



Misael Bacani, UP MPRO

PhilSA's new recruit

The country's space agency has a
new recruit!

She is Associate Professor Gay Jane P. Perez, PhD, of the UP Diliman (UPD) Institute of Environmental Science and Meteorology (IESM). The Philippine Space Agency (PhilSA) designated her to be the Deputy Director General (DDG). She is on secondment to the Agency and will serve until the term of the Philippine president ends.

PhilSA is the country's national space agency mandated to promote the national space program in line with the Philippine Space Policy. PhilSA was created on Aug. 8, 2019 through Republic Act (RA) 11363 (Philippine Space Act), and is an attached agency of the Office of the President.

Meanwhile, the Philippine Space Policy is the country's primary strategic roadmap for space development which will embody the country's goal of becoming a space-capable and space-faring nation within the next decade. PhilSA represents the country in international space events, meetings and agreements.



PhilSA logo

It was PhilSA Director General Joel Joseph S. Marciano Jr. who designated her to be the DDG for Space Science and Technology (DDG-SST), which is in line with her field of expertise in Earth observation satellites utilization. As DDG-SST, Perez assists the Director General in planning, directing, managing, implementing and assessing programs and projects related to scientific space science and technology and its applications. The primary focus of her office work is on the internal and collaborative research and development (R&D) activities that spur rapid scientific growth and national development.

Perez is not new to space-related studies. Her research interests are in satellite remote sensing of the environment, climate data assimilation, climate change and variability, complex systems, and interdisciplinary applications of Physics.

The UP Scientist II was part of a team of engineers and scientists that developed the country's first microsatellites, the Diwata-1 and Diwata-2. She was the program leader of the Sustained Support for Local Space Technology and Applications Mastery, Innovation and Advancement (STAMINA4Space) Program, an R&D program "aimed at further developing deep expertise that enables and sustains the growth of a local scientific-industrial base in space technology and applications in the Philippines."

Her research "Forecasting and monitoring agricultural growth in the Philippines" is on how precision agriculture can improve yields by using satellite observations in conjunction with models and

ground data. The research also includes assessment of how drought evolves through time, which can be the basis of drought advisory and corresponding mitigation measures.

The research earned her the 2018 ASEAN-US Prize for Women and the distinction of being the first Filipino to win the award. ASEAN-US Prize for Women encourages female scientists working in Southeast Asia in creating sustainable solutions to address development changes.

In 2019, Singapore-based Asian Scientist Magazine included Perez in the Asian Scientist 100 (in Environmental Sciences and Geology), and was awarded The Outstanding Women in Nation's Service. Perez is also the 2009 UPD Most Outstanding PhD Graduate in Physics.

She is also a postdoctoral fellow at the NASA Goddard Space Flight Center Hydrospheric and Biospheric Sciences Laboratory from May 2010 until December 2011.

Perez said she is excited to be joining the PhilSA's early stage of establishment.

"As a new organization that's being built from ground up, PhilSA has a huge potential to imbibe a strong scientific culture of technical competency and integrity. As a scientist, I hope to take part in developing such culture as the agency contributes in the advancement of knowledge, technological innovation, and in creating space-based solutions for the betterment of our nation," she said.

SPACE EXPLORATION. Perez said her interest in space exploration deepened during her postdoctoral stint at the NASA Goddard Space Flight Center. She recounted how scientists and engineers worked together to execute complex missions such as sending astronauts to space and safely getting them back, launching rockets, and remotely operating satellites that are hundreds to thousands of kilometers away, to name a few. She was mostly impressed on how NASA embarks on space exploration and missions for the benefit of humanity.

"I gained a better appreciation of space exploration as I came to realize how it impacts us, and knowing that we relate to- and benefit from it more than we are aware of. From creating new technologies and innovations to generating maps, the outcomes are very much relevant to our day to day lives. It is this connection that motivated me to pursue the field of satellite remote sensing when I returned to UP and joined IESM," Perez said.

PhilSA PROGRAMS. PhilSA's flagship programs deal with satellite building initiatives and space data mobilization which maximizes the generation and

utilization of all satellite data necessary for digital inclusion, the economy, and the government.

There are also existing projects that work on localizing satellite development and facilitating know-how transfer and capacity-building of local researchers with international collaborators on advanced satellite development. These projects are under the Department of Science and Technology (DOST)-funded STAMINA4Space program implemented by UPD and DOST-Advanced Science and Technology Institute (ASTI).

PhilSA's recent initiative is the analysis of various satellite data to assist in monitoring the socioeconomic and environmental impacts of COVID-19. This is jointly developed in partnership with the DOST-ASTI and STAMINA4Space and is accessible through the Philippines Space Data Dashboard, a platform that features R&D outputs from different DOST-initiated space projects.

"In the near future, these, along with several of the country's existing programs on space science and technology, will be transitioned to the PhilSA," Perez said.

Perez, who is on secondment at the PhilSA, continues to do research and teach at UPD, including mentoring and advising IESM graduate students.

"Time permitting, I still would like to teach some courses like the Application of Remote Sensing to Environmental Science and Satellite Meteorology. By keeping an active engagement with UP, we can maintain an enabling and nurturing environment that facilitates learning through osmosis. I believe that it will be vital for the students to be exposed to the current trends in space technology and for the PhilSA to benefit from the cutting-edge science and research developments done at the university," said Perez.

ENGAGING UP. To engage academics and researchers from institutions outside PhilSA, Perez and Marciano are now working on a proposal to establish a fellowship program in PhilSA that would be beneficial to UP.

The fellowship program aims to engage University faculty by tapping their expertise in the various aspects of space science and technology and by providing additional support, resources and other opportunities. PhilSA envisions the program to hone the skills of engineers, scientists, and their students who aspire to use their R&D capabilities for the advancement of space scientific and technological expertise of both the University and the Agency.

To further explain the proposed fellowship program, Perez, quoting Marciano, said, "We are grateful to UP for sharing the expertise of its faculty members especially with a new agency like the PhilSA that is building up. Several other UP professors have also

been seconded to high-level positions in different national government agencies. There are occasions, however, where the desire to engage academics does not involve putting them in a management or executive portfolio. For science-based agencies, we might need them to be devoted to conducting R&D, and not signing vouchers, memos and office orders, etc. While they are doing R&D in PhilSA, for example, we do not want them to relinquish their UP affiliation, nor do we want them to abandon their mentoring activities and their students. We can have an arrangement where they will be in PhilSA working with our scientists on in-house research programs where they can also bring in their research students for a few days in a week, and be back in their university office the rest of the time. Therefore, we can evolve, strengthen and formalize mechanisms outside of secondment where agencies can bring into the fold such expertise more adroitly and flexibly that is also scalable and, thus, sustainable. This is where the new model for research fellowships comes in."

The space agency, according to Perez, envisions a Filipino nation bridged, uplifted and empowered through the peaceful uses of outer space. Its mission is to promote and sustain a robust Philippine space ecosystem that adds and creates value in space from Filipinos, for Filipinos and the world.

"As I join the PhilSA, it is my hope that we will be able to pursue space exploration for the benefit of every Filipino, and UP will be an important partner of PhilSA towards the realization of the aforementioned goals," said Perez.