

NewsLetter

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**Interview with Assoc. Prof. Enrico Paringit
NOAH Project - Disaster Management Tool**

UP DREAM/Phil LiDAR Program

PHL Microsat Program

ISPRS SC NewsLetter



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- More **people who would be willing to prepare articles** for existing or new rubrics,
- Designers of Newsletter

If you can help us with any of the above, please let us know!

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And also...

If you **would like to publish your research work** in the SC Newsletter send us your abstract on email written above. We will soon contact you for further information.

Dear ISPRS SC Newsletter readers,



It is the time of the year again for the annual Asian Conference on Remote Sensing. It is my great pleasure to welcome you to my beloved country, the Pearl of the Orient Seas – the Philippines.

The Philippines is an archipelago made of more than 7,000 islands – a tropical country used to experiencing many disasters and various environmental issues. Today, we Filipinos have recognized the importance of remote sensing and geospatial information sciences in addressing these issues. From the use of satellite imageries from global missions to data acquired through Light Detection and Ranging (LiDAR), and now, to launching its own microsatellite in the near future, the Philippines is mobilizing its local capacities and capabilities in conducting sound science-based assessments and engineering solutions to the country's environmental concerns. As we host this year's ACRS, we look forward to sharing with you our experiences and learnings from the use of remote sensing from regional to national scales. Furthermore, it is a privilege to bring the 13th ISPRS Student Consortium and Working Group VI/5 to the University of the Philippines, the country's premier state university. The Summer School continues to strengthen ISPRS SC's linkage to the Asian Association on Remote Sensing (AARS) and in empowering the younger generation of the remote sensing community.

As you visit Philippines this 2015, I hope that you bring home the experience of encountering the warmth and hospitality of Filipinos and discovering why we are ranked as one of the happiest people in the world. Have fun and enjoy your stay in the stunning islands of the Philippines!

Mabuhay!

Sheryl Rose Reyes
ISPRS SC Board Member
National Coordinator – Philippines

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Let's Come Together
to Make The World
Smaller and Smaller,
While Enlarging
and
Powering Our
Student Consortium
Network!!

JOIN US!!!

Interview

by Sheryl Rose Reyes

Enrico Paringit, D. Eng. Chairman, Local Organizing Committee The 36th Asian Conference on Remote Sensing (ACRS2015)

Executive Director at Philippine Geosciences and Remote Sensing Society (PhilGRSS) and Associate Professor at Department of Geodetic Engineering University of the Philippines – Diliman



Can you give us a brief introduction regarding your professional career and current research interests?

I have been with the University of the Philippines since joining as a Research Associate in 1998. I am now with the Department of Geodetic Engineering teaching Remote Sensing. My current research interests are SAR and LIDAR mapping as applied to disaster risk reduction and mitigation and for resource management. I have been privileged to lead this nationwide program to implement a hazard and resource assessment from LIDAR technologies.

As the local organiser of the 12th ISPRS SC and WG VI/5 Summer School, what were the challenges you encountered while preparing for this event?

Although finding monetary support to cover the cost is a typical problem, there are other important aspects that pose challenges in organizing ACRS 2015. Foremost is how to stir and spur interest in the ACRS 2015 despite the competing calls for papers in similar events elsewhere. I would like to think that ACRS 2015 has a unique character and niche in the Asian geospatial community. Taking off from this, coming up with the right Technical Program to satisfy the expectations of researchers, industry and government would be then ultimate goal. Other concerns like budget and arrangements will fall into their places.

In your opinion, how important is the participation of students and young scientists/researchers in international events?

International conferences and other scientific meetings are ways for the research community to disseminate new findings, results and recent developments in technology. Attending conferences such as ACRS provides a fitting venue for students and young researchers to get the latest trends from a regional setting and international perspective. The student who presents his/her current progress during the conference can also gain insights that will enhance research.

What do you think are the benefits of Summer Schools and other student-specific events to the youth and to the profession?

With a core of highly reputed lecturers in attendance, the Summer School certainly provides topnotch and world class teaching. The Summer School also intends to supplement the learning provided by Universities in a typical classroom setting. With a mix of international participants, the Summer School is also an opportunity for students to build and enhance social skills - such as self-confidence, interpersonal skills and developing their own professional network for future.

How important is collaboration among institutions in the field of remote sensing, photogrammetry and geospatial information sciences?

Globalization has changed even the way how remote sensing research is being conducted. Remotely-sensed data and the ways how they are processed and analyzed are now freely shared in an effort to accelerate the development of tools and technologies to aid understanding of earth science systems and processes at different scales. Establishing collaborative activities and programs among institutions plays a significant role by enhancing interaction among people behind them.

What advice can you give to students and young professionals regarding a successful career?

Young people are full of energy. Be relentless and actively engage other students and researchers in activities that promote and develop remote sensing technology. You can count on the support from those who are ahead of you. We see a brighter future when there is continuing interaction, and dialogue with young generation.

End...

It's More Fun at ACRS 2015

by Mae Hernandez

This year marks the 36th year of the Asian Conference on Remote Sensing, popularly known as ACRS. Started in the 1980s, ACRS has been an annual event that promotes and advances remote sensing technologies and innovations and related fields and specializations. Several Asian countries have hosted it already. But in 2015, it is returning to the Philippines. It is definitely an exciting year for ACRS as this is the second time the Philippines will host the said conference. Together with the Asian Association on Remote Sensing (AARS), Philippine Geosciences and Remote Sensing Society (PhilGRSS), and the Department of Science and Technology of the Philippines (DOST), ACRS will take place at Crowne Plaza Galleria in the country's City of Stars, Quezon City.

ACRS 2015 is not going to be like the typical ACRS. With this year's theme, "Fostering Resilient Growth in Asia", the conference takes place at a significant moment when disasters and climate change continues to negatively impact our people and the community. The conference will provide an outstanding opportunity to learn and explore how Remote Sensing will help us build resiliency to these disturbances and to strengthen our capability to adapt to stress and change.

"As we all know, Asia is one of the fastest growing regions in the world. But, at the same time, Asia is suffering from various environmental problems and disasters. Remote sensing is a necessary technology in Asia... In May 2013, I was invited to the 3rd National Remote Sensing Conference organized by the Philippine Geosciences and Remote Sensing Society (PhilGRSS). At that time, I was quite impressed to see the younger generation of PhilGRSS energizing the conference. So, when PhilGRSS proposed in 2013 to organize ACRS 2015 to be held in the Philippines, I fully supported them," said Prof. Kohei Cho, General Secretary of the Asian Association on Remote Sensing (AARS).

Guided by the conference theme, the Local Organizing Committee headed by its chair, Dr. Enrico Paringit, has made sure it has a lot in store for all participants, guests, and delegates.

The ACRS in Manila will have a brilliant line up of speakers from around the globe.

"Our Keynote Speaker is none other than the Secretary of the Department of Science and Technology in the Philippines, Hon. Mario G. Montejo, while the Plenary Speakers will be Dr. Tom Veldkamp, from the University of Twente The Netherlands; Mr. Shizuo Yamamoto of Japanese Aerospace Exploration Agency from Japan; Sec. Lucille Sering of the Philippine Climate Change Commission; Mr. Abhineet Jain of DigitalGlobe from the United States; Mr. Josefino Comiso of the NASA Goddard Space Flight Center from the USA; and Dr. Alfredo Lagmay of the PROJECT Nationwide Operational Assessment of Hazard (NOAH) from the Philippines," said Dr. Gay Perez, President of PhilGRSS and Chair of the Technical Committee of the ACRS 2015 Local Organizing Committee.

With over 600 papers from 32 countries from different regions around the world, the conference will no doubt have presentations, poster sessions and workshops that cater to all the different interest and fields that attendees represent. From special topics to regular ones like Satellite and Airborne Remote Sensing System and Laser Sensors/LIDAR, to applications in Coastal Zones and Fisheries, Water Resources, Agriculture, Vegetation, Atmosphere and Hydrology, to Geographic Information Systems, Photogrammetry and related topics such as Space Exploration and Capacity Building modules, no moment will be a boring one.

One of the highlights of this year's ACRS is the Exhibition and the Exhibitors' Night. Unlike any other ACRS exhibition, the exhibition in Manila is open to the public. It's a perfect opportunity to promote and present the latest technologies, products and innovations in remote sensing and geospatial industries to potential clients and customers.

The first night of the exhibition is an exclusive celebration where we will welcome the exhibitors and sponsors and their guests; conference participants and delegates; and representatives from private institutions, corporations and government agencies. Exhibitors' Night will all be a night of socializing and networking over refreshment and cocktails.

These and all other side events are happening in one of the popular cities in the world, Manila. This is definitely the best time to be here, as 2015 has been designated the year of "Visit the Philippines". Filled with countless things to do, the Philippines is a melting pot of festivities, culture and adventure. There are many exciting places to visit in the country's more than 7000 islands before and after ACRS. So the question now is: where will you be this year?



About ACRS and AARS

by Kohei Cho

General Secretary of the Asian Association on Remote Sensing (AARS)

The Asian Conference on Remote Sensing (ACRS) is an international conference organized every year in some country or region in Asia. The first ACRS was organized in 1980 in Thailand. The Asian Association on Remote Sensing (AARS) was established in 1981 as the main body to organize ACRS in cooperation with the hosting country or region. This year we will be organizing the 36th ACRS in Manila. ACRS has become one of the biggest and most well-known remote sensing conferences in Asia. AARS now consists of 20 ordinary members, 9 associate members, and 11 sustaining members from 27 countries and regions including some outside Asia. Anyone who pays the registration fee can attend ACRS.

Inspiring students and young scientists is also an important objective of ACRS. We have various awards to encourage the younger generation, including the Shunji Murai Award, the Innovation Award, the Best Student Paper Award, and the ISPRS Award. In 2008, the ACRS Student Group (ASG) was set up within AARS and has since been organizing various activities at each ACRS including a student session and WEBCON. This year we are planning to organize WEBCON5, an exciting web contest for young people. In cooperation with ISPRS, we have been offering the Student Summer School (SS) every year since 2010 just after ACRS. Studying and socializing with international students for a few days would be a great experience for any young Asian.



GRSS Young Professionals and ISPRS Summer School

Curitiba - PR, Brasil, 26-30 October 2015

For more info visit: http://www.lvc.ele.puc-rio.br/grss_brazil/ypss2015/index.html

3rd International Conference on Sensors and Models in Remote Sensing and Photogrammetry

Kish Island, Iran, 23-25 November 2015

For more info visit: <https://smpr.ut.ac.ir/>

PSIVT2015 Workshop

Auckland, New Zealand, 24 November 2015

For more info visit: <http://www2.informatik.hu-berlin.de/cv/psivt2015/>

International Workshop on Role of Land Professionals and SDI in Disaster Risk Reduction

Kathmandu, Nepal, Iran, 25-27 November 2015

For more info visit: <http://www.workshopnepal2015.com.np/>

LowCost3D (LC3D)

Berlin, Germany, 01-02 December 2015

For more info visit: <http://www.lc3d.net/>

International Workshop on Geoinformatics, Capacity Building and E-Learning

Pokhara, Nepal, 01-02 December 2015

For more info visit: <http://www.wrc.edu.np/>

9th International Symposium on Mobile Mapping Technology

Sydney, Australia, 09-11 December 2015

For more info visit: <http://www.mmt2015.org/>

EuroCOW 2016

Lausanne, Switzerland, 10-12 February 2016

For more info visit: <http://www.eurocow2016.org/>

XXIIIrd ISPRS Congress

Prague, Czech Republic, 12-19 July 2016

For more info visit: <http://www.isprs2016-prague.com>

Project NOAH as the Philippines' Key Disaster Management Tool

by Ken Adrian Aracan and Jo Brienne Briones

The Philippines is no stranger to inclement weather and disasters brought about by natural hazards such as typhoons and earthquakes. In addition to the archipelago's long coastlines and the high population density near bodies of water, this vulnerability constantly leaves the country at the mercy of catastrophic events. The United Nations 2014 World Risk Report ranks the Philippines as #2 on the World Risk Index, second only to Vanuatu in the Southern Pacific. The World Risk Index computes the risk of becoming a victim of disaster for 171 countries, using each country's natural hazard exposure, social susceptibility, coping capacities and adaptive capacities as factors.

While Filipinos pride themselves on their resilience, their capacity to rebound from disasters may not be enough to carry them into the next few decades. Thousands of lives and billions of pesos are lost every year due to repeated onslaughts of floods, landslides, storm surges, and other calamities. The year 2009 was particularly remarkable as the country was hit hard when tropical cyclones Ondoy (international name: Ketsana) and Pepeng (international name: Parma) crippled the nation's capital with fast-rising deadly floods, exposing fatal flaws in the country's disaster management capabilities. In 2011, exactly two years after Ondoy, Typhoon Pedring (international name: Nesat) struck in almost the same areas, immediately followed by Tropical Cyclone Quiel (international name: Nalgae). Three months later, Typhoon Sendong (international name: Washi) caught the residents of Northern Mindanao by surprise with deadly flashfloods overflowing from the Cagayan de Oro, Iligan and Iponan river basins.

In July 2012, the Department of Science and Technology (DOST) established the Nationwide Operational Assessment of Hazards (Project NOAH) in response to the country's need for a more responsive disaster prevention and mitigation program.

As a nationwide initiative, it aims to create a disaster-free Philippines with communities that are empowered by open access to accurate, reliable, relevant, and timely hazard and risk information.

Project NOAH believes that increased risk awareness is key to cultivating a culture of preparedness and reducing the catastrophic impacts of extreme hazard events. It undertakes advanced disaster science research and comprehensive hazard assessment to create accessible disaster management and mitigation tools that are relevant to local government units, community leaders, policymakers, city planners, and average Filipinos. The program also collaborates with these agencies to develop localized disaster management solutions for specific communities, with the overall goal of promoting safety from natural hazards.

The core of Project NOAH's work is producing reliable and relevant scientific disaster information, derived mainly from various geospatial and remotely-sensed datasets. By taking a multidisciplinary approach to assessing hazards and by using the lens of different scientific fields, Filipinos are provided with a comprehensive judgment of the physical hazards that put them at risk. The program has initiated nine component projects to achieve this: Hydrometeorological Sensors Development; DREAM-LIDAR 3D Mapping; Flood NET – Flood Information Network; Disaster Management using WebGIS; Enhancing Geohazard Mapping through LIDAR and High-resolution Imagery; Storm Surge Inundation Mapping Project; and Weather Information Integration for System Enhancement (WISE). All information coming from these components is then integrated, analyzed and disseminated through the NOAH websites (noah.dost.gov.ph and beta.noah.dost.gov.ph) and a number of mobile applications (Project NOAH, ARKO, RaincheckPH and Flood Patrol).

INTERESTING LINKS

SPAR Point Group

<http://www.sparpointgroup.com>

GoGeo

<http://www.gogeo.ac.uk/gogeo>

Drones news

<http://www.drones-iview.com>

FREE SOFTWARE

OSGeo-Live 9.0

<http://live.osgeo.org/en/index.html>

RESOURCES

ArcGIS Online

<http://www.arcgis.com>

GeoBlacklight

<http://geoblacklight.org>

EDUCATION

Center for Space and Remote Sensing Research, National Central University

<http://www1.csr.sr.ncu.edu.tw>

TUTORIALS

GEOSS Portal (video tutorial)

<https://www.youtube.com/channel/UCZ-whJZI76s7K9eAcBXAPyrw>

PUBLICATIONS

ESA Bulletin

http://www.esa.int/About_Us/ESA_Publications

The UP DREAM/Phil LiDAR Program

by Marilou Supit

Background

The DOST-UP Disaster Risk and Exposure Assessment for Mitigation (DREAM) Program is the result of collaboration between the national government and academia. Its objective is to generate hard and reliable facts that will back the country's disaster-preparedness measures. Implemented by the University of the Philippines' Diliman College of Engineering, the program is a regional pioneer in the use of state-of-the-art technologies in disaster science research, particularly Light Detection and Ranging (LiDAR) and Synthetic Aperture Radar (SAR).

Staffed by over one hundred dedicated young Filipino personnel from engineering, geology, forestry and geography backgrounds, the program generates high-resolution, detailed, and up-to-date elevation maps for 18 major river systems in the Philippines. This coverage represents one-third of the country and includes areas with historic flooding, as evidenced by disaster statistics from the past decade.

Output

Since the program's inception, it has acquired, validated, and processed LiDAR datasets to generate flood hazard maps and other relevant information that is intended to benefit local government units (LGUs) and national government agencies (NGAs). Through its website, www.dream.upd.edu.ph, the program also advises the public of impending disasters, particularly riverine flooding. DREAM's water level forecast system - an amalgamation of its technologies and outputs and those of DOST-PAGASA and DOST ASTI - serves as an early warning mechanism, integrating acquired rainfall and topographic data with the latest modeling tools.

These information products have been made accessible to stakeholders through information and education campaigns and have already reached approximately 200 LGUs, NGAs, non-government organizations and academic institutions. The datasets have been used to scientifically support projects such as dike rehabilitation and damage assessment.



DREAM Accomplishments

The program's 'DREAMS' have come true in events like the 2012 southwest monsoon (known locally as the Habagat), which heavily flooded Metro Manila. Based on highly precise observations of increased water levels in the watershed of Montalban, Rizal, DREAM advised the LGU of Marikina City around 12 noon on August 8 of an imminent flash flood. Because of this four hours notice, the advisory made possible the timely evacuation of Marikina residents living near the river, resulting in zero casualties - a figure undoubtedly better than the Ondoy death toll, which was an event of almost similar intensity but of disastrous statistics.

The program has also been instrumental in post-disaster assessments such as the survey of Compostela Valley after Typhoon Pablo in 2012 and the simulation models for Typhoon Yolanda done in early 2014. Through the program's LiDAR coverage, a more suitable area for evacuation and disaster response was identified for the former, and the exact expanse of damage was ascertained for the latter. The program was also tapped to determine ground shifts and fault line movement after the 2013 Bohol earthquake. Information from these assessments was relayed to concerned government units and multi-lateral groups, aiding their relief and rehabilitation efforts.

Future Collaborations / The Way Ahead

Cognizant of the capacity of people to use scientific tools to proactively prevent the devastating effects of a disaster, the program is also presently collaborating with hydrometeorological research partners to improve advisories that identify flood hazards at the barangay and street level, making warnings more useful to the public.

Under the Phil LiDAR Program, this public service will be extended to an additional 257 Philippine river basins by partnering with 14 state universities and colleges (SUCs) and higher education institutions (HEIs) across the Philippines. The partners' proximity to, and familiarity with, their respective areas will help to ensure the safety of their localities.

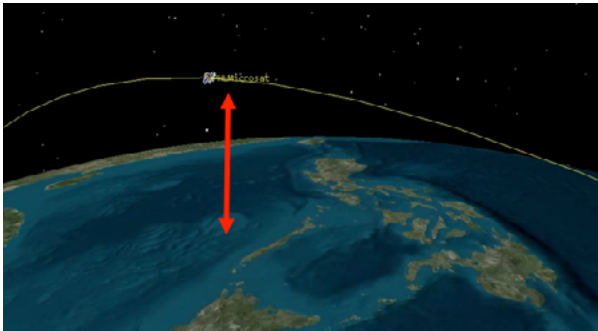
To maximize the use of its data the program has branched into the Phil LiDAR2 Program, called Resource Mapping Using LiDAR. It aims to produce detailed resource maps for various applications, such as production of high value crops, irrigation assessment, aquaculture production, forest protection and discovery of renewable energy sources.



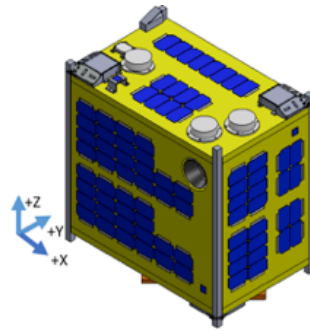
The PHL Microsat Program

by Jerine Amado and Kim Ramos

The PHL Microsat Program aims to build, launch and effectively utilize micro-satellite technology for multispectral, high precision earth observation. With the joint efforts of University of the Philippines Diliman headed by Dr. Joel Marciano and Japan's Tohoku University through Dr. Yuji Sakamoto and Dr. Yukihiro Takahashi, Dr. Junichi Kurihara and Dr. Tetsuro Ishida from Hokkaido University, the satellite will be launched from the International Space Station (ISS) on the first quarter of 2016. It will be a Low Earth Orbit (LEO) Satellite with an estimated altitude of 400 to 420 kilometers and a speed of around 7 kilometers per second. The satellite is expected to capture 300 images per pass with an average of four passes per day. The satellite technology will address the need for near real-time and on-demand access to data that will enhance local planning and decision support for climatology, disaster risk mitigation, and resource management. The program also aims to investigate and implement design enhancements on the electronic and computing systems and payload of the microsatellite through the local Microsatellite Research Facility.



Altitude: 400 - 420 km from the ground



Visualization of the PHL-Microsatellite design

The baseline design of the 50 kilogram micro-satellite is assigned to Tohoku University while Hokkaido University will focus on the payload, thermal design and bus. The payload subsystem includes a high-precision telescope (HPT) with 3 meter spatial resolution and bands R\G\B\NIR. The HPT will provide surface reflectance data with its derived products that will be used mostly for damage extent determination during disasters and calamities and for natural and cultural heritage sites monitoring. The second payload is a space-borne multi-spectral imager (SMI) with liquid crystal tunable filter (LCTF), which has an 80 meter spatial resolution. The LCTF allows for image capture to be taken at 10 nanometer increments from 420nm –

650nm for the visible range, and 700nm – 1050nm for the near infrared region. With this capability the team is targeting to acquire bio-optical bands 443, 488, 530, 547, 667, 678 nm and atmospheric correction bands of 748 and 869 nm. Space products derived from this payload will be used to determine the health and composition of the ocean, identify distribution and magnitude of harmful algal blooms, and monitor coastal ecosystems. With a spatial resolution of 7 kilometers, the wide field camera will be used to estimate typhoon's intensity based from shape. Other subsystems included are command and data handling, attitude determination and control, telemetry tracking and command, and power supply system.

The PHL-Microsatellite Program is a P840.82M project funded by the Department of Science and Technology (DOST) which will run for three years (2015-2017). The PHL-Microsatellite Program is divided into five components. Project 1, headed by Dr. Marciano, focuses on the development of the microsatellites. Students from the University of the Philippines were sent to Hokkaido University and Tohoku University where the microsatellite will be assembled and launched. Project 2, headed by Engr. Alvin Retamar of the Advance Science and Technology Institute (DOST-ASTI), takes charge of the ground receiving station for the Philippine Microsatellite which will be housed in Subic Freeport, Zambales. Project 3, headed by Engr. Mark Edwin Tupas of the Training Center for Applied Geodesy and Photogrammetry (UP-TCAGP), is in charge of the Data Processing, Archiving and Distribution subsystem development. This component is tasked with creating a data product generation pipeline from the ground receiving station to data products for the end-users. Project 4, also with UP-TCAGP headed by Dr. Enrico Paringit, is in charge of the Calibration and Validation of Remote Sensing instruments. Finally, Project 5, from the Institute of Environmental Science and Meteorology headed by Dr. Gay Jane Perez, leads the development of remote sensing products. This component squeezes all viable information from satellite data and turns them into useful data products.

This program would not only help to reduce cost for purchased remotely sensed data, but will also improve local planning and decision through its projected applications on resource assessment and climatology. The PHL-MICROSAT Program will lead the Philippines' progressive improvement in space technology by employing its own satellite design and building capacity which is the vision for the 2nd satellite that will be launched at the end of the program in 2017. This program would serve as step closer for the Philippines' aim for the creation of a Space Agency.



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Our previous Newsletter issues

