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# UP makes available map data of Taal eruption affected areas

By **Mark Ivan C. Roblas**, *DOST-PCIEERD*

**T**o help hasten the rehabilitation of affected areas devastated by the eruption of Taal volcano, the University of the Philippines (UP) opens up its map data to the public for free.

Through the UP Training Center for Applied Geodesy and Photogrammetry (UP TCAGP), the premiere state university is opening up to the public its map data of the Taal volcano and its surrounding areas generated from the Disaster Risk and Exposure Assessment for Mitigation (DREAM) and the Philippine Light Detection and Ranging 1 (Phil-LiDAR 1) programs.

Using Light Detection and Ranging (LiDAR) technology, the group was able to generate maps with resolution of up to 1x1 meter, which can be used for planning and reconstruction of areas damaged by Taal Volcano’s eruption.

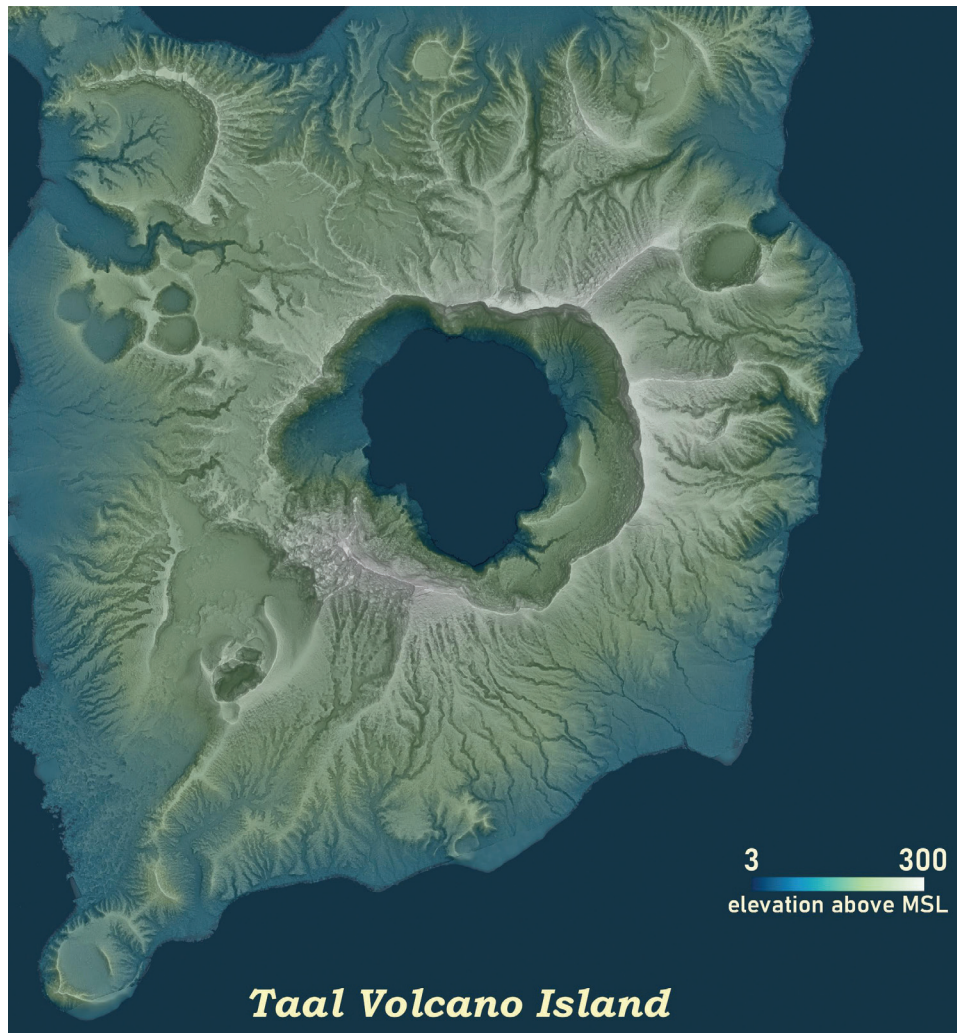
UP TCAGP Assistant Professor Mark Edwin A. Tupas stressed the importance of using data in conducting planning and reconstruction activities in the areas affected by the eruption.

“With the Philippines being at constant risk from natural disasters, adequate data is needed for disaster risk reduction planning and operations. We are opening up our LiDAR map database to help in the rehabilitation of those affected by the Taal Volcano eruption,” he said.

According to Tupas, with the data acquired by LiDAR technology between the years 2014 to 2017, the produced dataset can be used for geomorphologic modelling (representations of Earth surface processes and landforms) of areas pre-disaster. This also includes the accurate determination of the height of buildings mapped out from satellite imagery.

The DREAM and Phil-LiDAR 1 programs are projects funded by the Department of Science and Technology (DOST) and monitored by the DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD).

Tupas said users of the map data would need to properly cite UP TCAGP and the



A satellite image of the Taal Volcano Island (prior to its eruption) generated from the DREAM and Phil-LiDAR 1 Programs.

Phil-LiDAR 1 Program as the source of the information.

The datasets can be accessed through <https://phillidar-dad.github.io/taal-open-lidar.html> and can be opened using the

most modern geographic information system software.

For further inquiries, contact the data archiving and distribution team of UP TCAGP at [lipad@dream.upd.edu.ph](mailto:lipad@dream.upd.edu.ph).



# PH, Japan, UK eye collaboration for sustainable coastal communities

By **Raissa Jean A. Ancheta**, *DOST-PCIEERD*  
Photos from **DOST-PCIEERD**

**I**n a bid to come up with technologies that support sustainable coastal communities, the science agencies of Japan, the United Kingdom (UK), and the Philippines initiated the crafting of a framework for a multi-funder cooperation amongst the three countries.

The Japan Science and Technology Agency (JST), UK Research and Innovation (UKRI), and the Philippines' Department of Science and Technology (DOST) convened researchers and stakeholders from Southeast Asian countries to discuss recent studies on coastal communities and brainstorm ideas for possible research collaboration.

The JST, UKRI, and the DOST are focused on resolving global challenges, propelled by the United Nation's Sustainable Development Goals (SDGs) agenda. Collaboration among these institutions is encouraged as it increases the complementarity and impact of investments in terms of research funding, people, equipment, data, and other resources.

Dr. Enrico C. Paringit, executive director of the DOST-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD), stressed that the cooperation between Japan, UK, and the Philippines should benefit coastal communities that face threats of climate change.

"Having a multilateral approach to support research initiatives is a way for us to optimize resources. There are research resources available in other countries that may be beneficial in the implementation of research projects here in the Philippines," he said.

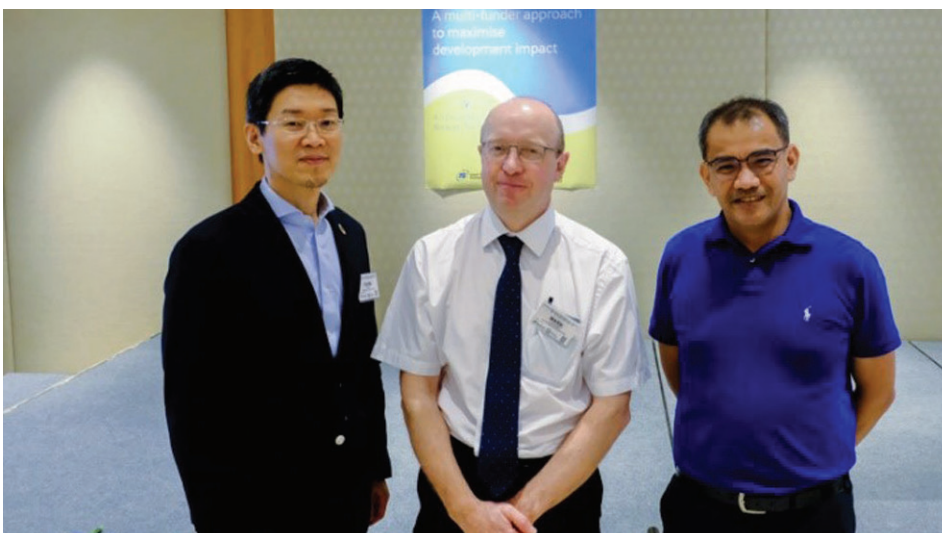


In-situ (on-site) measurement of seagrass leaf area in Busuanga, Palawan is part of the IAMBlueCECAM program or the Integrated Assessment and Modelling of Blue Carbon Ecosystems Conservation and Adaptive Management—one of the DOST-supported programs on coastal management.

The multilateral cooperation will focus on sustainable coastal communities as several projects in the Southeast Asian region were identified as having a thematic focus on water, coastal communities, and aquaculture—topics that are relevant to the SDGs. One major discussion during the workshop was the participants' experience with funding agencies

that will be the basis for the development of an effective multi-funder mechanism.

The JST, UKRI, and the DOST will consolidate the inputs from the workshop and come up with a framework for a multi-funder cooperation that may take effect in the following years.



From left to right: Osamu Kobayashi, director of Department of International Affairs, JST; Dr. Mark Claydon-Smith, deputy director of International Development, UKRI; and Dr. Enrico C. Paringit, executive director of DOST-PCIEERD, lead the multilateral cooperation on sustainable coastal communities.

## ABOUT US

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For comments, suggestions or queries, contact: (02) 8837-2071 to 82 loc. 2148 / 8839-2193 local 107 or email: [dost.digest@gmail.com](mailto:dost.digest@gmail.com)

**Sheila Marie Anne J. de Luna**  
Editor-In-Chief

**Jasmin Joyce P. Sevilla**  
Managing Editor

**David Matthew C. Gopilan**  
Proofreader

**James B. Intia**  
Layout Artist

**Allan Mauro V. Marfal**  
Circulation

Department of Science and Technology-  
Science and Technology Information Institute  
Bicutan, Taguig City 1631  
Metro Manila  
Philippines

[www.stii.dost.gov.ph](http://www.stii.dost.gov.ph)

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# DOST exec to head PH Space Agency

By DOST-ASTI



DOST-ASTI Acting Director Joel Joseph S. Marciano Jr. introduces the PEDRO Center to the audience during the Davao Ground Receiving Station Inauguration held 8 November 2019. (Photo from DOST-ASTI)

**The newly created Philippine Space Agency (PhilSA) will have as its first ever Director General, the project leader of the team that developed the country's first small satellites.**

Dr. Joel Joseph S. Marciano Jr., current acting director of the Department of Science and Technology-Advanced Science and Technology Institute (DOST-ASTI) has been selected by President Rodrigo R. Duterte as the first Director General of the recently created Philippine Space Agency (PhilSA).

On 8 August 2019, President Rodrigo R. Duterte signed into law Republic Act 11363 or the Philippine Space Act. Under said law, the PhilSA shall be the central government agency for national issues and activities related to space science and technology applications.

Dr. Marciano is also a professor of electrical and electronics engineering at the University of the Philippines Diliman College of Engineering and is currently on secondment to DOST-ASTI.

He led the DOST-funded program, Development of Philippine Scientific Earth Observation Satellite or PHL-Microsat, which was the country's first foray in developing small satellite technology. The program successfully launched the 50 kg microsattellites Diwata-1 in 2016 and Diwata-2 in 2018, and deployed the 1 kg nanosatellite, Maya-1, also in 2018.

"Our efforts in building small satellites are aimed at mobilizing space-borne data as scientific evidence or basis for more responsive policies and programs; developing a robust space industrial base; and building interdisciplinary teams for tackling societal-scale challenges," said Dr. Marciano.

"These serve as the foundation and pillars for further local innovations in space technology and downstream data utilization that contribute to a knowledge-based economy and a resilient Filipino society," he emphasized.

PHL-Microsat is succeeded by the STAMINA4Space, whose project leader is Dr. Marciano as well. The program is undertaking research on the localization of relevant small satellite technologies and enhancements in the operations, processing, and distribution of satellite data.

As DOST-ASTI acting director, Dr. Marciano supervises other various initiatives in space technology, electronics, and computing such as the Philippine Earth Data Resource Observation (PEDRO) Center; the Remote Sensing and Data Science Help Desk (DATOS Project); the Synthetic Aperture Radar (SAR) and Automatic Identification System (AIS) for Innovative Terrestrial Monitoring and Maritime Surveillance (SAR with AIS) project; the Electronic Products Development Center (EPDC)

as a Platform for Innovation and Collaboration (EPIC) program; the Computing and Archiving Research Environment (CoARE) facility; the Philippine Research, Education and Government Information Network (PREGINET); and the Understanding Lightning and Thunderstorms (ULAT), among others.

Dr. Marciano also oversees the Advanced Space Technology Research, Operation and Services (ASTROS) team, which was recently recognized by the Civil Service Commission and President Duterte as a Lingkod Bayan awardee in 2019 for contributions to Philippine space technology development.

Recently, Dr. Marciano, together with DOST-ASTI colleagues, won first prize in the 6th Mission Idea Contest in Tokyo, Japan for their entry, "Spectrum Monitoring in Space using i-SEEP (SMoSiS) – Capturing and Mapping the Digital Divide from Space through Radio Frequency Spectrum Measurements" under the IVA-replaceable Small Exposed Experiment Platform category. This entry bested research topics from different countries during the 7th University Space Engineering Consortium-Global Meeting.

As a cabinet-rank position, the President's nomination of Dr. Marciano as PhilSA's Director General is still subject to confirmation by the Commission on Appointments.



DOST-PAGASA's Precise Time-Scale System—about the size of a large refrigerator—is a world-class timing system comparable to the best national time laboratories with commercial and hardware support. (Photo from DOST-PAGASA)

# DOST promotes punctuality with Ph Standard Time

By Allan Mauro V. Marfal, DOST-STII

**W**ith the dawning of a new decade and to usher in the year 2020, the Department of Science and Technology (DOST) once again led the observance of the National Time Consciousness Week.

The observance of the National Time Consciousness Week is being held every first week of the year in accordance with Republic Act 10535 or the “Philippine Standard Time (PhST) Act of 2013”.

The law requires all national and local government agencies, as well as broadcasting companies, to adhere to and display the PhST in their respective offices.

The passage of R.A. 10535 started in 2011 as an advocacy campaign called “Juan Time”—a word play on “one time” and “Juan” being a common name for Filipinos.

The Juan Time campaign was spearheaded by the DOST-Science and Technology Information Institute and the DOST-Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), with the latter being the country’s official timekeeper.

In 2015, the DOST-PAGASA upgraded its equipment from rubidium atomic clock to cesium atomic clock to provide more accurate timekeeping data. The cesium clock in the DOST-PAGASA station can accurately tell time up to the nanosecond and it will take 30 million years before it goes off by a second.

Environmental factors do not affect the clock’s precision timekeeping unlike regular functioning clocks—keeping the DOST-PAGASA clock accurately synchronized to the Coordinated Universal Time (UTC)—the world’s official time.

## inFOCUS

The Department of Science and Technology-Technology Application and Promotion Institute (DOST-TAPI) is holding the National Invention Contest and Exhibits (NICE) on 3-5 March 2020 at the SMX Convention Center Aura, Bonifacio Global City, Taguig City. NICE is a biennial activity that recognizes the best Filipino inventions, innovations, and researches that have potential to contribute to national economic development. The NICE finalists are winners of various Regional Invention Contest and Exhibits (RICE) conducted in 2019. Spearheaded by DOST’s regional offices, RICE serves as the qualifying round for the NICE. This year, 71 entries will compete for five NICE categories

namely: Outstanding Invention (Tuklas), Outstanding Utility Model, Outstanding Industrial Design, Outstanding Creative Research (Likha), Outstanding Creative Research for College (Sibol), and Outstanding Creative Research for High School (Sibol). This year’s theme, “Science for the People: Inventions and Innovations for Sustainable Development,” highlights the breakthroughs in inventions and innovations relative to the attainment of the Sustainable Development Goals prescribed by the United Nations. For more information on the 2020 NICE, contact DOST-TAPI at 8838 1127 and 8837 2071 locals 2157, 2167, and 2162 or email [tapi.dost@yahoo.com](mailto:tapi.dost@yahoo.com) and [tapi.nice2020@gmail.com](mailto:tapi.nice2020@gmail.com). Admission to the 2020 NICE is free. (Text by Pierre Sonia S. Dela Corte, DOST-TAPI and photo from DOST-TAPI)