According to Bryce Space & Technology Co., among academic operators, Kyutech is No. 1 in number of small satellites launched

Members of BIRDS -1, -2, -3, and -4, on 29 Nov 2018 in front of the lab building

Archive website: http://birds1.birds-project.com/newsletter.html
All back issues are archived at this website.

Acknowledgment of support: This newsletter is supported, in part, by *JSPS Core-to-Core Program, B. Asia-Africa Science Platforms.*

ISSN 2433-8818

BIRDS Project Newsletter

Issue No. 55
(20 August 2020)

Edited by:
G. Maeda
革新的宇宙利用実証ラボラトリー
Laboratory of Lean Satellite Enterprises and In-Orbit Experiments (**La SEINE**)
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

La SEINE

SEIC Space Engineering International Course

All back issues of this newsletter can be easily downloaded.
Go to here: http://birds1.birds-project.com/newsletter.html and scroll down to the desired issue.

Table of Sections

Continued on the next page

From El Salvador **The Guest Box**

Lake "Coatepeque", from the Nahuatl "hill of snakes", it is located 18 kilometers south of the city of Santa Ana and it is one of the most famous touristic attractions in El Salvador. The lake is a volcanic caldera formed due to a series of explosive eruptions. At its center, it is located an island called "Isla del Cerro or Teopán". The lake is very famous for its unusual yet breathtaking turquoise waters. While visiting Coatepeque, you can enjoy a relaxing weekend, surrounded by nature and delicious Salvadoran cuisine!

-- by Fatima, new SEIC/PNST from El Salvador

https://www.visitcentroamerica.com/en/visitar/coatepeque-lake/
https://www.instagram.com/el.salvador.impresionante/?hl=en

Table of Sections (cont'd from the previous page)

End of Table

JSPS Reminder

When you publish a paper on a topic related to BIRDS, please include this acknowledgement in the paper:

This work was supported by JSPS Core-to-Core Program, B. Asia-Africa Science Platforms.

JSPS provides the airfare funds of BIRDS Int'l Workshops and for Ground Station Workshops.

It would help us a lot.

01. Garvey McIntosh (NASA's rep to Asia) gave a guest lecture for SEIC students

File photo of Garvey McIntosh

Special Guest Lecture by Garvey McIntosh of NASA

on 16 July 2020 via ZOOM

Garvey McIntosh is currently the NASA Asia Representative based at the U.S. Embassy in Tokyo. In this capacity, he is responsible for the coordination of NASA programs and interests in Japan and other countries in the Asia Pacific Region.

Title:

How the commercialization of outer space will further accelerate the sustained human presence throughout our Solar System

Abstract:

The recent successful launch of the Space X demo-2 mission and other commercial ventures have helped bring about tremendous innovation to revolutionize the overall space sector. Garvey will discuss how NASA is building upon lessons learned from the Apollo and International Space Station programs, and the new paradigm of working with commercial space companies, to fast-track sustained presence of humans in space.

Date: Thursday (16 July 2020)
Time: 13:00-14:00
Language: English

ABOVE: Mr. McIntosh and Prof. Cho during UNIGLO-7, Tokyo, 01 Dec. 2019

Garvey McIntosh is currently the NASA Asia Representative based at the U.S. Embassy in Tokyo. In this capacity, he is responsible for the coordination of NASA programs and interests in Japan and other countries in the Asia Pacific Region. He also works with regional aerospace officials on key programs and serves as point of contact for NASA related meetings and travel.

Since joining NASA in the Office of International and Interagency Relations (OIIR) in 2003, Garvey has accumulated a broad range of experience. While in OIIR, he has negotiated and completed agreements with the Japan Aerospace Exploration Agency (JAXA) and NASA's other international partners on the Space Shuttle, International Space Station, high-energy physics and astronomy.

In 2016, Garvey led negotiations that resulted in the signing of NASA's first new agreement with China in over 20 years in the area of aeronautics research. He gained valuable experience during a one-year detail assignment in which he served as the Executive Officer to the NASA Deputy Administrator. In this capacity, he was responsible for providing overall leadership, planning, and policy direction to NASA's Headquarters and its 10 Field Centers. Prior to coming to NASA, Garvey studied economic policy and language in Vietnam as a Boren Fellow. He also spent 4 years in Nagasaki, Japan, where he taught English conversation and composition.

Bio is continued on the next page

SCREEN SHOTS OF THE ZOOM TALK

Garvey received his graduate degree in International Policy Studies from the Monterey Institute of International Studies in California, and his undergraduate degree in Communications Studies from Northeastern University in Boston. Garvey's wife is Melanie McIntosh and they have two children Anya (9) and Graeson (7). He speaks Japanese and Vietnamese.

END OF ENGLISH BIO

Various notes about Garvey's talk

The talk was one hour, from 13:00 to 14:00, and twenty nine (29) persons logged into the ZOOM session.

Here is a 3-min. video that Garvey intended to show but could not be done due to time constraints. It is about international collaboration:
https://www.youtube.com/watch?v=G9KQfnqukno

I also recorded this ZOOM session. It is one hour long. You can view it with this link:

Link for Garvey's lecture of 16 July 2020 for SEIC

https://www.dropbox.com/s/zjbx28evrxqb95d/Lecture%20on%2016-JUL-2020%3B%20McIntosh%20of%20NASA%3B%20ZOOM.mp4?dl=0

END OF THIS SECTION

← The ISS is compared to the size of a football field

02. MIT Tech Review: Why Japan is emerging as NASA's most important space partner

Japan and the USA will collaborate on lunar exploration

Thanks to Dr Adolfo Chaves Jimenez (TEC, Costa Rica) for bring this article to my attention. – Editor.

Conceptual art of JAXA's proposed lunar rover with Toyota.
TOYOTA/JAXA

Japan provides a few major advantages in helping the US get back to the moon. In return, it will get its own chance to set foot on the lunar surface.

https://www.technologyreview.com/2020/07/22/1005546/why-japan-jaxa-nasas-most-important-space-partner-artemis-moon-gateway/

by Neel V. Patel -- July 22, 2020

CONTINUED ON THE NEXT PAGE

The first time the US went to the moon, it put down an estimated **$283 billion to do it alone**. That's not the case with Artemis, the new NASA program to send humans back. Although it's a US-led initiative, Artemis is meant to be a much more collaborative effort than Apollo. Japan is quickly emerging as one of the most important partners for this program—perhaps the most important.

Although NASA has teased for quite some time the idea of a pretty ambitious role for Japan in Artemis, *that talk finally became real on July 9, when the two countries signed a formal agreement regarding further collaboration in human exploration.* It gives NASA a much-needed partner for Artemis—without which the agency would find it much more difficult to meet the long-term goals of establishing a sustainable permanent presence on the moon.

The US-Japanese space relationship goes back a long time, says John Logsdon, a space policy expert at George Washington University: "Japan has been basically our best international partner over the last 40-plus years." It may have declined to work on the space shuttle program in the 1970s, but it reversed course in the early 1980s and signed on with the International Space Station program.

Since then, Japan's space capabilities have progressed rapidly. The country found a reliable launch vehicle in the H-IIA rocket, built by Mitsubishi, and JAXA, its space agency, has found success in a number of high-profile science missions, like HALCA (the first space-based mission for very long baseline interferometry, in which multiple telescopes are used simultaneously to study astronomical objects), Hayabusa (the first asteroid sample return mission), the lunar probe SELENE, IKAROS (the first successful demonstration of solar sail technology in interplanetary space), and Hayabusa2 (expected to return to Earth with samples from the asteroid Ryugu in December). Since 1990, 12 Japanese astronauts have been in space.

So the country has a spaceflight pedigree superior to that of most other American allies, and is more than capable of building and deploying the types of spaceflight technologies that could push a lunar exploration program forward (NASA, after all, is working on an Artemis budget that is much slimmer than Apollo's). In return, Japan gets to participate in a major human exploration program and likely send its own astronauts to the moon via NASA missions, without having to pay for and develop a lunar mission of its own.

What exactly will Japan do for Artemis? Specific details about the new agreement were not released, but we already know the country is sending a couple of science payloads on Artemis 1 (an uncrewed mission around the moon) and Artemis 2 (crewed, but only a flyby). Back in January, Yoshikazu Shoji, the director of international relations and research at JAXA, told the public that JAXA wanted to help in the development of Gateway, NASA's upcoming lunar space station that will facilitate deep space exploration. JAXA could contribute to the Habitation and Logistics Outpost (HALO) module, developing life support and power elements, said Shoji. It can also help in delivering cargo, supplies, and parts to Gateway as it's being built, through its upcoming HTV-X spaceflight vehicle (the successor to the current HTV that supports the ISS).

For the moon itself, JAXA can provide more data that helps future Artemis missions land more safely. JAXA's Smart Lander for Investigating Moon (SLIM) mission, slated for 2022, will demonstrate brand-new precision lunar landing technology that could prove very useful later on for both crewed and robotic landers. Japan is also working with Canada and the European Space Agency on Heracles, a robotic transport system that could deliver cargo to the moon or help bring back valuable resources mined there. Heracles is still under development, but it's aimed at supporting the Artemis program and Gateway in the long run.

There is more →

The biggest thing Japan might contribute, however, is a pressurized lunar rover that astronauts could use to cruise around the moon. Last week, Mark Kirasich, acting director of NASA's Advanced Exploration Systems, unveiled some of NASA's plans for Artemis, outlining specific proposals for the agency to work with JAXA and its commercial partner, Toyota, to build out this RV-like vehicle for astronauts to use in some of the later lunar missions. Japan's strong auto industry means the country already has expertise in developing technologies like this, Kirasich said. JAXA and Toyota would like to have this platform ready for launch by 2029.

Besides helping offset technology costs, having a partner like Japan "is good for the stability of Artemis," says Logsdon. "International cooperation is popular in Congress, and I think that's true for most of the public as well." These agreements mean that funding is more secure, and for a space program that has long-term goals, this is pretty important.

It also gives the US a trusted ally that can act as a bulwark against another burgeoning space power in the region: China.

According to Kaitlyn Johnson, an aerospace security expert at the *Center for Strategic & International Studies*, Japan can provide more regional stability that offsets China's influence, both in space and in related technology sectors like defense. While the civilian and defense sides of the US space program are almost completely split from one another, that's not so much the case in countries like Japan. "There's a lot of technological sharing between agencies within other countries," she says. It's likely that work on Artemis will fill some basic knowledge gaps in space defense for Japan too, such as how to identify a stalking satellite.

There is more →

The relationship between the two countries in space, says Johnson, is similar to what we see for intelligence sharing among the **Five Eyes nations** (the US, Australia, Canada, New Zealand, and the UK). "That relationship has extended beyond intelligence into a lot of areas in national security, including space," she says. "We're seeing Japan get the similar trusted-ally treatment."

Defense benefits aside, space exploration is simply more achievable with partners, and Japan is just a natural fit. "Japan has been at the forefront of technological change for a long time," says Johnson. "If the world is really serious about exploring space and establishing a presence on other bodies like the moon, I do believe we have to go at those goals together, and share the burdens and resources together."

THE END

03. Issue No. 145 of “Highlighting Japan” by Govt of Japan

PUBLIC RELATIONS OFFICE
GOVERNMENT OF JAPAN

The online magazine HIGHLIGHTING JAPAN is published once a month by the Japanese government to help readers better understand Japan today.
もっと知りたい、伝えたい。日本の'今'をアップデート　～　オンライン・マガジン HIGHLIGHTING JAPAN

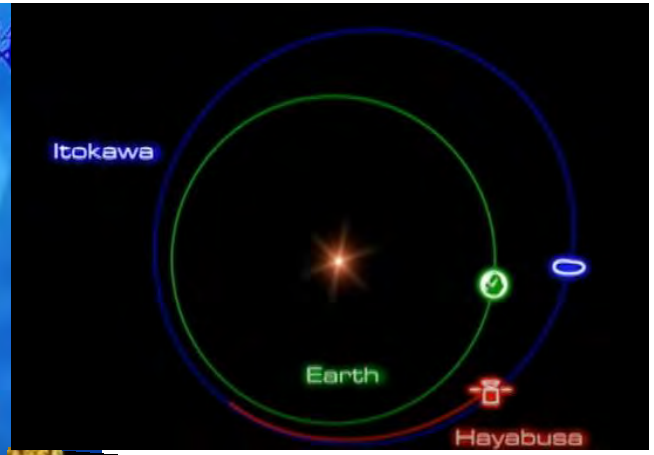
#145 June 2020

FROM JAPAN TO THE WORLD

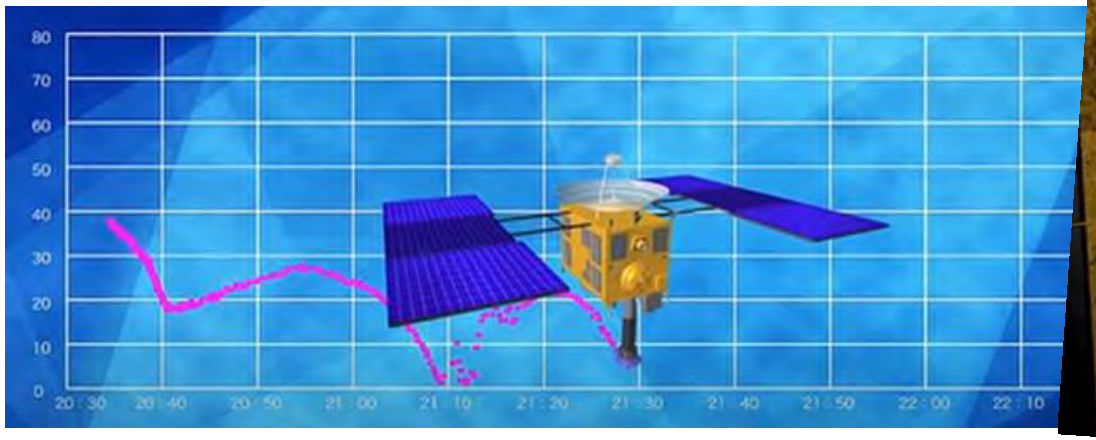
Japanese popular culture and services ranging from manga, anime and video games to food, hospitality and street fashion have captured the imagination of people around the world. In this month’s issue, we take a look at some examples of “Cool Japan” content and its popularity and utility overseas.

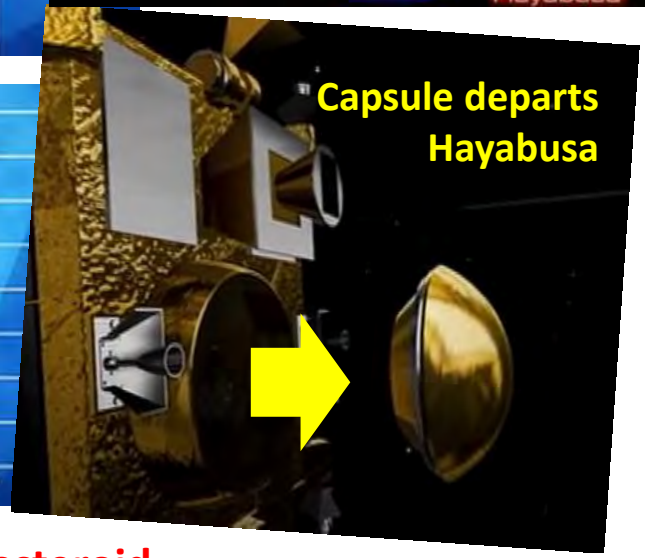
Download this June 2020 issue:
https://www.gov-online.go.jp/pdf/hlj/20200601/20200601all.pdf

04. Hayabusa-1: Its amazing story as told by JAXA in a 22-min. documentary




Landing on Asteroid 25143 Itokawa





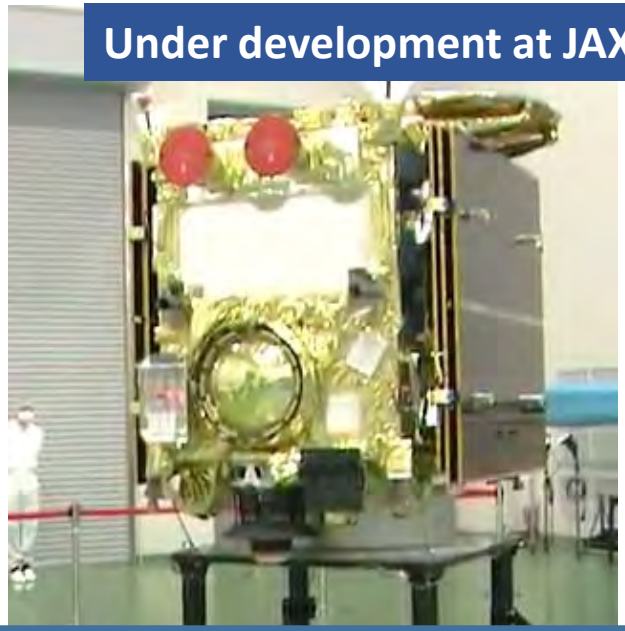

Capsule re-enters the Earth's atmosphere on 13 June 2010

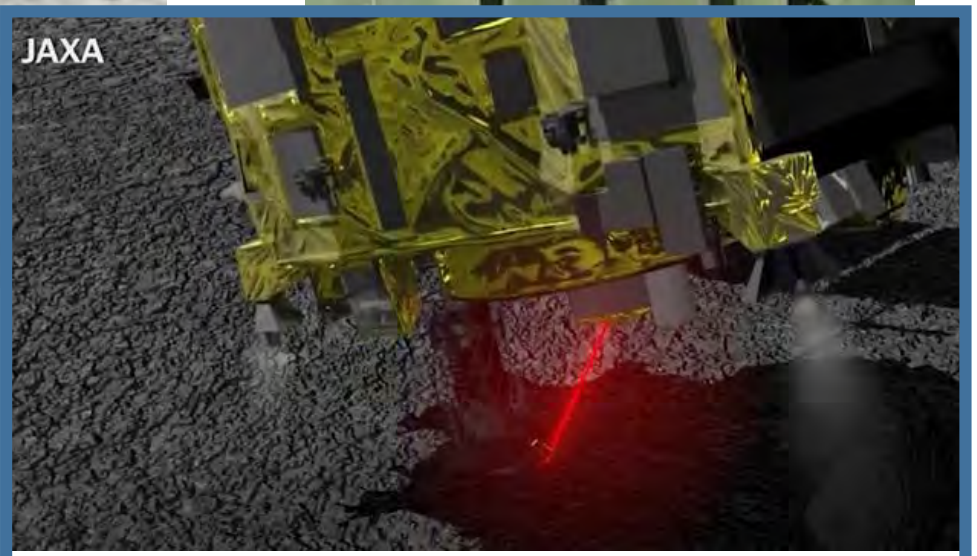
The Great Challenges of "HAYABUSA" - World's first asteroid sample return mission - Video of 10 April 2009
https://www.youtube.com/watch?v=0nHxCQYA2PU

05. Hayabusa-2: Due back at Earth in December of this year

Landing on Asteroid 162173 "Ryugu" on 27 June 2018.

Under development at JAXA





Wikipedia on Hayabusa-2
https://en.wikipedia.org/wiki/Hayabusa2

#NipponTVNews24Japan #NTV #日テレ

"The Japan Aerospace Exploration Agency says its asteroid explorer will return to Earth from its mission this December. Hayabusa 2 has been collecting sand and rocks from an asteroid to try and discover the origins of life. " **14 July 2020**

Japan's asteroid explorer to return in December 2020

https://www.youtube.com/watch?v=2gXJU9i1XS4

KITSUNE PROJECT

CDR

Critical Design Review

OF 28 JULY 2020

15:30-18:30

VIA ZOOM

over 27 persons logged in

07. State of the Satellite Industry—Global Data from 2019

The Satellite Industry Association (SIA) released its 23rd annual study of satellite industry performance. The report, produced by Bryce Space and Technology, provides an overview of 2019 activity derived from proprietary surveys, in-depth public information, and independent analysis.

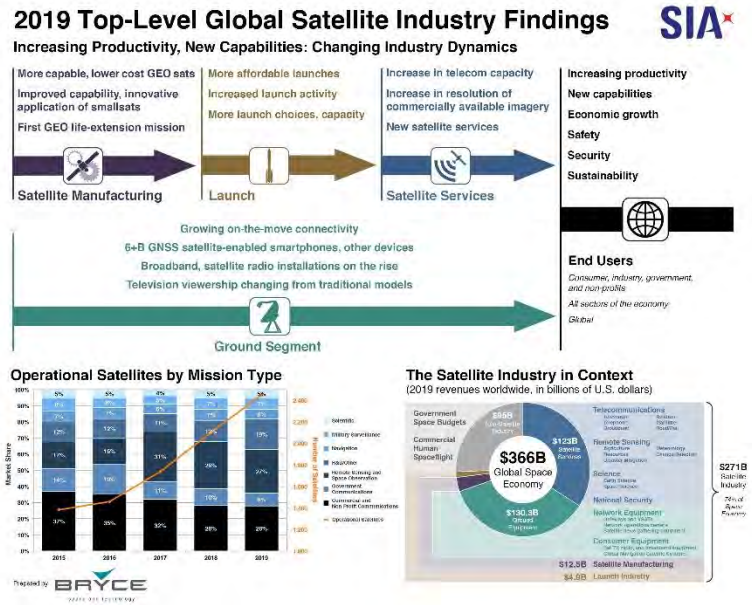
Highlights from the report:

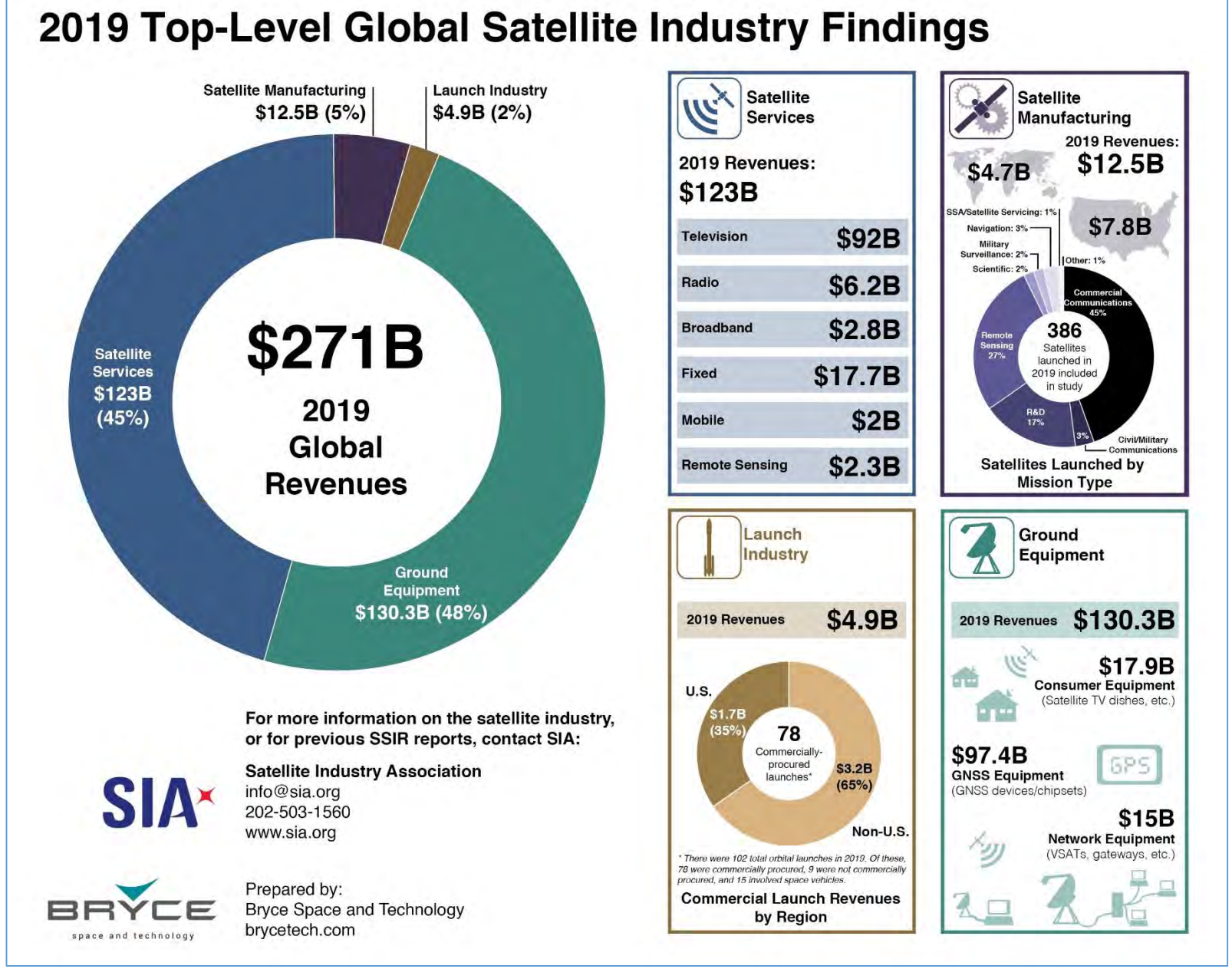
- A record number of satellites were launched into space in 2019.
- **Global revenue of the satellite industry totaled $271 billion USD in 2019**, which is 74 percent of the space economy.
- Technology innovations drove the deployment of more capable, lower-cost satellites, faster throughput speeds, and increased Satcom capacity. Satellite radio, broadband, managed network, and commercial remote sensing revenues increased.
- The industry saw increased availability, choices, and quality of commercial satellite imagery.
- Satellite ground equipment revenues also increased, driven by GNSS-enabling hardware.
- Launches are becoming more affordable with increased launch activity, launch choices, and rideshare opportunities.
- The U.S. continues to lead the industry in both satellite manufacturing and launch service revenues.
- The full version of the study includes a COVID-19 impact special report.

For more top-level global satellite industry findings, download the SIA report summary.
(https://brycetech.com/download.php?f=SIA_SSIR_2020.pdf)
Download the report (https://brycetech.com/download.php?f=SIA_SSIR_2020.pdf)

Continued on the next page

Sample from the report





08. BIRDS-2: Multi-Nation CubeSat Constellation Project for Learning and Capacity Building

BIRDS-2: Multi-Nation Cubesat Constellation Project for Learning and Capacity Building

Kiran Pradhan, *Kyushu Institute of Technology*
Faure Pauline, *Kyushu Institute of Technology*
George Maeda, *Kyushu Institute of Technology*
Sangkyun Kim, *Kyushu Institute of Technology*
Hirokazu Masui, *Kyushu Institute of Technology*
Mengu Cho, *Kyushu Institute of Technology*

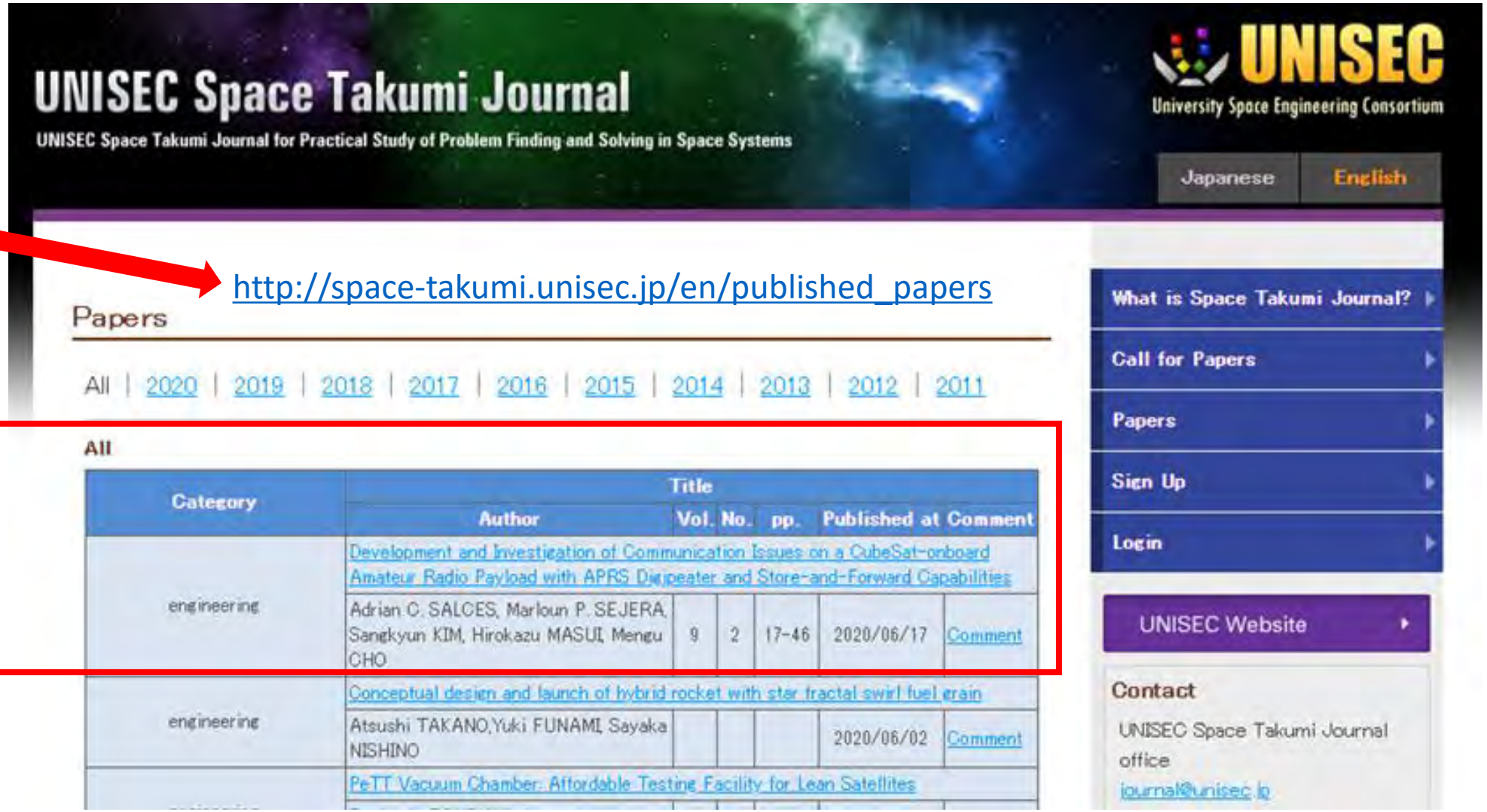
https://digitalcommons.usu.edu/smallsat/2018/all2018/435/

Abstract

The BIRDS project began in October, 2015 with an objective to provide hands on experience to the graduate students on satellite technology. In a BIRDS project, the students define missions, design, build, test, and operate satellite within given time frame of the project. A 1U CubeSat is built per participating country which are then released from International Space Station (ISS) into Low Earth Orbit (LEO) and operated through a ground station network, with one ground station established in each member nation.

That being the first is series, the second BIRDS project or so called BIRDS-2 project started in November, 2016, with students from Philippines, Bhutan, Malaysia and Japan. Lean philosophy is adopted for the development of CubeSats and an overlap of a year is created between successive projects so that the lessons learned and knowledge gained from each project is properly passed on. The BIRDS program targets to improve the development process of a CubeSat while maintaining/improving the reliability and reducing waste. But the true success of the program is indicated by the ability of project members to replicate what they learn from this project, at their home country after graduating.

09. BIRDS-2: Development and Investigation of Communication Issues on a CubeSat-onboard Amateur Radio Payload with APRS Digipeater and Store-and-Forward Capabilities



BIRDS-2

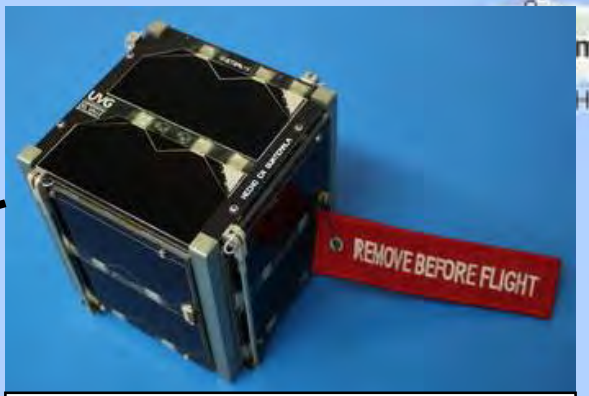
Report from Costa Rica

by Marco Gomez-Jenkins (3 Aug. 2020)
Visitor
Institute of Astronomy
University of Cambridge, UK
**Former research engineer at TEC*

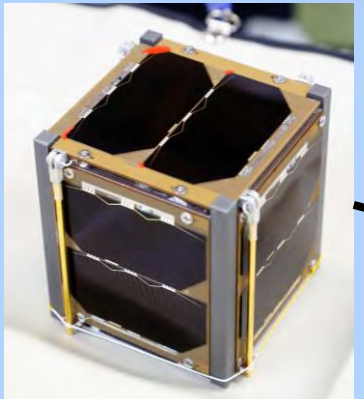
Central America in Space

There are seven countries in Central America: Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica and Panama. This region is home to 7% of the world's total biodiversity and is home to 16 UNESCO world heritage sites.

Various space initiatives have been developed over the last decade in Central America. These include the launch of the region's first two nanosatellites: Irazu (Costa Rica) and Quetzal-1 (Guatemala). Both of these mission were used to develop space capabilities in the region and to demonstrate how nanosatellite could be used to monitor natural resources. More CubeSat projects are being developed at the moment including GWSat (Costa Rica in collaboration with George Washington University) and Morazan (Honduras, Guatemala, Costa Rica).



Quetzal-1 is Guatemala's first satellite. Its mission is to test a multispectral sensor prototype. It was deployed from the ISS in April 2020 and is currently operating in orbit.



Irazu is Costa Rica's first satellite. It was a 1U CubeSat designed to monitor carbon fixation in rainforests. It was deployed in May 2018 from the ISS and operated until March 2020.

Space Industry in Costa Rica

Costa Rica has been leading the way in terms of developing a space industry. Here are some of the most important initiatives:

COSTA RICA AEROSPACE CLUSTER

The Costa Rica Aerospace Cluster is a group of more than 30 companies and universities in Costa Rica that develop products such as electromechanical systems and software for the aerospace industry. It was created in 2016 as part of a national plan to generate new industries in the country.

Ad Astra Rocket is a NASA spin out company developing a high-power electric propulsion system that could one day take astronauts to Mars in 39 days. It has offices in Houston, USA and Liberia, Costa Rica and was founded by former astronaut Franklin Chang-Diaz.

LeoLabs is an American company that is installing radar systems around the world to detect space debris in Low Earth Orbit. On 22 July 2020 they announced that they would be installing their fourth radar in Costa Rica (other locations include USA and New Zealand).

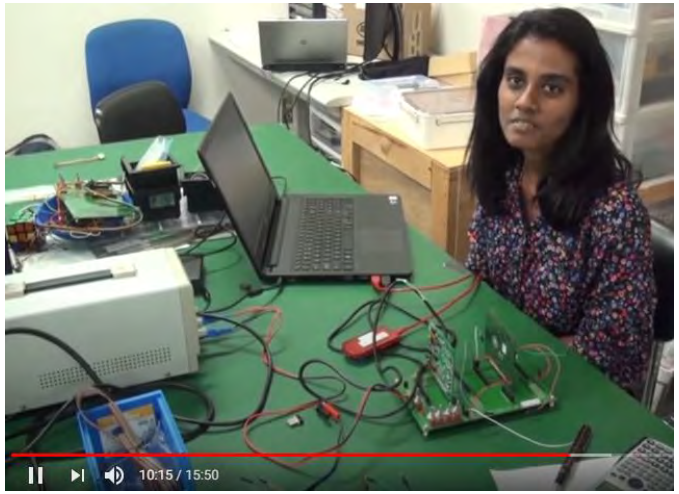
Group photo at the 2nd BIRDS International Workshop. I presented the Irazu mission's status and TEC's new space laboratory.

Thanks to Prof Cho and Prof Maeda for including the Costa Rica Institute of Technology (TEC) in the BIRDS network. The international workshops have been incredibly beneficial to learn about the challenges of developing satellite missions in emerging space nations and sharing Costa Rica's experience. I would also like to thank Prof Maeda for giving me the opportunity to contribute to the *BIRDS Project Newsletter* (I am an avid reader).

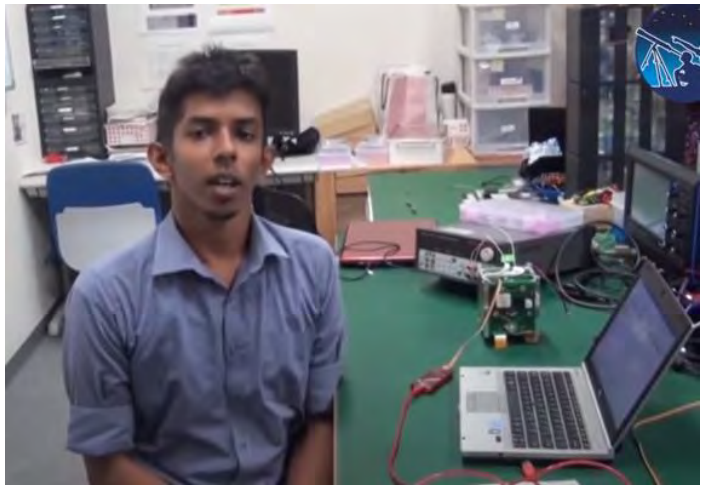
Marco Gomez-Jenkins
Visitor
Institute of Astronomy
University of Cambridge
**Former research engineer at TEC*

11. BIRDS-3: Videos from Sri Lanka

A visit to ACCIMT in Sri Lanka
https://www.youtube.com/watch?v=vpoFmBPFPfs
[in language of Sri Lanka; 45 min.]



SEIC student Dulani



SEIC student Tharindu

Sri Lanka's first Satellite RAAVANA 1
https://www.youtube.com/watch?v=jg4CW0ZvgEE
[in English; 16 min.]

12. BIRDS-3: Media material from Nepal

ORF OBSERVER RESEARCH FOUNDATION
Ideas · Forums · Leadership · Impact

COMMENTARIES | APR 29 2019

The importance of Nepal's first satellite launch

RAJESWARI PILLAI RAJAGOPALAN

A closer look at the context behind a significant development for the country.

People

Rajeswari Pillai Rajagopalan

Dr. Rajeswari Pillai Rajagopalan is a Distinguished Fellow & Head of the Nuclear and Space Policy Initiative, at Observer Research Foundation.

https://www.orfonline.org/research/the-importance-of-nepals-first-satellite-launch-50336/

"5 unknown facts about Nepal's first satellite"
https://www.youtube.com/watch?v=dKY0qorsvxI
[4.5 minutes]

Philippine Space Agency

From Wikipedia, the free encyclopedia

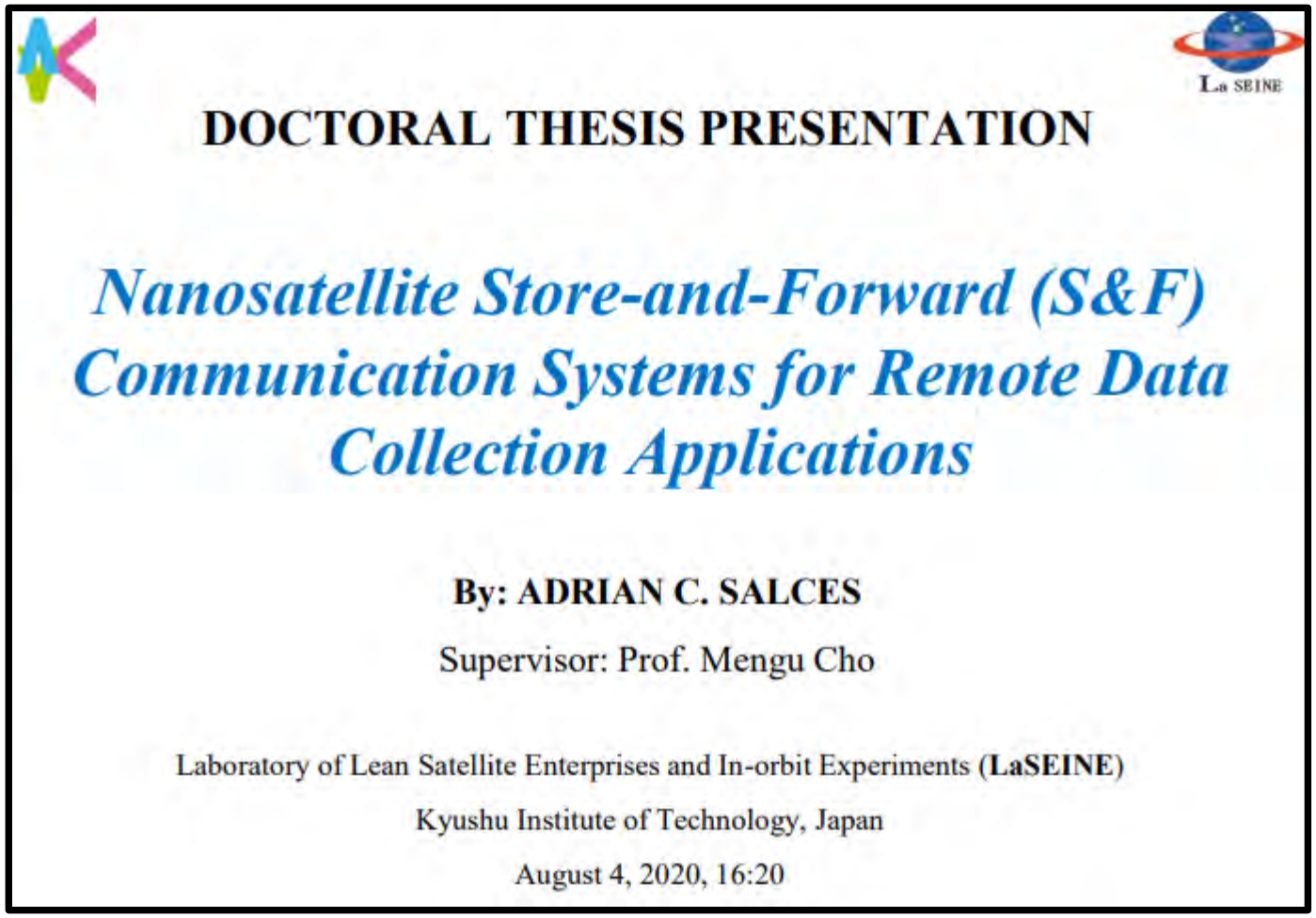
Abbreviation	PhilSA
Formed	August 8, 2019
Headquarters	Clark Special Economic Zone, Philippines
Administrator	Joel Joseph Marciano, Jr., Director-General
Owner	Office of the President
Annual budget	₱1 Billion (2020)

The Philippine Space Agency, or PhilSA, is the national space agency of the Philippines.

The unified space agency is defined by the "Philippine Space Act" (Republic Act No. 11363) which was signed into law on 8 August 2019, intended to manage and operate the Philippine government's space program which was decentralized and handled by various agencies of the Department of Science and Technology (DOST).

https://en.wikipedia.org/wiki/Philippine_Space_Agency

14. Phd defense by Adrian C. Salces



DOCTORAL THESIS PRESENTATION

Nanosatellite Store-and-Forward (S&F) Communication Systems for Remote Data Collection Applications

By: ADRIAN C. SALCES

Supervisor: Prof. Mengu Cho

Laboratory of Lean Satellite Enterprises and In-orbit Experiments (**LaSEINE**)

Kyushu Institute of Technology, Japan

August 4, 2020, 16:20

Adrian (BIRDS-2, Philippines) delivered the public defense of his Phd thesis on 4 August 2020 via ZOOM. Afterwards, he took questions from his evaluation committee (professors) and from members of the audience.

Note that the contents of this thesis are highly relevant to BIRDS-2, -3, -4, and -5.

THIS PRESENTATION FILE CAN BE DOWNLOADED FROM HERE: (maintained by Adrian)
https://drive.google.com/file/d/1rDMPtr6gvht2aH2jkmiT0wN2LyOZe9Ww/view

15. SEIC Guest Lecture by Dr. Amal Chandran

Special Guest Lecture
by
Dr. Amal Chandran

Director for Space Technology,
Satellite Research Centre,
Nanyang Technological University,
Singapore

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

Lecture moment:
Date: Tuesday (4 Aug. 2020)
Time: 9:00-10:00 AM
Medium: ZOOM

SEIC

← Dr Chandran giving a talk to students of SEIC in 2017 (Tobata Campus)

Title:

A Beginners Guide To Spacecraft Design

Abstract:

See the next page.

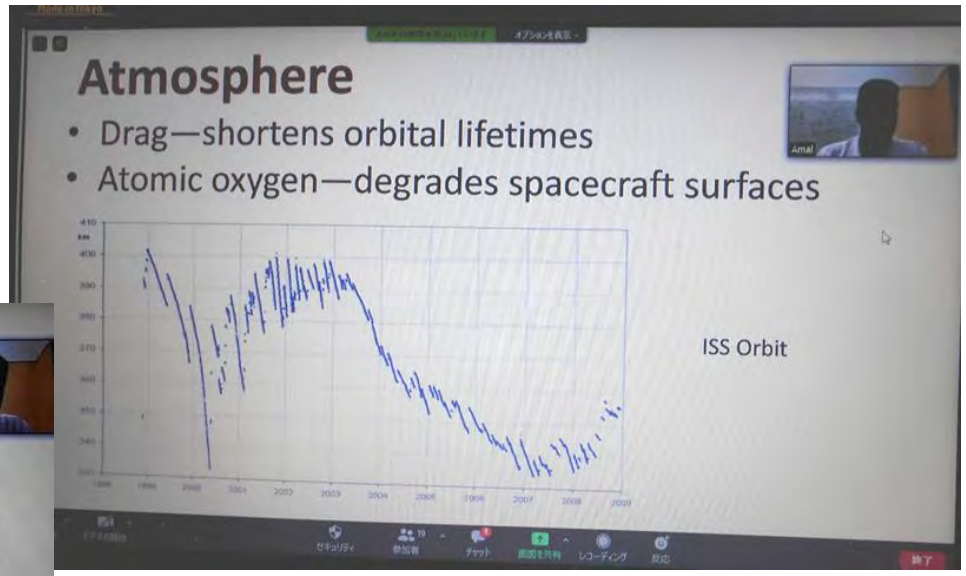
Abstract

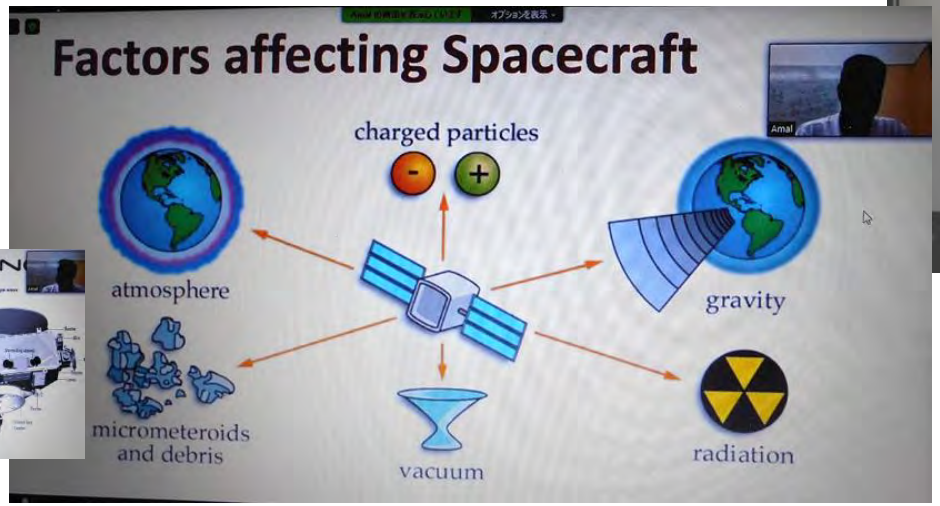
“Space, the final frontier….”, “In a galaxy far, far away…” or maybe “So long…. and thanks for all the fish” are quotes which have thrilled and inspired a generation of students to become space engineers and scientists and to design the next generation of spacecrafts. Whether it is Star Wars, Star Trek or the Hitch Hikers Guide to the Galaxy, we have all been thrilled by spacecrafts zipping along the solar system and the galaxy, visiting fantastic worlds and alien civilizations.

While we may still be some time away from building these incredible machines, mankind has managed to land humans on the moon and send autonomous spacecraft to every single planet (and certain dwarf planets) in our solar system. We have managed to land on comets, snap incredible pictures of planetary landscapes and explore planetary surfaces using rovers. All these achievements come from carefully considering and answering some of the following questions: What is a spacecraft and how does designing a spacecraft differ from designing a regular vehicle? How do factors like the space environment, vacuum, and zero gravity affect the design process? What are the forces acting on a spacecraft in orbit? How do you test a spacecraft on Earth? In this seminar, I shall present a condensed overview of the spacecraft design process and how some of the above questions are taken into consideration in the design process. **End of abstract**

Talk by Dr Amal: some screen shots during his talk

Over 18 persons logged into this event





His presentation file:
https://drive.google.com/drive/folders/1dTcKzKkof9Qi_06rA10y5ddz_b16onF2?usp=sharing

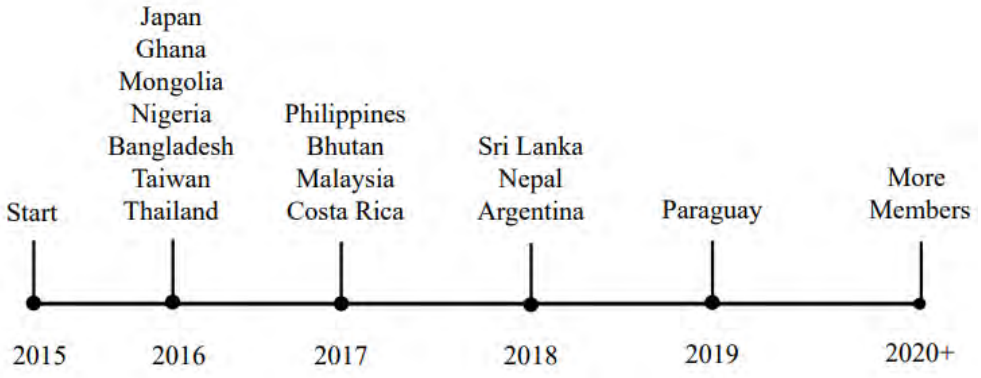
Nakai san asks a question about project management

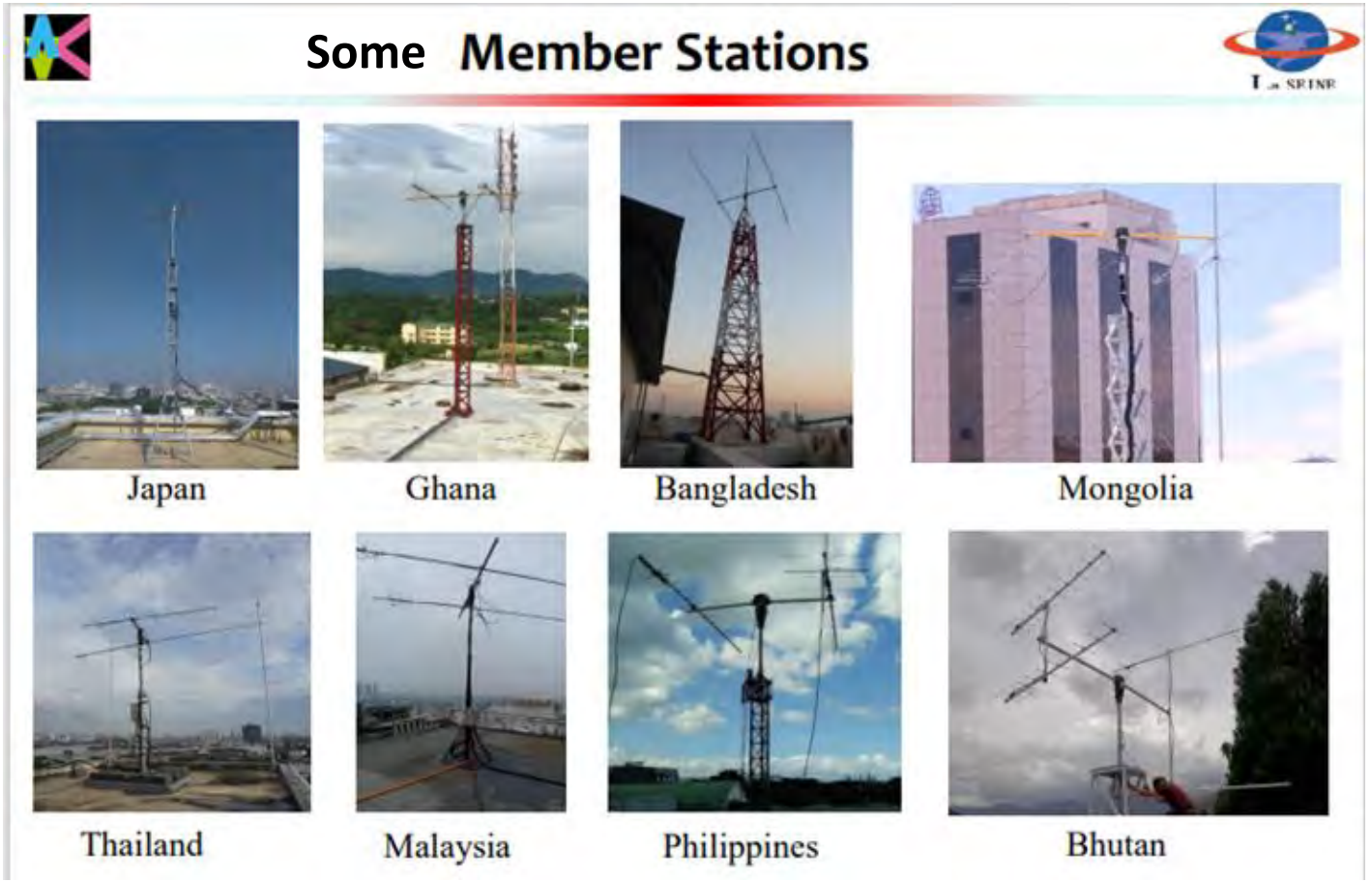
16. BIRDS Ground Station Network continues to grow

The BIRDS Ground Station Network continues to grow in support of BIRDS-3, -4, and -5 projects.

- **Uplink & Downlink Successful**
  - Japan
  - Sri Lanka
  - Thailand
  - Mongolia
  - Bhutan
  - Malaysia
  - Philippines
  - Ghana
  - Nepal*
  - Taiwan
- Receive only
  - Bangladesh
  -
- Under construction
  - Costa Rica
  - Paraguay
  - Nigeria

* Awaiting ICOM transceiver





Data of this page from:
University Ground Station Networks for Operation of Nanosatellite Constellations; LaSEINE Research Seminar; August 5th, 2020;
Mr. Apiwat Jirawattanaphol

17. Report from Indonesia (#1)

Report on an online satellite short-course that took place in Indonesia

Reported by Bramandika (Indonesia, new SEIC student)

See his self-intro: Pages 27-33 of Issue No. 53 of this newsletter – sample of the self-intro at the right.

Source: https://www.semarangkota.go.id/

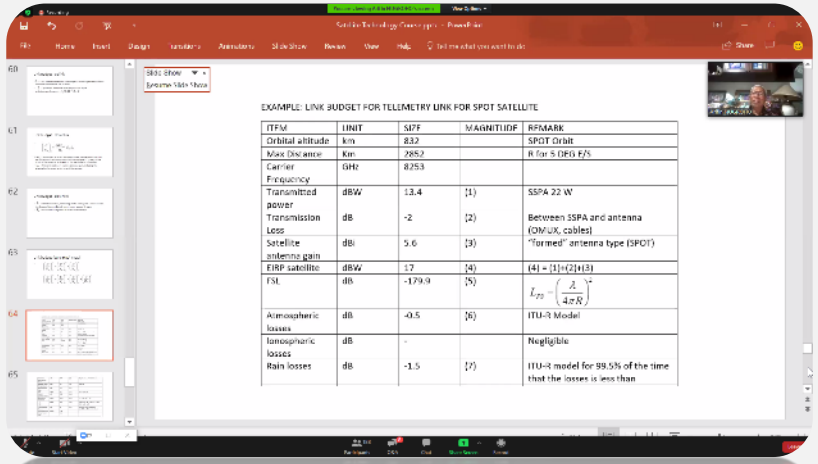
BRAMANDIKA'S REPORT ACTIVITY FROM INDONESIA

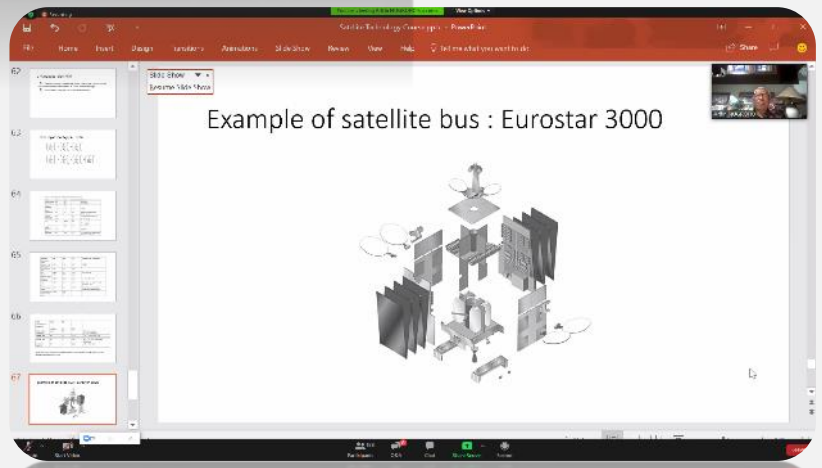
INTRODUCTION TO SATELLITE TECHNOLOGY ONLINE SHORT COURSES

Brief Description

- ***Background:*** The needs of Indonesian students and young professionals in the satellite technologies R&D.
- ***Goal:*** To encourage student and young professionals in the satellite technologies R&D.
- ***Organiser:*** SatCommRadar Laboratory, Telkom University, Indonesia with Indonesian Section of IEEE AESS & GRSS.
- ***Time:*** 23, 25, & 27 June 2020 (@150 minutes).

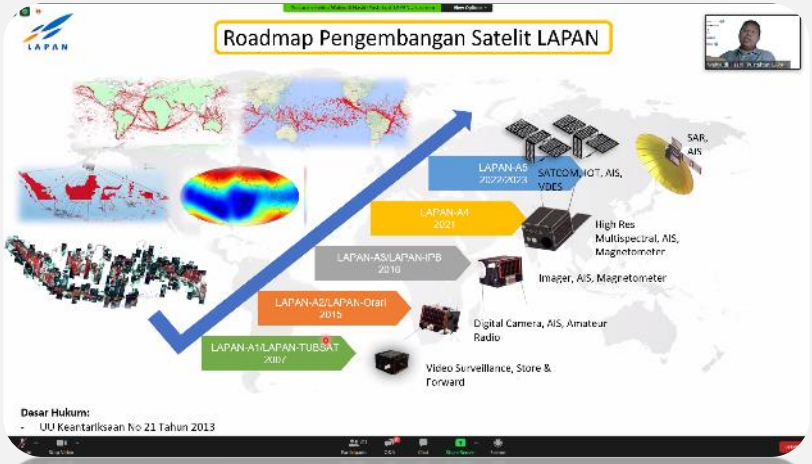
Report for Each Sessions (1st Session)

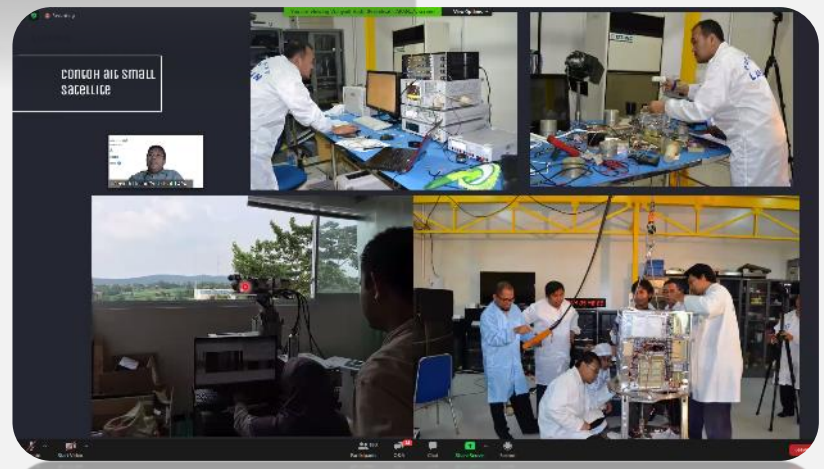




- ***Course Title:*** Introduction to Satellite Technology, Development, and Regulation.
- ***Speaker:*** Dr Arifin Nugroho (Chairman of Indonesian Section of IEEE AESS & GRSS).
- ***Moderator:*** Mr. Widodo Mardijono (Satellite Systems Consultant).
- ***Topics:*** Brief history of space exploration, Orbital & Spectrum resources, Mission definition, Orbit determination, Payload definition, Ground segment determination, and Bus determination.

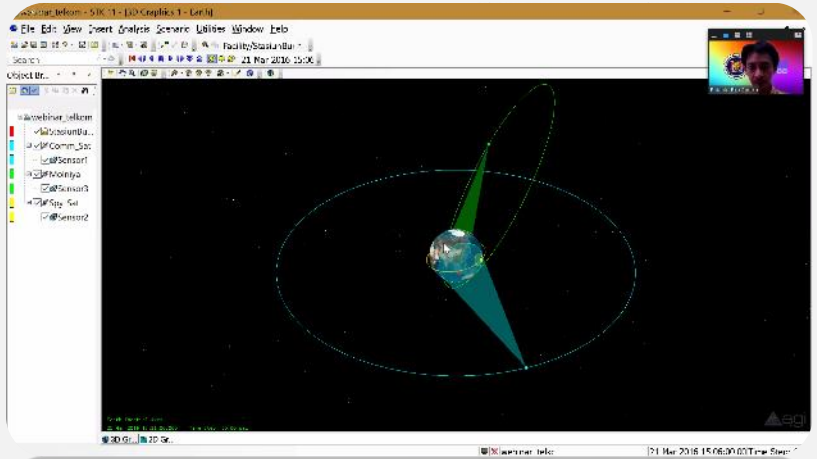
Report for Each Sessions (2nd Session)

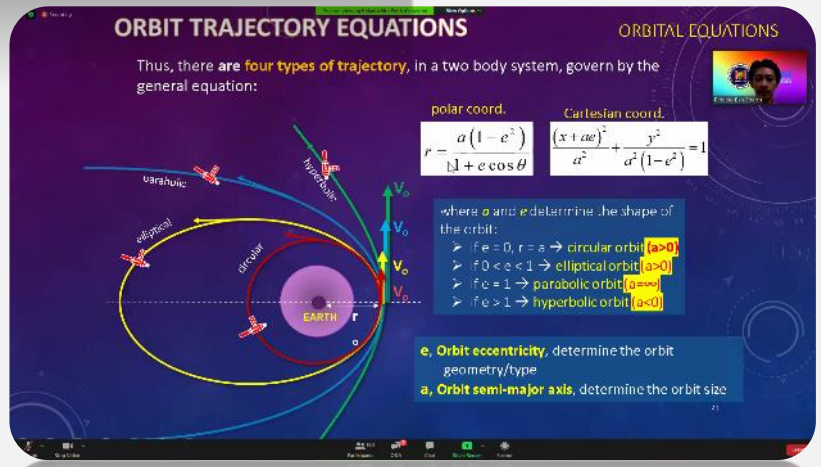




- ***Course Title:*** Small Satellite Application, Fundamentals, and Design.
- ***Speaker:*** Mr. Wahyudi Hasbi (Coordinator of Dissemination Division, Satellite Technology Center, LAPAN).
- ***Moderator:*** Mr. Ibnu Rusydi (Satellite Bus & Mission Engineer, Pasifik Satelit Nusantara).
- ***Topics:*** Satellite history, Overview on satellite technology, Small satellite trend, fundamental design & application, and Indonesian small satellite development.

Report for Each Sessions (3rd Session)

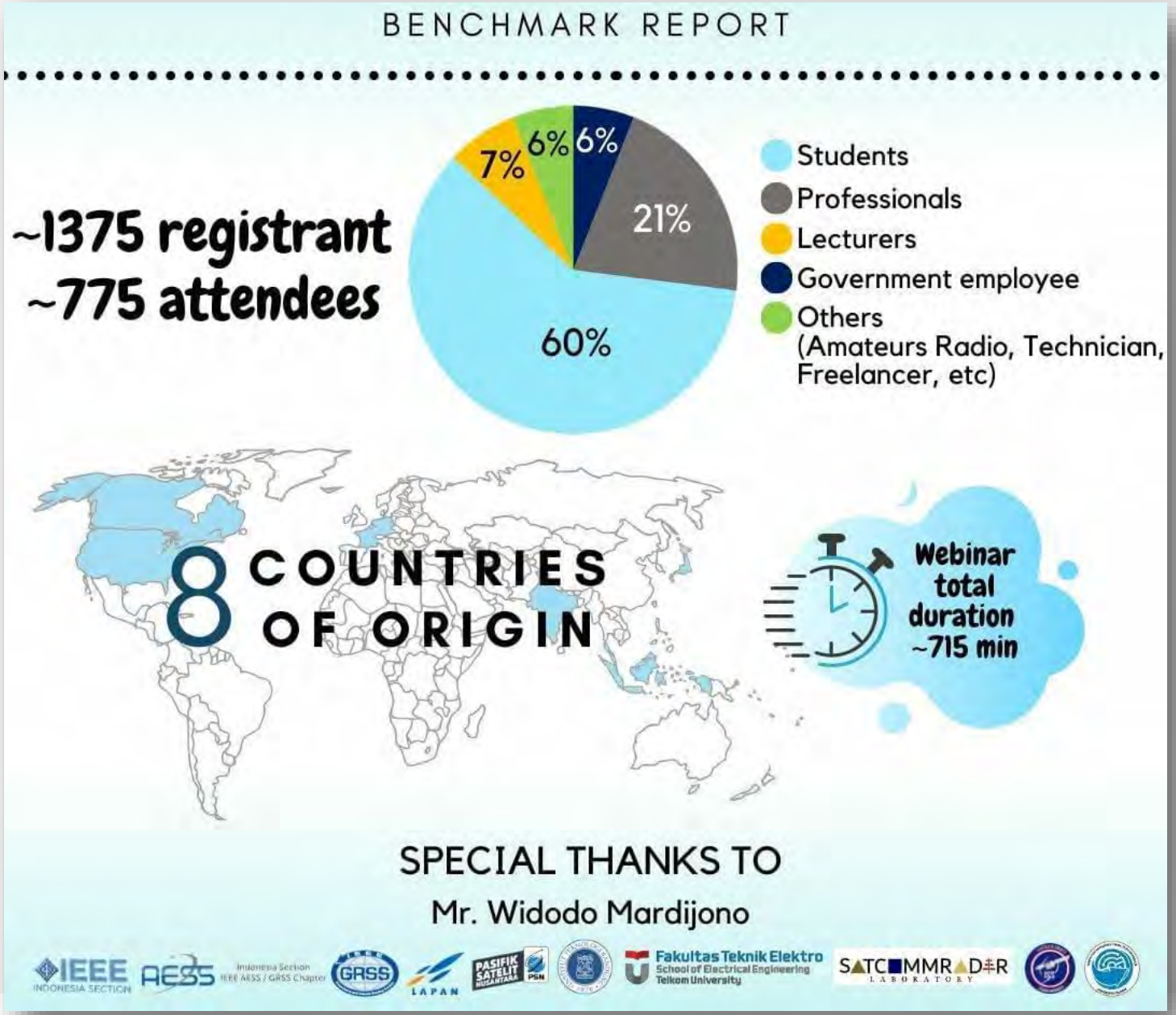




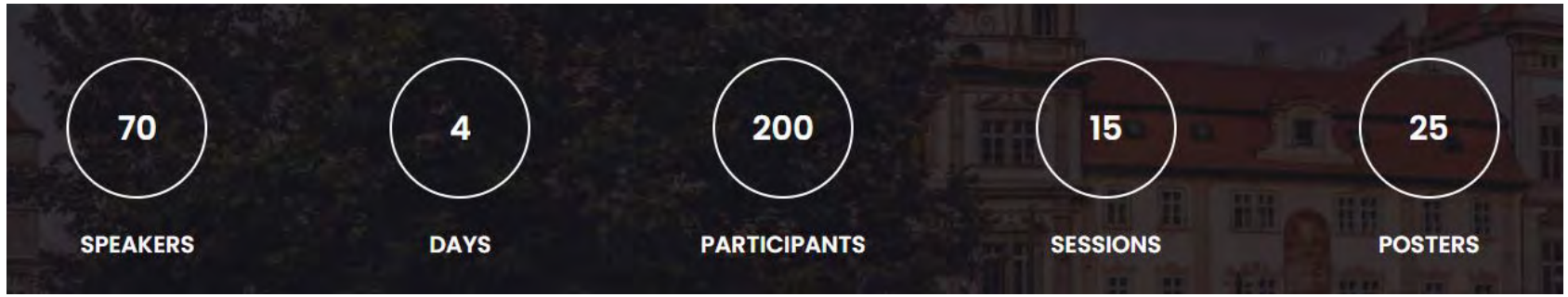
- ***Course Title:*** Orbital Mechanics Introduction.
- ***Speaker:*** Dr Ridanto Eko Poetro (Lecturer in the Faculty of Aerospace and Mechanical Engineering, Bandung Institute of Technology).
- ***Moderator:*** Mr. Edwar (Lecturer from SatCommRadar Laboratory, Telkom University).
- ***Topics:*** Review on law of mechanics, Orbital equations, Keplerian orbit (two-body problem), Orbital types and its application.

At a Glance

*Picture of me being MC along the courses.



18. 4th IAA Latin American CubeSat Workshop



Successfully occurred during 3-6 August 2020 using ZOOM.

DESIGN AND IMPLEMENTATION OF A GROUND STATION FOR TRACKING AND MONITORING LEO ORBITING NANOSATELLITES IN THE UHF AND VHF BANDS, BASED ON THE USRP PLATFORM FOR UNIVERSITY ENVIRONMENT APPLICATIONS.

Ernesto MEJIAS, Saray LOPEZ, Paola VINDIGNI, Joharlys RODRIGUEZ, Kenny WU

Bolivarian Agency for Space Activities (ABAE), Generalissimo Francisco de Miranda Air Base, La Carlota. Sucre Municipality, Miranda State, Caracas-Venezuela, postal code 1060, +58212207.54.06, emejias@abae.gob.ve, slopez@abae.gob.ve, paochicalv@gmail.com, jjrodriguez@abae.gob.ve, kennywuc@gmail.com

Abstract —— Ground stations are technological infrastructures that receive information sent by satellites, such information is processed by users who require it on Earth. The nanosatellite trend has grown in research institutions such as universities, therefore, the need arises for these ground stations to have the ability to maintain a stable communication link and the best possible performance for the transmission of data used in science and learning. This article establishes the design and implementation of a ground station to consolidate a communication link with nanosatellites. As a first stage, the design of two Cross Yagi antennas in frequencies of VHF (144 - 146Mhz) and UHF (435 - 438 Mhz) was carried out. In the second stage, a control interface for the YAESU G-5500 rotor was designed and manufactured, allowing its autonomous control through the use of orbiting and real-time satellite tracking software installed on a computer. The interface is low cost and allows to dispense with the acquisition of the GS-232B control module. In the third stage, preliminary tests were carried out with the RF Radio Defined Device by USRP B210 Software capturing FM broadcasting signals, then a 137 MHz Turnstile antenna was manufactured to receive data from NOAA meteorological satellites. In conclusion, both antenna designs were carried out successfully through the use of the free 4nec2 graphical interface to create, optimize and test the structure of 2D and 3D antennas, obtaining their radiation pattern, standing wave ratio and reflection coefficient, results found to be satisfactory, having verified compliance with the conditions established for the antennas. It was possible to assemble the YAESU G-5500 rotor to connect it to the manufactured control interface, furthermore, the orbiting and satellite tracking software established a communication with the interface and allowed the autonomous control of the YAESU G-5500 rotor. The USRP B210 device was configured using the GNU Radio free development tool, which provides signal processing blocks to be implemented in USRP, and it was possible to receive data from NOAA satellites; However, once the decoding process was completed, the noise level in the signal did not allow the image to be displayed, attributing these results to the lack of precision tools and materials at the time the Turnstile antenna was manufactured. Finally, it is expected to complete the fabrication of the Cross Yagi antennas to continue the implementation of the ground station and start testing with nanosatellites.

Keywords: *nanosatellites, software defined radio, VHF, UHF, Cross Yagi Antenna.*

1. Introduction

There are currently a large number of universities that impart knowledge related to space technology. In most cases, the methodology is based on the planning of space activities, specifically on the development of a project that consists of the design of a cubesat under the standards applied in a real mission. [1]

The ground station is a fundamental subsystem in the development of a space mission. Its main objective is to maintain a reliable communication link with the satellite when there is a line of sight, in that time window it is possible to download telemetry data, send commands and receive data from the payload.

In the Bolivarian Agency for Space Activities (ABAE), the design and implementation of a nano and pico satellite tracking and monitoring ground station is the first approach for the development of a space mission based on the cubesat standard, with the required equipment (rotor YAESU G-5500 for antennas, Software Defined Radio USRP B210, oscilloscopes, spectrum analyzers, soldering station, among others.).

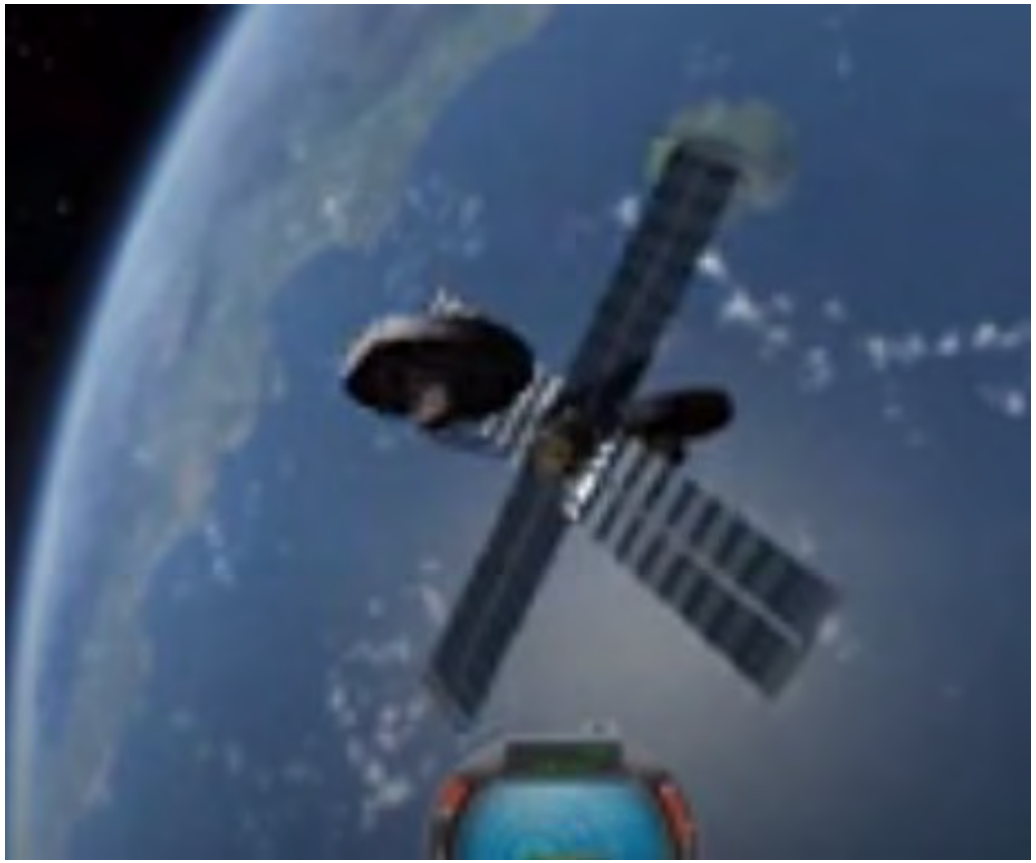
There are two ways to implement a ground station: with radio hardware or by the use of SDR (Software Defined Radio) technology. The main drawback with the first option is the cost of the equipment and poor compatibility with open source tools, as they are designed to be used with specific applications. The SDR offers the same results with a much lower implementation cost and compatibility with different software. This paper will work with SDR technology in order to achieve the following goals:

- Design a ground station that operates in VHF (145.8 - 146 MHz) and UHF (435 - 438 MHz) frequency bands to receive nano and pico satellite signals under the cubesat standard.
- Design two CrossYagi antennas that operate in the VHF (145.8 - 146 Mhz) and UHF (435Mhz - 438 MHz) frequency bands to establish ground-satellite communication.
- Implement a low-cost digital interface for external control of a YAESU G-5500 antenna rotor controller that allows the same functions of the YAESU GS-232B device to be performed.
- Create a graphical user interface (GUI) that allows real-time tracking of satellites, their orbit prediction and future pass information.
- Set up a signal processing block diagram in GNU Radio that allows the processing of APT signals from NOAA satellites 15, 18 and 19 as a preliminary test.
- Manufacture a Turnstile antenna that operates in the VHF frequency band (137-138 MHz) to establish satellite communication with NOAA satellites 15, 18 and 19.

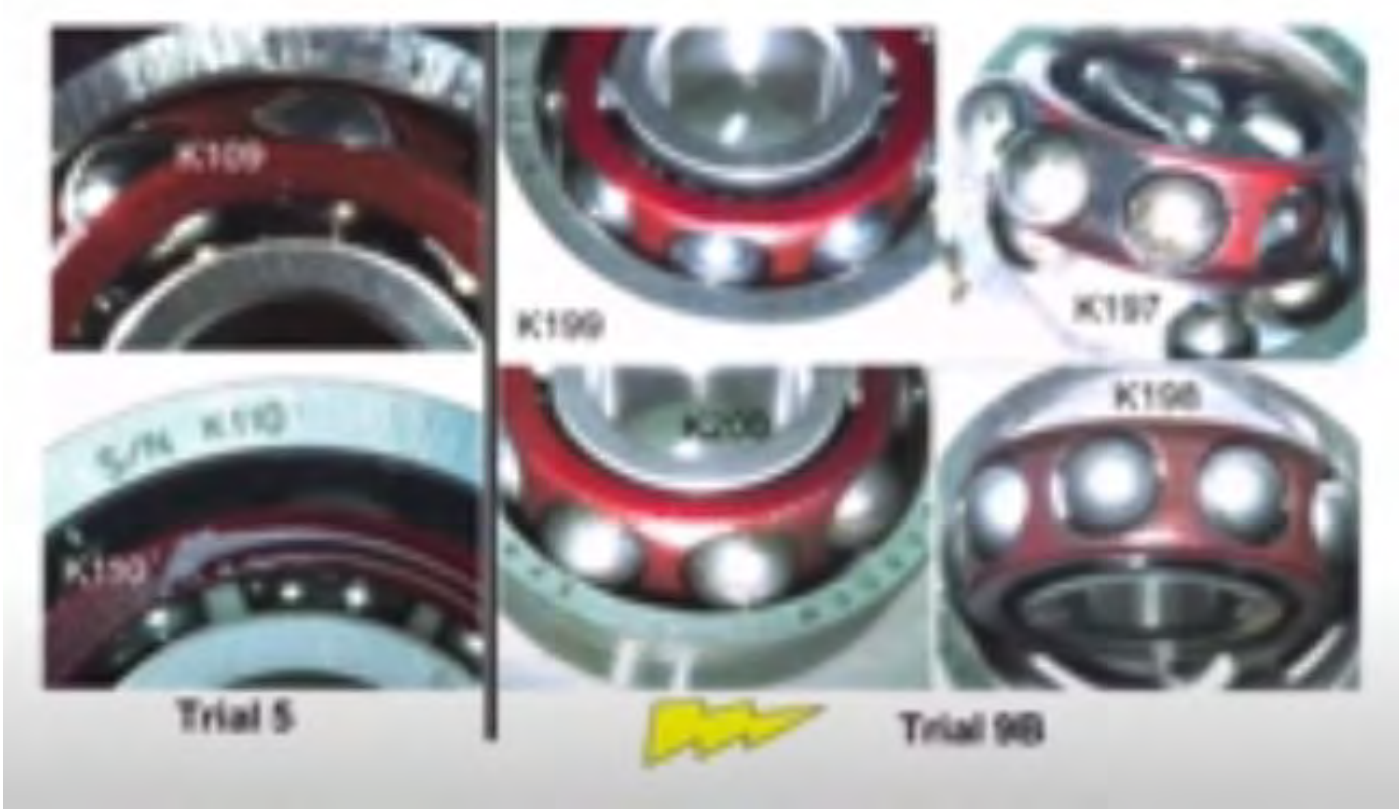
One interesting paper came from ABAE, the Bolivian Agency for Space Activities. It was presented by Paolo Vindigni. You can read this paper with the link below.

https://www.dropbox.com/s/o94jdqnldtakr33/Aug-2020%20ABAE%20paper%20about%20univ%20gnd%20station%20using%20USRP.pdf?dl=0

19. Reaction wheels



Reaction Wheels - Things Kerbal Space Program Doesn't Teach
https://www.youtube.com/watch?v=7Js5x4NhUxU



BALL BEARINGS OF REACTION WHEELS

Scientists May Have Figured Out Why So Many Spacecraft Were Failing
https://www.youtube.com/watch?v=KibT-PEMHUU

Asunción: Mother of cities, 483 years of history

by Ariel Manabe, 13 August 2020
JICA - SDGs Global Leader Program
National University of Asunción
-- Polytechnical School / AEP
Paraguay

August 15th: Paraguay remembers the founding of Asunción, *mother of cities*

Photo reference: López's Palace in Asunción. Photo by LA.Network

Founded on August 15th of 1537, by Juan de Salazar de Espinosa, **Asunción** is considered the mother of cities for being the first capital to be established in Río de la Plata's basin region, since from this city men went to found other cities in America.

The official name of the city is ***The Very Noble and Loyal City of Our Lady Saint María de la Asunción***

Your Majesty:

"... Thus in her (Asunción), God by his infinite goodness to this witness and to those who remained with him made very great favors and the said house and fortress has been the shelter and repair of all conquests ..."

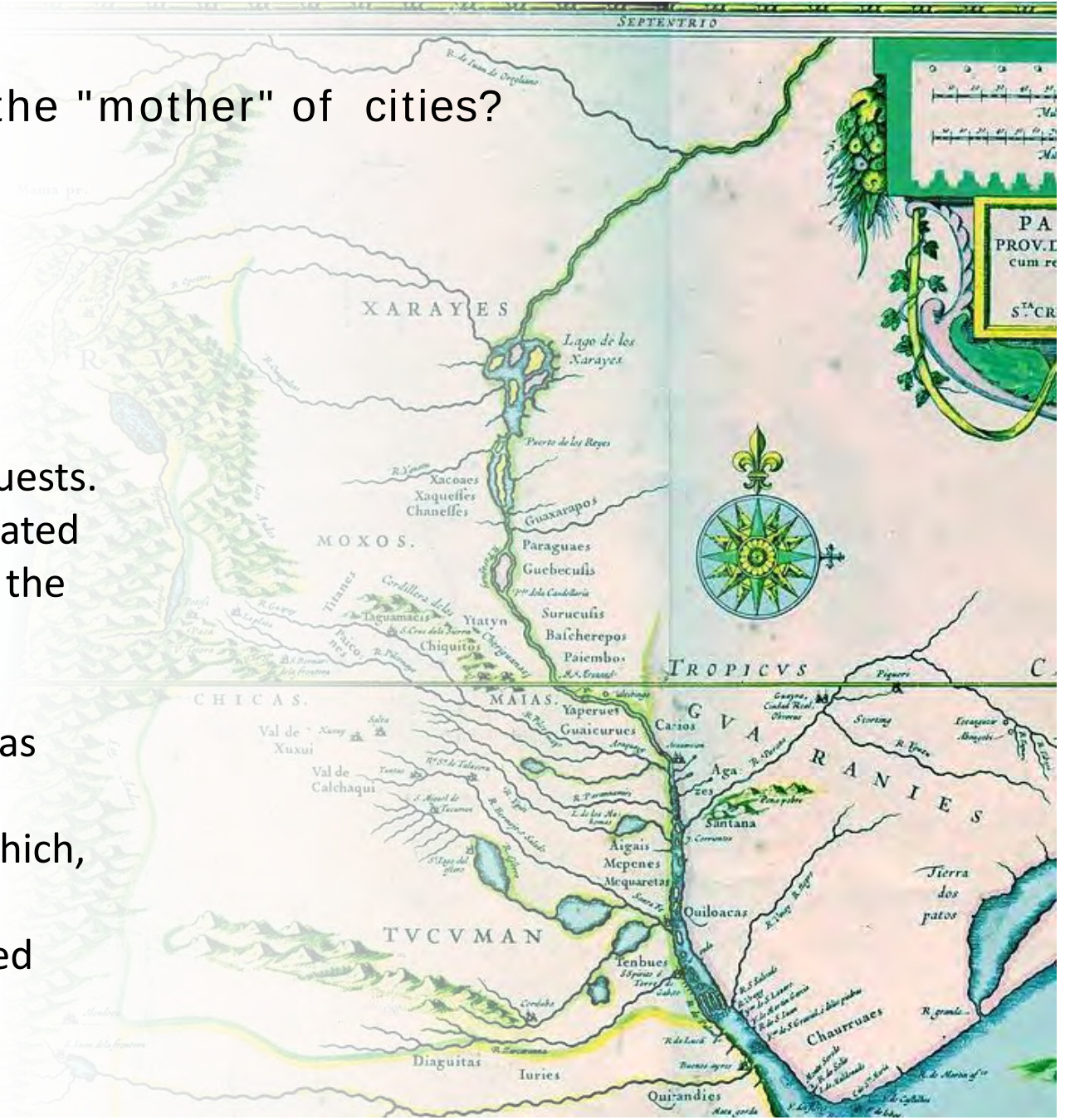
Juan de Salazar

Reference: https://www.abc.com.py/edicion-impresa/opinion/amparo-y-reparo-de-la-conquista-150121.html

How Asunción became the "mother" of cities?

A short history

It was a time of expeditions and conquests. On May 21, 1534, King Carlos I capitulated in favor of Don Pedro de Mendoza for the conquest of the Rio de la Plata (Silver River) watershed. It named that way, because for the explorers, this river was the road that reached the Sierra de la Plata. Legendary mountain range in which, according to the stories told by the Guarani Indians, the White King resided and in it there was abundant gold and silver, this region is currently Peru.



First *Santa María del Buen Aire …*

On August 24, 1535, eleven ships and about 1,300 people left San Lúcar de Barrameda in the direction of the Canary Islands. They arrived in the first days of January 1536 at the estuary where, shortly afterwards, in February, Santa María del Buen Aire (Buenos Aires) was founded, on its western bank. This was to be the main base to explore the path that would lead to the Sierra de la Plata.

While the new city was being built, expeditions were sent into the Rio de la Plata, the first was led by Juan de Ayolas, Don Pedro de Mendoza's butler, who ascended the Paraná River and on June 15, 1536 founded the city from Corpus Christi near the Coronda River, a place of rich soil, abundant and varied crops, much fishing and hunting, and friendly and helpful indigenous people. In this new city, Ayolas left a hundred of his men and then began his return to Buenos Aires. Upon arrival, he found the town practically destroyed and its inhabitants malnourished after suffering a harsh siege of several weeks by local natives. Clearly, this was not a good place to make a base.

Ref. https://iberinfonoticias.wixsite.com/buenos-aires/single-post/2018/02/05/Vicente-L%C3%B3pez-Juan-Ruiz-de-Oca%C3%B1a-y-los-primeros-espa%C3%B1oles-La-quinta-San-Antonio-y-el-Hotel-Ed%C3%A9n

Reference: https://revistadehistoria.es/etiqueta/rio-de-la-plata/

On the other hand, the good news brought by Ayolas, encouraged Pedro de Mendoza to send him again in search of the Sierra de la Plata; so they quickly organized a new expedition that departed on October 4th, 1536.

Shortly after Ayolas' departure, Mendoza met with other explorers and told them about Ayolas' new expedition**.** The explorers warned Mendoza that they were already in the areas where Ayolas was heading and that it was a dangerous area, many native tribes would not allow foreigners to pass through their lands, so they would confront them.

Faced with these unforeseen news, they decided to organize a relief expedition to Juan de Ayolas, with 3 brigs, 100 men and under the command of captains **Juan de Salazar de Espinosa** and Gonzalo de Mendoza. Then Juan de Salazar de Espinosa and his men set out in search of Ayolas and his expedition members. They continued their navigation and reached a small bay that formed the Paraguay River where they stopped to rest. In this bay they came into contact with the Guarani Indians with whom they established a friendly relationship, especially with the chief Karacara, who provided them generously.

Chief Karakara gave them the news that Ayolas and his men had passed through these places and that they then headed north. However, this was the last time Ayolas was heard from, who was killed by the northernmost tribes.

Meanwhile, even without knowing it, Salazar founded with the help of the Carios Guaraníes, the fort “Nuestra Señora de la Asunción”. Being a rich and strategically well positioned area to continue with the search for the Sierra de la Plata, the only and true objective in these expeditions, and with the city of Buenos Aires destroyed, ***Asunción became the main place where*** *the hard-working and unfortunate conquerors of the Río de la Plata* ***found rest and solace.***

END OF REPORT FROM PARAGUAY

Current Status of the Space Sector in South Korea

by Fátima Durán, 10 August 2020
Native of El Salvador

See her self intro:
Pages 8-15 of Issue 53, BIRDS Project Newsletter

Current Status of the Space Sector in South Korea

During my stay in South Korea, I managed to learn many things related to space technologies. The main government institution leading the space technologies in the country is the Korea Aerospace Research Institute (KARI). In 2017, I had the opportunity to participate in KARI's International Space Training Program (IST), which gave me the great opportunity to learn at first-hand of the space situation in South Korea and visit their testing and launching facilities. Although the history of R&D of aerospace and space technologies is relatively new, South Korea has proven its capacity to develop its indigenous technologies and it is currently looking forward to more ambitious projects such as lunar exploration, satellite navigation, and more. In this article, you can find some of the most relevant achievements and future projects in the South Korean space sector.

❑ **Korea Aerospace Research Institute (KARI).**

Founded in 1989, it is the aeronautics and space agency of the Republic of South Korea. Its facilities are located in Daejeon. Since its foundation, KARI has developed a variety of R&D projects in the fields of aerospace, satellite, space launch vehicles, unmanned vehicles. Future R&D projects for lunar exploration and satellite navigation are expected to be executed in the upcoming years.

Ground Station Antenna at KARI.

KARI has different testing facilities.

Naro Space Center, a spaceport operated by KARI.

For more click here! https://www.kari.re.kr/eng.do

Chollian-2B, placed on a non-vibration shipping container. Source: The Korea Times

Chollian-2B with its solar panels in folded position. Source: Yonhap

Engineers checking the Chollian-2B. Source: Yonhap

Ariane 5 carrying South Korea's Chollian-2B. Source: NASA

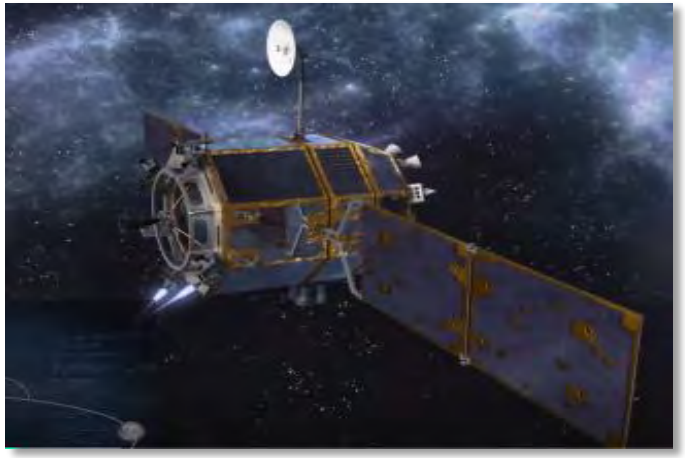
For more click here! https://www.youtube.com/watch?v=PcfTte7XwKI

Chollian-2B: World's first geostationary air pollution monitoring satellite

The multipurpose satellite, Chollian-2B, was manufactured by the Korea Aerospace Research Institute (KARI) and it was launched early this year. The satellite carries the Geostationary Environmental Monitoring Spectrometer (GEMS) which is able to observe and track fine dust particles and 20 types of air pollutants. The GEMS, is the first satellite instrument of a constellation of three satellite instruments (TEMPO from the United States and Sentinel-4 from Europe) for observation of air quality in the Northern Hemisphere.

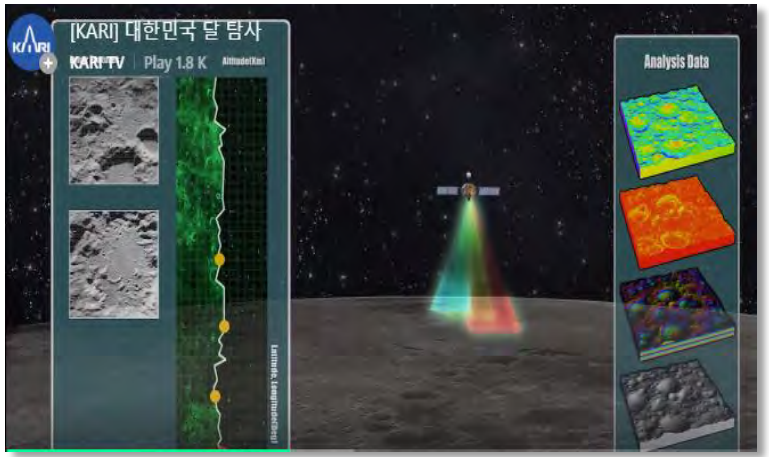
Sources:
https://www.koreatimes.co.kr/www/nation/2020/02/371_279820.html

Korean Lunar Exploration Program



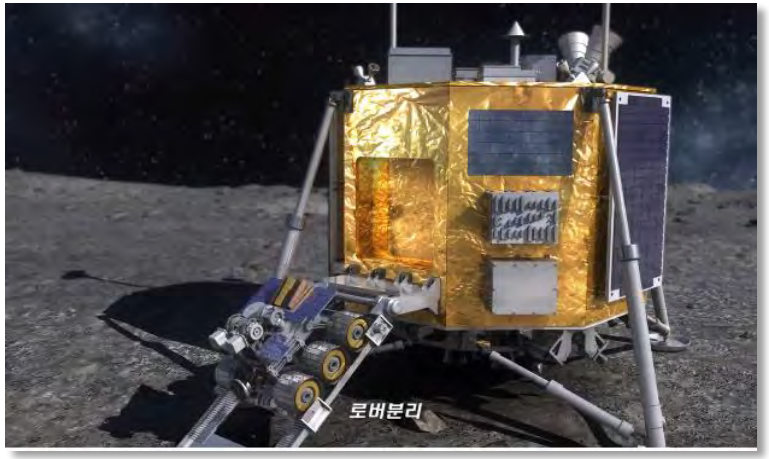
The lunar exploration project, lead by KARI, aims to provide Korea with its first lunar probe and the technology for lunar exploration. The first phase of this project consists of the development of the Pathfinder Lunar Orbiter. For the second phase, it is planned to develop an unmanned lunar orbiter and lunar lander.

Position of the Pathfinder Lunar Orbiter inside of the launch vehicle.



Duties: photographing the surface of the moon, measurement of lunar altitude, analysis of lunar topography.

Position of the Lunar Lander/Rover inside of the launch vehicle.



Separation of the Rover for lunar topography observation,

For more click here! https://www.kari.re.kr/eng/sub03_04_01.do#link

Nuri: Korea Space Launch Vehicle

CGI render of the KSLV-II rocket at the launch pad. Source: KARI

CGI render of the KSLV-II during lit-off. Source: KARI

Preparations for testing during 2018. Source: Hankyoreh

Oxidant tank of the 1st stage of KSLV-II. Source: KARI

For more click here! https://www.kari.re.kr/eng/sub03_03_01.do

The Korea Space Launch Vehicle-II (KSLV-II), predecessor of the KSLV-I, it is currently under development by KARI and is the South Korea second carrier rocket. It consists of a three-stage launch vehicle which uses four 75-ton liquid engines for its first stage, a 75-ton liquid engine for the second stage, and a 7-ton liquid engine for the third stage. It is expected to carry up to will 1.5-ton utility satellite into the LEO. The KSLV-II is expected to lit-off on February and October of next year.

Total Length	47.2m
Total Weight	200 tons
Diameter	3.5m

Dimensions of the KSLV-II

KAI KC-100 Naraon

The KAI KC-100 Naraon, developed and manufactured by the Korea Aerospace Institute (KAI), it is the first South Korean a four-seat, low-wing, single-engine light aircraft. Its maiden flight was completed in July 2011 and the South Korean Government granted it the type certification in August 2013.

The KC-100 aircraft incorporates a composite airframe.

The KC-100 is powered by a single IO-550-K engine.

The KC-100 can be used for leisure, tour, training and transportation activities.

Korea Aerospace Industries (KAI), a South Korean aerospace and defense company, founded on 1999. The company is dedicated to the development and manufacturing of aerospace related technologies and vehicles.

For more click here! https://www.aerospace-technology.com/projects/kc-100-naraon-aircraft/

Drones light up Seoul´s sky

“Thanks to you”

“Cheer up, Republic of South Korea”

“Washing hands”

“Keep 2 meter distance from others”

On July 4th around 400 drones flew over the Han River in Seoul Metropolitan City. The drones were programmed to displayed different messages showing support to health workers during the coronavirus pandemic and messages reminding people of precautionary measures against the spread of the virus. The government-organized event was not advertised in consideration of social distancing rules.

Source:
https://www.koreatimes.co.kr/www/nation/2020/07/510_292540.html

You can watch the performance in the following link!

https://www.youtube.com/watch?v=5ebpM-22Go4

END OF THIS SECTION

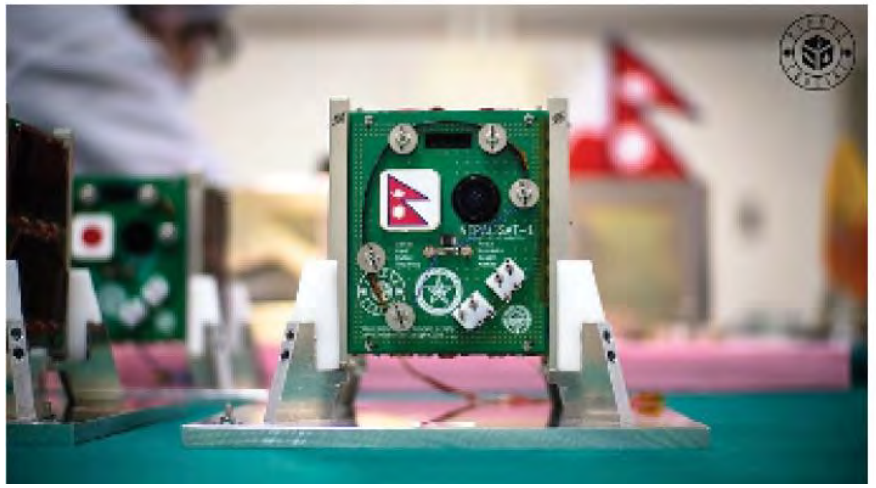
22. Report from Nepal

NAST (BIRDS) GROUND STATION OUTREACH ACTIVITIES

Dibodh Lamichhane
Research Assistant
Nepal Academy of Science and Technology (NAST), Nepal
11 August 2020

BIRDS-3 Satellites Operation

After a long 3.5-month lockdown of Corona Pandemic, the ground station at the Nepal Academy of Science and Technology began receiving telemetry(CW) data from BIRDS -3 working with KyuTech for daily operation reporting. In addition to daily ground station activities, NAST Ground Station is also able to receive APT-Automatic Picture Transmission Images from the weather satellite and international space station. It is interesting experience for NAST Ground Station to receive Such Signal



NepaliSat-1.
Pc.BIRDS-3,KyuTech

First Activity: Receiving weather images of Nepal and other South Asian Countries:

NOAA- 19 satellite is transmitting Automatic Picture Transmission signal on 137.100 Mhz with bandwidth of 38KHZ. Different Armature Radio operator receive this signal and get reduced resolution images. We in NAST Ground Station uses BIRDS VHF antenna along with RTl-SDR, HDSDR software, Satpc32 software and image Processing software wxtoimg is used to get reduced resolution images.

Outreach Activities

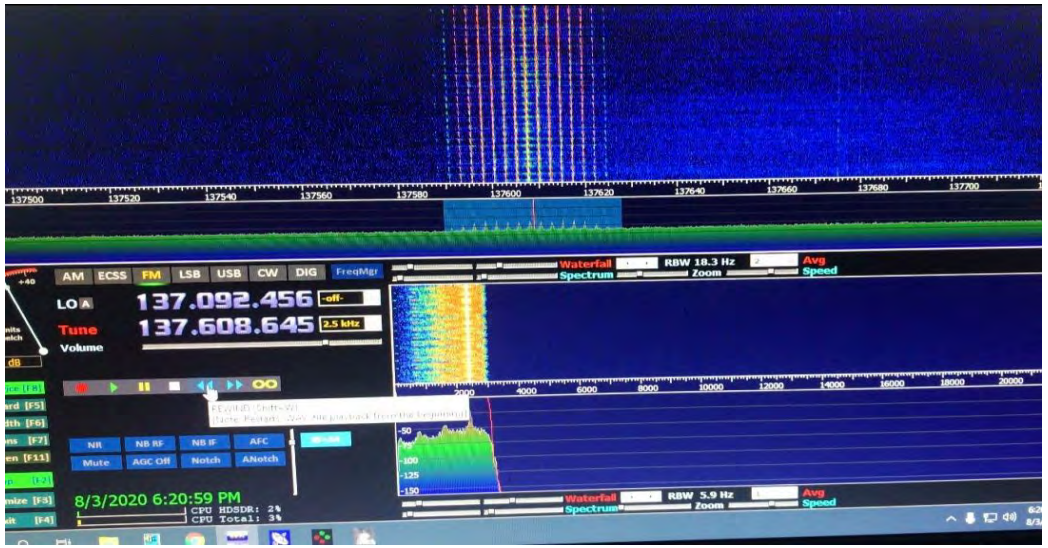
RTL-SDR: it is Cheap and simple electronics computer based radio scanner for receiving signal from NOAA-19 satellite

HD-SDR Program: it is freeware computer based digital signal processing software for RTl-SDR.

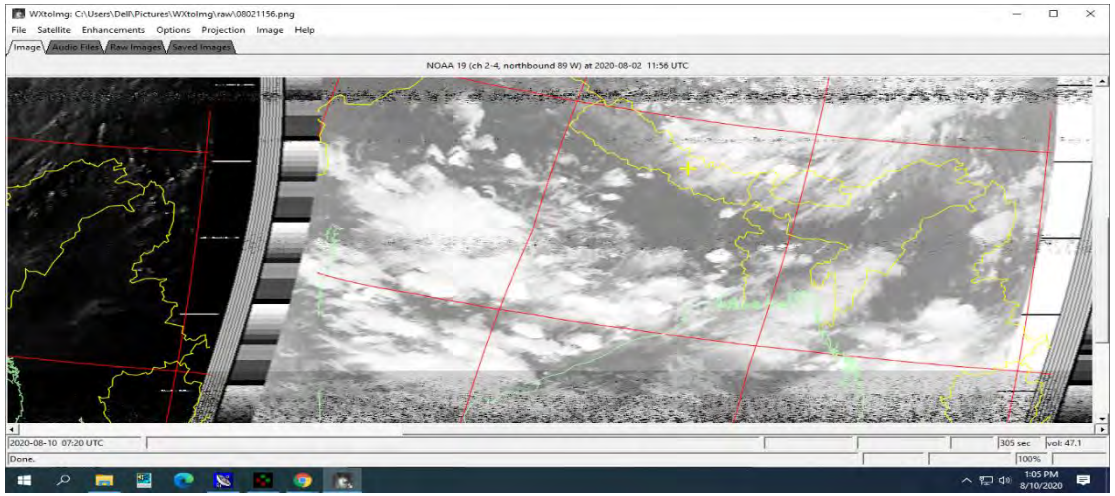
SATpc-32: Satpc-32 displays the audibility areas of satellites within a world map, shows the results in the text lines below the map. It support to steer the VHF Yagi antenna and radio frequencies for Doppler correction.

WXtoImg: It is Fully Automated weather Satellite recording, decoding, editing and viewing software. It Supports map overlays, advanced color enhancement, 3-D images and multi pass images.

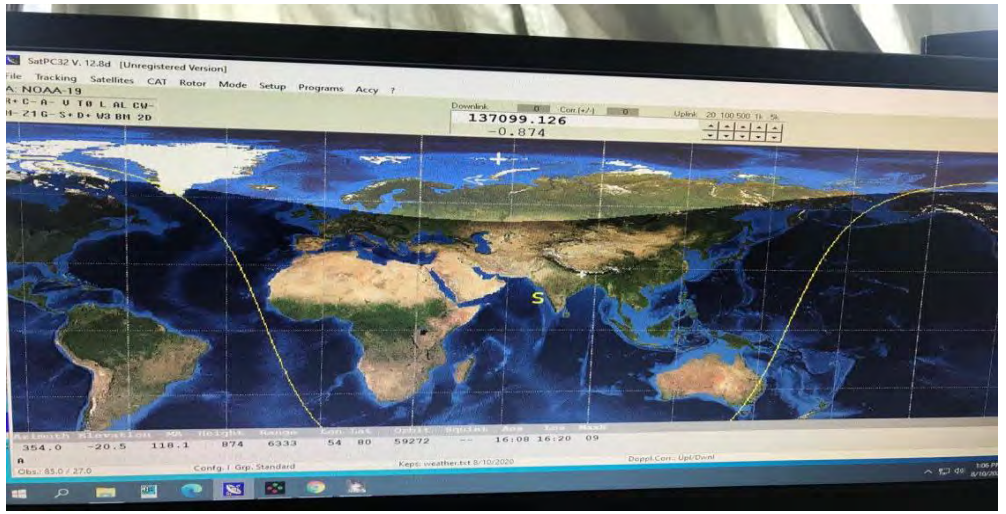
BIRDS VHF Antenna at NAST, used for receiving signal from Satellite NOAA-19



HD SDR software receiving Automatic Picture Transmission Signal

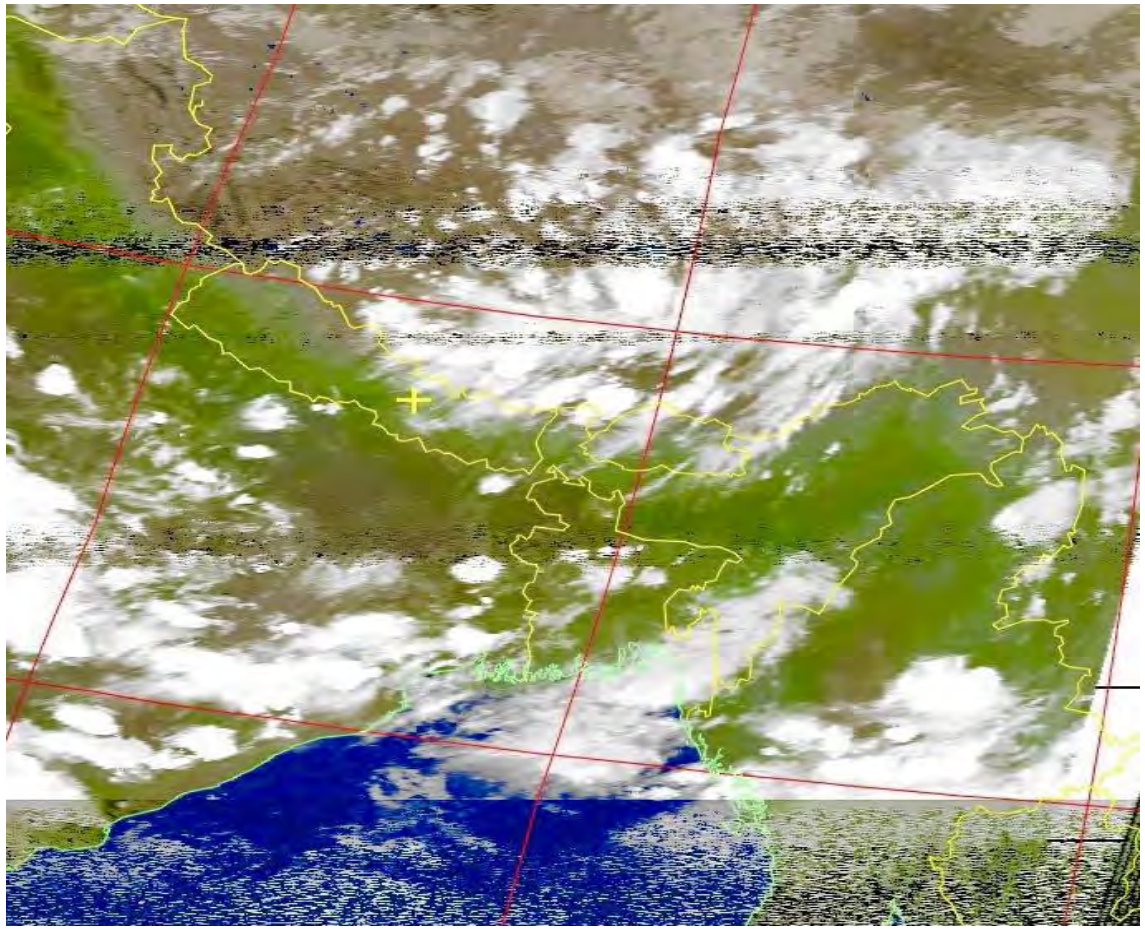


WXTOIMG image Processing Software with Raw Images of Nepal



SATPC-32 Software for Doppler correction and antenna Steering

Outreach Activities



Nepal along with South Asian countries India, Bhutan, Bangladesh, Myanmar along with Bay of Bangal is observed. Cloud is hovering around eastern and central Nepal

Outreach Activities

- **Second Outreach Activities**:
- Receiving Slow Scan Television images from International Space station.

July 17, 1975. Just shy of the sixth anniversary of the first Moon landing, the culmination of the space race between the United States and the Soviet Union, an American spacecraft docked with a Soviet capsule in Earth orbit as part of the Apollo-Soyuz Test Project (ASTP).During two days of docked operations, crewmembers from the two former competitors opened the hatches between the two spacecraft, shook hands, shared meals, held press conferences, and conducted joint science experiments.
In this 45 Anniversary of this historical event Russian cosmonauts transmitted amateur radio slow scan Tele

vision images from International Space Station. Signal was transmitted in 145.800MHZ with power of 25 Watt taking about maximum bandwidth of 3KHZ. Historical Static color Images were received which through VHF antenna which took about couple of minutes to download single image.

Astronaut Thomas P. Stafford (in foreground) and Cosmonaut Alexey A. Leonov make their historic handshake in space on July 17, 1975. *credit: NASA*

Outreach Activities

3rd and 4th SSTV images received among 12 images with call sign of RS0ISS

Very Thankful to Sir Apiwat Jira (Kyushu Institute of Technology) for Kind Support and motivation in such activities. His support is very important to NAST from setup of Ground Station for BIRDS-3 Project. This Activities motivated myself for Amateur radio communication & designing of Antennas for Student Outreach activities at different school and Colleges.

Thank you.

END OF REPORT FROM NEPAL

Indonesian Space Technology Developments

by B. H. B. Pangestu, 11 August 2020
(incoming SEIC/PNST student of Indonesia)

See his self intro: Pages 27-33
Issue No. 53, BIRDS Project Newsletter

The Indonesian Space Technology Developments | 2020

The Developers

LEMBARAN NEGARA
REPUBLIK INDONESIA

No.80, 2017 Wilayah. Keantariksaan. Penyelenggaraan. Rencana Induk. 2016-2040.

PERATURAN PRESIDEN REPUBLIK INDONESIA
NOMOR 45 TAHUN 2017
TENTANG
RENCANA INDUK PENYELENGGARAAN KEANTARIKSAAN
TAHUN 2016-2040

DENGAN RAHMAT TUHAN YANG MAHA ESA

PRESIDEN REPUBLIK INDONESIA,

Menimbang : bahwa untuk melaksanakan ketentuan Pasal 40 Undang-Undang Nomor 21 Tahun 2013 tentang Keantariksaan perlu menetapkan Peraturan Presiden tentang Rencana Induk Penyelenggaraan Keantariksaan Tahun 2016-2040;

Mengingat : 1. Pasal 4 ayat (1) Undang-Undang Dasar Negara Republik Indonesia Tahun 1945;
2. Undang-Undang Nomor 21 Tahun 2013 tentang Keantariksaan (Lembaran Negara Republik Indonesia Tahun 2013 Nomor 133, Tambahan Lembaran Negara Republik Indonesia Nomor 5435);

MEMUTUSKAN:

Menetapkan : PERATURAN PRESIDEN TENTANG RENCANA INDUK PENYELENGGARAAN KEANTARIKSAAN TAHUN 2016-2040.

Pasal 1

Rencana Induk Penyelenggaraan Keantariksaan Tahun 2016-2040 yang selanjutnya disebut Renduk Keantariksaan 2016-

The space technologies development are based on ***The Indonesian National Space Master Plan*** (Presidential Regulation No. 45 of 2017).

The R&D is ***primarily*** done by ***LAPAN***, and followed by other research institutions, military and universities.

KOMURINDO-KOMBAT is ***biennial*** national competition on ***EDF Rocket*** and ***Radiosonde payload*** from both ***Atmospherics Balloon*** and ***Sounding Rocket*** for University ***Student*** in order to ***encourage*** more students in the ***space*** field ***research and development***.

LAPAN

SURYA UNIVERSITY

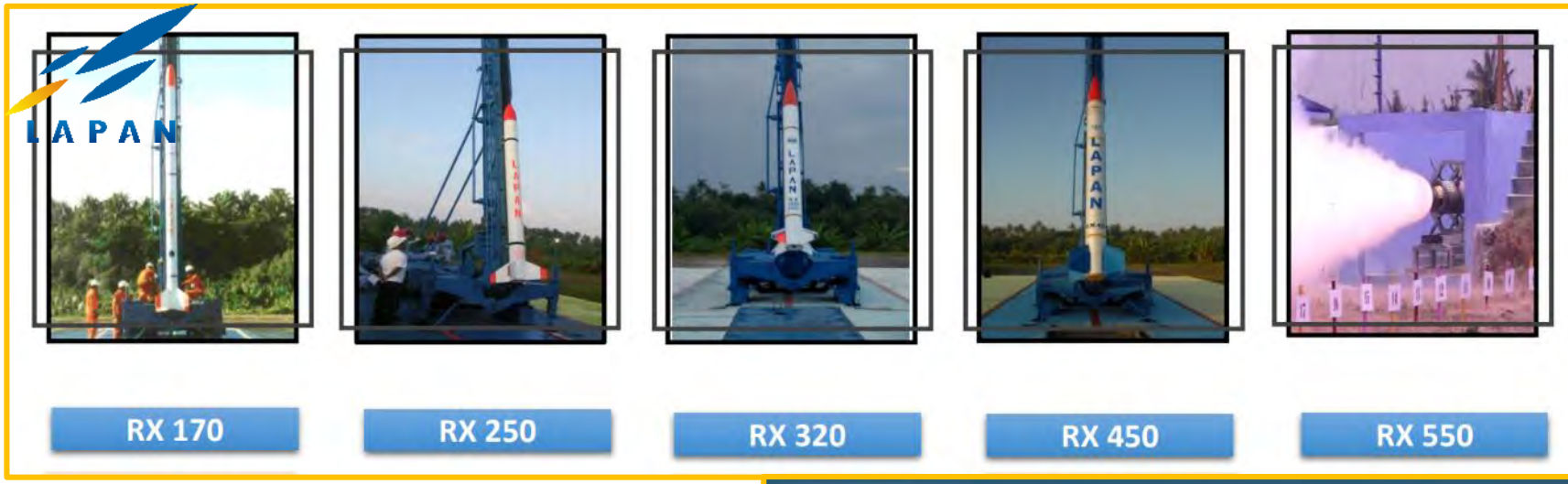
Telkom University

INSTITUT TEKNOLOGI BANDUNG 1920

KOMURINDO-KOMBAT 2020 - 2021

https://komurindo-kombat.lapan.go.id/

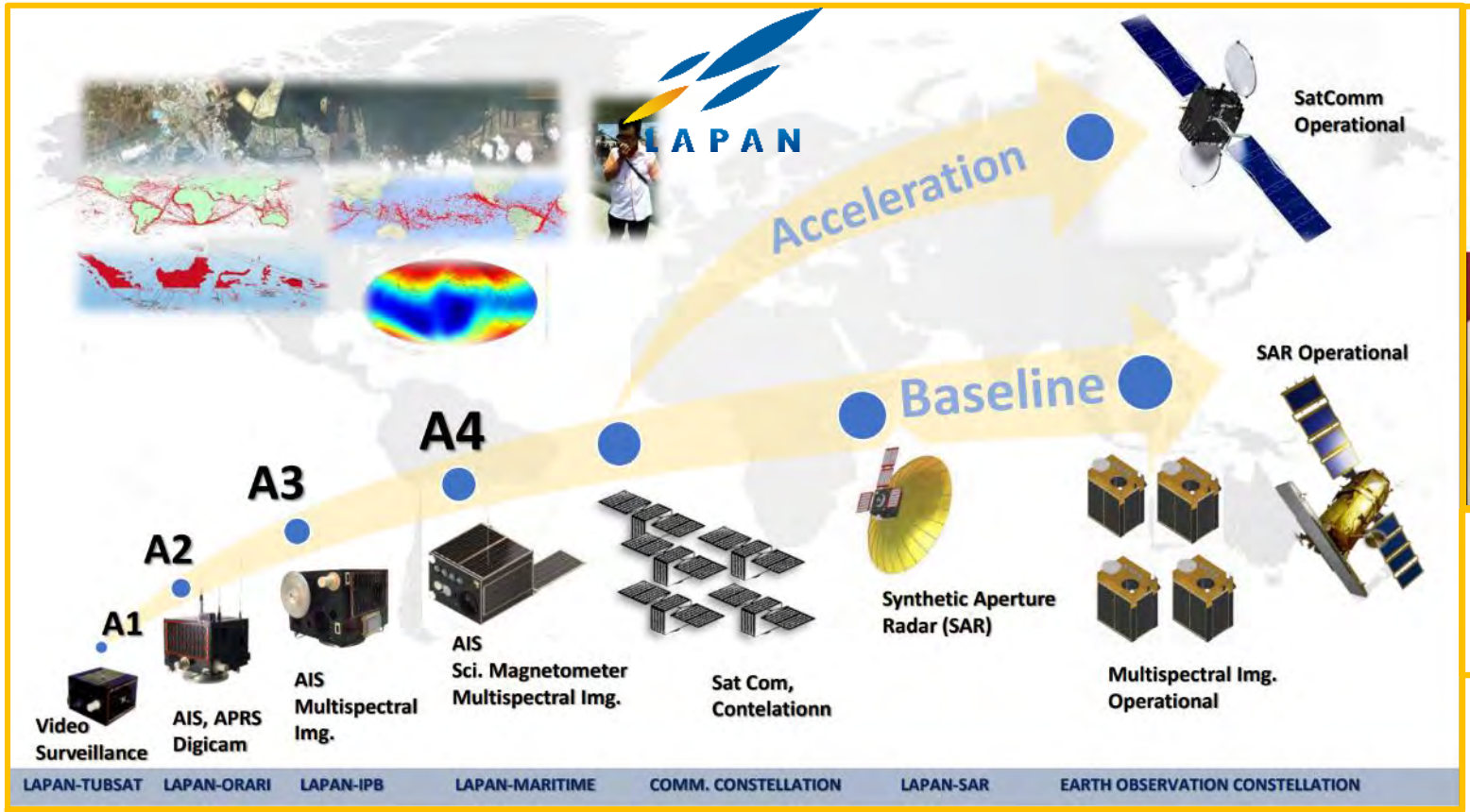
Launch Vehicle Developments



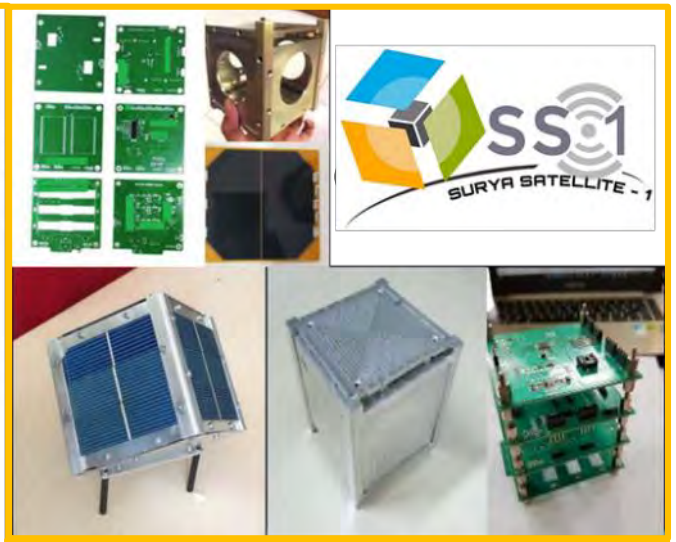
LAPAN Rocket Technology Center development progress. Currently, focused on ***Sounding rocket*** technology.

Indonesian Armed Forces is also actively involved in the research and development of rocket technology.

Spacecraft Developments



LAPAN Satellite Technology Center development plan. Currently, focus on ***small satellite*** technology.



Surya University's Satellite planned to launch with ***KIBO***.

Telkom University Cubesat Project

Recent Developments


SNI

Standar Nasional Indonesia

SNI 8804:2019

Sistem keantariksaan – Satelit kubus (*CubeSat*)

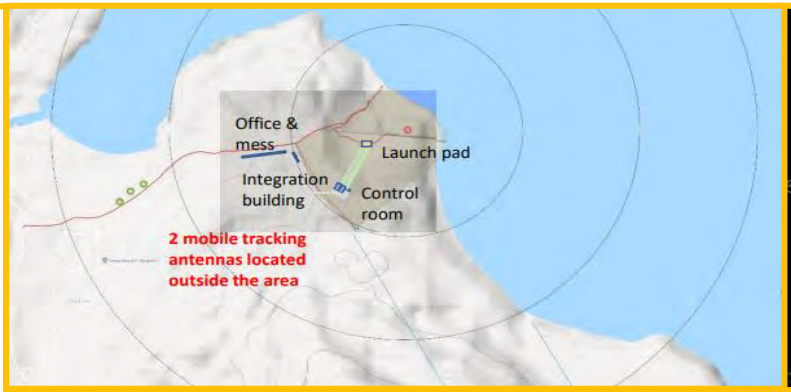
(ISO 17770:2017(E), MOD)

More detail at

http://pesta.bsn.go.id/produk/detail/12590-sni88042019

ICS 49.140

BSN BADAN STANDARDISASI NASIONAL

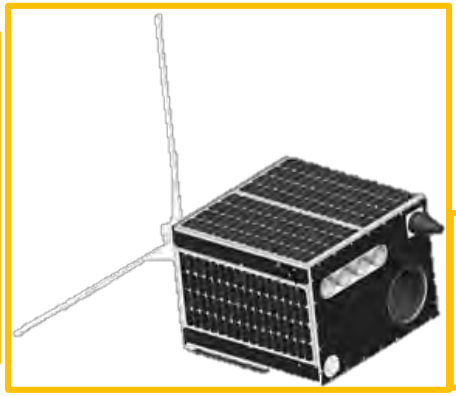


Design Concept of Indonesian ***Spaceport Facility***.

Proof of Concept of ***LEO SatComm Constelation*** for Indonesian Disaster Monitoring & Mitigation.

https://youtu.be/a_Amok-LKTI

CubeSat Standard for Indonesian Developers.

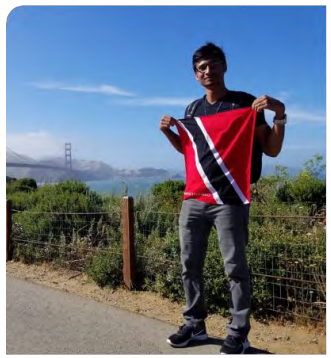


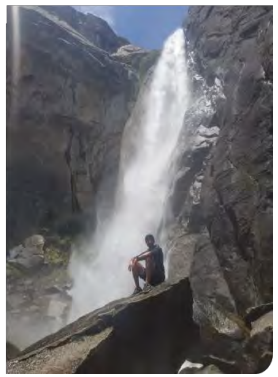
LAPAN-A4 is scheduled to be ***launched in 2021***.

END OF REPORT #2 FROM INDONESIA

24. The Joy of Cooking as shown by Keenan of BIRDS-5

I encourage all students to learn to cook more at home – because it is more nutritious and economical for you. *Here are some cooking ideas for tonight.* The Editor





Keenan Chatar is a PNST Fellow. He is a member of BIRDS-5 (doing "BIRDS Nest") and he hails from Trinidad. See his self introduction on pages 63-67 in Issue 54 of the *BIRDS Project Newsletter.*

← Cheese omlette with butter toasted bread

← Crispy garlic potatoes with grilled chicken and fresh salad

CONT'D ON THE NEXT PAGE

← Spaghetti and Chicken Marinara

← Spaghetti Bolognese

← Spaghetti Carbonara

Great Cooking Ideas for Tonight !

Stew chicken and red beans with rice →

Stewed chicken with mashed potatoes and fresh salad →

Taco Rice →

COMMENTS FROM KEENAN

I like to cook for myself because it is a skill that I will need in the future. It's a bit time consuming but I believe it's important to take some time to learn it. I mainly cook large meals on weekends that usually last about 2-3 days worth of meals. I usually find interesting meals that are simple and can usually make in large batches. I like pasta dishes because making pasta is quite simple. I recently obtained a rice cooker so now I can try other options.

I consider myself quite the novice cook and I make many mistakes and ruin several dishes. But, I would much rather make mistakes by myself than if I tried cooking for a group of my friends and I embarrassed myself. I try cooking dishes from my homeland whenever I miss my country. I use **YouTube** to find new recipes that I find interesting and I can also follow along in the videos.

Some cooking tips!

① Buy a GOOD chef knife and always keep it sharp (dull knives cause injury)

② Buy a cutting board for your knife

③ Start with simple meals (1 meat, 1 vegetable, 1 starch/grain)

④ Take pictures of your progress, you'll be amazed how far you can go in only a few months

⑤ Share pictures with your friends and family. They are your biggest supporters and will give you the confidence to continue

⑥ Seasonings and spices are your friends, buy many, and apply liberally.

Kind Regards,
Keenan Chatar
14 August 2020

BIRDS-3 Ground Station Uplink Competition

by: Tharindu Dayarathna

15 August 2020

Background of the competition

After the BIRDS-3 satellites deployment Kyutech GS was able send uplink commands successfully to all BIRDS-3 satellites. Then after 2 weeks Sri Lankan ACCIMT ground station was also able send uplink commands to the satellites.

Since Sri Lankan ground station could already send uplink, BIRDS-3 team decided to encourage other BIRDS ground stations to do the same.

After discussion in BIRDS-3 team, we decided to launch this competition. And competition was announced to BIRDS ground station network on 7th July, 2019.

Winner trophy

Participants in this competition

1. Bhutan
2. Bangladesh
3. Malaysia
4. Philippine
5. Nigeria
6. Ghana
7. Nepal
8. Mongolia
9. Thailand
10. Thaiwan


Japan


Ghana


Bangladesh


Mongolia


Thailand


Malaysia


Philippines


Bhutan

Winners

1st Place - Thailand

Apiwat receiving trophy from Prof. Cho.

2nd Place - Mongolia

Togi receiving trophy from Prof. Cho.

3rd Place - Bhutan

Dawa phusum receiving trophy from Prof. Cho.

Since Sri Lankan ground station had already sent uplink commands before the competition, they received special trophy.

Tharindu receiving trophy from Prof. Cho.

All photos of this page were taken on 20 January 2020, the final day of 3GSWS, the *3rd Ground Station Work Shop* held at Kyutech, Japan.

Certificates of recognition given to ACCIMT and two of its engineers in terms of this competition

END OF THIS SECTION

26. Dr. Pom becomes head of INSTED in Thailand

11 Aug. 2020

INSTED

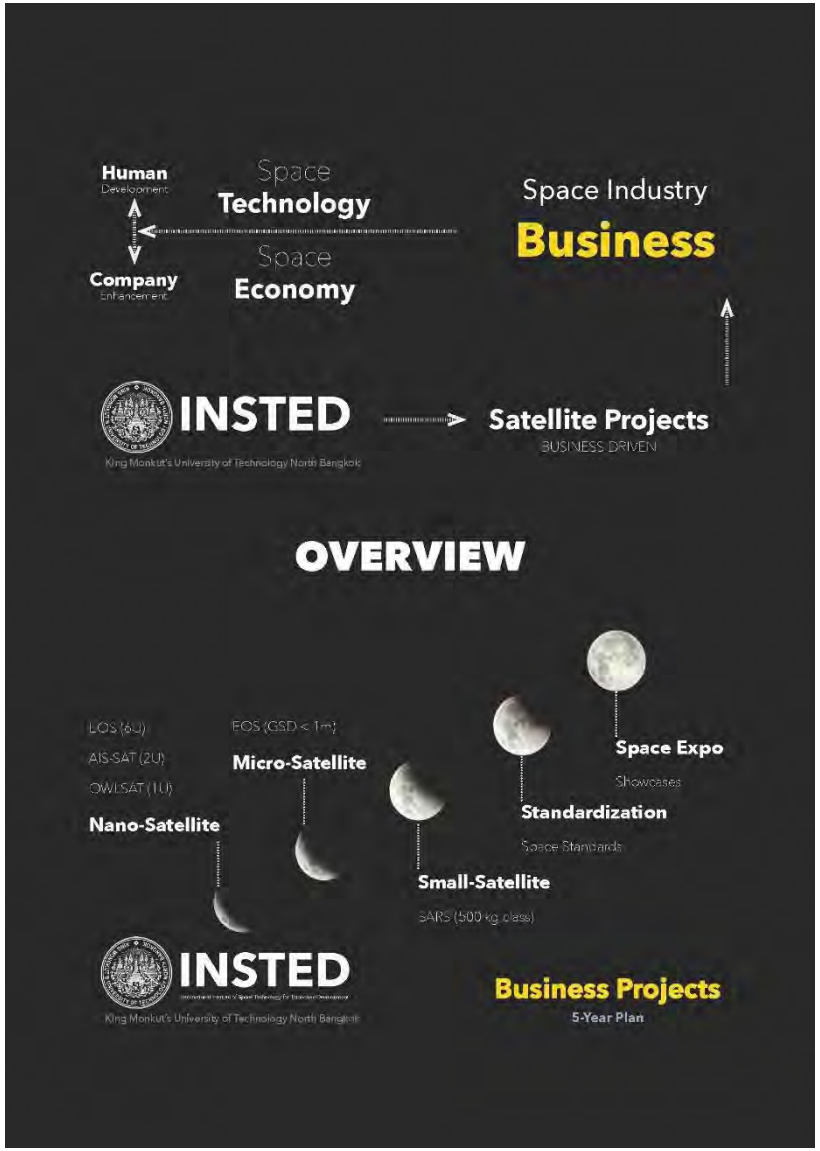
International Institute of Space Technology for Economic Development

International Institute of Space Technology for Economic Development (INSTED) has been established under King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand in 2020. INSTED believes that there are unlimited possibilities and potential value creations from space. Space education, technology, innovation, and utilization are crucial to develop Thailand's competitiveness. Possessing space technology capabilities from upstream to downstream can now be realized, developed, and implemented locally. With a strong ambition and full supports by KMUTNB, INSTED drives toward building the space industry in Thailand and partnerships with international space organizations.

The primary purpose of INSTED is to build a network of space technology personnel and organizations in Thailand through business-driven projects. INSTED is co-developing space-related projects with our partners domestically and internationally to utilize the space technology to meet the organization and end-user demands. With this business-led strategy, INSTED provides the industry with the necessary knowledge and skills to develop commercial or innovative products and services. Besides, INSTED offers space environment testing services to ensure that the products are space-proven and meet space standards. Most importantly, INSTED supports the industry concerning domestic and international space regulations.

INSTED currently collaborates with the local companies in Thailand to develop our satellite manufacturing supply chain. We work very closely with universities, research and technology institutes, and multi-disciplinary experts worldwide for technology transfer and consultation. INSTED is open for collaborative research activities, knowledge and personnel exchanges for technological capabilities enhancement.

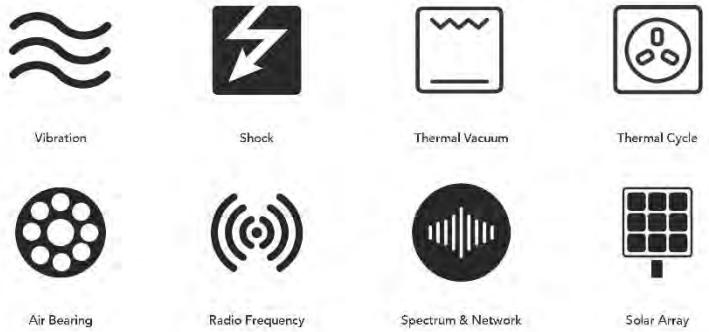
For more information, please contact Dr. Phongsatorn Saisutjarit (Acting Director, INSTED) at phongsatorn.s@eng.kmutnb.ac.th.



International Institute of Space Technology for Economic Development (INSTED) was established at King Mongkut's University of Technology North Bangkok (KMUTNB), Thailand, in 2020.

Dr Pom, long-time member of the BIRDS Network, is serving as its first director.

CONTINUED ON THE NEXT PAGE



สถาบันเทคโนโลยีอวกาศนานาชาติเพื่อการพัฒนาเศรษฐกิจ (สทอศ.)
INSTED
International Institute of Space Technology for Economic Development

Dr. Phongsatorn Saisutjarit
Acting Director

King Mongkut's University of Technology North Bangkok
1518 Pracharat 1 Rd., Wongsawang, Bangsue
Bangkok 10800 THAILAND
Tel. +66-2555-2000 Ext. 2077
Fax. +66-2587-4350
Email. phongsatorn.s@eng.kmutnb.ac.th

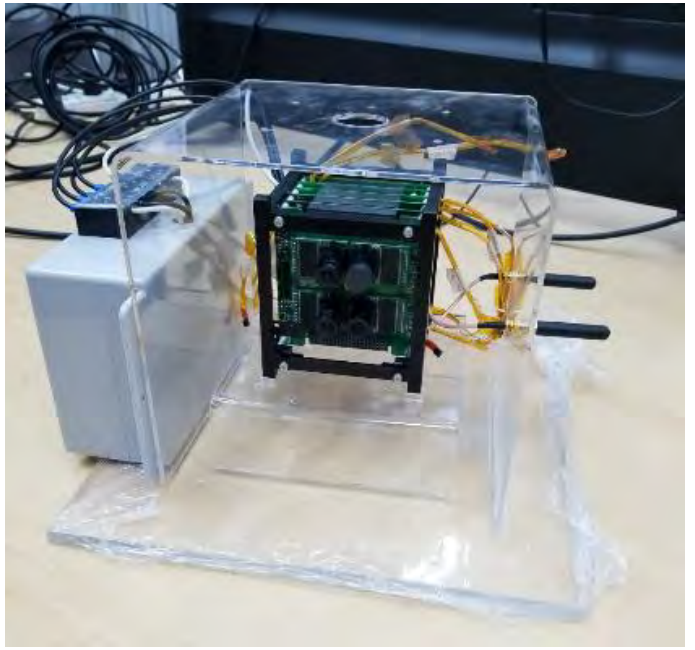
Dr. Phongsatorn explained the Thai made CubeSat component to guest from Thailand Defense Industry Society

Images by Apiwat J.

Dr. Phongsatorn Saisujarit
– Acting Director of INSTED –
giving an introduction about INSTED to visitors.

END OF THIS SECTION

CubeSat Engineering Model



Activities at VNSC

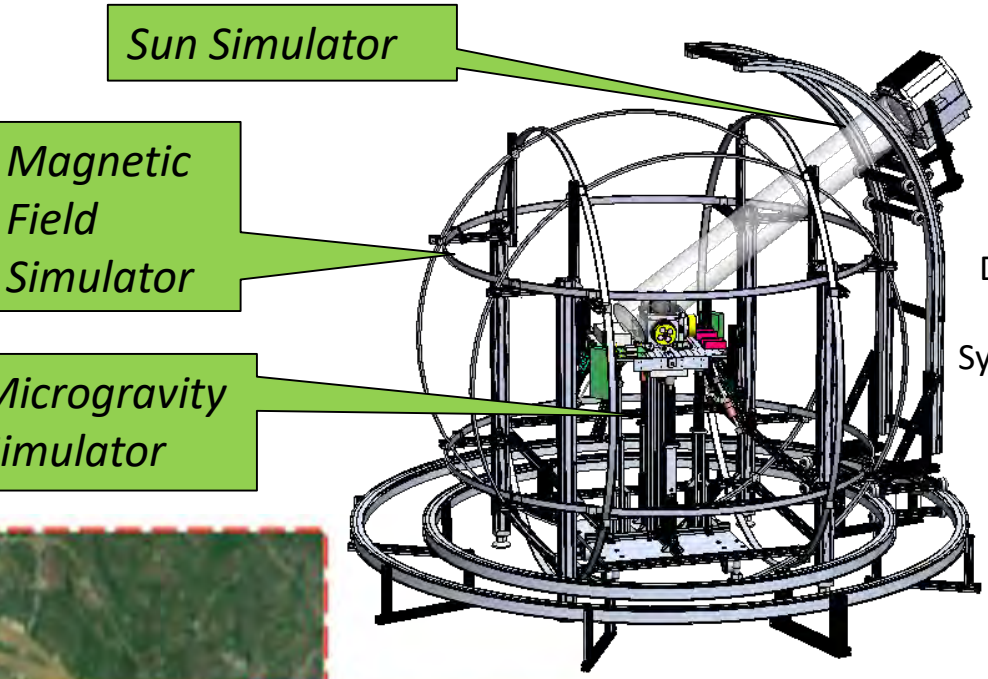
Vietnam National Space Center
https://vnsc.org.vn/en/

written for *BIRDS Project Newsletter*
Kyushu Institute of Technology
Japan

by Minh A. Pham, VNSC
13 Aug 2020

NanoDragon's Primary Mission

The primary mission of NanoDragon is to validate the Attitude Determination and Control System Simulator (ADCSS) system performance. A RGB camera shall be integrated on NanoDragon satellite to support the final step. Satellite shall take pictures of a certain place on ground. Ideally, the intended place should be the center of taken picture which means absolute accurate. From the distance between center of taken picture and the intended observation point on map we can estimate pointing accuracy of ADCS system. The validation process may be repeated multiple times to select optimal parameter for the best ADCS performance.



Attitude Determination and Control System Simulator (ADCSSS)

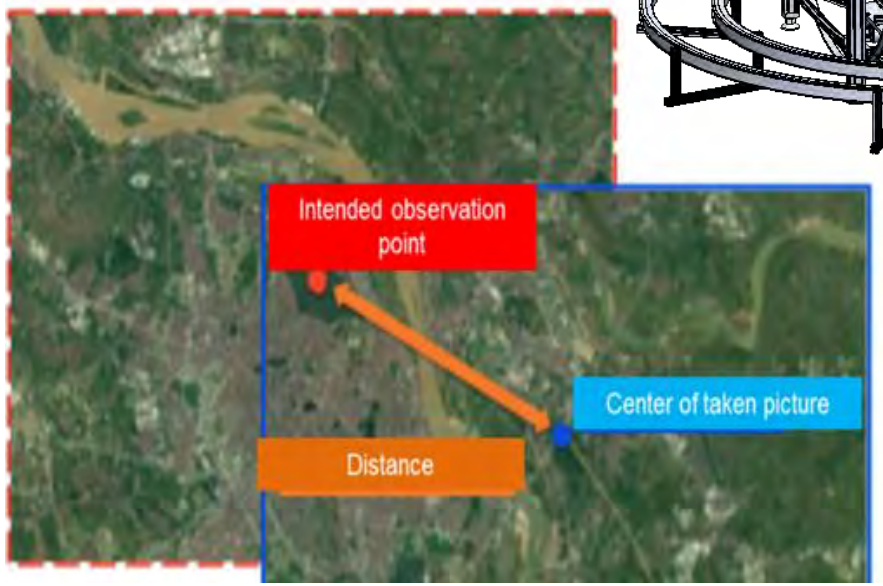
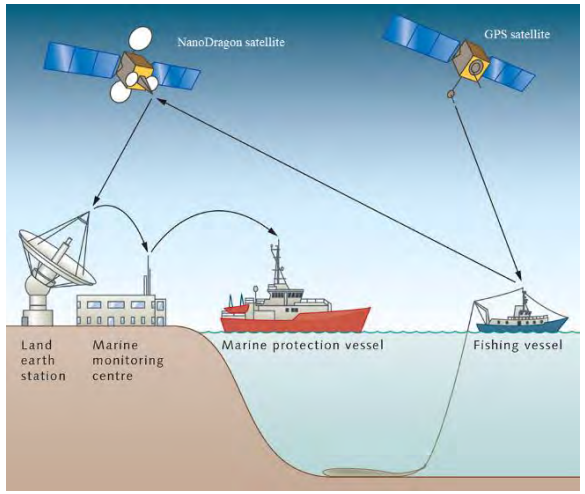


Image processing to see the difference between the taken image and the targeted image

NanoDragon's Secondary Mission

The second mission of NanoDragon is supporting and enhancing the effectiveness of Automatic Identification System (AIS) for vessel tracking and fleet monitoring. VNSC plans to use multiple of low cost Nano satellites to solve this problem starting with NDG. Vietnam has to monitor and control a very large ocean territory where many local and international vessels are navigating. Maritime economy provides more than 50% of overall Vietnamese GDP. However, higher number of vessels with higher tonnage means higher risks like accident, abduction, environmental pollution… and so on. From 2010 to 2015, there were 3967 accidents which cause 470 deaths, 442 man lost and 935 injured persons (according to Vietnamese National Committee for Rescue and Search Work). This situation leads to the need of using a vessel monitoring system in Vietnam.

Tradition AIS system in Vietnam

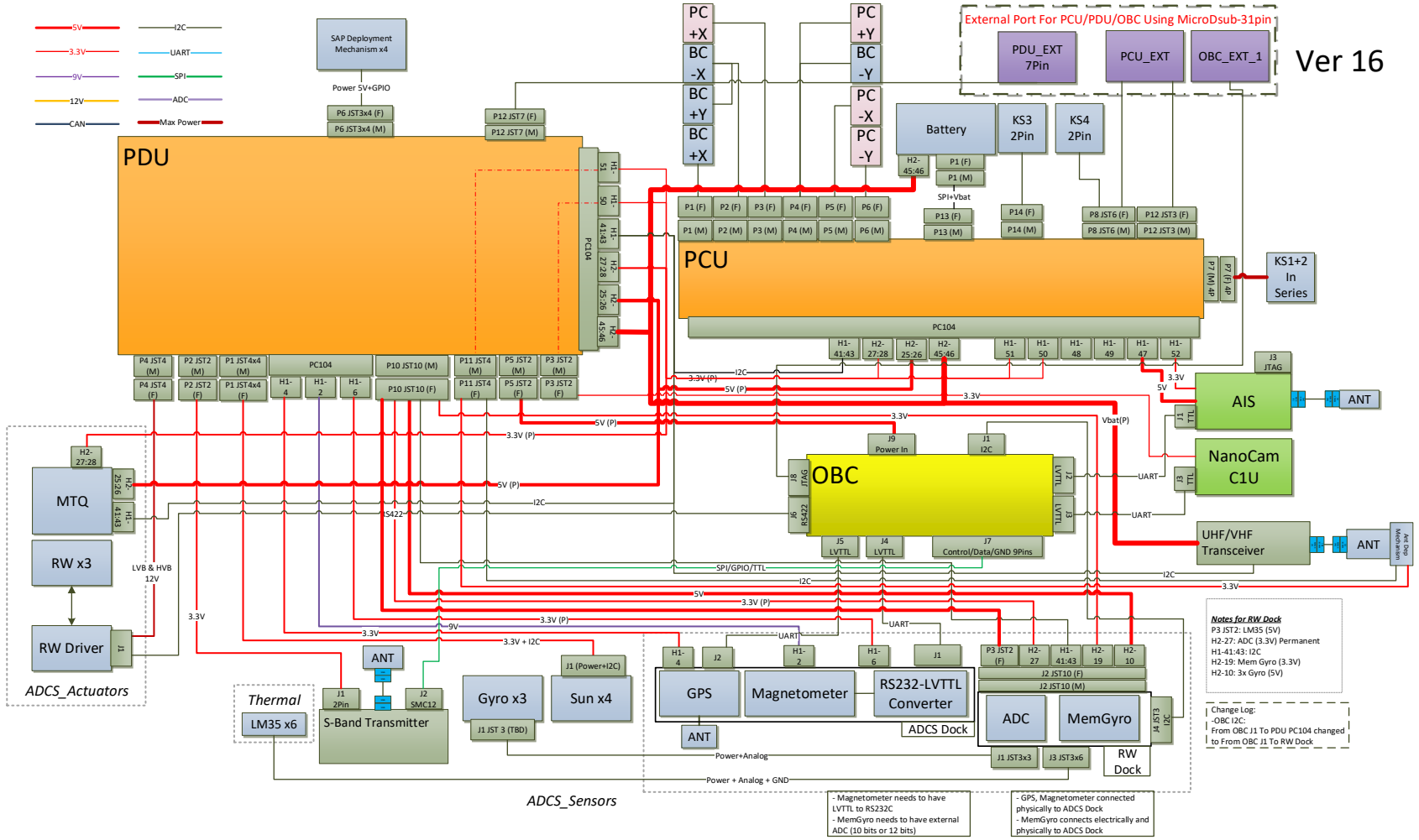


Additional AIS system with NanoDragon satellite

Current Vietnamese infrastructure only covers A2 area (incomplete). In order to enhance monitoring capability, a constellation of satellites with AIS (Automatic Identification System) receiver may be very valuable. With current technology, such a receiver can be integrated on a nano class satellite to reduce developing time and cost. The receiver should be a part of AIS system, which also include ground infrastructure. AIS is a high accuracy temporal and spatial monitoring system for maritime navigation control.

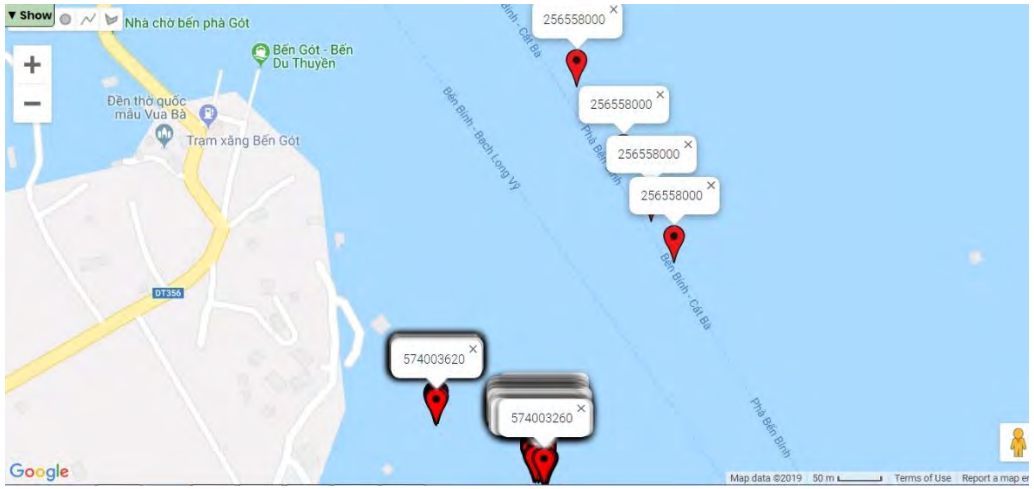
NanoDragon System Architecture

- Payload subsystem is composed of a NanoCam C1U camera that may take colored pictured with ground resolution about 70m from designated orbit and an AIS receiver class A.
- Attitude Stability: exposure time is less than 1/200 section => needs low-light sensitivity. That leads to 0.52 deg/s stability required for ADCS subsystem.
- Pointing Accuracy: wide FOV and high spatial resolution (<200m) to position easily targets in images



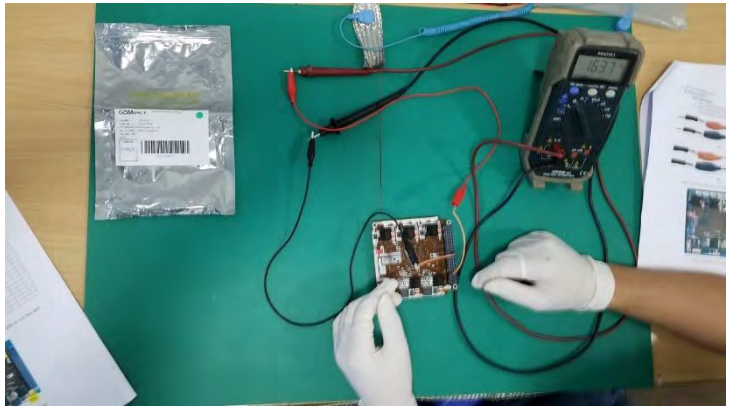
System Architecture

NanoDragon Functional Verification

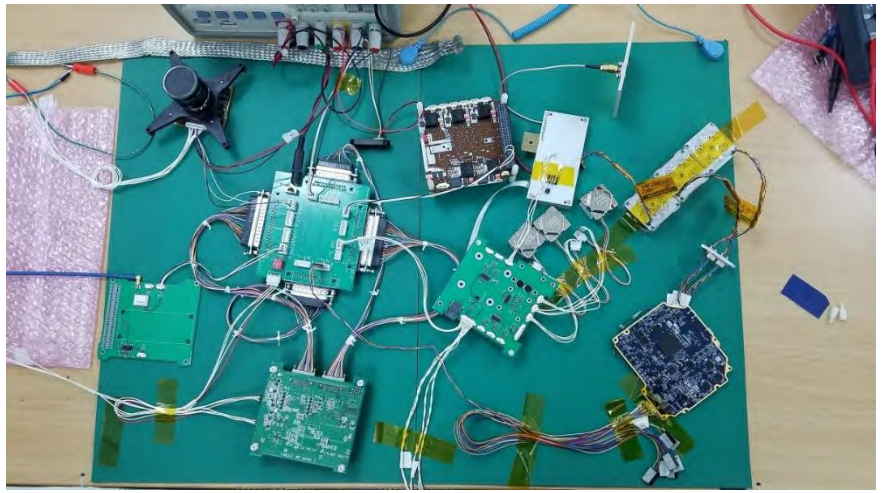


We conducted the field test for collecting the AIS data from the vessel near to the Hai Phong city. After post-data processing, we compared with the data from the AIS base station

END OF THIS REPORT FROM VIETNAM



Individual Component Test for Power Control Unit



Electrical Integration Test

28. Report from Femi: Small satellites and optical communications

Small Satellites
Optical Communications Research

Femi Ishola (Engr.)

Laboratory of Lean Satellite Enterprises & In-Orbit Experiments

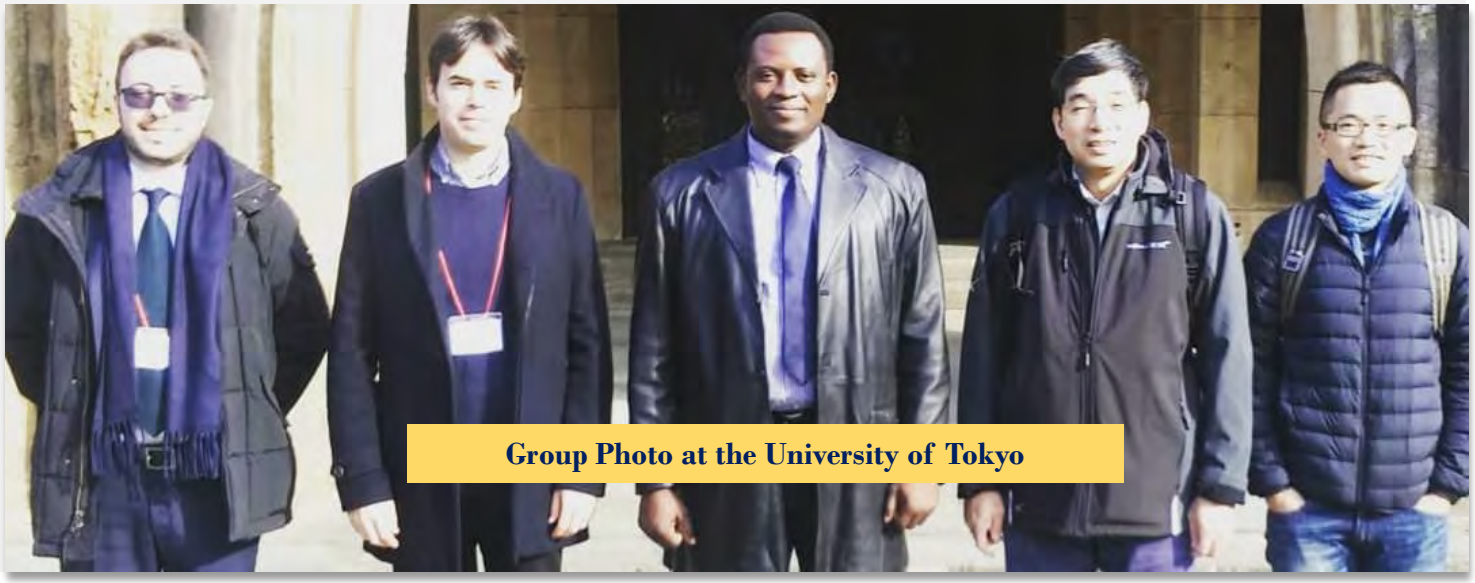
Kyushu Institute of Technology, Japan.

14 August, 2020

Femi Ishola

Recently, I joined a team of researchers at the Space Communications Laboratory, Wireless Networks Research Center of the National Institute of Information and Communications Technology (NICT) as a Visiting Collaborative Researcher. The Laboratory of Lean Satellites and In-Orbit Experiments, LaSEINE, Kyutech has commissioned a joint project with NICT on developments of laser communication systems and technologies for small satellites and unmanned airborne platform. The merger of experience and diverse expertise offers very promising outputs.

The proliferation of small satellites is accelerating so also is the mission requirements and performance demands from them increasing. Communications-TT&C unit is a critical subsystem often tied to the limits, capabilities and outcome of a satellite mission. Generally, most CubeSats operates between few Kbps to some Mbps due to RF band frequencies and platform's size, weight and power (SWaP) constraints. Introducing optical communication systems into small satellites lifts the potentials and connection speed exponentially. With very high gain transmitting optics, low divergence laser beam and agile optical ground system, extremely high data rates becomes feasible with smaller onboard components. However, Lasercom is plagued by beam pointing difficulties, atmospheric scintillation and absorption problems; indeed they are the worthy and formidable opponents we really want to vanquish!



Group Photo at the University of Tokyo

The Space Communications Laboratory at NICT has a mandate to drive the implementation of integrated space-ground network that enhances the usage of space big-data by utilizing Optical and Ka-band satellite technologies. NICT morphed from the merger of previous research organizations actively involved in the development of satellite optical link technologies since the early days. A number of the previous larger Japanese Engineering Test Satellites (ETS) featured unique Lasercom technologies and demonstrations. Recent trend now involves the use of small satellite platforms e.g. VSOTA. In March 2020, SOLISS, a bidirectional 100Mbps Ethernet Laser communication link between International Space Station and NICT Optical Ground Station was successfully demonstrated transmitting HD images.

Illustration of SOLISS Optical Link

1970s-	Studies on horizontal propagation of lasers on the ground
1984	Transmission experiments between the ground and a satellite using a vidicon camera aboard ETS-III
1985	The world's first experiment of 0.5 μm wavelength laser transmission to GMS
1988	Carbon dioxide laser (wavelength:10.6 μm) transmission experiments
1994 - 1996	The world's first success in optical communications between ground stations and a satellite using the basic laser communication experimental equipment (LCE)
1989 - 2002	Observation of geodetic satellites (GMS, LAGEOS) using satellite laser ranging systems, and ADEOS (RIS) observation by carbon dioxide laser radar
2001	Success in H-IIA test flight laser ranging equipment (LRE) and ranging ADEOS2
2004	GOLEM (Ground-to-Orbit Laser transmission Experiments with MicroLabSat)
2006	OICETS("Kirari") Satellite-to-ground-station optical communications experiments

Brief History of Japan's Lasercom activities

Researchers at the NICT Space Communications Laboratory are a seasoned blend of experts pushing the boundaries of the domain. Equipped with state-of-the-art facilities and instruments, I'm inspired to be involved in the advanced optical communications research activities as LaSEINE-Kyutech and NICT collaborates!

The Director, **Dr. Morio Toyoshima** and his research staffs treated me to a delicious dinner in Tokyo!

Laser Beam Visible from the OGS

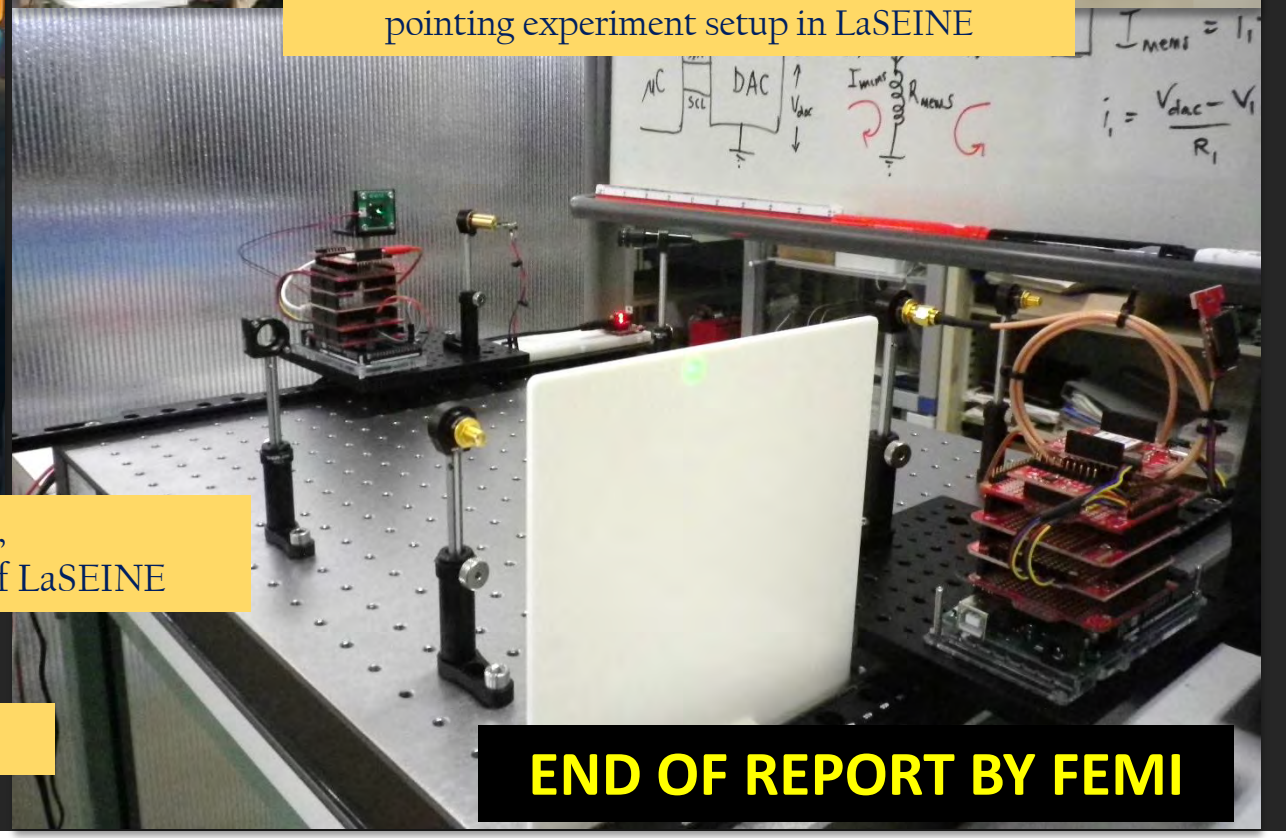
Close-Up View of OGS Telescope

Group Photo Inside the OGS Dome

External View of the 1.0m Telescope OGS

My PhD Supervisor,
Prof. Mengu Cho, Director of LaSEINE

Optical communication beam steering and pointing experiment setup in LaSEINE



BLOG http://femi.phemotron.com

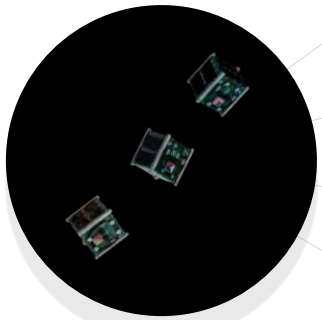
END OF REPORT BY FEMI

29. BIRDS-2: Health status on 14 August 2020 (735 days)

Article prepared by:

Muhammad Hasif Bin Azami

14th August 2020

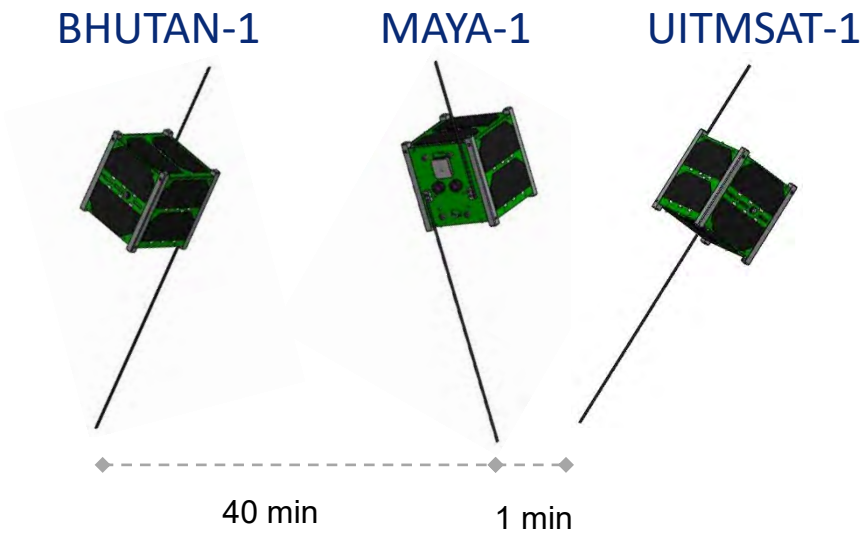


Battery voltage (V)**:** 4.24 [BT] /4.18 [PH] /4.20 [MY]
Battery temp. ($°C$): 7.8 [BT] /6.3 [PH] /6.3 [MY]

OBC temp. ($°C$) : 7.0 [BT] /5.0 [PH] /8.0 [MY]
COM temp. ($°C$) : 2.3 [BT] /0.3 [PH] /2.3 [MY]

Operator works
BT: CW & Uplink cmd
PH: CW & Uplink cmd
MY: CW, Uplink cmd & monitor APRS digipeater

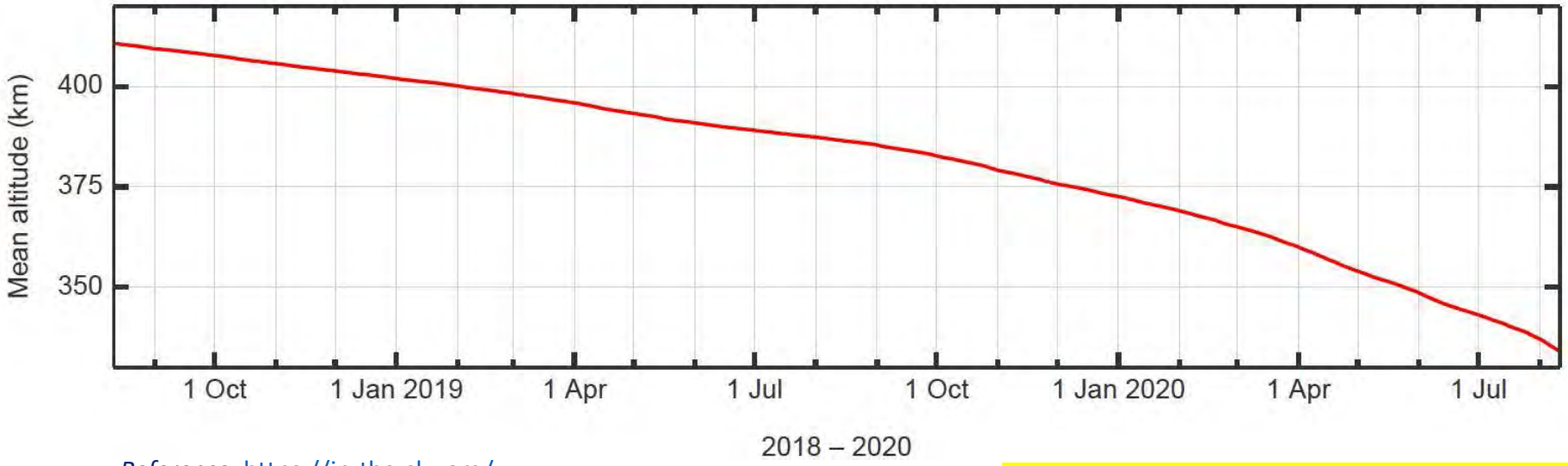
Status of GS
Kyutech: Operational
BT: Operational
PH: Operational
MY: Maintanence



Separation gap between 3 satellites

All 3 satellites are in very good health!

BIRDS-2 health status: Aug. 14th, 2020 (735 days)



Reference: https://in-the-sky.org/

Thank you very much for those who keep tracking the BIRDS-2 satellites!

Initial altitude of BIRDS-2 deployment (Aug. 10th, 2018): **410 km**

Current altitude of BIRDS-2 (Aug. 14th, 2020): **333 km**

Using the satellite orbital calculations*, the satellite will re-entry after **921.4 days.**

However, further analysis using STK software will be carried out to estimate the satellite deorbit time.

**Reference:* http://www.ips.gov.au/Category/Educational/Space%20Weather/Space%20Weather%20Effects/SatelliteOrbitalDecayCalculations.pdf/

30. Report from Paraguay

CApacity **BU**ilding in **RE**search & **I**nnovation For **S**pace

The "**CABURE+I 4S**" Project

Newsletter

News from Paraguay
15 August 2020

Contributors:
Members of
The CABURE+I 4S Project
Team

Edited by:
Blas Vega

FIUNA FPUNA UNG

Paraguay Space Agency

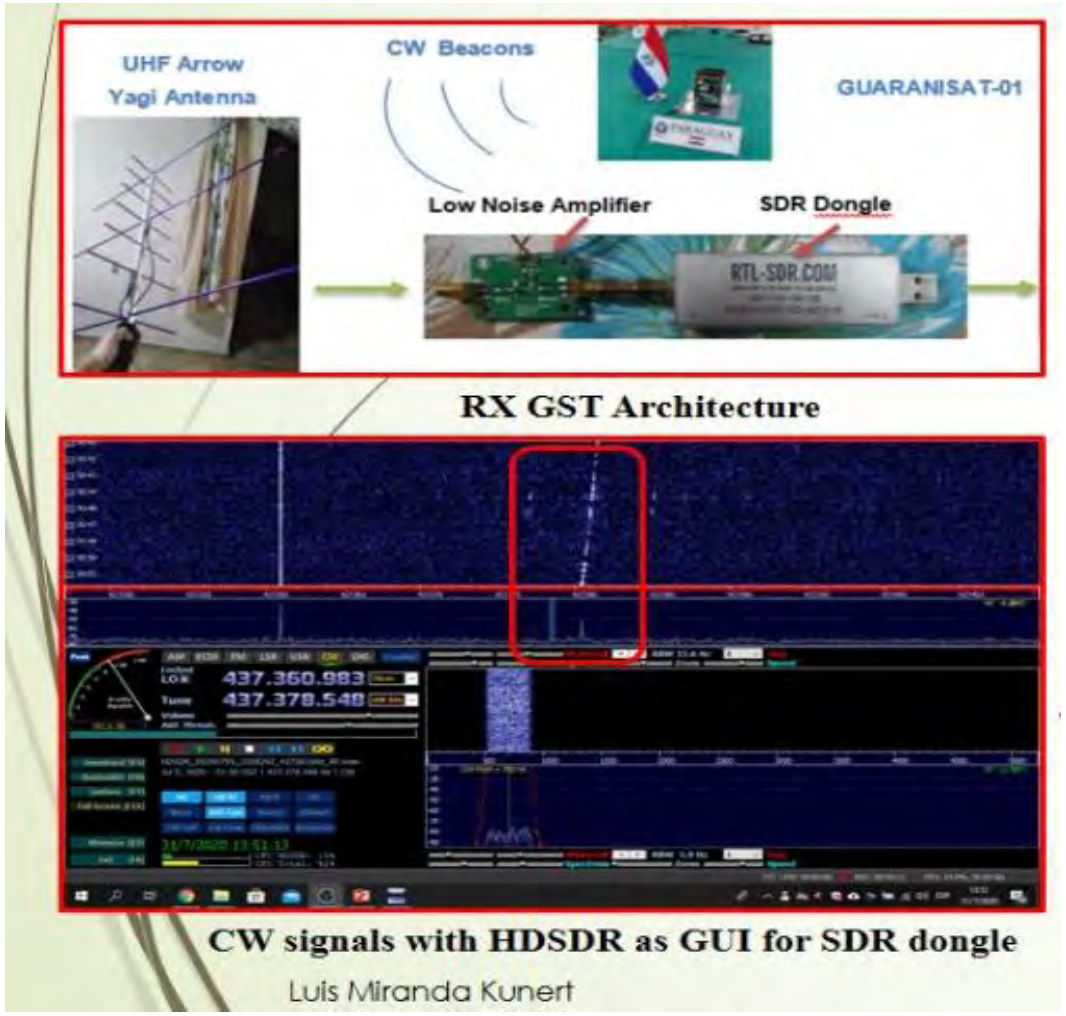
The “CABURE+I 4S” Project Newsletter
News from Paraguay

Title: Receiving Ground Station Hardware & Software Overview

Contributor: L. Miranda

This past July, at the IV IAA Latin American CubeSat Virtual Workshop, one of our CaBuReI4S team members, Luis Miranda, was awarded the second-best poster on his work “A low-cost and portable student ground station for tracking LEO satellites to promote capacity building in telecommunication area.”

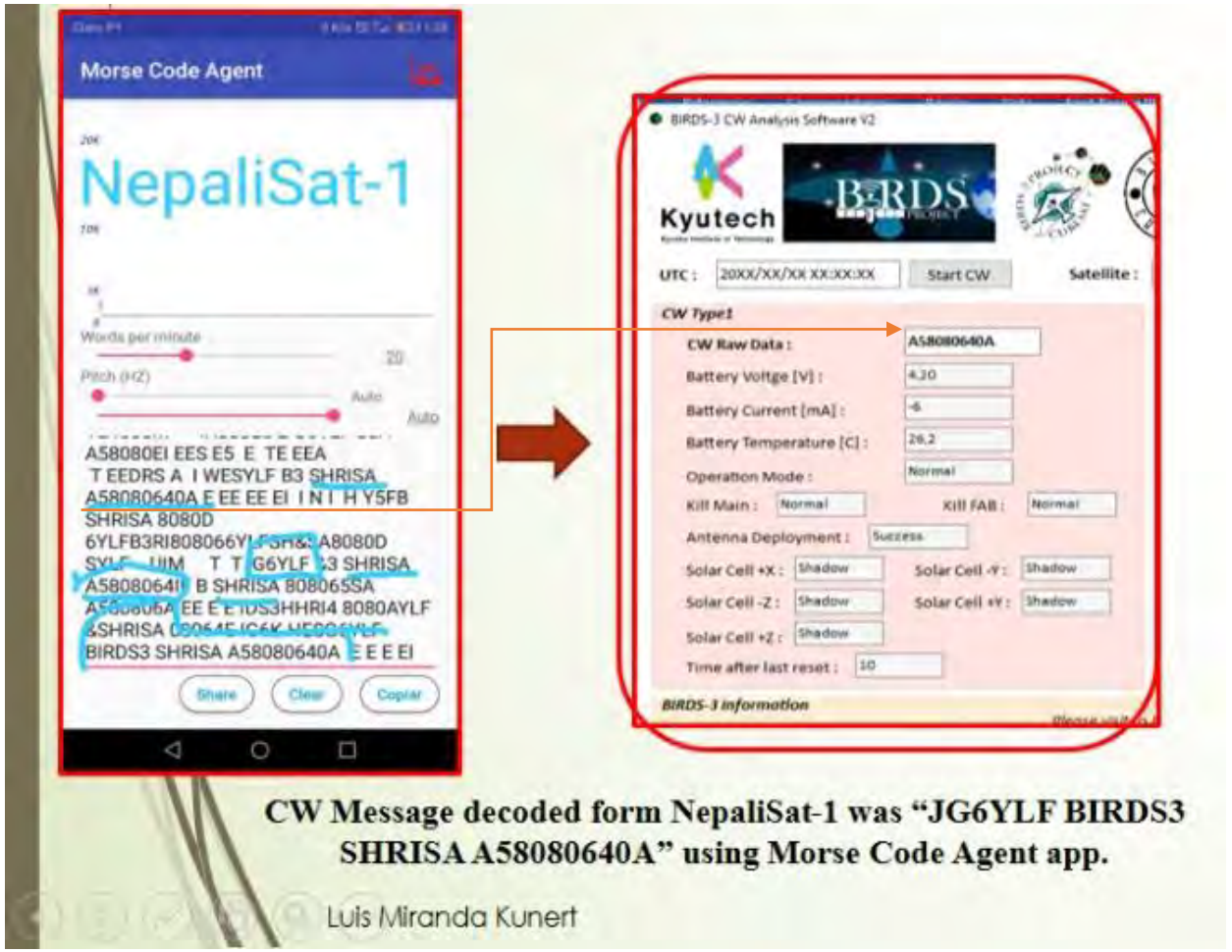
What is shown is the results of the implementation model, decoding morse code signals from birds3



The “CABURE+I 4S” Project Newsletter
News from Paraguay

Title: Receiving Ground Station Hardware & Software Overview

This work was mentioned in last month's newsletter edition. This accomplishment was fully acknowledged at the Faculty of Engineering web site. This achievement comes after last year’s same IAA symposium at Buenos Aires, where another CaBuReI4S member got the best paper award: Lucas and Jose Moreira.



The “CABURE+I 4S” Project Newsletter
News from Paraguay

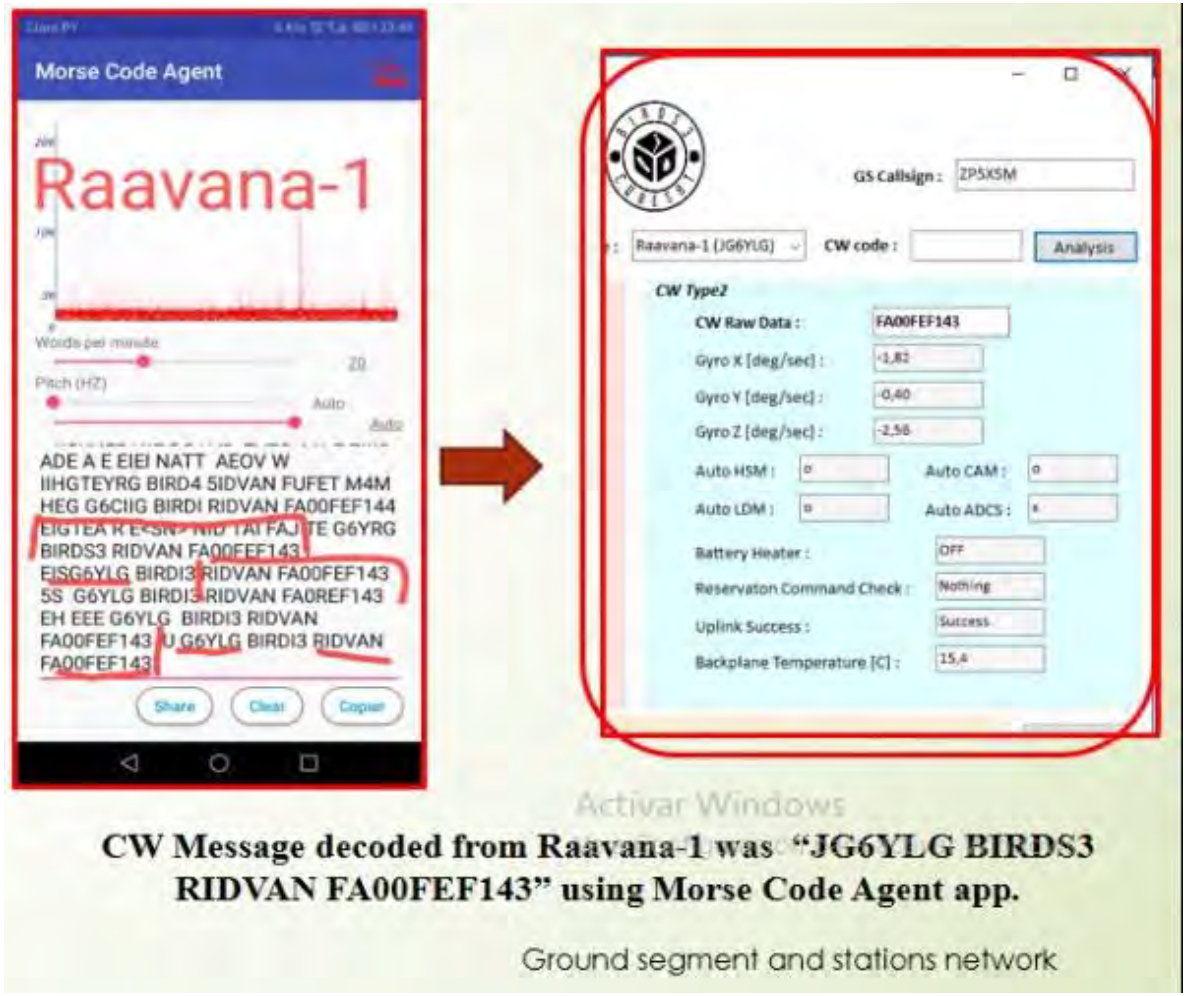
Title: Receiving Ground Station Hardware & Software Overview

Contributor: L. Miranda

The first design consists only of receiving CW Beacon signals and decoding Morse Code characters to extract the necessary housekeeping data (HK) proceedings from Birds 2, 3, and 4 constellations, which is part the GuaraniSat01

For future work we Will design, build and Test antenas. A low cost antena rotator will be the last part of this project.

Congrats Luis! We will keep with quality research going on!



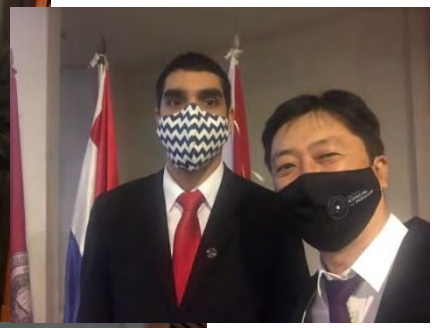
CW Message decoded from Raavana-1 was “JG6YLG BIRDS3 RIDVAN FA00FEF143” using Morse Code Agent app.

Ground segment and stations network

Working for Project KITSUNE!

Recently, other CaBuReI4S team members, both Mr. Esteban Fretes and Mr. Aldo Galeano, finalized their final design project at the Faculty of Engineering Universidad Nacional de Asuncion. Their work was presented at the IAA Symposium in Buenos Aires. The oral defense was attended by Dr. Stalder, Dr. Kurita, and a special guest Colonel Vielman. This is the final step for Esteban on his degree completion before his next journey to Kyutech, this time, as a graduate student!

Congratulations Esteban! Keep it up with excellent and hard work in Japan!



Contributor: J. Kurita

END OF REPORT FROM PARAGUAY

My company life after graduation

社会人生活

Yuta Kakimoto

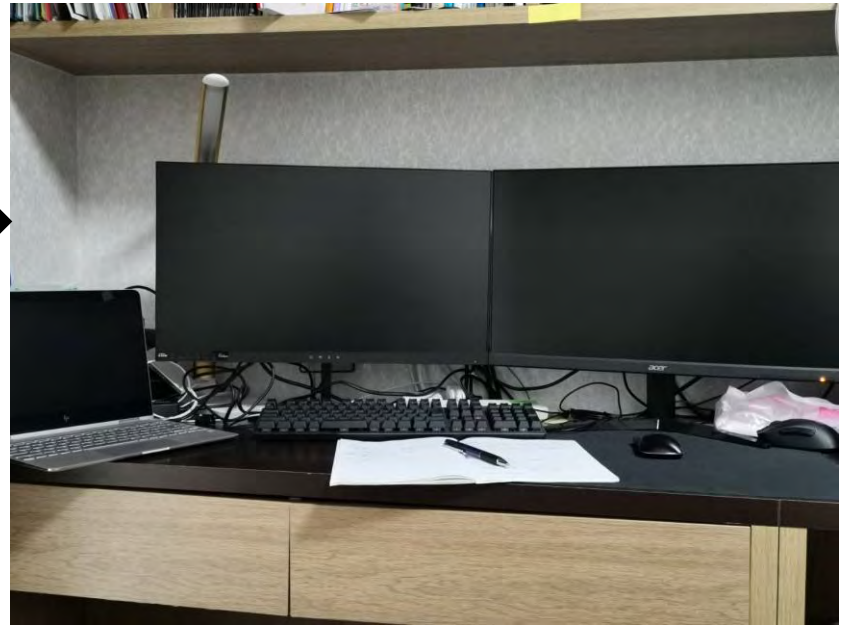
15 August 2020

I am Yuta Kakimoto – I was in charge of the OBC for the BIRDS-3 Project.

I graduated this April and start work in JGC Global which is operating Engineering, Procurement, and Construction (EPC) of overseas oil and gas plants. Current my assigned work is about estimation of EPC project cost. Due to the characteristics of its contract form with our client, we need to decide the total EPC cost for competitive bidding. In case of huge project, the cost will be over several billion dollars. The difficulty of this work is verifying its feasibility − considering the profitability within maximum investment cost.

Because of its huge structure of the plants, the knowledge of a wide range of fields is required for higher level work. So, I am still studying the skills for estimating cost as engineer. Also, I still go to office once or twice in a week because of COVID-19. We make use of Microsoft Teams and hold on-line meetings or discussion for managing the remote work quality.

My room desk for remote work →



← The office in Yokohama (Central building in this picture)

Life as a new member of society
社会人生活

Yuji Sasaki

15 August 2020

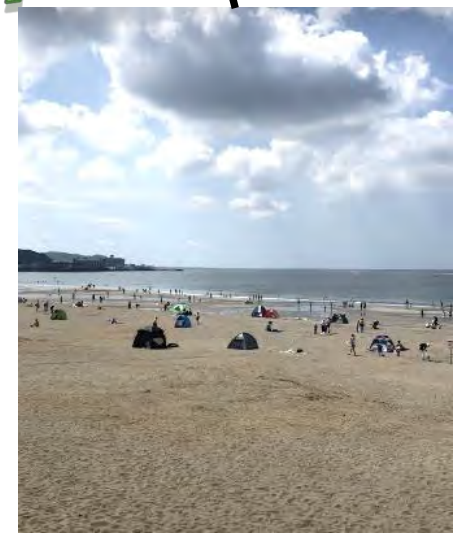
My work place （職場)

- Place: Kamakura, Kanagawa Prefecture
- Business description: Guidance vehicle system, satellite, satellite equipment, ground equipment　for satellite communication

The building pointed to by the red arrow in the photo is the new "New Satellite Production Building" completed in February of this year. The parallel production capacity was increased from 10 to 18 satellites by installing a large space chamber and a large vibration tester, and establishing a new factory capable of integrated production from satellite assembly to testing.

There are many sightseeing spots in Kamakura and Fujisawa, which are near my office. There are many shrines and historic buildings near the coast.
If you come near Kanagawa, please let me know as I will guide you.

Zeniarai Benten Shrine

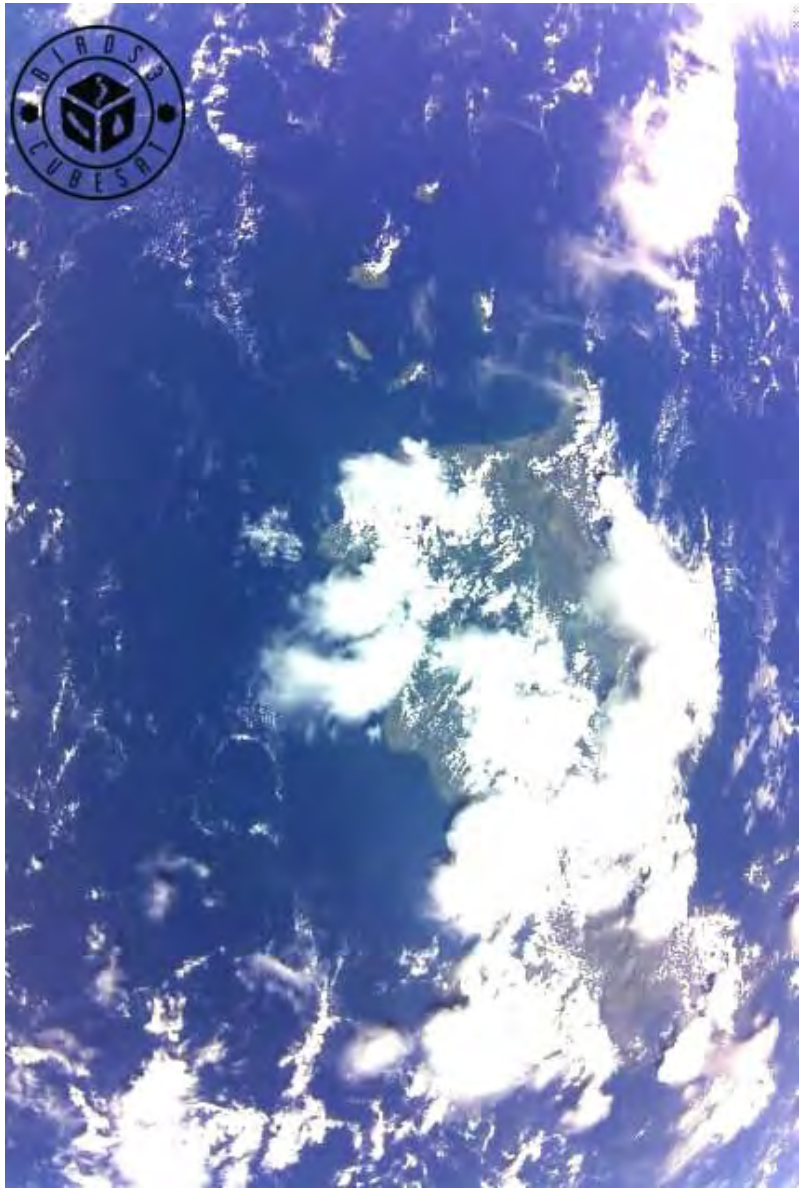


Shichirigahama Beach

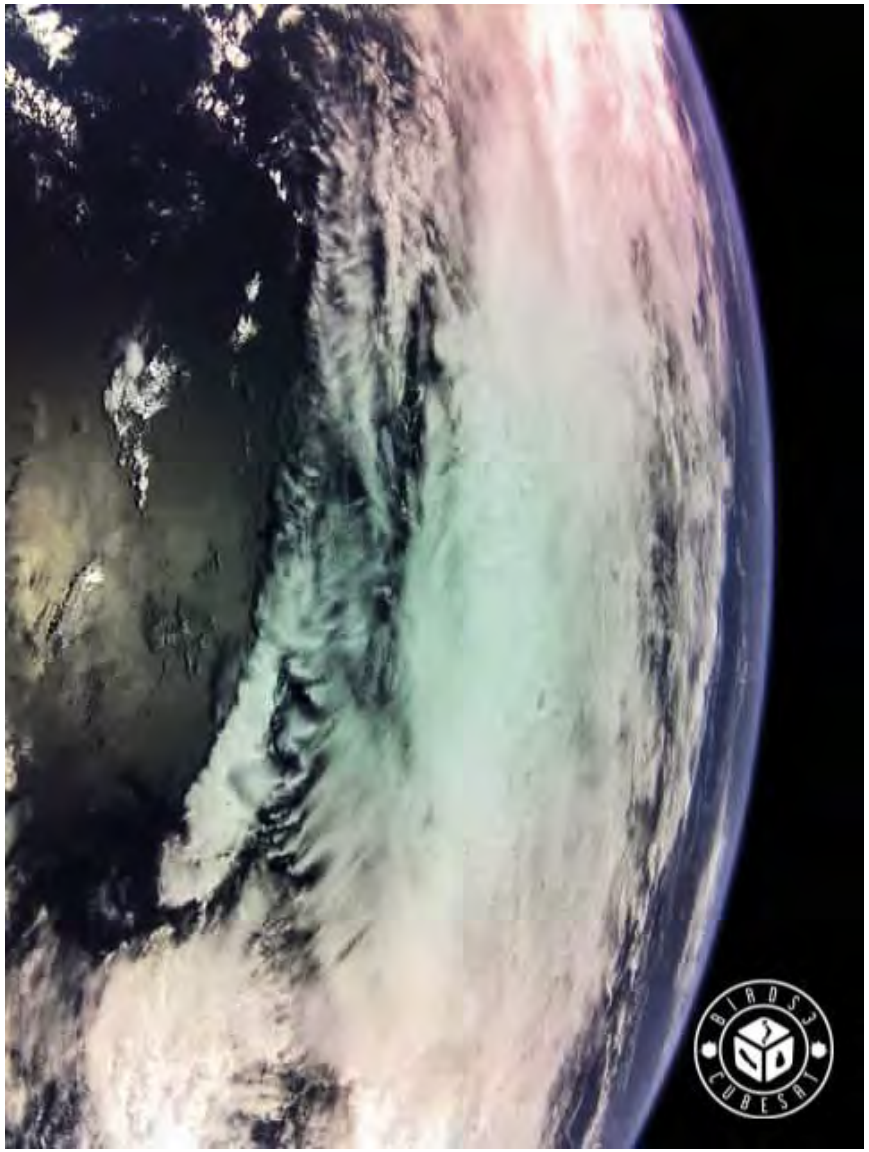
33. BIRDS-3: Recent images from the satellites

BIRDS-3 Images Gallery

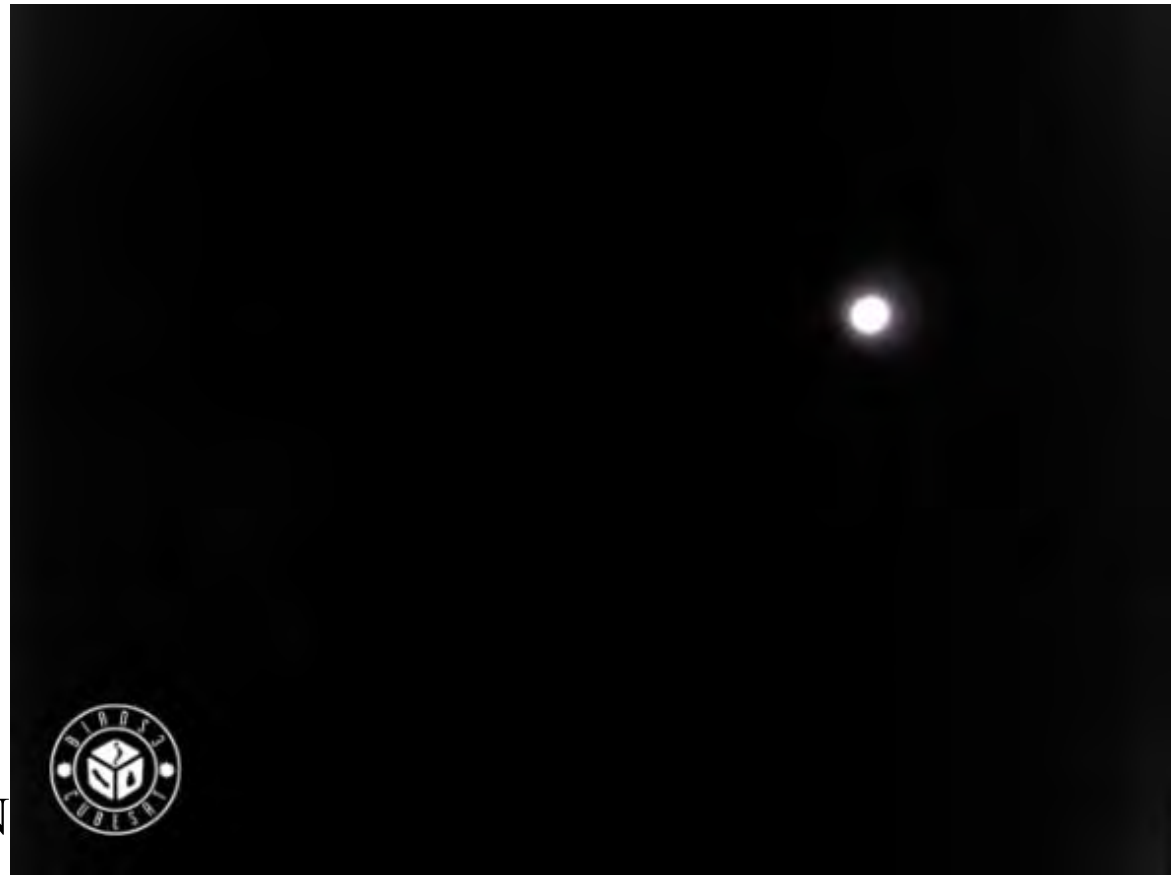
Pooja Lepcha, 15 August 2020
(BIRDS-3, Bhutan)



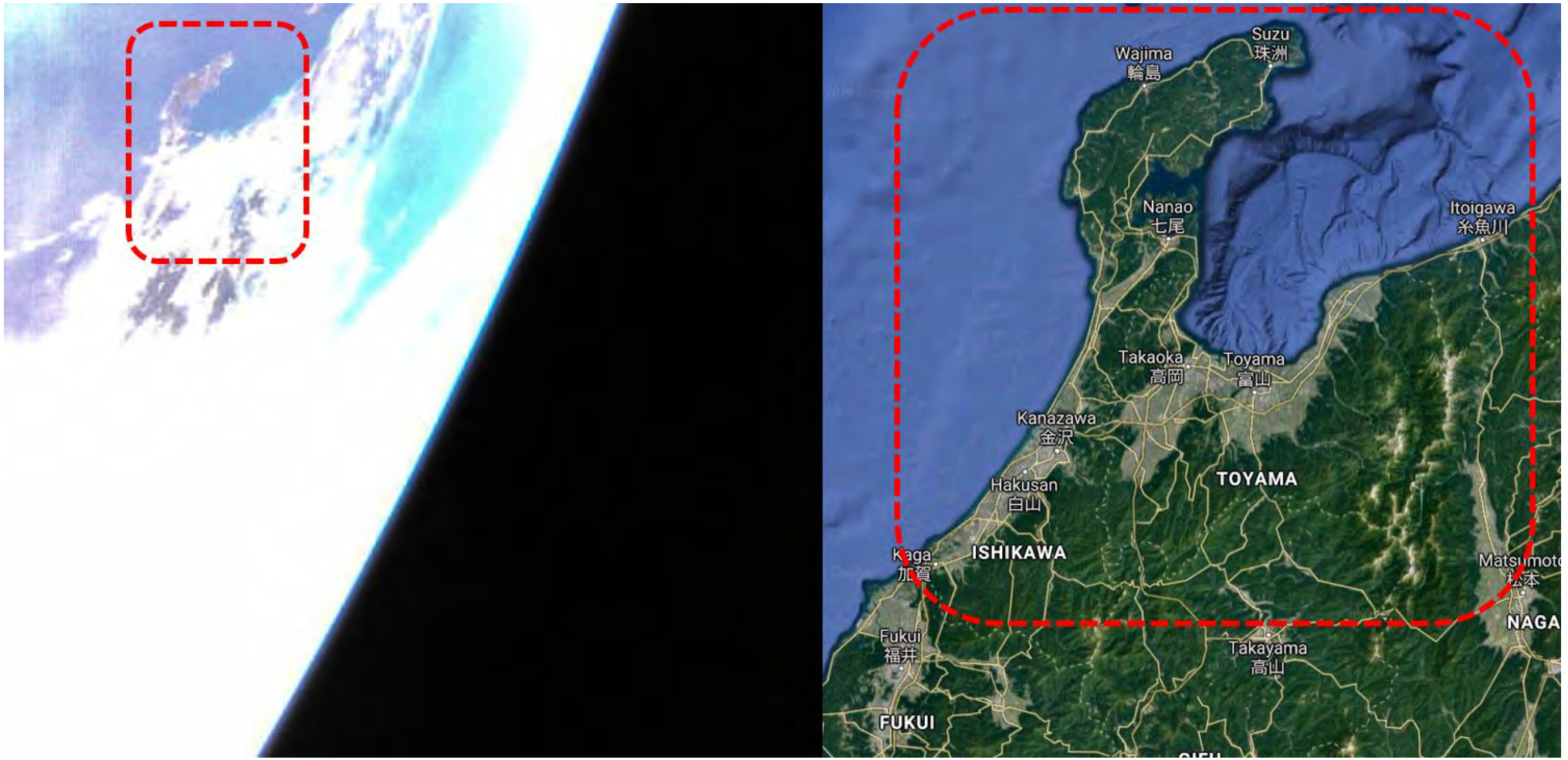
BIRDS-3 satellite was able to capture northern part of the Philippines. Philippines has been a part of BIRDS project twice, in BIRDS-2 and in BIRDS-4. BIRDS-3 team wishes for the best for BIRDS-4 satellites.



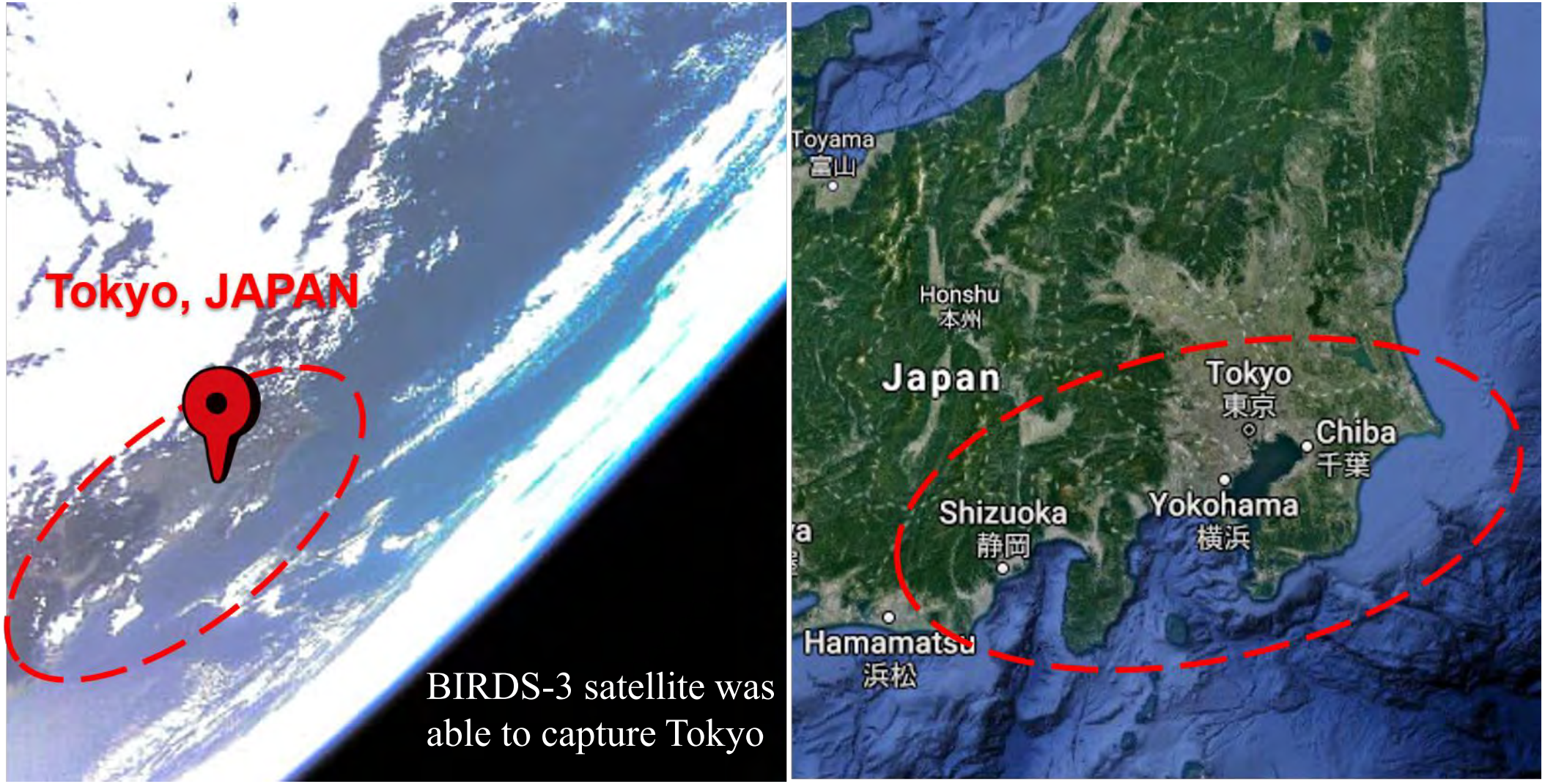
This photo shows the sea of Japan. The command uplink was sent from Kyutech GS but the image was downloaded by Taiwan GS since Kyutech GS was inaccessible as COVID-19 safety precautions. Yet again, BIRDS GSN comes to rescue.

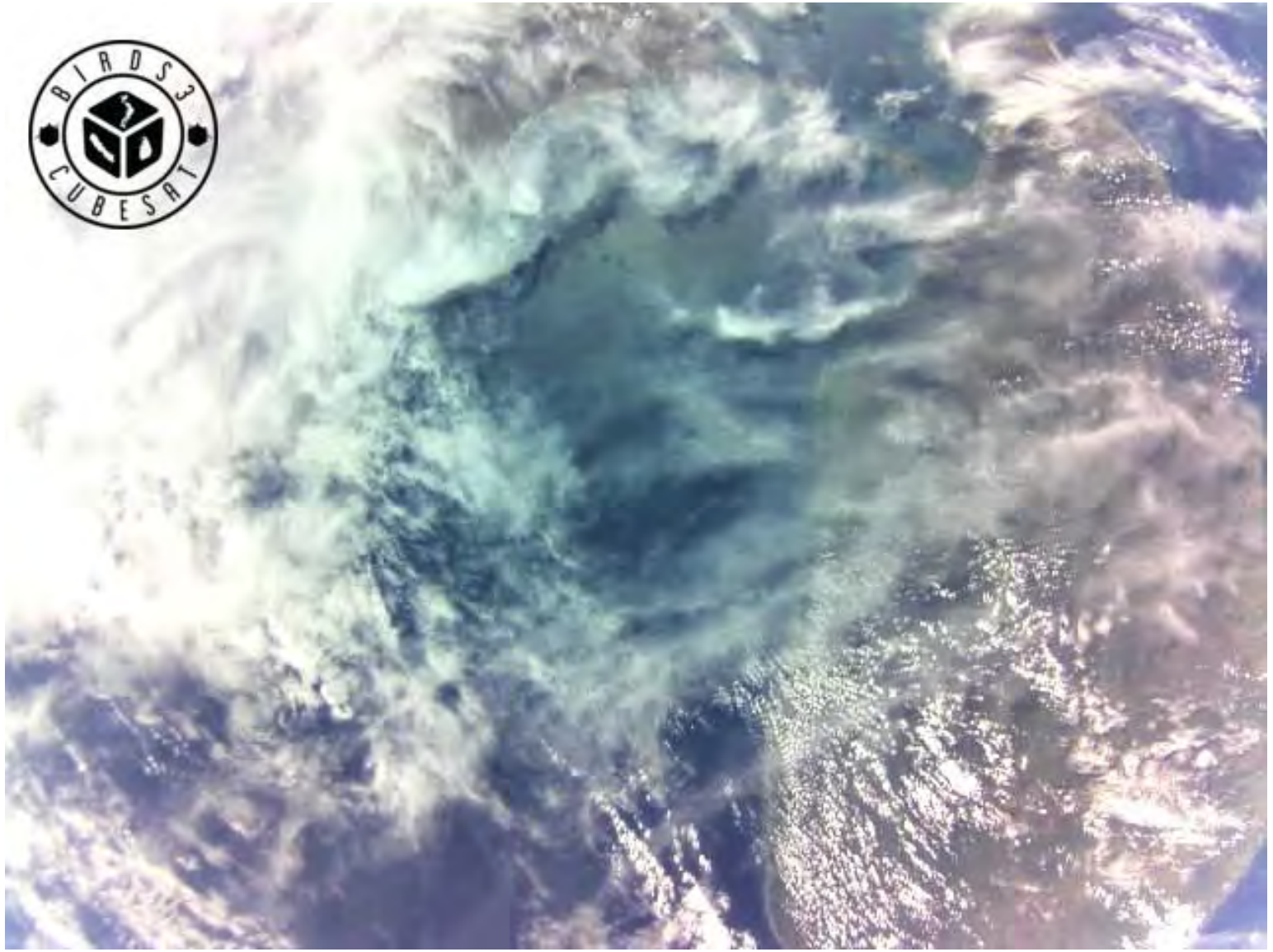


This photo shows the image of the moon. Such a beautiful sight it is in the dark night

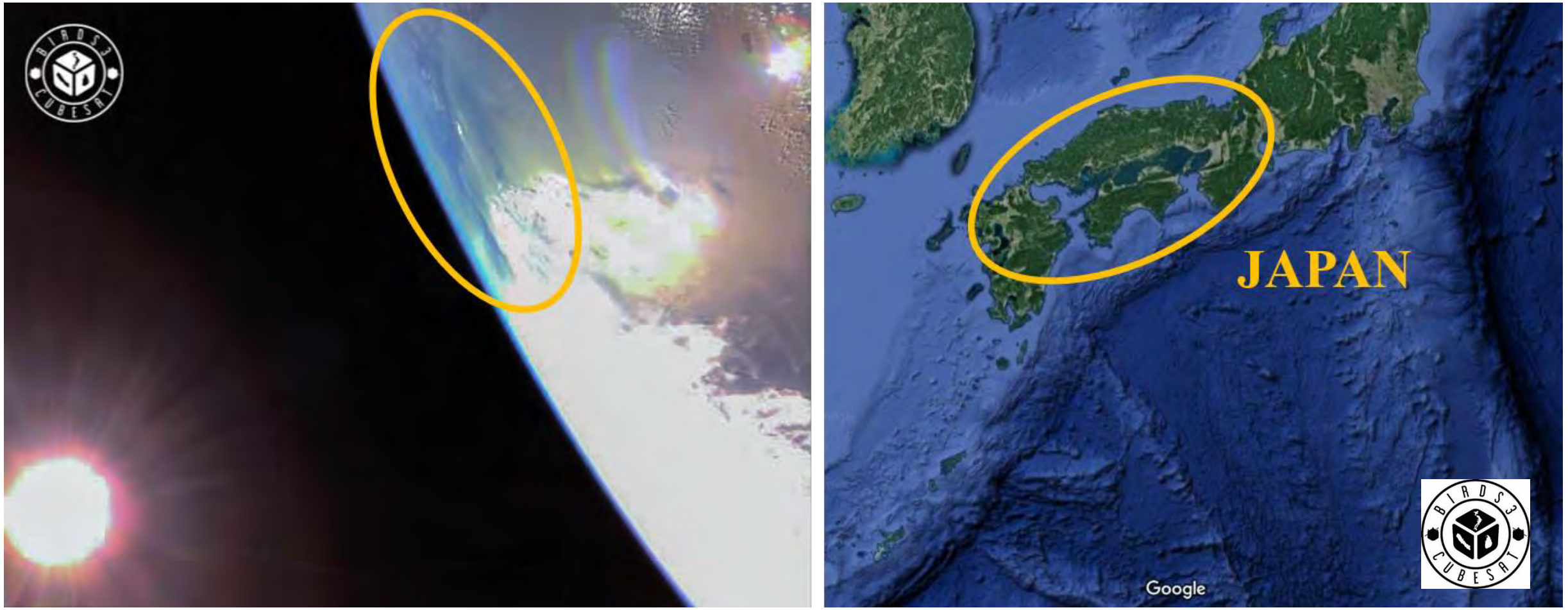


BIRDS-3 satellite was able to capture Honshu Island. The red marked part is Ishikawa Prefecture and Toyama Prefecture. Noto Peninsula of Ishikawa Prefecture is easy to find because the shape looks like a sickle, so if you find the sickle image on the Honshu of Japan, that is Noto Peninsula.

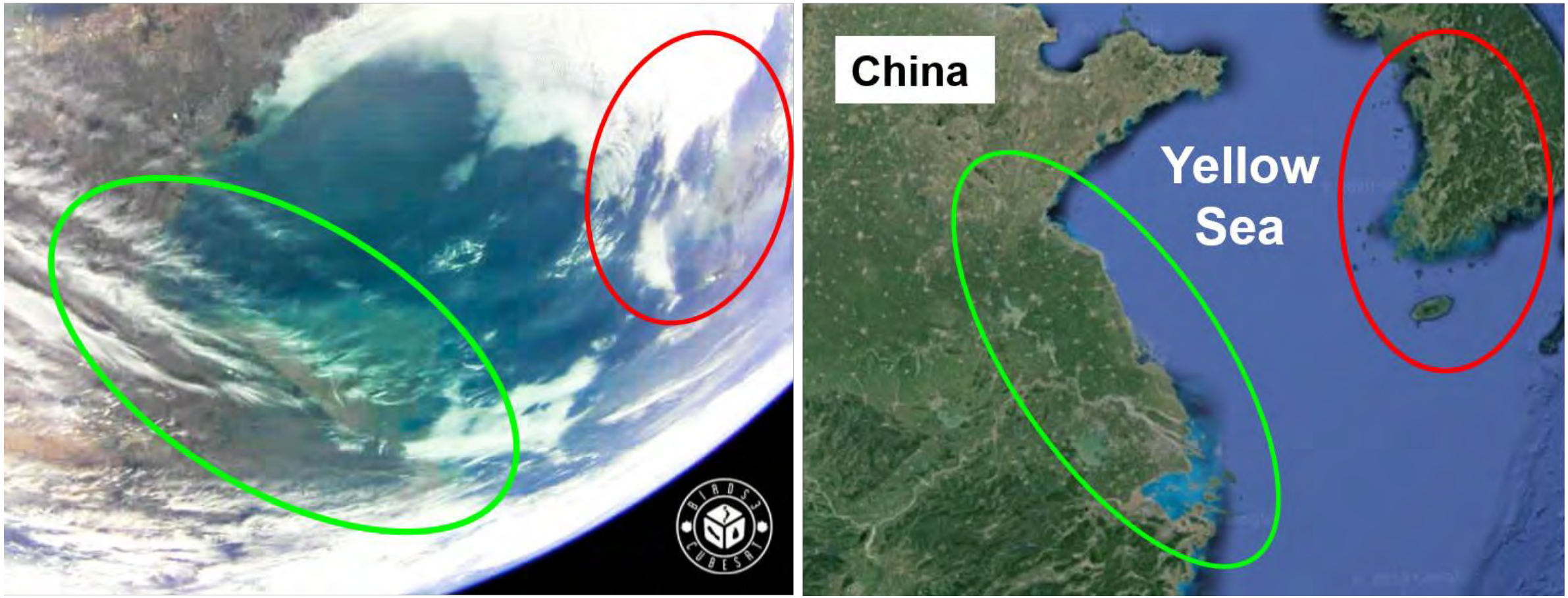

Tokyo, JAPAN
BIRDS-3 satellite was able to capture Tokyo
Toyama
富山
Honshu
本州
Japan
Tokyo
東京
Chiba
千葉
Yokohama
横浜
Shizuoka
静岡
Hamamatsu
浜松



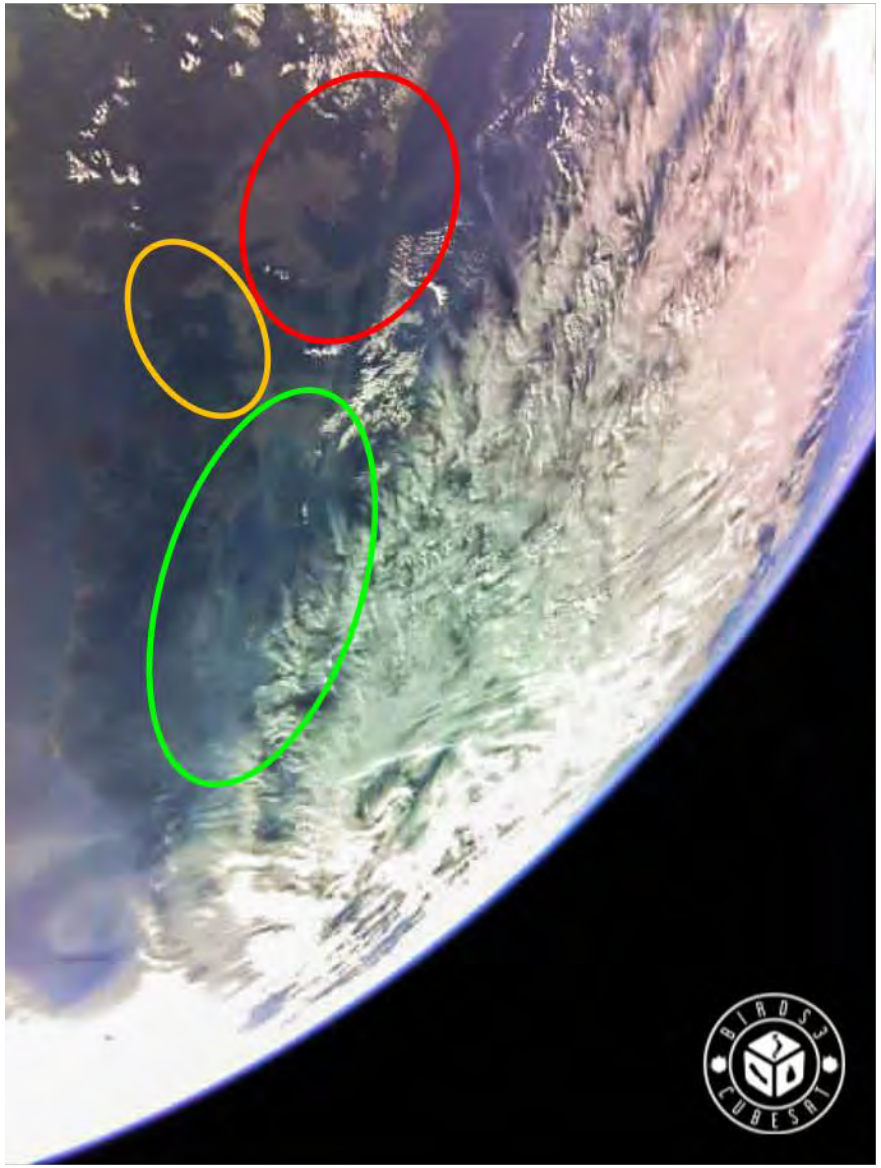
BIRDS-3 satellite captures yet another image of Sri Lanka. Sri Lanka's photo always looks beautiful



BIRDS-3 satellite captured sunset at western Japan. It is a beautiful image capturing both Sun and the Earth.



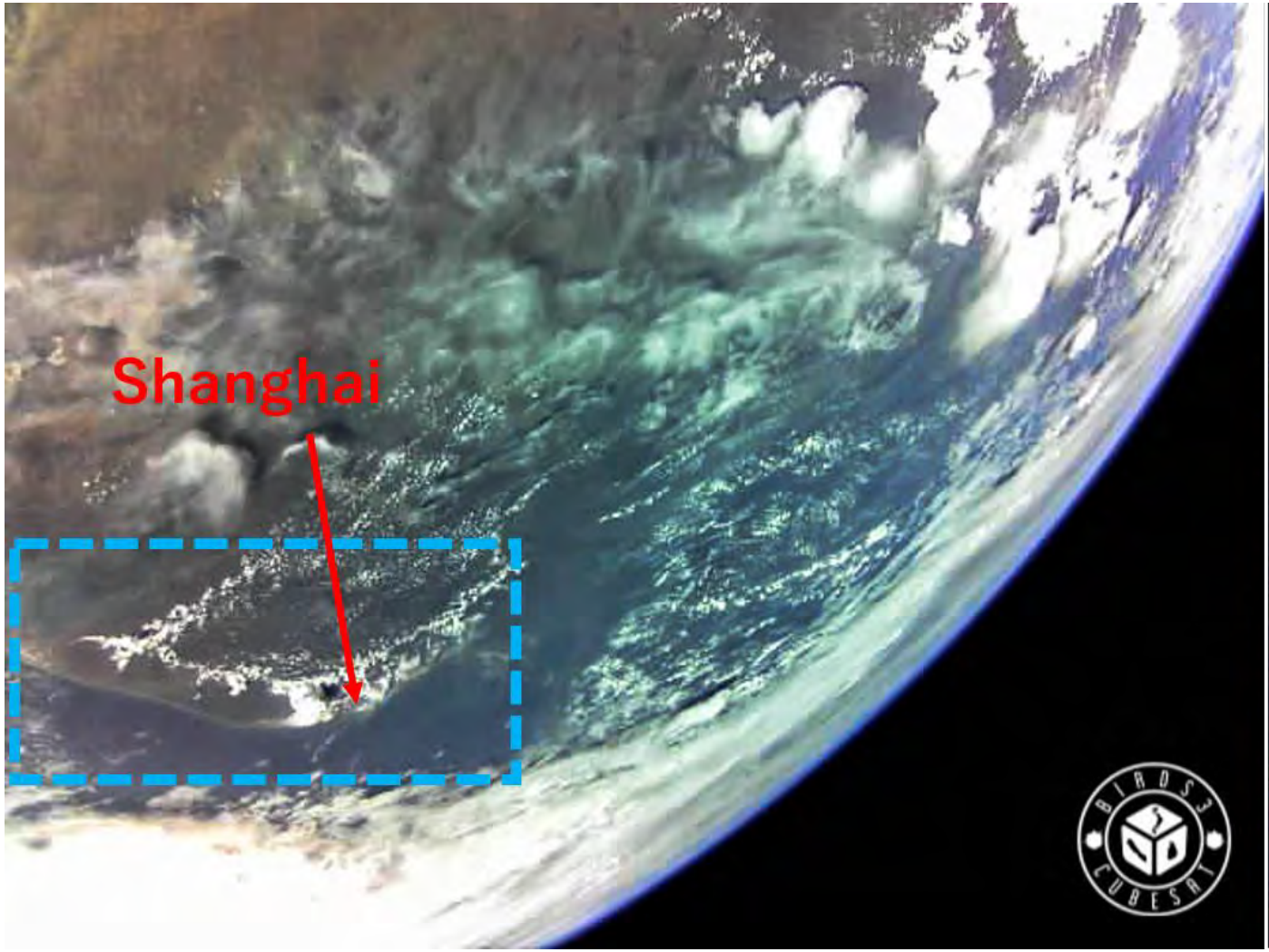
This image shows part of China and South Korea. The Yellow sea which is not yellow is very much visible too.



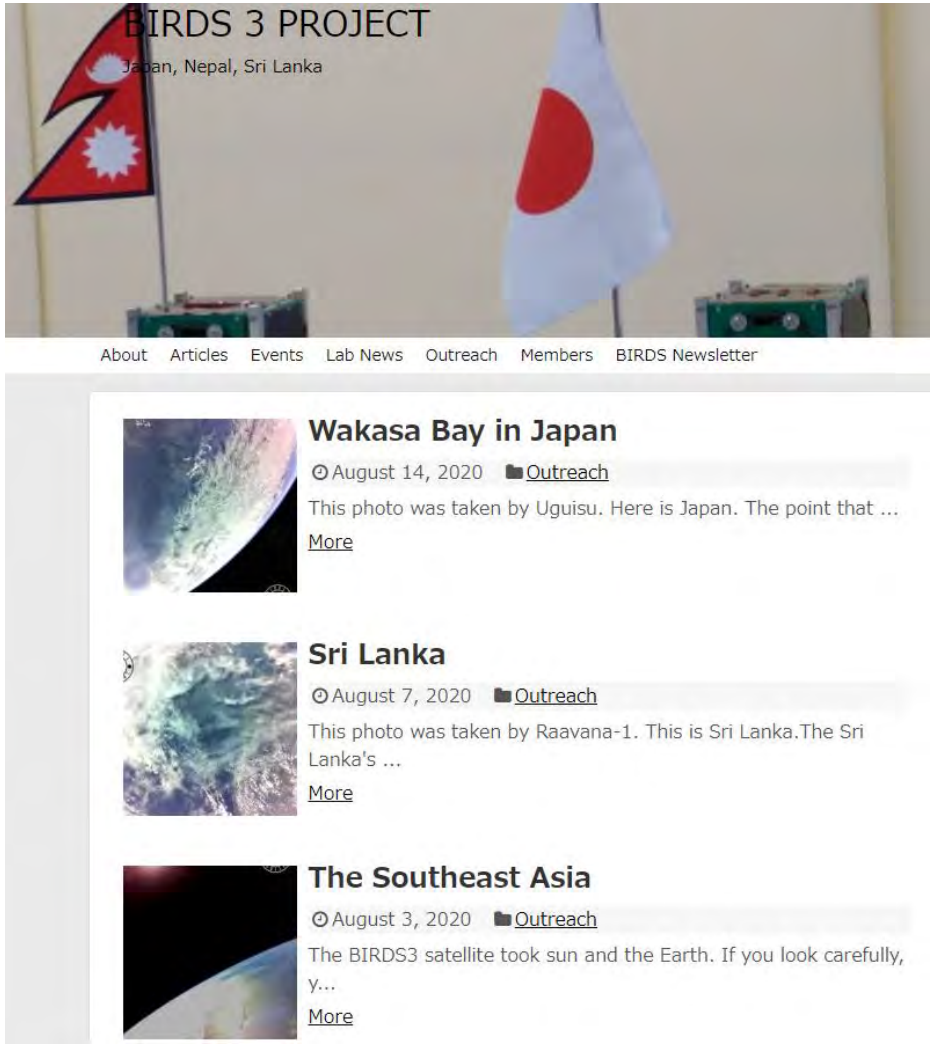
This image shows parts of Honshu Island. The colored ellipses can be correlated with the ones in the image. The unique shapes of the land makes it easier to identify the location of the image, for example the Nagoya area. We can also see the Biwa Lake which is the biggest lake in Japan

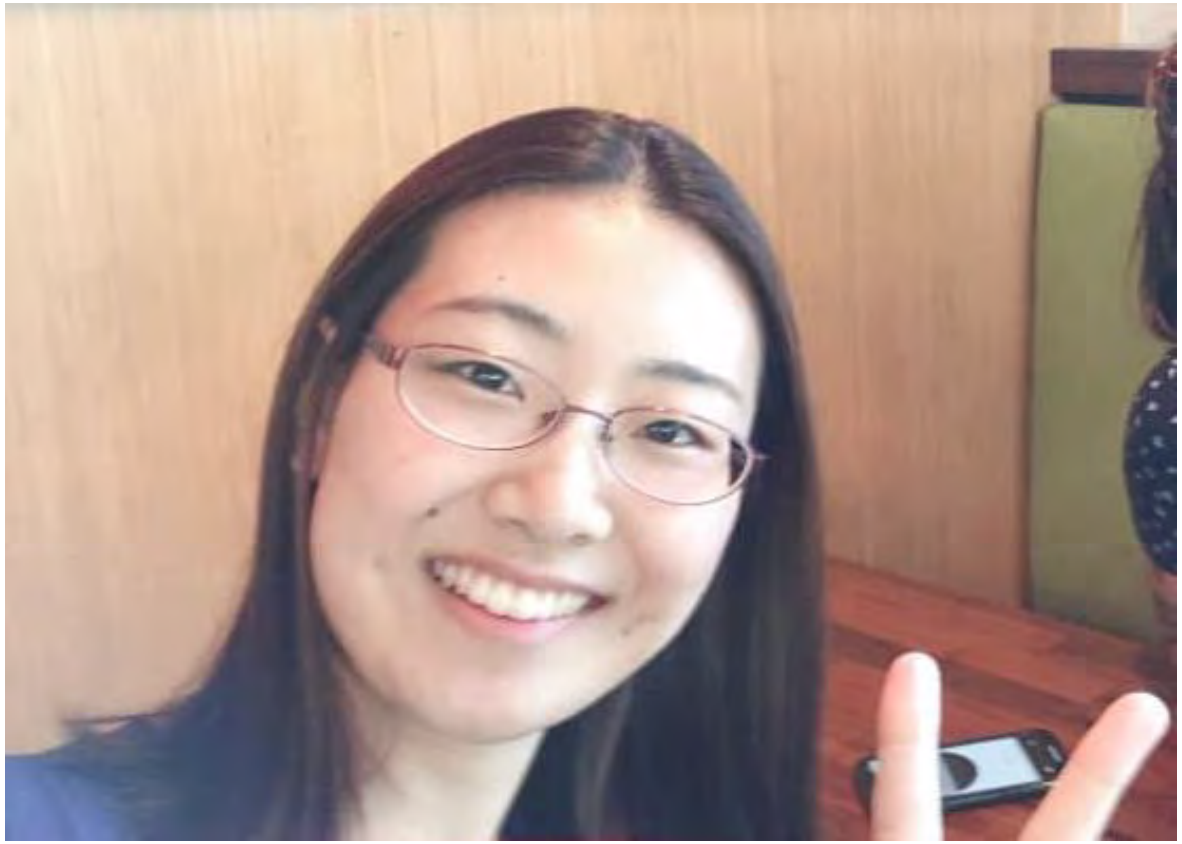
← This image shows the beautiful Himalayan mountain range covered in snow.

BIRDS countries Nepal and Bhutan fall in the Himalayan ranges.



The yellow marked area on the right image is the photo area of the left. This image shows large part of China, Mongolia, and small parts of Taiwan and South Korea





Makiko Kishimoto, member of BIRDS-3 is behind all the posts related to images taken by BIRDS-3 satellites. She also writes beautiful captions for each image.

Images taken by BIRDS-3 are uploaded to the BIRDS-3 website and BIRDS-3 Facebook page every Friday.

BIRDS-3 website: https://birds3.birds-project.com/

END OF BIRDS-3 IMAGES GALLERY OF THIS MONTH

Global Positioning System

by Dulani Chamika

15 August 2020

What is GPS

- Humans used the stars at the ancient time to find the directions. And we still need objects in the space to find the directions and the positions. Now we use satellites , instead of stars.

- GPS stands for Global Positioning System. It is a satellite based radio navigation system. GPS is a system made with three parts. They are satellites, ground stations and receivers.

Credit: NOAA

BIRDS-3 GPS

- BIRDS-3 used SKYTRAQ Venus GPS receiver.
- NMEA is a standard data format supported by GPS manufacturers
- NMEA stands for National Marine Electronics Association.
- There are several formats in NMEA data format.
- The formats will be shown in the next slide.

National Marine Electronics Association

BIRDS-3 GPS

- ***GGA - Global Positioning System Fix Data***
- ***GLL – Latitude/Longitude***
- ***GSV – GNSS Satellites in View*** are some of the formats

We, BIRDS-3, used GGA-Global Positioning System Fix Data. Mainly this format gives you: UTC of position in hhmmss.sss format, Latitude, Longitutde, Altitude. Depending on your requirements you can choose the format.

This GPS article will be continued in a future issue of the *BIRDS Project Newsletter* to discuss some of the GPS outcomes of BIRDS-3. The data is still under analysis.

Main/Traditional Food in Sri Lanka

by Dulani Chamika
13 August 2020

Rice and Curry


©google


©google


© google


©google


©google

Normally Sri Lankans eat rice as the main dish. We have few curries to eat with the rice. We, Sri Lankans, normally use the hand to eat. We use our own Sri Lankan spices which is very different from the other countries. And also we eat a lot of green leaves with rice. Most of the curries are made with coconut milk.

Traditional Dishes

©google

The above picture shows “String hoppers”. We normally eat String hoppers with Coconut sambol and a curry. Curry can be potato, chicken or anything. The above picture shows coconut sambol and Potato Curry. We normally eat Sting hoppers for breakfast or for dinner.

This is called “Coconut Roti”. This is roti is made with coconut and flour. This is also normally eaten with “lunu miris” (which is made with red onions and Maldive fish) or else with curry like dal.

This is called “hoppers”. Normally we can have hoppers or plain hoppers. Normally we eat this also with “lunu miris “ or with a curry such as chicken or dal.

Traditional Dishes

Milk rice is a traditional food in Sri Lanka. We eat milk in special events and also as a breakfast sometimes. Milk rice is the main dish at New Year. We normally eat milk rice with “lunu miris” which is made with mainly red onions and Maldive fish.

This picture shows “Kawum” which is also a traditional food in Sri Lanka. This is a Sri Lankan Sweet. This is one of the main sweets at special events. Specially we keep Kawum at the new year dinning table.

This is called “Kokis”. This picture shows the Kokis which was made at my house once. It is a quite easy food to make. This is also a main food at the special events and also at the New Year dining table. Kokis is not sweet.

END OF THIS SECTION

UiTMSAT COLUMN

Column No. 8

Editor: FATIMAH ZAHARAH BINTI ALI (ali.fatimahzaharah@gmail.com)
PhD CANDIDATE, LABORATORY OF SPACE WEATHER AND SATELLITE SYSTEM
FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA (UiTM), SELANGOR, MALAYSIA

UNIVERSITI TEKNOLOGI MARA
UiTM Sentiasa Di Hatiku
"UiTM Always in My Heart"

THE BROAD ASPECT IN SPACE TECHNOLOGY

Space technology is commonly associated with celestial science and aerospace industry. While it does correctly imply, space technology can actually go beyond the conception. The director of Centre for Satellite Communication in Faculty of Electrical Engineering, UiTM Malaysia, Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh, with his expertise in space weather and satellite system has been invited by Malaysia Institute of Transport (MITRANS) to give a space-related talk in regards to transportation and logistics.

MITRANS is an entity in UiTM that is responsible to conduct researches and trainings pertaining the development in logistic and transportation fields. On 10th June 2020, MITRANS has conducted a valuable talk merging both logistic aspect and space technology, inviting AP. Ir. Dr. Mohamad Huzaimy as the speaker.

In the talk, AP. Ir. Dr. Mohamad Huzaimy has shared on how the Nanosatellite technology system can be applied in logistic communications network. This can also be one of the elements in the development of the new space era. Captivating yet informative, the talk discussed the evolution of the Nanosatellite system in catering the needs of the customers and mitigating the voids in the advancement of technology as complementary implementation.

As there are profuse potentialities available for space industries especially for Nanosatellite applications, the smart system of fleet management can be strenuously emerged. Navigation, vehicle tracking and monitoring, trafficking systems, SOS alerting, automatic identification system (AIS) application, and other support sensors such as for pollution control can be used with the satellite technological implementations.

Fig. 1: The poster of the talk in MITRANS's event.

The applications of such systems on the satellite infrastructure contribute to a greater impact not only to the entities involved in the industry and business, but also to the elevation of national and global economics.

Fig. 2: The poster of the talk organized by RVS College of Engineering and Technology, India..

On 27th June 2020, AP. Ir. Dr. Mohamad Huzaimy has also been invited by RVS College of Engineering and Technology in Tamil nadu, India, to give a talk on “Space-based Internet of Things (IOTs) in New Space Era”. As the keyword is ‘new space’, the talk has discussed the similar aspect of transportation and logistic in the application of Nanosatellite. The talk included the system of constellation in supporting the applications of data transmission using the satellite facilities.

An organization in Skill Development, Career Development Guidance and Academic Consultancy (SEEK) in India has also invited AP. Ir. Dr. Mohamad Huzaimy to give a talk for the similar topic of IOTs-based in space technologies. The event was conducted through live webinar on 9th July 2020.

On 4th July 2020, the Young Engineers Section under the Institution of Engineers Malaysia (IEM) has conducted a webinar series on “Post Covid-19 Industry” that was also related to space technology. The speech on how the satellite system could

Fig. 3: The poster of the talk organized by SEEK.

Fig. 4: The poster of the talk in IEM's event.

contribute to the issue of Covid-19 pandemic has been discussed by AP. Ir. Dr. Mohamad Huzaimy. With the assistance of the space system, the outbreak of Covid-19 can be modelled and monitored systematically and globally through electronic and wireless mechanism applied. The data of the disease that struck all over the world can be gathered effectively and efficiently from each country in order to identify the population affected by the virus and track the pattern of the pandemic. Indirectly, this could.

contribute to the research of the Covid-19 especially on reducing the transmission.

Towards the space new era, the transportation and logistics, as well as the Covid-19 pandemic have become the aspects in the technological advancement of Nanosatellite systems. The facilities offered by the satellite system could be leveraged by complementing and improving the existing techniques. Satellite system has become the significant technology not only for data transmission but also monitoring and detection applications in various applicable contexts. Many industries nowadays are actively racing towards the involvement and exploration of new space era and it was reported by Washingtonpost.com in 16th August 2019 that the Low Earth Orbit (LEO) has become crowded with spacecraft. Therefore, if we don't be part of the new space era development, we will continuously be a user.

Fig. 5: An appreciation award to AP. Ir. Dr. Mohamad Huzaimy from SEEK for his valuable insight during the webinar series.

END OF THIS COLUMN

STAMINA4SPACE

UPDATES FROM THE PHILIPPINES

August 15, 2020

University of the Philippines-Diliman
Quezon City, Philippines

PREPARED BY:

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STAMINA4Space Communications Officer, STeP-UP Project
Graphic Artist and Contributing Writer

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STAMINA4Space Information Officer, PHL-50 Project
Contributing Writer and Editor

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STAMINA4Space Project Manager, STeP-UP Project
Contributing Writer and Editor

Enhancing Connectivity and Capability

July 16, 2020

A webinar organized by Department of Information and Communications Technology (DICT) Luzon Cluster 3 - Albay featured STAMINA4Space research engineers Mary Ann Constante and Jeric Brioso as guest speakers. Here, they talked about the applications and development of CubeSats and amateur radios.

Photo courtesy of DICT Luzon Cluster 3 - Albay

1st UNISEC Philippines Meeting

July 17, 2020

The University of the Philippines - Diliman hosted the first ever University Space Engineering Consortium (UNISEC) Philippines meeting attended mainly by the member universities and representatives across the country on July 17, 2020. The virtual meeting served as a platform for introductions and networking, and identified potential areas for collaboration, which ranges from support in the form of facilities, provision of hardware and software, and technical and administrative resources, among many others. Attendees from the DOST-Philippines, STAMINA4Space Program, and the Philippine Space Agency (PhilSA) were also present.

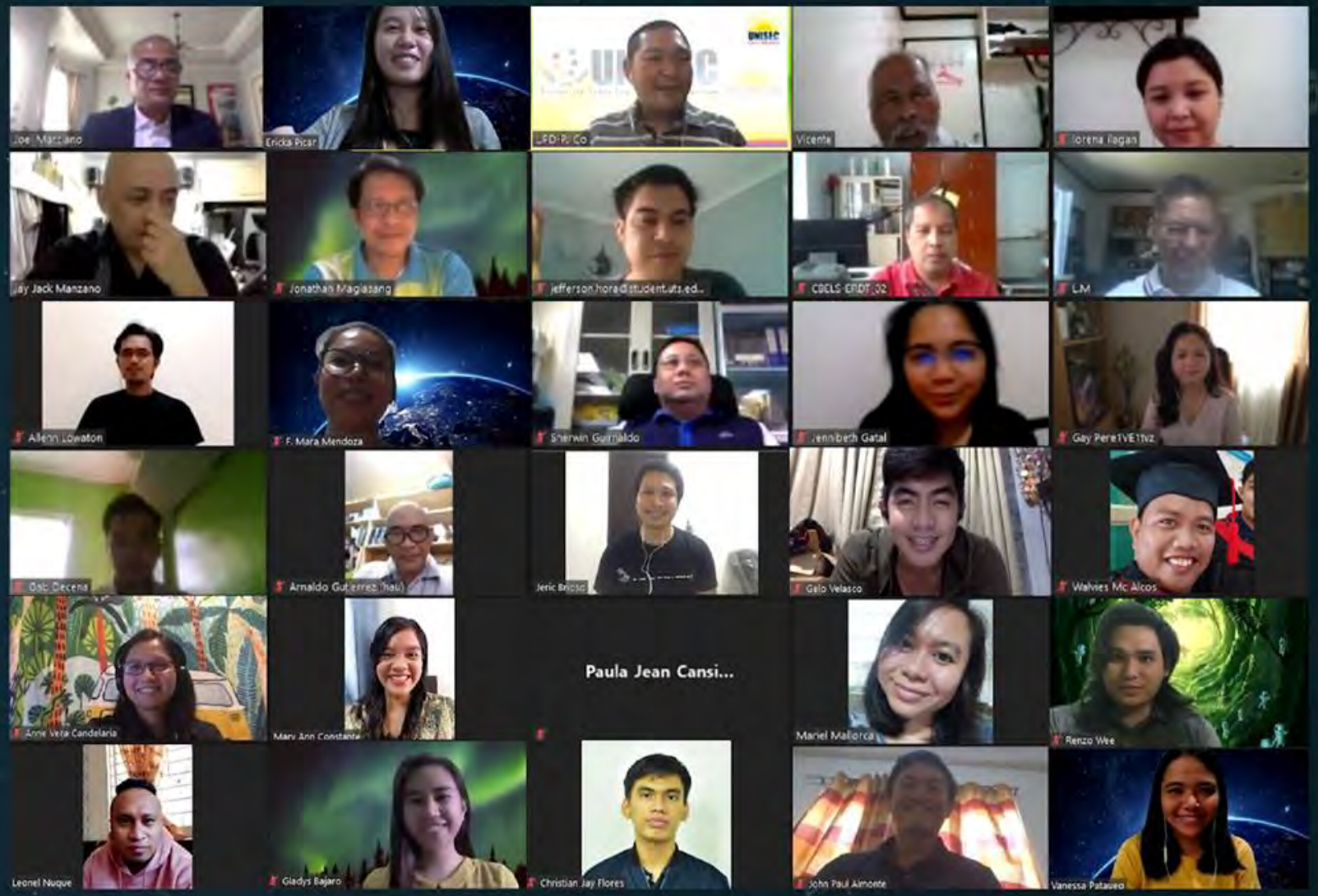


Photo from the 1st UNISEC Philippines Meeting

1st UNISEC Philippines Meeting

July 17, 2020

Ms. Rei Kawashima, Secretary-General of UNISEC-Global, extends a message of support through a video message.

Engr. Paul Jason Co, UNISEC Philippines Secretary and Project Leader of the STeP-UP Project, moderated the meeting. He also presented space-related initiatives under the STAMINA4Space Program and future plans for UNISEC Philippines.

DOST Undersecretary for Research and Development Dr. Rowena Cristina Guevara delivered the opening message and provided a brief background of the STAMINA4Space Program and other space-related initiatives.

Engr. Arnaldo Gutierrez presented on behalf of Engr. Adel Parungao, Holy Angel University's Point of Contact for UNISEC Philippines. Here, he shares some activities of their AMSAT Laboratory.

Engr. Alberto Bañacia provides a brief background of the profile of University of San Carlos' School of Engineering.

Engr. Jennibeth Gatal provides the background of the College of Engineering and Technology of Mindanao State University-Iligan Institute of Technology.

1st UNISEC Philippines Meeting

July 17, 2020

Engr. Lorena Ilagan of the University of Perpetual Help-Las Piñas discusses the ASEANSat, one of their nanosatellite collaboration with the Universiti Teknologi Mara-Malaysia.

Dr. Jonathan Maglasang shares the space initiatives and activities of the Cebu Technological University.

Dr. Cesar Domingo, Engr. John Gabriel Decena, Engr. Vicente Dy Reyes, and Dr. Jay Jack Manzano co-presented the background and space-related activities of FEATI University.

PhilSA Director-General Dr. Joel Joseph Marciano, Jr. gave a short presentation on Value Creation in Space Science, Technology and Applications and also joined the discussion.

STAMINA4Space Program Leader Dr. Gay Jane Perez highlighted the importance of the academe, its resources, and knowledge in space science and technology during the closing message.

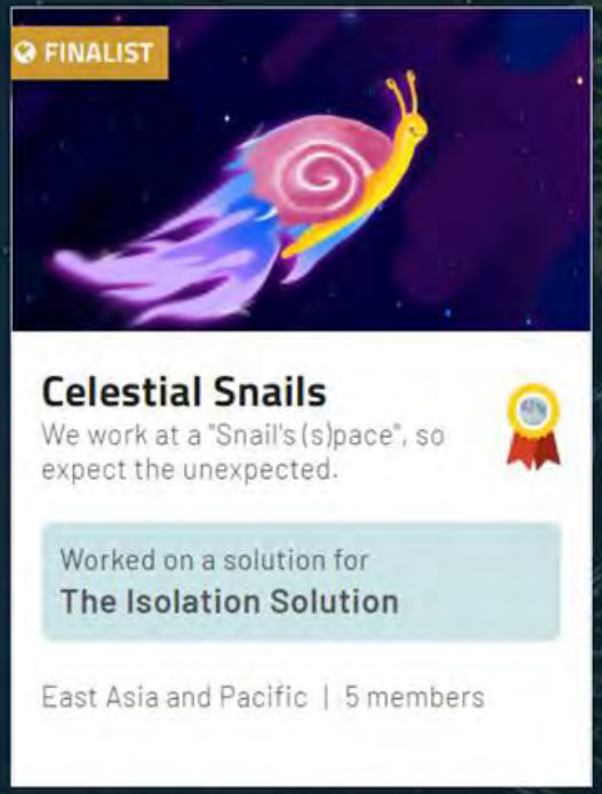
The documentation is also available at https://bit.ly/33RtSHi

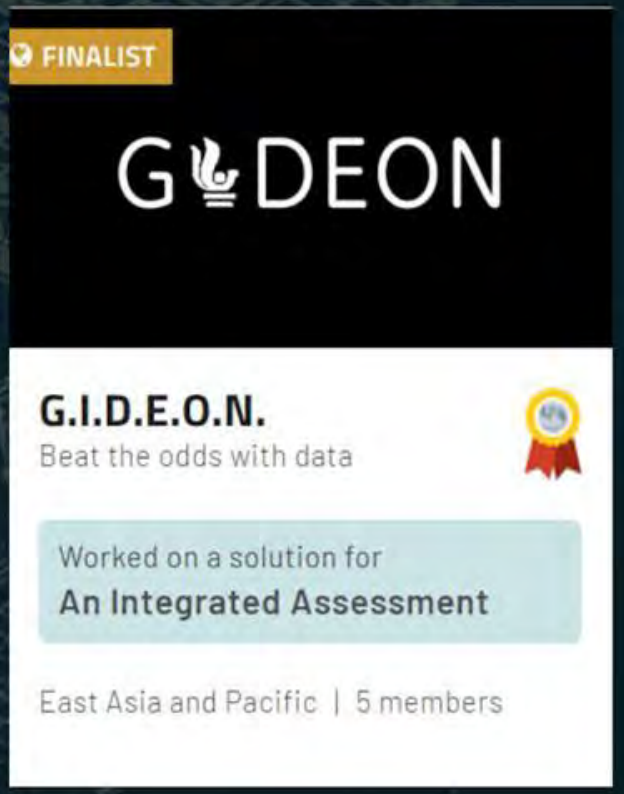
NASA Space Apps COVID-19 Challenge Finalists

July 20, 2020

Congratulations to the 40 global finalists who have been selected for the NASA Space Apps COVID-19 Challenge! Among the finalists are Celestial Snails, G.I.D.E.O.N., and Sentinellium from the Philippines.

Read about it here: https://covid19.spaceappschallenge.org/awards/global-finalists





Photos courtesy of NASA Space Apps

Philippine Satellites: Our Eyes in the Skies

July 27, 2020

Engr. Jeric Brioso was also invited to be a resource speaker for a webinar for the Philippine Science High School - ZRC Dipolog students.

The theme of the event was "Philippine Satellites: Our Eyes in the Sky".

Photos courtesy of Philippine Science High School - ZRC Dipolog

Congratulations G.I.D.E.O.N !

August 4, 2020

Congratulations to the G.I.D.E.O.N. team from the Philippines for winning the Best Use of Data Award, one of the six Global Awards in the recent COVID-19 NASA Space Apps Challenge!

G.I.D.E.O.N. (Global Impact Detection from Emitted Light, Onset of Covid-19, and Nitrogen Dioxide) is an integrated public policy information portal that aims to measure the impact of COVID-19 on various countries and its effect on economic and environmental terms.

Read more about their project here:
https://covid19.spaceappschallenge.org/challenges/covid-challenges/integrated-assessment/teams/gideon/project

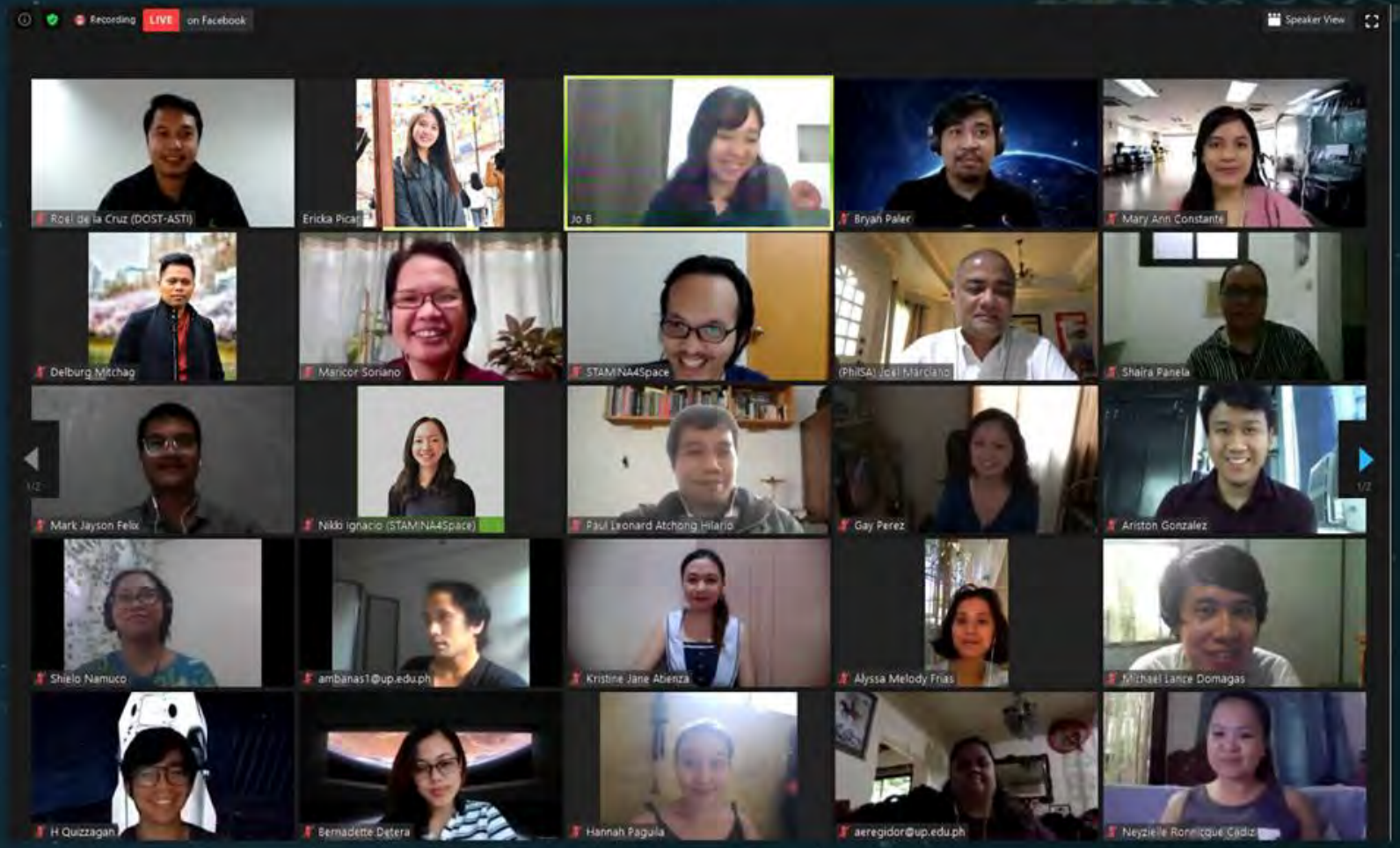
Learn about the other awardees here:
https://covid19.spaceappschallenge.org/awards/

Photos courtesy of NASA Space Apps

Our Place in Space: Press Briefing

August 6, 2020

The Space Technology and Applications Mastery, Innovation and Advancement (STAMINA4Space) Program, Philippine Earth Data and Resource Observation (PEDRO) Center, Remote Sensing and Data Science (DATOS) Help Desk, and the Philippine Space Agency (PhilSA) co-organized their first virtual press briefing, which was attended by media and live streamed on Facebook.



Our Place in Space: Press Briefing

August 6, 2020

Here are the speakers and their presentation titles:

Our Place in Space: Press Briefing

August 6, 2020

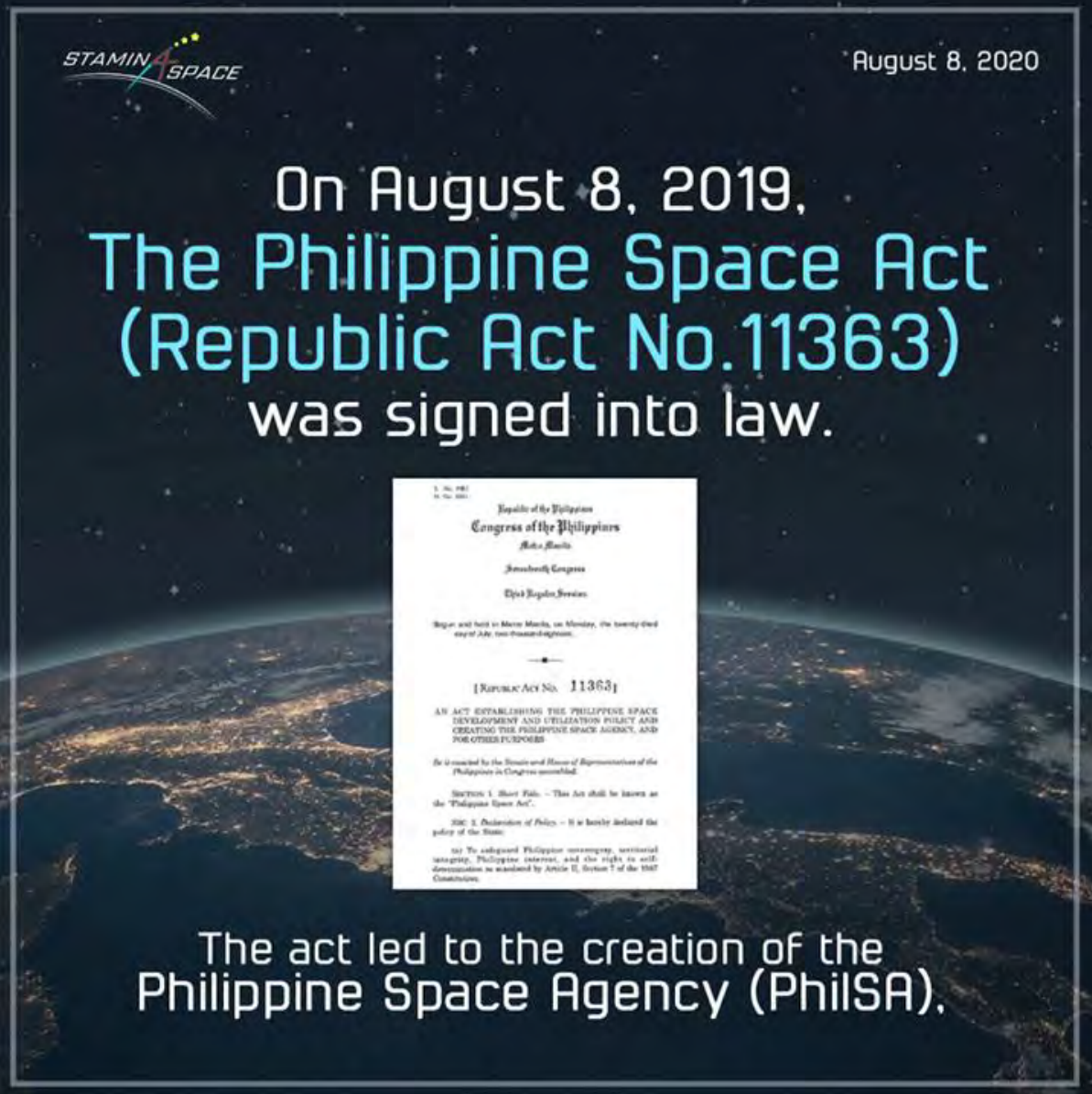
Opening message from Department of Science and Technology (DOST) Secretary Fortunato dela Peña

Closing remarks from the Space Technology and Applications Mastery, Innovation and Advancement (STAMINA4Space) Program Leader Dr. Gay Jane Perez

Philippine Space Act 1st Anniversary

August 8, 2020

The act was made as "An act establishing the Philippine Space Development and Utilization Policy and creating the Philippine Space Agency(PhilSA), and for other purposes".



Maya-1 ISS Release: 2nd Anniversary

August 10, 2020

Maya-1 was released from the International Space Station on August 10, 2018.

Ikalawang anibersaryo ng Maya-1 sa kalawakan

Ito ay pinakawalan mula sa International Space Station (ISS) noong Agosto 10, 2018.

Litrato mula kay Alexander Gerst/ESA

(In Tagalog)

Buwan ng Wikang Pambansa

Sa Pilipinas, ang Agosto ay Buwan ng Wikang Pambansa.

(In English)

National Language Month

In the Philippines, the national language is celebrated in the month of August.

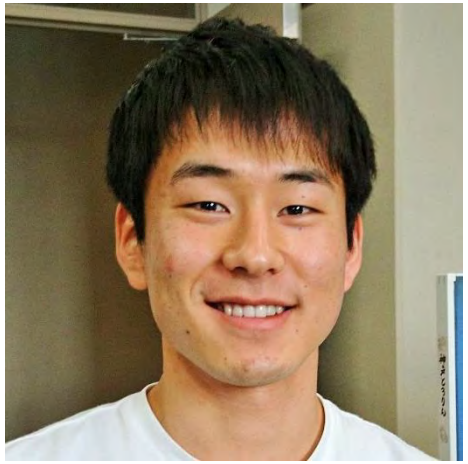
"Buwan"

(Noun) Means both 'month' and 'moon' in Tagalog, one of the many Filipino dialects.

We'll be featuring other dialects in the next issue!

BIRDS-4 Reports
are on the following pages

COVID-19 Safety Precautions in Fukuoka



Tomoaki MURASE

August 07, 2020

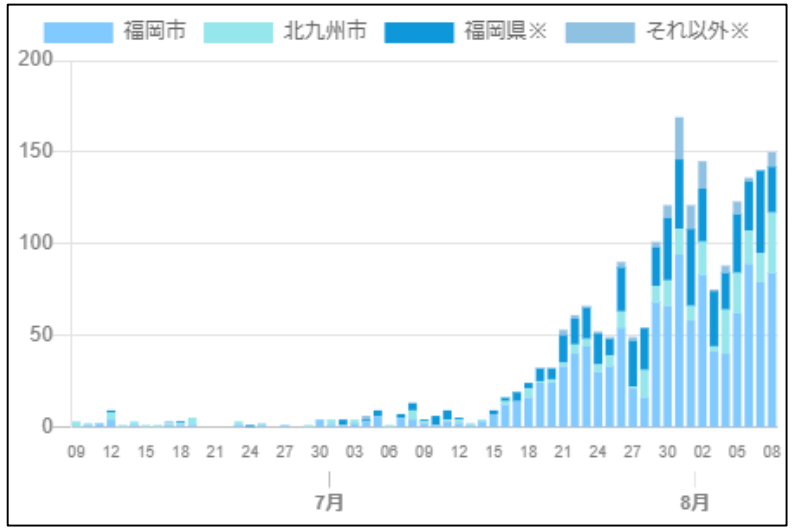
BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

COVID-19 Safety Precautions in Fukuoka

Written By: Tomoaki Murase

The number of COVID-19 infected persons are increasing day by day in Fukuoka. Below graph shows the changes in the number of infected people in Fukuoka. Therefore, Fukuoka Prefecture has opened a website that provides information on COVID-19. The website…

https://fukuoka.stopcovid19.jp/



The changes in the number of infected people in Fukuoka
(Blue color is for Fukuoka city, light blue color is for Kitakyushu city, navy is for other cities in Fukuoka.)

provides not only infection information but also information on efforts to prevent infection and compensation.

This is the link for the website:

https://www.pref.fukuoka.lg.jp/contents/covid-19-portal.html

According to the website, they suggest to us that change our lifestyle.

- Eat side by side in restaurant.
- Wear a mask and wash your hands frequently
- Use cashless payments
- Use online shopping
- Take out or delivery
- Take public transportation to avoid busy times.
- Choose a free time and place to go to the park.

Fukuoka Prefecture has set strict guidelines for preventing new coronavirus infections at restaurants and commercial facilities. There are detailed check items whether you are working on preventing coronavirus infection, and if you meet the criteria, a sticker like the photo will be issued. The shop with this sticker pays close attention to the coronavirus, and the customers will be able to use it more safely.

Let's only go to the restaurants where this sticker is present.

End-to-end Connectivity Test Using RF Shieldbox

Marloun P. Sejera

August 07, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

End-to-end Connectivity Test Using RF Shieldbox

Written By: Marloun P. SEJERA

Closing in to the hand-over of the three FM satellites to JAXA, the team decided to conduct final end-to-end connectivity test. This is especially needed to verify that all the satellites are performing on the same level : can receive uplink commands, and downlink telemetry & mission data from and to the ground station.

There are three ways to conduct it: (1) through actual long range test, (2) through the use of anechoic change, or (3) through the use of RF shield box. The team chose the RF shield box as this is the safest in terms of the satellites not taking damage.

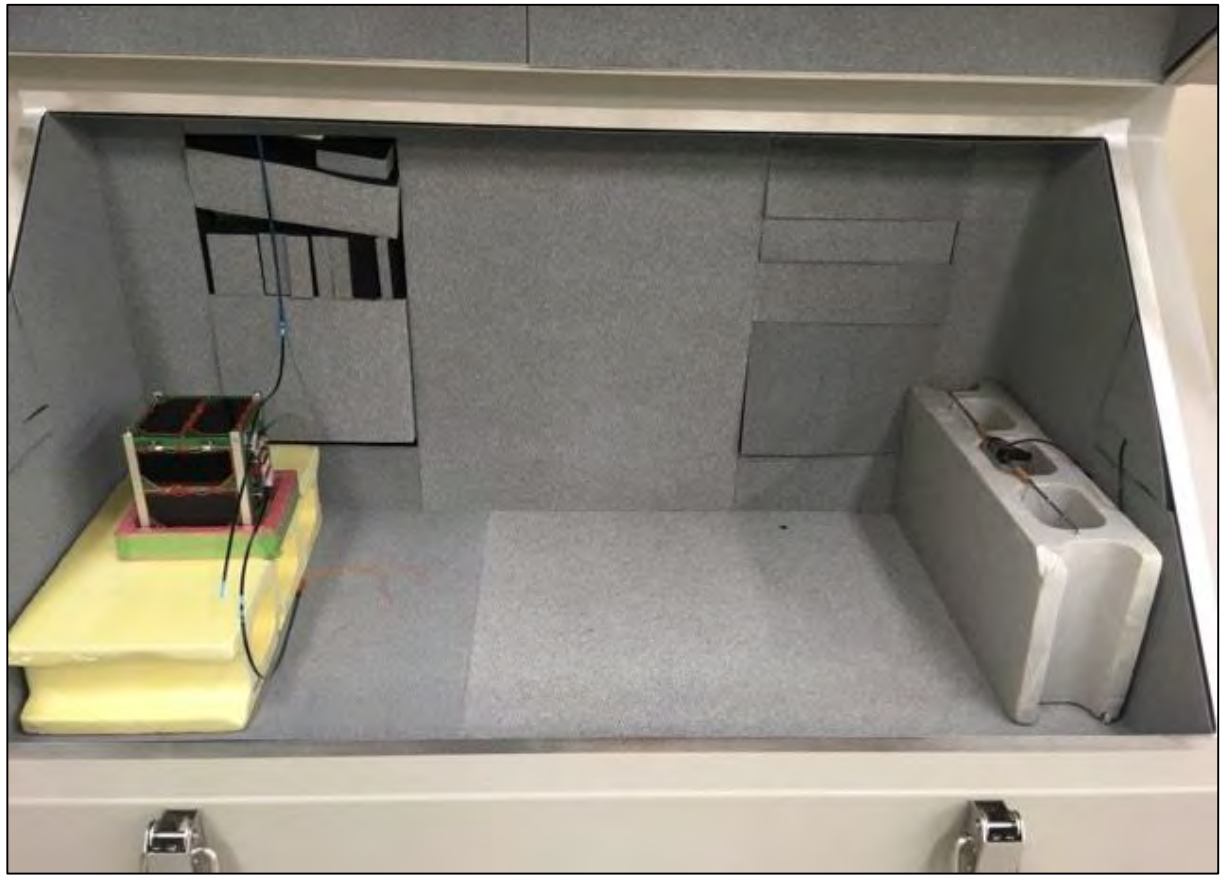
An RF shield box can be used to perform wireless tests of devices with minimum radio interference from the background. It also ensures that the device under test will not violate the use of lease radio frequency bands during operation. Kyutech's CeNT (Center for Nanosatellite Testing) has Micronicx MY1530. This 1m x 0.5m x 0.5m RF shield box can shield electromagnetic waves with power of up to 70dB at 2.4 GHz.

RF shield box at 2F cleanroom of SVBL Building

End-to-end Connectivity Test Using RF Shieldbox

Written By: Marloun P. SEJERA

The test setup includes the FM satellite inside the shield box turned on ready to receive uplink command, and transmitting telemetry and mission payload. A commercial dipole antenna is connected to the ground station outside and is finally placed inside the box. Following the test plan used during the end-to-end test in the anechoic chamber, the ground station sends uplink command. When ACK from satellite is received, it is considered a success. Uplink command is sent 10 times. Additional attenuator is placed and test is again conducted. This is repeated until success rate becomes zero. Uplink sensitivity is defined at 50% success rate. Results show that the three FM satellites' performance are at par with each other.



BIRDS-4 FM satellite inside the shieldbox

BIRDS-4 Updates

Izrael Zenar Bautista

August 07, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

BIRDS-4 Updates

Written By: Izrael Zenar Bautista

On June 30, a Flight readiness review was done for so that BIRDS-4 members could give the latest information about the status of the BIRDS4 satellites and the Professors/*Senseis* could give their comments and recommendations for the necessary steps to be done in order to deliver the satellites to JAXA on time and with confidence that they would work once deployed in space.

The Flight readiness review was via ZOOM and was attended by all BIRDS-4 members even though some are half-way across the world. Professors reviewed the Requirement allocation sheet and checked if BIRDS4 was able to accomplish the tasks written there.

The meeting concluded with the things that BIRDS-4 members should finish in the remaining 2 months of satellite development before the September turn-over of the satellites to JAXA. The images in this report show the activities BIRDS-4 did after the Flight readiness review until the final Vibration test.

BIRDS-4 members checking the Engineering model of the satellite for functionality testing

BIRDS-4 Updates

Written By: Izrael Zenar Bautista

BIRDS-4 members testing final solar panel to ensure power generation for the satellite

BIRDS-4 members carefully handling the assembled flight model to prepare for long duration testing

BIRDS-4 members uploading the final flight software for the satellites while following detailed procedures

Safety Review Documentation for Phase 3

Yiğit Çay

August 07, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Safety Review Documentation for Phase 3

Written By: Yiğit Çay

The safety reviews of JAXA has 4 different phases from the beginning of the development of the satellite until the delivery. For the satellites with relatively short development time and less complexity in design in terms of safety concerns, some of these phases can be merged. For BIRDS-4, Phase 0, 1, and 2 had been merged in October 2019 and we had passed this step with JAXA's approval.

Phase 3 is the last step of these safety controls and as each phase, it leads to a safety panel in JAXA for the satellites individually. After all the phases are completed, Safety Fracture Control Board (SFCB) is gathered to check specifically if the flight models are actually suitable for all the safety items, once more.

Phase 3 and SFCB panels gather the safety teams in JAXA within a short meeting and for these panels, the developer team does not require to attend physically. After the panels are done, the questions regarding the submitted documents are sent to developers for them to provide official answers representing the team's final decision towards these questions.

The deadline for submitting documents for the last panels is set at least 1 month before the satellite delivery for the BIRDS project. Our deadline is set as August 16. We'd submitted our reports within June after completion of our FM tests but due to the recent re-tests, we have this new deadline.

In Phase 0, 1, and 2, we were supposed to send 11 documents while…

…for Phase 3, we were asked to update some of these documents and add 16 more documents with 7 back-up reports for the test reports. In total, we've submitted 34 reports, and some of them were asked after the submission as the back-up material or proof-of-concept in test documents in case questions are asked about these.

Some documents such as inhibit verification or vibration test had to be reported separately for each satellite, meaning an additional 4 reports. Writing these reports and organizing them was forcing me to overwork as the other very busy deadlines of the development phases, so I think I took care of it as usual.

Safety Review Documentation for Phase 3

Written By: Yiğit Çay

After the document submission and all the questions are replied, I'll be going JAXA to deliver the satellites at the end of September.

Recently, we've decided to initiate BIRDS-5 training activities. As one of the activities, I'll be teaching the team about the safety procedures they need to follow for their satellites.

With the cooperative activities in the team, I believe we'll complete this phase properly and our safety documents will enlighten BIRDS-5 team members when they're writing their safety reports.

Social Distancing around Kitakyushu During Quarantine Period

Mark Angelo C. Purio

August 07, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio

2020 has been a very striking year for the world. This is not finish yet, but we were already bombarded with unsolicited occurrences which led to a change in human lifestyle. The onset of CoVID-19 pandemic was so noteworthy the people from all walks of life are affected until now. Countries all over the world, have created pertinent measures to mitigate the effects of the pandemic specific to their area for the betterment of every citizen. In the Philippines, per se, a total lockdown was enforced to lessen human interaction and contact, therefore, limiting the spread of the virus.

Japan also implemented methods in response to Corona Virus in order to minimize the effects of the pandemic to its residents.

In April 7, the declaration of a state of emergency is intended to further accelerate existing measures to beat the impending effects of the virus. On the other hand, restrictions on people's freedoms and rights must be minimal. Designated prefectures requested residents to cooperate voluntarily in self-restraint of leaving home as measures to prevent pandemic. Source

In Kitakyushu, in as much as we want to stay at home long enough as the government asks, there will come a point when there is really a need to go out not only to buy essentials but also to free up your mind from stress. The core of being vigilant while outside is perhaps proper wearing of mask and practicing social distancing.

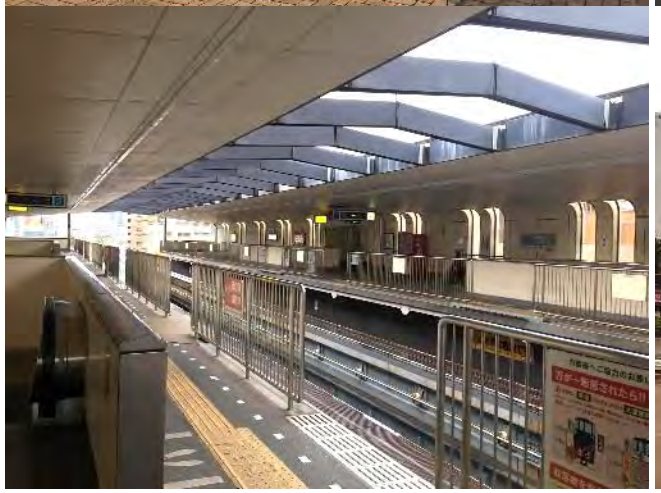
As a personal anecdote, there came a point during the quarantine period that I needed to go out: breathe fresh air and clear my mind from the awful things happening around me. Having this in mind and while taking into consideration the 3 C's (confined spaces, crowded places and close contact) to avoid, I decided to practice social distancing by being away from people while being closer to nature. This article accounts the places I visited around Kitakyushu during quarantine period. It should be noted that precautionary measures where still practice while doing such activities. Important aspects are wearing masks, avoiding contact with people and not using public transportation (ride your bike instead).

Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio

Day 11 of Lockdown.

Managed to go outside to do some chores and groceries and noticed that most of the establishments are closed and almost no people outside.

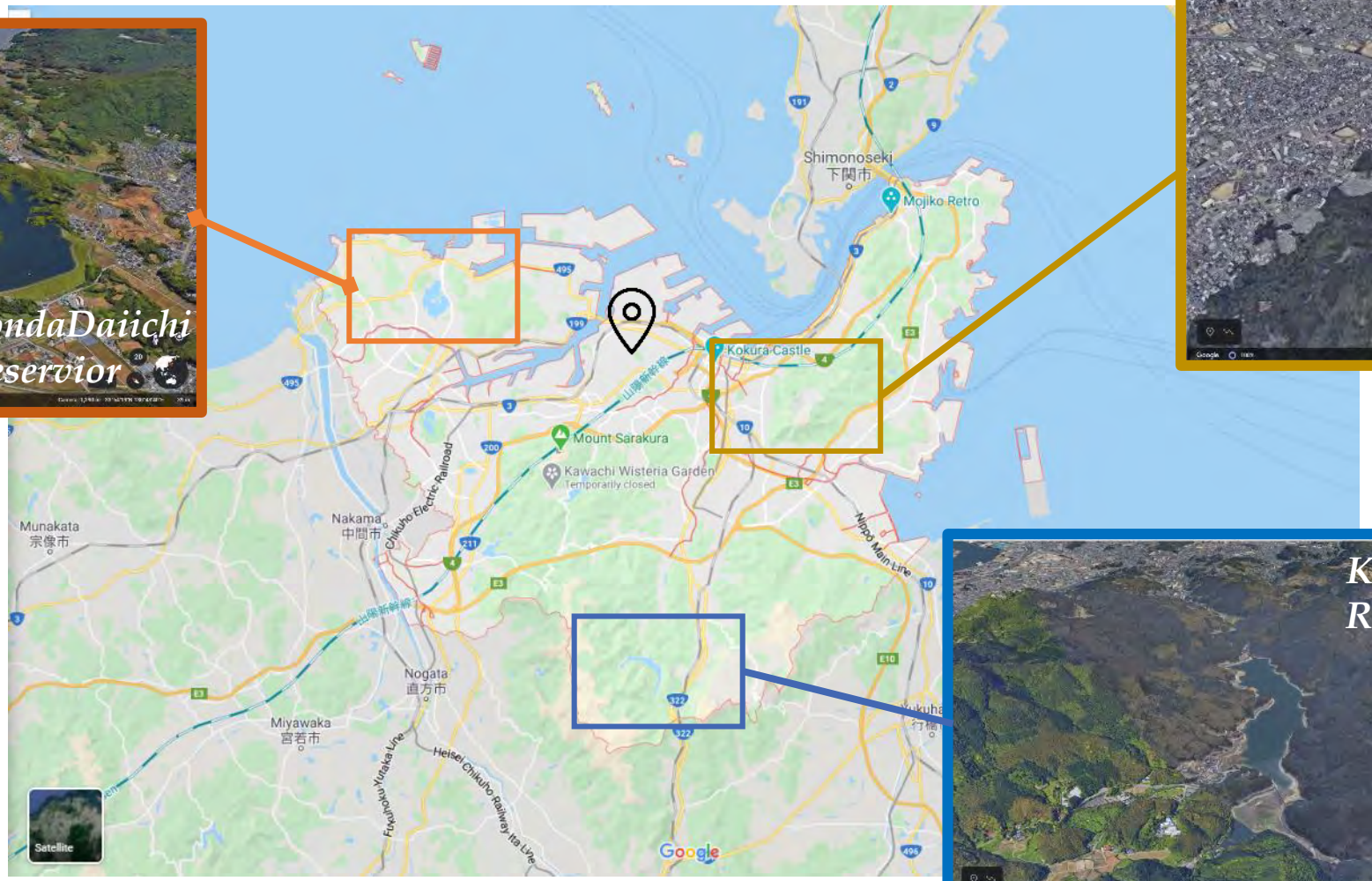


This is after Japan declared its state of emergency. I took all precautionary measures while outside by the way.

Mind you, there are no policemen around to enforce the lockdown. People have the liberty to go outside but they tend to stay at home. The marketplace feels like a ghost town. Malls only opened important stalls like the grocery and pharmacy.

Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio



The locations of the places as indicated in the map. The place where KyuTech is and where I live is pinned for distance reference.

Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio

1. *Kawachi Reservior*

The Kawachi Reservoir was constructed for the industrial water supply to Yawata Steel Works. The dam was constructed at the Okura River and upper stream of the dam was expanded and making the 7milion cubic meter reservoir. Source

On a personal note, this is a place where both nature and man-made landscape merged. There are literally less people, close to none. Around the dam is a constructed path, perfect for a bike ride while enjoying a scenic view. Don't forget to bring "bento" since there are no food establishments in the area, only vending machines (off course, it's Japan).

For more, see the video link.

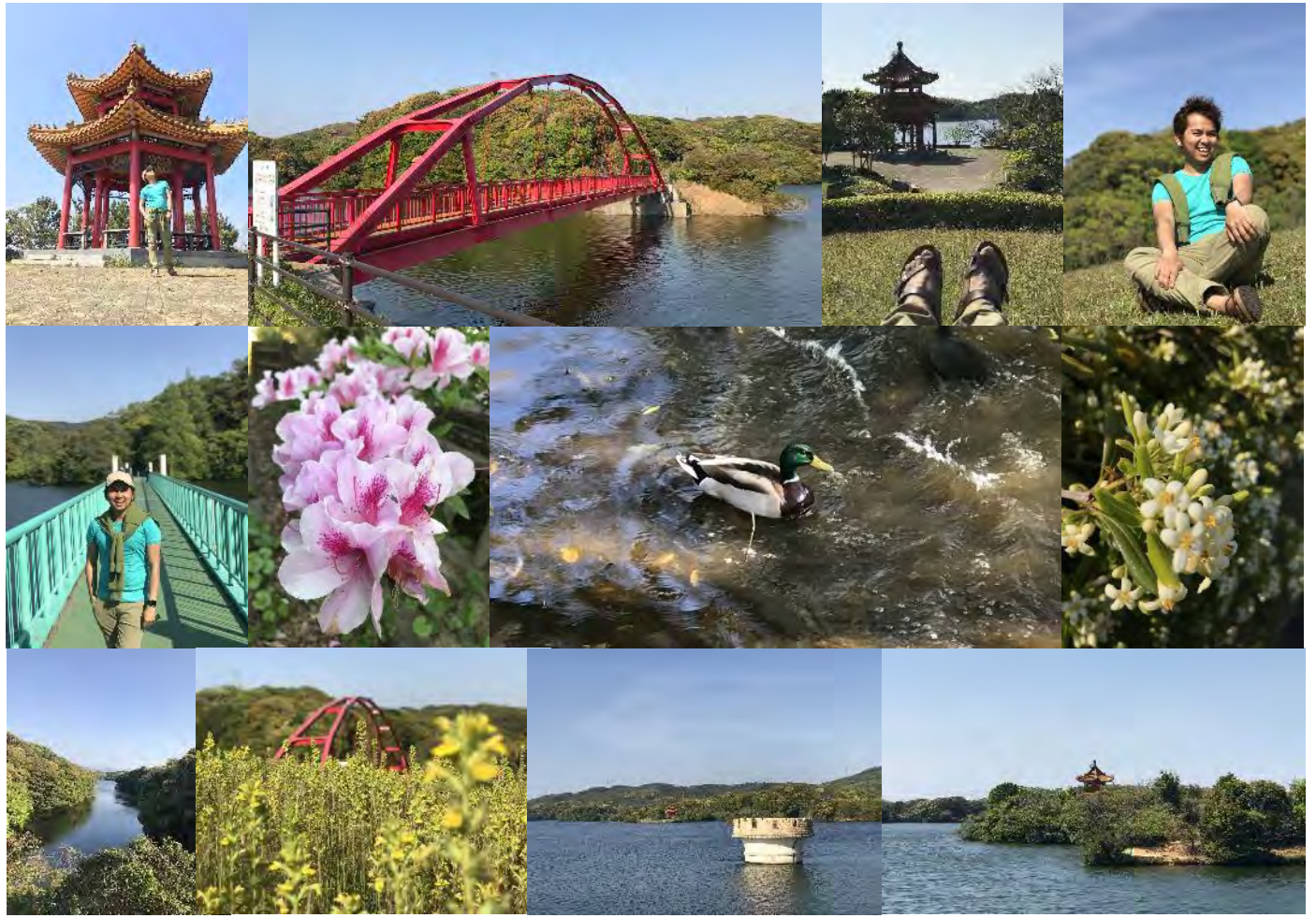
Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio

2. *Tonda Daini Reservior & Tonda Daiichi Reservior*

These 2 reservoirs are separated by a bridge and a lush vegetated small islands in the middle. A long bike ride from Tobata area, options can be either crossing the bridge or bringing the bike with you in a short ferry ride to wards Wakamatsu. Still a long ride from the port but one will come across industrial areas with solar farms and gigantic windmills.

The reservoir has landmarks and teeming with different species of birds inhabiting the area. This is good for long walks and inter island stroll. This large are will allow you to enjoy an open space while doing social distancing.



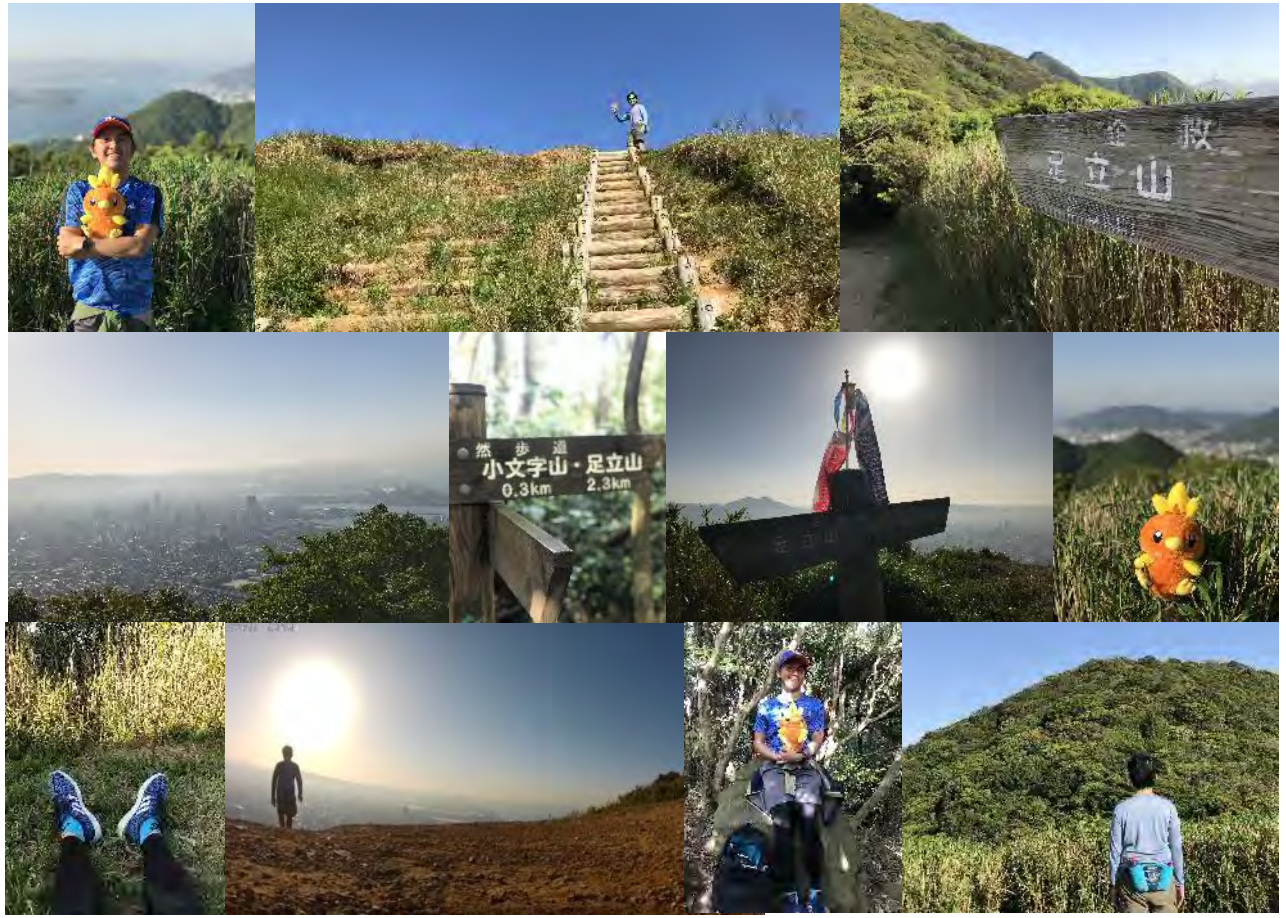
Social Distancing around Kitakyushu During Quarantine Period

Written By: Mark Angelo C. Purio

3. *Mt. Kimonji, Tomino*

Situated at Tomino, far north of Kokura, this elevated area gives you a glimpse of the entire Kitakyushu cityscape as well as Kanmon area. If you are a mountain trail enthusiast, this is a good place to go. The trail is manageable even for beginners. Off course there will be people who hike as well, but contact is very minimal to none. The top is a barren portion of the mountain where there are tables and chairs. It also leads to another trail going to the higher part of the mountain.

Despite of what this pandemic brought us and although staying at home is always the best thing to do, it is always good to experience something new from time to time by being away from people and closer to nature. Kitakyushu can offer this!!!



Short mountain video. Link
Going down the mountain video. Link

Lapacho Bloom in Paraguay

Adolfo Jara

August 10, 2020

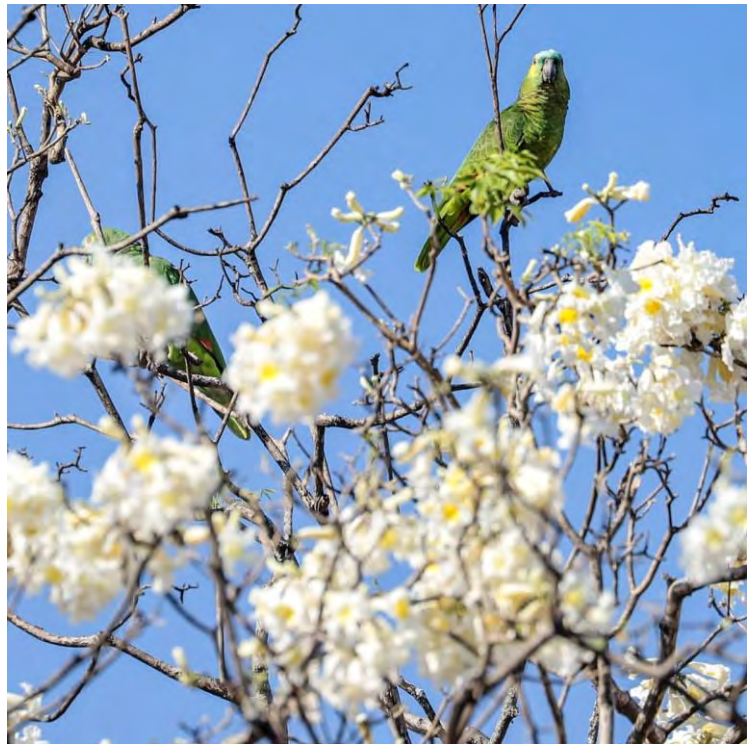
BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Lapacho Bloom in Paraguay

Written By: Adolfo Jara

The lapacho is the national tree of Paraguay, it is one of the most colossal trees in our land and according to specialists, there are 6 species: 3 varieties of pink lapacho, two yellow lapacho and a white lapacho.

Yellow lapacho [source]



White lapacho [source]

Not only does it have wonderful colors for visual delight, but it also has medicinal properties too. These trees can reach up to 40 m in height and some species are known to reach trunk diameter of 2 meters.

Pink lapacho [source]

The pink lapachos bloom in August and their flowers carpet our streets with their colors while the yellow lapacho species waits until middle of spring.

Lapacho Bloom in Paraguay

Written By: Adolfo Jara

Friendship Day in Paraguay

Anibal MENDOZA

August 7, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Friendship Day in Paraguay

Written By: Anibal MENDOZA

Friend's Day is a proposed day to celebrate friendship. It has as a precedent the World Friendship Crusade that had been established in Paraguay in 1958, and which is celebrated every July 30 under the name of Friendship Day. In other Latin American countries it is celebrated on different dates. In Argentina, Brazil and Uruguay, the most popular proposal is that of the day man reached the Moon (July 20, 1969).

On April 27, 2011, the United Nations General Assembly finally resolved to invite all member countries to celebrate International Friendship Day on July 30 of each year, following the original proposal promoted by the World Friendship Crusade. *Source*

Origin:

During the 20th century, there were several initiatives for the celebration of a Friendship Day, in different parts of the world. In the United States and parts of Asia, the first Sunday in August was announced as the day of delivery of greetings and presents between friends, and similar celebrations were conformed in different countries of South America and Europe, on different dates. In countries such as Argentina, Uruguay, and Paraguay, Friend's Day is deeply rooted in society.

The initiative for the establishment of an internationally recognized Friend's Day had a historical precedent called the World Friendship Crusade, which was a campaign in favor of giving value and… …enhancing Friendship between Human Beings, in a way that allows promoting the Culture of the Peace.

Friendship day celebrations at schools
Source: "Fundación Amigos de Guarderías Infantiles"

Friendship Day in Paraguay

Written By: Anibal MENDOZA

It was devised by Doctor Ramón Artemio Bracho in Puerto Pinasco, Paraguay in 1958. Based on this idea, July 30 was set as Friendship Day. In Paraguay, the eve of July 30 is used to buy gifts for close friends and couples, parties in bars, discos or a dinner with close friends are very common. The game of "Invisible Friend" is also considered traditional, where the names of all the members of a group are distributed in small papers and the one who is elected (secretly) is given a present on the 30th. This custom is widely practiced in Asunción and other Paraguayan cities in schools and workplaces.

Different kind of activities are done by groups of people during this special day, like camping and climbing.

In other countries?

In Argentina and Brazil it is celebrated on July 20. In Argentina, the date honors the act carried out by Enrique Ernesto Febbraro who sent 1,000 postcards around the world the day the man reached the Moon. According to the author of the initiative in various interviews, "I had this idea for a long time," although Febbraro's statements to the press have been confusing as to what actually led him to do so. According to one of them, when he heard that the landing of the module was a gesture of friendship, from humanity to the universe, it occurred to him that this could be the Day of the Friend, for that reason he sent a thousand postcards to all parts of the world. *Source1 and 2*

In Other Countries

Written By: Anibal MENDOZA

From his office in Lomas de Zamora, in Buenos Aires, he sent a thousand letters to a hundred countries, of which he received 700 responses. His idea ended up being patented in the intellectual property registry in 1972, then he donated it to the Rotary Club, of which he was a member. A decade after Neil Armstrong stepped on the Moon, the Government of the Province of Buenos Aires established through Decree 235/79 the officialization of Friend's Day.

In Bolivia, two dates are celebrated, first on July 23 of each year known as "Friendship Day", and the second on September 21, it is a day much remembered among society, since spring officially begins and in the same way the Day of Love and Youth is celebrated.

Source1 and 2

It has no official existence in Chile. Over the years there have been several attempts to establish it: first Friday in October (for Saint Francis of Assisi), February 14 (as "Valentine's Day and Friendship Day"), and so on. , but they have not had a lasting echo in the population. The latest attempt, begun in 2010, seeks to establish it on July 20, although it is being strongly promoted by restaurant chains, it does not present greater acceptance than previous attempts.

Although some assure that the International Day of the Friend in Spain is July 20, in no Spanish party calendar does a celebration appear for this reason.

In Colombia, it has been celebrated on the third Saturday of March since 2012. On February 14, it begins to become more common and welcoming for the celebration of Valentine's Day. For this reason, the Day is no longer celebrated of Friendship on this day, likewise according to FENALCO, on September 20, 2014 the celebration of the Day of Love and Friendship continues, without leaving aside the traditional game of "secret friend".

In the United States, the first Sunday in August is International Friendship Day.

In Other Countries

Written By: Anibal MENDOZA

The celebrations in Paraguay have their origin in the World Friendship Crusade founded in this country in 1958. Since this year, July 30 has been set as Friendship Day. In 2011, July 30 was declared International Friendship Day by the United Nations.

In Peru, at the initiative of a group of Peruvians who traveled to Argentina in 2004 and saw the celebrations of Friend's Day in that country and seeking to promote the Peruvian values of true friendship, a social movement was created in early April 2009. In favor of institutionalizing "El Día del Amigo" in Peru. Friend's Day is celebrated in Peru since 2009 on the first Saturday in July from an initiative of the Backus y Johnston brewery company.

In Venezuela, Mexico, Peru, Ecuador, Panama and the Dominican Republic, February 14 is the Day of Love and Friendship. *Source1, 2, and 3*

Happy friendship day to everyone!

End of
BIRDS-4 Reports

Outreach activity in Mongolia

by Tuguldur Ulambayar (15 August 2020)
Researcher
Nano Satellite Development Laboratory
National University of Mongolia

Public Astronomy

Making **Scientific Boxes** for space science outreach in the remote area

Public Astronomy

Star observation with a herder family in a rural area

New publication reminder #1: New BIRDS document

This document consists of 21 pages.


BIRDS
International
Capacity Building Platform

革新的宇宙利用実証ラボラトリー
Laboratory of Lean Satellite Enterprises and In-Orbit Experiments

Sangkyun Kim

1 July 2020

Kyushu Institute of Technology

DOWNLOAD THIS NEW DOCUMENT FROM HERE

https://kyutech-laseine.net/english/download.html

New publication reminder #2: New SEIC document

This document consists of 38 pages.

Space Engineering International Course

Kyutech
Kyushu Institute of Technology

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https://kyutech-laseine.net/english/download.html

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Fifty-Five

This newsletter is archived at the BIRDS Project website:
http://birds1.birds-project.com/newsletter.html

When a new issue is entered in to the archive, an email message is sent out over a mailing list maintained by the Editor (G. Maeda, Kyutech). If you wish to be on this mailing list, or know persons who might be interested in getting notification of issue releases, please let me know.

This newsletter is issued once per month. The main purpose of it is to keep BIRDS stakeholders (the owners of the satellites) informed of project developments.