



Republic of the Philippines
Office of the President

Philippine Space Agency



**OFFICE OF THE DEPUTY DIRECTOR GENERAL
Space Science and Technology**

11 April 2023

MAY B. ECLAR, PHD, CESO III
Regional Director
Department of Education Region 3
Diosdado Macapagal Government Center
San Fernando, Pampanga

ATTENTION: LIBRADA M, RUBIO, PHD
Chief Education Program Supervisor
Curriculum and Learning Management Division

**Subject: REQUEST FOR ASSISTANCE: CONDUCT OF SCHOOL VISIT,
EXHIBIT AND TECHNOLOGY DEMONSTRATION ON MAY 15 – 18,
2023 AT CAPAS AND TARLAC CITY, TARLAC**

Dear Dr. Eclar:

Greetings from the Philippine Space Agency (PhlISA)!

This is to request for your kind support and assistance to the conduct of the School Visit, Exhibit, and Technology Demonstration on May 15 – 18, 2023 at Capas and Tarlac City, Tarlac. Specifically, we would like to request for the following:

1. To allow the PhlISA Team to have a Courtesy Visit at your office on May 15, 2023, 9:30 AM – 10:30 AM, at the Schools Division Office of Tarlac on May 16, 2023, 9:30 AM – 10:30 AM and at the Schools Division Office of Tarlac City on May 17, 2023, 9:30 AM – 10:30 AM
2. To allow the PhlISA Team to visit and conduct a half day program to the following schools:
 - a. Capas National High School
 - b. Tarlac National High School
 - c. Maliwalo National High School
 - d. O'Donnel High School
3. Participation of students and teachers relative to the Space Science and Technology Applications Exhibit at Tarlac State University Main Campus or Lucinda Campus. The exhibit will be open from May 16 – 18, 2023 from 9:00 AM to 5:00 PM.

Enclosed is the activity information sheet for your kind perusal and reference.

Advisory
No. 058, s. 2023

To: All Schools Division Superintendents

For information.

M. Eclar
MAY B. ECLAR, PhD, CESO III
Regional Director

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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF EDUCATION
Schools Division Office of Bulacan

ADVISORY
No. 059, s. 2023

To: PUBLIC PRIVATE PSDS

Elementary Junior High School Senior High School

Elementary School Principals/School Heads

Secondary School Principals/School Heads

For information:

NORMA P. ESTBAN, EdD, CESO V
Schools Division Superintendent
Office of the Schools Division Superintendent

The School Visit, Exhibition and Technology Demonstration is a weeklong activity being organized by the Agency's Space Education and Scholarship Division which aims to jumpstart the engagement of the Agency with the Department of Education (DepEd) in region 3. Specifically, it aims to:

1. introduce the Philippine Space Agency, its education, research and development programs and services to students and teachers in region 3.
2. showcase the advances made by Filipinos in the field of space science and technology through the STA exhibition and technology demonstration of the TALA hybrid rocket.
3. enrich classroom learning and provide an opportunity for students to learn about careers in the space sector and about the workings of a water rocket.

Established in August 2019 by virtue of RA 11363, the Philippine Space Agency is the central government agency addressing all national issues and activities related to space science and technology applications. One of the Agency's key development areas is space education and awareness which aims to establish a pool of trained space scientists, engineers and communicators that will be critical for the country's future space program and increasing public awareness on its value and benefits.

Should this request merit your approval, we would also like to do an ocular inspection at the schools we will be visiting on April 20 – 21, 2023.

Ms. Pauline Pearl M. Divinagracia, Science Research Specialist of the Space Education and Scholarship Division shall coordinate with your office regarding this request. You may reach her through +63 920-941-0827 or pauline.divinagracia@philsa.gov.ph.

Thank you very much.

Sincerely yours,


GAY JANE P. PEREZ, Ph.D.
OIC, Space Science Missions Bureau
Deputy Director General for Space Science and Technology

cc:

Office of the Director General (ODG)

The Space Technology and Application Exhibit

Description of the Exhibit

The Space Technology and Application Exhibit is a presentation of the early stages and continuing progress of the Philippine microsatellite program. The exhibit features life-size replicas of the three pioneer microsatellites (Diwata-1, Diwata-2, and Maya-1), info-graphic panels, interactive and non-interactive exhibits, and video presentations to bring to the public's awareness and better understanding of the tremendous achievements in space technology that our country's science institutions, scientists, and engineers have made possible in only a few short years. The exhibit also aims to promote interest in space technologies among Filipino students through life-size satellites replicas, engaging exhibits that translates some of the technical concepts of satellite technologies into understandable ideas, and video presentations that explain in further detail each exhibit they have experienced.

The exhibit is divided into three subjects:

1. Overview of the Philippine microsatellite program (Exhibit 1)
2. Basic science principles at work in satellite operation (Exhibit 2 and 3)
3. Explanation of the payloads and mission of Diwata-2 (Exhibit 4, 5, and 6)

Exhibit 1 – Satellite Replicas

The exhibit has three life-size replicas of the three pioneer satellites of the Philippine microsatellite program: Diwata-1, Diwata-2, and Maya-1.

Each replica has an info-graphic panel providing information about their development, deployment, characteristics, and mission accomplishments. It has a dedicated video presentation that narrates the development of these satellites as well as the Philippine space technology program.

Exhibit-2 Satellite Orbit

The Satellite Orbit Model demonstrates the type of orbit and movements of Diwata-1 and Diwata2 satellites. The characteristics, advantages, and disadvantages of their respective orbits will be explained.

Exhibit-3 Reaction Wheels

How can a satellite turn in space to accurately point its cameras at a spot on Earth? In order to this, man-made satellites use a basic science concept (action and reaction) that visitors will be able to physically try out with this exhibit.

Exhibit-4 Satellite Cameras

The Diwata-2 satellite is classified as an Earth-observation satellite. Its primary mission is to collect mission data primarily through the use of its several highly advanced scientific cameras. This exhibit compares the functions of the Wide-Field Camera and High-Precision telescope of Diwata-2.

Exhibit-5 Near-Infrared Imagery

The Near Infrared Imagery exhibit shows the characteristics of NIR images in comparison to normal visible light cameras through a simple, live, and side-by-side comparison. It explains how NIR imagery is applied in agriculture, resource management, and other practical applications.

Exhibit-6 Amateur Radio Unit

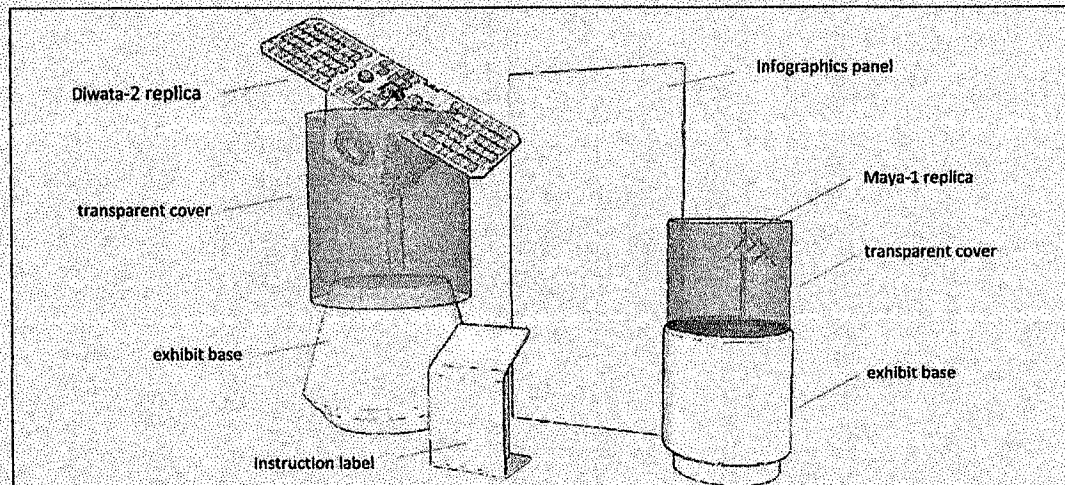
This exhibit shows the equipment and procedures in using the amateur radio repeater function of Diwata-2. There are actual recordings of radio voice communication using ARU that visitors can listen to.

SIGNIFICANCE OF THE EXHIBIT

The Space Technology Application exhibit provides an opportunity for the public to become aware and better informed about space technologies and how these technologies can have practical benefits for the country and its people. The exhibit also provides an opportunity to showcase the achievements of our Filipino scientists, engineers and institutions that would hopefully inspire our younger generation to build on these achievements and further establish the country's place in space technology applications.

Space Technology Applications Exhibit

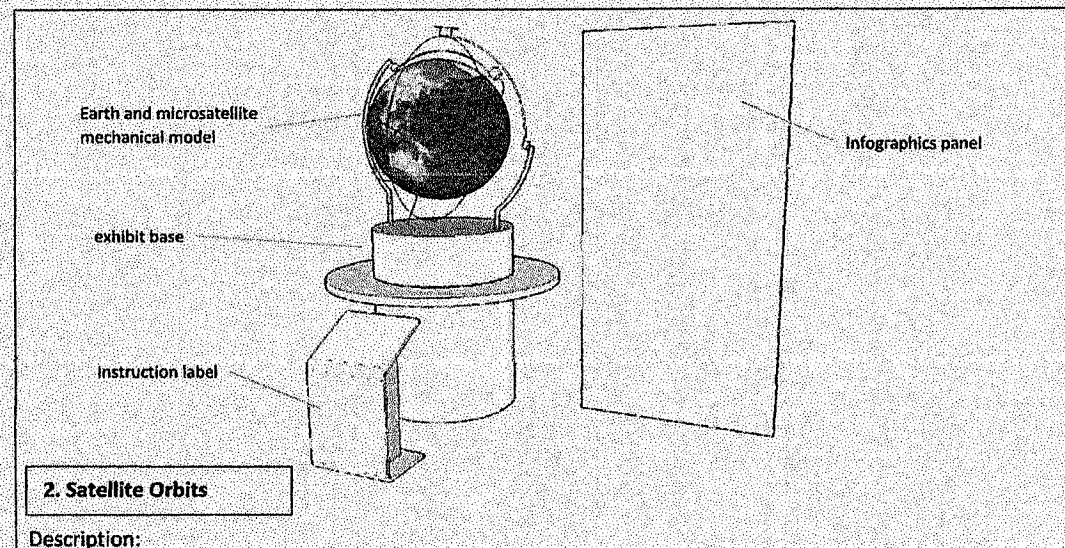
Exhibit Illustrations and Descriptions



1. Diwata-1 (not shown), Diwata-2 and Maya-1 Replica

Description:

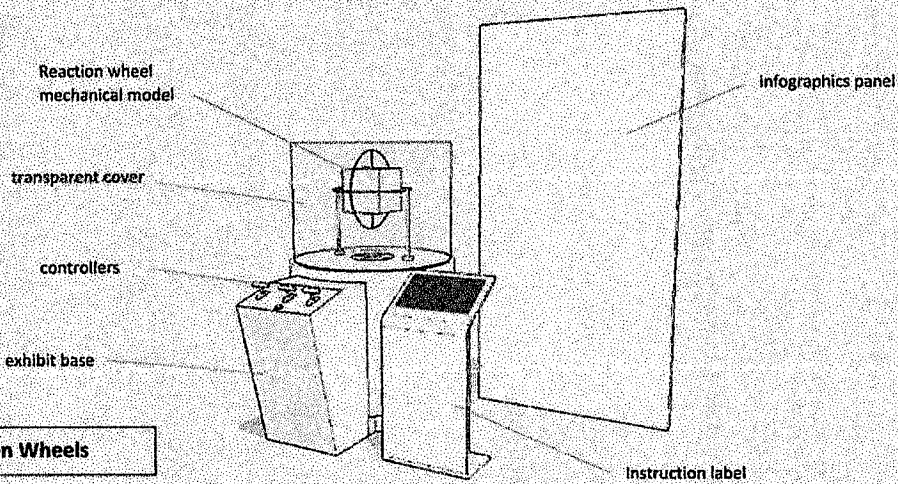
These are full-size models of the two satellites showing the main components. These models will be featured in the introductory video about the Philippine Microsatellite Program.



2. Satellite Orbits

Description:

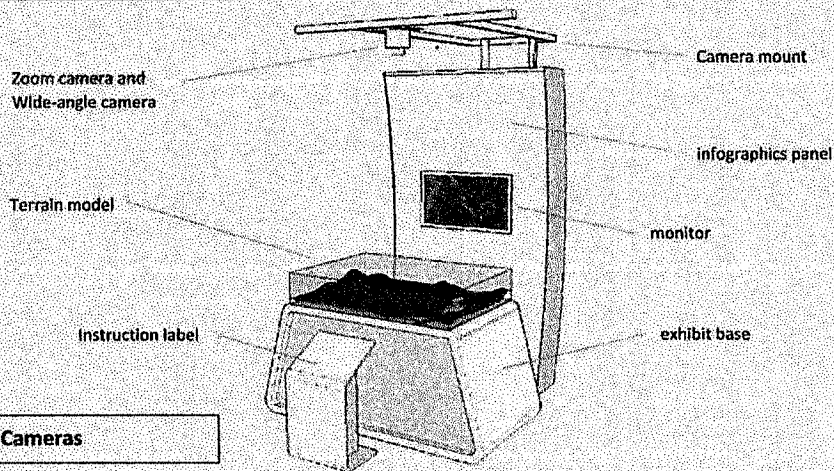
This model demonstrates the type of orbit and movements of Diwata-1 and Diwata2 satellites. The position and movement of the satellites are simulated and in sync with the rotation of the Earth model.



3. Reaction Wheels

Description:

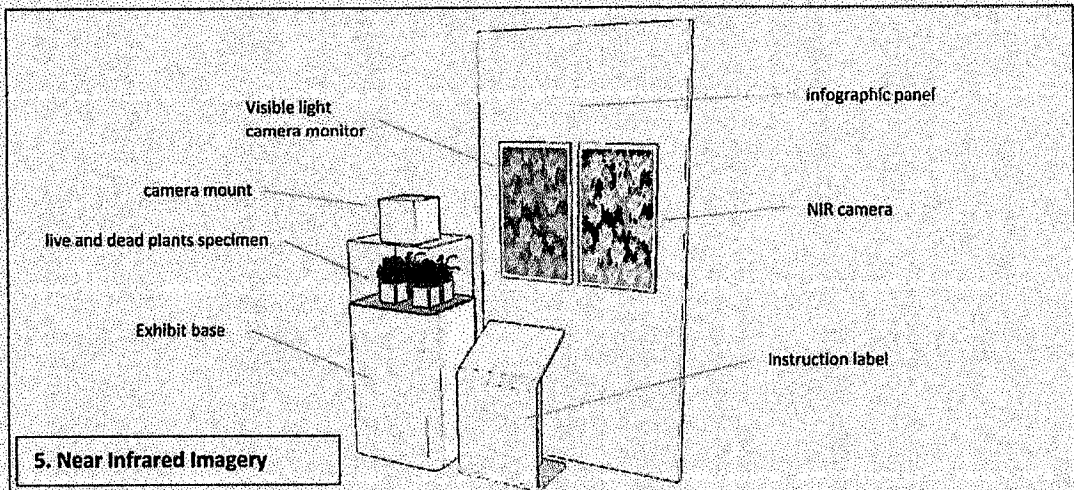
A simplified model of the satellite with 3 reaction wheels is mounted on a gimbal. The satellite is able to move about the x and y axes by controlling the rotation of each reaction wheel.



4. Satellite Cameras

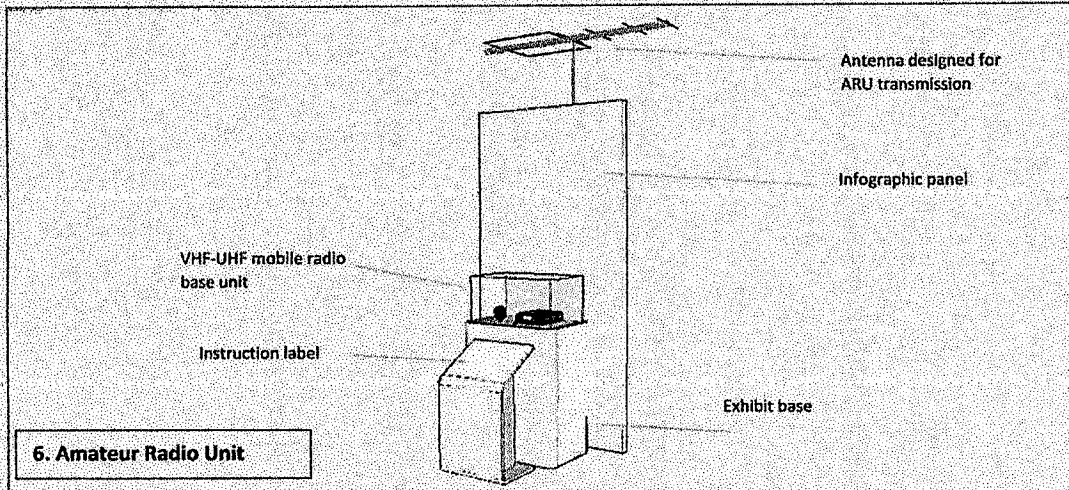
Description:

The exhibit simulates the function of the optical cameras of Diwata-2. Two cameras are mounted above a terrain model. One camera has a wide lens to give a full view of the terrain. The other camera has a zoom lens to capture a more detailed view of a section of the terrain. The images are shown on a monitor. The visitor can switch between the two images captured by the camera by pressing a button on the label panel.



5. Near Infrared Imagery

Description:
 Two cameras are mounted on top of live and dead plant specimens. The specimens are illuminated by visible and infrared lights. The monitors show the difference of the images captured by the two cameras.



6. Amateur Radio Unit

Description:
 The exhibit demonstrates the equipment and procedures in using the amateur radio repeater function of Diwata-2. A multimedia device plays several audio clips of conversations between radio operators linked by the Diwata-2 ARU.



School Visit, Exhibition and Technology Demonstration

INFORMATION SHEET

Date: May 15 - 21, 2023

Venue: Tarlac City and Capas, Tarlac

Background/Rationale

PhilSA's Space Education and Awareness Program (SEAP) aims to promote public awareness and understanding of space science and technology applications (SSTA) and to enhance the capacity of educators in incorporating SSTA in curricular and extracurricular activities. It envisioned that through this program students will be enthused to take up relevant undergraduate courses fitting for a career in STEM and thereby sustain the country's pool of space scientists, engineers, and communicators critical for future space programs and enable an agile SSTA workforce capable of responding to societal needs and nation-building. The program provides various opportunities for students and teachers at all levels to learn about the peaceful uses and applications of space science and technology.

One of the activities to achieve the objectives of the program is the conduct of school visits, exhibition, and technology demonstration. For 2023, PhilSA will visit selected schools in Region 3. As Region 3 is the future "home" of the Agency, early engagement of stakeholders in the education sector in its proximity is hoped to pave the way for a strong partnership between PhilSA and the Department of Education, particularly, Region 3, as well as other education institutions in the region.

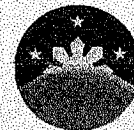
Purpose

The school visit, exhibition, and technology demonstration aim to jumpstart the engagement of the Agency with the Department of Education (DepEd) and other education institutions in Region 3. Specifically, it aims to:

1. introduce the Philippine Space Agency, its education, research and development programs and services to students and teachers in region 3.
2. showcase the advances made by Filipinos in the field of space science and technology through the STA exhibition and technology demonstration of the TALA hybrid rocket.
3. enrich classroom learning and provide an opportunity for students to learn about careers in the space sector and about the workings of a water rocket.

Participants

Students and teachers from various schools in Tarlac City and Capas, Tarlac. Other interested parties are also welcome. Please see Annex 1 for the description of the Exhibition.



Provisional Schedule of Activities

Date	Time	Activities
May 15 <i>(Monday)</i>	9:30 AM – 10:30 AM	Courtesy Visit at DepEd Region 3
	1:30 – 4:00 PM	School Visit at Capas National High School
May 16 <i>(Tuesday)</i>	9:00 AM – 5:00 PM	Space Science and Technology Applications Exhibition at Tarlac State University Main Campus or Lucinda Campus
	9:30 AM – 10:30 AM	Courtesy Visit at DepEd Schools Division Office of Tarlac
	1:30 – 4:00 PM	School Visit Tarlac National High School
May 17 <i>(Wednesday)</i>	9:00 AM – 5:00 PM	Space Science and Technology Applications Exhibition at Tarlac State University Main Campus or Lucinda Campus
	9:30 AM – 10:30 AM	Courtesy Visit at DepEd Schools Division Office of Tarlac City
	1:30 – 4:00 PM	School Visit at Maliwalo National High School
May 18 <i>(Thursday)</i>	9:00 AM – 5:00 PM	Space Science and Technology Applications Exhibition at Tarlac State University Main Campus or Lucinda Campus
	1:30 – 4:00 PM	School Visit at O'Donnell High School
May 19 – 21 <i>(Friday – Sunday)</i>		Launch of TALA Hybrid Rocket at Crow Valley, Capas, Tarlac. NOTE: Public viewing is NOT possible. Launch will be documented, and footage of the launch will be made available through the Agency's media channels.

Provisional Program for the School Visit

Time Start	Time End	Program / Activity	Resource Speaker / Facilitator
1:45PM	2:00 PM	Registration	PhilSA
2:00 PM	2:10 PM	Welcome/Opening Remarks	PhilSA and School Representative
2:10 PM	2:25 PM	Introduction to Philippine Space Agency	P. Divinagracia
2:25 PM	2:40 PM	PhilSA Education and Research and Development Activities	M. Melgar
2:40 PM	2:55 PM	Jump Starting a Career in STEM (Focus: Space)	PhilSA
2:55 PM	3:10 PM	Open Forum	
3:10 PM	3:40 PM	About the TALA hybrid rocket and Water Rocket Activity	J. Albelda and TALA Team
3:40 PM	3:50 PM	Closing	PhilSA and School