen, hat die Regierung erst vor Kurzem ein Gesetz beschlossen, das den Zugang von Hochschulen aus dem Ausland auf den Subkontinent regeln und erleichtern soll. Auch andere Länder werben intensiv um ausländische Bildungsträger. Im Mittleren Osten investieren Scheichtümer Milliarden, um ausländische Universitäten anzulocken. So hat die Harvard Medical School 2006 in Dubai das Harvard Medical School Dubai Center aufgebaut, um die Zusammenarbeit in der medizinischen Forschung und Ausbildung voranzutreiben. Im vergangenen Jahr verkündete Harvard, dass es mit Mitteln der Qatar Foundation eine Graduiertenschule für Rechtswissenschaften in Doha aufbauen wird.

2010 hatte Yale als erste Ivy-League-Universität in Übersee einen Hochschulcampus zusammen mit der National University of Singapore (NUS) etabliert. Yale-NUS soll eine neue Ära in der internationalen Bildung einläuten. Die New York University (NYU) ist seit 2010 in Abu Dhabi. 9000 Studenten haben sich in der ersten Ausschreibungsrunde auf die knapp 200 Plätze beworben. Nun will die NYU nach Shanghai expandieren. Man möchte, so ihr Präsident, als weltweit erste globale Universität einen entscheidenden Schritt tun, um mit Harvard, Yale und Princeton zu konkurrieren. Im Wettbewerb um die besten Köpfe verschaffen sich amerikanische Universitäten eine günstige Ausgangsposition. Deutsche Hochschulen sind erst spät in den Bildungsexport eingestiegen – und ihnen fehlt, trotz Exzellenzinitiative, der Glanz. Nach wie vor schafft es keine deutsche Universität unter die Top Ten im Shanghai-Ranking.

Im Wettbewerb um Talente

Foto: Axel Griesch

Das Bundesministerium für Bildung und Forschung (BMBF) hat diese Problematik erkannt und die Wissenschaftsorganisationen aufgefordert, „spezifische Angebote an den wissenschaftlichen Nachwuchs aus dem Ausland zu richten, um in Hinblick auf das angestrebte Wachstum an Forschungsaktivitäten in hinreichendem Umfange talentierten und gut qualifizierten Nachwuchs zu gewinnen". Die Max-Planck-Gesellschaft hat bereits im Jahr 2000 gemeinsam mit den deutschen Hochschulen mit dem Aufbau von Graduiertenschulen begonnen. An den mittlerweile 61 International Max Planck Research Schools lernen und forschen rund 3000 junge Doktorandinnen und Doktoranden, von denen die Hälfte aus dem Ausland stammt – aus mehr als 100 verschiedenen Herkunftsländern. Viele von ihnen würden nach ihrem Abschluss gerne für einige Jahre in Deutschland arbeiten. Gut ausgebildet, leistungsorientiert und in mehreren Kulturen zu Hause, erschließt sich hier ein wertvolles Mitarbeiterpotenzial. Die Einführung der Blue Card war deshalb ein wichtiger Schritt, denn bisher geht ein Großteil der ausländischen Studierenden dem deutschen Arbeitsmarkt verloren.

Aber es geht um mehr als Nachwuchstalente – es geht um globale Wertschöpfungsketten. Mehr als 90 Prozent des weltweiten Wissens entsteht außerhalb Deutschlands. Um an den weltweiten Wissensflüssen teilzuhaben, muss Forschung international aufgestellt sein. Nehmen wir das Beispiel der RNA-Interferenz: 1998 entdeckten Forscher in den USA, dass Gene über kurze RNA-Schnipsel stillgelegt werden können. Thomas Tuschl gelang es wenige Jahre später am Max-Planck-Institut für biophysikalische Chemie, diesen Mechanismus auch in Zellen von Säugetieren zur Anwendung zu bringen. Die entsprechenden Patente liegen in Händen der Max-Planck-Gesellschaft und des Massachusetts Institute of Technology (MIT). Die wirtschaftliche Weiterentwicklung dieser Methode hin zu einem therapeutischen Einsatz wird derzeit durch die US-amerikanische Firma Alnylam Pharmaceuticals betrieben. Oder: Axel Ullrich vom Max-Planck-Institut für Biochemie hat gezeigt, wie gezielt in den komplexen Mechanismus der Tumorentwicklung eingegriffen werden kann. In der von ihm gegründeten Firma Sugen

Teilhabe an globalen Wissensflüssen

wurden diese grundlegenden Erkenntnisse für eine medizinische Anwendung weiterentwickelt. Nach Übernahme durch Pharmacia und später Pfizer kam das entsprechende Medikament schließlich 2006 auf den Markt.

Für die Max-Planck-Gesellschaft ist internationale Zusammenarbeit seit jeher ein wesentlicher Faktor zur Erfüllung ihrer eigenen Mission. Komplexe Probleme können nur unter Einbeziehung verschiedener Experten gelöst werden. So sind Max-Planck-Institute an über 5000 Projekten mit mehr als 6000 Forschungspartnern in 120 Ländern dieser Welt beteiligt. Jede zweite Publikation aus der Max-Planck-Gesellschaft entsteht in internationaler Zusammenarbeit. Keine andere europäische Forschungsorganisation ist derart international vernetzt. Um sich Zugang zur internationalen Spitzenforschung im Ausland zu verschaffen, hat die Max-Planck-Gesellschaft – amerikanischen Eliteuniversitäten vergleichbar – ihre Präsenz in wichtigen Zielländern in den vergangenen Jahren verstärkt mit dem Ziel, Innovationspotenziale im Ausland abzuschöpfen und Talente frühzeitig zu entdecken und zu binden.

Indien beispielsweise ist ein Schlüsselstandort für Computerwissenschaften. Deshalb haben wir 2010 mit Unterstützung des BMBF und des indischen Department of Science and Technology ein Max Planck Center in Neu-Delhi gegründet als Plattform für die Zusammenarbeit des Max-Planck-Instituts für Informatik in Saarbrücken mit dem Indian Institute of Technology. Aktuell entsteht ein Max Planck Center auf dem Gebiet der Neurowissenschaften in Kooperation mit der Hebrew University in Jerusalem. Des Weiteren gibt es Max Planck Center auf dem Gebiet der Materialforschung in Kooperation mit der University of British Columbia in Vancouver, Kanada, mit dem Riken Institute in Japan oder der renommierten Princeton University in den USA – um hier nur fünf der derzeit 14 Max Planck Center in Europa, Nordamerika und Asien zu nennen.

Darüber hinaus zählt die Gesellschaft inzwischen fünf Auslandsinstitute in Italien, Luxemburg, den Niederlanden sowie in den USA. Hier hat der Bundesstaat Florida zuletzt den Aufbau des Max Planck Florida Institute mit 186 Millionen US-Dollar gefördert. Die Max-Planck-Gesellschaft hat auf diese Weise Zugang zu dem nach wie vor weltweit führenden US-amerikanischen Wissenschaftsmarkt erhalten.

Niemand kann es sich heute noch leisten, auf eine Internationalisierungsstrategie zu verzichten. Richard Edelstein, Experte für internationale Bildung an der University of California in Berkeley, geht davon aus, dass diese in den kommenden fünf, zehn oder 50 Jahren signifikante Auswirkungen haben wird. Die Max-Planck-Gesellschaft ist international gut aufgestellt – und wirbt als Markenbotschafter zugleich für den Standort Deutschland im Ausland.

Peter Gruss,
Präsident der Max-Planck-Gesellschaft

RESEARCH TALK on MAGDAS/CPMN Project

MAGnetic Data Acquisition System/Circum-pan Pacific Magnetometer Network

Programme Book & Abstract

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20 Mac 2013

Bilik Mesyuarat Utama (BMU)

School of Science and Technology

Universiti Malaysia Sabah

UMS UNIVERSITI MALAYSIA SABAH

ICSWSE

九州大学 KYUSHU UNIVERSITY

ANGKASA MALAYSIA

UNIVERSITI TEKNOLOGI MARA

MESSAGE FROM THE DEAN OF SCHOOL OF SCIENCE AND TECHNOLOGY

Assalamualaikum w.bt. and Good Day,

First and foremost, on behalf of Universiti Malaysia Sabah and School of Science and Technology, I would like to extend my warm welcome to all of our experts and participants today on the Research Talk on MAGDAS/CPMN Project. It is a great honour for our school to host today's event that brought together experts from various institution such as Kyushu University, Malaysia ANGKASA Agency, UiTM and UMS as well. I would like to give a special word of thank to the organizing committee for their commitment to make this event a success.

Today's event is another milestone after signing of Memorandum of Understanding (MOU) between UMS and Space Environment Research Center (SERC) from Kyushu University. This MOU formalised the collaboration between the two parties in the field of geophysics in particular the research on the earth magnetic field. The main project within the collaborative framework is the deployment of MAGDAS instrument –i.e. Magnetic Data Acquisition System here in UMS.

We are lucky today to have experts on MAGDAS to talk about their findings in Japan and Malaysia, with which the purpose of the research talk being held today. Hopefully by having the instrument here it will further contribute to the space research community in general and might be impetus for new and innovative ideas in the future. Finally, I wish a meaningful research discussion today; have a great stay in Kota Kinabalu and on behalf of my university, I am pleased to officiate the opening of this research talk.

Thank you very much.

Assoc. Prof. Dr. Baba Musta
Dean
School of Science and Technology

MESSAGE FROM THE DIRECTOR ICSWSE OF KYUSHU UNIVERSITY

Dear Participants of
"Research Talk on MAGDAS/CPMN Project" at UMS:

As Director of the "International Center for Space Weather Science and Education" at Kyushu University and as the PI of the MAGDAS/CPMN Project, I am very pleased and honored that UMS has organized this research talk on the MAGDAS/CPMN Project.It is an excellent way to start our 10-yearcollaboration to collect geomagnetic data atSabah in Malaysia.

As you may know, the speciality of the MAGDAS/CPMN Projectis its 210 deg. magnetic meridian chain. It is a meridian that passes through Japan. Our chain goes up toSiberia and down to the Antarctica. Along this chain, our magnetometers are placed at less than 500 km interval. The data collected along this chain is quite famous throughout the geophysics community. Although Sabah is not right on this meridian, it is very close. So it can contribute to the science done by the 210 chain. In addition, data from magnetometers at low latitude are in demand.

Unfortunately, due to my current health situation, I cannot be with you for this event. However, I wish you all the best for a successful and fruitful research talk. I hope our collaboration will encourage many young people in Sabah to consider a career in science and technology.

Thank you for participating in this international event.

Sincerely,
Prof. Dr. Kiyohumi Yumoto
- Director, ICSWSE of Kyushu University.
- Professor, Faculty of Sciences, Kyushu University.
- PI, MAGDAS/CPMN Project.
- Member, ISWI Steering Committee (Int'l Space Weather Initiative)
- Chair, ULTIMA (Ultra Large Terrestrial Int'l Magnetometer Array)
- Chair, JSWA Steering Committee (Japan Space Weather Association)
- Chair, the STPP Subcommittee of the Science Council in Japan.
- Chair, Kyushu University Ito-shima Kai.

TENTATIVE

DATE	TIME	ACTIVITY
18 Mac 2013	7.00 pm	Welcoming Dinner: • Courtyard Hotel
20 Mac 2013	8.30 am	Arrival of lecturers, students and staffs
	8.45 am	Arrival Dean of SST and the Deputy Deans
	8.50 am	Ceremony begins with the recital of Du'a.
	8.55 am	Welcome speech from Dean of SST
	9.10 am	Delivery of appreciation to representative researchers by the by Dean of SST • ICSWSE • UiTM Shah Alam • Agensi ANGKASA Malaysia
	9.20 am	Refreshments
	9.30 am	Research presentation starts: • Dr Shuji Abe "An Overview of MAGDAS/CPMN Project" • Shun Imajou (ICSWSE, Kyushu University) "Low-latitude Geomagnetic Variation and Substorm" • Daijirou Tanaka (ICSWSE, Kyushu University) • "Searching Seismo-electromagnetic Anomalies in ELF Ranged Observed by an Induction Magnetometer in Kuju" • Mohamad Huzaimy Jusoh (ICSWSE, Kyushu University & UiTM) "Application of MAGDAS Data in Long Term Analysis of Possible Solar-Seismicity Coupling" • Mohd Helmy Hashim (ANGKASA) "Geomagnetic study - MAGDAS Langkawi Station" • Mohamad Zul Hilmey Makmud (UMS) "Progress report on the Deployment of MAGDAS in Sabah, Malaysia"
	11.30 am	Discussion sessions
	12.00 pm	Lunch

An Overview of MAGDAS/CPMN Project

Dr Shuji Abe

International Center for Space Weather Science and Education (ICSWSE),
Kyushu University

ABSTRACT

The International Center for Space Weather Science and Education (ICSWSE), formerly known as Space Environment Research Center (SERC, since 2002), Kyushu University, was established on 01 April 2012. The purposes of this re-organization are to continue to conduct research in space weather and related fields on more global basis, and establish a permanent international institution for space weather science and education. One of our important work is to develop a real-time geomagnetic field observation system, known as the "MAGDAS (MAGnetic Data Acquisition System)/CPMN (Circum-pan Pacific Magnetometer Network) Project", whose principal investigator is the director of ICSWSE (Prof. K. Yumoto). It is a global network of geomagnetic observations operated by collaborations between ICSWSE and institutions in many countries. To date, the MAGDAS Project has installed over 70 real-time magnetometers around the world. In this talk, I will introduce the background of ICSWSE and the progress on MAGDAS/CPMN project.

Low-latitude geomagnetic variation and substorm

Shun Imajou

International Center for Space Weather Science and Education (ICSWSE),
Kyushu University

ABSTRACT

The magnetosphericsubstorm is a process in which energy is stored in the magnetotail through the interaction between the solar wind and the magnetosphere and is released explosively. We can observe geomagnetic variation associated with the substorm all over the world, even in the equatorial region. In the low-latitude region, two types of the variation are observed: magnetic positive bay and Pi 2 pulsation. Magnetic positive bay is an increase of the geomagnetic field which associated with the enhanced current system of substorm. Pi 2 geomagnetic pulsations are defined as impulsive magnetic field oscillations with a period of 40-150 second [Jacob et al., 1964]. There are many ideas to explain generation and propagation mechanism of Pi 2, however, we have not come to any conclusions yet. In the lecture, we will present an introduction of magnetic variation associated with substorm and recent research results achieved by MAGDAS network.

Searching Seismo-electromagnetic Anomalies in ELF Ranged Observed by an Induction Magnetometer in Kuju

Daijirou Tanaka

International Center for Space Weather Science and Education (ICSWSE),
Kyushu University

ABSTRACT

Seismo-electromagnetic anomalies have been observed in a lot of frequency ranges, from the ultra-low frequency (ULF) range to the very-high frequency (VHF) range. These ranges include the extremely-low frequency (ELF) range, which covers 3 to 300Hz. In the ELF range, there exist a phenomenon called Schumann Resonance, where electromagnetic waves excited by lightning resonate in the cavity between the earth's surface and the ionosphere in the ELF range, especially at 8Hz, 14Hz and 20Hz. On the other hand, the ELF range may also include seismo-electromagnetic waves: For example, Ohta et al. [2005] reported that some ELF waves were excited before earthquakes and the excited waves differed from the ones caused by lightning. However, there exist few papers about seismo-electromagnetic anomalies in the ELF range, compared to other frequency ranges. The International Center for Space Weather Science and Education has an induction magnetometer in Kuju, which can detect magnetic variations in the ELF range. The purpose of this study is to use this magnetometer and determine whether or not there are seismo-electromagnetic anomalies in the ELF range before, during and/or after earthquakes by power spectral analyses of the magnetic-field data obtained from the induction magnetometer in Kuju. We have referred to a publically available earthquake list, and searched for earthquakes in 2003-2011 falling into the following two different categories: (ⅰ) M≧5.0, and Epicenter-Kuju distance≦150km (ⅱ) M≧5.0, Epicenter-Kuju distance≦1500km, and Depth≦3km As a result, we identified 4 (2) events in the category ⅰ (ⅱ). Among them, we found 4 (1) events associated with bursty electromagnetic anomalies. These anomalies may be the effect of earthquakes or lightning, and it is a topic of future research to distinguish the generation mechanisms.

Application of MAGDAS Data in Long Term Analysis of Possible Solar-Seismicity Coupling

Mohamad Huzaimy Jusoh

International Center for Space Weather Science and Education (ICSWSE),
Kyushu University & Universiti Teknologi Mara (UiTM)

ABSTRACT

Solar activities play significant roles in electromagnetic coupling of the Sun – Earth system. Theoretically, this coupling mechanism starts from the sun as the main source of energy influences parameters in the interplanetary space and terrestrial environment. The connection between solar wind and the ground magnetic pulsations has been proven empirically by several researchers previously (H. J. Singer et al., 1977, E. W. Greenstadt, 1979, I. A. Ansari 2006 to name a few). In our preliminary analysis on relationship between solar and seismic activities (Jusoh and Yumoto, 2011, Jusoh et al., 2012), we observed a higher tendency of earthquake's energy to be released during descending phase of solar cycles which significantly related with solar wind parameters (i.e solar wind dynamic pressure (Pdyn), speed (Vsw) and input energy (epsilon)). To connect the solar impact on seismicity, we investigate the possibility of ground magnetic pulsations; Pc3 (22-100 mHz), Pc4 (6.7-22 mHz) and Pc5 (1.7-6.7 mHz) as one of the connecting agent. The localized Pc3-Pc5 magnetic pulsations data were extracted from Magnetic Data Acquisition System (MAGDAS)/Circum Pan Magnetic Network (CPMN) located at Ashibetsu (Japan); for earthquakes monitored at north Japan and Langkawi (Malaysia); for earthquakes observed at north Sumatra, Indonesia. This magnetometer arrays has been established by International Center for Space Weather Science and Education, Kyushu University, Japan. From the results, we observed significant correlations between the observed parameters, where the increasing of Vsw and epsilon correspond to the number of observed magnetic pulsations and localized earthquakes.

Geomagnetic study - MAGDAS Langkawi Station

Mohd Helmy Hashim

National Space Agency of Malaysia (ANGKASA)

ABSTRACT

An establishment of geomagnetic field observation network under The Circum-pan Pacific Magnetometer Network (CPMN), Magnetic Data Acquisition System (MAGDAS) was constructed and initiated by the International Center for Space Weather Science and Education (ICSWSE) which formerly known as Space Environment Research Center (SERC). Through this project, MAGDAS was installed at Langkawi National Observatori (LNO), National Space Agency of Malaysia (ANGKASA). This presentation is mainly discussing on the research done using MAGDAS by local researchers and its challenges.

Progress report on the deployment of MAGDAS in Sabah, Malaysia

Mohamad ZulHilmey Makmud

Universiti Malaysia Sabah (UMS)

ABSTRACT

In conjunction of scientific collaboration between Universiti Malaysia Sabah (UMS) and International Space Weather Science and Education (ICSWSE), a MAGDAS station which was known as MAGDAS-UMS was installed in UMS campus. This presentation mainly discuss on site decision and installation process prior to the deployment of MAGDAS in Sabah. Initially, three strategic locations were proposed to ICSWSE as potential site for the MAGDAS-UMS station, after an intensive discussion between UMS and ICSWE, a location coordinated as 06° 02.532’N 116° 06.871’E was chosen. Moreover, the process of deployment also involve designing and providing a sensor and pre amplifier hut and as well as the data logger hut and their facilities.

COMMITTEE MEMBERS OF RESEARCH TALK ON MAGDAS / CPMN

(MAGnetic Data Acquisition System/Circum-pan Pacific Magnetometer Network)

Advisor
Prof Madya Dr. Baba Musta

Co-Ordinator
En Mohamad ZulHilmey Makmud

Secretary
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RESEARCH TALK on MAGDAS/CPMN Project

MAGnetic Data Acquisition System/Circum-pan Pacific Magnetometer Network