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, -4 and -5, on 30-Oct-2020 in front of the lab building

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BIRDS Project Newsletter

Issue No. 74
(31 March 2022)

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

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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.

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Cuevas de Talgua Eco-Archaeological Park

The Guest Box
From Honduras

Explanation on the next page

Cherry blossoms are in full bloom at Kyutech on 27 March 2022

Some of us did a hanami on 27 March 2022

The explanation of Guest Box

The park is a perfect combination of nature and archaeology. Tourists who enter the cave will observe the formations of stalactites and stalagmites, beautiful natural structures that are produced by the loss of acidic water that dissolves the limestone rock. On the other hand, this crypt is also known as "the caves of the shiny skulls" due to the reflection that allows the calcite deposits to make the human remains that the ancestors deposited in a kind of burial that denotes an almost majestic cult to the dead. Few burial caves from the pre-Hispanic period have been discovered in Honduras and these are the first caves in the country to be scientifically investigated, being a holy field to aborigines from 900 years B.C.

-- from SEIC Student Reynel in the Honduras, 12 Mar. 2022

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 International Workshops and for Ground Station Workshops.

01. “Smallsats by the Numbers” (Bryce Tech) is mentioned by a Kyutech publication

九工大の今を伝える楽しいよみもの

KITAYO

学報 年4回発行 VOL.561 2022 MARCH

Kyutech no Ima wo tsutaeru TA noshii YO mimono

尾家祐二学長 退任記念インタビュー

尾家さん 6年間ありがとうございました！

重要な価値を提供し続けることのできる大学に

まもなく学長を退任する現在の率直な心境を教えてください。

まずもって協力いただいたすべての皆さんに感謝の気持ちで一杯です。そして、まだ課題はありますが、全般的にはこの6年間で大学がより良い方向に向かっていると感じていて、更には次期執行部が活発に大学の今後を議論している様子をうかがい知ると、安堵した気持ちもあります。

学長に就任した当時のお気持ちを教えてください。

より愛着が増すといいますか、九工大が何かすごく私にとって大切な、特別な場所であるということを肌で感じるようになりました。そして、私が何か成長すれば、大学にとってもきっといいことになるだろうとか、そのように考えていました。それと同時に、大きな責任も感じていました。

学長に就任した際、どのような大学にしたいと考えていましたか？

教職員の皆さんにとっては安心して誇りを持って働ける場所に、学生諸君にとっては多様な学びの機会と良質な学びを享受できる場所に、学外の方々にとっては何かを行う際に私たちをパートナーに選びたいと思える存在にしたいと考えていました。この気持ちはずっと変わらず、とにかく皆さんが元気よく活動できる基盤をしっかり築きたいと考えていました。

任期中に特に力を入れたことは何ですか？

個々の優れた取組が大学の中だけで閉じて孤立しないようにすること、更には個々の取組から生み出された財産を組織として持続させることが大学のポテンシャルを最大化する上で重要だと考えて、外部との組織的なつながりを強化することに注力しました。大きくは国際連携と産学連携の2本柱です。異なる組織との連携が双方に刺激を与え合い、好循環を生み出す源泉になればとも考えていました。学内の連携も同様で、学内の立場の異なる人たちが一緒に考え行動をともにすることで大きなエネルギーが生み出され、更には個人の成長にもつながると考えて、若手工学アカデミーを立ち上げました。

学長任期中に幸せだと感じた時や嬉しかったことを教えてください。

ずっと幸せでした。私自身は皆さんがもっと活動しやすいように環境を整えるだけであとは何もできませんが、皆さんが生き生きと活動する姿を見ると、私自身も嬉しかったです。たくさん嬉しいことがありましたね。非常に貴重な経験も色々とさせていただきました。

教授、学長として過ごした九工大は尾家さんにとってどのような場所でしたか？

多くの幸運に恵まれた場所だったと思います。想像していなかったような色々な機会をいただきましたし、様々な経験もさせていただきました。たくさんの方々に助けていただけたという意味でも幸運に恵まれた場所だったと思いますね。

九工大はどんな大学であってほしいと思いますか？

物事の価値や見方は時代とともに変わっていきますが、その時々で重要な価値を提供し続けることのできる大学であってほしいと思います。大学は、次代を担う人たちが学んで成長する場所です。また、社会的課題や科学的難問が出てきたときに、それを解決する知恵を生み出す場所です。つまり、新たな価値を生み出す場所であるということを皆さんが認識して、社会的な様々な価値を備えた大学であり続けてほしいと思います。

Yuji Oie

教職員へのメッセージ

この6年間皆さんのお力をいただいて、色々なことができました。心から感謝しています。ありがとうございました。大学は社会に対して様々な価値を生み出せるという意味で、とても働き甲斐のある場所だと思います。ぜひとも九工大に更に愛着をもって、元気に活動していただきたいと思っています。九工大のことをよろしくお願いいたします。

3月末をもって学長を退任する尾家さんに、現在の率直な心境や九工大が自身にとってどんな場所だったのかなどについてインタビューしました。尾家さんは1990年に情報工学部に助教授として着任し、1997年から教授。2009年には情報工学研究院長、2010年からは理事・副学長を6年間務めるなど、長きにわたって九工大に尽力されました。(インタビュー：2022年2月上旬)

CHECK! 教職員に向けた学長在任中の全メッセージはこちら！（九工大HPで過去のメッセージをご覧いただけます）

This item → was published in the March 2022 issue of “KITAYO” of Kyutech. By the way, the cover article is about the retirement of Kyutech President Yuji Oie.

For more info about “Smallsats by the Numbers” (it shows that Kyutech is the No. 1 academic operator of small satellites), see the first article of Issue 73 of the BIRDS Project Newsletter.

03 超小型衛星運用数、4年連続世界一

工学研究院宇宙システム工学研究系等が取り組む「超小型衛星」開発。2012年の鳳龍弐号の打ち上げから始まり、留学生と共同で開発するBIRDSプロジェクト、学部学生だけで取り組む衛星開発プロジェクトなどこれまでに打ち上げてきた衛星は20機以上。テレビ・新聞などでも数多く紹介されています。(Smallsats by the Numbers 2018-2021(BRYCE space and technology)「大学・学術機関における運用する小型・超小型衛星の数」より)

BIRDS1プロジェクトメンバー

2022年2月に打ち上げられたワイド6U衛星KITSUNE

02. Yudai Etsunaga (B3 student) has arrived in Rome, Italy

Etsunaga-san has written this photo report. He will spend his B4 year in Rome, Italy.

13 March 2022/ Dear Cho sensei, and Maeda sensei,

It has been a week since I arrived in Rome. Sorry for the delay in getting back to you. Since my arrival, I have been very busy with residence procedures, application for a residence permit, a tax code, and vaccinations, etc which are all important for living in Italy. With the kind help of Paolo san and Giulio san, I have finally settled down in my apartment.

I have been attending classes since the second day after my arrival. Classes will continue until early April, and I am taking a total of 10 hours per week. In the "SPACE GUIDANCE and NAVIGATION SYSTEMS" class, we are learning how to track satellites using telescopes and software.

''SPACECRAFT DESIGN'' is taught by Paolo san which is really interesting class. In this class, students are divided into groups of about 10 students per team and assigned to a subsystem, where they work on based on systems engineering to come up with a mission for a CubeSat from scratch. The way students discuss and work in groups is quite different from that of Japanese students, and they are very active. I am trying to speak up and do my best so that I will not be left behind. In a structure system which I belong to in this class, I am making good use of the technology and know-how since I have cultivated some of them at GE course.

I will participate in a new 2U satellite project using an IoT, and I will be assigned to the telecommunication system. Since they use LoRa in this project, I am very happy to be able to make use of what I've learned in MO-1.

I have been received quite a warm welcome from Paolo san, Giulio san, and the all members of the lab, and they have been really good to me, from my life in Rome to the all the university stuff. Although my life in here has only just begun, I will continue to be vigilant in light of the current social situation.

I hope to keep you posted on the details of my research, classes, and life in Rome.

-- Yudai Etsunaga, 国立大学法人　九州工業大学, 工学部　宇宙システム工学科　機械宇宙システム工学コース, 趙研究室　学部3年

← [Second Day] in front of the Faculty of Civil and Industrial Engineering with Paolo san and Giulio san

[Above photo, right] **APERITIVO** with lab members which is an important part of Italian culture. They drink a bit of SPRITZ or some type of alcohol before meals. It is a drink that is used to increase appetite and encourage conversation among attendees. I really enjoy Italian culture.

Paolo and Yudai dining at a Japanese restaurant near campus.

SAPIENZA
UNIVERSITÀ DI ROMA

Sapienza Università di Roma - Facoltà di Ingegneria Civile e Industriale

4.3 ★★★★½ クチコミ 19 件

大学の学部

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所在施設: サン・ピエトロ・イン・ヴィンコリ教会

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SAPIENZA UNIVERSITÀ DI ROMA

Faculty of Engineering

Faculty of Engineering is very close *to Colosseo* -- 1 minute walk

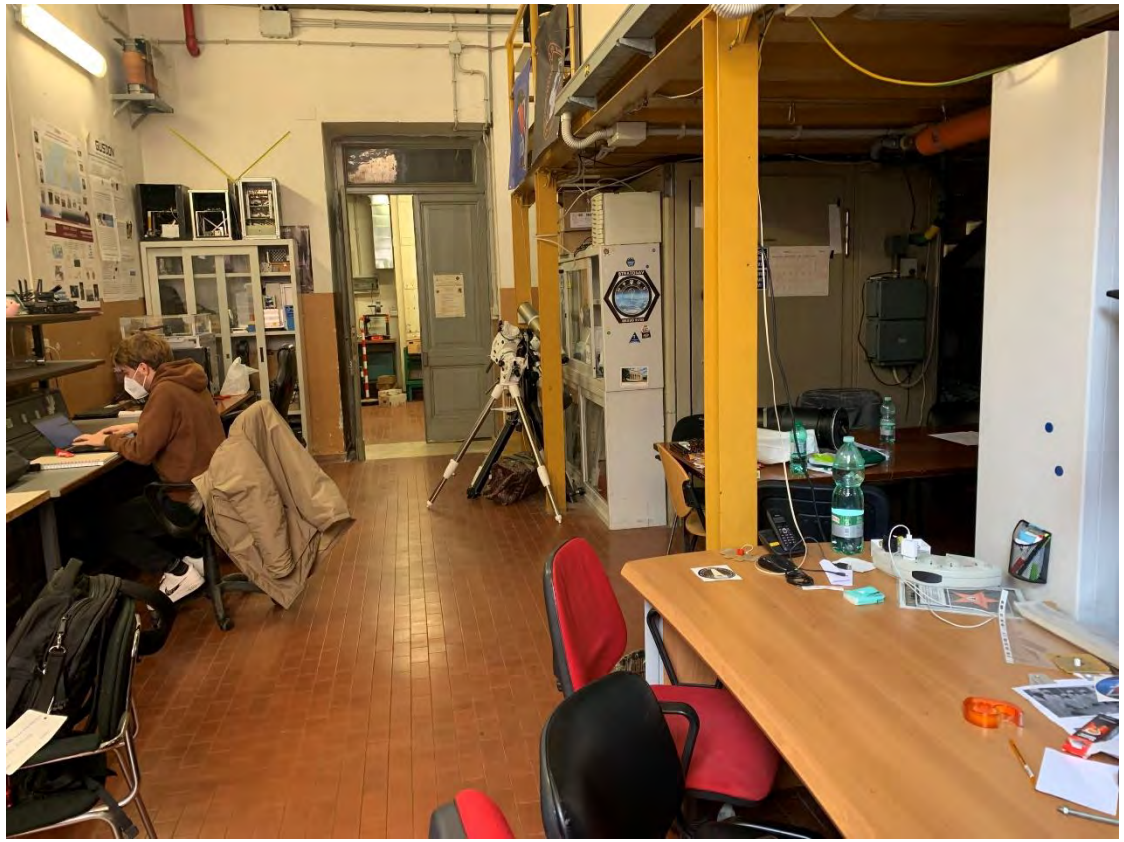
Colosseo


Colosseo Palatino Foro
Colosseum Palatine Hill
Biglietto € 16.
Ticket € 16.00

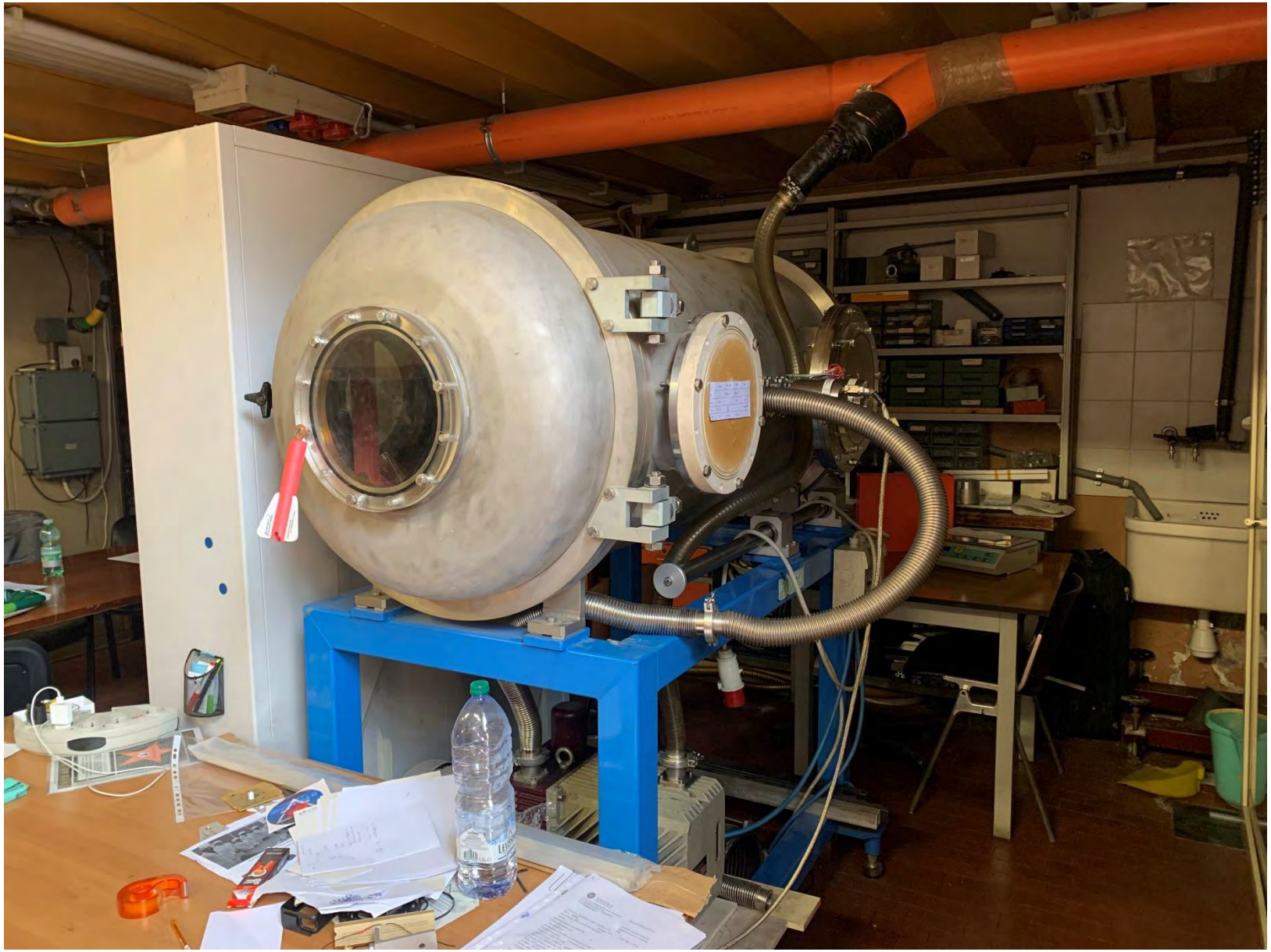
Symbol of Engineering faculty called CHIOSTRO

During lunch time, there are many people around here eating, drinking espresso, and chatting.

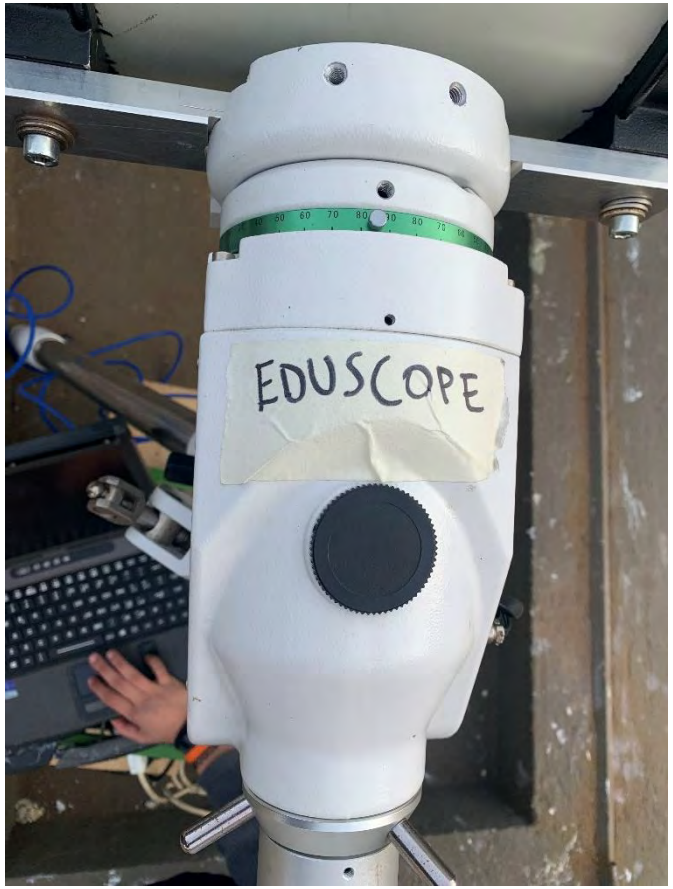
s5Lab



← telescopes made by members of s5Lab from scratch for optical observation of satellite



Thermal vacuum chamber



One of the telescopes owned by s5lab called EDUSCOPE (EDU: *education+SCOPE*: telescope) is located on the roof of a facility on campus. They are mainly used to observe satellite orbits and space debris . . . *Continued on the next page.*

← When you specify a target to be tracked in the software, it will automatically orient itself.

It can be operated remotely so that you don't need to be there.

END OF THE PHOTO REPORT FROM ITALY

03. Kyutech's nanosatellite testing center wins space project award of Japanese gov't

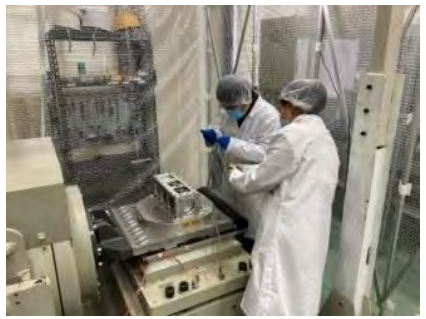
Dr. Hiroshi YAMAKAWA, President of JAXA (left) and Prof. Dr. Mengu CHO (right)

On March 18, 2022, Center for Nanosatellite Testing (CeNT), Laboratory of Lean Satellite Enterprises and In-Orbit Experiments (LaSEINE) of Kyutech received *Japan Aerospace Exploration Agency (JAXA) Award* at the 5th Space Development and Utilization Grand Prize which was organized by the Cabinet Office of Japan.

The Prize commends the projects that have made significant contributions to the promotion of space development and utilization, such as having achieved great results, implementing advanced initiatives, and so on. For Kyutech, this is the 3rd time to win the Prize, following the Minister of Economy, Trade and Industry Award in 2013, and the Minister for Foreign Affairs Award in 2018.

Professor Mengu Cho from CeNT of LaSEINE attended the award ceremony held at JAXA Tokyo Office on 18 March, 2022.

Two photos of CeNT→



Read the entire story here:
https://www.kyutech.ac.jp/english/en-news/topics/entry-8946.html

04. Report from the Philippines

PhilSA joins the call to #BreakTheBias

Philippine Space Agency

PREPARED BY:

Public Relations and Information Division
Philippine Space Agency

As part of the celebration of this year's Women's Month, the Philippine Space Agency sought to raise awareness on gender equality and equity among its officials and staff during its monthly virtual agency-wide fellowship, **Cosmikapihan**.

PhilSA officials and personnel strike the #BreaktheBias pose and shared their messages and insights on breaking gender biases and making change work for women in the fields of Science, Technology, Engineering, The Arts, and Mathematics (STEAM).

MULA Engineers meet with UK Prime Minister's Trade Envoy

UK Prime Minister's Trade Envoy to the ASEAN, Richard Graham, paid a **courtesy visit** to the Department of Science and Technology (DOST Philippines) where he met with representatives of the Philippine Space Agency (PhilSA), led by Deputy Director General for Science and Technology Dr. Gay Jane P. Perez.

The UK Trade envoy commended the success of the 9 MULA engineers who underwent training on satellite system design at the Surrey Satellite Technology Ltd. (SSTL) in the United Kingdom in 2021.

PhilSA formalizes commitment to support National Defense through SSTA

The Philippine Space Agency signed a **Memorandum of Understanding (MOU)** with the Department of National Defense (DND) to formalize their partnership in enhancing national security and development efforts through Space Science and Technology Applications (SSTA).

The MOU supports the mandate of PhilSA under RA 11363 or the Philippine Space Act to implement activities related to National Security and Development – one of the six Key Development Areas in the government's SSTA development policy.

STAMINA4SPACE

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Happy 1st birthday, Maya-2!

March 14, 2022

On this day last year, cube satellite Maya-2 together with Tsuru (Japan) and GuaraniSat-1 (Paraguay) of the BIRDS 4 Satellite Project - KyuTech were launched into orbit! At around 7:20 p.m. PHT, the three CubeSats were released from the International Space Station.

Maya-2 was designed and developed by Filipino scholars sent to the Kyushu Institute of Technology in Japan, supported by the Science Education Institute (SEI) of the Department of Science and Technology (DOST). These DOST-SEI scholars are Dr. Izrael Zenar Bautista from University of the Philippines Diliman, Engr. Mark Purio from Adamson University, and Engr. Marloun Sejera from Mapúa University.

International Women's Day

#BreakTheBias

March 8, 2022

For this year's International Women's Day, we featured some of the women of STAMINA4Space, from the engineers, researchers, and administrators. These women paved their own path in the competitive world of space technology and scientific research, often dominated by their male counterparts.


Science, in its core, has always been multidisciplinary. In its purest form it should and has always been for the convenience of a greater good as opposed to being self-serving. The world of science and technology will always need its sister in the arts to better communicate its vision to the society.
As a communications graduate, this is what I have discovered and sought to do as part of our country's burgeoning space science industry.
KATRINA MINA
Information Officer
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


Let us continue to bridge the gender gap through pursuing goals beyond societal expectations. Your interest and contributions in STEM are highly commended so do not falter in pushing more boundaries. Our motherland has nurtured an environment where women are in position to make a difference.
YOU are one of the reasons why women empowerment is nationally recognized. May we all continue this effort to pave way for not only this generation, but for the generations to come. Maligayang araw ng mga kababaihan!
ECKA PICAR-MABINI
Information Officer
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


I think it's crucial that women and minorities also have equal representation in STEM because STEM concerns us all. Pushing for better gender balance doesn't belittle or unhealthily compete with other genders, rather, it complements them, and we need that kind of synergy in a field that affects everyone.
Anyone can be a STEM advocate - scientists, engineers, administrative personnel, communicators, supporters - and it would be great if young girls had more female role models they can look up to and make them believe that the world is as much their oyster as it is for men.
NIKKI IGNACIO
Information Officer
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


It is crucial for women to be a part of the STEM community. The biggest advances and discoveries in our society are products of Science and it is important that these developments be seen through our perspective- the female perspective.
Knowing this, being a woman must not hinder you to pursue this field. In fact, it will be one of your biggest strengths as you will be bringing valuable representation to the table.
PRINCESS ANGELA YOUNG
Project Evaluation Officer
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


Sama-sama nating bigyang pugay ang mga kababaihan ng STEM!
Malayo na ang ating narating bilang bansa sa larangan ng space science at technology dahil sa taglay na sipag at galing na naibabahagi ng mga kababaihan sa larangang ito. Patuloy tayong nagsusumikap na tuluyan pang buksan ang mga opportunidad para sa lahat. Dahil sa kanila, malaya tayong mangarap abutin ang mga bituin kaya't sama-sama nating ituloy ang pagsulong ng STEM para sa lahat!
F. MARA MENDOZA
Project Manager
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


Women in the new generation are recognized with several significant roles in the society especially in line with the Science, Technologya, Engineering and Mathematics. We complement with men, not compete with them, as we share our knowledge and skills in order to contribute in the objective of uplifting human lives.
We women should not be hesitant to seek opportunities where we can, to promote the importance of Science and Technology around us as well as the significant impact of Engineering and Mathematics in our modern world.
MARIELLE MAGBANUA-GREGORIO
STeP-UP Scholar Batch 1
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


Being a woman is a great blessing, not a discouragement. We have equal chances and opportunities in the country as men, not only in the STEM field but in all fields.
You should study and work harder! Focus on your personal growth, use the mistakes and failures as lessons learned to be better every day. Be bolder and crazier in your ideas. Improve your creativity in creating innovations that will help society solve timely problems. Be innovative and create sustainable solutions for the future!
LORILYN PABLO-DAQUIOAG
STeP-UP Scholar Batch 1
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY


Women are NOT out of place in STEM. To the women who have dedicated their career to research, development, and extension, thank you for setting an example for girls out there looking for representation and empowerment.
For the girls considering this career, a world of discovery awaits you. We may be underrepresented in different STEM-related careers but your voice, grit, and passion for the sciences counts!
LIANNE TABANGGAY
Project Evaluation Officer
BREAK the BIAS
INTERNATIONAL WOMEN'S DAY

World Wildlife Day

Philippine Satellite Watch

March 3, 2022

The country boasts countless natural wonders, but this marvel in Occidental Mindoro is a tad bit more special.

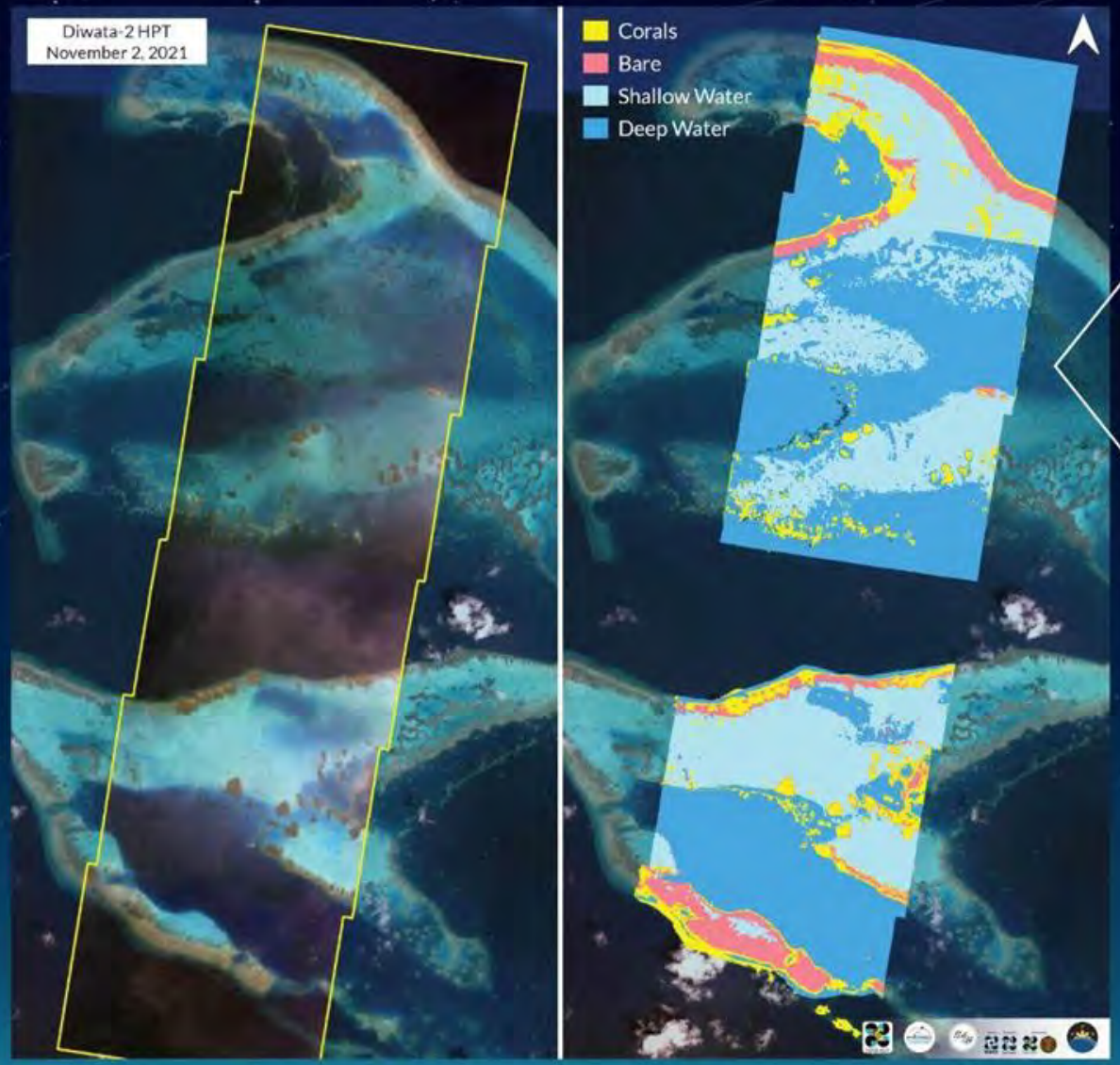
In celebration of the #WorldWildlifeDay, Diwata-2 offers you the Apo Reef in Sablayan, Occidental Mindoro. The second largest contiguous coral reef in the world and the largest atoll-like reef in the country, Apo Reef is home to diverse species of marine life[1]. The corals span approximately 34 km^2 and are visible in this Diwata-2 image.

This image captured last November 2, 2021 by Diwata-2's High Precision Telescope (HPT) underwent Support Vector Machine (SVM) classification scheme to classify between corals, water, and terrain.

Access Diwata images from our data distribution site:
https://data.phl-microsat.upd.edu.ph

Image processing and data distribution are managed by our Ground Receiving, Archiving, Science Product Development and Distribution (GRASPED) project.

1 www.unesco.org/en/tentativelists/5033/



Philippine Space Agency

STAMINA4Space Program

STeP-UP Scholars Batch 1

STeP-UP Scholars Batch 2

Everyday is Earth Day!

Philippine Satellite Watch

Everyday is Earth Day in Burgos, Ilocos Norte!

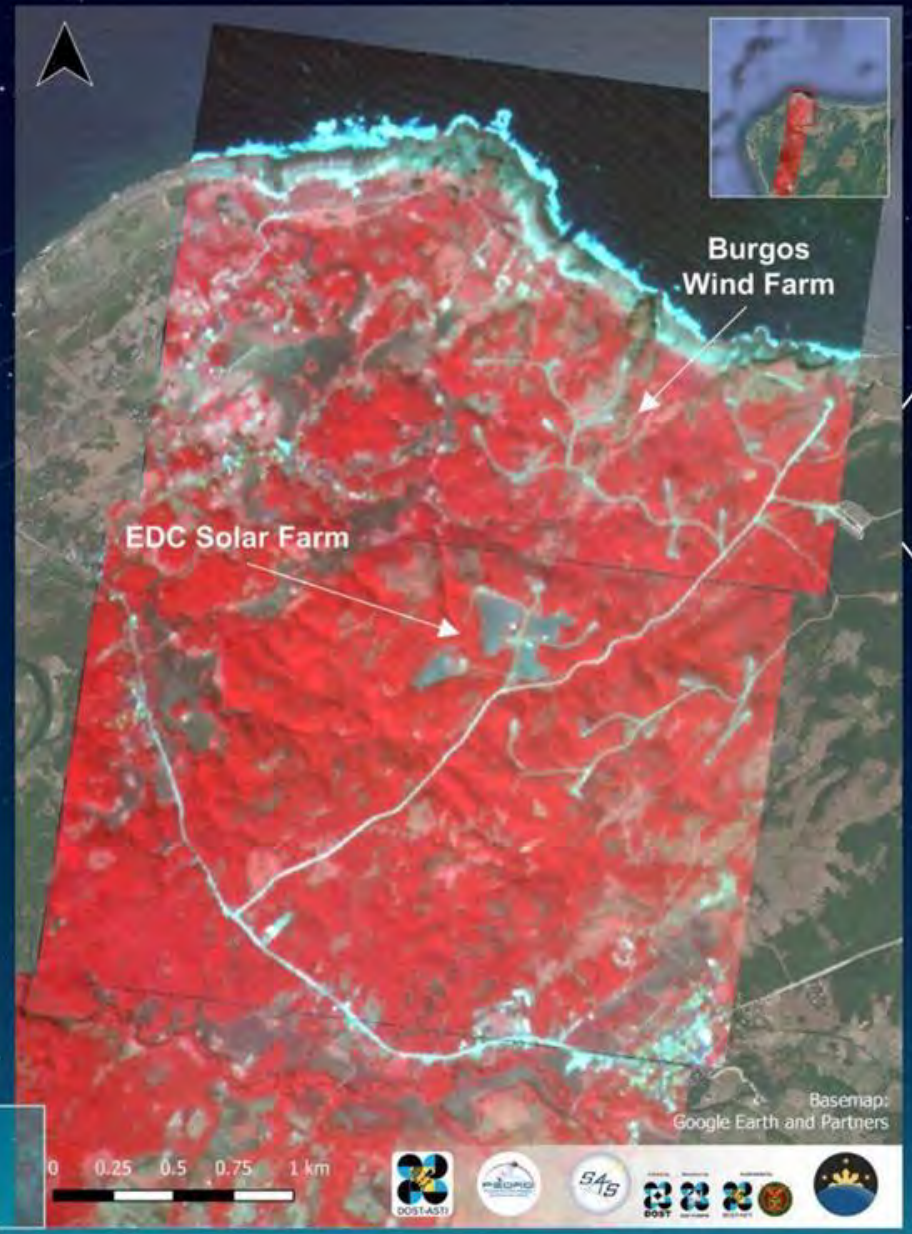
As seen in this false-color composite Diwata-2 image (taken by Diwata-2's High Precision Telescope last January 31, 2021), the town champions a sustainable energy farm, the Energy Development Corporation (EDC) Solar Farm. This 10.030-hectare solar farm generates 4.1 megawatts of power that also harnesses power from wind turbines[1]..Further up north is another sustainable energy farm, the Burgos Wind Farm commissioned in 2014.

This false-color composite image shows that areas with redder hue have denser vegetation while areas with grayish hues indicate bare land.

Access Diwata images from our data distribution site:
https://data.phl-microsat.upd.edu.ph

Image processing and data distribution are managed by our Ground Receiving, Archiving, Science Product Development and Distribution (GRASPED) project.

[1] https://laoagcity.gov.ph/tourism/ilocos . views.html



Ilocos Norte is a province in the northern Philippines.

Philippine Space Agency

STAMINA4Space Program

STeP-UP Scholars Batch 1

STeP-UP Scholars Batch 2

STeP-UP PROJECT

2022 BIRDS Workshop of APRS

Gladys Bajaro of the Maya-3 and Maya-4 development team presented in the 2022 BIRDS Workshop of APRS. She talked about the APRS mission of both CubeSats. She highlighted the countries that were able to use the payload and their station setup. In-orbit data and theoretical calculations were also compared showing minimal difference.

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STeP-UP Scholars Batch 1, Maya-3 and Maya-4 Engineers

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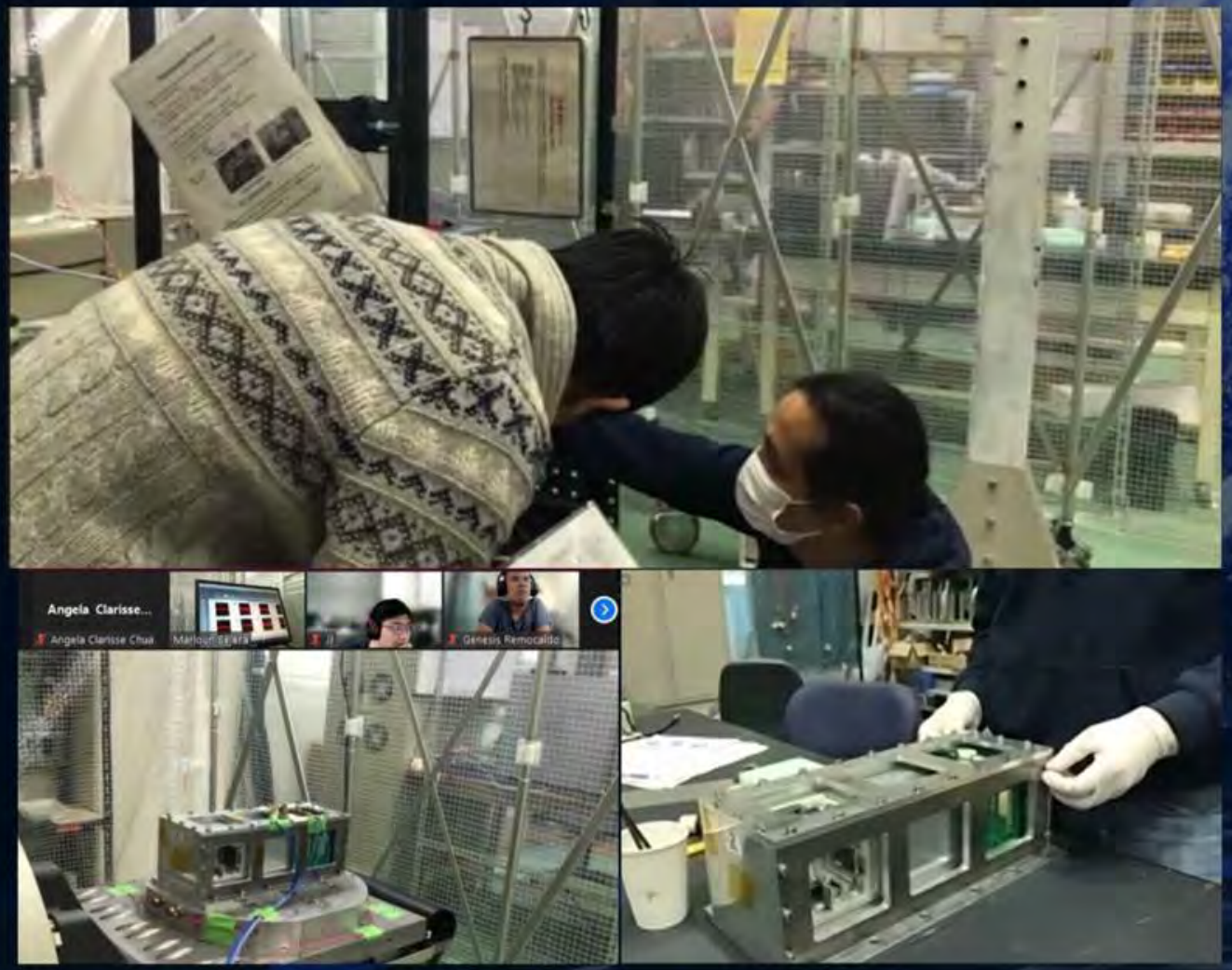
Due to logistical concerns involving personnel and equipment schedule, the final phase of Batch 2's EM Space Environment Test was postponed until the previous month. The team members worked on their individual theses until mid-February when it was time to resume the Space Environment Test.

SPACE ENVIRONMENT TEST CONTINUATION

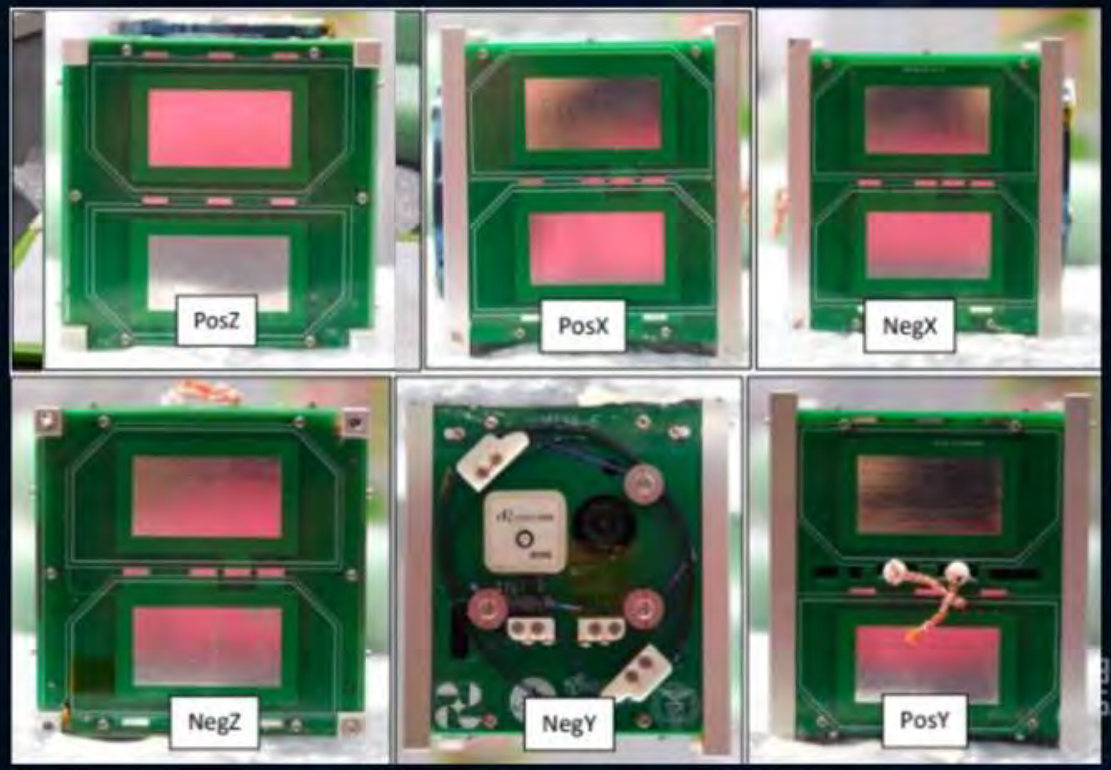
VIBRATION TEST

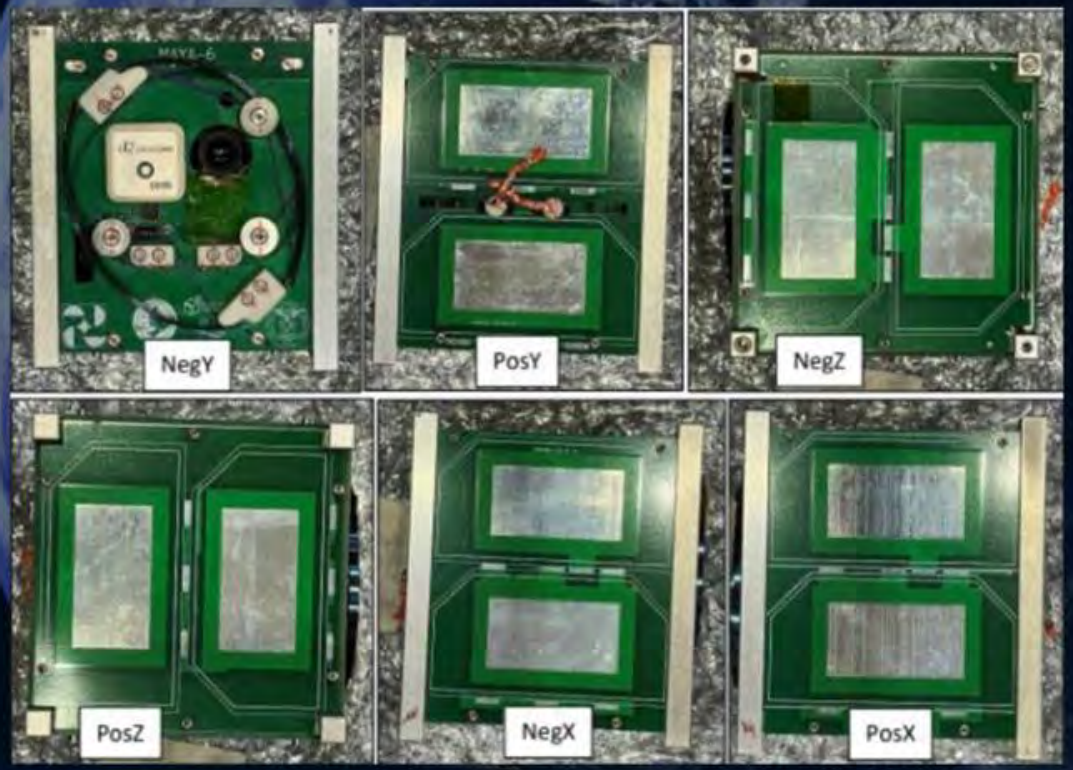


After the antenna deployment tests, vibration test (VT) was performed on the Maya-6 engineering model (EM). The objectives of the VT is to determine the fundamental frequency of the CubeSat structure and to verify the integrity of design workmanship against JAXA's launch qualification requirements.

This was successfully conducted by the BIRDS-4 team at the Center for Nanosatellite Testing (CeNT), remotely assisted by the scholars last February 16 with the supervision of Professor Yamauchi.

VIBRATION TEST





Left: Torque markings on Maya-6 EM's external panels and rail deployment switch screws before VT. Right: Torque markings on Maya-6 EM's external panels and rail deployment switch screws after VT.

After the vibration test, it was found that there were no observed shifts in the torque markings made on the bolts used in the cube satellite. Functionality tests of the missions and subsystems are then performed post-VT. Finally, Maya-6 EM is packed and sent back to the Philippines by the BIRDS-4 team.

MARAMING SALAMAT PO!

(Thank you very much!)

The Batch 2 scholars would like to express our sincerest gratitude to the BIRDS-4 team and other engineers in Kyutech for helping us through our EM Space Environment Test. The series of tests were remotely assisted by the scholars but were led by Dr. Iz Bautista, Sir Mark Purio, Sir Marloun Sejera, and Sir Hari Shrestha.

We would also like to thank our advisers and mentors here in the Philippines for continuously guiding us — to Ma'am Meann Constante and Sir PJ Co, thank you! <3

On to the next milestone!

Philippine Space Agency

STAMINA4Space Program

STeP-UP Scholars Batch 1

STeP-UP Scholars Batch 2

FLIGHT MODEL DEVELOPMENT

While the engineering model of Maya-6 is on its way back to the Philippines, the scholars visited the laboratory for some preliminary work on the flight models (FM) for Maya-5 and Maya-6. This includes inventory and inspection of newly arrived boards and components, assembly, and initial debugging of available FM boards.

Philippine Space Agency
STAMINA4Space Program
STeP-UP Scholars Batch 1
STeP-UP Scholars Batch 2

AFTER-WORK HOURS

Because of the pandemic, the team only had limited chances to spend time together and bond outside of academics and satellite work. So, we took the opportunity to catch up over food and drinks after our visit to UP EEEI, while Metro Manila is under COVID-19 alert level 1.

20:03
10/05/2108

We spent a few good hours laughing and telling stories about how our holidays were spent.

05. News on Perovskite solar cells

Enecoat Technologies is a startup established by Kyoto University in January 2018, and we develop perovskite solar cells, regarded as the most promising next-generation solar cells. The company was launched with the full support of Kyoto University based on research seeds studied over several years by Wakamiya Laboratory at Institute for Chemical Research, Kyoto University.

https://enecoat.com/index_en/

Note: BIRDS-4 carried a test of Perovskite solar cells

Perovskite solar cells news

日本経済新聞　2022.03.08

ペロブスカイト太陽電池

京大発新興が製品化

京都大学発スタートアップのエネコートテクノロジーズ（京都市）は、半導体商社のマクニカと組み、ペロブスカイト型と呼ばれる次世代太陽電池を電源に使ったセンサーの出荷を4月から始める。同型の太陽電池の製品化は国内で初めてとみられる。

ペロブスカイト型は薄くて軽く、曲げることができる新型の太陽電池。建物の壁や自動車の屋根などに設置でき、製造工程も簡単で安く作れるため、脱炭素を加速させると期待されている。

エネコートが開発するペロブスカイト型は二酸化炭素（CO_2）濃度などを測るセンサーに組み込む。大きさは7・5㌢㍍角。センサーの電力を補い、別途搭載する乾電池の交換頻度を減らすことができる。センサーは植物工場や、新型コロナウイルスの感染対策としてCO_2濃度を監視する屋内などでの需要を見込んでいる。

ペロブスカイト型は普及するシリコン太陽電池と異なり、照度の低い室内でも発電できるという。1500㍒ほどの明るい室内で使い続ける場合は、太陽電池のみで消費電力を賄える。

センサーの価格は1台数万円。エネコートは京都大学の宇治キャンパス（京都府宇治市）内の製造装置で太陽電池を作り、マクニカは低消費電力でセンサーを駆動させるための設計などを担う。

エネコートは約10億円を投じ、今春に京都府久御山町の貸工場の1100平方㍍の敷地に製造ラインを設ける。まずは屋内センサー向けに太陽電池を量産して実績を積み、より高い耐久性や大きな面積が求められる屋外向けの太陽電池の開発も進める。

By Lily Asongfac, who lives in Cameroon

The drought in Lake Chad

Hello there!

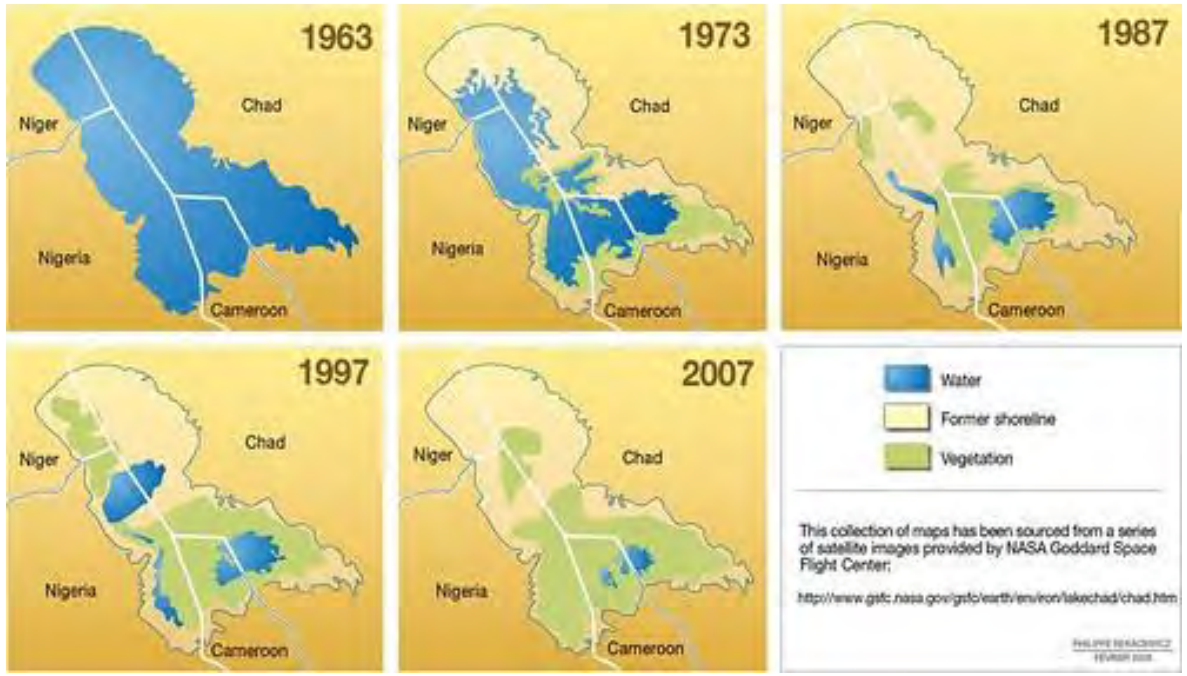
Good to have you read from me again. I am very thankful to the *BIRDS Project Newsletter* for the continued support in exposing me to the world through these little segments I get to share some of the developments in my life on this journey to becoming a space engineer.

The name lake chad brings me childhood memories. In middle school, one of the things we learnt about is water bodies including the names of rivers, lakes and Oceans, one of them being Lake Chad which was one of the easiest to remember.

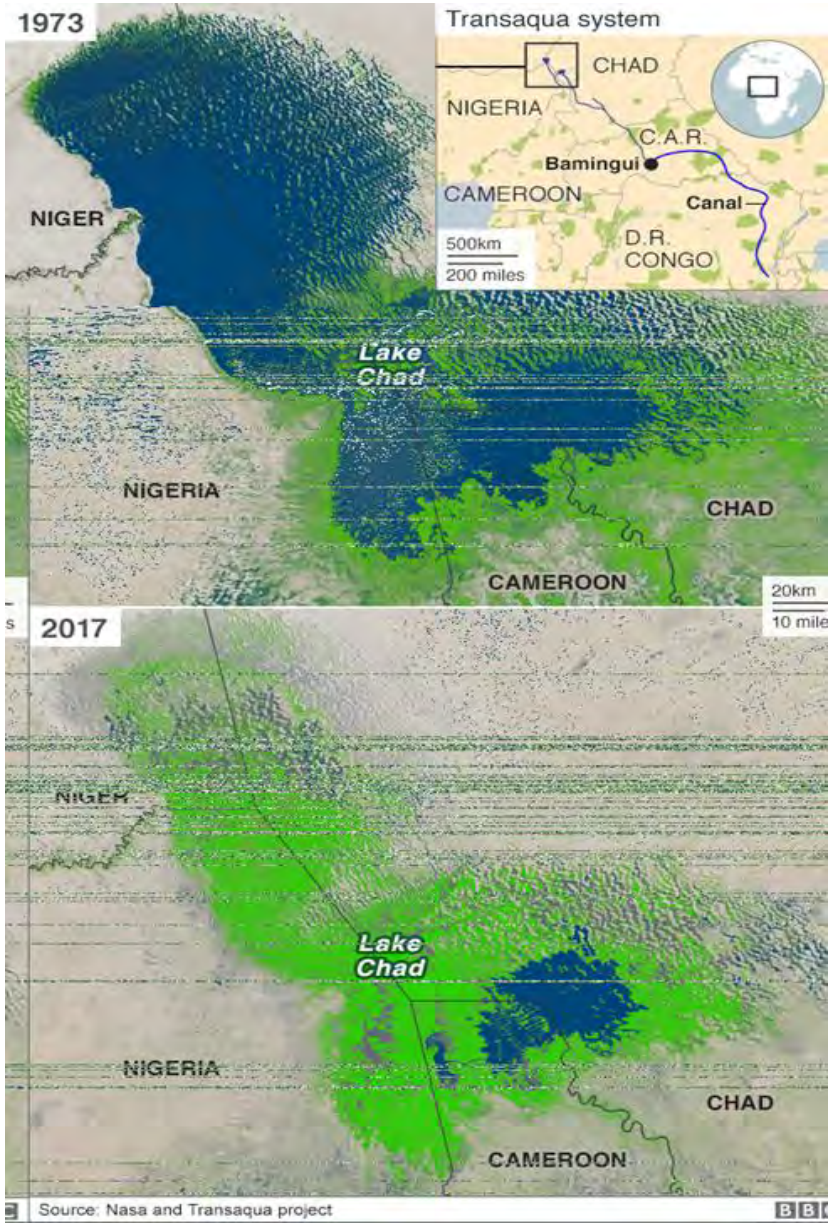
Source: https://www.researchgate.net/figure/Location-of-the-study-area-Lake-Chad-on-Nigeria-map_fig1_320930842

After having a conversation with a close friend, I did some research and learned that Lake Chad, which straddles the borders of Chad, Niger, Nigeria, and Cameroon in West Africa and has been a source of freshwater for irrigation projects in each of these countries, since the 1960s has shrunk by 90%.

Climate change, population growth, and inappropriate irrigation have all contributed to this demise. Its basin stretches through Nigeria, Niger, Chad, and Cameroon, providing water to between 20 and 30 million people.



Satellite maps show how fast Lake Chad waters have receded over the past decades. Maps by NASA via People's Daily



- The current Lake Chad Basin's eastern and northern boundaries are defined by latitudes 5º 21´46.42" and 24º42´12.11" north of the Equator, and the Green Witch Meridian at then 6º41´12.79" and 24º35´33.64" East (GMT). Because of variations in precipitation and temperature, the lake is progressively changing and this is realized from its depth, size, and shape.

- **More than 2 million people** depended on the lake for their livelihoods, and more than 17 million people in the region depended on it for their food security.

- To contribute to the work presently being done, I am looking keenly into how space and emerging technology can help save this lake.

- With direction from Mark Angelo @ Kyutech, a member of the BIRDS-4 Project, I have been looking at some available satellite data from Landsat and Sentinel to see the temporal changes of Lake Chad over the past years.

- Please feel free to reach out if you have any useful resources or even to just have discussions on this issue.

- Email: asongfaclily@gmail.com

The flag of my country, Cameroon.

07. Low-cost seismometers using Raspberry Pi

Eos Science News by AGU

By E. Calais, D. Boisson, S. Symithe, R. Momplaisir, C. Prépetit, S. Ulysse, G. P. Etienne, F. Courboulex, A. Deschamps, T. Monfret, J.-P. Ampuero, B. M. de Lépinay, V. Clouard, R. Bossu, L. Fallou and E. Bertrand
17 May 2019

ABOUT SPECIAL REPORTS TOPICS PROJECTS NEWSLETTER SUBMIT TO *EOS*

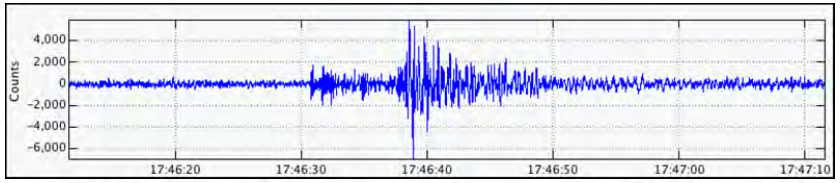


Fig. 2. Station R30E2, located in downtown Pétion-Ville, produced Haiti's first Raspberry Shake station recording of a local earthquake on 13 January 2019. This event was not reported by Haiti's national seismic network, but it was later reported by the Dominican Republic seismic network as an M3.1 event (yellow star in Figure 1) along the Enriquillo–Presqu'île du Sud fault close to the border between Haiti and the Dominican Republic.

Monitoring Haiti's Quakes with Raspberry Shake

A network of "personal seismometers" is intended to complement Haiti's national seismic network to engage and inform residents about earthquake hazards and preparation.

https://eos.org/science-updates/monitoring-haitis-quakes-with-raspberry-shake

This article is about a low-cost seismometer that can be deployed in any terrain but needs a link to a data center. This link can be an Internet connection – or BIRDS/KITSUNE GST. Below is the link to the manufacturer of Raspberry Shake:

https://raspberryshake.org/

Raspberry Shake®
Watch the Earth Move

PUBLIC RELATIONS OFFICE
GOVERNMENT OF JAPAN

Japan's Cool Train Stations

Since the opening of Japan's first railway 150 years ago (1872), train stations have played a major role in the nation's modernization, especially in urban development. Today, many stations in Japan function not only as transportation hubs but also as shopping and cultural centers, while some serve as destinations in themselves owing to the sights and facilities that can be enjoyed there. In this month's issue, we introduce some of Japan's fun-to- visit train stations.

GO HERE TO DOWNLOAD THIS TRAIN STATION ISSUE:
https://www.gov-online.go.jp/eng/publicity/book/hlj/20220201.html

HIGHLIGHTING

Japan

VOL. 165

FEBRUARY 2022

JAPAN'S COOL TRAIN STATIONS


Feature
JAPAN'S COOL TRAIN STATIONS
Okuoi Kozyo Station viewed from the observation deck on the opposite bank of the lake
Photo: Courtesy of Oigawa Railway Co., Ltd.
"The Station on the Lake"
Okuoi Kozyo Station on the Oigawa Railway's Ikawa Line

The sunset at Shimonada Station

A single-car Yosan Line train

The Station by the Sea

Shimonada Station on the Yosan Line

An unmanned station situated close to the beautiful Seto Inland Sea attracts many people for its wonderful views.

Tokyo Station

Another Face of Tokyo Station, Japan's Terminal Station

09. Wedding bells for Izrael, Project Manager, BIRDS-4

Congratulations and Best Wishes

to

Izrael and Mia

Married on 4 March 2022

10. Introduction to ground testing facilities for electron irradiation

At LaSEINE, many kinds of space-related research is conducted. The following report is a summary of a student presentation given before the entire laboratory right before the March spring break. The student, Paul Michel, is a native of France.

Paul MICHEL

Master M2

LaSEINE Laboratory

michel.paul-jean318@mail.kyutech.jp

France

Relaxation of electron radiation effects on the optical properties of polymers and improvement of vacuum ground test facilities

March 15th, 2022

➢ *Introduction to ground testing facilities for electron irradiation*

Presentation of the procedure

The degradation of optical properties can have serious consequences.

→ Explanation: A change in energy absorption can lead to the destabilisation of the thermal balance of the whole spacecraft.

Researchers noticed that after degradation, a recovery phenomenon occurred on Earth (in atmosphere).

→ Explanation: Reaction between radicals with oxygen as this meets the need for chemical bonds.

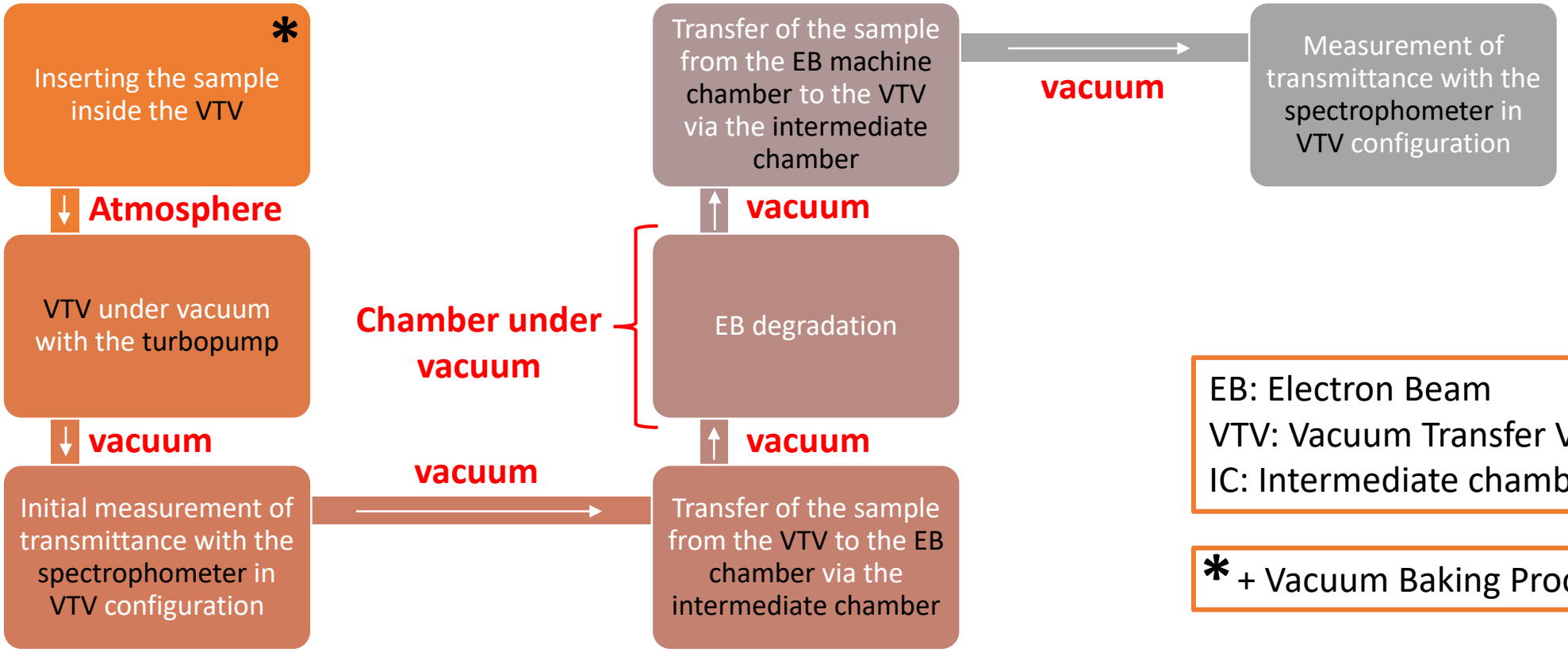
The purpose of the vacuum ground testing facilities.

→ Performing experiments under vacuum condition allows the analysis of the factors that influence the recovery phenomena, disregarding the parameter of the atmosphere.

Special mechanism for vacuum condition

1. For ground testing of electron beam in atmosphere condition

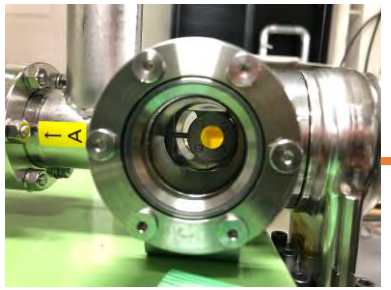
2. Ground test with electron irradiation under vacuum

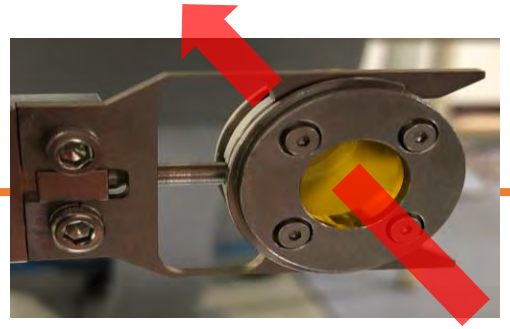


EB: Electron Beam
VTV: Vacuum Transfer Vessel
IC: Intermediate chamber

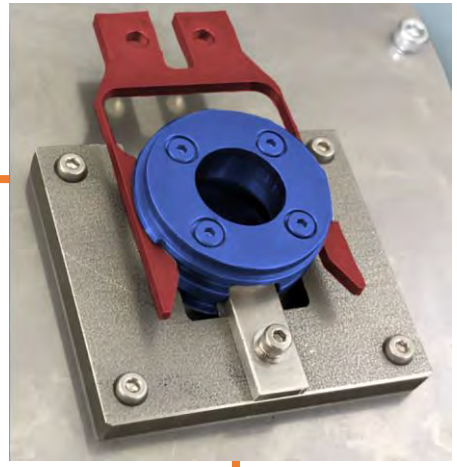
* + Vacuum Baking Process

Vacuum Transfer Vessel and its sample holders

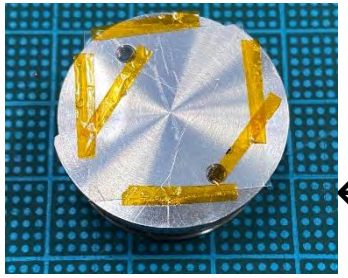




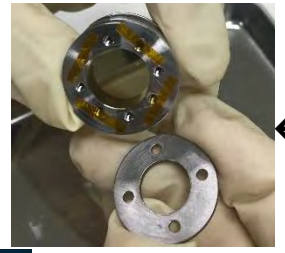
Optical window for measuring optical properties



Vacuum Transfer Vessel

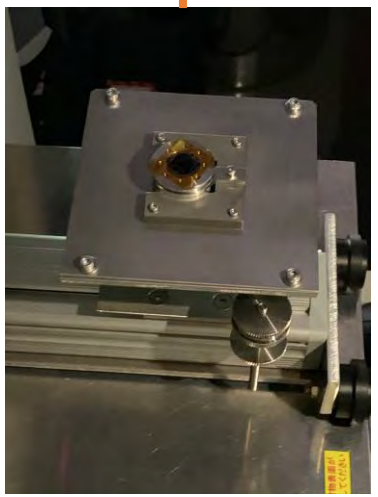


←For measurements **in atmosphere**



←For measurements **under vacuum**

Turbopump + ion getter pump

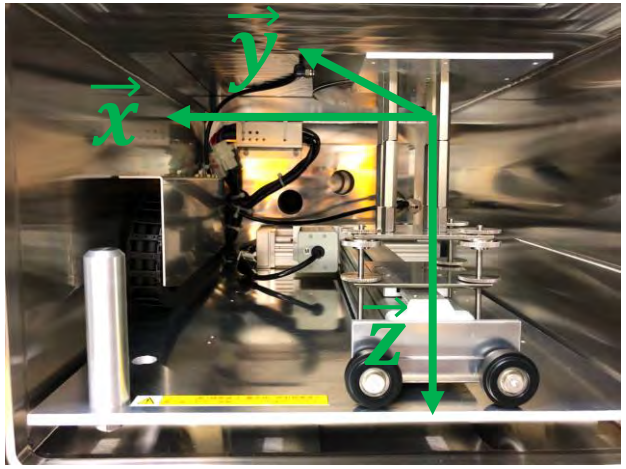


Attaching the sample holder to the sample stage in the EB machine

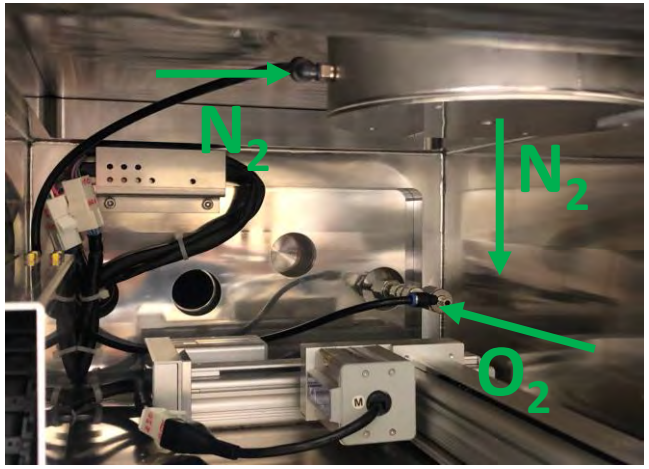
Intermediate chamber and Electron Beam chamber

Inside the EB chamber

Sample stage movement

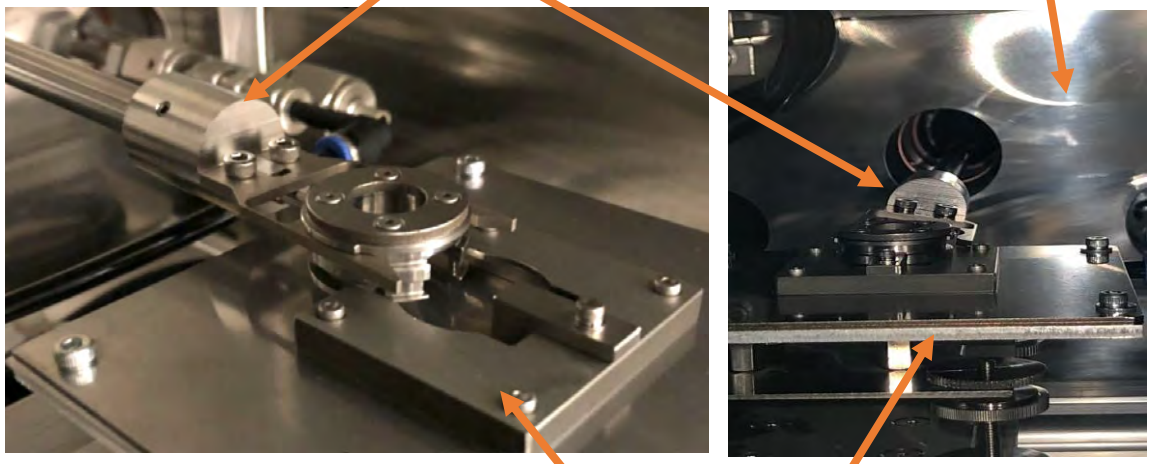


Nitrogen gas inlet / air outlet

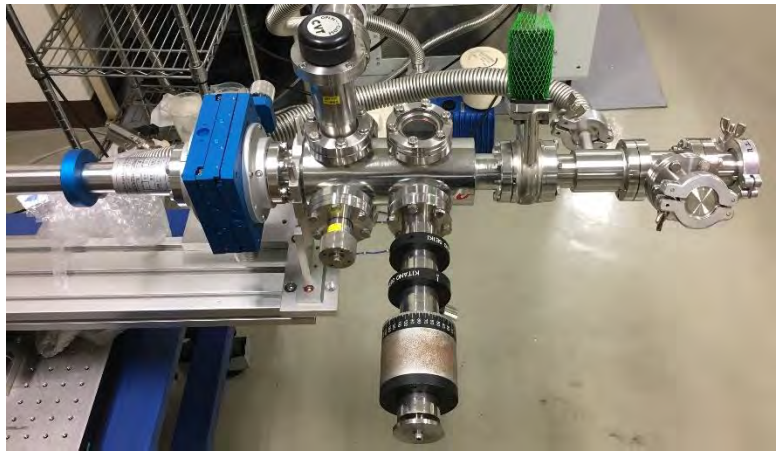


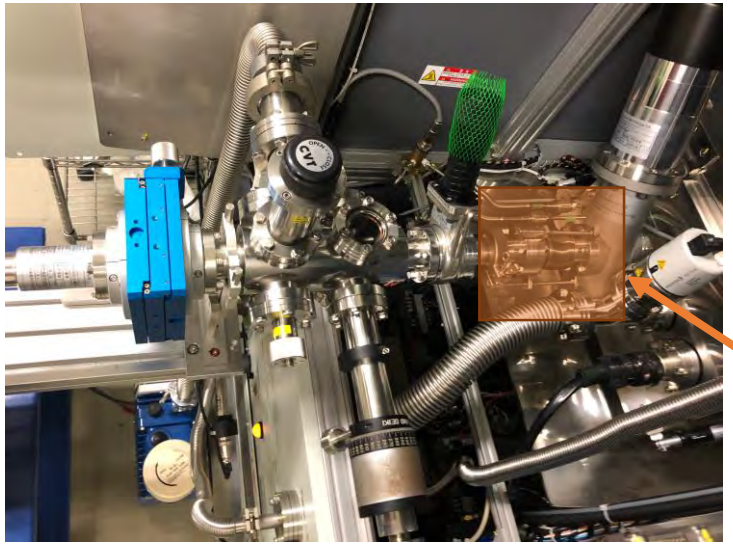
Rear of the EB chamber

IC feedthrough for sample collection



Intermediate chamber





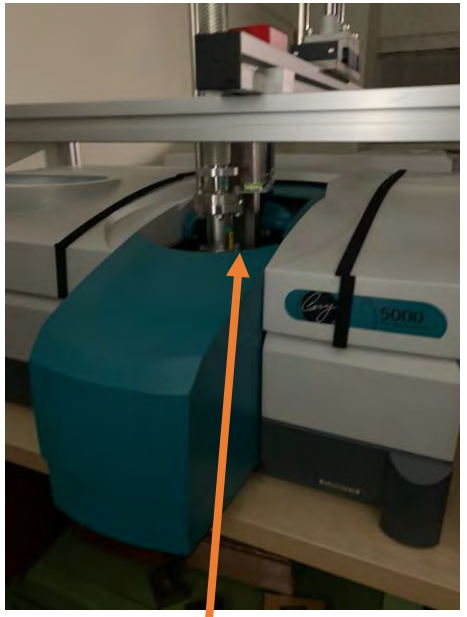
Sample stage

Connection of the IC to the rear of the EB machine

UV-Vis-NIR Spectrophotometer with VTV conguration

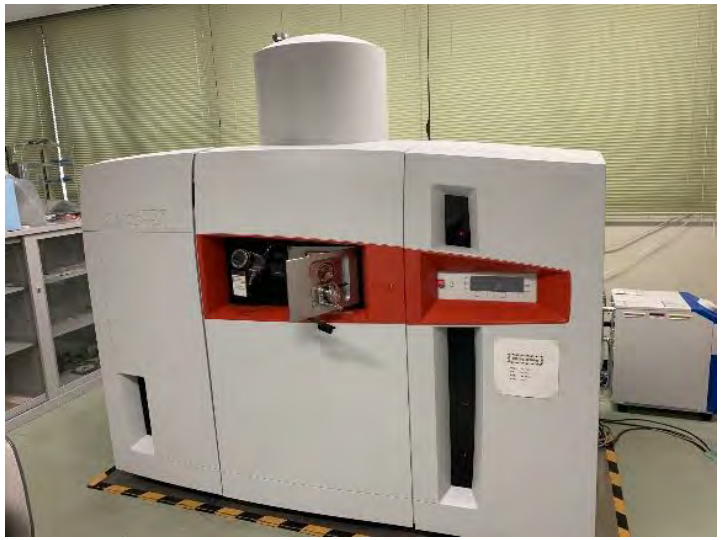
Aluminium frame for VTV fixation

Adjustment of the VTV inside the spectrophotometer



Insertion of the VTV inside the measurement zone

Other possible uses

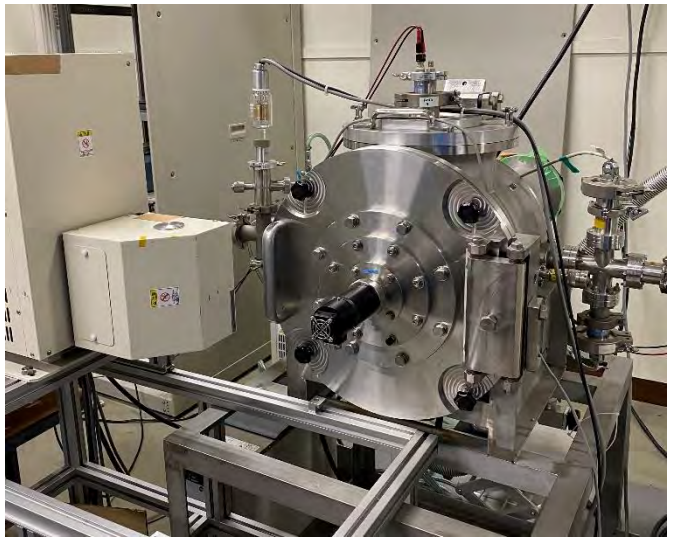


With XPS machine

(Kyutech facility)

With Proton accelerator

(AIST facility)



With UV machine

(Kyutech facility)

END OF THIS REPORT

UiTMSAT COLUMN

Column No. 27

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

UNIVERSITI TEKNOLOGI MARA

UiTM Sentiasa Di Hatiku
"UiTM Always in My Heart"

MALAYSIA TOWARDS COVID-19 ENDEMIC PHASE & THE EXPECTATION

MALAYSIA will undergo a temporary period of COVID-19 endemic starting 1st April 2022 after nearly two (2) years of putting some restrictions and closures in the country as a measure to handle the outbreak.

The endemic phase will allow most of the activities that were put under control to return to usual implementation. This includes the fully open borders for tourists, normal business operating hours and normal capacity in workplace or other places that involve groups of people. Nevertheless, the social distancing and facemask wearing are encouraged especially in the confined or closed areas.

Previously, Malaysia has decided to move to the transition of COVID-19 endemic in November 2021. However, it was delayed until this year due to the spread of new variant of COVID-19 named Omicron.

With the new decision of endemic transition in April 2022, Malaysia is expected to resume their normal life even though it is not completely in usual way. People would experience the new normal of living, with the virus is still in the air and the precautionary measures are still required to be taken. It is also anticipated that the issue of resources shortage for manufacturing would be curbed.

Satellite development project in UiTM faces countable issues when most of the components with the flight heritage were not only obsolete but its manufacturing took nearly 1 year to be produced. It was all because of the limitation of resources for production.

Fig. 1: *The Kuala Lumpur (KL) atmosphere before the implementation of COVID-19 endemic. People are still wearing facemask in public as a precautionary measures to prevent virus transmission.* Source from MalaysiaNow.

Fig. 2: *Malaysia will allow international visitors to enter the country starting 1st April 2022. With this implementation, Malaysia is expected to receive foreign nationals for tourism, business, study or employment purposes.* ***Source from Kosmo Malaysia.***

The issues led the team of the satellite development project to find other components for substitutions and this would increase the risks for the satellite during the development and the operation.

The restrictions that were implemented during the COVID-19 outbreak also forced the team to re-strategize by rearranging the planned activities and performing the other activities that were fit at that particular time and circumstances. The project was planned to submit the circuitry layout for fabrication to Japanese company that has experiences in producing PCB for space standard. However, due to factor of time because of the outbreak effect, the team was obliged to find the local companies that can do the works and meet the requirements. This was similar to the fabrication for satellite structure.

The team consists of students from UPHSD, Philippines as part of the stakeholders of the project.

And again because of the COVID-19 outbreak, the team are not stationed in one place which is the UiTM for the development process of the satellite. Until now, the works and operations are performed remotely through online platform with the team members from Philippines. The virtual implementation aggravates the development process in which the miscommunications were the consequences that led to the lagging progress.

Thus, with the transition to COVID-19 endemic phase, it is expected that the issues encountered by the team of the project can be alleviated and the development process can be speeded up. However, as after every storm comes a rainbow, the experiences of finding suitable and competent local companies for the fabrication will ease the process of developing the next future satellite project and the ordeals taught us to be ready with any unexpected events.

Fig. 3: *The setup of hybrid meeting with all team members of the satellite project, in which some of the team members joined the meeting physically and some of them had to join remotely through virtual platform.*

End of Malaysia's Column

12. PNST students who begin at Kyutech in Oct 2022

Name	Nationality	D or M	Sex	Age	Current Affiliation	Position
SARA Ramadan Aziz Ghaleb	Egyptian	D	Female	29	National Authority for Remote Sensing and Space Science	Research Assistant
ESIT、Mehmet	Turkish	D	Male	25	Istanbul Technical University	Research and Teaching Assistant
Jorge Ruben Casir Ricano	Mexico	D	Male	26	Bauman Moscow State Technical University	Aerospace Engineer
Ochirsukh Enkhmend	Mongolia	M	Female	21	National University of Mongolia	B4 student
Fielding Ezra	South African	M	Male	22	University of the Western Cape	Student
KOSIYAKUL Merisa	Thai	M	Female	27	National Astronomical Research Institute of Thailand (NARIT)	Thermal engineer

The next round of PNST opens around August or September of 2022. If you are an engineer under age 35, live in a non-space-faring nation, and are passionate about space, please check out the details at this UNOOSA website:

https://www.unoosa.org/oosa/en/ourwork/psa/bsti/fellowships.html

UNITED NATIONS
Office for Outer Space Affairs

13. BIRDS-5: Flight Readiness Review was held on 10 March 2022

九州工業大学　革新的宇宙利用実証ラボラトリー
Laboratory of Lean Satellite Enterprises and In-Orbit Experiments, Kyushu Institute of Technology
Kyutech

BIRDS 5 FLIGHT READINESS REVIEW PROGRAM FOR 10 MARCH 2022 AT 12:30-14:30

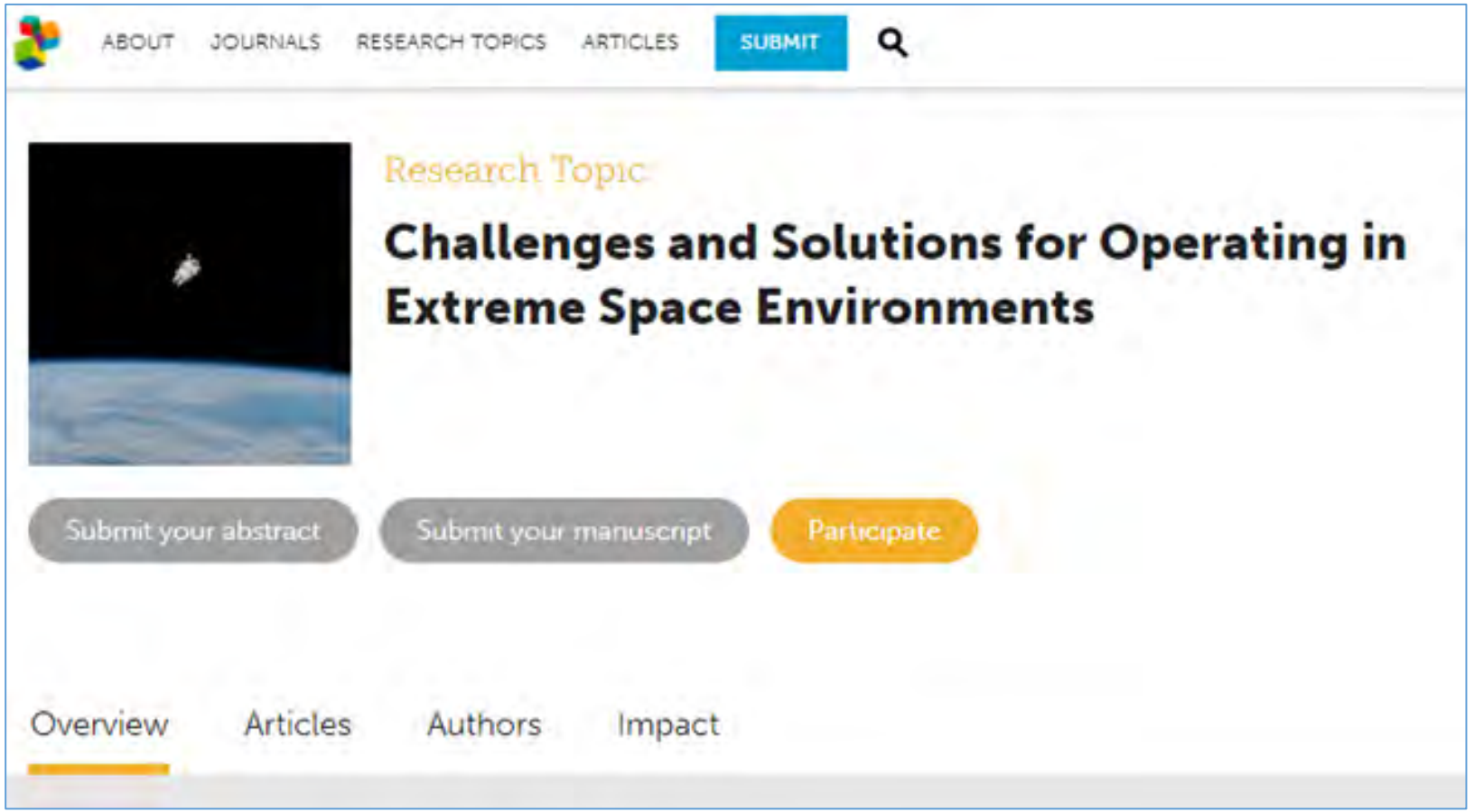
The BIRDS-5 Team behind their completed CubeSats
(This photo is not related to the Flight Readiness Review---just for reference)

Serial	Item	Presenter	Presentation Time(minutes)	Comments
1	Opening remarks	Victor	1	
2	Presentations Overview	Victor	5	3
3	Attitude Visualization	Timothy	7	3
4	Multispectral Camera	Bonny	7	3
5	Image Classification	Keenan	7	3
6	Attitude Determination and Control	Shoma	7	3
7	BIRDS-NEST	Fahd	7	3
8	Store and forward	Edgar	7	3
9	PINO Mission	JAXA	7	3
10	**Break**		**10**	
11	Onboard computer	Keenan	10	3
12	Electrical Power Supply	Derrick	7	3
13	Communications	Ramson	7	3
14	Ground Station	Edgar	7	3
15	Frequency coordination	Otani	5	3
16	Future Plans	Victor	5	3
17	Ground station brief update Uganda	5		
18	Ground station brief update Zimbabwe	5		
	Estimated Time		2hrs	

14. A chance for grad students to get published (extreme space environments)

This opportunity to get published is especially good for Kyutech Phd students.

Check it out.



Details are all here:

https://www.frontiersin.org/research-topics/31693/challenges-and-solutions-for-operating-in-extreme-space-environments#overview

15. Ground station update from Zimbabwe

Zimbabwe National Geospatial and Space Agency

Ground Station Progress Brief

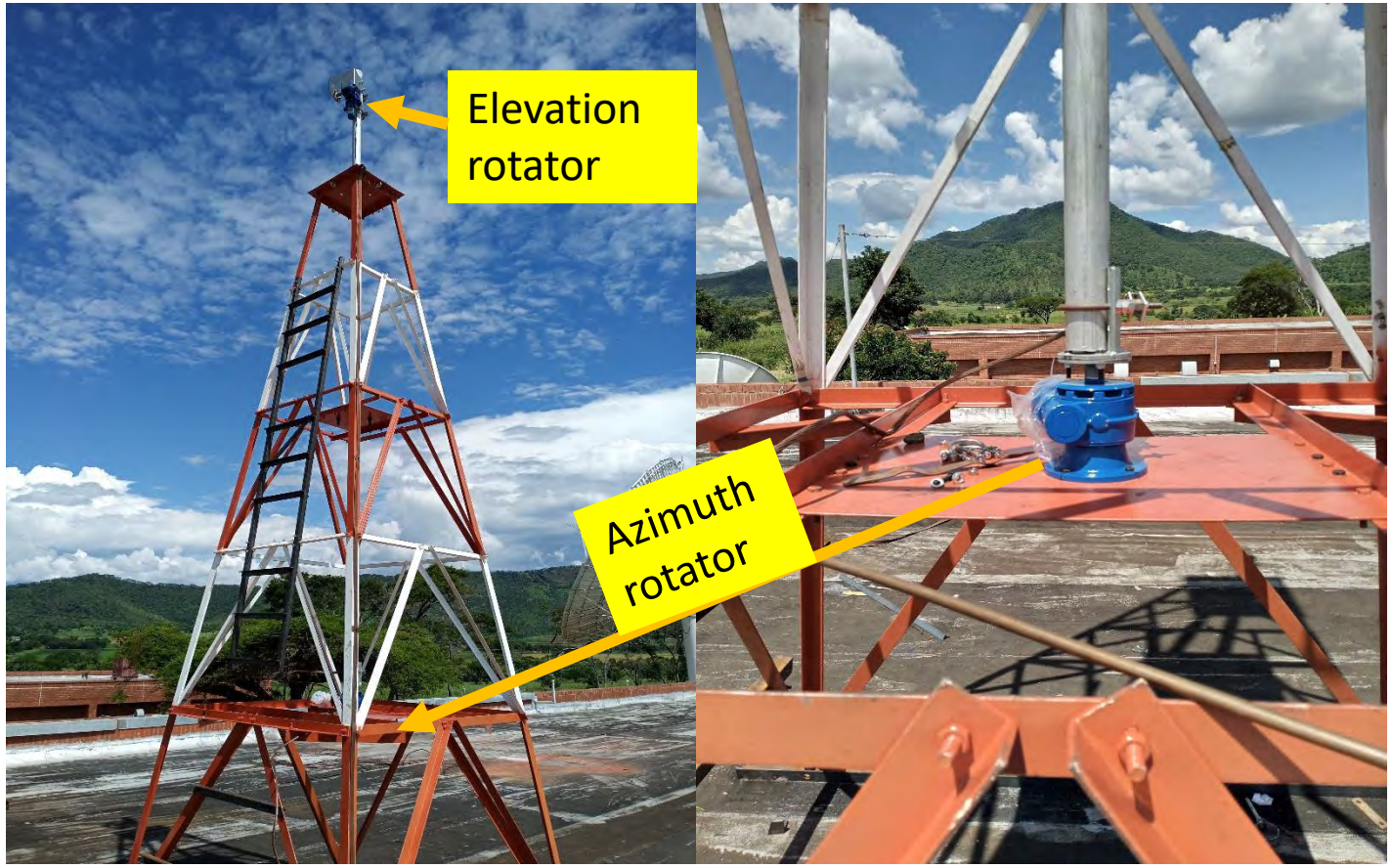
By : Tatenda G. S. Marimo

Acting Outreach Officer

15/03/2022

Ground Station Mast Installation

- ❑All necessary attachments were added to the mast
- ❑Mast was painted in order to protect it from harsh weather elements. Orange and white colours were adopted for the final coat in line with aviation standards.
- ❑Exact position of the mast on the rooftop was established by taking into consideration the roof structure design.



Mast erection and attachments installations

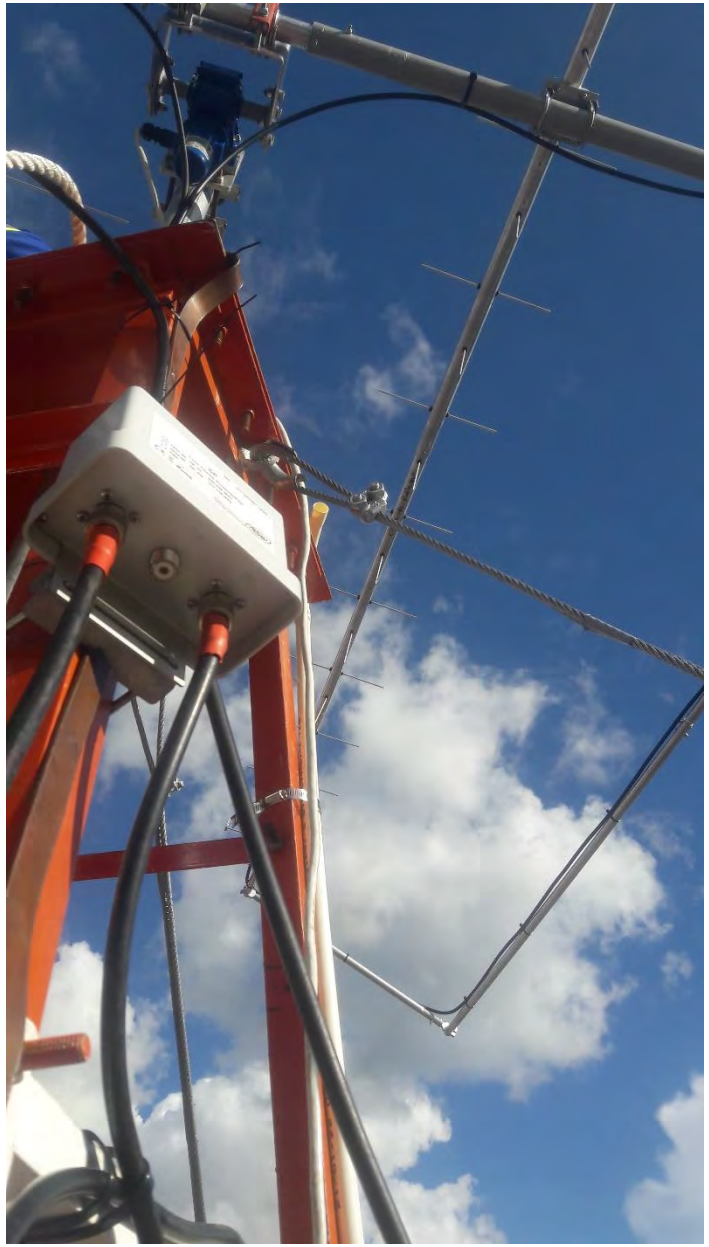
Ground Station Mast Installation

- ❑The Mast was properly earthed, anchored, and surge protectors were installed.
- ❑Cable trays for carrying RF, Rotator, and earth cables were neatly laid from the edge of the roof top up to the mast.

Lightning and surge protectors installed

VHF and UHF Antenna Installation

- Lightning arrestor and surge protector mechanisms for equipment protection were installed.
- Azimuth and elevation rotators were mounted
- Cross polarized Yagi antenna for both VHF and UHF with a gain of 14.39 dBic and 18.9 dBic respectively were installed.



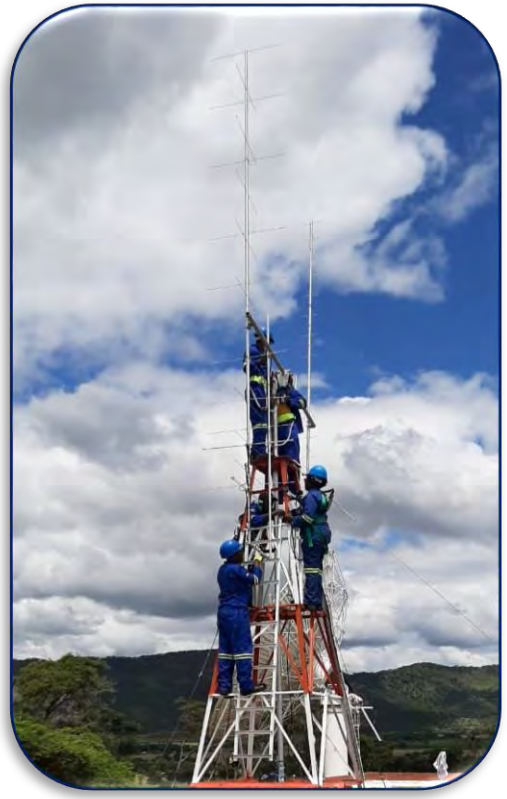
Low Noise Amplifier (LNA)

LNA is the first active gain stage of the Ground Station which plays a crucial role in establishing the systems performance level.

Two LNAs were installed for both UHF and VHF Ground Station antenna.

ZINGSA engineers when working on the GS installation

Engineers working on Mast fabrication



Engineers working on UHF & VHF antenna installation

Ground Station development Engineers pose for a group photo

Personnel Protective Equipment

Safety of personnel during installations was of paramount importance. Below are some of the safety clothing utilized during the Mast and Antenna installations.

Safety harness

Safety helmets

Safety belts

Work suites

Visit Zimbabwe: The Eastern Highlands

A. Mutarazi Falls:

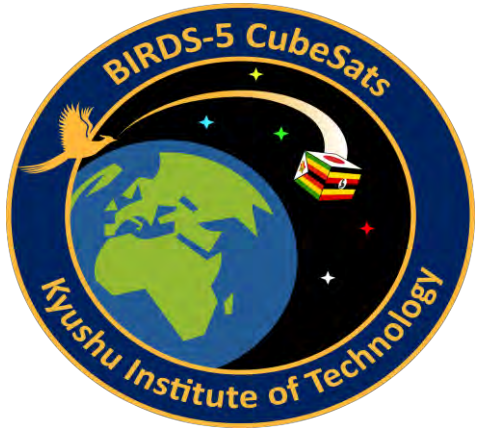
B. Tea plantations in the Eastern Highlands

The Eastern Highlands is characterized by scenic mountains, rivers, waterfalls, lakes coffee and tea plantations. Tourists can visit Nyanga National Park, Mount Inyangani, Mutarazi Falls, Vumba Forest and Chimanimani National Park.
The Mutarazi Falls is the highest waterfall in Zimbabwe, the second highest in Africa (762m down a sheer cliff)

https://www.discoverafrica.com/safaris/zimbabwe/zimbabwes-eastern-highlands/

END OF ARTICLE

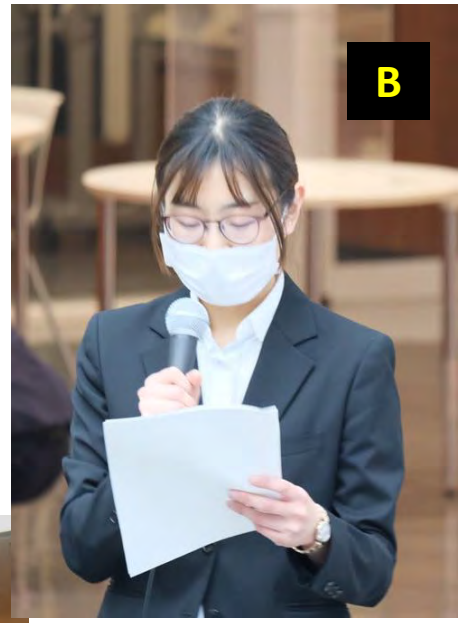
THANK YOU



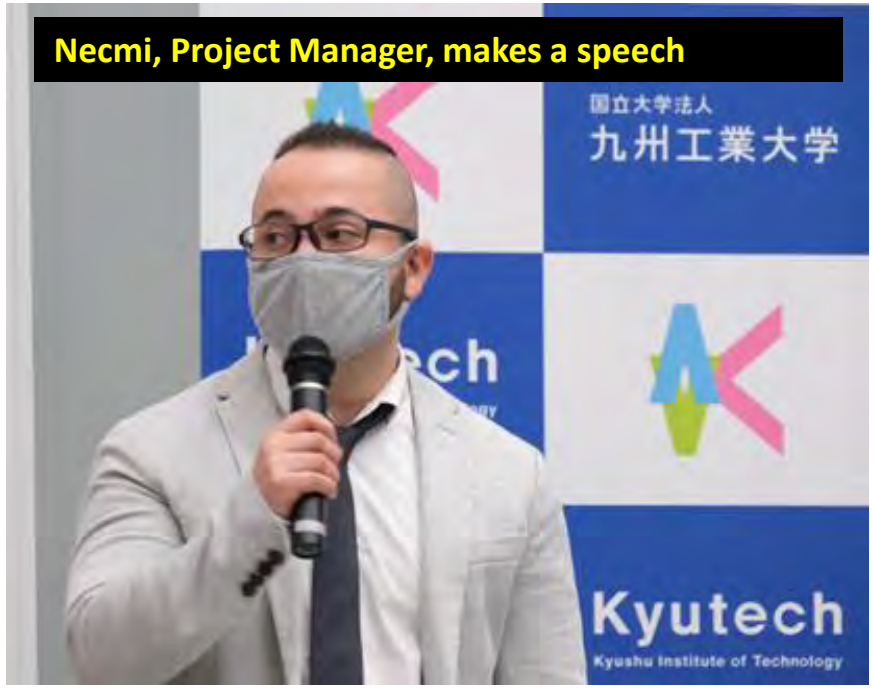
16. KITSUNE was deployed from the ISS with a public viewing at Kyutech

On the evening of 24 March 2022, KITSUNE 6U CubeSat was deployed from the ISS (around 9:10 PM JST). A public viewing occurred at Nakamura Memorial Hall of Kyutech.

Photos by Mark Angelo Cabrera PURIO and G. Maeda



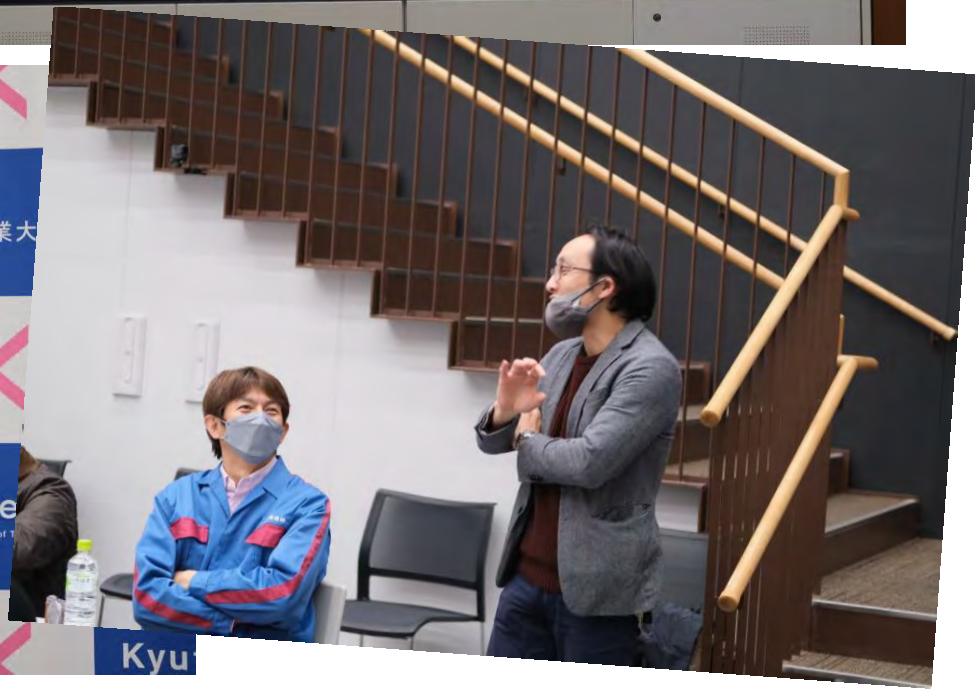
A) Prof Cho, PI of the KITSUNE Project
B) Kishimoto-san, Master of Ceremonies
C) Local news media were invited.


Necmi, Project Manager, makes a speech
国立大学法人
九州工業大学
Kyutech
Kyushu Institute of Technology

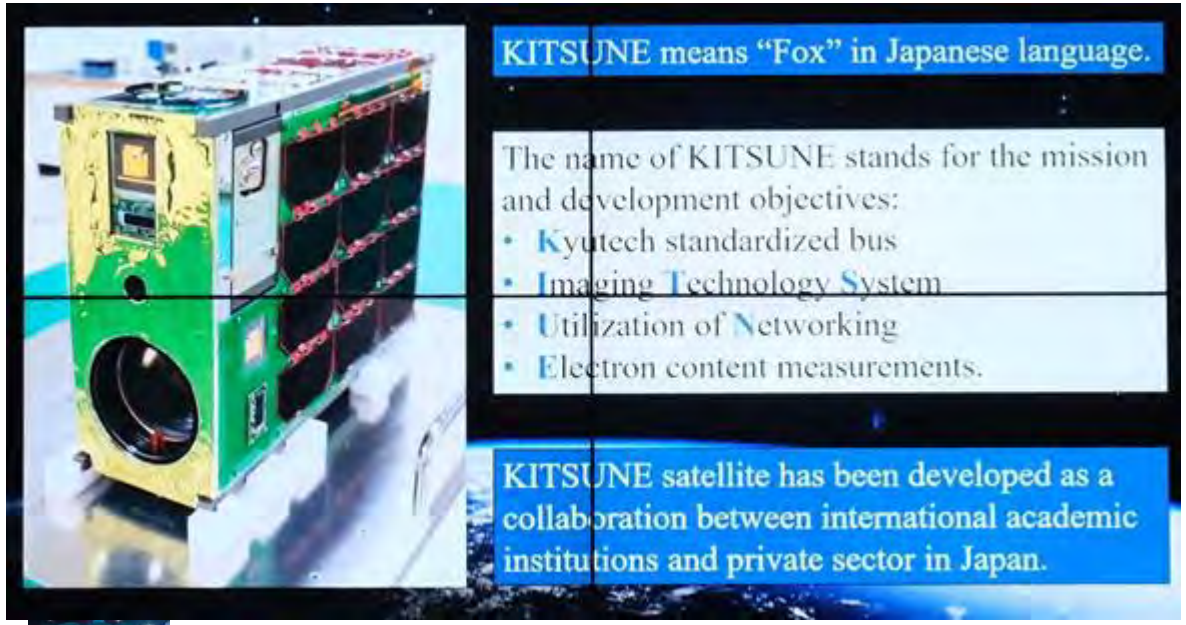

KITSUNE
KITSUNE Satellite Project
Kyutech
La SEINE
NICS
NANYANG TECHNOLOGICAL UNIVERSITY


6U size CubeSat


Kyutech
Kyushu Institute of Technology
国立大学法人
九州工業大学




Kyutech
Kyushu Institute of Technology
九州工業大学


KITSUNE means “Fox” in Japanese language.
The name of KITSUNE stands for the mission and development objectives:
• Kyutech standardized bus
• Imaging Technology System
• Utilization of Networking
• Electron content measurements.
KITSUNE satellite has been developed as a collaboration between international academic institutions and private sector in Japan.


2022.03


Kyutech
Kyushu Institute of Technology
九州工業大学


JAXA at Tsukuba (ISS control center)


Kyutech
Kyushu Institute of Technology
九州工業大学


"A wonderful day for us."


Kyutech
Kyushu Institute of Technology
九州工業大学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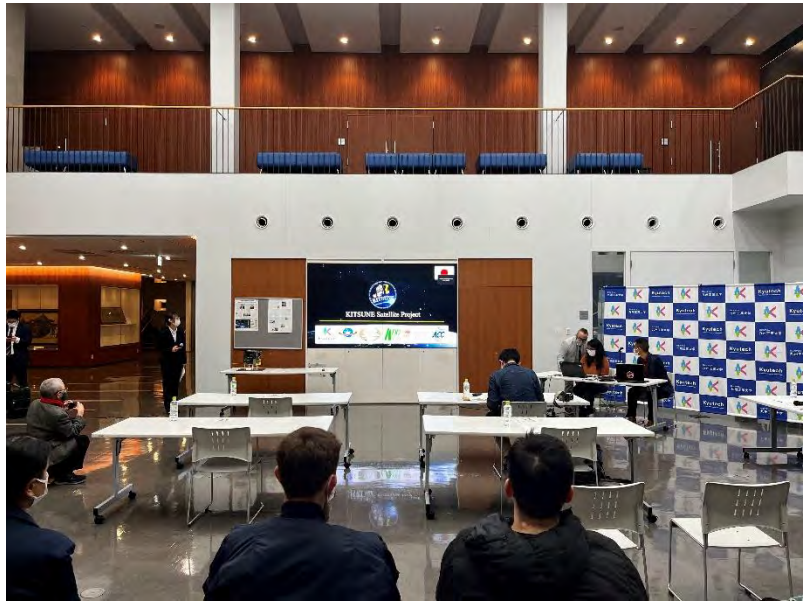


Special appearance by *Ibukun* (member of BIRDS-1 Team)→

The KITSUNE Team

SJOが運航する臨時便は、12時20分に成田を出発して13時35分に仙台へ到着するIJ9001便と、14時35分に仙台を出発して15時40分に成田へ到着するIJ9002便。この2便で毎日往復することになる。11日以降には地上交通機関の復旧状況を踏まえて改めて決定していくことになる。

【航空工業／宇宙関連ニュース】

★日米研究チーム、オーロラにロケット命中
脈動オーロラの電子・光・磁場など詳細観測に成功

名古屋大学宇宙地球環境研究所、宇宙航空研究開発機構（JAXA）、東北大学、電気通信大学、九州工業大学の研究チームは、米航空宇宙局（NASA）の観測ロケット「LAMP」の打ち上げを実施し、オーロラが明滅する場所で電子や光、磁場を観測することに成功した。この観測実験にはほかに、米国側としてNASA、ニューハンプシャー大学、ダートマス大学、アイオワ大学の研究者や学生が参加した。

研究チームは去る3月5日午前2時27分30秒（現地時間）、米国アラスカ州のポーカーフラットリサーチ レンジにおいて、NASAの「LAMP」の打ち上げを実施。激しく変化するオーロラにロケットを命中させることは容易ではなかったとしながらも、オーロラに命中させることに成功した。

この研究の狙いは、謎に包まれている明滅する、いわゆる「脈動オーロラ」に関して、オーロラの中にロケットを打ち込んで観測することによって、その起源を明らかにすることが狙い。研究グループが提唱する明滅オーロラとともに、キラー電子と呼ばれる超高エネルギー電子が同時に大気へ降っているという仮説を検証することも目指した。

このロケット実験は2015年度から始まった科学研究費補助金基盤S「極限時間分解能観測によるオーロラ最高速変動現象の解明」等の支援を受けて、日米の国際共同研究として実施したもの。

なお、2023年には日本も参加して、スウェーデンで次世代型三次元大型大気レーダー「EISCAT-3D」が稼働を開始する。研究グループは「EISCAT-3D」の視野内に観測ロケットを打上げる「LAMP-2」の検討を進めており、宇宙からの超高エネルギー電子の降り込みが、地球の超高層大気、更には中層大気に及ぼす影響の解明を目指す。

★三井物産エアロ、ISSから初の6U超小型衛星放出
原田精機・アドニクス・九工大開発の「KITSUNE」

三井物産エアロスペースは3月25日、国際宇宙ステーション（ISS）日本実験棟「きぼう」における超小型衛星放出事業として初めて、6Uサイズの超小型衛星を放出することに成功したことを発表した。ちなみに三井物産エアロスペースは、宇宙航空研究開発機構（JAXA）から同事業を受託している。

ISS「きぼう」より初めて6Uサイズの超小型衛星を放出に成功（提供：三井物産エアロスペース）

通常、1Uサイズの超小型衛星は1辺が10センチのサイズの衛星で、今回初めて放出することに成功した6Uサイズの超小型衛星とは、10センチ×20センチ×30センチの直方体の超小型衛星だ。

三井物産エアロスペースによれば、初のワイド6Uサイズの超小型衛星放出は、3月24日21時10分（日本時間）に行われたとのこと。衛星は原田精機（静岡県浜松市）、アドニクス（東京都八王子市）、そして九州工業大学の3者によるコンソーシアム「HAKコンソーシアム」が開発・製造したもので、「KITSUNE」衛星と命名されている。

三井物産エアロスペースが支援してJAXA安全審査を承認後に引き渡され、2月20日に米国から打上られた「Antares」ロケットによって、「きぼう」に運ばれていた。「KITSUNE」は今後、地球観測用カメラによる分解能5メートルクラスの画像撮影のほか、LORA通信モジュールのデモンストレーションやC-band通信機による高速通信など複数の実証を行う予定だ。

【防衛関連ニュース】

★陸自、電子作戦隊を朝霞駐屯地に新編
11番目の陸上総隊隷下部隊、電子戦体制強化

陸上自衛隊は3月28日、朝霞駐屯地において電子作戦隊の新編行事を執り行った。電子作戦隊は、ネットワーク電子戦システム（NEWS）の配備に伴い、電子戦部隊を増強して陸上自衛隊の電子戦機能を強化することを目的に新編した11番目の陸上総隊隷下部隊であり、3月17日付で発足したところ。

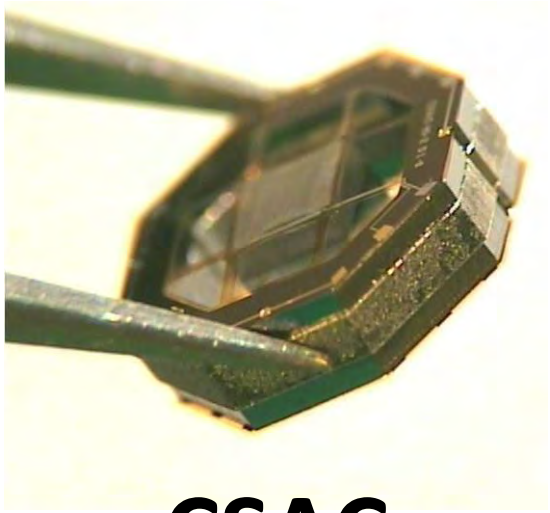
電子作戦隊は、隊本部がある朝霞駐屯地のほか、全国各

WING DAILY 03月29（火） 第4911号

WING DAILY

Original:
http://wingnews.net/w-daily/w-pdf/2022/2203/mar29787/wd.pdf

17. Some of the scientific payloads of Kyutech satellites



CSAC

https://www.c4isrnet.com/resizer/Jtoih1vq0DjLzz8ce4tbzUKDnJg=/1024x0/filters:format(jpg):quality(70)/arc-anglerfish-arc2-prod-mco.s3.amazonaws.com/public/EM6EM7MII5HOLDUTRXDELV6DTI.jpg

Kyutech satellites have performed these scientific measurements:

- Measurement of Total Electron Content by measurement of time delay of UHF ranging signal based on Chip-Scale-Atomic-Clock (CSAC)
- Measurement of Total Ionization Dose and Single Event Latch-up in ISS orbit
- Measurement of precipitating electrons

See the next page for an illustration.

Measurement of Total Electron Content by measurement of time delay of UHF ranging signal based on Chip-Scale-Atomic-Clock

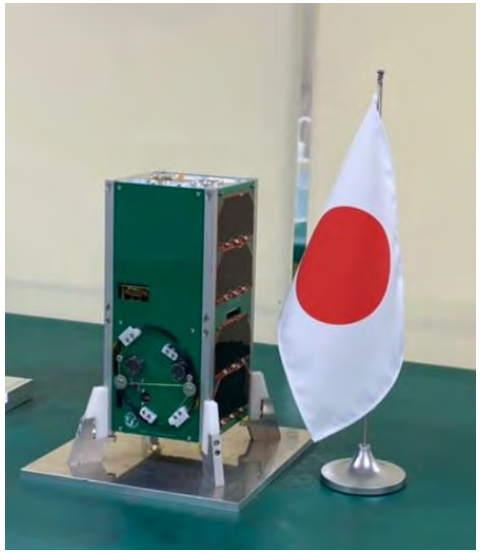
SPATIUM-I
(2018.10.6 - 2021.9.23)

SPATIUM-II (KITSUNE)
(2022.3.24 -)

Measurement of Total Ionization Dose and Single Event Latch-up in ISS orbit

BIRDS-4
(2021.3.14 -)

Measurement of precipitating electrons

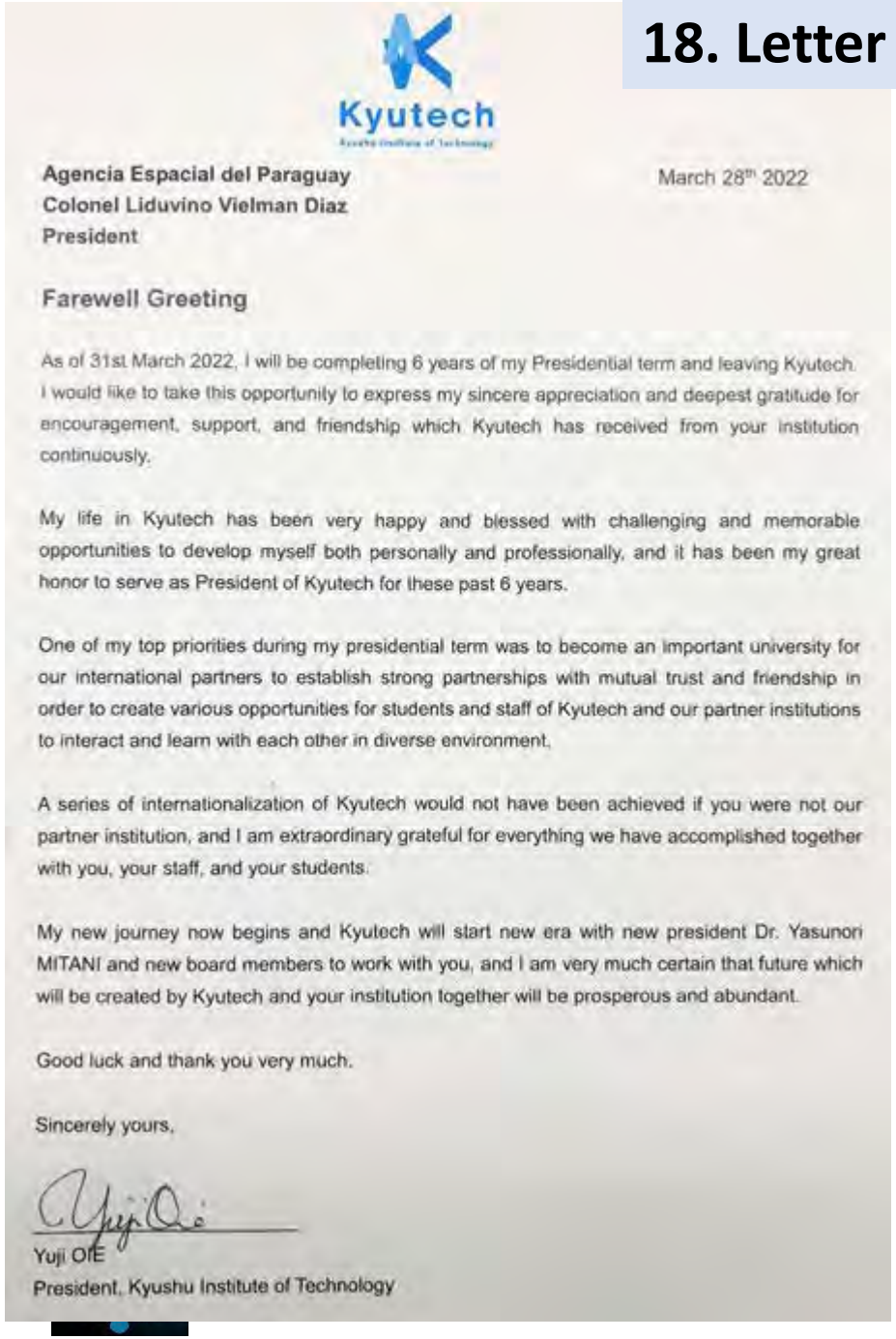


Taka (BIRDS-5)
(2022 summer)

Kyushu Institute of Technology (Kyutech) in collaboration with Nanyang Technological University (Singapore)

JAXA/ISAS in collaboration with Kyutech

18. Letter from President Oie to the President of AEP (Paraguay)



Kyutech

Agencia Espacial del Paraguay
Colonel Liduvino Vielman Diaz
President

March 28th 2022

Farewell Greeting

As of 31st March 2022, I will be completing 6 years of my Presidential term and leaving Kyutech. I would like to take this opportunity to express my sincere appreciation and deepest gratitude for encouragement, support, and friendship which Kyutech has received from your institution continuously.

My life in Kyutech has been very happy and blessed with challenging and memorable opportunities to develop myself both personally and professionally, and it has been my great honor to serve as President of Kyutech for these past 6 years.

One of my top priorities during my presidential term was to become an important university for our international partners to establish strong partnerships with mutual trust and friendship in order to create various opportunities for students and staff of Kyutech and our partner institutions to interact and learn with each other in diverse environment.

A series of internationalization of Kyutech would not have been achieved if you were not our partner institution, and I am extraordinary grateful for everything we have accomplished together with you, your staff, and your students.

My new journey now begins and Kyutech will start new era with new president Dr. Yasunori MITANI and new board members to work with you, and I am very much certain that future which will be created by Kyutech and your institution together will be prosperous and abundant.

Good luck and thank you very much.

Sincerely yours,

Yuji OIE
President, Kyushu Institute of Technology

As Prof Oie steps down as Kyutech President, he writes a farewell message to Colonel Vielman, who is the President of AEP.
AEP was the Paraguay partner of BIRDS-4.

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

19. The next issue of the BIRDS Project Newsletter will be the final one

The project logo (above) was designed by Ernest Teye Matey, student from Ghana.

BIRDS Project Newsletter

Issue No. 1 (January 2016)

Edited by:
G. Maeda, Tejumola Taiwo, M. Cho,
Laboratory of Spacecraft Environment Interaction Engineering (LaSEINE),
Kyushu Institute of Technology,
Kitakyushu, Japan.

[ABOVE] This was the first issue of the ***BIRDS Project Newsletter***. It was issued on a cold day in January of 2016. The issue you are reading today is Issue No. 74.

The next issue is Issue No. 75. It is the final issue as the ***BIRDS Program*** (BIRDS Projects One through Five) is winding down, and G. Maeda retires from Kyutech at the end of April.

If you wish to leave a message in the next issue, please send it to me before 10th April and it will appear in a special message section.

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Seventy-Four

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.