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. 56
(23 Sept. 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 Vietnam **The Guest Box**

Son Doong Cave (ソンドン 洞窟)

“Sơn Đoòng” cave which found by a local man in 1991 is the world's largest natural cave . The name "Son Doong" cave means "mountain river cave", it was created 2-5 million years ago by river water eroding away the limestone underneath the mountain. Where the limestone was weak, the ceiling collapsed creating huge skylights. You can spend 5 days for trekking to discovery the stunning view of the cave. -by Minh Pham, new SEIC/PNST student

5-min. video about this cave:
https://www.youtube.com/watch?v=og_1u8RFmuI

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

END OF TABLE OF SECTIONS

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.

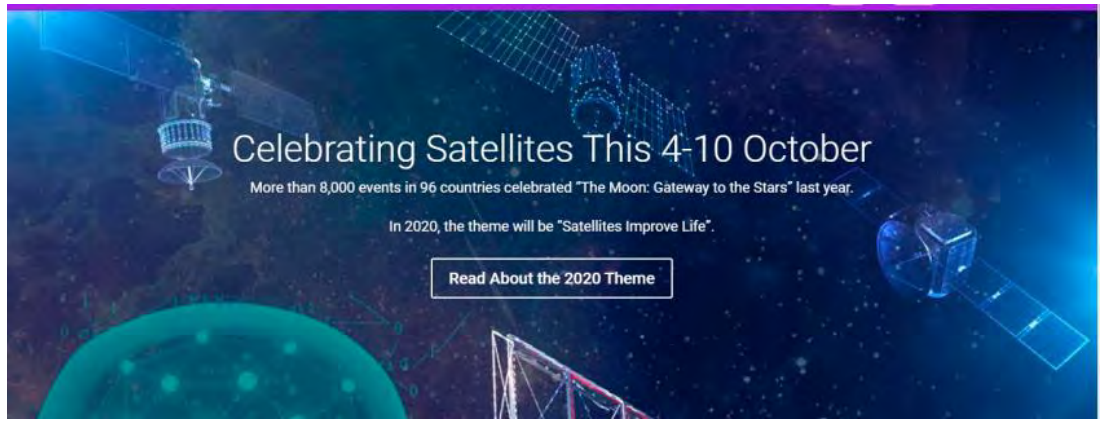
Request

If your country observes World Space Week (4-10 October) with events, please write about them for this newsletter. Deadline for submissions is 16 Oct. 2020.

Please submit in PowerPoint, with lots of photos. Each photo should have a caption. Keep the bottom 1.5 cm clear (the bottom page margin) for each page. Be sure to include your name and date on the cover sheet.

Sincerely,
G. Maeda
Editor, The BIRDS Project Newsletter

World Space Week OCTOBER 4-10



My first impressions: Experiential learning via real world projects

by Joseph Ampadu Ofosu

17 August 2020

Member of Staff, LaSEINE

Kyushu Institute of Technology (九州工業大学)

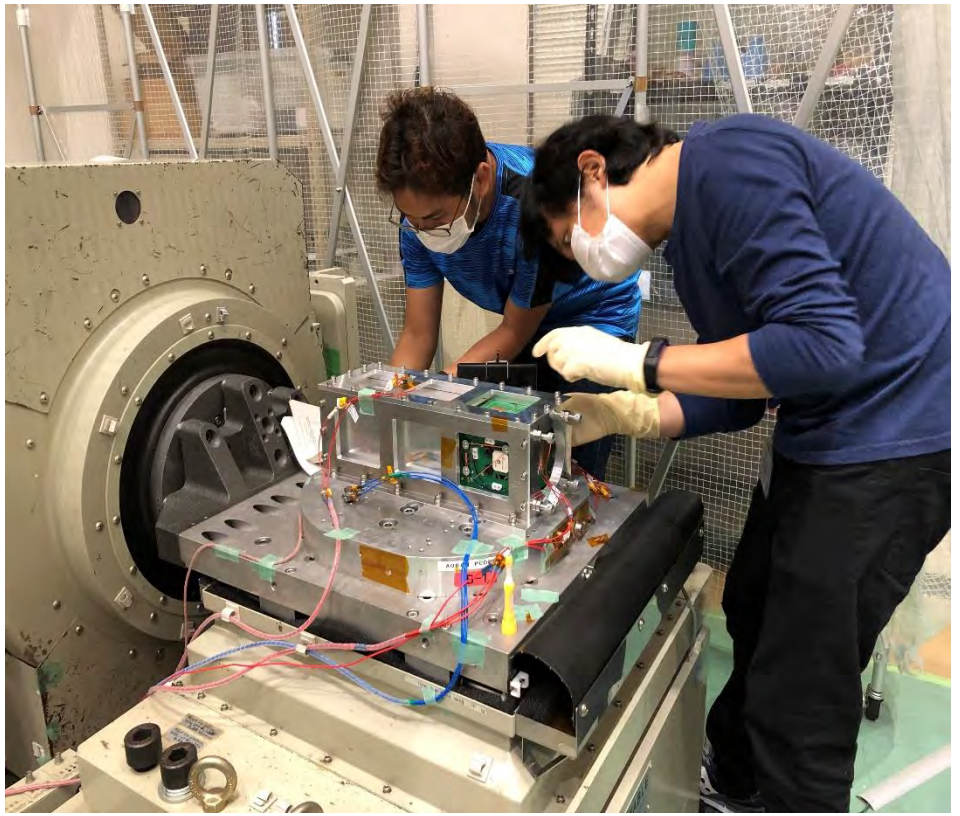
Editor’s note: Read his “Self Introduction”: Pages 120-123 of Issue No. 52 of the *BIRDS Project Newsletter*

Hands-on training with Real-life Projects

- In LaSEINE, the name of the laboratory is not just an expression of what the laboratory intends to accomplish or achieve hopefully with students. LaSEINE is where students develop CubeSats projects right from the mission design to the operation of the satellite. Entire projects including the assembly, integration and verification processes are done by the students of LaSEINE.
- For the first time, I was amazed to observe students working on projects to be deployed at the ISS into space. Literally, all projects are real-life projects for a particular technical or scientific demonstration objective.
- Students who might not be directly interested in the building of these CubeSats, have their theses or studies aimed at a topic useful for satellite scientific/ technical missions. The BIRDS project heritage ensures that new students with no technical skill relating to satellite missions, transition easily into projects by learning directly from senior students.

Students preparing for testing of satellites

MAYA3 CubeSat being prepared for thermal vacuum test



MAYA3 CubeSat being prepared for vibration test

Students integrating BIRDS-4

Students working on the BIRDS-4 Project can be seen as follows:

Top: preparing for solar panel attachments

Right: assembling parts of the CubeSat

Assembling and Integrating BIRDS-3

In these pictures, students are assembling and integrating the flight models of BIRDS-3 (Japan, Nepal, and Sri Lanka)

Could there be any much better way to learn?

- Studying by developing satellite projects from mission design to operation is probably the best way to learn the principles of satellite engineering. Students from various engineering disciplines and sciences: aerospace, mechanical, electrical, physics, etc., work together on different aspects of the project, thereby learning system engineering and project management skills right from the beginning.
- Could there be a much better approach than this? Probably not.

The End

Please forward this *SDGs Global Leader* info to a young person who might benefit from it.

Introducing JICA's

SDGs Global Leader

Applications for FY2020 were closed in November 2019. Next application period begins in October 2020 (*To Be Announced*).

If your country has a JICA office, it is likely that you can apply. Forward all your questions to that office (not to Kyutech). In any case, Kyutech is registered with this SDG program, so that if you apply with a wish to attend SEIC, and you are accepted by JICA, then you can study in SEIC at Kyutech with this scholarship from JICA.

Overview

1. Background / outline

Until now, JICA has provided training programs as a part of technical cooperation in various fields. In order to strengthen a network among the target countries in respective fields, JICA established a new long-term training program, called "SDGs Global Leader" to foster young/middle bureaucrats, academicians and leading human resources in various fields of target countries who will make influence on policy making processes of their countries or will contribute to socioeconomic development in near future.

Applicants may select the university, to which he/she wishes to apply, from the universities, which have concluded an agreement on accepting JICA participants on the condition that the candidate passes the entrance examination.

Proposed research topics will be the one that contribute to the Government policy for the sustainable development such as administration/public policy, finance, international politics, regional research, business, international trade/investment, disaster risk reduction, maritime issues and so on.

In addition to the programs in the master's and Ph.D. courses, the activities such as short-term program to learn the Japanese Development Experience, networking seminar, and/or internship program will be planned in order to enrich the participants' academic and personal experience of their courses of studies at the universities.

Link for SDG information:

https://www.jica.go.jp/jica-dsp/english/cource/content/sdgs_global_leader.html

2. Objectives

1. To develop high level human resources who would contribute to appropriate policy decision and its implementation for tackling political and developmental issues in respective fields.

2. To establish and maintain mid and long term good relations between the target countries and Japan.

JICA office Bhutan

3. Target Participants

Applicants must satisfy the following requirements:

Current Duties:

Young or middle Government official, prospective academics, personnel who are expected to contribute policy formulation and/or implementation for tackling sustainable developmental issues to mainly in the fields of public policy / administration and economics.

Nationality:

Citizen of the following target countries

Age:

Less than forty (40) years old in principle

Educational Background:

Have a Bachelor Degree or Master Degree

Language:

Adequate English skills both in written and oral communication to complete the master's and/or Ph.D. courses.

Others:

Applicants must not be receiving nor planning to receive another scholarship during the program.

Link for SDG information:

https://www.jica.go.jp/jica-dsp/english/cource/content/sdgs_global_leader.html

■ Target countries

Southeast Asia	Cambodia, Indonesia, Laos, Malaysia Myanmar, Philippine, Thailand, Timor-Leste, Vietnam
Pacific	Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu
South Asia	Bangladesh, Bhutan, Maldives, Nepal, Pakistan, Sri Lanka
East and Central Asia	Mongolia, Tajikistan, Georgia
Latin America and the Caribbean*	Jamaica, Ecuador, El Salvador, Dominican Republic, Honduras, Mexico, Dominica, Guatemala, Cuba, Belize, Chile, Peru, Costa Rica, Brazil, Paraguay
Middle East / Europe	Iran, Serbia, North Macedonia
Africa	49 countries (Sub-Saharan Africa)

*Target countries for Latin America and the Caribbean vary depending on each fiscal year.

For more information, please contact the JICA overseas office in your country.

Link for SDG information:
https://www.jica.go.jp/jica-dsp/english/cource/content/sdgs_global_leader.html

4. Number of Participants / Duration

JFY2019: 56 participants (Master's Program: 43, PhD Program: 13)
In principle, 2 years for Master's Program and 3 years for Ph.D. Program (It depends on each program offered by universities)

5. Expenses to be borne by JICA

Under the JICA Long-term Trainee Allowance standards, JICA will cover expenses and allowance to participants accepted for the program. A payment amount of the living allowance will be calculated in accordance with the Japanese Government (MEXT) Scholarship standards. The grant which support your research, such as purchase of books or necessary equipment, participation fees for academic conference, research trips, etc. can be also provided by JICA. Note that the payments (e.g. for tuition, research support expenses, school support expenses) will not be paid to the training participants themselves, but directly to the university or other relevant institutions.

This JICA scholarship is a great opportunity for working professionals !

Link for SDG information:
https://www.jica.go.jp/jica-dsp/english/cource/content/sdgs_global_leader.html

6. Application schedule (TBA) *Application for JFY2020 has been closed in November 2019.

← IMPORTANT POINT

Applicants are nominated by each country's government, and then approved by JICA. After this procedure, screening will be conducted at the proposed universities. Applicants must pass University's regular admission procedures including examinations to enter the program.

October	Application information are distributed from the government / institute.
November	Application deadline to JICA First Screening at JICA Overseas office
December	Pre-screening by universities
January	Results notification of the pre-screening
February-April	Official application to each university
June	Results notification of the official application →Notification of Final results for the scholarship
July	Preparation for departure
August	Pre-orientation at JICA Overseas office
September	Departure

Sustainable Development Goals

Link for SDG information:

https://www.jica.go.jp/jica-dsp/english/cource/content/sdgs_global_leader.html

END OF THIS SECTION (SDGs Global Leader)

TICAD YOKOHAMA JAPAN 2019

Please forward this *ABE* info to a young person who might benefit from it.

Introducing JICA's

ABE Initiative

Applications for FY2020 were closed in November 2019. Next application period begins in October 2020 (To Be Announced).

If your country has a JICA office in Africa, it is likely that you can apply. Forward all your questions to that office (not to Kyutech). In any case, Kyutech is registered with this ABE program, so that if you apply with a wish to attend SEIC, and you are accepted by JICA, then you can study in SEIC at Kyutech with this scholarship from JICA.

1. Background

Africa's economy has been steadily increasing since 2000, due to factors such as its abundant natural resources and expansion of trade and investments. The International Monetary Fund (IMF) estimates that growth rates in Africa will remain as high as 5.4% up to 2016. While each African nation sets a target for sustainable economic development, political implementation, aimed at turning commodity-based economies into multifaceted industrialized economies through developing primary and secondary industries, is an urgent matter. On the other hand, the International Labor Organization (ILO) points out that the number of youth unemployment in Africa has reached nearly 75 million, almost one third of the youth population (200 million) in the whole region. Given these circumstances, it is expected that the yield of value-added industries and the realization of high productivity of industries in Africa, will resolve the issue as they generate job opportunities, and bring about more stabilized economies. Moreover, Japanese companies are showing strong recognition of and interest in a prosperous Africa.

At the 5th Tokyo International Conference on African Development (TICAD V), held in Yokohama in 2013, the Japanese government stated its policy of strengthening support for the ongoing dynamic growth of Africa with stronger public-private partnerships. Japanese Prime Minister Shinzo Abe announced the "African Business Education Initiative for Youth (hereafter, referred to as the "ABE Initiative"), a strategic five-year plan providing 1,000 youths in Africa with opportunities to study for Master's degree at Japanese universities and experience internships at Japanese companies. Prior to the TICAD V, Japanese industries, including the Federation of Economic Organizations (KEIDANREN) and the Japanese government, had made a joint recommendation for TICAD V at "Public-Private Council for the Promotion of TICADV". These bodies pointed out that there is a need for human resource development in both private and public sectors of Africa in order to cultivate a strong human network between Japan and Africa. The recommendation also mentioned the significance of increasing the number of African people visiting Japan, as well as increasing awareness among Africans regarding the efficiency of Japanese technologies and systems of companies. The ABE Initiative was launched based on this recommendation.

JICA has been appointed to implement a master's degree and internship program within the ABE Initiative framework developed for countries whose official requests have been approved by the Government of Japan.

See the original source

https://www.jica.go.jp/english/countries/africa/internship.html

2. Objectives

The objective of the ABE Initiative Master's Degree and Internship Program is to support young personnel who can be a "Navigator" for contributing to the development of industries in Africa. This program offers opportunities for young African men and women to study at master's courses at Japanese universities as international students (hereafter, referred to as "participants") and experience internships at Japanese companies. The aim is for them to develop effective skills in order for them to contribute to various fields. Beyond acquisition of skills and knowledge, this program also intends to cultivate excellent personnel who can recognize and understand the contexts of Japanese society and systems of Japanese companies. The expected outcome of the program is a network of potential contributors to the development of African industries who will also lead Japanese businesses to engage further in economic activities in Africa.

3. Target Participants

Target participants are from among the following three types of personnel.

Persons from the Private Sector

Young individuals who are or will be involved in economic activities in the local private sector maintaining and developing strong ties with Japanese companies and expected to Africa's development through business activities.

Governmental Officials

Young officials, such as civil servants, who take part in formulation and/or implementation of industrial policies, and are expected to contribute to Africa's development through government activities.

Educators

Young instructors/teachers in college, university or research institution in Africa, and are expected to contribute to Africa's development through joint research/development with Japanese companies etc.

See the original source

https://www.jica.go.jp/english/countries/africa/internship.html

Number of Participants/Durations

- 1st batch (arrived in 2014): 156 participants
- 2nd batch (arrived in 2015): 317 participants
- 3rd batch (arrived in 2016): 348 participants
- 4th batch (arrived in 2017): 279 participants
- 5th batch (arrived in 2018): 119 participants

It is expected that the duration of stay in Japan will be a maximum of 3 years. (6 months as a research student, 2 years as a student for master course and 6 months as an intern)

← Over 1000 students from Africa have studied in Japan under the ABE Initiative.

See the ABE video (7 minutes):
https://www.youtube.com/watch?v=IuH6KIledHo&feature=youtu.be

Kyutech has 2 SEIC students on ABE scholarships. Listen to their video:

SENIOR SHIMHANDA

Country : Namibia
Affiliation: Namibia Institute of Space Technology

HIND MAHMOUD ELHAJ

Country : Sudan
Affiliation: Institute of Space Research and Aerospace (ISRA)

VIEW THE VIDEO:
https://www.youtube.com/watch?v=3q-Kq6C1djk

Japan International Cooperation Agency

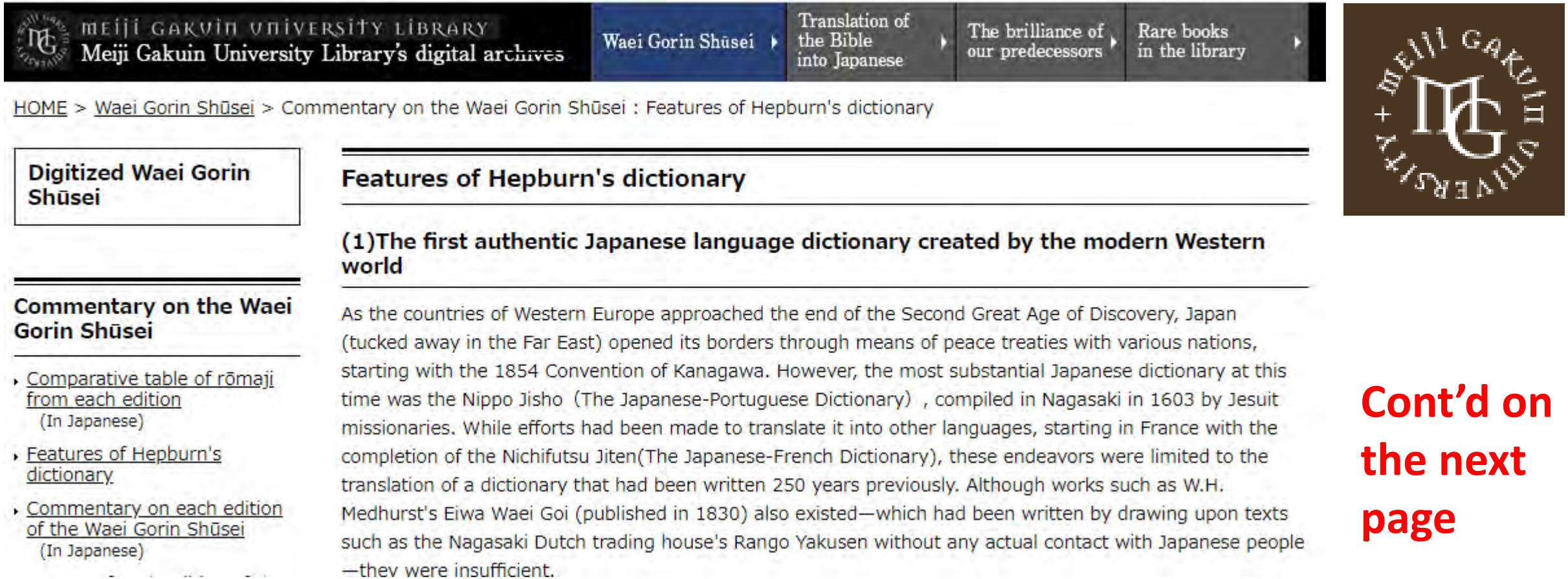
Encourage your dynamic space-oriented young people in your country to apply to applicable JICA scholarship programs.

If they pass JICA requirements, they can study SEIC at Kyutech.

END OF THIS SECTION

04. English-Japanese dictionaries: The first ones

The Hepburn Dictionary is often considered the first dictionary created by the Western side



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Waei Gorin Shūsei | Translation of the Bible into Japanese | The brilliance of our predecessors | Rare books in the library

HOME > Waei Gorin Shūsei > Commentary on the Waei Gorin Shūsei : Features of Hepburn's dictionary

Digitized Waei Gorin Shūsei

Commentary on the Waei Gorin Shūsei

- Comparative table of rōmaji from each edition (In Japanese)
- Features of Hepburn's dictionary
- Commentary on each edition of the Waei Gorin Shūsei (In Japanese)

Features of Hepburn's dictionary

(1)The first authentic Japanese language dictionary created by the modern Western world

As the countries of Western Europe approached the end of the Second Great Age of Discovery, Japan (tucked away in the Far East) opened its borders through means of peace treaties with various nations, starting with the 1854 Convention of Kanagawa. However, the most substantial Japanese dictionary at this time was the Nippo Jisho (The Japanese-Portuguese Dictionary) , compiled in Nagasaki in 1603 by Jesuit missionaries. While efforts had been made to translate it into other languages, starting in France with the completion of the Nichifutsu Jiten(The Japanese-French Dictionary), these endeavors were limited to the translation of a dictionary that had been written 250 years previously. Although works such as W.H. Medhurst's Eiwa Waei Goi (published in 1830) also existed—which had been written by drawing upon texts such as the Nagasaki Dutch trading house's Rango Yakusen without any actual contact with Japanese people —they were insufficient.

Cont'd on the next page

Link for the above:

http://www.meijigakuin.ac.jp/mgda/waei/kaisetsu/tokucho.en.html

But the “Satsuma Dictionary” is generally the first dictionary created by the Japanese side

Satsuma dictionary

- *Published: 1869*
- *Other Names*: 改正増補和訳英辞書 *(kaisei zouho wayaku ei jisho)*
- *Japanese*: 薩摩辞書 *(Satsuma jisho)*

The Satsuma dictionary, published in 1869, was one of the first Japanese-English dictionaries. It was an expansion of the *Eiwa taiyaku shûchin jisho* ("English-Japanese Pocket Dictionary") produced by the **Kaiseijo** (shogunate school of foreign studies). It was compiled by **Takahashi Shinkichi** and **Maeda Seikoku**, students at the Satsuma han **han school**, and published in **Shanghai**. The dictionary used **katakana** to indicate the pronunciation of English words.

This article is a placeholder or stub. You can help SamuraiWiki by expanding it.

References

- "Satsuma jisho," Digital Daijisen, Shogakukan.

The Samurai Archives SamuraiWiki

Monument commemorating the Satsuma dictionary, at the former site of Kagoshima castle

https://wiki.samurai-archives.com/index.php?title=Satsuma_dictionary

日本経済新聞

NIKKEI

2020年（令和2年）8月22日 土

Recently, the story of the *Satsuma Dictionary* was written up in the Nikkei newspaper (22 Aug. 2020).

英語初心者向けの工夫満載

イラスト・南 伸坊

書物の身の上

出久根 達郎

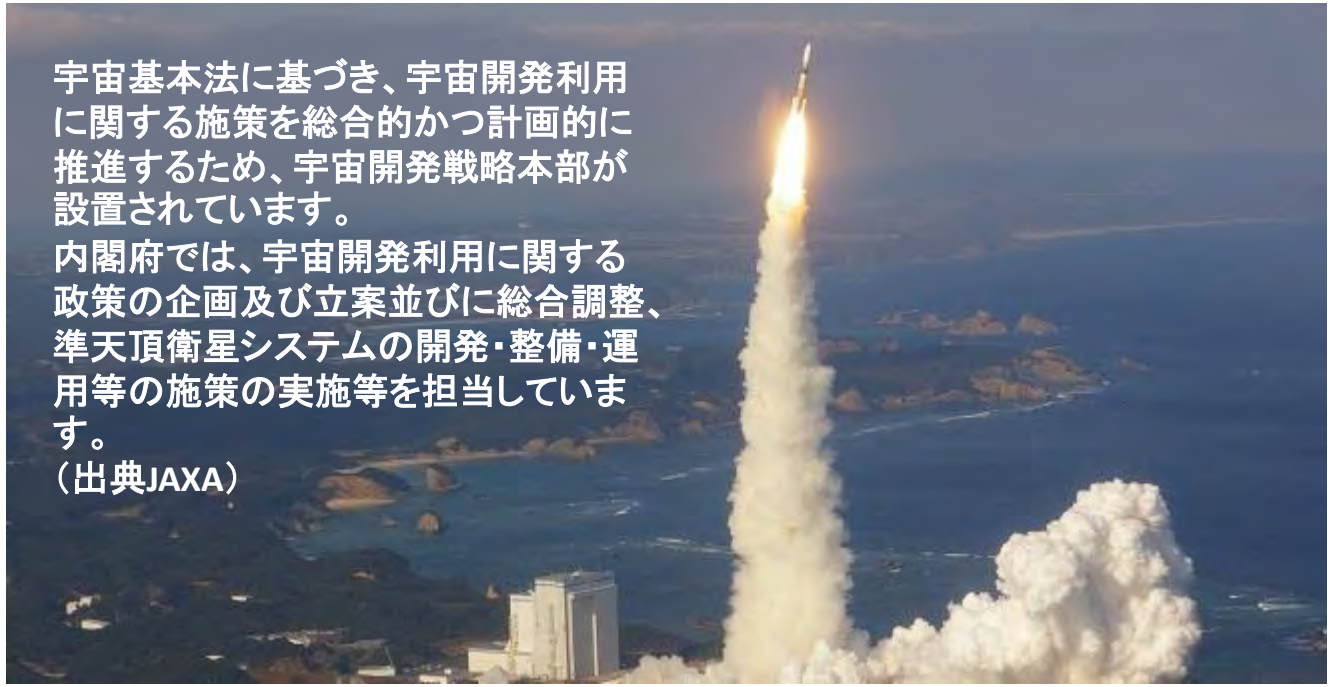
薩摩の学生 辞書を編む

Kagoshima students, needing funds to study overseas, created this dictionary. Published in Shanghai, it sold fairly well.

05. Implementation Plan of the Basic Plan on Space Policy

References:
18. The new space law in Japan (Page 69); Issue #37 of BPN
16. S-Booster Space Competition offers big cash prizes (Page 70); Issue #38 of BPN

English version (provisional translation):
https://www8.cao.go.jp/space/english/basicplan/2020/abstract_0701.pdf



2020年8月14日

宇宙利用の現在と未来に関する懇談会 第3回会合 議事次第
https://www8.cao.go.jp/space/use_mtg/dai3/gijisidai.html

宇宙基本計画

宇宙基本計画は、宇宙基本法（平成２０年法律第４３号）第２４条に基づいて、我が国の宇宙開発利用に関する施策の総合的かつ計画的な推進を図るために策定されるものであり、我が国の宇宙開発利用の最も基礎となる計画として位置づけられています。内閣府宇宙開発戦略推進事務局では、宇宙政策委員会による審議を含め、本計画に盛り込むべき事項の企画立案および総合調整を行っています。

内閣府
Cabinet Office

Link to 内閣：
https://www8.cao.go.jp/space/index.html

06. SEIC: Special guest lecture by Dr. Adolfo Chaves Jiménez of Costa Rica

Special Guest Lecture
by

Dr. Adolfo Chaves Jiménez

Lecturer and Researcher at the Costa Rica Institute of Technology (TEC)
School of Electronics Engineering

Date: Tuesday (25 Aug. 2020)

Time: 9:00-10:00 AM; JST

TEC
Tecnológico de Costa Rica

Title:

The impact of orbit and attitude coupling in the implementation of AOCS systems for spacecraft

Abstract on the next page

Abstract

Typically, orbit and attitude dynamics have been considered independent from each other in the implementation of spacecraft estimation and control systems.

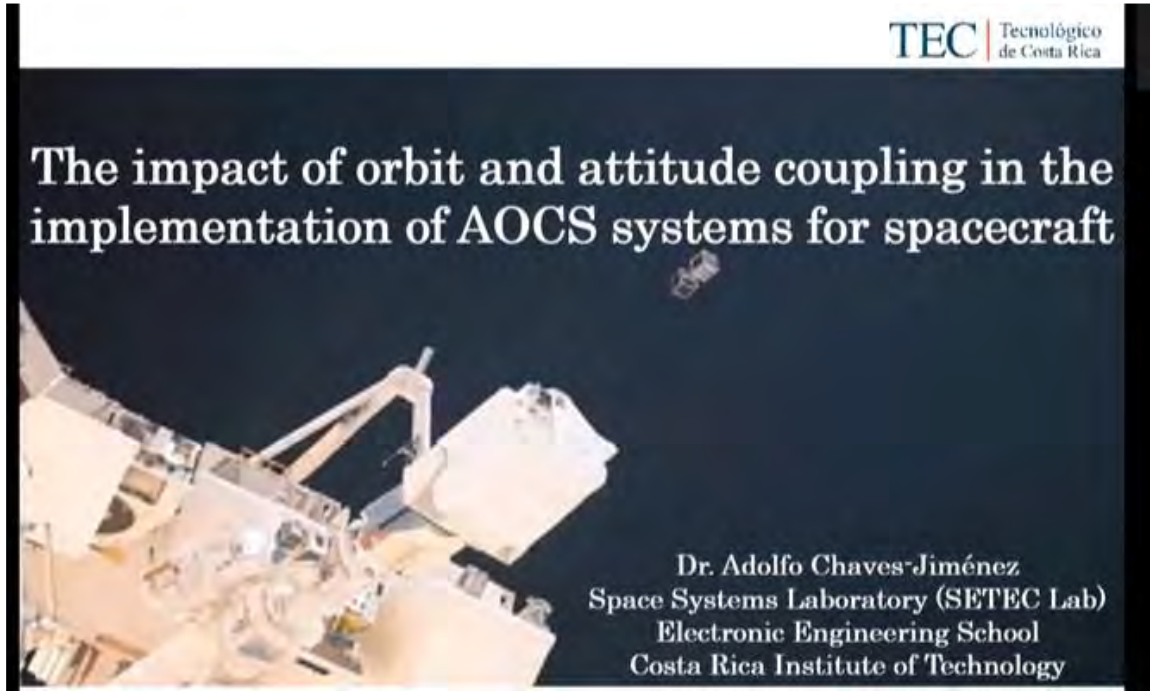
In an ideal hypothetical situation, where a spacecraft would be considered as a point mass with its motion based on external forces (ignoring e.g. propulsion) its orbit dynamics would fundamentally not depend on the spacecraft's attitude. Nevertheless, perturbations such as the atmospheric drag introduce a coupling effect between orbit and attitude dynamics since the spacecraft's area with respect to the direction of the atmospheric particles, called effective area, causes drag acceleration and this effective spacecraft area depends on the spacecraft attitude.

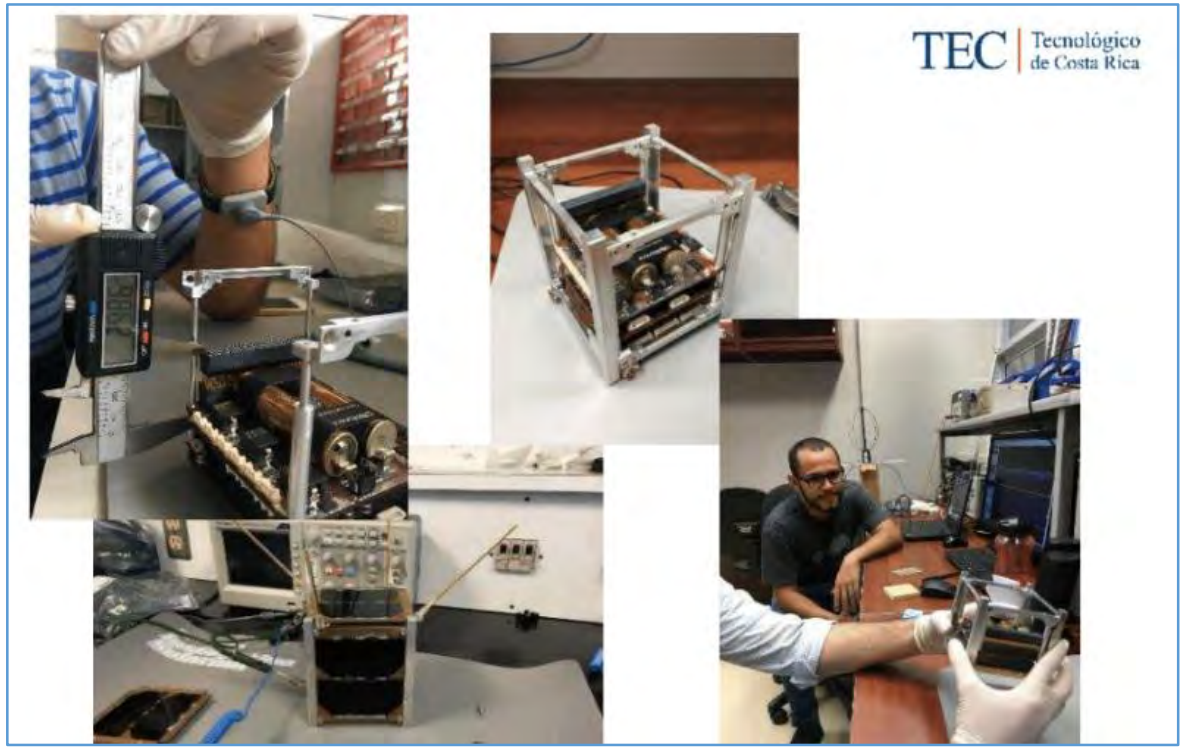
On the other part, any nonsymmetrical object of finite dimensions in orbit is subject to gravitational torque, caused by the variation of the Earth's gravitational force over the field. This means that any model that does not consider the coupling effect of orbit and attitude dynamics introduced by perturbations may be suboptimal.

Recent works are taking into account the joint representation of attitude and orbital dynamics for improved guidance, navigation and control performance, in order to use dynamics models that better represent the physical world, specially for spacecraft formation flying.
This talk will explain how this effect is taken into account in spacecraft control and estimation systems implementation, and what its effect is in the dynamics model used for such implementation.

End of abstract

Video recording of this lecture is here:
https://www.dropbox.com/s/dblt7vn2rt2nf4k/SEIC%20Lecture%20by%20Dr%20Adolfo%20%28TEC%29%20at%209am%2025-AUG-2020%20%28JST%29.mp4?dl=0
[1 hour and 22 minutes]





His presentation file can be downloaded from here:
https://www.dropbox.com/s/kf70ck6g49pdgtp/25-AUG%3B%20presentation%20file%20of%20Dr%20Adolfo%20Chaves%20J.%20%20Coupled_Dynamics_Intro.pdf?dl=0

The End of this Section

07. BIRDS-4: Each member introduces his or her work for the project

BIRDS-4 SATELLITE PROJECT MEMBERS

Izrael Zenar Casople BAUTISTA	Project Manager, Perovskite Solar Cell (PSC) Mission
Adolfo Javier JARA	On-Board Computer (OBC)
Anibal Antonio MENDOZA	Thermal System / Satellite Structure
Daisuke NAKAYAMA	Hentenna (HNT) Mission / Ground Station
Hari Ram SHRESTHA	Electrical Power System (EPS)
Hiroki HISATSUGU	Attitude Determination and Control System (ADCS)
Hoda Awny A. A. ELMEGHARBEL	SF-WARD Mission / Image Classification Unit (ICU) Mission
Mark Angelo Cabrera PURIO	Camera (CAM) Mission / Back Plane Board Design and Planning
Marloun Pelayo SEJERA	Communication System (COM) / APRS-DP Mission
Timothy Ivan LEONG	Image Classification Unit (ICU) Mission
Tomoaki MURASE	TID Measurement of COTS and Onboard Rad-Hard Components (TMCR) Mission
Yasir ABBAS	SF-WARD Mission / Image Classification Unit (ICU
Yigit CAY	Satellite Structure / Safety Review
Yuma NOZAKI	Antenna Design and Deployment

Check out this 18-min. video

https://www.youtube.com/watch?v=xcupbVlC5tE

More photos on the next page …

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

View the YT video !

BIRDS-4 Handover Ceremony occurs on 24 Sept 2020 on the Tobata Campus

08. SGAC: Using candle wax as a rocket propellant for small satellites

At the right:
Dr Javier Stober
Below:
Prof. Danielle Wood

SGAC Webinar - What makes a space program successful? What can we learn from previous space programs for Emerging Space Countries?

In this webinar, Danielle Wood, assistant professor in the MIT Media Lab and Director of the Space Enabled Research Group, discusses expanding space activities around the world with a focus on the Middle East region.

Webinar originally presented on Friday 12 June, 2020, 2:00 PM GMT

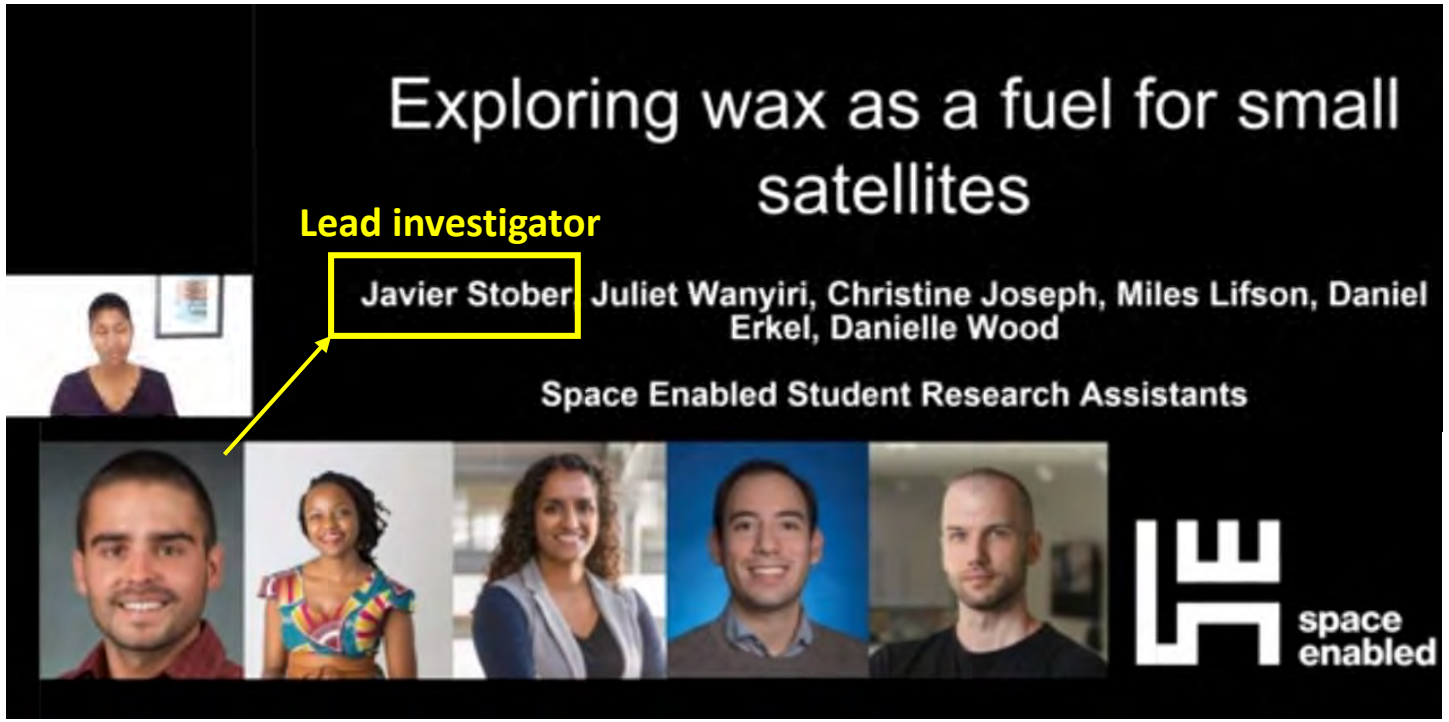
Emerging Space Program: Lessons Learned for the Future

https://www.youtube.com/watch?v=l6vTm7quJtA&t=1391s

16 June 2020, one-hour long video

Candle wax story is on the next page

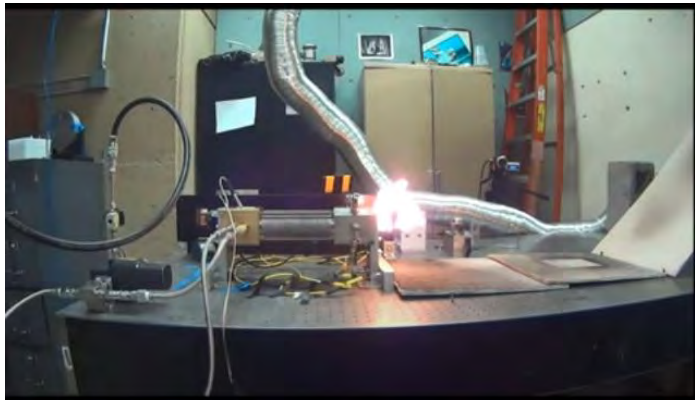
SPACE GENERATION ADVISORY COUNCIL



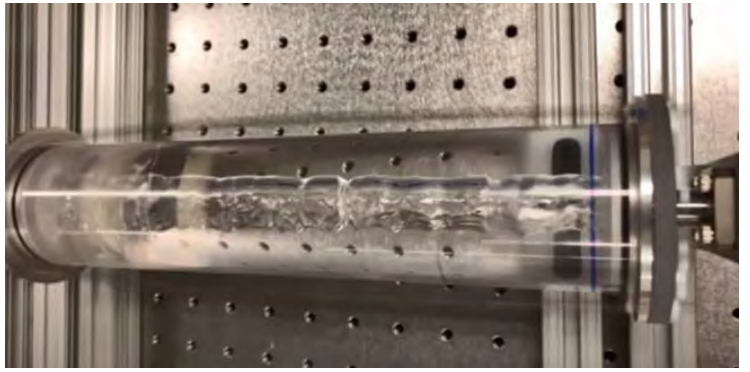
Relevant section is from 9:00 to 15:00

https://www.youtube.com/watch?v=l6vTm7quJtA&t=1391s

Problem for small satellites: Commonly used rocket fuels are toxic. Candle wax however is safe.



In the lab:
Thrust from candle wax



In the lab:
Spinning liquid candle wax – see the video for more details

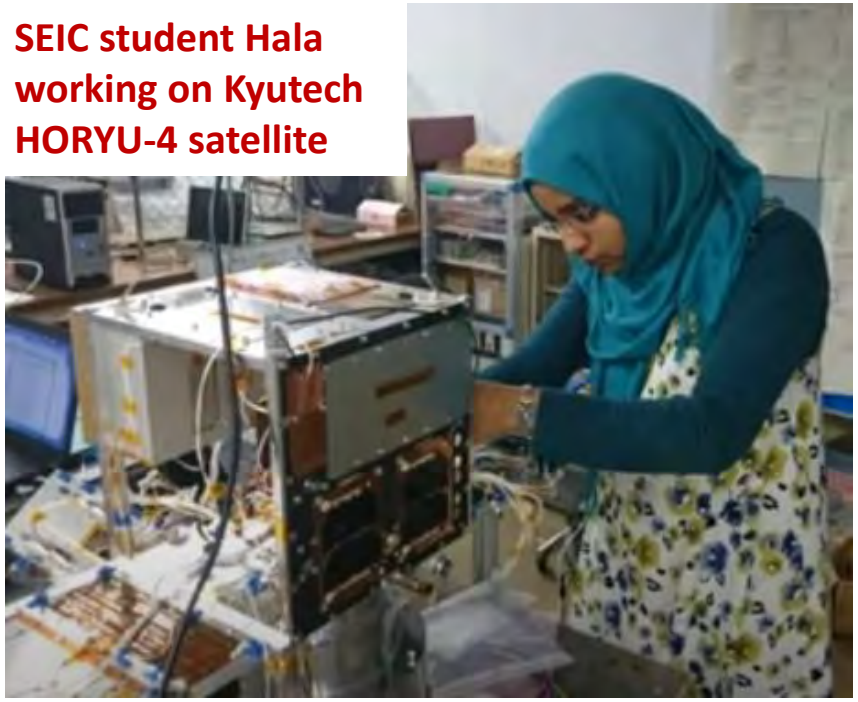
09. SGAC: How to Design a Space Program: A video for stakeholders

Right: **Gentlemen are from Mauritius (their 1st satellite is under development)**

Right: **Prof. Marco Diaz of Chile**

Prof. Wood doing field work in Benin →

SEIC student Hala working on Kyutech HORYU-4 satellite



10. SGAC: Presentations by Prof. Marciano and Nicholas Borroz (Rotoiti)

This Webinar covers all of Asia Pacific region – not just the Philippines

Check it out – the Panel Discussion is especially good

This SGAC "DAY 2" broadcast can be viewed here in its entirety:
https://www.youtube.com/watch?v=CL6wQwR5LIk&t=3375s

11. SGAC: Dan Hart, CEO of Virgin Orbit, discusses space technology and where it is headed

Space-bound rocket is dropped from Virgin Orbit's launch pad (a 747 Jumbo Jet)

This 1-hour video is a must see if you are a fan of Virgin Orbit and its concept for getting under-300-kg satellites into orbit.

SPACE GENERATION ADVISORY COUNCIL

Virgin Orbit was previously discussed in this newsletter. See Issue No. 53, pages 16-17.

THE ENTIRE BROADCAST CAN BE SEEN HERE
https://www.youtube.com/watch?v=ueyUJEIb4jM&t=1190s

12. Sony to Develop Tech Demo Satellite with Univ. of Tokyo, JAXA

JAXA・東京大学・ソニーが人工衛星を共同開発へ リアルタイムで映像を地上に届ける技術実証実験

2020-08-05

国立研究開発法人宇宙航空研究開発機構（JAXA）は8月5日、ソニー株式会社と国立大学法人東京大学と「宇宙感動体験事業」の創出に向けて三者で共同開発・技術実証契約を締結。技術実証実験を目的に人工衛星を共同開発することを発表しました。

ソニーは、人工衛星のカメラ機器部分の開発やシステムの構築を担い、東京大学は人工衛星の基本機能および推進系の開発。JAXAは技術支援及びソニーが策定する事業・研究開発計画の検討を支援します。この人工衛星は自由にリアルタイムで遠隔操作することが可能で、搭載されたカメラをリアルタイムで遠隔操作し、地上に映像を届けることを目指します。

記事の全体:
https://sorae.info/space/20200805-jaxa.html

Tokyo, Aug. 5 (Jiji Press)--Sony Corp. <6758> said Wednesday that it will develop a satellite jointly with the University of Tokyo and the Japan Aerospace Exploration Agency, or JAXA.

The Japanese company will develop a camera for use in a satellite that can be controlled remotely from Earth in real time.

It aims to use images captured by the camera, such as those of outer space and Earth, in its entertainment business.

Sony, the university and JAXA plan to launch the satellite in a few years. They did not disclose the project cost.

The company will develop a system to control the camera remotely and send images from space to Earth in addition to the camera itself.

From here:
https://www.nippon.com/en/news/yjj2020080500889/

BIRDSNEST Phone Application

By: Keenan Chatar and Fahd Moumni

(members of BIRDS-5 team)

Date: 09 Sept. 2020

Editor's note:

See also pages 44-50 of *BIRDS Project Newsletter* No. 53 for more details.

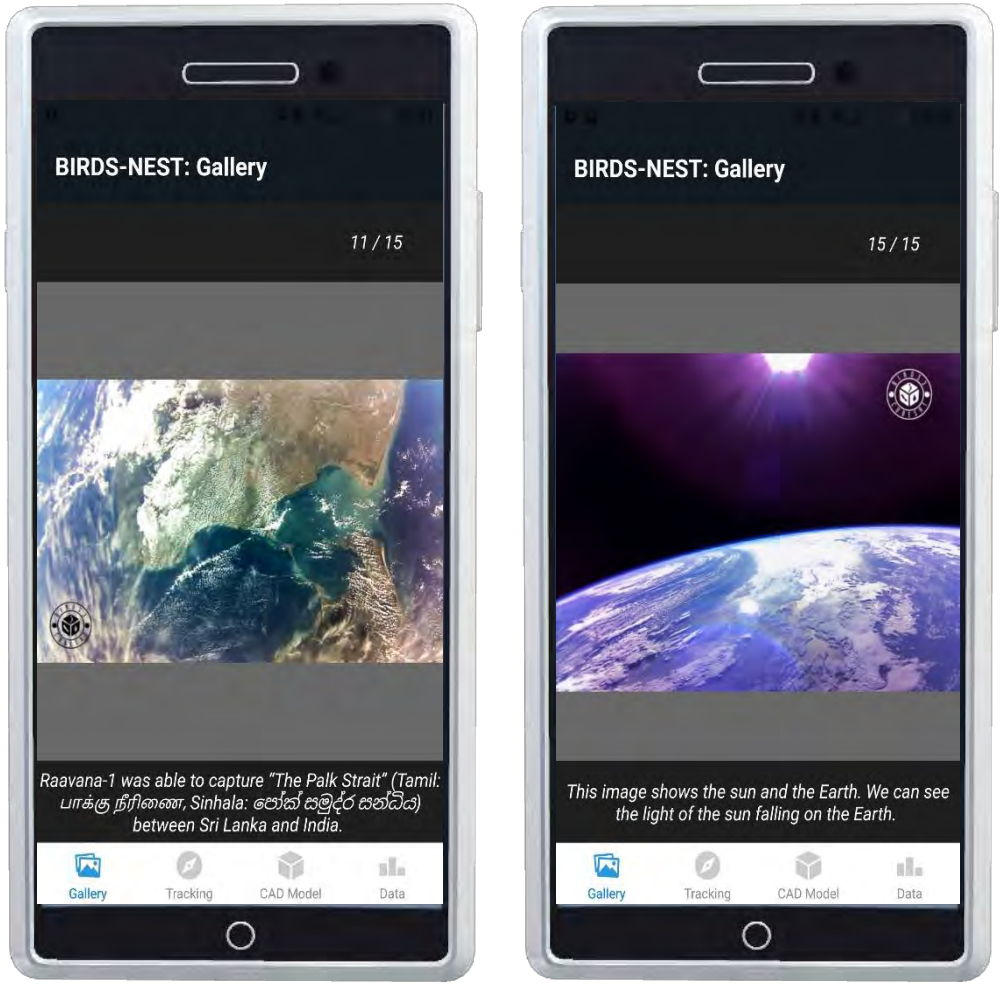
Introduction

- The BIRDSNEST is a phone application designed for the BIRDS Satellite Program
- Its primary purpose is to increase awareness of the space industry and give users an understanding of the BIRDS program and the results of the team efforts
- The phone app can visualize all the BIRDS satellites during its orbits and present the data they collect in different formats such as text or as a gallery of images

Gallery Screen

- The Gallery Screen allows the user to scroll through the images captured by the satellite during its transit around the earth

- Each image has a short description of what was captured



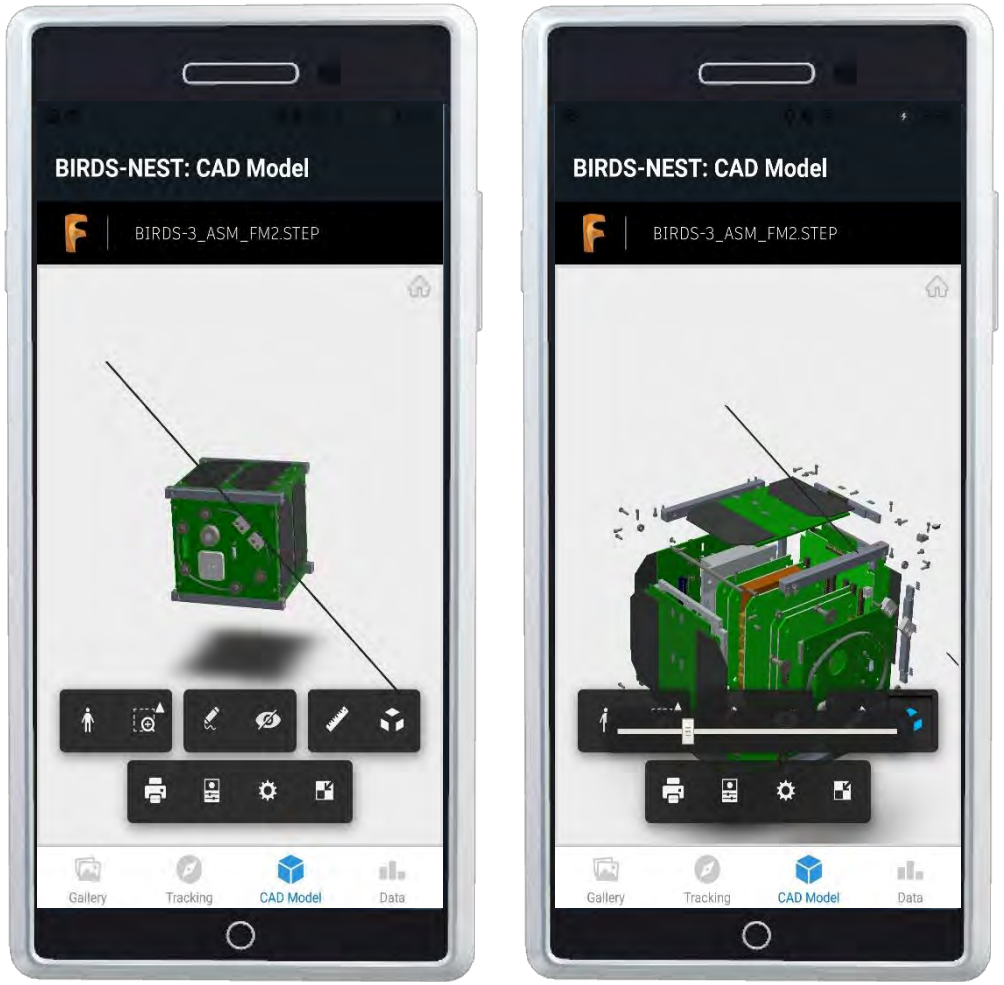
Tracking Screen

- The Tracking Screen shows all the satellites in the BIRDS project (BIRDS-3 thus far) on a map. The gold icon is the NEPALISAT-1, the white icon is the RAAVANA-1 and the red icon is UGUISU
- The projected orbit path is also displayed. The light blue line is the previous path, the middle blue line is the current path, and the darker blue line is the future path
- The map can be centered onto the user or the satellite via the action buttons on the lower right corner

CAD Screen

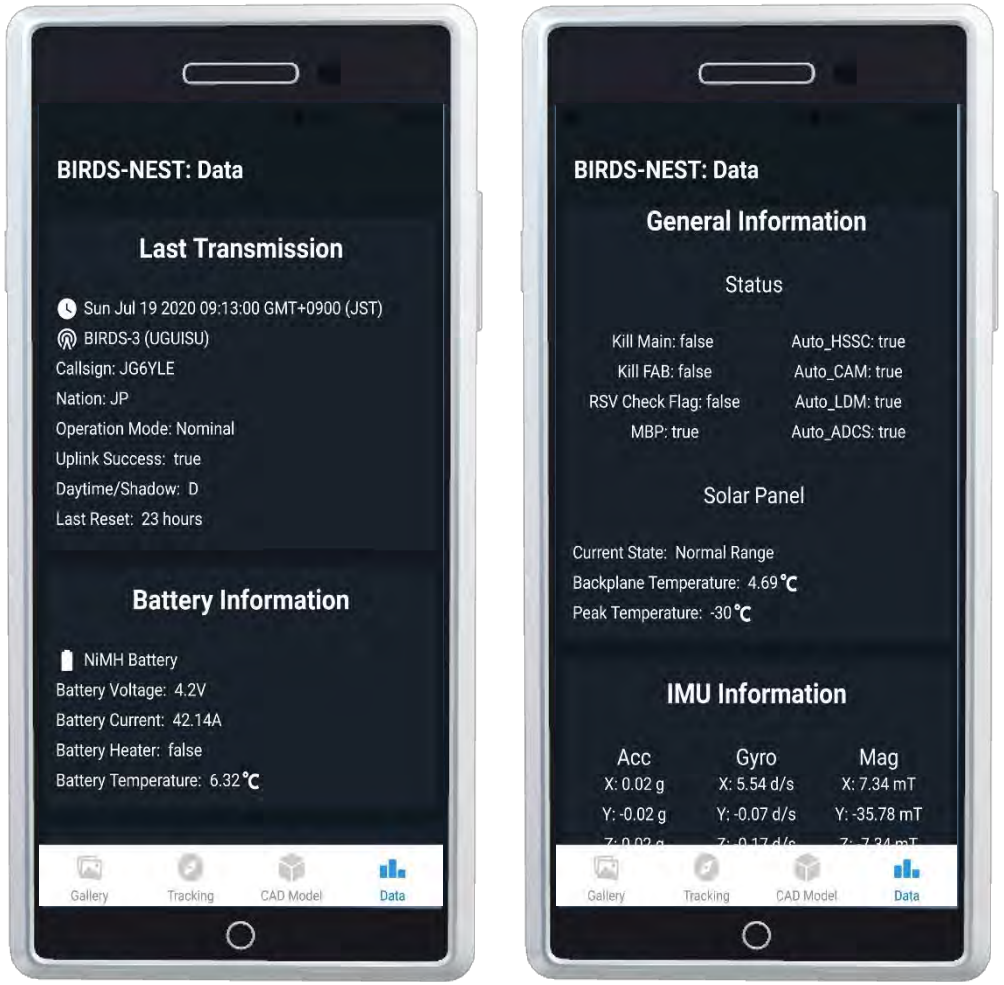
- The CAD Screen presents a 3-D AutoCAD model of the completed satellite

- This screen allows the user to interact with the rendered version of the design such as: expanding the view, manipulating components, viewing and measuring components, rotating views



Data Screen

- The Data Screen illustrates the data collected by the satellites in an organized list based on the most recent data transmission
- The data parameters include the battery information, temperature, current range, operation mode etc.
- These screens are intended to give users an understanding of all the components that went into building the satellite, as well as what is necessary to keep the satellite maintained and in normal operating status

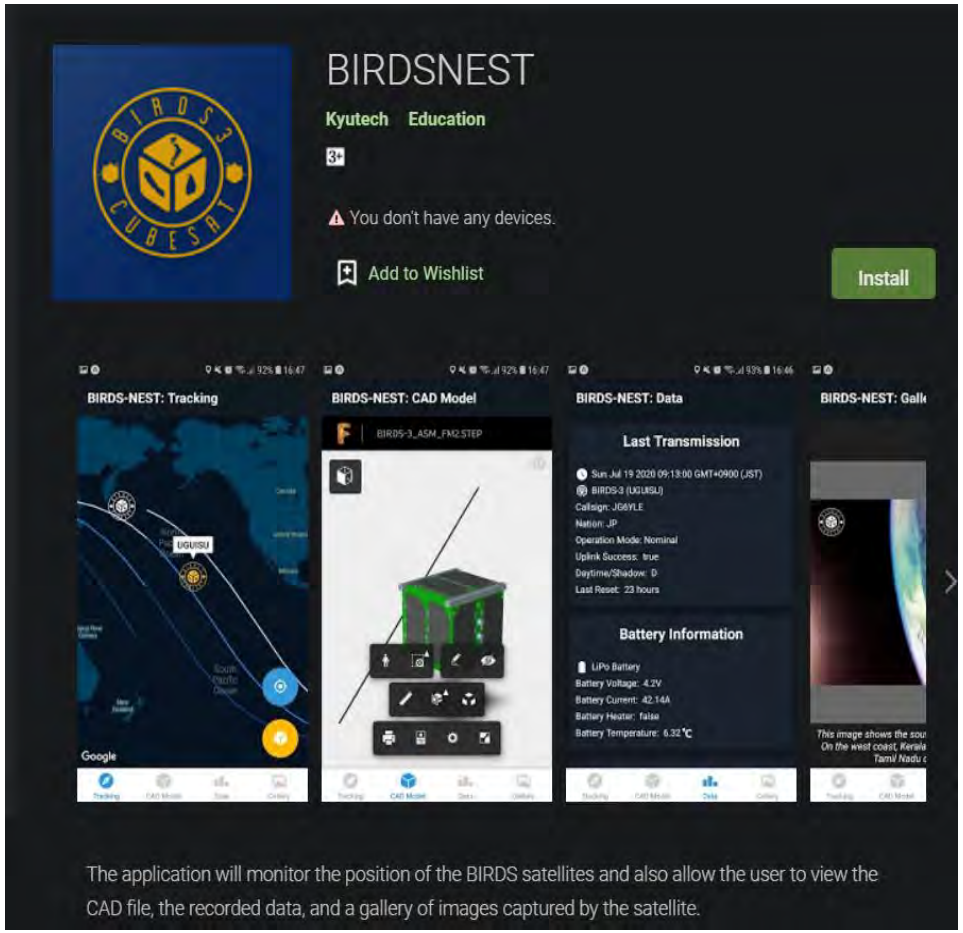


Google Play Store

- The BIRDSNEST app is currently available for Android users. The IOS app will be released soon

- Click the link below or search for “BIRDSNEST” to download now on the Google Play Store for free:

https://play.google.com/store/apps/details?id=com.kyutech.birdsnestproject



END OF THIS SECTION

14. Japan's mottainai culture explained

Learn the meaning of mottainai

もったいない（勿体無い）とは、物の本来あるべき姿がなくなるのを惜しみ、嘆く気持ちを表している、日本語の単語である。「物体（もったい）」とは、元来は仏教用語である。また、「勿体無い」は、もともと「不都合である」、「かたじけない」などの意味で使用されていた。

- Wikipedia

GO HERE: https://www.gov-online.go.jp/eng/publicity/book/hlj/20200801.html

15. IAC 2020 (originally set for Dubai) will be conducted online instead

You need to register – but (for the first time) there is no registration fee

HERE: http://www.iafastro.org/events/iac/iac-2020/

ORGANIZED AND HOSTED BY:

71st IAC2020 The CyberSpace Edition

ASTRONAUTICA AD PACEM HOMINUMQUE PROGRESSUM

Kyushu Institute of Technology **is a member of the IAF**

ONE-MINUTE VIDEO: https://www.youtube.com/watch?v=zyXFYMW06oo&feature=youtu.be

16. First Virtual UNISEC-Global Meeting occurred on 12 Sept. 2020

I thought it was a great success. Via ZOOM. From Japan to California – across nearly all time zones. Eighty persons logged into this global meeting. It will be repeated on 10 October 2020.

The 1st Virtual UNISEC-Global Meeting Programme

Date: September 12, 2020 (22:00–24:00, JST)

Please check your time. (https://24timezones.com/difference)

(subject to change)

(JST)	Title of presentation	Presenter
22:00–22:05	Welcome	Moderator: Mansur Celebi, Sabanci , UNISEC-Turkey
22:05–22:10	Opening Remarks	KAWASHIMA Rei, UNISEC-Global
22:10–22:40	" When collaboration works more than competition"	CHO Mengu, Kyushu Institute of Technology, POC of UNISEC-Japan
22:40–22:55	"Expectation to UNISEC-Global"	Mohammed Khalil Ibrahim, Egyptian Space Agency
22:55–23:10	"CubeSat and space education in Nepal"	Abhas Maskey, Kyushu Institute of Technology, on behalf of POC of UNISEC-Nepal (in the founding process)
23:10–23:25	"Current situation and future plans of Lebanese university space programs"	Amin A.Haj-Al, Lebanese International University, POC of UNISEC-Lebanon (in the founding process)
23:25–23:40	"How COVID-19 is affecting the new space and how engineering education can be realized in difficult time"?	JUANG Jyh-Ching, National Cheng Kung University, POC of UNISEC-Taiwan
23:40–23:55	Discussion	
23:55–24:00	Announcement, Closing	

Note: The Lebanese speaker (Dr. Amin) was not able to participate.

Cont'd on the next page

Some of the participants on 12 Sept 2020

UNISEC GLOBAL
University Space Engineering Consortium

Home | Meeting | Contests | Links | Local Activities | Sponsors | Contact | Site Map

Home > Meetings > Virtial Meeting

言語を選択

The 2nd Virtual UNISEC-Global Meeting

Date: Octorber 10, 2020

Click for Registration

The 1st Virtual UNISEC-Global Meeting

Date: September 12, 2020

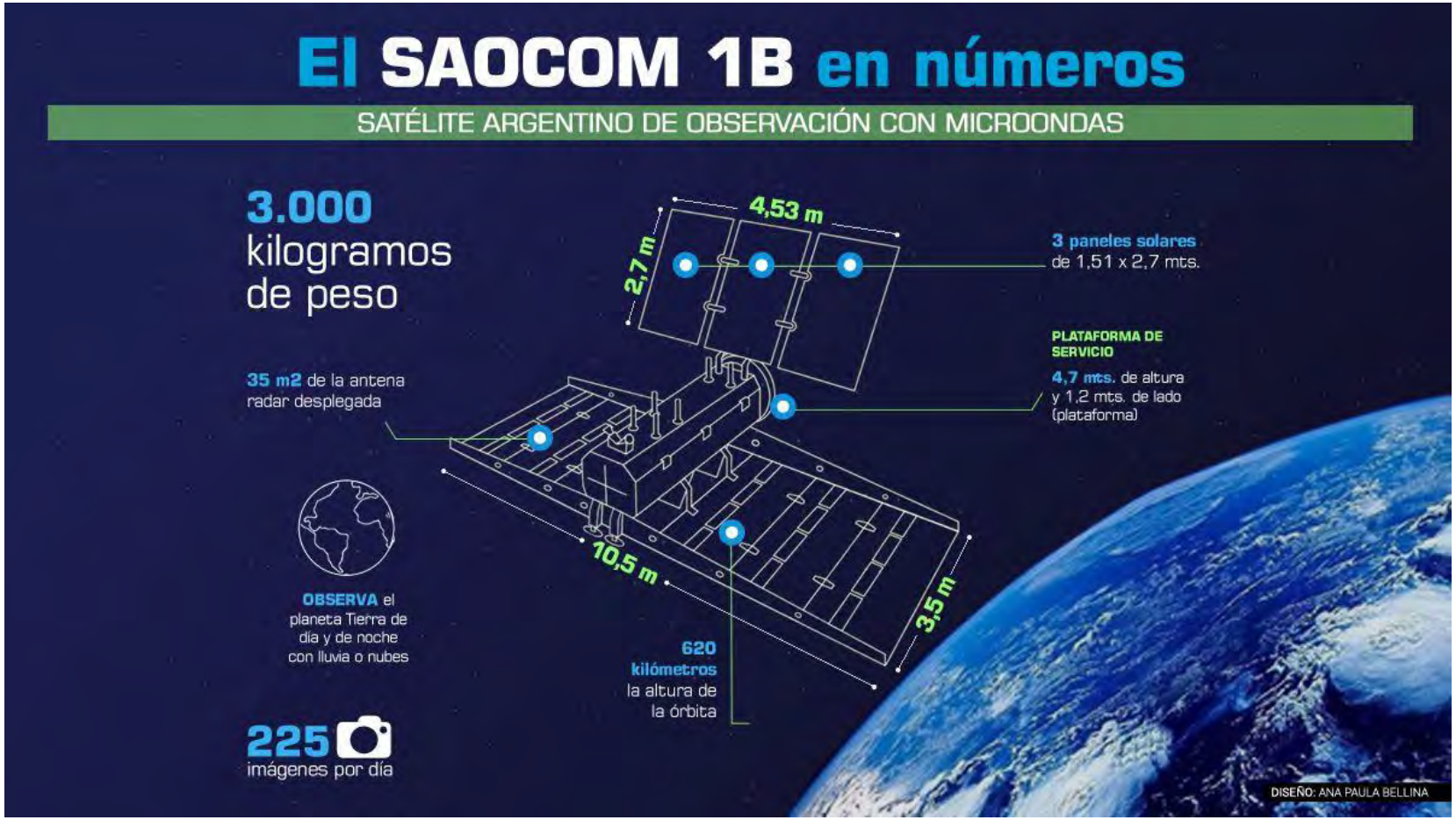
Moderator: Mansur Celebi, Sabanci University, UNISEC-Turkey

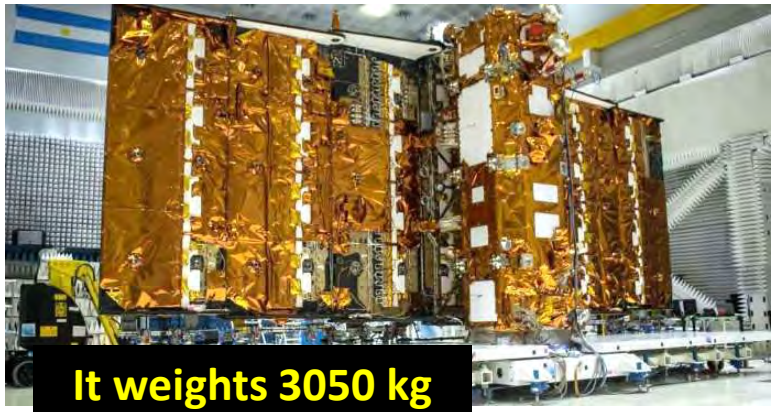
Title of presentation	Presenter
Opening Remarks	KAWASHIMA Rei, UNISEC-Global
When collaboration (cooperation) works more than competition	CHO Mengu, Kyushu Institute of Technology, POC of UNISEC-Japan
Expectation to UNISEC-Global	Mohammed Khalil Ibrahim, Egyptian Space Agency
CubeSat, Space Education in Nepal and the Question of Moving Forward	Abhas Maskey, Kyushu Institute of Technology, on behalf of POC of UNISEC-Nepal (in the founding process)
How COVID-19 is affecting the new space and how engineering education can be realized in difficult time?	JUANG Jyh-Ching, National Cheng Kung University, POC of UNISEC-Taiwan

END OF THIS SECTION

Webpage for virtual meetings: http://www.unisec-global.org/virtual-meeting.html

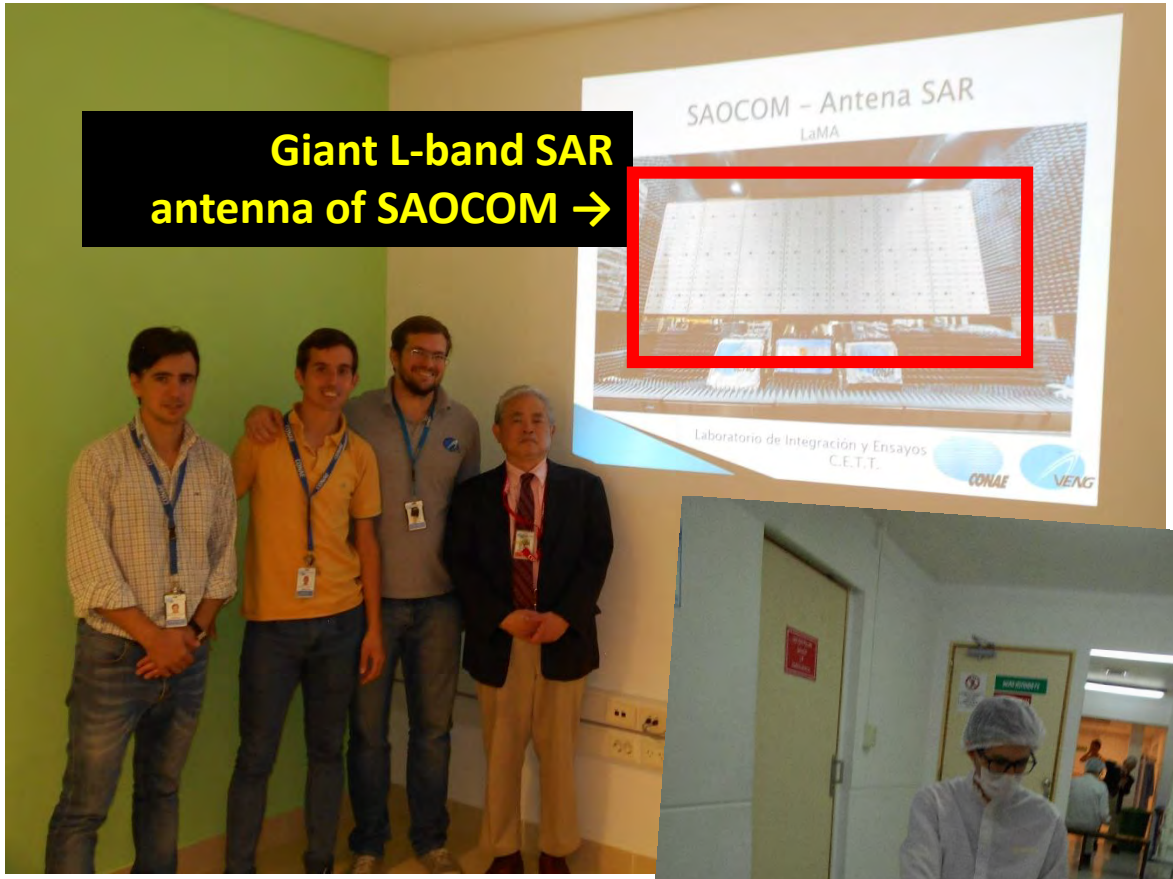
17. Argentina's SAOCOM 1B was successfully launched on 30 August 2020





SpaceX Falcon 9 SAOCOM 1B Launch and Landing from Cape Canaveral in 4k
https://www.youtube.com/watch?v=u-DcG-s8D8E
[3-min video, 30 August 2020]

In 2018, I received a tour of the plant that builds the SAOCOM satellites. The plant is near Cordoba, Argentina.



These three engineers gave me a full slide show presentation before the facilities tour.

We had to cover up before taking the tour – clean-room conditions.

… and photography is not allowed.

18. Press release for the BIRDS-4 Handover Ceremony of 24 Sept 2020

NEWS RELEASE

国立大学法人 九州工業大学

2020年9月14日

「Joint Global Multi Nation BIRDS4（BIRDS4 Satellite Project）」
衛星完成披露会のご案内

この度、日本、フィリピン、パラグアイ各国と共同で2021年度に国際宇宙ステーション（ISS）から3機、同時に放出を目指している衛星開発プロジェクト（BIRDS4 Satellite Project）の衛星フライトモデルが完成しましたので、報道関係者の方々を対象に完成披露会を開催いたします。（当日は、フライトモデル［宇宙空間に放出される衛星の実物］を公開し、概要説明、写真撮影および質疑応答等を予定しております。）

九州工業大学の人工衛星打ち上げ数は、今回の衛星3機が放出されると全21機となり、これまでの実績は、大学・学術機関の中で**3年連続世界1位**を誇っています。（Smallsats by the Numbers 2018-2020 (BRYCE space and technology)による「大学学術機関における運用する小型・超小型人工衛星の数」より）

BIRDS4衛星は今までのBIRDS1、2、3衛星と異なり、過去最大の8つのミッションを実証する予定で、パラグアイにとっては、国として初の衛星となります。また、衛星の運用に関してはBIRDS1、2、3の参加国を含む計13カ国で構成される国際地上局ネットワークによって行われます。3機の衛星は2021年にロケットでISSに運ばれ、宇宙航空研究開発機構(JAXA)による超小型衛星の放出機会提供の仕組み（有償）を利用して、同年にISSの日本実験棟"きぼう"から宇宙空間に放出される予定です。放出後には実際に衛星の運用が開始されますが、すべてのミッションが成功し、各国の宇宙開発がさらに加速していくことを期待しています。

Ceremony starts at 11:00 AM on 24 Sept 2020

日　時：２０２０年９月２４日（木）１１：００～
場　所：九州工業大学戸畑キャンパス 百周年中村記念館および総合研究２号棟３F
（百周年中村記念館にて会見形式で概要等説明の後、総合研究２号棟にて衛星実機の公開）
説明者：学長　尾家祐二
革新的宇宙利用実証ラボラトリー 施設長 / 大学院工学研究院 教授　趙孟佑
BIRDS4 Satellite Project プロジェクトマネージャー　イズラエル パティスタ
（大学院工学府 先端機能システム工学専攻 博士後期課程２年）
列席者：在日パラグアイ大使館 ラウル アルベルト フロレンティン アントラ 大使

※当日は、新型コロナウイルス感染症の感染防止対策を行った上で開催しますが、参加者に置かれましては会場でのマスクの着用をお願いいたします。
※衛星の概要に付きましては会見当日に資料を配布予定です。

【記者会見に関するお問い合わせ先】
九州工業大学総務課広報企画係（用正）
TEL：093-884-3007　MAIL：sou-kouhou@jimu.kyutech.ac.jp
【内容に関するお問い合わせ先】
九州工業大学革新的宇宙利用実証ラボラトリー（河野）
TEL(FAX)：093-884-3292　kawano.seiji239@mail.kyutech.jp

19. SEIC: Special guest lecture by Prof. Joel Marciano of the Philippines

Prof. Marciano's lecture was very interesting, especially because It deals with two of the most important factors in my study: academic growth (a personal goal) and the process to create a national space agency (a general goal). Project Morazán is the beginning for Honduras in Space Faring, and I personally want to develop this further and even more if it also handles international cooperation with the rest of the Central American countries.

His work is very similar to what we have in mind. It was unfortunate that I couldn't develop my questions more because of the hour, but Prof. Marciano answered in a very complete manner the most difficult one I had in mind. I hope we can have him again in another special lecture. All in all a very enjoyable experience.

Best regards, Reynel Josué Galindo
SEIC student (still in Honduras, but will soon come to Kyutech)

Special Guest Lecture
by
Joel Joseph S. Marciano, Jr., PhD

Director-General
Philippine Space Agency (PhilSA)

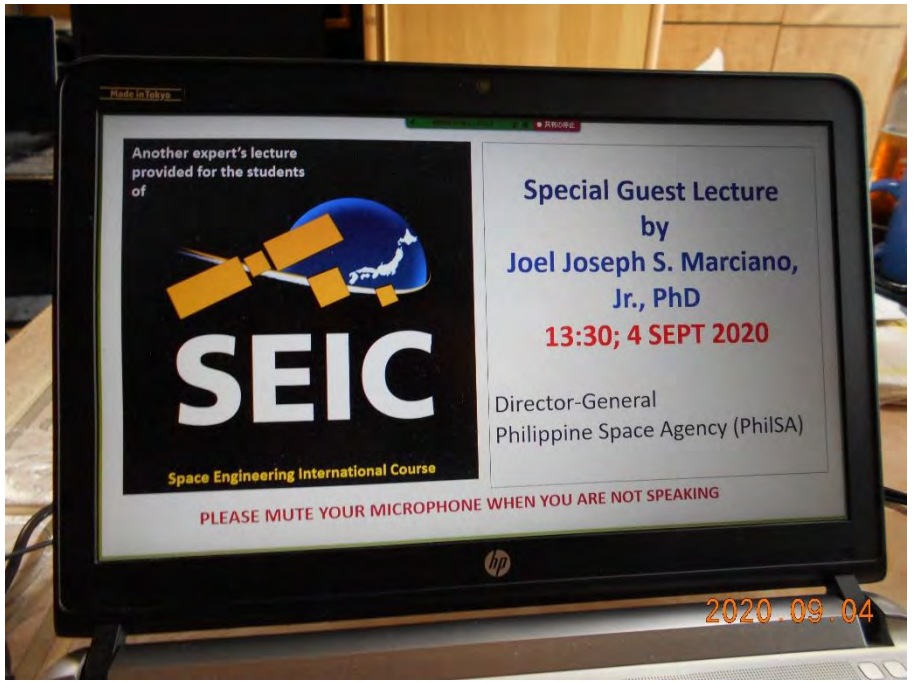
Friday **4 SEPT 2020**
Time: **13:30-14:30, Japan Std Time**

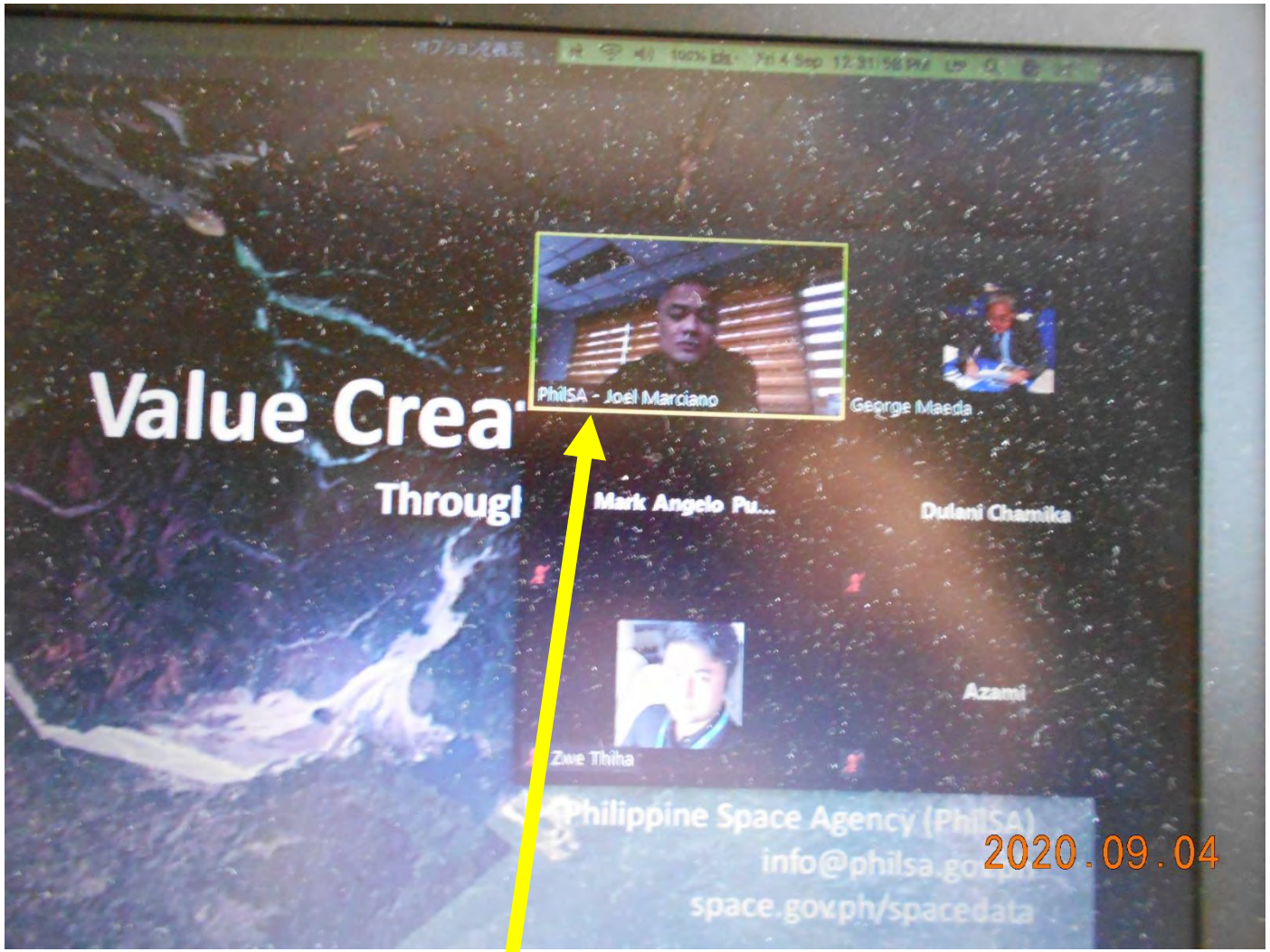
Title:

The Philippine Space Agency (PhilSA): Value Creation in Space Science, Technology and Applications (SSTA)

Some screen shots of Prof. Marciano's online lecture to SEIC students

(continued on the next page)

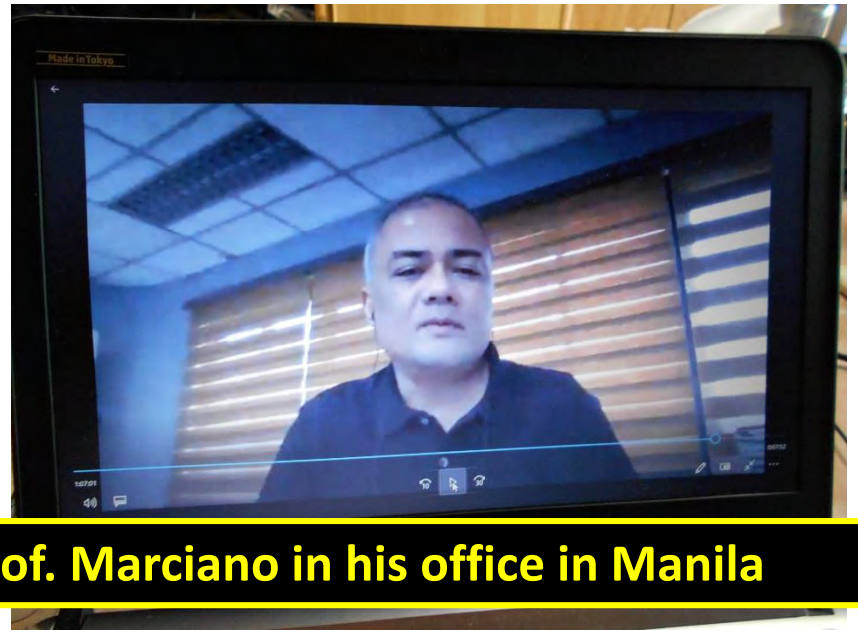




Prof. Marciano in his office in Manila

VIDEO OF THIS TALK:
https://www.dropbox.com/s/vuxasz136aziejj/SEIC%20Guest%20Lecture%20by%20Prof.%20Marciano%20on%204%20SEPT%202020.mp4?dl=0

← These are mango trees.
Prof. Marciano says the mangoes of the Philippines are *very good.*



Prof. Marciano in his office in Manila

At the peak of the ZOOM session, 28 persons were logged in.

Tahera Hossain →
(Sozo Inoue Lab, D3)
participated in this event.

20. SEIC: Special guest lecture by Dr. Jordan Vannitsen of Odysseus Space

Title

A NewSpace Overview

Special Guest Lecture
By Dr. Jordan Vannitsen
CEO of
ODYSSEUS Space

10 Sept. 2020 via ZOOM

VIDEO of the talk:
https://www.dropbox.com/s/jiq4prpczzwgngr/SEIC%20Guest%20Lecture%20by%20Dr%20Jordan%20of%20Odysseus%20Space%20company%20%2810%20Sept2020%29.mp4?dl=0

Dr. Jordan mentioned that the *Luxembourg Space Agency* wants you to consider a space career in the country of Luxembourg

SPACE CAREERS IN LUXEMBOURG

Space industry companies ranging from providers of telecommunications and broadcast services to component manufacturers and systems operators offer talented and highly-skilled individuals wide-ranging career opportunities in Luxembourg across multiple disciplines.
Demand is growing for specialists in fields including Earth observation, navigation systems, risk management and climate change.

The Luxembourg Space Agency has a partnership with national employment agency ADEM to develop a one-stop service for those who seek new challenges in the space industry.

Check out the employment opportunities:
https://space-agency.public.lu/en/talent/career-space.html

21. Report from Paraguay

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

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

Newsletter

News from Paraguay
September 2020

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

Edited by:
Blas Vega

FIUNA FPUNA UNG

Paraguay Space Agency

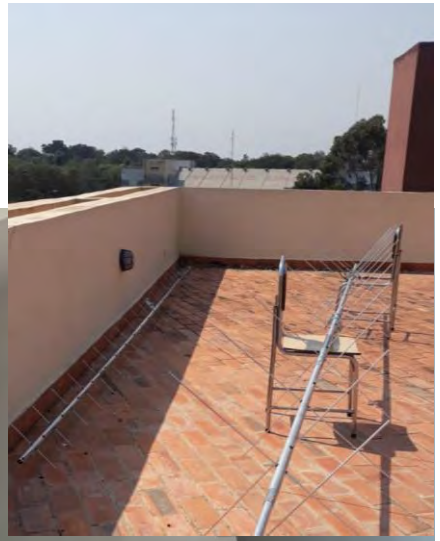
The “CABURE+I 4S” Project Newsletter
News from Paraguay

Working for BIRDS 4 Ground Station!

Contributor: Ferrer,

CaBuReI4S team members Javier Ferrer and Luis Miranda are working hard on the ground station antennas building.

Right now, they are ready to be mounted and start the verification/validation procedures! Keep it up team!

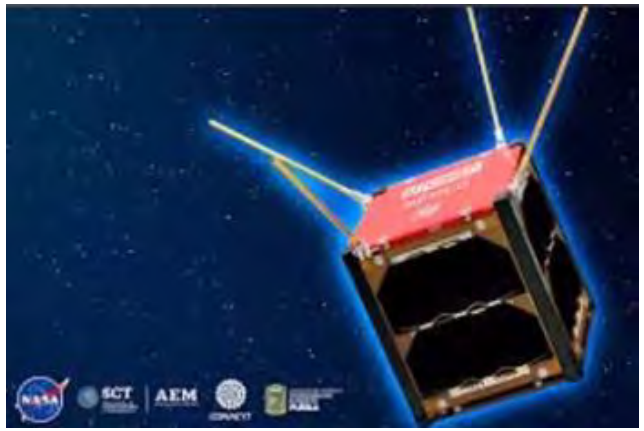


The “CABURE+I 4S” Project Newsletter
News from Paraguay

Sucessful Training Week

Contributor: Kurita, J.

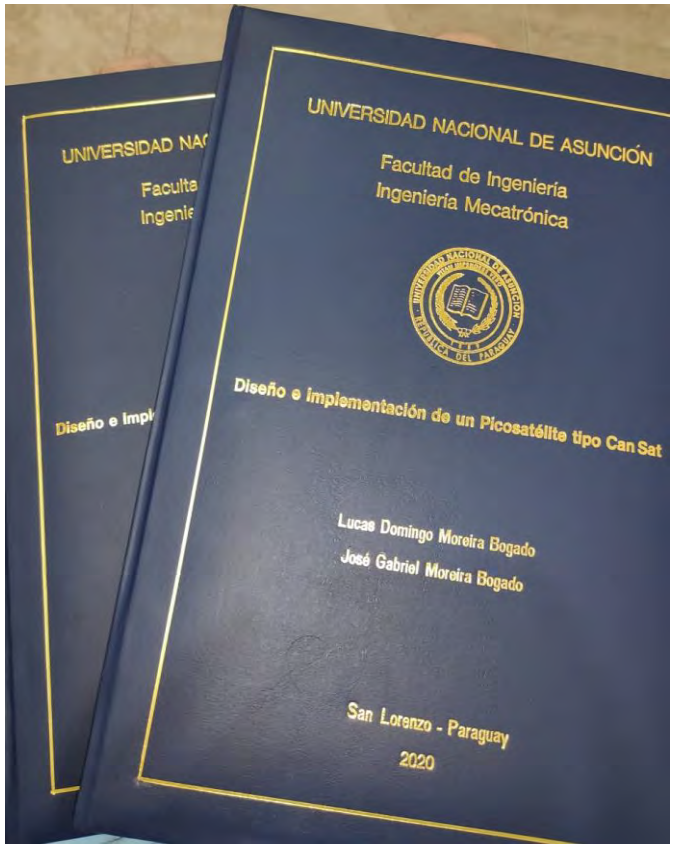
Mr. Carlos Duarte, from the Mexican Space Agency (AEM), lectured CaBuReI4S and AEP members on “Best Practices for Developing Nanosatellites and Space Project Management.” We are strengthening ties for future collaborations and projects!



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

Our new engineers!

Contributor: D. Stalder



Mr. Lucas Moreira and Mr. José Moreira finalized their final design project “Design and Implementation of a Pico-Satellite CanSat type” at the Faculty of Engineering Universidad Nacional de Asunción. Congratulations to our new engineers! Keep it up with hard work!

END OF REPORT FROM PARAGUAY

Documentation of Videos from Nepalese Media of BIRDS-3 (NepaliSat-1) in Nepal

Hari Ram SHRESTHA

BIRDS-3

15 September 2020

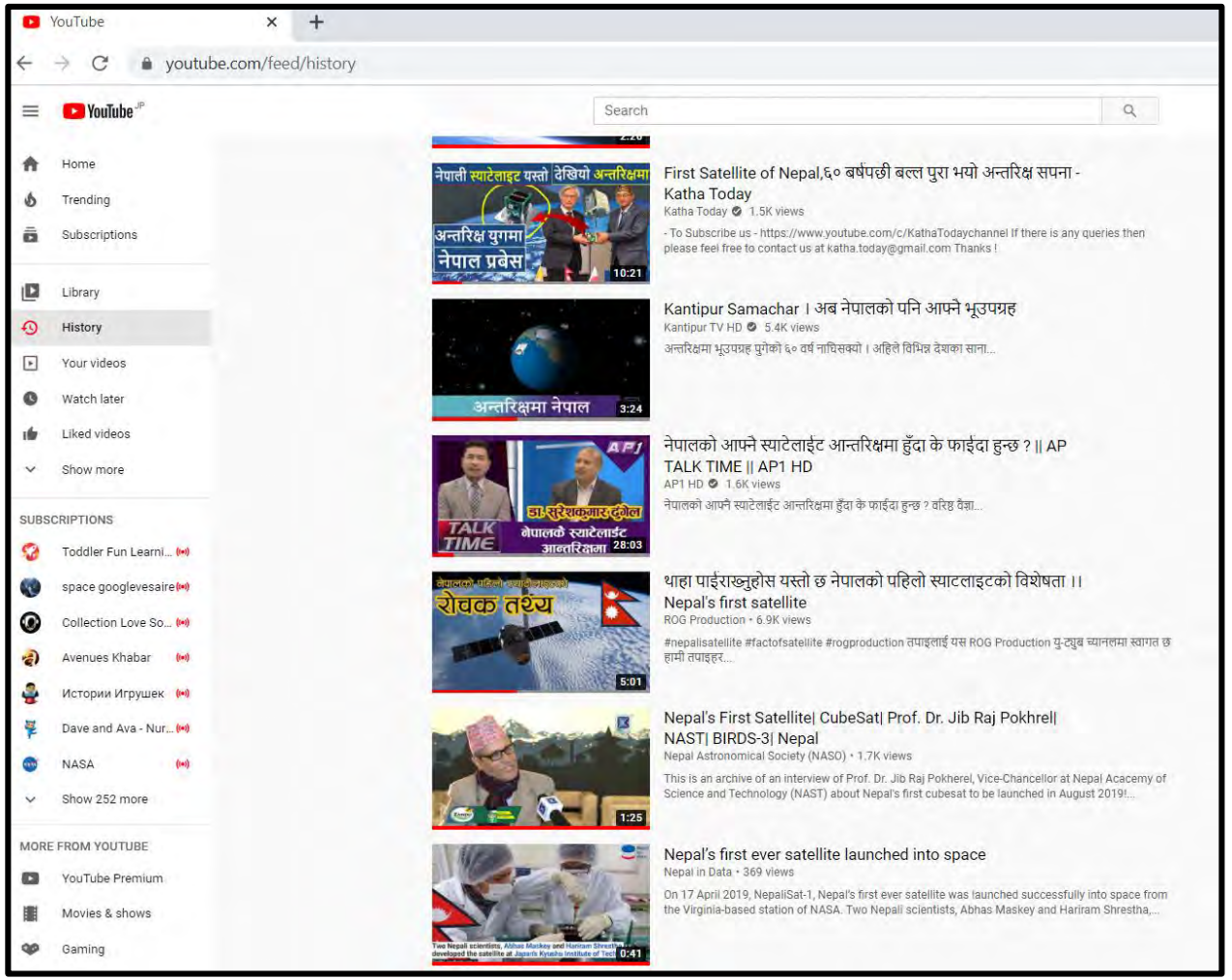
Documentation of Videos from YouTube

Nepalese media extensively covered BIRDS-3 satellites after it was launched on April 17, 2019. All Nepalese people were happy because it was the first step of Nepal to enter space.

BIRDS-3 Project team members would like to appreciate all the Nepalese media for their positive attention.

BIRDS-3 Team,KyuTech

https://birds3.birds-project.com/about/



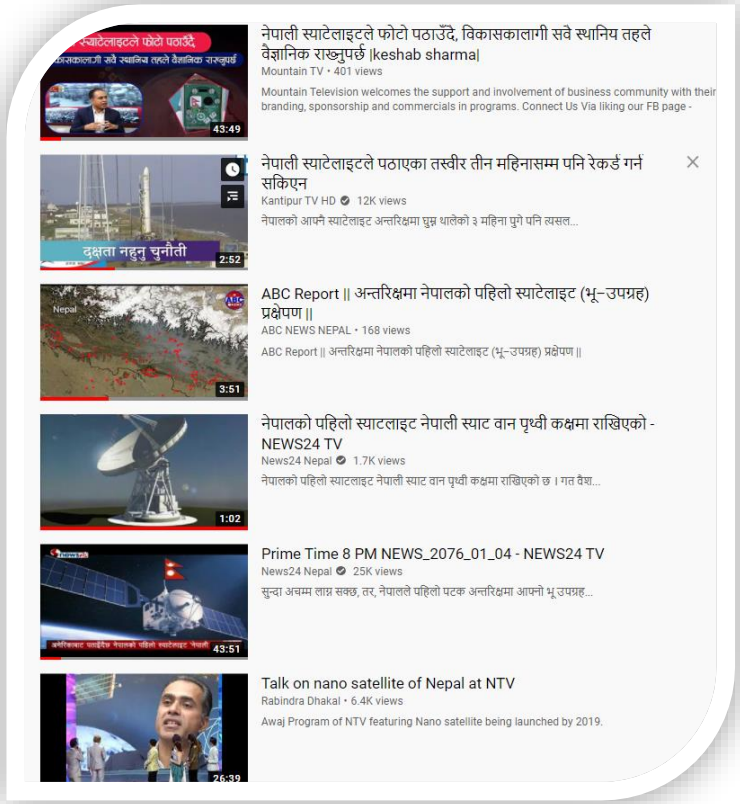
YouTube Channels

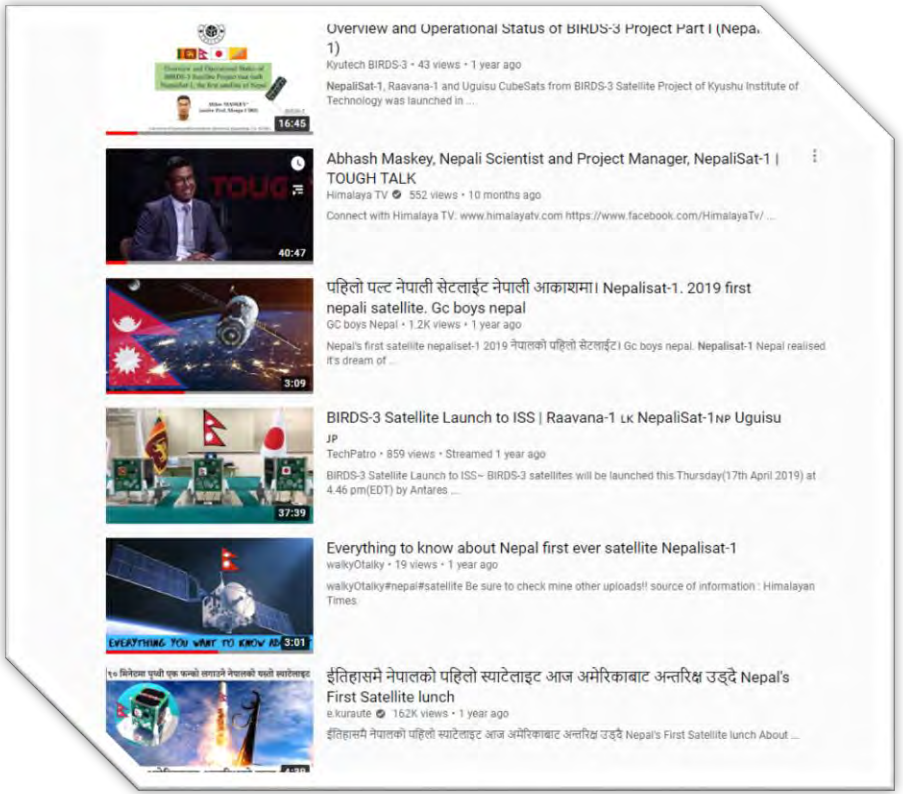
	YouTube Channel	Title	uploaded	Views/ Comments	Language	link
1	Technology Channel	Nepal's First Satellite #NepaliSat_1	18 Apr 2019	11.5 k/ 103	Nepalese	https://youtu.be/l036a50Jw40
2	Study IQ education	Nepal and Sri Lanka Launch Their First Satellites Raavana 1 NepaliSat-1 Current Affairs 2019	20 Apr 2019	161 K/ 2698	Hindi	https://youtu.be/f9lLZYfJO4g?t=116
3	Nepal Astronomical Society (NASO)	First Satellite| NepaliSat-1| Space Era| Nepal| Deployment from ISS| June 17| 2019	17 Jun 2019	3.7 K/3	Nepali	https://youtu.be/9c8aNgGB4ak
4	Kyutech BIRDS-3	Overview and Operational Status of BIRDS-3 Project Part I (NepaliSat-1)	19 Jul 2019	43	English	https://youtu.be/f3o7iwQWdJs
5	e.kuraute	ईतिहासमै नेपालको पहिलो स्याटेलाइट आज अमेरिकाबाट अन्तरिक्ष उड्दै Nepal's First Satellite lunch	18 Apr 2019	162 K	Nepalese	https://youtu.be/-0caEXEvIjg
6	Nepal Astronomical Society (NASO)	नेपालीस्याट-१| नेपालीको पहिलो भुउपग्रह| NepaliSat-1| Nepal's First Satellite| 2019	18 Apr 2019	3 K	Nepalese	https://youtu.be/cm53aPsq62g
7	NI NEWS	NepaliSat-1 किसने और कैसे बनाया // Who and how created "NepaliSat-1" (in details)	20 Apr 2019	11 K	Hindi	https://youtu.be/IioU0XqWr7U
8	Sushil Budhathoki	First Nepali Satellite।।Nepalisat1	19 Apr	39	Nepali	https://youtu.be/5dOEgAHsSaU
9	REVIEW Master Vikrant	NepaliSat-1 Launched, Pak ख़रीद रहा है Egyptian Mirage 5| RM Shots	20 Apr 2019	111 K	Hindi	https://youtu.be/r2oFKReytEs
10	Sujan Dahal	Top 10 facts of NepaliSat-1	17 Apr 2019	262	Only music	https://youtu.be/qLUzRB53AHE
11	WalkyOtalky	Everything to know about Nepal first ever satellite Nepalisat-1	23 Apr 2019	19	Only music	https://youtu.be/lxKvUc0iAuc?t=80

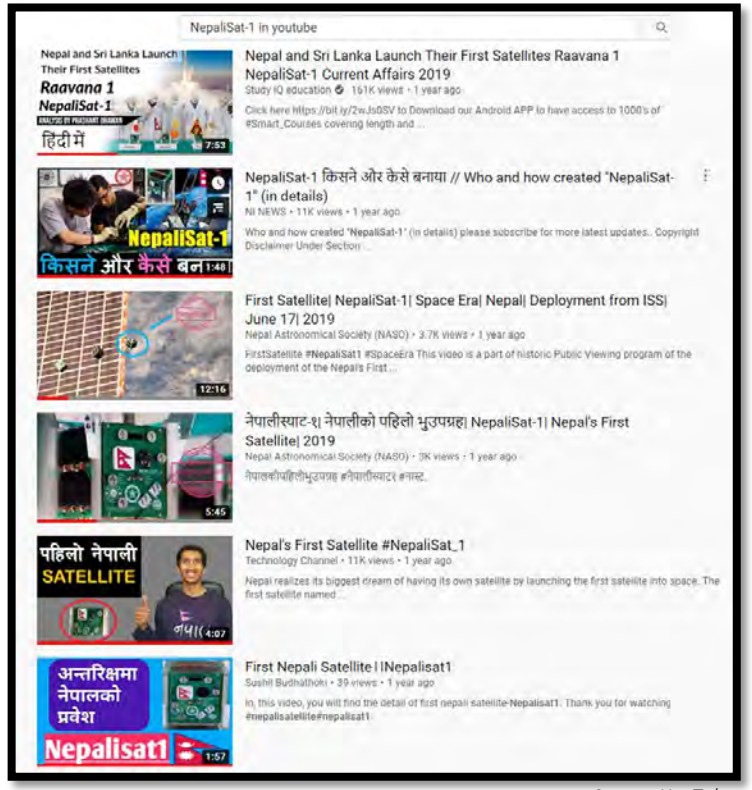
Links … . .

12	GC boys Nepal	पहिलो पल्ट नेपाली सेटलाईट नेपाली आकाशमा। Nepalisat-1. 2019 first nepali satellite.	18 Apr 2019	1.2 K	Nepalese	https://youtu.be/RkZofl8GY50
13	Space Geeks Mumbai	Interview with team member of NepaliSat-1	28 Aug 2019	209	English	https://youtu.be/hmm7SVklkc0
14	Himalaya TV	Abhash Maskey, Nepali Scientist and Project Manager, NepaliSat-1	8 Nov 2019	555/1	Nepalese	https://youtu.be/pguAlQpj1N8
15	Kendrabindu News	नेपालको पहिलो भूउपग्रह यसरी बन्दैछ जापानमा ‖ First Satellite of Nepal being built at Japan	15 Jan	13 K/21	Nepalese	https://youtu.be/DiKRuddAfz0
16	Chandra Prakash Pathak	Nepal preparing to Launch It's Own Satellite	27 Jul 2018	29.5 K/37	Nepalese	https://youtu.be/fp7-ULFcDz0
17	Bishwo Ghatana	सेटेलाईट के हो र यसले कसरी काम गर्छ ‖ अब नेपालको आफ्नै स्याटलाईट ‖ Nepal own Satellites lunch	16 Feb 2019	168 K/ 300	Nepalese	https://youtu.be/NVLOJyxR_RY
18	Facts 404	5 unknown facts about nepal first satellite	18 Apr 2019	141	Only music	https://youtu.be/dKY0qorsvxI
29	News Now	अंतरिक्ष में नेपाल ने भी भरी उड़ान, NepaliSat-1 के साथ स्पेस मिशन लॉन्च	19 Apr 2019	15 K/57	Hindi	https://youtu.be/KSz7yIK2IL0
20	NagarikPati TV	nepal satellite launch live video 2019‖ हेर्नुहोस लाइभ यसरि लन्च गरियो नेपाली SATALITE	18 Apr 2019	33.5 K /60	Launch video english	https://youtu.be/NErWMNnCNlo
21	Info khabar	Nepal Sat - 1 Lunch आजबाट नेपाल घुम्दै नेपालि भु उपग्रह हेर्नुहोस्	18 Jun 2019	6.6 K / 5	Nepalese	**https://youtu.be/E2_-dkWwr2c**
22	ANS NEPAL	अचानक फ्रान्सबाट आयो यस्तो खबर, नेपालको पहिलो नानो भू-उपग्रहले पठायो यस्तो तस्वीर Nepali Sat-1	18 Dec 2019	25 K /25	Nepalese	Ahttps://youtu.be/Uq6E5SkMrcA (from 2.11)

YouTube channel Cropped Photos





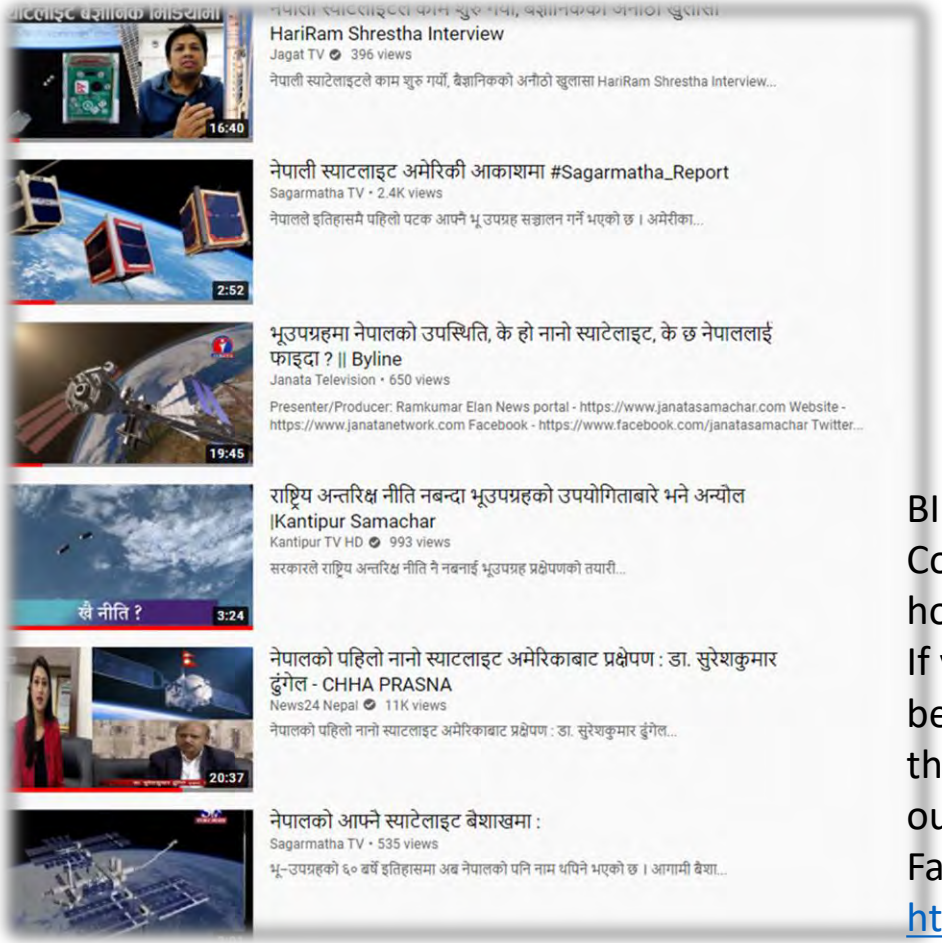


Source: YouTube

Televisions News Links

23	Katha Today	First Satellite of Nepal,६० बर्षपछी बल्ल पुरा भयो अन्तरिक्ष सपना	6 Mar 2019	1.5 K	Nepalese	https://youtu.be/Y8Wy-GcCM9Q
24	News24 TV	अमेरिकाबाट पठाइँदैछ नेपालको पहिलो स्याटेलाइट 'नेपाली स्याट वन'	17 Apr 2019	16 K	Nepalese	https://youtu.be/9xyxmZpnZP8 https://youtu.be/KRkQAFa3nEY https://youtu.be/FEUkUecB2vc https://youtu.be/X4rZur4hCjc https://youtu.be/XK2US1QeTMc
25	Sagarmatha TV	नेपालको आफ्नै स्याटेलाइट बैशाखमा	4 Jan 019	534	Nepalese	https://youtu.be/NSNB_FXQWeY https://youtu.be/JEXSGAQOCjs https://youtu.be/MjR5TnFBSlg
26	Janata TV	भूउपग्रहमा नेपालको उपस्थिति, के हो नानो स्याटेलाइट, के छ नेपाललाई फाइदा ?	16 Apr 2019	649	Nepalese	https://youtu.be/rFsH8cUubTg
27	Jagat TV	नेपाली स्याटेलाइटले काम शुरु गर्यो, बैज्ञानिकको अनौठो खुलासा	24 Jun 2019	395	Nepalese	https://youtu.be/sYGNvXND2PI
28	setopati	अब अन्तरिक्षमा नेपाली स्याटेलाइट	18 Apr	888	No language	https://youtu.be/Kwr7Adv0e10
29	Rabindra Dhakal	Talk on nano satellite of Nepal at NTV	22 Nov 2018	6.5 K NTV based	Nepalese	https://youtu.be/DueAS_xXmPY
30	ABC NEWS Nepal	अन्तरिक्षमा नेपालको पहिलो स्याटेलाइट (भू–उपग्रह) प्रक्षेपण ‖	19 Apr 2019			https://youtu.be/wY5FPposP-c
31	NAST Nepal	BIGYANPRABIDHI 20750606	9 oct 2018	462	Nepalese	https://youtu.be/hgshVkdJoso
32	NAST Nepal	BIGYANPRABIDHI 20761201	3 May 2020	88	Nepalese	https://youtu.be/4rwssqLYLnQ

BIRDS-3: CW-Short Messaging Service (SMS)



33	Rabindra Dhakal	Talk on nano satellite of Nepal at NTV	22 Nov 2018	6.5 K NTV based	Nepalese	https://youtu.be/DueAS_xXmPY
34	ABC NEWS Nepal	अन्तरिक्षमा नेपालको पहिलो स्याटेलाइट (भू–उपग्रह) प्रक्षेपण ‖	19 Apr 2019		Nepalese	https://youtu.be/wY5FPposP-c
35	NAST Nepal	BIGYANPRABIDHI 20750606	9 oct 2018	462	Nepalese	https://youtu.be/hgshVkdJoso
36		BIGYANPRABIDHI 20761201	3 May 2020	88	Nepalese	https://youtu.be/4rwssqLYLnQ

BIRDS-3 team launched a CW-Short Messaging Service (SMS) from May 25, 2020 to thank Covid-19 frontline workers who have been working day and night to make sure that hospitals, service sectors and supply chains function in these difficult times.
If you have someone who you think has been on the frontlines and deserves their name to be beaconed from space, please do fill the form below. Will take about a minute. We will then place his/her name onto the CW beacon that gets transmitted every 2 minutes from our satellites and release a screenshot on Facebook when updated. from (BIRDS-3 Satellite Facebook page)
https://birds3.birds-project.com/2020/05/23/thanking-covid-19-fighters/

Logo designed by Jamyang Tshering

BHUTAN SPACE FORUM

Report by Pooja Lepcha, 12 Sept 2020

Bhutan Space forum was launched on June 29th 2020 to commemorate the 2nd launch anniversary of BHUTAN-1, the first satellite of Bhutan.

The speakers talk on space related topics and answer questions from the viewers live on Facebook.

Photos courtesy: Bhutan Space Week Facebook Page

https://www.facebook.com/bhutanspaceweek

Speakers til now …

Pooja Lepcha
1st year PhD researcher, Kyutech
Topic: Satellite Power System

Kiran Kumar Pradhan
(Dy. Ex. Engineer, Department of Information Technology and Telecom)
Topic: On Board Computer

Kinley Wangyel
(Urban Planner, Department of Human Settlement)
Topic: Geospatial Data

Anyone can join the forum 29th of every month or also view the recorded talk on their Facebook page.

UiTMSAT COLUMN

Column No. 9

Editor: FATIMAH ZAHARAH BINTI ALI (*ali.fatimahzaharah@gmail.com*)
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UNIVERSITI TEKNOLOGI MARA

UiTM Sentiasa Di Hatiku
"UiTM Always in My Heart"

AN INSIGHT INTO THE MIND OF MALAYSIA'S SPACE WOMAN – Part 1

Unforgettable memory for me on September 8th, 2020, where I have been given an opportunity to interview a world well-known and respected Malaysian figure in space and satellite fields, **Professor Emerita Dato' Seri Dr. Mazlan Othman**. It was such a great and amazing experience to have talked to Dato' Seri Mazlan who has a lot of knowledge and experiences in space sciences and technologies. Let's dive with me in this column as I will share her words and views on the space and satellite technologies and industries.

Fig. 1: Prof. Emerita Dato' Seri Dr. Mazlan Othman
(source from pakej.com)

For record, Dato' Seri Mazlan who was the very first astrophysicist in Malaysia, was a director of United Nation Office for Outer Space Affairs (UNOOSA) for 7 years since 2007 after being appointed as a Director General (DG) of Malaysian Space Agency (ANGKASA) for 5 years. In 2017, she became the Director of International Science Council (ISC) in Regional Office for Asian and Pacific (ROAP). She is now a senior fellow in Academy of Sciences Malaysia (ASM).

Talking about the exposure and acceptances of space exploration in Malaysia, Dato' Seri Mazlan said Malaysia is doing well for the development of space sciences, by looking at the accomplishments and ongoing ventures in space areas. The achievements that Malaysia have today such as the National Observatory in Langkawi, the space technologies courses offered by the Malaysian educational institution, and so on, were the results of the previous

Fig. 2: The screenshot during the online interview session. In clockwise from top left, AP Ir Dr Mohamad Huzaimy, me, and Prof Emerita Dato' Seri Dr Mazlan. The interview with Dato' Seri Mazlan was conducted by me and Dr Huzaimy, via Zoom application platform.

efforts which can be proud of.

Fig. 3: There was a lot of valuable views being shared by Dato' Seri Mazlan during the interview. It was a great honour to have the opportunity for the online interview with the world well-known and expert in space field, Dato' Seri Mazlan.

However, for the space technologies, Malaysia is still moving at slow pace. Dato' Seri Mazlan said there is no proper space industry available in the country, besides of the deficiency in industry capabilities that are holding the country back in space technologies. There is minimal communication engaged between educational institutions and space agency that affects the development of the space advancement. Dato' Seri Mazlan added it is a 'chicken and egg' situation to decide which party should act first for the space technologies development in the country. Unless the space technology program is conducted continually, the industry is not going to be interested to revamp or vamp up the capabilities in the space if the government or the universities don't produce a satellite per 5 years which is impossible for commercial or businesses senses.

Malaysia has their own satellite assembly, integration, and testing (AIT) facilities in Banting, Selangor, that are managed by Malaysian Space Agency (MYSA, used to called as ANGKASA). As the former DG of ANGKASA, Dato' Seri Mazlan told us that the initial idea of setting up the AIT facilities was to provide opportunity to create the satellite industry and build up the space capabilities. Until Malaysia has the facilities, it cannot be said that Malaysian company is able to build a satellite or co-develop the spacecraft with other countries. Since Malaysia does not have the capability to totally develop a satellite by their own, Dato' Seri Mazlan opined it is good enough to have the basic facilities at least, that will be the benefits for the involvement in the satellite technologies. This was the plan designed by Dato' Seri Mazlan when she served the ANGKASA in 2002 until 2007. She expected the Malaysian company to take part in space advancement to provide the application part such as sensor for the satellite development.

Fig. 4: The online interview was conducted for about 1 hour using the ZOOM platform.

However, to Dato' Mazlan, a lot of close supervisions are required as a very tight strategy for such framework to happen.

Dato’ Seri Mazlan suggested that for Malaysia to go forward in space technologies, good coordination, streamlining, and most importantly, a tight and close monitoring, and tactical plan are required to be possessed. If these are not met, moving forward to space technology will not work. Nevertheless, Dato’ Seri Mazlan emphasized that Malaysia’s future in space and satellite sectors are not deemed. “It just needs to be rejuvenated, reinvigorated and to move forward, with other countries”, advised Dato’ Seri Mazlan. The issues of no budget, no international connection, and less international spirit of collaboration for satellite development project in Malaysia are due to the missing political involvement.

This issue will be further covered extensively in my next column (Number 10 of October 2020).

UiTMSAT column to be continued in the next issue of the BIRDS Project Newsletter

UPDATES FROM THE PHILIPPINES

September 15, 2020

University of the Philippines-Diliman
Quezon City, Philippines

PREPARED BY:

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Buwan ng Wika

Philippine National Language Month

August 2020

As a continuation of the space-related Filipino words introduced in the last issue, STAMINA4Space continued its social media campaign by sharing more words in the different Filipino languages.

bituin (n.)
star

Buwan (n.)
moon / month

Langit (n.)
heaven

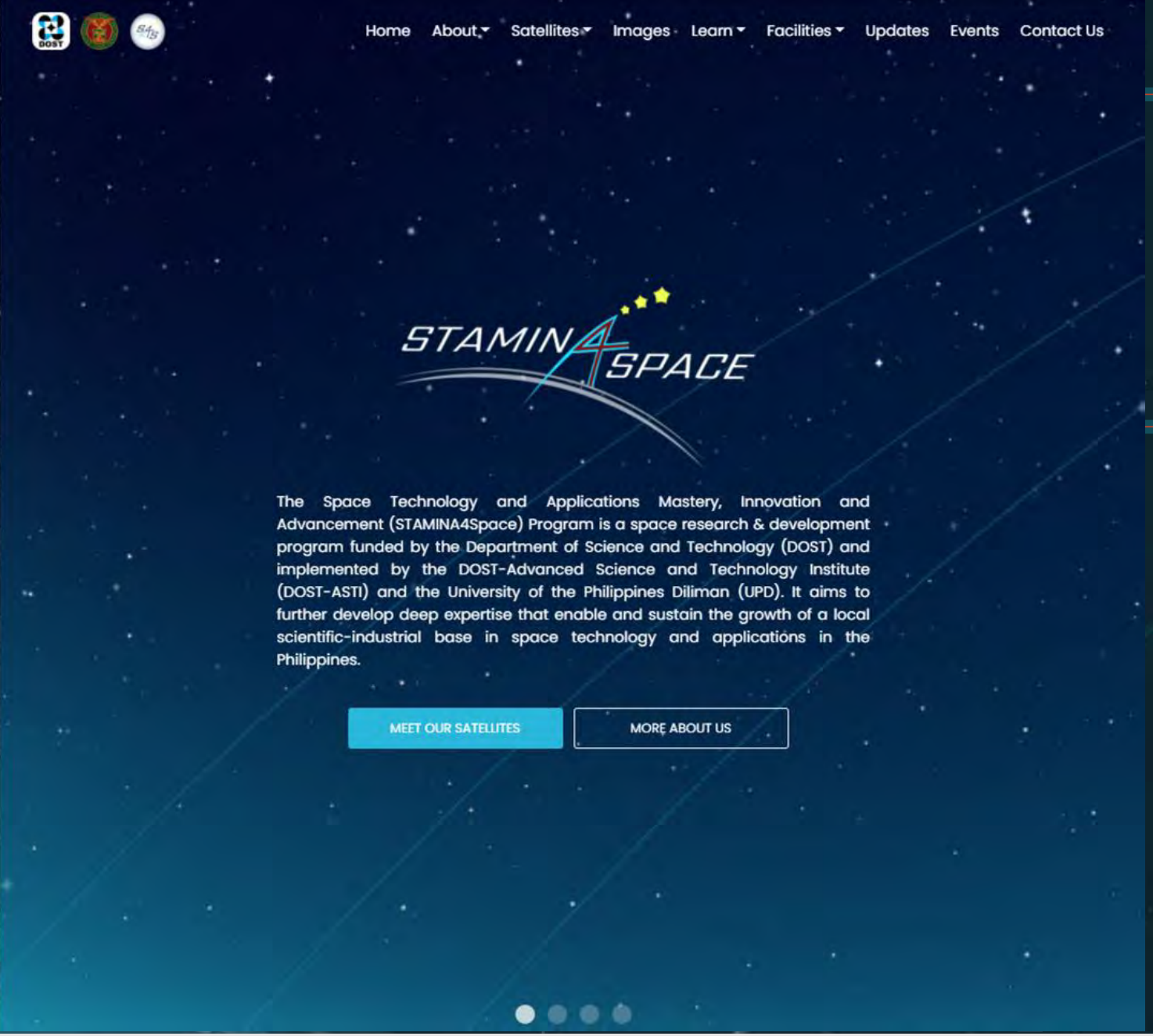
UNISEC Philippines welcomes USM

August 20, 2020

The University of Southern Mindanao (USM) joins UNISEC Philippines! USM is the 8th Philippine academic institution to join the Philippine chapter. It is also the alma mater of one of the scholars who are working on the development of the first university-built cube satellites. under the STAMINA4Space Program's Space Science and Technology Proliferation through University Partnerships (STeP-UP) Project.

UNISEC Philippines is glad to have USM on board to assist them in starting their space-related activities!


ULYS ES
University Laboratory for Small Satellites and Space Engineering Systems
ULyS³ES Inauguration Anniversary
August 31, 2020
On this day last year, DOST-Philippines and the University of the Philippines-Diliman launched the University Laboratory for Small Satellites and Space Engineering Systems Building (ULyS³ES) at the UP Electrical and Electronics Engineering Institute.
STAMIN SPACE
PHL MICROSAT



STAMINA4Space Website is now LIVE!

August 31, 2019

With limited access to ULyS^{3}ES and other partner institutes at UP Diliman and the DOST-Advanced Science and Technology Institute due to the ongoing COVID-19 pandemic, the STAMINA4Space program released a new online platform where information on Philippine satellites and research activities and more can be accessed!

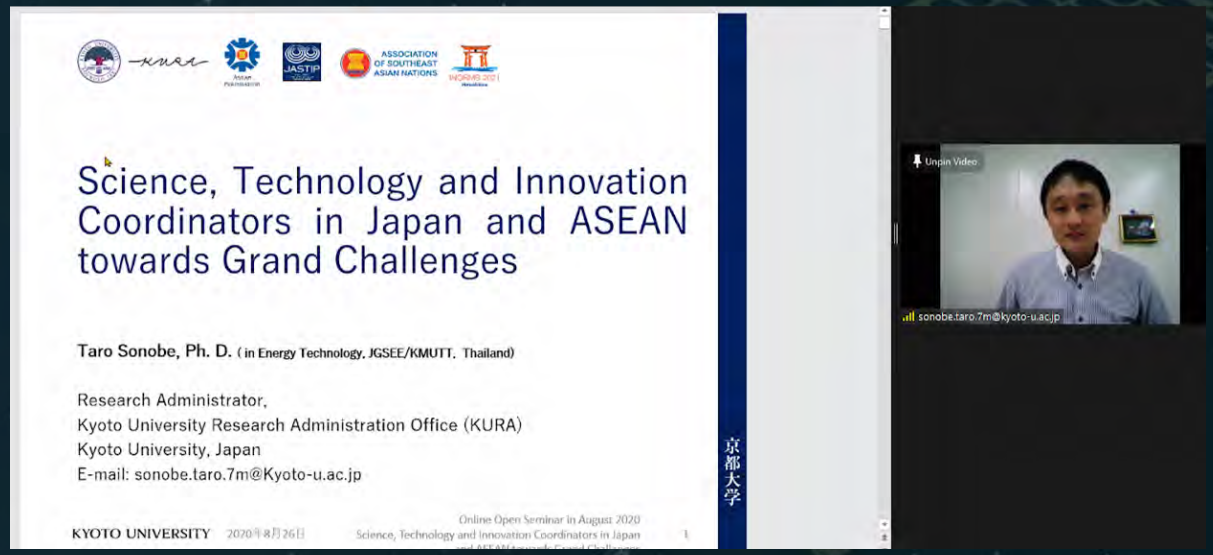
Access our website here:
stamina4space.upd.edu.ph

Science, Technology and Innovation Coordination Seminar

Members of the Philippine Space Agency (PhilSA) and STAMINA4Space attended the online open seminar "**Science, Technology and Innovation Coordinators in Japan and ASEAN towards Grand Challenges**," on August 26, 2020.

The seminar aimed to share the current situation of research administration around the world and present the results of a questionnaire distributed about science, technology and innovation (STI) coordination in the ASEAN.

The online seminar is part of a series that aims to generate awareness of research administration and the need for professional STI coordinators in the ASEAN. The STI seminar series is organized by the Kyoto University Research Administration Office; ASEAN Foundation; Japan ASEAN Science, Technology and Innovation Platform (JASTIP); and the ASEAN Secretariat.



DOST-PCIEERD 10th Anniversary

September 8, 2020

PhilSA Director General Joel Marciano Jr. and Dr. Czar Jakiri Sarmiento of the STAMINA4Space Program were invited to take part in one of the 10-part webinar series being conducted by the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) in celebration of their 10th Anniversary. DOST-PCIEERD is the monitoring agency of STAMINA4Space.

The theme for this event is "Emerging Technologies in Response to COVID and post-COVID Challenges". The speakers are from the government and the academe who shared their research initiatives, experiences, and insights in coping with the "new normal".

Photo courtesy of DOST-PCIEERD

Speakers during the September 8 Event

Updates from STEP-UP scholars

"The twelfth step..."

September 10, 2020

University of the Philippines–Diliman Quezon City, Philippines

Prepared by STeP-UP scholars

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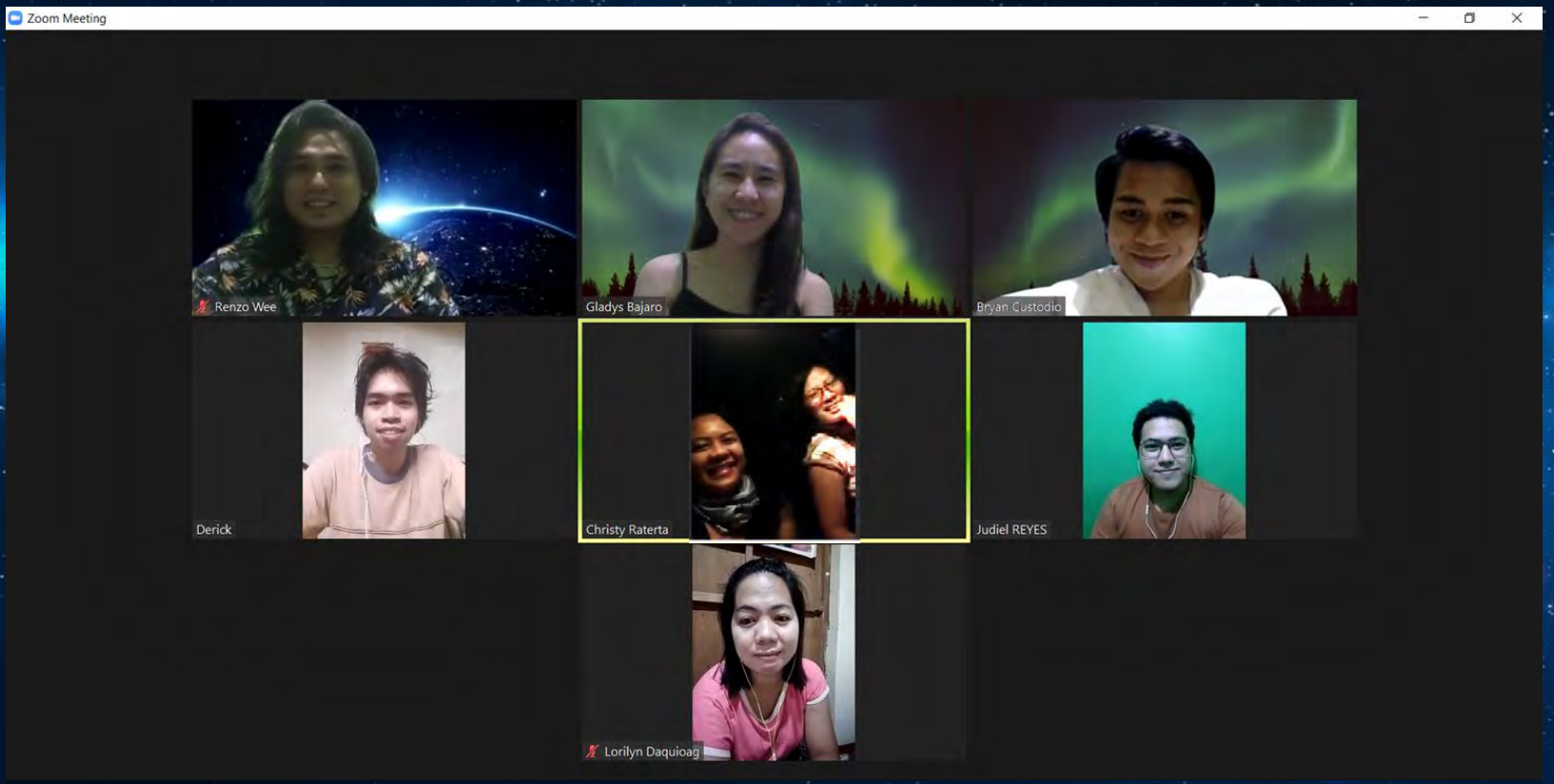
BIRDS Project Newsletter – No. 56

STeP-UP goes ONLINE

-Renzo S. Wee



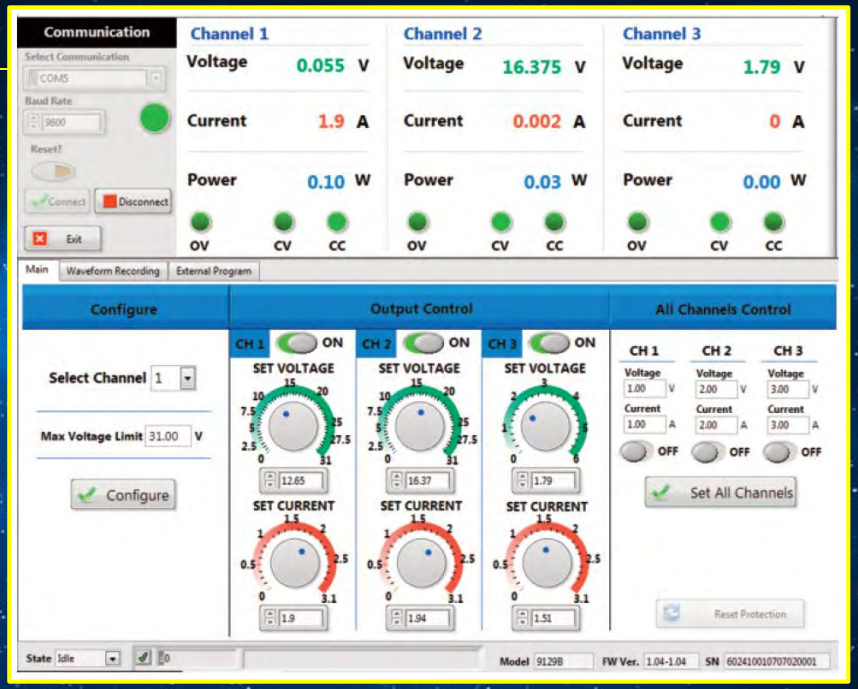
The STeP-UP scholars took a group selfie (or "groufie") during one of their regular meetings.

At the dawn of 2020, a pandemic occurred that greatly affected the whole world. However, this did not stop the scholars in continuing the development of Maya-3 and Maya-4. During this situation, the team devised a setup to do most of the works remotely and only go to the laboratory if needed. The team also limits the number of people present in the laboratory, and, to track each task, the team holds a meeting every week.

This pandemic might be one of the worst struggles that this generation will face, but we will surely topple this and engrave in our memories the lessons learned during this crisis.

STeP-UP Maya Tool 1.0

-Renzo S. Wee



In relation to the remote setup of the scholars, we developed a software that enables us to upload codes to the satellite remotely -- STeP-UP Maya Tool v1.0. Pairing this with BK 9129B enables us to turn the satellite on and off. We are also using other remote desktop software for other operations.

FM Assembly at ASTI

-Renzo S. Wee

Last September 2, 2020, the scholars assembled the antenna and solar panel FM boards of Maya-3 and Maya-4 at the Department of Science and Technology – Advanced Science and Technology Institute (DOST – ASTI). The scholars were guided and the assembly was facilitated by Mr. Calvin Hilario of ASTI.

We would like to express our gratitude to DOST-ASTI and Sir Calvin Hilario for letting us use their facilities and for their assistance.

BIRDS-5 Newsletter September 2020 Articles

By Fahd, Hind, Victor, Bonny, Ramson, Otani san

Hind Mahmoud's Self-Introduction

By Hind Mahmoud Elhaj Mohammed (BIRDS-5, Sudan)

12th September 2020

Self Introduction

Profile

Name: Hind Mahmoud **Country:** Sudan **Lab:** LASEINE M2

Education

BSc in Electronics Engineering
MSc in Embedded Systems

Skills & Languages

C/C++	Video&Image editing
MATLAB (DSP/DIP)	
Networking (CISCO)	Arabic: MT
Solidworks	English: Advanced
Proteus simulator	Japanese: Beginner

Work Experience

ISRA: Researcher **SUST:** Teaching assistant

My name Is Hind Mahmoud Elhaj Mohammed, Hind in short. you can find a basic information about my education, skills, ...etc. on the left side.

I lived in Oman, Sudan and now in Japan. I consider myself lucky to get to experience different cultures. It made a huge impact on my personality to be open-minded, tolerant and understanding. I try to always become a better version of the “present me”. All challenges are just opportunities to learn something new.

About Sudan (1)

- **Area**: 1,886,068 km^2
- **Population**: 41,592,539
- **Capital city**: Khartoum
- **Official languages**:
  - Arabic
  - English
- **National Language**: Sudanese Arabic
- **Religions**:
  - Islam
  - Christianity
  - Indigenous African

About Sudan (2)

Economy:

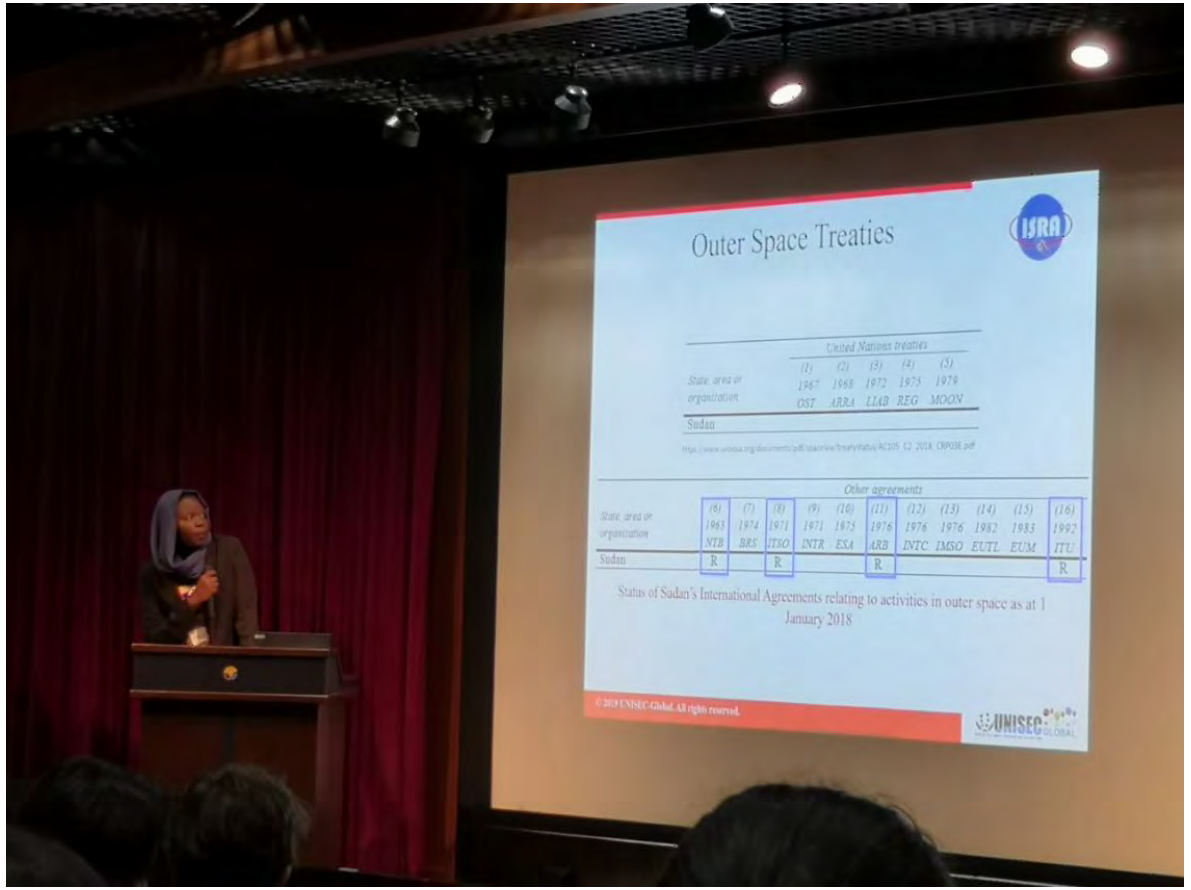
- **Agricultural land: 100% (2011 est.)**
  - Cotton
  - Sengalia Senegal
  - Wheat
- **Cattles (sheep, cows, camels)**
- **Small reserves of iron ore, copper, ...etc.**

Culture:

- Greetings matter
- Small chats in public places are normal
- **Family** comes first!

My interest in Space

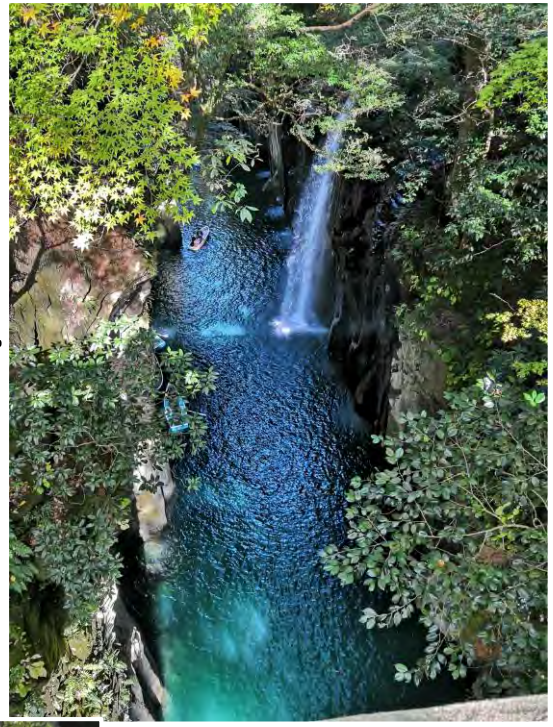
- Joining the Institute of Space research and aerospace in Sudan was my first real step to the space community. My interest have grown bigger since.
- By joining LaSEINE, I've come to understand that space technology can be realized in developing countries to solve critical issues and be a source of economical solutions. It can be challenging to maintain a space program but not impossible. It also enabled me to expand my network and now, through BIRDS-5, I am learning how a cubesat project is carried.



My hobbies

I like:

- Sightseeing and outdoor activities.
- Taking photos but I am not a professional.
- Cooking and eating.
- Concerts

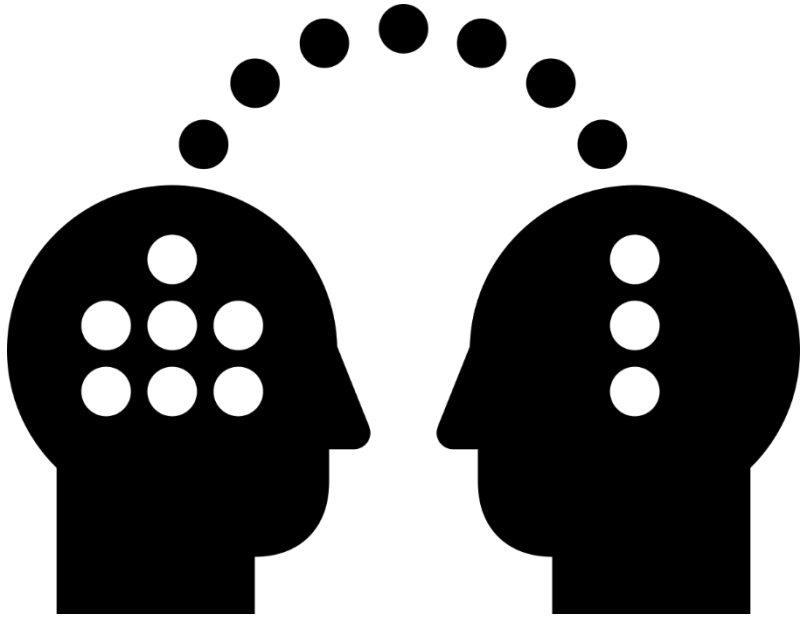


End of the presentation by Hind

Knowledge transfer from BIRDS-4 to BIRDS-5

By MOUMNI Fahd (BIRDS-5, Morocco)

13th September 2020



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

Introduction

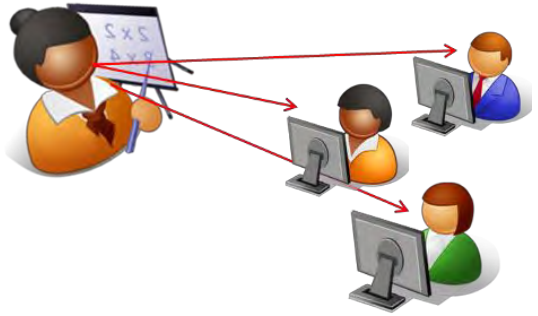
Assistant Professor George Maeda once said :

"One of the fantastic characteristics of the BIRDS Program is the overlap of the projects. Each BIRDS Project is two years in duration. However, the later half overlaps the next BIRDS project by one year. This is no coincidence. It is by design. Without this overlap, a lot important information is lost -- lost is the opportunity for "experience transfer" to the next project.

So as much as possible, learn from the project that precedes you by one year. You are lucky to have such a resource at hand. "

Purpose & Objectives of the training

- When starting a new BIRDS project, most of the students usually have very few or unexistant experience in cubesats : except for the first edition, new members are mentored by their « Senpais » 先輩 (Seniors) in order to assure an effective guidance throughout the first steps of the project.
- BIRDS-4 members are currently (as of September 2020) transmitting their knowledge to BIRDS-5 students by organizing online lectures going through all the main necessary tasks and also by providing tutorials about the many softwares that are used for subsystems design.

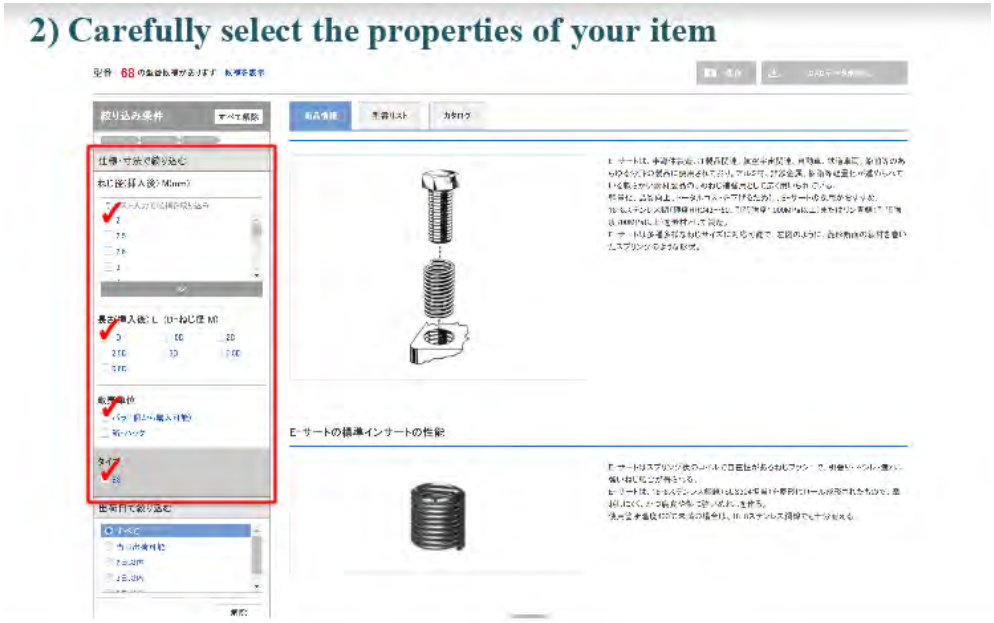


http://elearnzone.blogspot.com/2011/10/sage-on-stage-vs-guide-on-side.html

https://www.facebook.com/Birds4SatelliteProjectKyutech/photos/a.332479930875235/744605116329379/

Procurement and Inventory

- One of the many lectures was about procurement and inventory : placing an order is of utmost importance when components are needed to build the satellite.
- Marloun Sejera, Yigit Cay, Tomoaki Murase and Hari Shrestha from BIRDS-4 project assured the classes and talked respectively about the use of the common google drive files for placing an order, ordering mechanical parts, ordering computer boards, and electrical components.
- Some advices given were : to always ask confirmation before placing the order, to list everything that is bought (inventory) in order not to buy parts already in stock, and to always have a japanese colleague assigned for help and discussion with the providing company.



Screenshots of the presentations given by Yigit (up) and Hari (down)

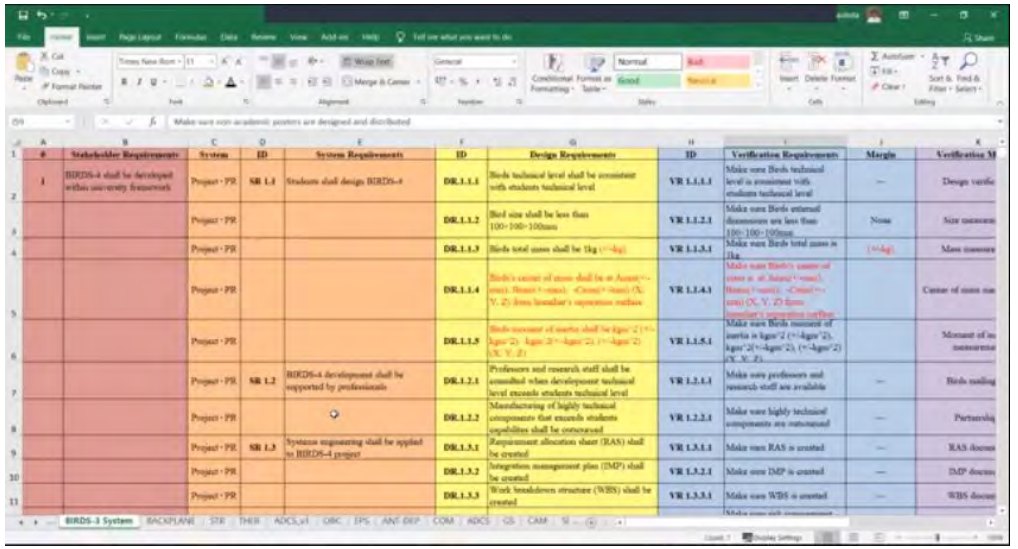
Amateur Radio licensing and Frequency coordination

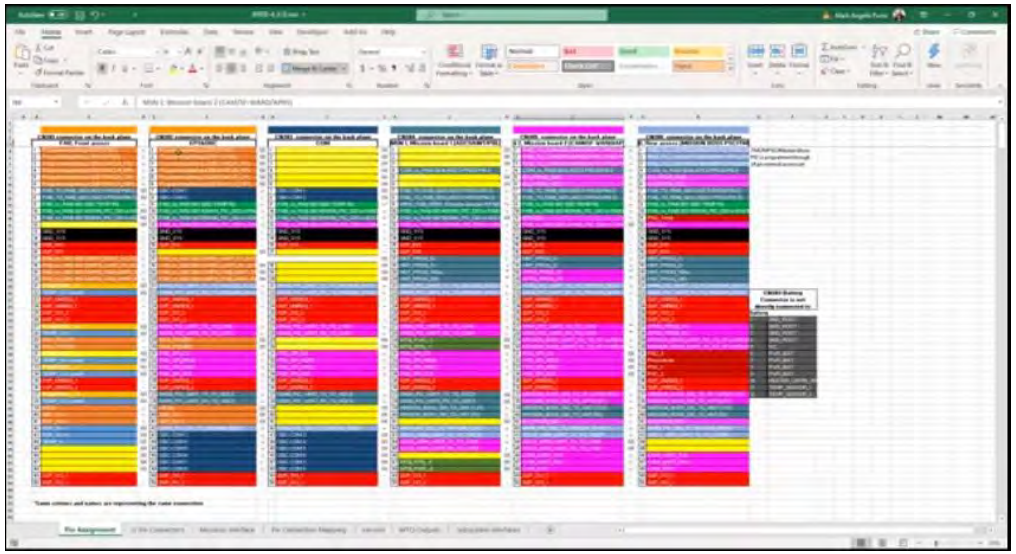
- The Ham radio (or Amateur radio) license examinations (Technician and General class) need to be passed by everyone in the team. Frequency coordination application permits to access the frequency band to be used by the satellite (Amateur Radio band is appreciated)
- Marloun Sejera explained about how to prepare for the examination while Daisuke Nakayama gave clarifications on the frequency coordination application.
- Advices were that: if time is short, focus at least on getting the Technician class, repeat the mock exams as much as you can, do not forget the essential documents the day of the exam (verify one week before the D-day), be sure about the venue of the examination (many places have the same name in Beppu City). For frequency coordination : apply as soon as possible after MDR, be sure to serve the amateur radio community with the project (convince the IARU), think about what uses APRS (Automatic Packed Reporting System).

Marloun (up) and Daisuke's (down) presentations screenshots

RAS & ICD

- Important documents such as the Requirement Allocation Sheet and the Interface Control Document (RAS & ICD) needed to be clarified after Cho-sensei's lecture about it : RAS is revised before each main review of the project while ICD is established and verified during development, testing and operation.
- Izrael Bautista gave a lecture about RAS, while Mark Purio provided information on the ICD.
- Izrael adviced that the RAS should be one Excel file gathering all the subsystems RASs (each subsystem in a separated sheet), then the verification method should better be numerical (while being sure about justifying the numbers used). RAS should be consulted every once in a while to check if the stakeholders requirements are met. Mark adviced to always carry out a « fit test » with the available boards, and to also use an Excel sheet to plan the pins and connections that are defined for each mission board.

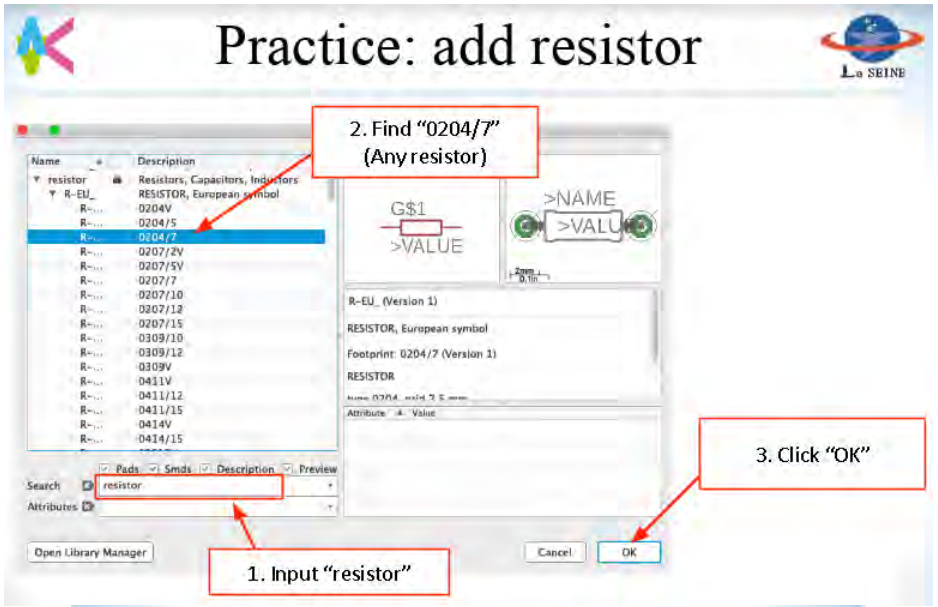


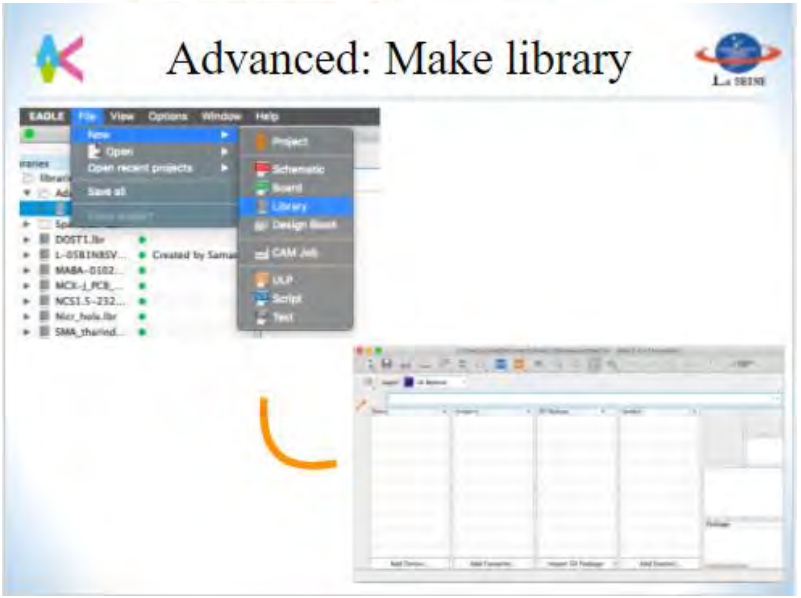


Future Lectures & Conclusion

- As of 13th of September 2020, a last class was given by Yuma Nozaki (2020/09/12) about the use of EAGLE Software to design schematics of the boards and create libraries within the software: the lecture is supposed to be completed by another tutorial about the EAGLE board design by Izrael Bautista.
- For the structure team, FUSION software basics are to be explained by Yigit Cay on the same month : aspect which is very important regarding the introduction of a 2U satellite structure in this project edition.
- BIRDS-5 students were also given assignments (by Yuma Nozaki first) about creating libraries in EAGLE : this permits to confirm the understanding of the classes and establishes reflexes on manipulating all the tools given.
- Moreover, BIRDS-5 members are allowed to ask BIRDS-4 team for lectures about any aspect, and all video lectures are recorded then put in a common google drive available for anyone who could not attend the class

End of the Document made by Fahd MOUMNI





Multispectral Camera For Land use, Cover and Soil Fertility Classification

By Victor MUKUNGUNUGWA (BIRDS-5, Zimbabwe)
and Bonny OMARA (BIRDS-5, Uganda)
13th September 2020

Benefits

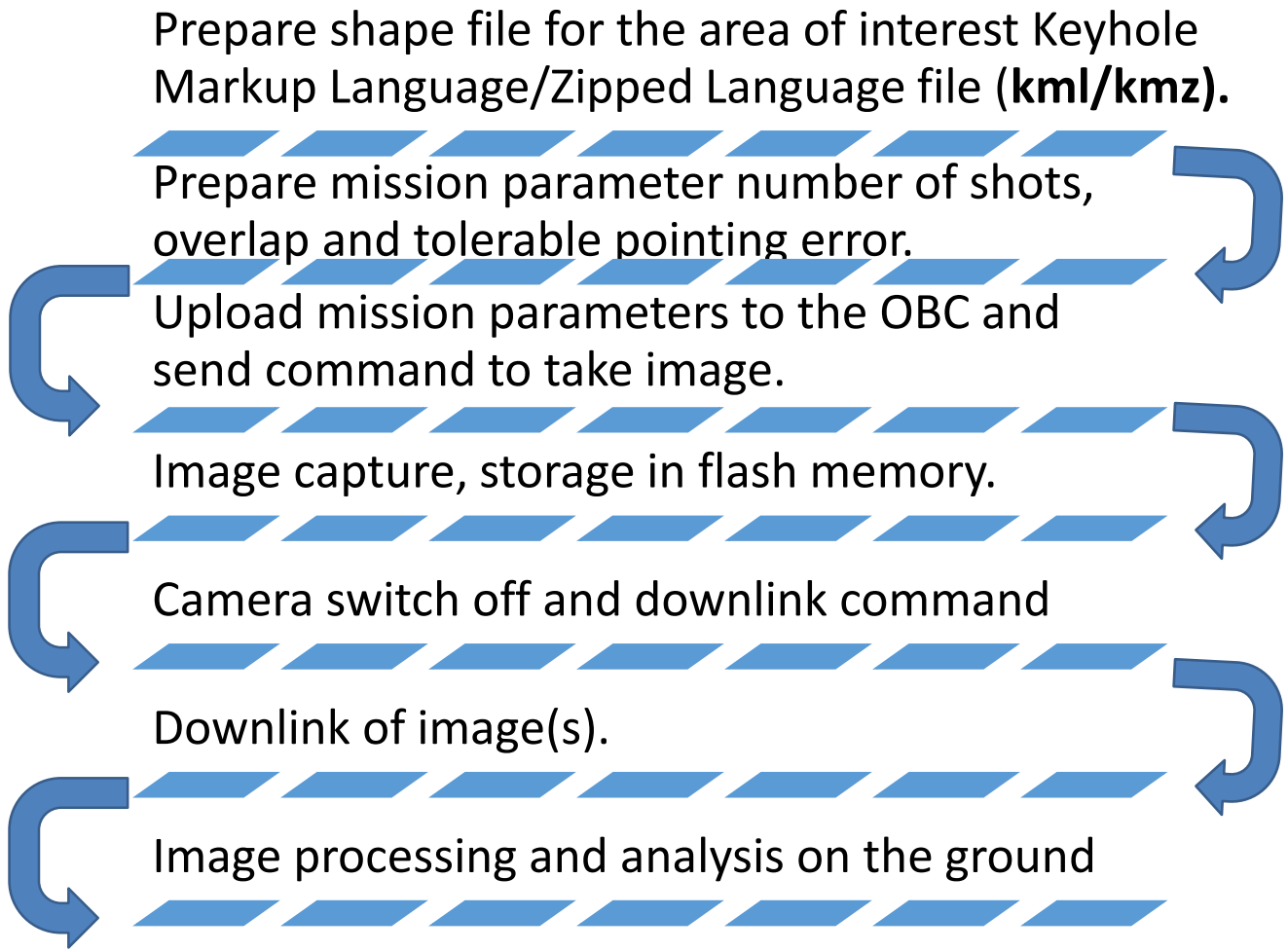
The benefits of this mission are various within the fields of Science, Technology, Economy, and Society such as :

- Aids to Food security to the nation.
- Efficient and effective distribution of agricultural inputs to the point of need.
- Optimization of budget allocations grain imports.
- Capacitation in aerial data collection and handling
- Boosting agricultural sector through Integration with mechanized farms.
- Farmers won't need to wait until the end of the season to predict the yields.
- Independence from foreign organization on data acquisition
- Opening up further research.

https://www.segalbenz.com/blog/benefits-landscape-in-2020

Mission Mode

- In order to process the mission, different steps have to be defined and followed to go through the main tasks to be assured by it.
- A mission mode can be then described as follow :



Requirements

- Stakeholders of the project want this mission especially to assure certain functions which will confirm or not the success for reaching their objectives through their investment.
- System Requirements are therefore determined from the needs of the stakeholders and from that, design requirements are also defined :

#	System Requirements	Design Requirements
1	BIRDS 5 shall have an area overage (Swath)	Requirements I. Swath greater than 216km II. Maximum of 3 cycles(revisit) to finish mapping whole country III.GSD up to 300km IV.FOV 70-120degrees
2	Payload shall capture RGB/NIR images for NDVI production	I. 3 bands using 3 cameras (550nm, 80nnm,720nm,790nm) II. Spatial resolution 150m Iii. Temporal resolution of 14 days at max for crop health monitoring.
3	Payload shall withstand the space environment	I. Temperature: -25C to +60C (Ref. ISO 19683:2017) II. Radiation (TID): 20krad (200Gy),Vacuum: TB
4	Payload shall retrieve good quality images	Without image noise and distortion I. JPEG compression > 90% II. RGB images – no false colors III. Taking a photo within 30seconds IV. Saving image for less than 1 minute and downlink of 24kB/s
5	Payload shall prepare images for downlink	I. Store > TBD in flash memory II. Send small segments of main images to OBC over UART
6	Interface	OBC and camera controller interface should be compatible if they are to be separate. Correct command interface from the ground control station to the OBC > Camera controller> cameras
7	Satellite Orientation	Attitude data, XYZ should be determined before taking the image (Camera control checks the Gyro data)
8	Processing Software.	Geographic Information Systems software (ARC GIS/ QGIS)

Mission Feasibility

- BIRDS-5 being the fifth edition of the BIRDS project, heritage and former missions can be studied to identify the feasibility of missions and areas of improvement.
- Each former payload has been analysed to confirm the Multispectral Camera Mission :

CUBESAT 1U	MISSION	PAYLOAD	Organization
GhanaSat-1	Monitoring environmental, collected atmospheric data, measured space radiation, and audio transmission.	low- and high-resolution cameras	Kyutech/JAXA
Nigeria EduSat-1	Imaging of Nigeria, the satellite constellation also conducted measurements of the atmospheric density 400 kilometers	low- and high-resolution cameras 0.3 megapixels and 5 megapixel cameras,	Kyutech/JAXA
Irazú (Costa Rica)	Technology demonstration, Earth observation, monitor temperature, humidity, and carbon dioxide fixation with the purpose of climate change analysis	Unknown	JAXA
PicoDragon	Earth imaging		University of Tokyo JAXA
F-1	Testing C328 low resolution camera		NASA
1KUNS	Optical Payload in visual band to get panchromatic images of the Earth	ArduCAM-M-2MP	University of Nairobi/JAXA
BHUTAN-1, MAYA-1 UiTMSAT-1	Taking pictures of the (the countries concerned with onboard cameras)		University of Bhutan, Philippines and Malaysia
Unguis NepaliSat-1 Raavana-1	Short message exchange, Earth observation, measurement of the Earth's magnetic field, and technology demonstration of communication modules.		Kyutech/JAXA, Nepal, SriLankan
Intelligent Payload Experiment (IPEX	HyspIRI Earth Science Decadal Survey Mission	VSWIR hyperspectral imaging spectrometer, thermal infrared imager	NASA, Cal Poly San Luis Obispo and JPL
Quetzal 1 CubeSat	Determine the concentration of chlorophyll-a –for the monitoring of water quality.	multispectral sensor 450, 550, 680, and 700 nm wavelengths	(JAXA) & (UNOOSA), Guatemalan

Key tasks

Some Key tasks are also highlighted as areas where challenges can be faced such as in :

- Hardware selection (Camera, Lens, MCU, Filters)
- Breadboard Model
- Camera Printed Circuit Board design
- Camera mission prototype development
- On-board software development
- Camera Configuration & Subsystem Integration
- Testing and verification
- Space environment tests
- FM development and final space environment tests

https://peopleraising.com/newsletter/4-key-fund-raising-tasks/

Mission Success Criteria

- The mission will go through many steps, and the success of all defined functionalities may not be that easy : it is therefore essential to identify the different success levels and their criteria.

Success level	Criterion
Minimum	Takes (Red and Near infrared) image(s) in low resolution of earth.
Medium	Takes (Red and Near infrared) image(s) in medium resolution images of Japan, Uganda and Zimbabwe. Identifiable vegetation.
Full	Takes (Red and Near infrared) image(s) in high resolution of Japan, Uganda and Zimbabwe. Identifiable vegetation.
Extra	Takes (Red and Near infrared) image(s) in high resolution of Japan, Uganda and Zimbabwe and downlink the image Identifiable vegetation.

End of the presentation by Victor and Bonny

Amateur Radio License Examination

By Ramson NYAMUKONDIWA (BIRDS-5, Zimbabwe)

and Fahd MOUMNI (BIRDS-5, Morocco)

13th September 2020

https://www.amazon.co.jp/Stryker-Sr-955hpc-sr-955hpc-10%E3%83%A1%E3%83%BC%E3%82%BF%E3%83%BCAmateur-Radio/dp/B00AT1TF10

The Amateur Radio License

- The Amateur Radio community, as defined by former BIRDS members, are a “group of people people who use radio transmitters and receivers to communicate with other Amateur Radio operators”.
- All members of BIRDS projects need to pass the two first levels of the exam to have the right to operate the satellites.
- Some of the many interesting features of this license are:

➢ Talking to Astronauts.

➢ Public service communications.

➢ Talking around the world without wires.

➢ Emergency services and so on…

Three levels are available but only the second is needed by the team members :

1. Technician Class
2. General Class
3. Amateur Extra Class

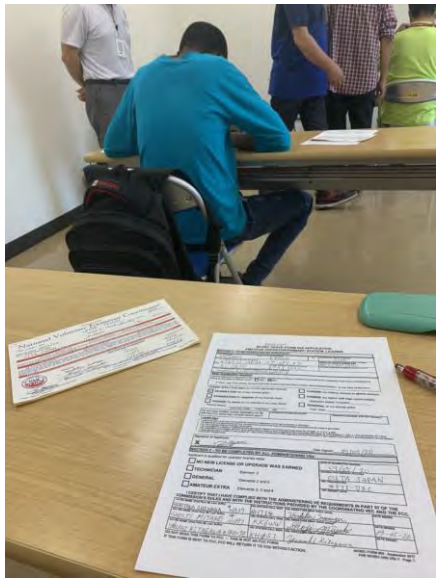
- The exams are written in that order and you need to pass the previous before taking the next exam. Moreover, privileges depend on the class held by the operator.

Amateur Radio Equipment

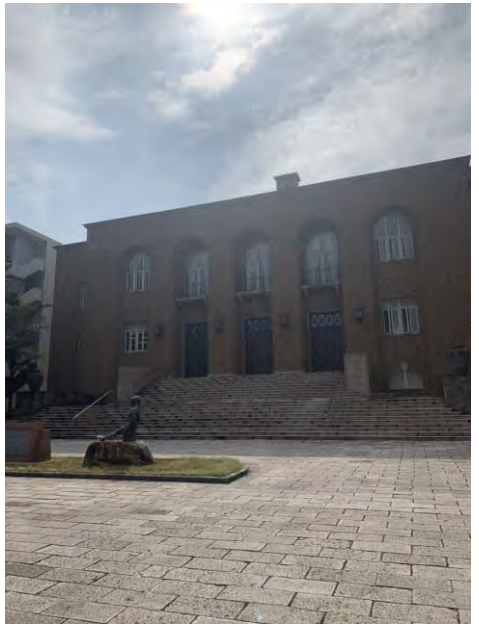
https://www.pinterest.com/pin/361836151296224172/

The examination

- For the first examination session, seats were limited to two for university students, because of the current global issue (COVID-19).
- Ramson from Zimbabwe and Fahd from Morocco volunteered to take the examination in Beppu city (Oita Préfecture) regardless of the amount of time given to prepare (1 month, usually 3 months are given).
- Information about the registration procedure, the preparation method, the documents to be brought, and the logistics were all provided by Marloun Sejera and the university official representative Pooja Lepcha (as of September 2020).
- 878 questions have to be mastered by the candidates to be ready for the Technician Class and General class examination (1 month, with discipline, is enough anyway)



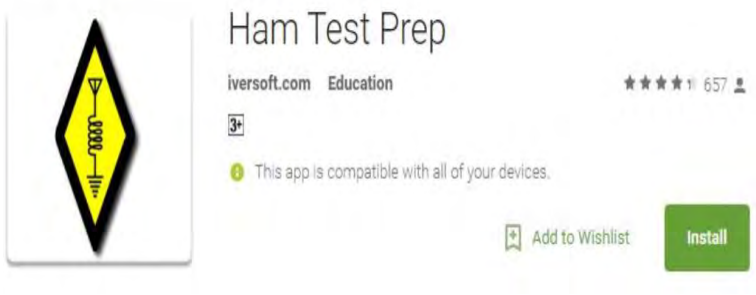
Ramson and Fahd filling some documents before the exam



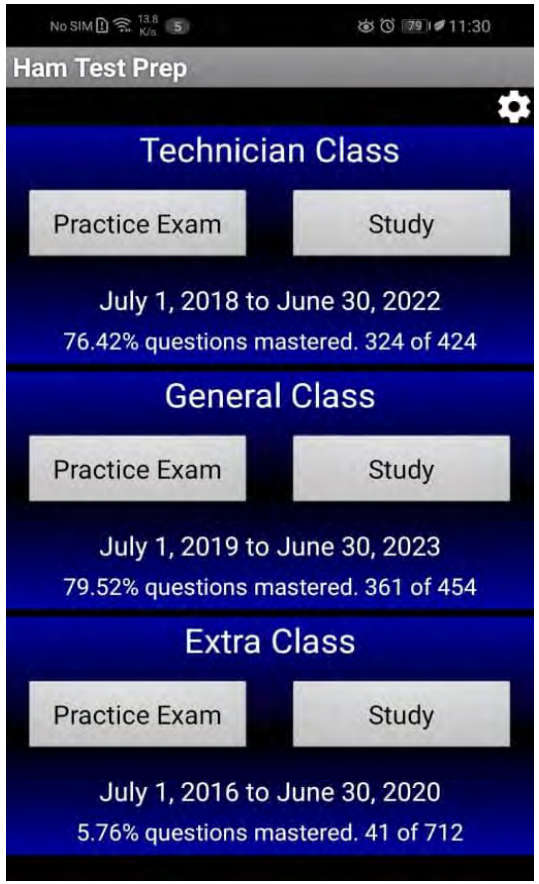
Exam Venue : Beppu City Hall

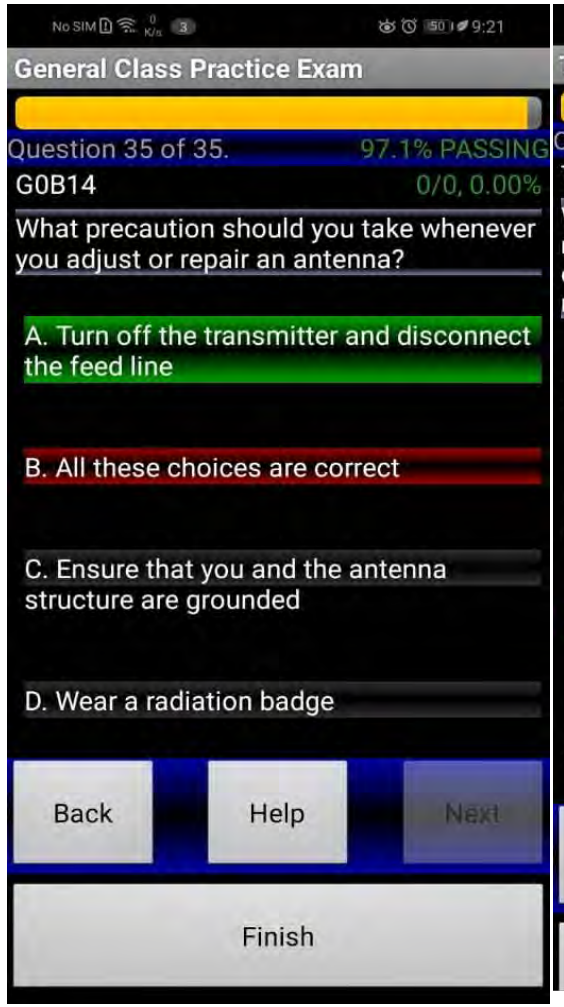
Ramson and Practicing for the Exams

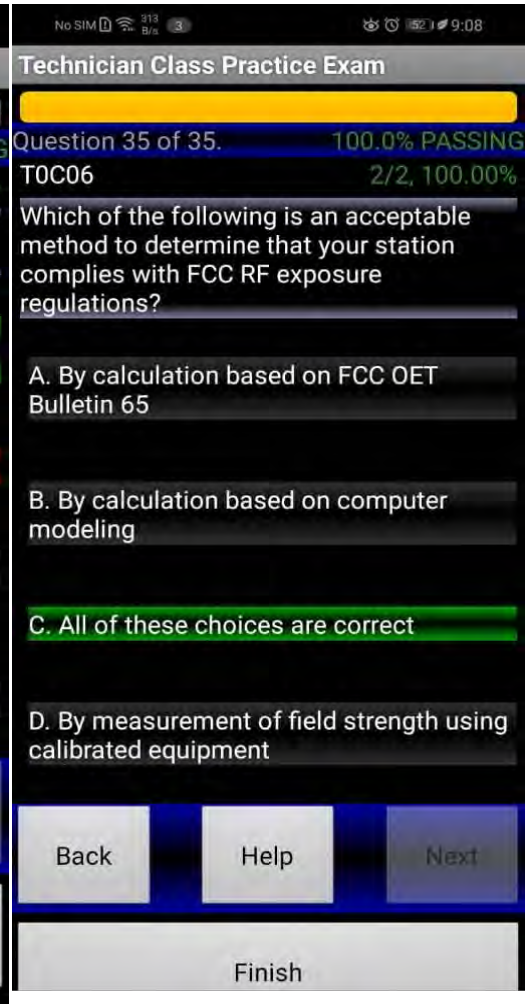
- The exams are easy but you need to revise.
- Need approx. one month to prepare General and Technician.
- More time needed for Extra Exam.



The Android App

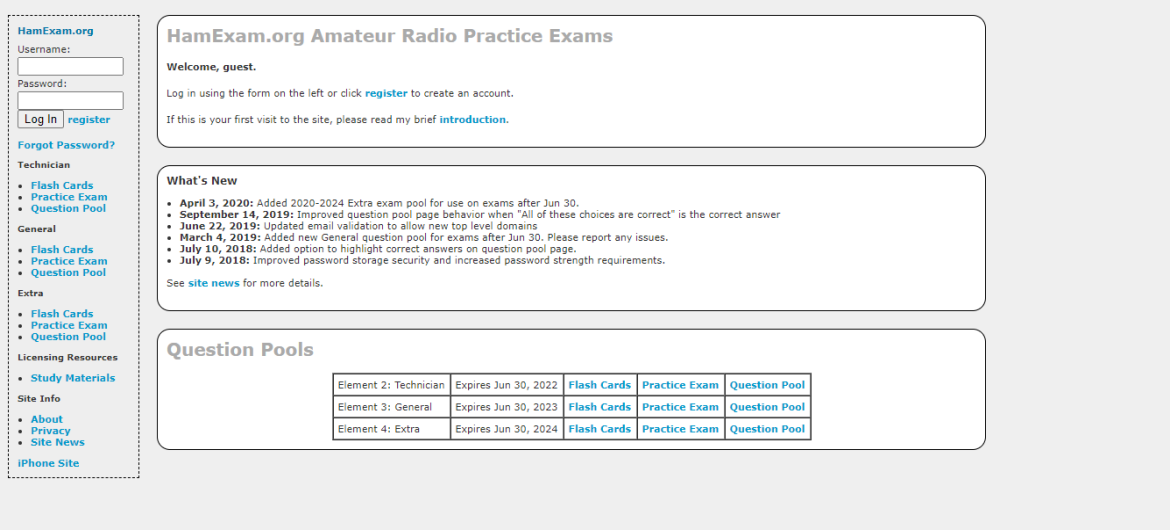






Fahd and Practicing for the Exams

- As for Ramson, my advice would be to practice on an Android Smartphone if possible : That application is very convenient, plus you carry your smartphone everywhere so whenever you are « wasting time » doing a daily chore for instance, then you simply take out your phone and practice !
- iOS versions are uncomplete in my opinion : for iOS smartphones owners I would instead advice to prepare on computer on the hamexam.org website. (Download some of the iOS App anyway)
- Another advice : Start with the Technician class questions, then when you start scoring around 80% on the average tests, start General class questions practice until 80% then go back again to Technician and alternate between both as much as you can until the last minute before the test ! In case of time shortage focus only on the Technician class.

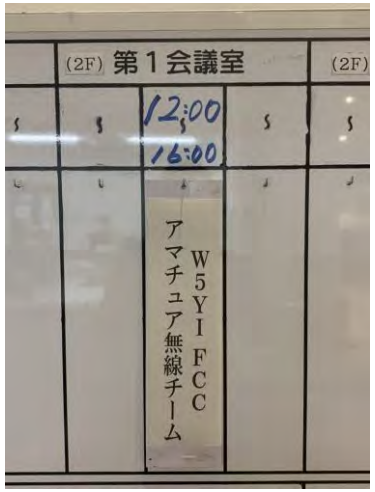


Screenshot of the website homepage

Going to Beppu City and suggestions

- Beppu City is very famous for its hot springs (Onsen 温泉), unfortunately that was not in our plan (other members should think about it)
- Ramson's first trip in Japan was also a good experience to exchange between colleagues, discover another city and how to travel within the country : An express train was taken early, to arrive at the destination on the right time. At a moment we got lost but could find our way easily to the examination venue.
- Getting lost actually gave us a chance to discover more of Beppu city.
- An advice would be to go with someone who knows japanese basics or at least who knows how to find your way to the examination site : it is easy to prepare a trip but you never know what can happen ! (Amateur radio in japanese is : Amachia musen　アマチュア無線)
- Another advice would be to bring enough cash in case anything happens : around 14000 円 (do not put all your money in your transport card).
- Finally, eat something before your examination !! (Konbinis are everywhere)

In the train



Bulletin board of the Exam Center

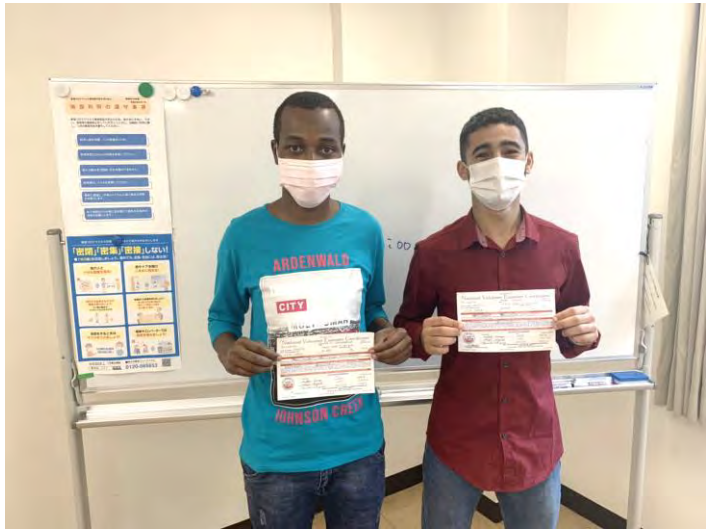
Getting some Karaage 唐揚げ after the Exam

Places discovered while getting lost

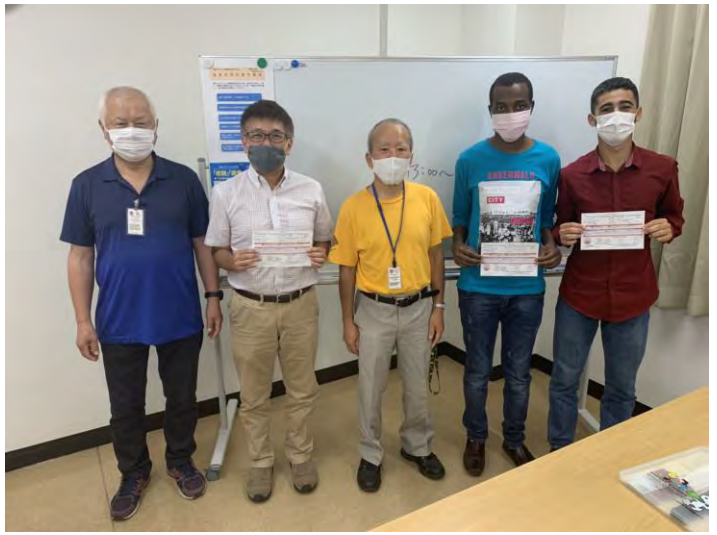
Results

- Well…we did it ! 2 New General class Operators within the Amateur Radio family!
- First test was finished in 15 minutes, Second test in 25 minutes. (3 hours were given in total) : We even had the chance to take the Extra Class examination (this one was obviously not in the plan).
- The examinators were surprised by our performances, especially Ramson: 100% score in both Technician and General class ! Examinators said that they have not seen that since 5 years ago !
- Our countries also are appealing in this domain as few people are part of this community !
- A Japanese license will be issued to get the official right to operate.

End of article by Ramson and Fahd



Ramson & Fahd holding their provisional licences



Group picture with Miyake Sensei (yellow shirt), the main organizer of the examination : a very friendly and kind person

BIRDS-5 vs COVID-19

by

Hind Mahmoud Elhaj Mohammed (BIRDS-5, Sudan)

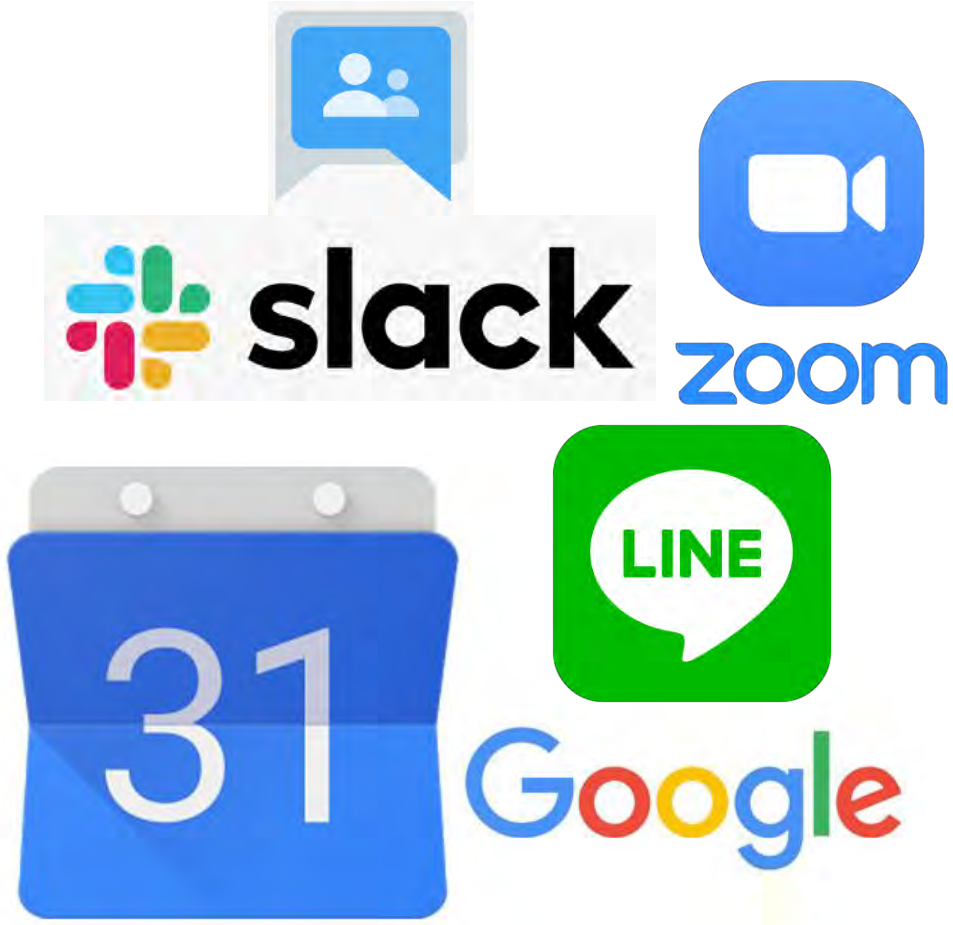
and Yukihisa Otani (BIRDS-5, Japan)

13th September 2020

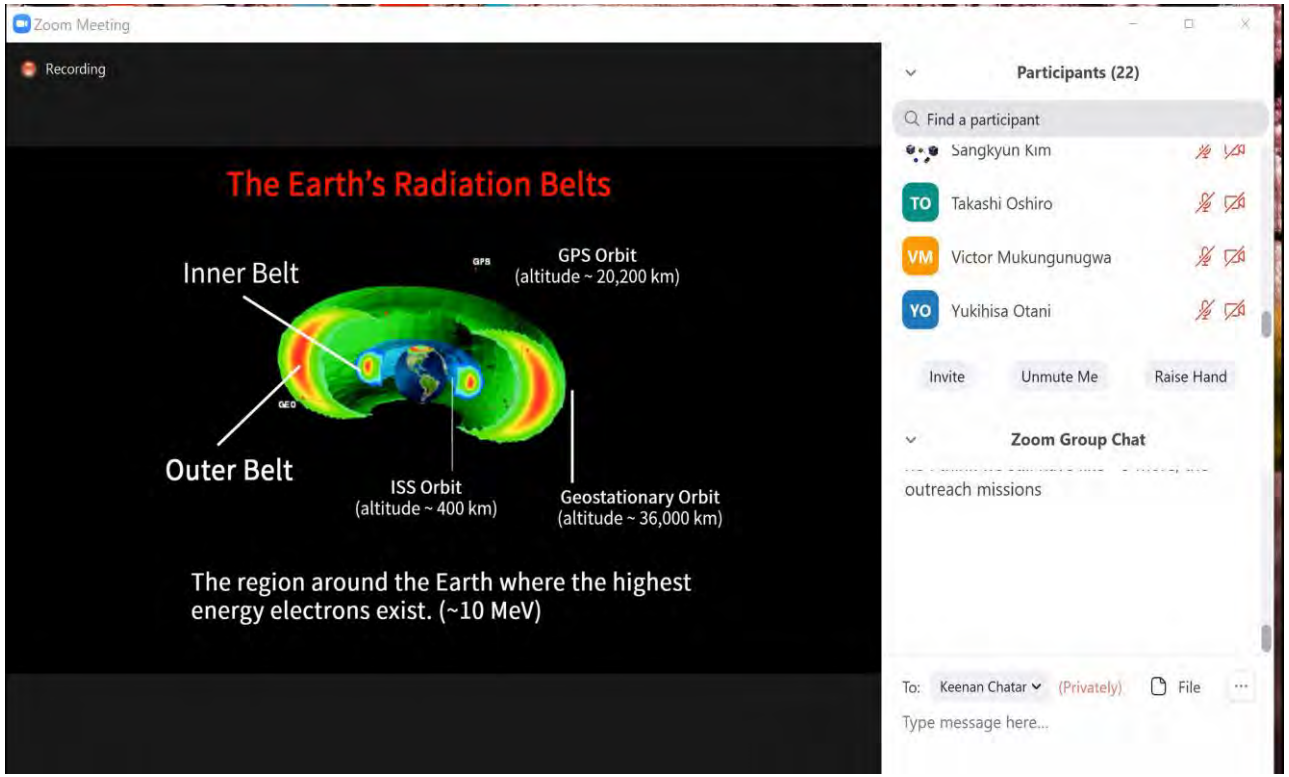
https://www.martechadvisor.com/articles/customer-experience-2/covid-19-marketing-strategy/

BIRDS-5 overcomes the COVID-19 pandemic

- As we all know, there are many measures taken by the governments around the world to fight the spread of COVID-19 pandemic.
- Where social distancing and wearing a mask are one of the first approaches taken, overcommunication in such times forms a challenge for the progress of a project like BIRDS since physical meetings are not advised.
- BIRDS-5 members had to come up with different ways to communicate. ZOOM, Google groups and calendar, SLACK and LINE were the applications agreed upon to be used.



ZOOM for video conferencing



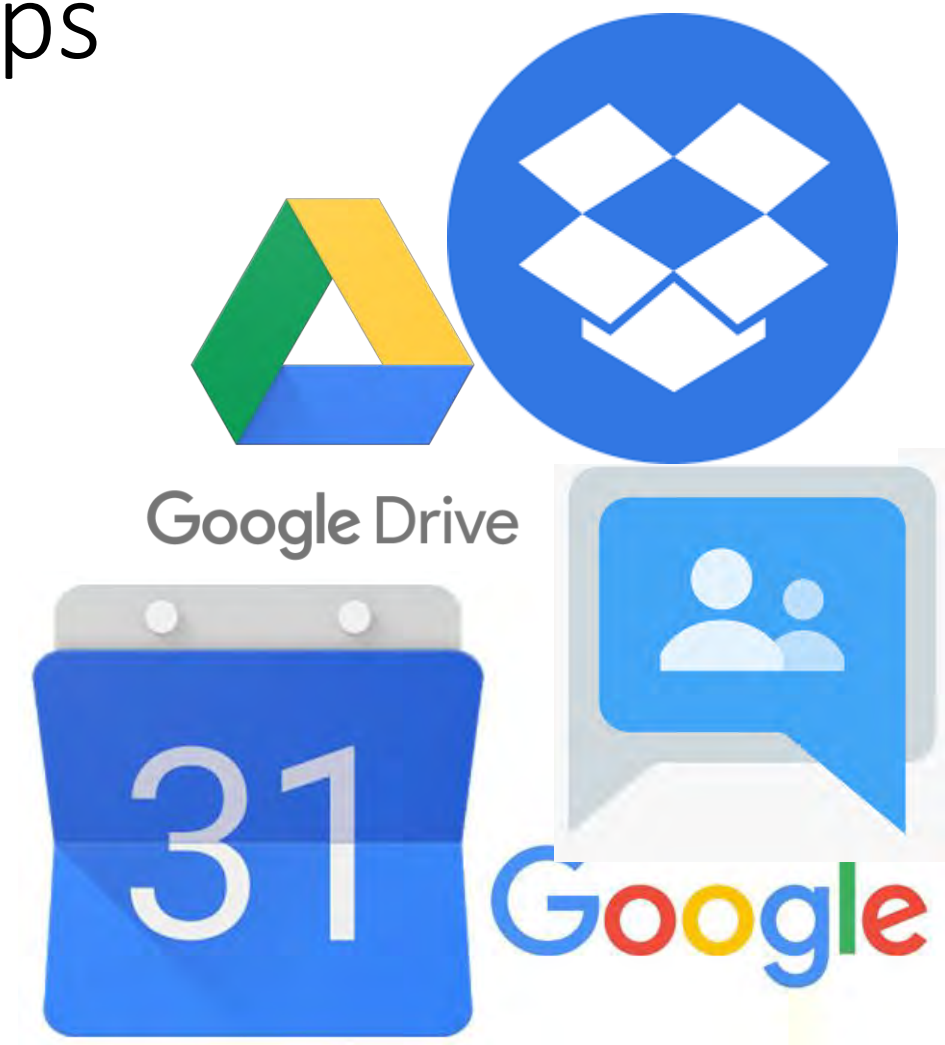
BIRDS-5 has used ZOOM for weekly students meeting, general meetings and anytime a quick meeting is needed in between these. The application provides a place where documents can be shared in a chat window, sharing screen and it allows others to write/draw on the shared screen providing an interactive medium and easy conveyance of ideas.

It took some time for everyone to get used to the virtual meetings that sometimes last for a while. But once everyone got the hang of it, we were able to use its features to the maximum and really experience the fruitful output of our meetings.

We also record all the zoom meetings so we can summarize their output and important tasks to be done. We also take the minutes of each meeting, so having a recording helps in filling the missing parts

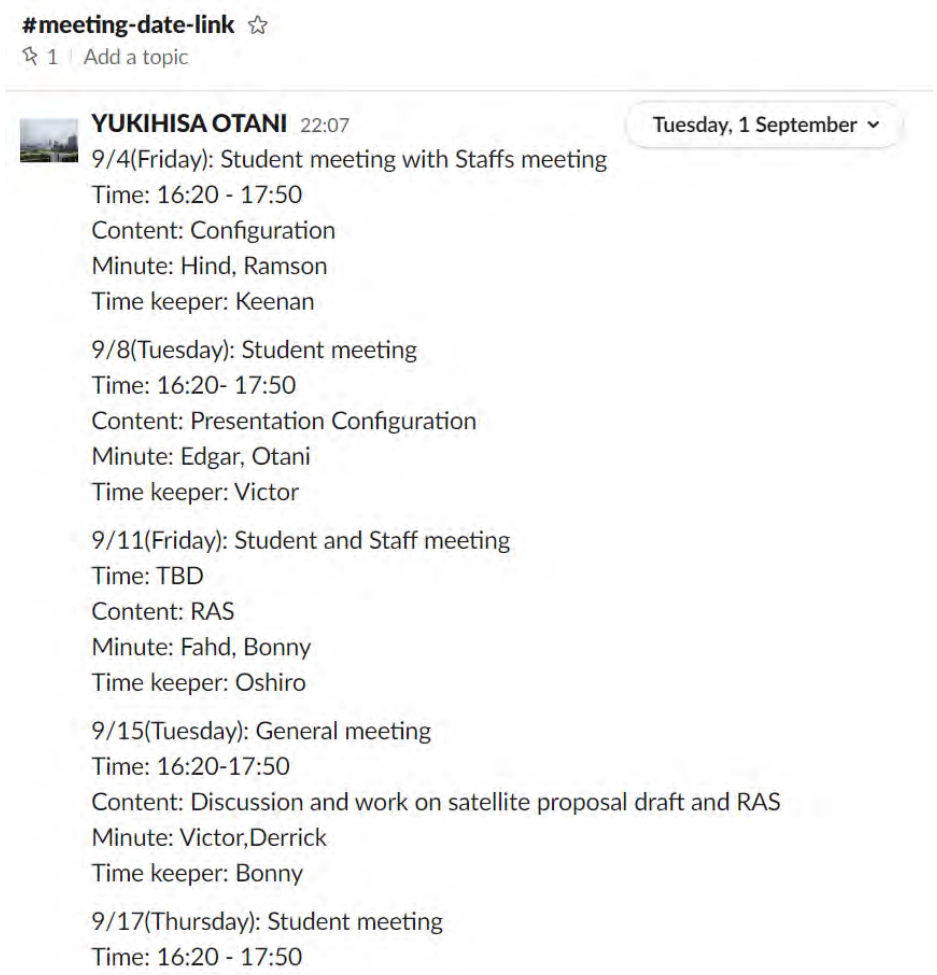
Google Calendar and Groups

- Google Calendar is a convenient tool that we use for planning our schedules, project timeline and progress. The members' schedules are used to decide on the important meeting dates and task management.
- Google groups is used for important announcements, decisions, urgent requests, ...etc. It is a more formal way of communication between BIRDS-5 members, professors and for cooperating with vendors, universities or any outside party.
- All the documents, presentations, videos, ...etc are saved in google drive and can be accessed by BIRDS-5 team. These three tools allow traceability of the project, update professors and create a backup for our data.



Slack for sharing project activity information

Slack Logo
https://slack.com/



We also use Slack. There are three advanced points :

- The first point is making some chat channels. It is confusing for us to share everything in one channel. We make different channels depending on our needs such as “meeting-data-link”, “students-and-staffs”, “important-reminder”, ... etc. As an example in the “meeting-data-link” channel, it is easy for us to know the meeting schedules and details.
- The second point is that we can share files (Word, Excel, PowerPoint, Code, URL, and etc…). We upload files and get comments from other members easily and quicker than through e-mails.
- The final point is connecting to other applications. In fact, when we defined the BIRDS-5 logo design, we used the “Poll” application in Slack. It smoothens our activity. Also, we organize our weekly roles and elaborate strategies to promote the project.

LINE for private chatting

- For private chatting, we use LINE. LINE is the most popular SNS application in Japan. We banned Slack for private chatting because it is important to separate private and project matters. Last month were Bonny and Keenan's birthdays.
- We planned to do the celebration party. However, COVID-19 forced us to cancel it. Instead, we sent a “Happy Birthday” message in our LINE group. We also celebrated by sending messages before starting the usual Zoom meeting.
- We cannot communicate with other members face to face, therefore, LINE is valuable to us. Even after the ending of COVID-19 pandemic, we will keep this good habit.

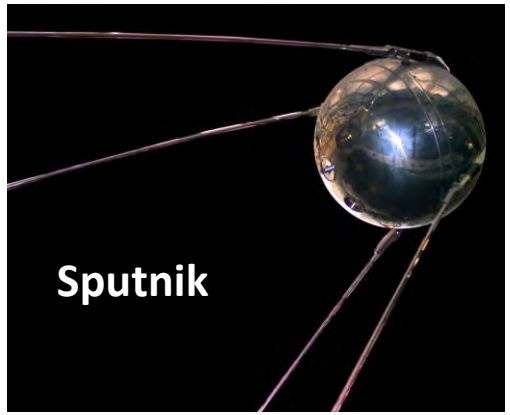
Happy Birthday !!

End of the document by Hind and Otani

End of the articles from BIRDS-5 team

A film worth viewing

October Sky Official Trailer #1 - (1999)
https://www.youtube.com/watch?v=zxJQgYPXjN4



Based on a true tale

The movie as explained by Wikipedia:
https://en.wikipedia.org/wiki/October_Sky

BIRDS-2 De-orbit predictions using STK software

by

Muhammad Hasif Bin Azami (BIRDS-2, Malaysia)

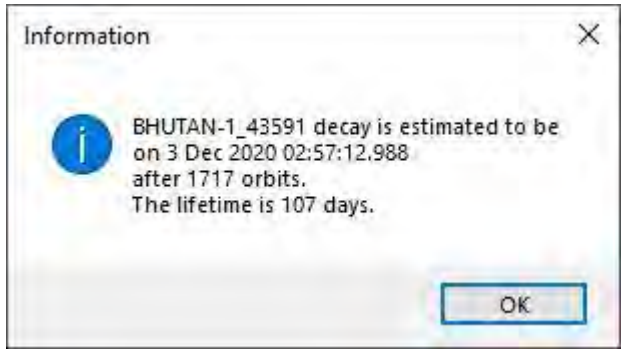
15th September 2020

About the accuracy of the predictions:
According to STK software:

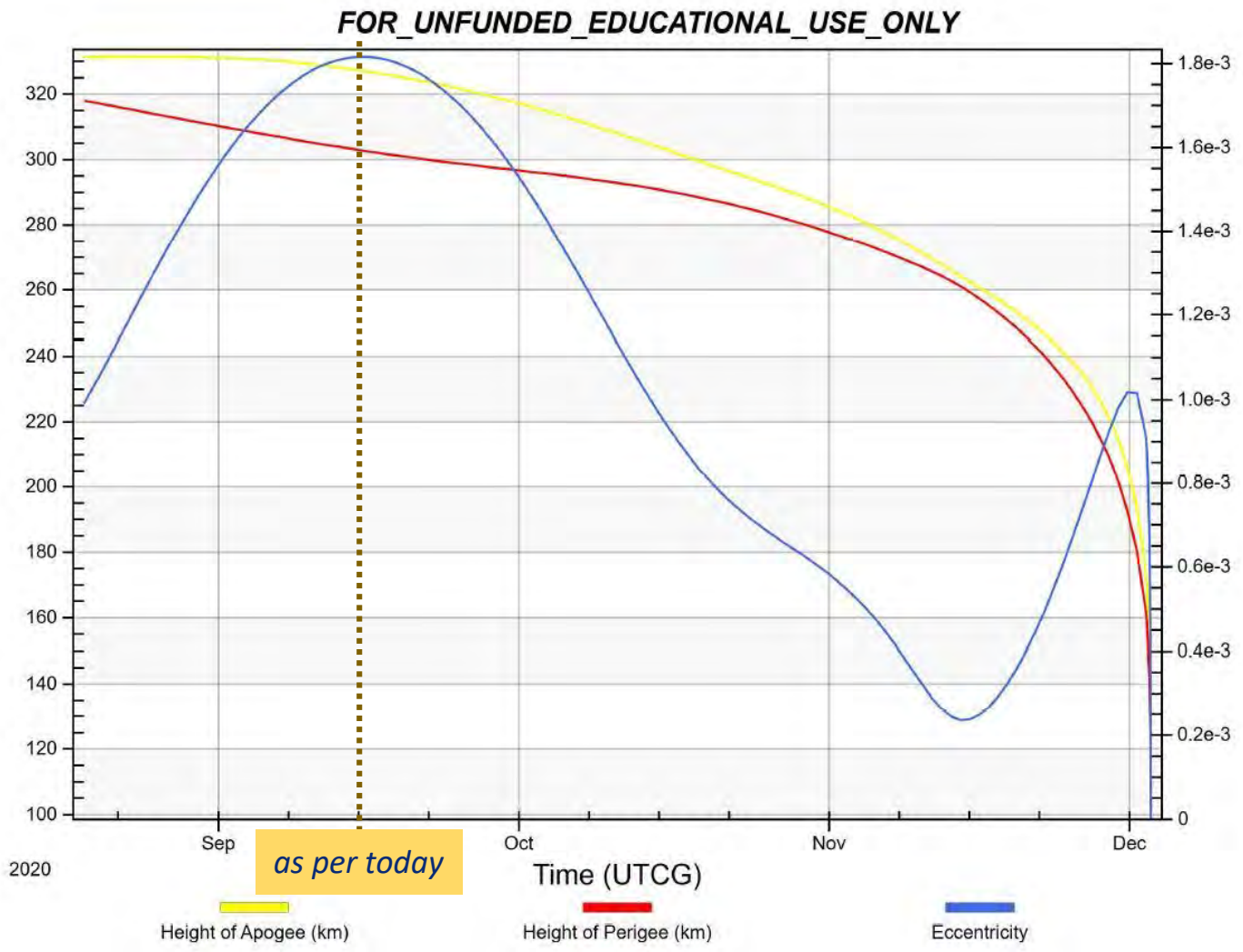
> **"Due to the seemingly random 10% variation in atmospheric density and because of the difficulty in accurately predicting solar activity, satellite lifetimes cannot be determined with accuracy better than +10% of the actual lifetime."**

BIRDS-2 deorbit prediction by STK software

BHUTAN-1

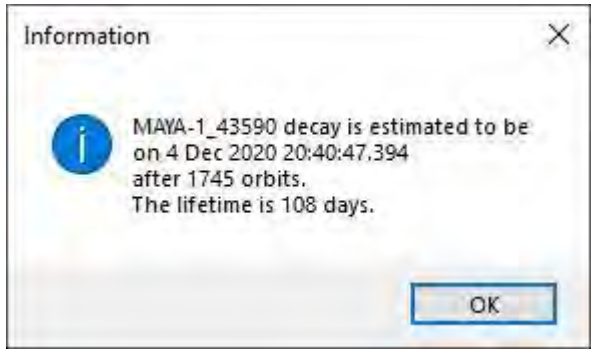


BHUTAN-1 will deorbit on Dec. 3rd, 2020 at 02:57 UTC

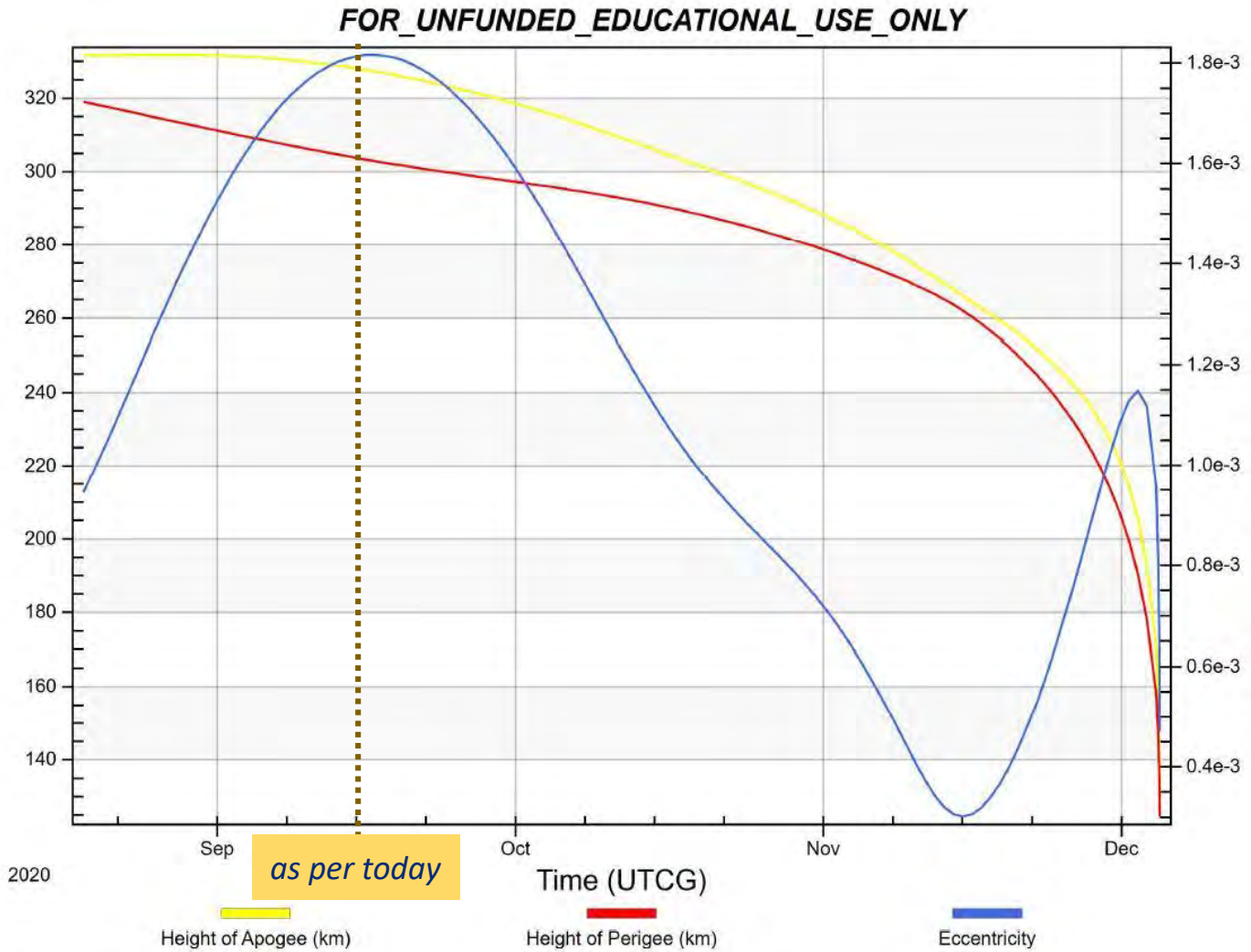


BIRDS-2 deorbit prediction by STK software

MAYA-1

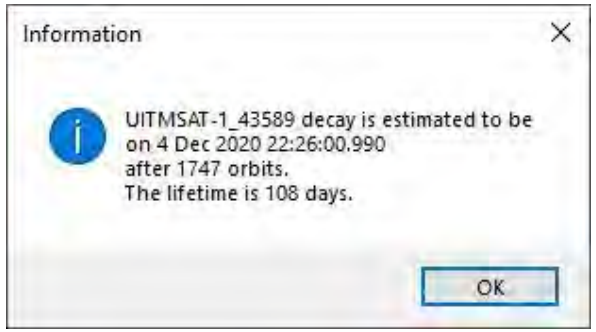


MAYA-1 will deorbit on Dec. 4th, 2020 at 20:40 UTC



BIRDS-2 deorbit prediction by STK software

UITMSAT-1

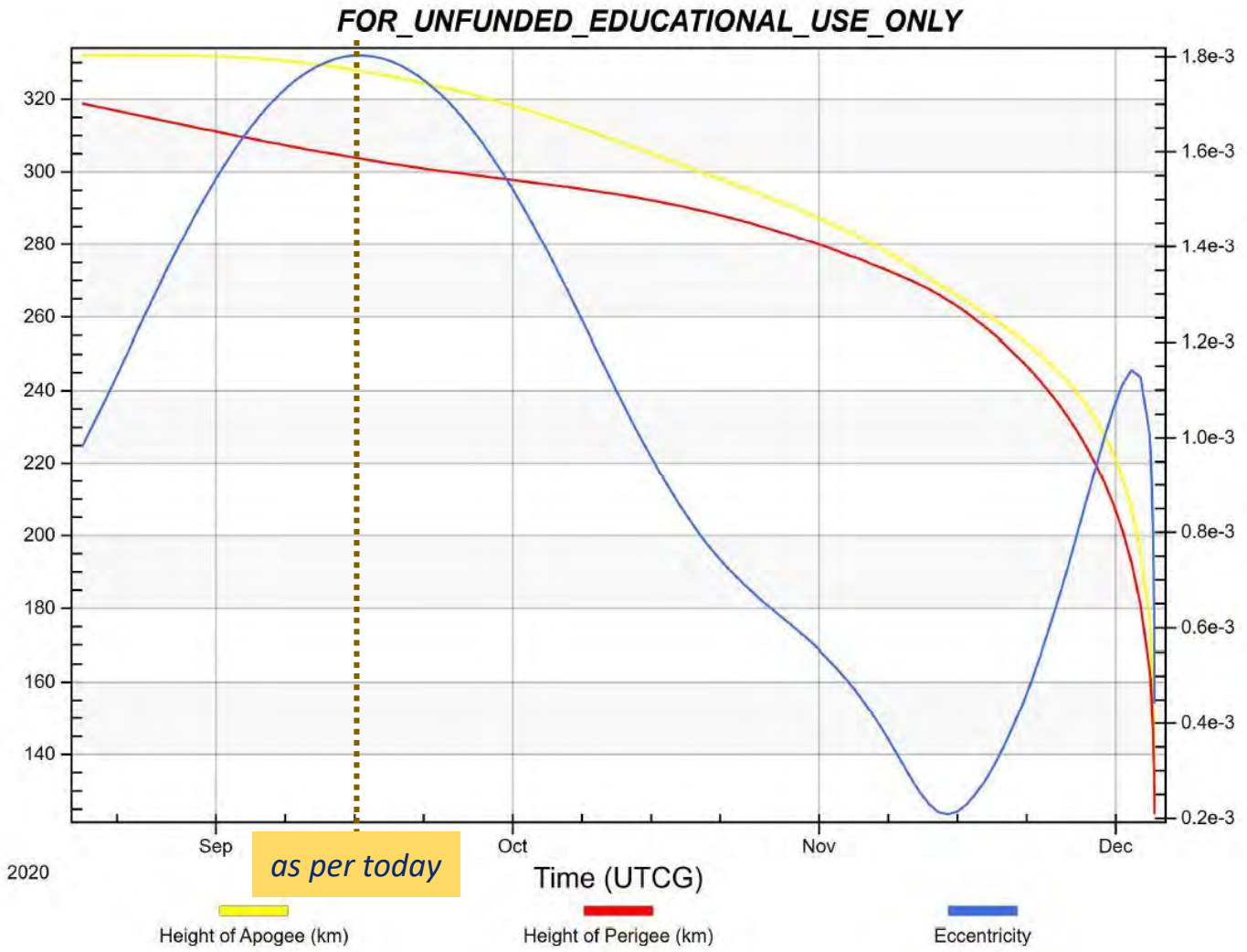


UITMSAT-1 will deorbit on Dec. 4th, 2020 at 22:26 UTC

Last month the altitude was 333 km.

Current altitude is 323 km (decreased 10 km)

END OF THIS ARTICLE BY AZAMI



BIRDS-4 Monthly Newsletter

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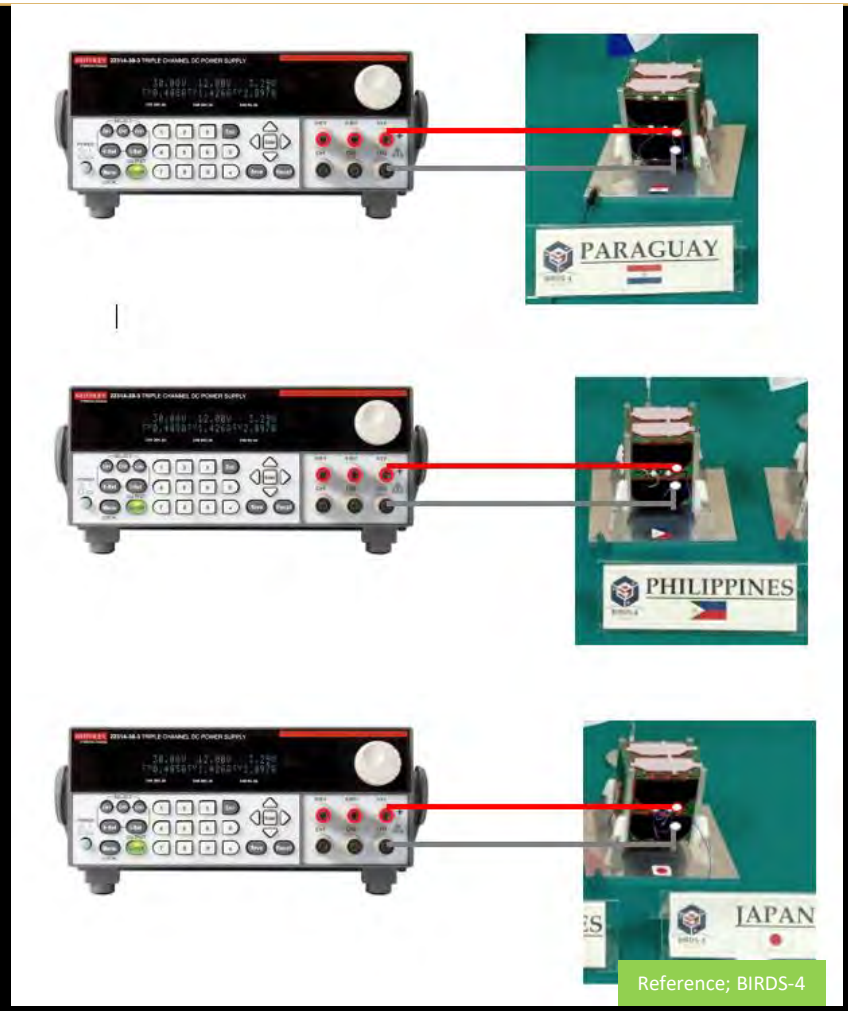
11 September 2020

BIRDS-4 FM battery charging procedures in clean-room

After completing the satellite flight model assembly and tests, the Birds-4 satellites are placed inside the clean-room with safety awaiting for the hand over and delivery to Japan Aerospace Exploration Agency (JAXA).

Before the hand-over of the satellites to JAXA, satellites have been charging regularly to maintain the batteries in full charge state due to the inherent self-discharge of the batteries. The battery voltages are being monitored for self-discharge. It is important to charge the batteries to have full state of charge before the handover to JAXA since the satellites wouldn't be recharged for 4-6 months. The satellites' batteries are charged using an external power supply.



Satellite battery charging setup. Set voltage output to 5.2 V, 0.8 A.

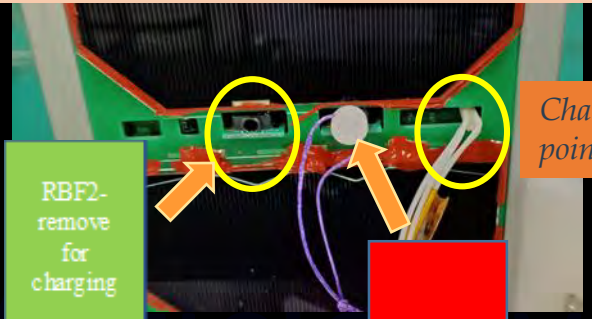
BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Hari Ram SHRESTHA
(Nepal)

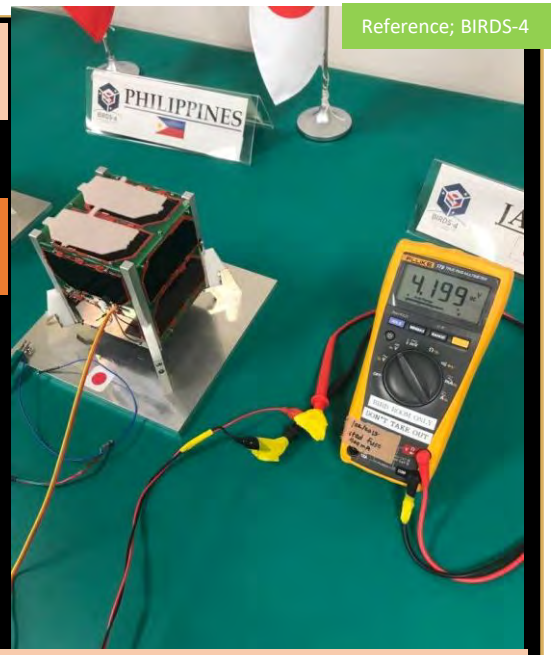
BIRDS-4 battery self- discharge result

BIRDS-4 FM satellites charging in clean room

CRITICAL! Insert to the correct charging Pin connection and takeout RBF 2 (only) during battery charge



Reference; BIRDS-4



Voltage monitoring of the FM battery

Date	Satellite	Battery voltage	Capacity(mAh)
September 9, 2020	Guaranisat	4.153	3783.4
	Tsuru	4.167	3779.5
	Maya-2	4.142	3785
September 11, 2020	Guaranisat	4.132	3772.2
	Tsuru	4.145	3767.3
	Maya-2	4.121	3775

Table 1: BIRDS-4 voltage measurement on different date

Satellite	Self-discharge (mAh)	Percent Self-discharge per day
Guaranisat-1	**11.2**	**0.15%**
Tsuru	**12.2**	**0.16%**
Maya-2	**10**	**0.13%**

Table 2: BIRDS-4 Self-discharge in % per day of BIRDS-4

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

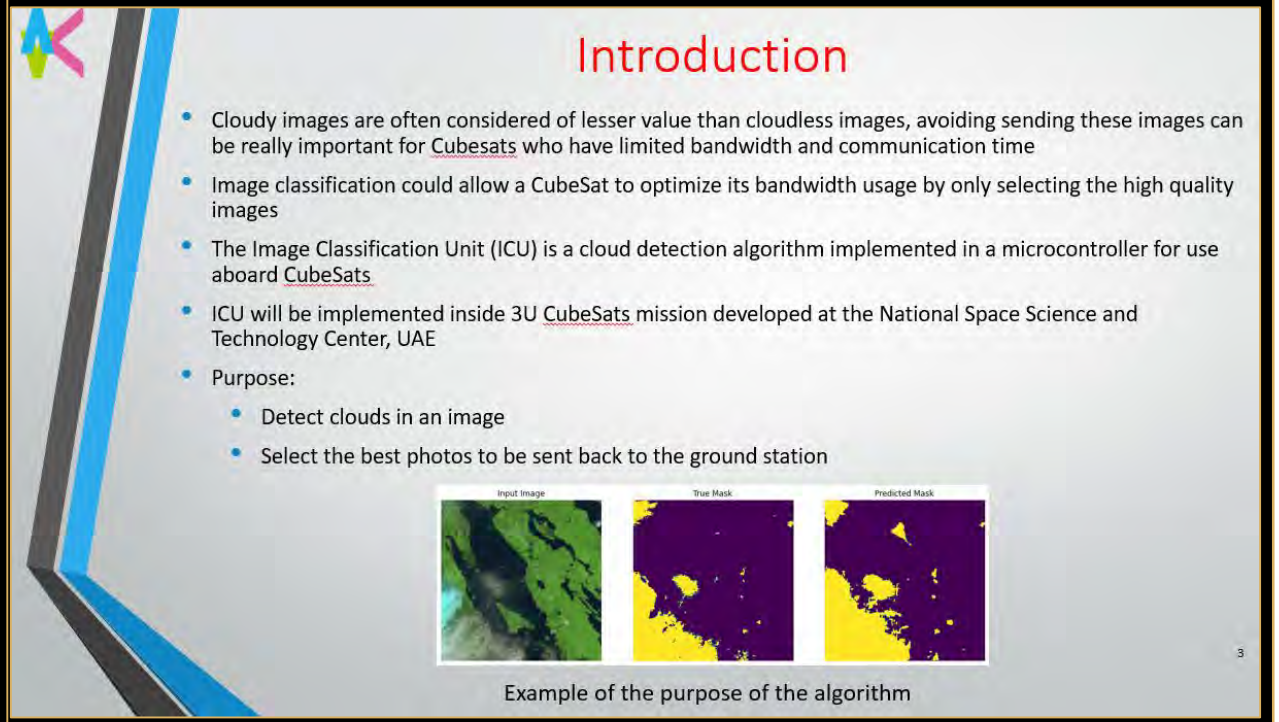
Hari Ram SHRESTHA

Master thesis Defense

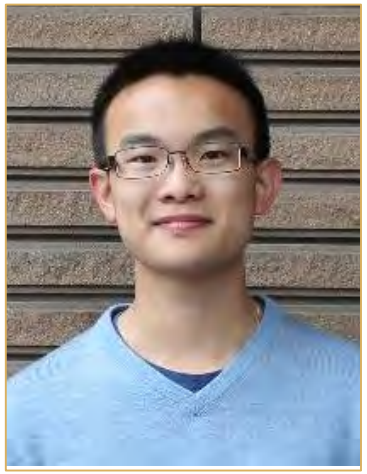
Articles by: Timothy Ivan LEONG (France), Hoda El-Megharbel (Egypt)

On August, 24th was held the master thesis defense of several international students. We were one of the presenters. The presentations was held online due to the Coronavirus. We presented our work in 12 minutes putting us in a challenge to be clear and to the point. Afterwards we had the chance to listen to questions, comments and suggestions from the attendees. The discussions contributed to our understanding and future work.

Timothy's presentation was about the implementation of a cloud detection algorithm using machine learning inside a Cubesatellite. Hoda presented her research on the UHF signal analysis for Ionosphere total electron Content estimation.



Slide from the cloud detection algorithm research

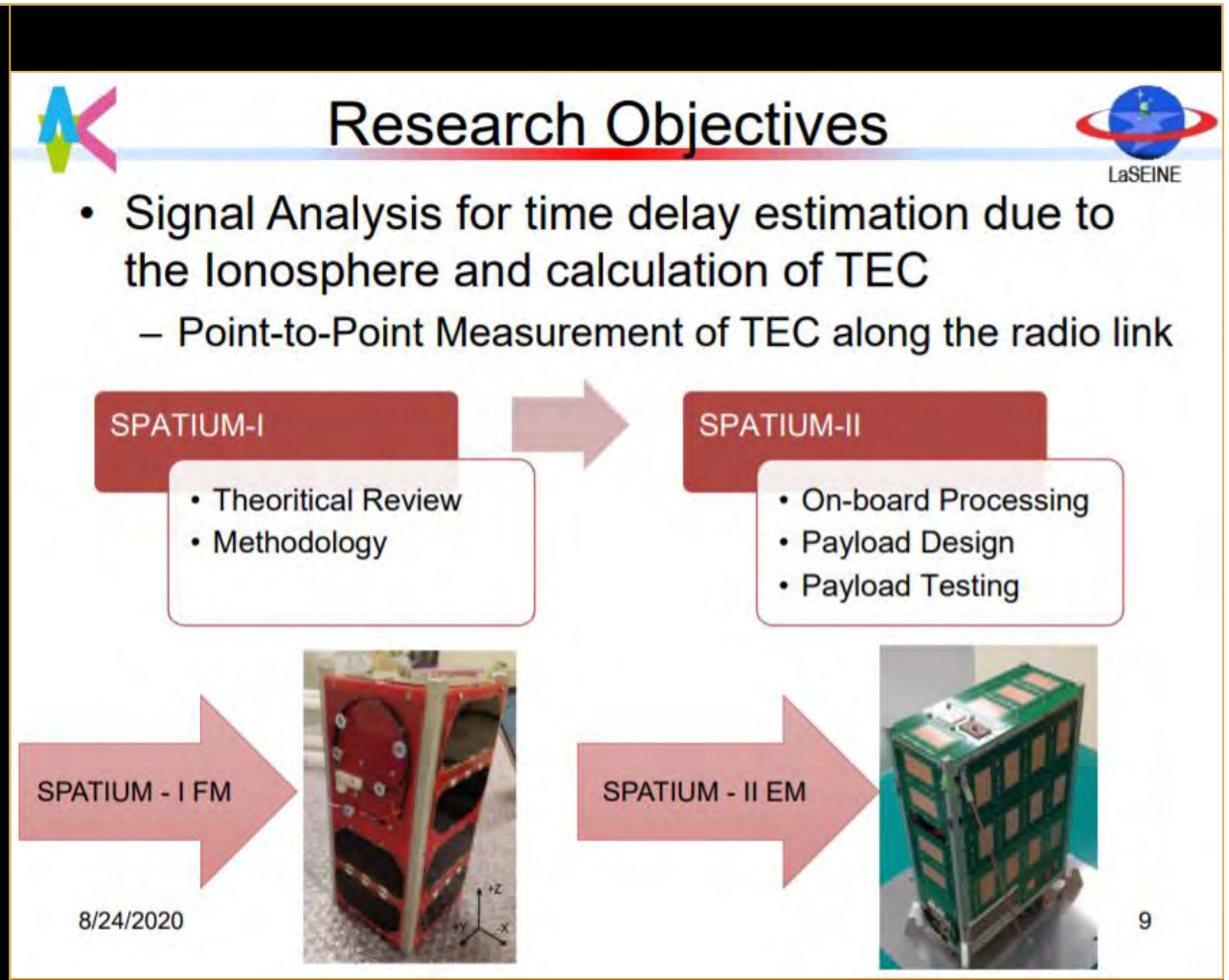


Timothy Ivan Leong

Master Thesis Defence

Thesis defence marks the end of that research journey, we had the chance to share our work with our fellow colleagues and respectable professors from our university.

As they said " Keep aiming higher, be more patient, and practice positive affirmation". Our graduation from Kyutech was a very important step in our educational path. We learned a lot under the supervision of our professors, get to work in projects, make friends from different parts of the world. This was a life changing experience. Friends I hope we meet again!



Slide from Uhf signal analysis for Ionosphere TEC estimation.

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Hoda El-Megharbel

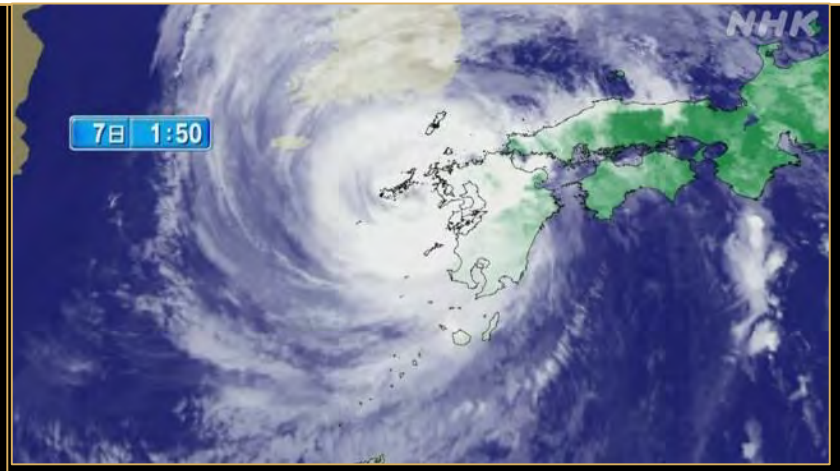
Timothy Ivan LEONG

Hoda El-Megharbel

Typhoon No. 9 and 10 and BIRDS Yagi antenna

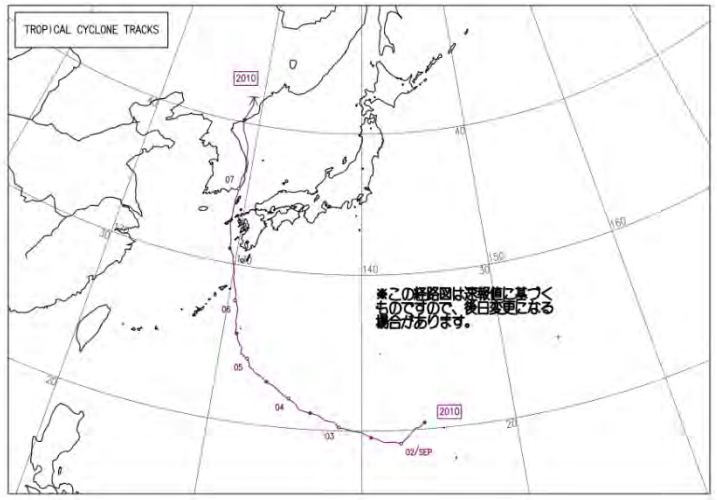
Since many typhoon come to Kyushu, the antenna is broken every 2 years. It's not only Kyutech but also other universities.

Typhoon No.9 came to Japan at Sep 2nd. Typhoon No.10 came to Kyushu at Sep 7th. Both troughed west side of Kyushu island. The forecast had said No.10 would be the biggest typhoon in history. Actually the building had not so much damaged, but our ground station antenna had damage.



↑ Typhoon picture taken by Himawari satellite[1] ©NHK

The typhoon route[2] ©Japan Metrological Agency↓



[1] : "台風10号 統計開始から最も強い最大瞬間風速 33地点で観測", Japan Broadcasting Corporation, Sep 8th, 2020, https://www3.nhk.or.jp/news/html/20200908/k10012607171000.html

[2] : "台風経路図　令和2年（2020年）", Japan Meteorological Agency, Browsing at Sep 15th, 2020 https://www.data.jma.go.jp/fcd/yoho/typhoon/route_map/bstv2020.html

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Article by:

Daisuke Nakayama

Typhoon No. 9 and 10 and BIRDS Yagi antenna

Our Yagi antenna has 5.7m length and 1.7m spacing between 2 booms.

After typhoon No.9, the right side of Yagi boom was felled down. We tied that boom to tower because The No.10 would come soon.

After typhoon No.10, the left side of Yagi boom was bent a little bit.

We could not operate by BIRDS antenna, but we operated by other Yagi antenna.

The antenna has been repaired. Anyway we are glad that there was no human damage.

↑After No.9 came
Right side Yagi fell down

↑After No.10 came
Left side Yagi was bent.

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Article by:

Daisuke Nakayama

Some old photos of SEIC

Space Engineering Int'l Course

(during 2015-2019)

-- mainly from the camera of G. Maeda

< Compiled on 6-7 Sept. 2020 >

OLD SEIC PHOTOS: YEAR 2015

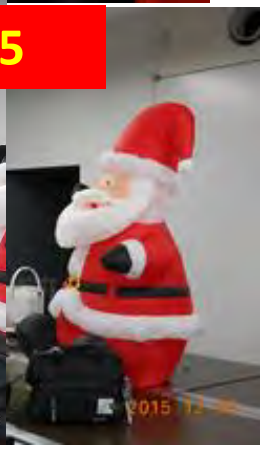
(scenes of summer camp)

OLD SEIC PHOTOS: YEAR 2015

Fall Welcome BBQ (Cho Lab)

Kyutech ad at Hakata Eki

Christmas Party of 2015



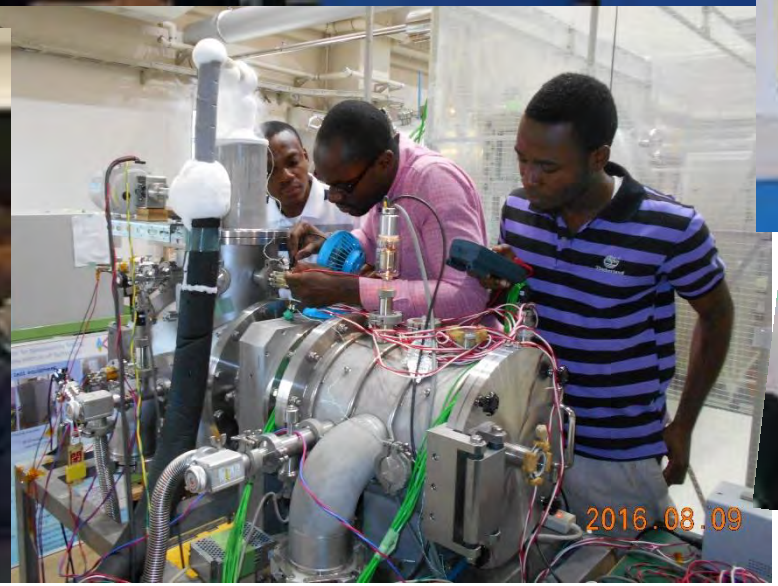
OLD SEIC PHOTOS: YEAR 2016

OLD SEIC PHOTOS: YEAR 2016

Summer Camp 2016

OLD SEIC PHOTOS: YEAR 2016 (1st BIRDS Int'l Workshop)

OLD SEIC PHOTOS: YEAR 2016



Dr Balogh's desk at UNOOSA

OLD SEIC PHOTOS: YEAR 2016

OLD SEIC PHOTOS: YEAR 2016

28 December 2016

OLD SEIC PHOTOS: YEAR 2017 (Prof. Jordi and Dr. Amelia)


Lecture at summer camp

OLD SEIC PHOTOS: YEAR 2017

Engr. Akagi (JAXA)

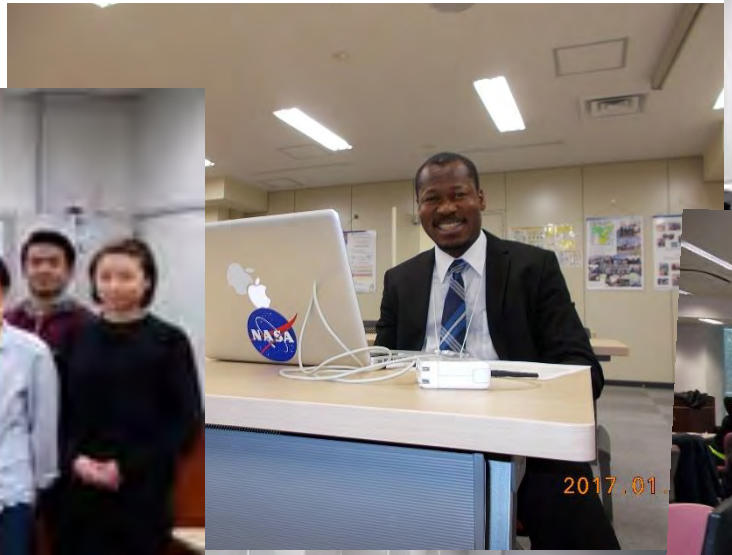
2nd BIRDS International Workshop in Ghana

OLD SEIC PHOTOS: YEAR 2017

Summer Camp
Sept. of 2017

OLD SEIC PHOTOS: YEAR 2017

OLD SEIC PHOTOS: YEAR 2017



OLD SEIC PHOTOS: YEAR 2017

OLD SEIC PHOTOS: YEAR 2017

Mr. Luc St.-Pierre of UNOOSA participated in the PNST Symposium of 2017

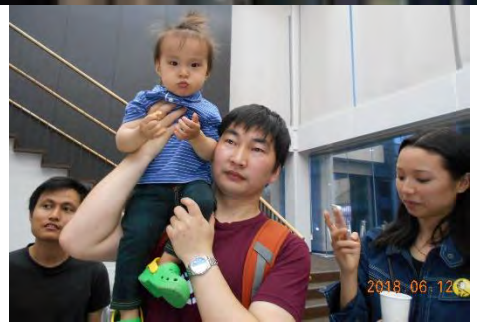
BIRDS-3 KICK-OFF MTG

OLD SEIC PHOTOS: YEAR 2018

Kyutech Student Festival

OLD SEIC PHOTOS: YEAR 2018

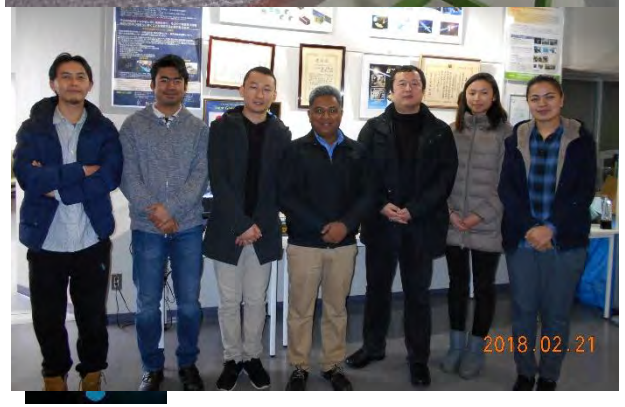
Above: Cho Lab Seminar Room



OLD SEIC PHOTOS: YEAR 2018

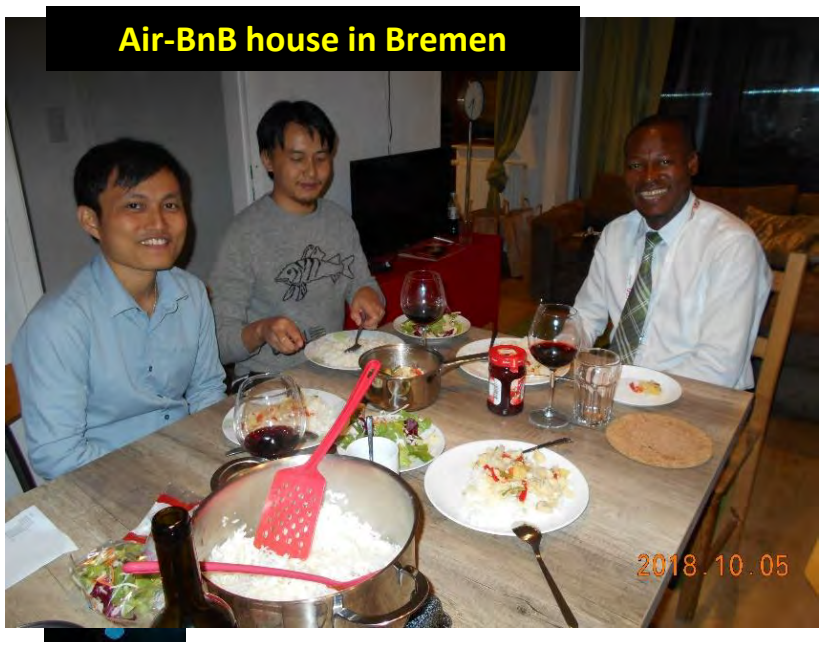
Adolfo (BIRDS-4, Paraguay)
at Yappari Steak House

Prof. Tsolmon gives a lecture



OLD SEIC PHOTOS: YEAR 2018

Above: Cheki goes shopping for dinner ingredients



IAC BREMEN 2018

OLD SEIC PHOTOS: YEAR 2018

3BIW website

https://sas.num.edu.mn/birds2018/

OLD SEIC PHOTOS: YEAR 2018

Irish Pub Booties of Kokura

https://www.tripadvisor.com/Restaurant_Review-g303160-d7425075-Reviews-Irish_Pub_Booties-Kitakyushu_Fukuoka_Prefecture_Kyushu.html

Werner teaches again at the end of 2018 at Kyutech

OLD SEIC PHOTOS: YEAR 2019

(Graduation party in March)

Congratulations to all graduates

OLD SEIC PHOTOS: YEAR 2019

Paraguay Day at Kyutech

OLD SEIC PHOTOS: YEAR 2019

Lecturers from across the seas

Dr. Danielle Wood

Dr. Javier Stober

Prof. Dianne De Turris

OLD SEIC PHOTOS: YEAR 2019

Mark (white shirt) shows his grilling skills

Summer Camp (長崎県)

Morning roll call

Prof. Dianne delivers her presentation

OLD SEIC PHOTOS: YEAR 2019

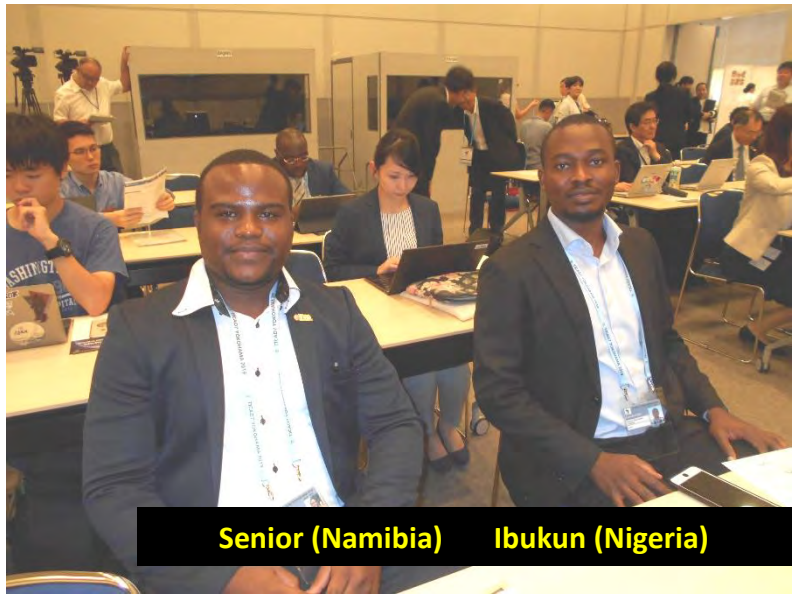
Kyutech met Uganda and Zimbabwe at this TICAD

TICAD 7 横浜

Cosmas (Kenya) Yasir (Sudan)

Kyutech delegation

Yahia (Egypt)



Senior (Namibia) Ibukun (Nigeria)

OLD SEIC PHOTOS: YEAR 2019

BIRDS-4 CDR (5 Sept.)

OLD SEIC PHOTOS: YEAR 2019

IAC in Washington DC

Four SEIC students received ESL awards from the IAF

OLD SEIC PHOTOS: YEAR 2019

4BIW in Bangladesh

http://4biw.bracu.ac.bd/about/

OLD SEIC PHOTOS: YEAR 2019

Christmas Party

OLD SEIC PHOTOS: YEAR 2019

The end of

OLD SEIC PHOTOS

Space Engineering International Course
at Kyutech

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Fifty-Six

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.