According to Bryce Space & Technology Co., among academic operators, Kyutech is No. 1 in 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.*

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BIRDS Project Newsletter

Issue No. 39
(26 April 2019)

Edited by:
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Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

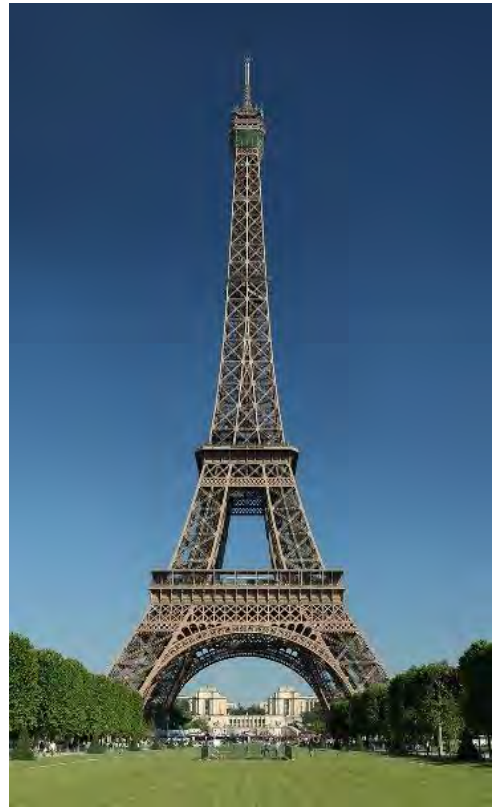
Space Engineering International Course

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 France **The Guest Box**



Explained on the next page

(Image Source: https://commons.wikimedia.org/wiki/File:Tour_Eiffel_Wikimedia_Commons.jpg)

Table of Sections [continued]

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.

The Eiffel tower was built from 1887 to 1889 for the 1889 World's Fair. It is named after the engineer Gustave Eiffel, whose company designed and built the tower. It received a lot of protestation from artist during its construction as they were afraid that it would be an ugly sight in the middle of Paris. Despite the protestation, the construction was still carried out and the success of the Eiffel Tower managed to sway most of the protesters.

It has now become one of France's global cultural icon and one of the most recognized structures in the world. It is also used as a radio and television transmitters and is illuminated every night according to the recent actuality. For example, it was recently illuminated with the color of the Japanese flag during a recent event that was promoting Japanese culture in France. More than 300 million visitors have already climbed the tower as of today, it is the fifth most visited monument in the region of Paris.

--LEONG Timothy Ivan, BIRDS 4 member

01. Amelia Earhart Fellowship

If you miss the dead line, just apply next year – and prepare for it.

According to Women in Aerospace, in 2010, roughly 10 percent of the aerospace industry was made up of women. While the number has slowly increased, there must be reinforcements behind each step forward. To assist the future of women in this field and other aerospace-related sciences and engineering, Zonta International established the Amelia Earhart Fellowship in 1938 in honor of legendary pilot and Zontian, Amelia Earhart. Today, the Fellowship of US$10,000 is awarded annually to up to 30 talented women, pursuing Ph.D./doctoral degrees in aerospace-related sciences or aerospace-related engineering around the globe.

Women of any nationality pursuing a Ph.D./doctoral degree, who demonstrate a superior academic record in the field of aerospace-related sciences or aerospace-related engineering, are eligible and encouraged to apply. For a full list of the eligibility and application requirements, please refer to the application.

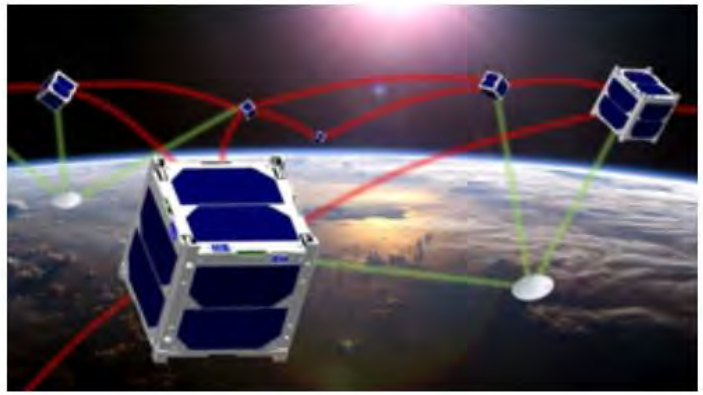
Since the program's inception in 1938, Zonta has awarded 1,573 Amelia Earhart Fellowships, totaling more than US$10 million, to 1,144 women representing 73 countries.

https://www.zonta.org/Global-Impact/Education/Amelia-Earhart-Fellowship

02. 12th Pico- and Nano-Satellite Workshop on “Technologies for Small Satellite Research"

12th Pico- and Nano-Satellite Workshop on "Technologies for Small Satellite Research"

September 12-13 2019, Würzburg, Germany



Deadlines

Abstract submission:	15.07.2019
Notification of acceptance:	31.07.2019
Registration Closure:	07.08.2019

Advances in applying miniaturization technology to satellites offer interesting potential for innovative missions with small satellites. The annual “Pico and Nano satellite workshop” is intended as a platform for knowledge exchange between researchers from all fields of small satellite development. In continuation of the past pico- and nano-satellite workshops, the scope of the workshop is focused on

- Small satellite missions
- Distributed small satellite systems
- Subsystem technologies for small satellites
- Payloads for small satellites
- Applications
- Educational aspects

Keeping with the tradition of continued and competitive research activities in the field of small satellites, the 10th workshop on pico- and nano-satellites will be hosted once again at Wuerzburg University. We are looking forward to welcome participants and lecturers from Germany, Europe and overseas.

http://www7.informatik.uni-wuerzburg.de/conferences/pina2019/

03. Kyutech will celebrate its 110th anniversary this May

柴田教授のひびきの放送局
Prof. Shibata's Hibikino Station
九州工業大学大学院生命体工学研究科の柴田智広教授の公式ブログです．2019-04-02

九工大は5月に110周年を迎えます
Kyutech will celebrate its 110th anniversary this May.

Kyutech 九工大は国立大学ですが、その前身である明治専門学校は、1909年に、安川敬一郎氏が私財を投じて創った私学でした。1921年に、4年生国立大学となりました。
Kyushu Institute of Technology (Kyutech) is a national university. Its predecessor, Meiji College of Technology, was a private school that was founded in 1909 by Keiichiro Yasukawa's private wealth. In 1921 it became a national university.

http://tom-shibata.hatenablog.com/entry/2019/04/02/095104

04. Kyutech Graduation Day, March 25th 2019

--- photos and text by Pooja Lepcha (Bhutan)

Cho Lab's beautiful graduates

They looked very beautiful in their traditional dresses

Cho Lab's Girl Gang

Graduation Day, March 25th 2019

The handsome graduates

Yamaguchi with Makiko and Aekjira

Kiran and Makiko pose for a picture

Graduation Day, March 25th 2019

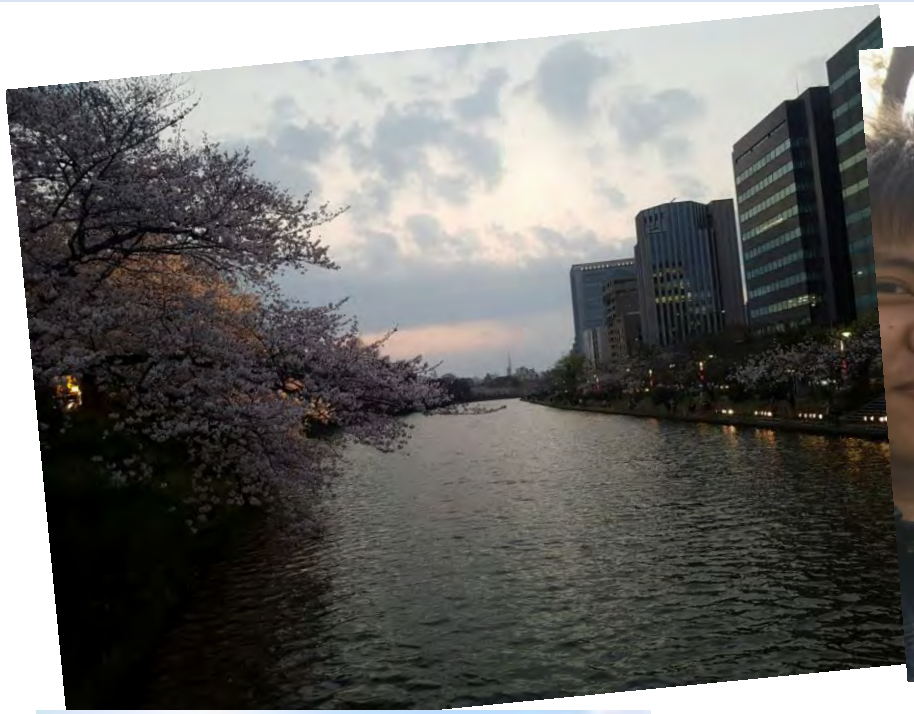
3 members from Bhutan team of BIRDS-2 Project graduates; Kiran, Yeshey and Cheki (from the left)

The Bhutanese family in Kyutech

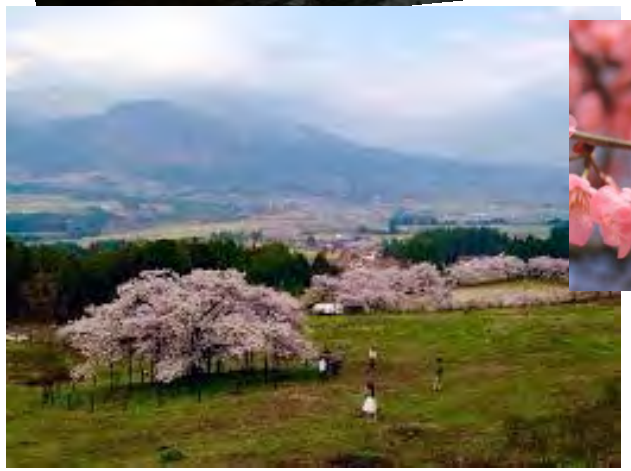
Graduation Day, March 25th 2019

Congratulations to all the graduates!!

05. Hanami in the Japanese way



Weekend of 30 March 2019
at Ohori Park in Fukuoka City
– students and staff



Kannon sakura
(Minami Aso Mura,南阿蘇村, Kumamoto Pref., Kyushu)
https://en.wikipedia.org/wiki/Minamiaso,_Kumamoto

OLAYINKA'S WORLD

COLUMN NO 9

OLAYINKA FAGBEMIRO
NATIONAL SPACE RESEARCH & DEVELOPMENT AGENCY(NASRDA), ABUJA. NIGERIA
PRINCIPAL SCIENTIFIC OFFICER, HEAD, SPACE EDUCATION UNIT

AFRICA PLAY CONFERENCE 2019-THE IMPORTANCE OF PLAY-BASED LEARNING

The Africa Play Conference, the first of its kind in Africa, which held between 25 – 27 February at the Maslow in Pretoria, South Africa explored how learning through play could improve the quality of early childhood development and become an integral part of education systems.

Set in a playful atmosphere, the conference brought together 400 thought leaders, educators, policy makers and researchers from around the world to discuss, share insights and inspire new ideas and ways of learning that would equip children all over Africa to become creative, engaged, lifelong learners.

The conference was a joint collaboration among UNICEF, LEGO Foundation, Association for the Development of Education in Africa (ADEA) and the South African Ministry of Basic Education.

Continued in the next column

Various speakers from across the globe spoke extensively on the need for educators in Africa to begin to inculcate play into teaching subjects such as STEM, so young kids can develop interest in those subjects and learn as they play.

The South African Minister of Basic Education, Angie Motshekga, encouraged the African participants to ensure the knowledge acquired during the 3-day workshop translates to better teaching methods upon their return to their various home countries.

In all, the 3-day conference exposed the participants to different ways in which play can help kids learn better and faster. There were a lot of hands-on activities, where the participants had the privilege of undergoing practical learning sessions.

South African Minister of Basic Education, Angie Motshekga and National Coordinator, AWB Nigeria, Olayinka Fagbemiro

The LEGO team taking participants through some basic Coding

Some female participants at the conference

07. Cygnus supply ship – for the delivery of the BIRDS-3 satellites to the ISS

BIRDS-3 satellites are scheduled to go up to the ISS in a Cygnus supply ship, which is shown at the left.

Northrop Grumman's next Antares launch with a Cygnus supply ship to the International Space Station is scheduled April 17 from Virginia's Eastern Shore.

https://spaceflightnow.com/2019/02/08/cygnus-ng10-departure/

Northrop Grumman names spaceship for fallen Apollo 1 astronaut

March 25, 2019 — Northrop Grumman has named its next space station resupply ship after an astronaut who died in NASA's pursuit of the first moon landing.

The "S.S. Roger Chaffee," Northrop Grumman's next Cygnus spacecraft to launch to the International Space Station, is christened in honor of the Apollo 1 astronaut, company officials announced on Monday (March 25).

"This is the 50th anniversary year of us landing people on the moon on the Apollo 11 mission and when we think of that mission, we think of the thousands of people who sacrificed so much to make that program a success," said Frank DeMauro, the vice president and general manager for space systems at Northrop Grumman, during a Facebook Live broadcast. "But there are three people who paid the ultimate sacrifice for the advancement of moving humans to the moon and they are Ed White, Gus Grissom and Roger Chaffee, the three Apollo 1 astronauts who tragically perished in a fire during a pad test."

"Lt. Commander Chaffee never got to fly in space unlike his crew members, yet he was such an inspiration to so many people who followed him in the astronaut corps. And so all of us here at Northrop Grumman, and certainly on the Cygnus program, are honored to name this spacecraft the 'S.S. Roger Chaffee,'" DeMauro said from inside the Cygnus Mission Operations Center in Dulles, Virginia.

The S.S. Roger Chaffee is scheduled to lift off atop a Northrop Grumman Antares 230 rocket from the Mid-Atlantic Regional Spaceport (MARS) at NASA's Wallops Flight Facility in Virginia on April 17. The uncrewed

http://www.collectspace.com/news/news-032519a-northrop-grumman-ng11-roger-chaffee.html

08. BIRDS-3 was launched

Web news: https://www.space.com/antares-rocket-cygnus-ng-11-cargo-launch-success.html

Antares Rocket Launches Cygnus Cargo Ship on Marathon Mission for NASA

WALLOPS ISLAND, Va. — An Antares rocket soared into the afternoon sky over Virginia on Wednesday (April 17) carrying tons of NASA supplies — and 40 intrepid mice — to the International Space Station.

BIRDS-3 Satellite Launch Viewing, April 18, 2019

By Abhas, BIRDS-3

BIRDS-3 Launch Viewing Event was held at Seminar Room on April 18, 2019. Light refreshments were served for people attending. The event began at 5:30 AM and went on for about an hour.

BIRDS-4 team came to show their support. The excitement was palpable. Everything went as planned and BIRDS-3 satellites have now reached ISS. They await deployment which could be in June, 2019

https://www.facebook.com/BIRDS3satellite/photos/a.1794949164142929/2053190341652142/?type=3&theater


HOZAN
JAPAN
NEPAL
SRI LANKA

← This *Tweet* was issued by the prime minister of Nepal after the satellite was lifted into space by the Antares rocket.

Nepal launches its first satellite NepaliSat-1 from US

Developed by the Nepalese scientists, NepaliSat-1 satellite was launched at 2:31 am (Nepal time) from Virginia in United States

PTI Last Updated: April 18, 2019 | 15:01 IST

Nepal Thursday successfully launched its first satellite into space from the US to gather detailed geographical information of the Himalayan nation, evoking unbridled excitement among the people and scientists.

Developed by the Nepalese scientists, NepaliSat-1 satellite was launched at 2:31 am (Nepal time) from Virginia in United States, according to Nepal Academy of Science and Technology (NAST).

Two Nepali scientists, Aabhas Maskey and Hariram Shrestha who are currently studying at Japanese Kyushu Institute of Technology, developed the satellite under the BIRDS project of their institute.

Prime Minister K P Sharma Oli congratulated all the scientists and institutions involved in the development of the satellite. He said it was a matter of prestige for the country to have its own satellite.

"Though a humble beginning, with the launching of NepaliSat-1 Nepal has entered the Space-Era. I wish to congratulate all those scientists and institutions that were involved right from the development to its launching thereby enhancing the prestige of our country," he said in a tweet.

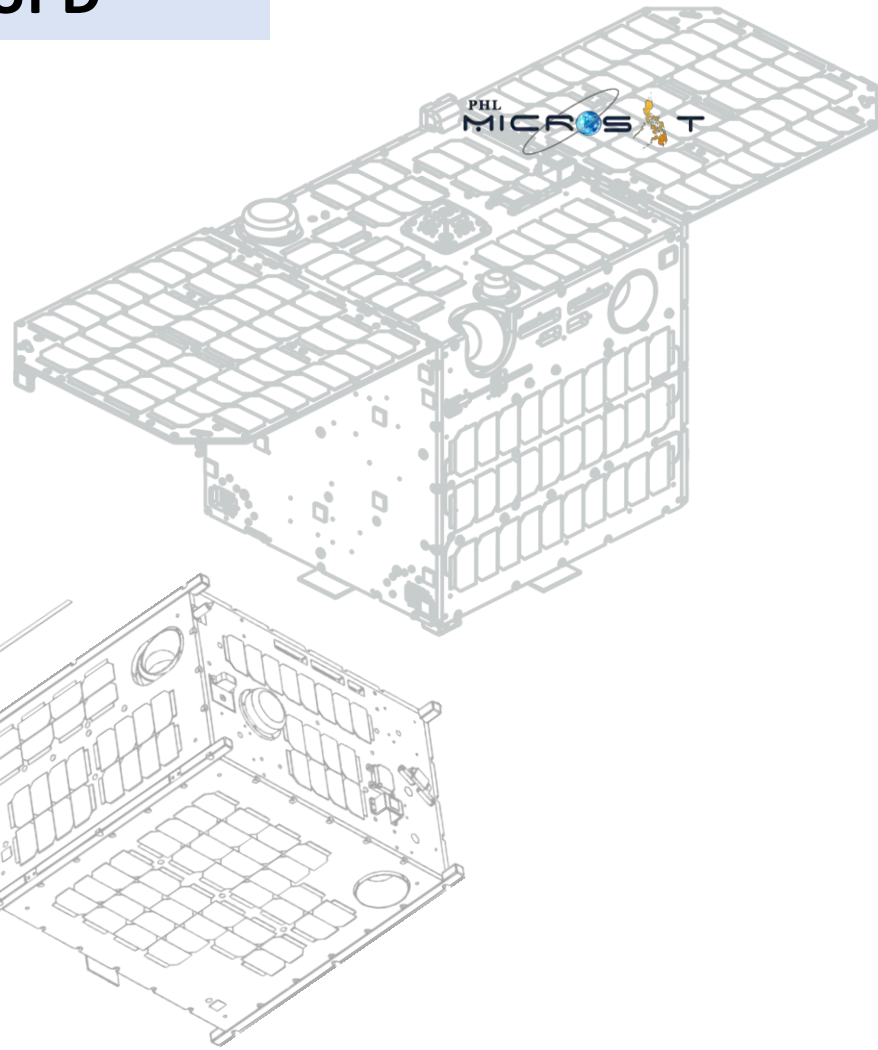
Spokesperson for NAST Suresh Kumar Dhungel said they invested in the satellite in a bid to open new paths for space engineering in the country.

He said with the help of NepaliSat-1, ground station located at NAST office will communicate and gather images of the geographical area of the country.

NepaliSat-1 is a low orbit satellite which will be in the 400-km distance from the Earth's surface. It will be stationed at the International Space Station for a month and then it will be sent to orbit the earth, according to NAST.

Full article: https://www.businesstoday.in/current/world/nepal-launches-its-first-satellite-nepalisat-1-from-us/story/338295.html

UPDATES FROM THE PHILIPPINES



April 15, 2019

University of the Philippines-Diliman
Quezon City, Philippines

PREPARED BY:

Mae Ericka Jean C. Picar
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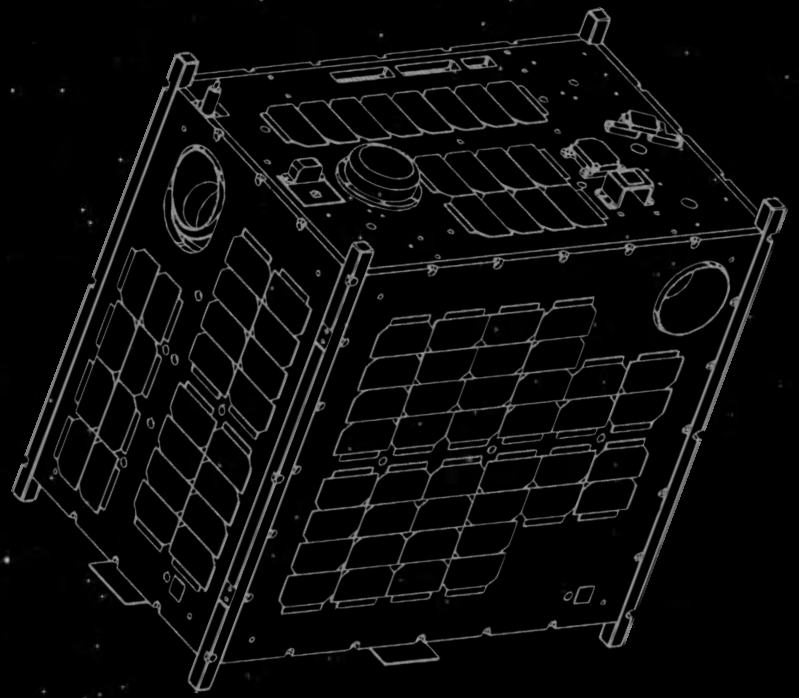
STAMINA4Space Project Manager, STeP-UP Project
Contributing Writer and Editor

Diwata-1 is 3 !

March 23, 2019

Diwata-1 turned 3 on this day! On March 23, 2016, the 50 kg microsatellite was launched to space via Atlas V rocket from the Kennedy Space Center in Cape Canaveral, Florida.



More important than its status as the **Philippines' first microsatellite is the** momentum it created - one which the STAMINA4Space Program and collaborators intend to continue.

Diwata-1 Marks its 3rd Year in Orbit

Outliving its expected 18-month lifespan, Diwata-1 still continues to orbit the Earth, capturing images using its optical payloads along the way. It has since captured over 36,000 images around the world and over 21,000 images of the Philippines that may be used for environmental assessment.

It was released to space from the International Space Station on April 27, 2016. This year marks its 3rd year in orbit.

Mind Museum Exhibit Launch

The Philippines Goes to Space !

28 March 2019

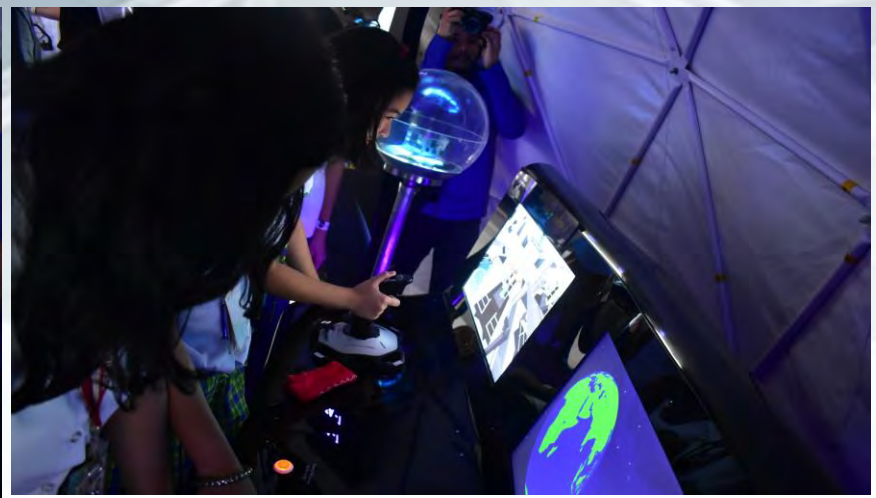
The Mind Museum, together with the Department of Science and Technology (DOST), launched new interactive exhibits at The Mind Museum in Taguig City, Metro Manila. It showcases the Philippines' flagship initiatives in space research and development.

The exhibits were designed and created by The Mind Museum, with support from DOST-PCIEERD, DOST-ASTI, UPD, and the Development Scientific Earth Observation Microsatellite (PHL-Microsat) Program which is succeeded by the Space Technology and Applications Mastery, Innovation, and Advancement (STAMINA4Space) Program.

In photo : Mind Museum Team, STAMINA4Space/PHL-Microsat Program Team and DOST-PCIEERD Representatives

Visit The Mind Museum website for more details: https://www.themindmuseum.org/

Mind Museum Exhibit Launch



Space Adventure

"The Philippines Goes To Space"

28 March 2019

The Space Adventure is a travelling exhibition by The Mind Museum. It is planned to go around the Philippines for two years.

A segment of the exhibit named "The Philippines Goes to Space" is allotted for the exhibition of the Philippines' small satellites-- Diwata-1, Diwata-2 and Maya-1.

Maglev displays of the 3 Philippine small satellites, three games and informative videos are part of this exhibition.

In photos : Visitors and STAMINA4Space Program Team members during the launch of the Exhibit in Space Adventure

Mind Museum Exhibit Launch

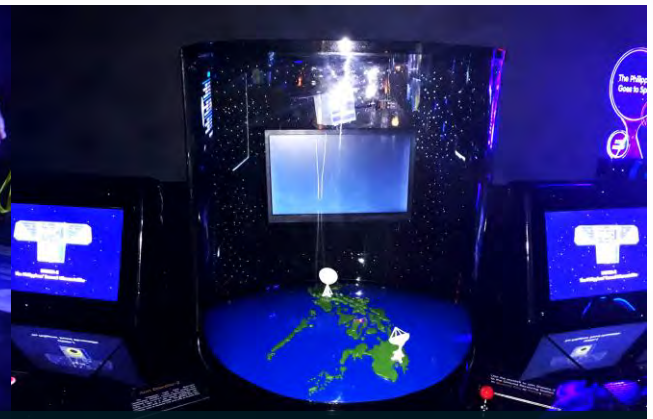
KINDS OF SATELLITES

LAUNCHING GAME

VIRTUAL REALITY

UNIVERSE GALLERY EXHIBIT

COLLECTING SPACE JUNK GAME



GRS AIMING GAME

Universe Gallery

28 March 2019

"The Philippines Goes To Space" exhibition is now a part of the Universe Gallery. The Universe Gallery is a permanent exhibition inside The Mind Museum that focuses on Space Science and celebrates the accomplishments of Philippines in the field of Space Technology.

The exhibits include interactive games and virtual reality experiences that showcase the purpose and function of the Earth-observing Philippine satellites Diwata-1, Maya-1 and Diwata-2.

Women's Month Feature: STeP-UP Scholars

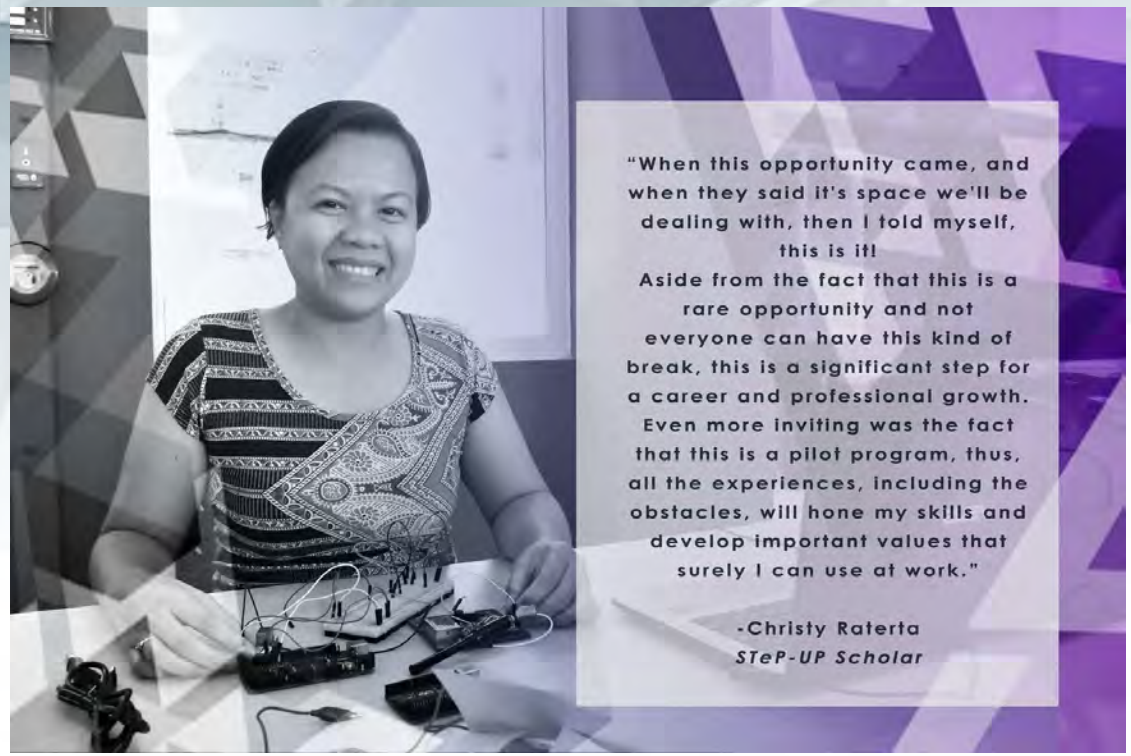
Women of the Future

Out of the 8 scholars in the Master of Science (MS) and Master of Engineering (MEng) in Electrical Engineering - nanosatellite engineering track under the our Space Science and Technology Proliferation through University Partnerships (STeP-UP) Project, 4 of them are women. Read more about what each of them had to say when we quickly sat down and talked to them about what drives them, the challenges they face as women in the STEM field, and why they took the leap to apply for the pioneering batch slated to develop 1U cube satellites (CubeSats) under this project.

Read more about the program here: https://bit.ly/2Etv4Wr

In photos (from left to right) : Lorilyn Dacquioag, Gladys Bajaro, Christy Raterta, Marielle Magbanua-Gregorio

Women's Month Feature: STeP-UP Scholars



Christy Raterta

Information and Communication Technology Center, Philippine Navy

Gladys Bajaro

Science Research Specialist, STeP-UP Project, STAMINA4Space Program

Women's Month Feature: STeP-UP Scholars

Lorilyn Daquioag

Project Manager (SPMC),
Segworks Technologies Corporation

Marielle Magbanua-Gregorio

Naval Research and Technology Development Center,
Naval Sea Systems Command, Philippine Navy

Women's Month Feature: Dr. Maricor Soriano

Dr. Maricor N. Soriano, who is the Project Leader of the STAMINA4Space Program's Optical Payload Technology, In-Depth Knowledge Acquisition and Localization (OPTIKAL) Project. OPTIKAL is responsible for the satellites' mission design and development of scientific and operational optical payloads. She is a recipient of the Third World Academy of Science (TWAS) and Most Outstanding Young Scientist in the Philippines (2009), and Outstanding Young Scientist (2006). She is also the Former Deputy Director for Academic Affairs at the National Institute of Physics (NIP) and Former President of the Samahang Pisika ng Pilipinas (SPP). Her research interests are Color, Video and Image Processing applied to Marine Science, Art Conservation, Biometrics and Spectral and Medical Imaging, and Physics Education.

"More women scientists need to be featured in media so that young girls will have role models in STEM."

She adds that for her, the most fulfilling and exciting part of her work is "finding problems with direct impact to people that can be solved by physics".

STeP-UP visit to USC

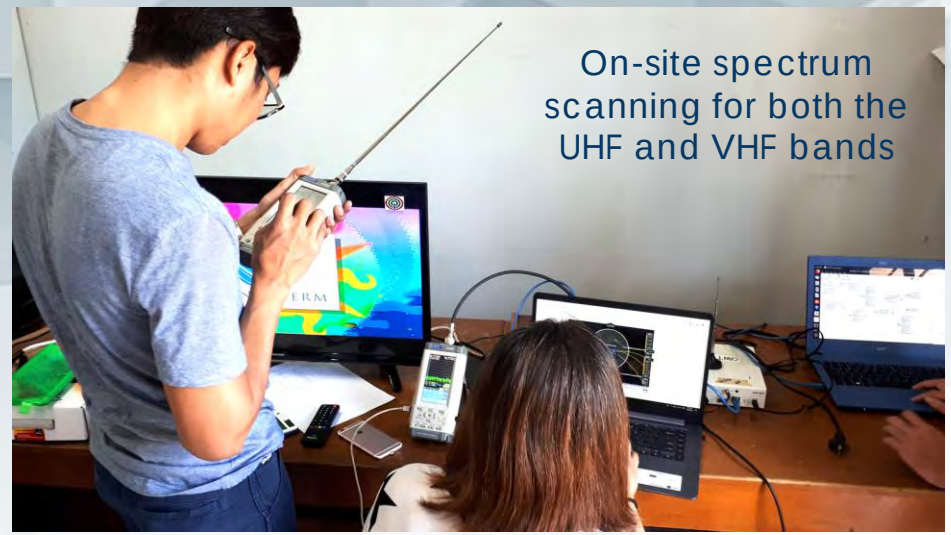
STeP-UP goes to the Visayas

3-4 April 2019

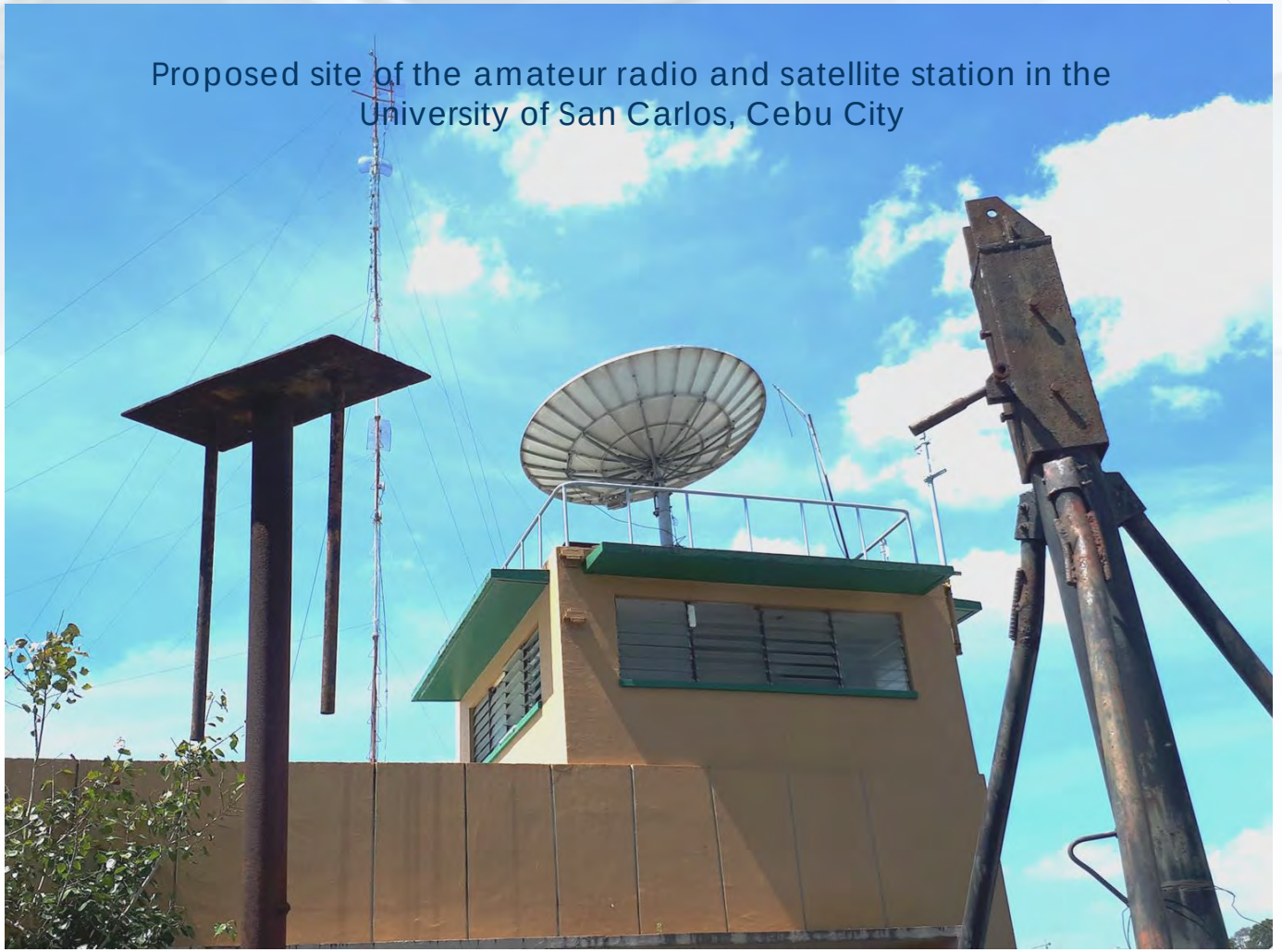
Members of the Space Science and Technology Proliferation through University Partnerships (STeP-UP) Team visited the University of San Carlos (USC) in Cebu City. The visit included a meeting on the establishment of the proposed university consortium, where the overview of the STAMINA4Space Program, with focus on the STeP-UP Project, and the activities were presented. The visit also included a site survey on where the amateur radio and satellite station will be housed and a tour of the laboratories and facilities at the Department of Electrical and Electronics Engineering.

*In photo : Participants during the meeting with STeP-**UP Team's visit at USC***

STeP-UP visit to USC



On-site spectrum scanning for both the UHF and VHF bands



Proposed site of the amateur radio and satellite station in the University of San Carlos, Cebu City

10. BIRDS-3 team visits Izumo

By: Tharindu Dayarathna,
BIRDS-3, Sri Lanka

BIRDS-3 Team Izumo Tour

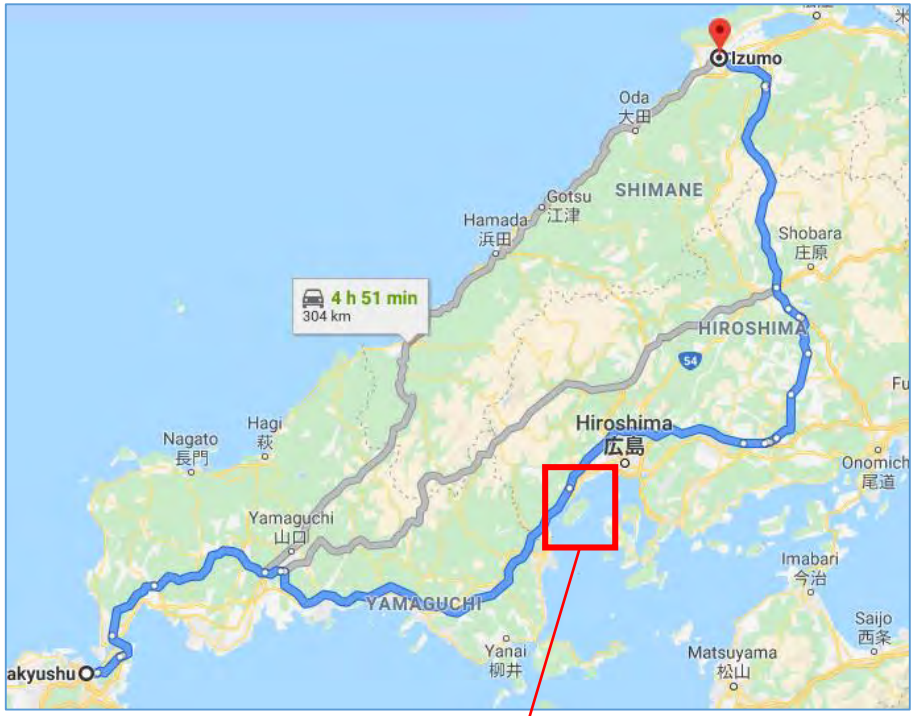
March 12-14, 2019

Day-1

Why we went to Izumo ?

After successfully delivering the BIRDS-3 satellites to JAXA we wanted celebrate it. Actually we wanted some rest after the project

We started the journey from Kyutech at 9.00 am (March 12). Kakimoto was our car driver. After having breakfast in the car we decided to visit Miyajima Island.



Miygima Island

Miyjima, also known as Itsukushima , is a small island in Hiroshima Bay, western Japan. It is known for its forests and ancient temples. Just offshore, the giant, orange Great Torii Gate is partially submerged at high tide. It marks the entrance to the Itsukushima Shrine, which was first built in the 12th century. It is also called as island of gods. But I like to say, Miyajima is an island of deers.

Video:

https://www.youtube.com/watch?v=5B62vhTp1ZE

Miyajima Island (Day 1)

We used ferry service to Miyajima island

Every one wanted to take photos with Great Torii Gate.

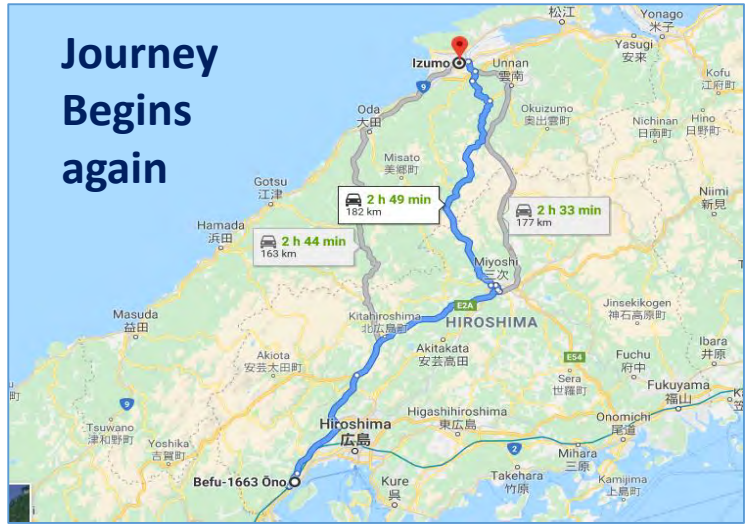
The giant, orange Great Torii Gate.
It was partially submerged
because of high tide

This is the reason to call Miyajima
island as island of deers

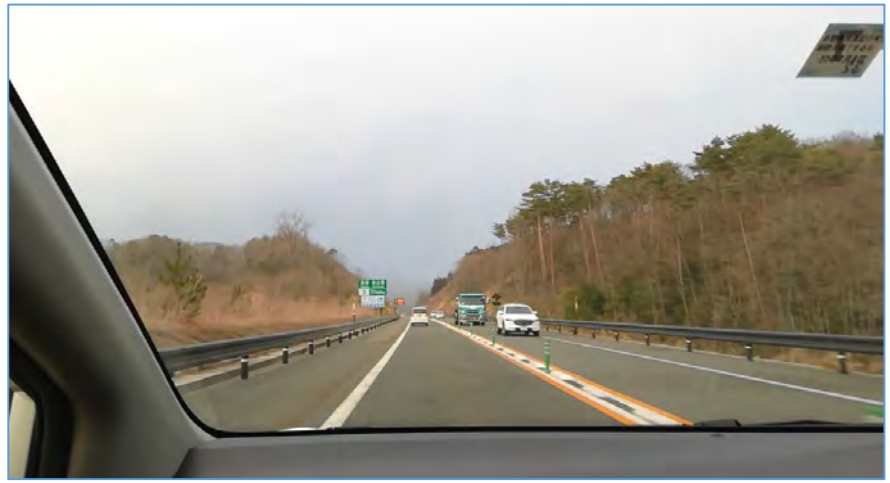
Miyajima to Izumo (Day 1)

After having lunch in Miyajima island we started our journey to Izumo again. (Lunch was very tasty because of that I forgot to take a photo. For the lunch we had famous Miyajima oysters and eel)

The last photo I took.
I felt, I want to come back to this place again.



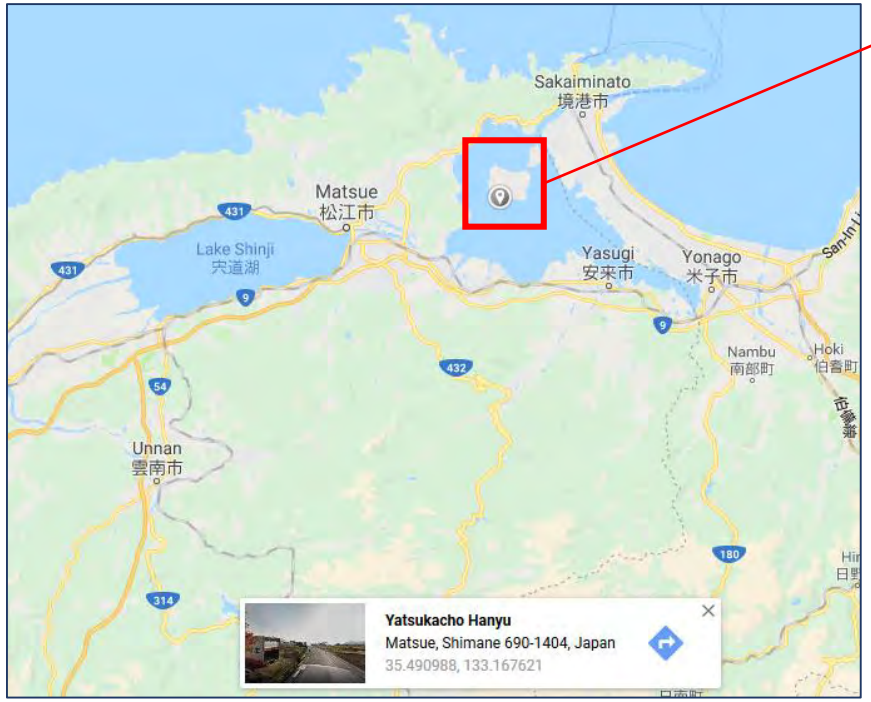
We reached Izumo at 8.00pm. It was a long journey for our driver (Thank you kakimoto).

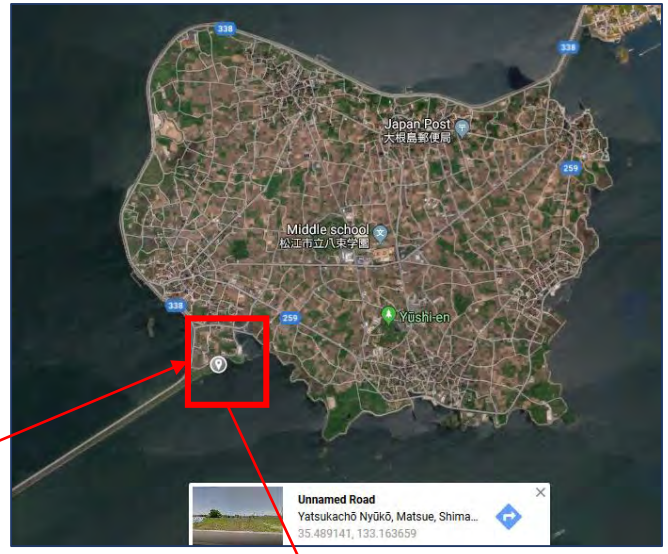


On the way to Izumo.

Izumo (Day 1-Night)

After very long journey from Kyutech to Izumo every one were very tired. But we watched a movie (movie name: X-Men Origins: Wolverine). My recommendation was a horror movie but no one wanted to watch a horror movie.





The place we stayed was a small lake House in a small island. Because of we reached the place at night we did not see outside properly.

The Lake house

Day-2

Morning view from lake house

While, Abhas was preparing the breakfirst

Our Breakfast

After having the breakfast we decided to go around the island and rest in the lake house in the evening. But kakimoto was saying about a bridge. Because of that I checked it in the google map. Oh my god, that is what I said. It was the famous '*Eshima Ohashi Bridge*' 5km from our place. This bridge is very special for me. In 2006 (I was 15 years old) I watched documentary about this bridge in discovery channel. At that time, I thought, some day if I go to japan I want to see this bridge. But with time I had forgotten it. But somehow we had gone near the bridge. It was like dream come true for me. Then I explained about the bridge and showed some videos in youtube, after that everyone wanted to see the bridge.

Eshima Ohashi Bridge Visit (Day 2)

Photos of the bridge

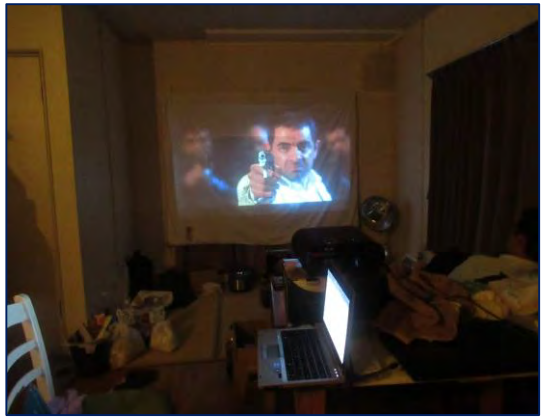
And they took photos with the bridge. I saw Makiko was more excited than me after seeing the bridge.

Everyone wanted to go through the bridge so we went to other side and came back again. For more details visit https://www.youtube.com/watch?v=5qGQOntvzXo
And Click here to see our ride

Day 2 Evening

From the lake house with clear weather we saw a mountain looks like mount fuji. It is called as Mt. Daisen (Izumo fuji)

This is how Kakimoto and Pooja enjoyed the evening



After having the dinner We had a movie night. We watched Mr. Bean's movie Johnny English. Again no horror movie because of Makiko and Pooja.

While Abhas was enjoying the view

Day 3 (Izumo Taisha Shrine Visit)

In the final day we visited Izumo Taisha Shrine. The shrine is one of the most ancient and important Shinto shrines in Japan. Located in Izumo, Shimane Prefecture, it is home to two major festivals. It is dedicated to the god Ōkuninushi. The shrine is believed by many to be the oldest Shinto shrine in Japan.

The Kaguraden with large shimenawa

Shrine was very interesting, we took lot of photos around the shrine. After that we directly headed to Kyutech. While we were coming, we were discussing about the tour and we realized, this tour can be last tour of all BIRDS-3 members together (some members are going to graduate in September). But we have some memories for the future and these photos will refresh our memories.

End of Izumo Trip Report

11. LaSEINE written up in Kyutech document

The entire 24-page document can be downloaded
http://www.ccr.kyutech.ac.jp/themes/innovation/information/files/cube.pdf


CENTER 01
宇宙環境技術ラボラトリー
施設長(併)工学研究院 趙 孟佑 教授

宇宙に耐えるモノづくり
ー超小型衛星ー

Mission

人工衛星を宇宙で使うためには、地球上では考えられない難しさを克服しないといけません。例えば極端な温度差や紫外線・放射線の影響、スペースデブリ等への対策をしないといけません。ラボラトリーでは、外部機関からの依頼に応じて宇宙システムの開発・設計・製作に必要な環境試験を実施しつつ、広範囲な産学連携研究を進めています。

- 超小型衛星による宇宙実証・実験
  超小型衛星を利用して、衛星帯電、プラズマ計測、宇宙推進、環境計測等の各種宇宙実証・実験を実施
- 超小型衛星試験の標準化に向けた取り組み
  超小型衛星の宇宙環境での動作の最低保証を認証するための仕組み作り(ISO-19683の制定活動)
- 宇宙科学研究拠点形成プログラム
  超小型衛星試験及び材料劣化評価試験が可能な設備の運用と、人材育成により宇宙科学研究に貢献
- 新興国衛星開発の支援
  国連との共同プログラムや各国との連携を通じて、非宇宙先進国からの留学生の受け入れ

DIRECTOR 施設長

趙 孟佑 教授

1985 東京大学工学部航空学科卒
1987 同大学院工学系研究科航空学専攻修士課程修了
1992 マサチューセッツ工科大学大学院博士課程修了
1998 九州工業大学工学部 講師
2004 同教授並びに宇宙環境技術研究センター、センター長
2010 宇宙環境技術ラボラトリー施設長

MEMBER 研究体制

- 赤星 保浩(工学研究院、材料力学・航空宇宙工学)
- 奥山 圭一(工学研究院、材料科学)
- 豊田 和弘(工学研究院、電子・電気材料工学)
- 岩田 稔(工学研究院、放射線・化学物質影響科学)
- 塙井 博一(工学研究院、プラズマ科学)

ACHIEVEMENTS 主な研究成果

- 軌道上太陽光発電の世界最高記録(鳳龍弐号)
- 軌道上での太陽電池劣化現象を世界で初めて計測(鳳龍四号)
- モンゴル等5カ国の初の人工衛星実現に貢献
- 2回の宇宙開発利用大賞
  (経済産業大臣賞、外務大臣賞)
- GEDC Airbus Diversity Award (2017)

PROSPECTS 今後の展望

宇宙環境技術で世界をリード!

宇宙環境技術研究の推進
- 超小型衛星を利用した挑戦的な技術実証
- 国内外産学連携による宇宙研究の推進
- 国際標準化と連携した国際共同研究プロジェクトの推進
- 超小型衛星搭載民生部品データベースの拡充
- 超小型衛星関連(ISO-19683, ISO-TS-20991)
- 衛星帯電関連(ISO-11221, ISO-19923)
- 宇宙ごみ関連(ISO-11227, ISO-14200)

留学生・研究者の受入態勢を継続

国際連携
- 国連と連携した教育プログラムの充実と留学生受け入れの拡充
- 新興国と共同でのCubeSatの開発と運用
- シンガポールとの衛星共同開発
- 海外衛星の試験やロケット搭載時の安全審査への協力
- 海外機関向けの衛星環境試験の短期開研修プログラムの実施
- インターン派遣・研究者交流

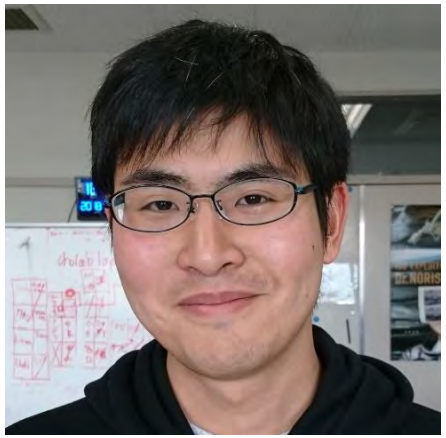
国内外大学・企業との連携強化、大学・中小企業の宇宙開発・利用への新規参入を促進

外部の試験利用
- 宇宙に衛星や衛星搭載機器の試験が実施出来る場所を外部の大学や企業に提供
- 超小型衛星の標準化に向けた試験環境の提供
- 衛星搭載機器や材料劣化の評価用試験設備の整備

04

The director is Prof. Mengu Cho

BIRDS-4 REPORTS of April



Tracking Software for the New Antenna Rotator

Daisuke Nakayama

Amateur Radio License Team, BIRDS-4

April 9, 2019

Tracking Software for New Rotator

Written By: Daisuke Nakayama

As mentioned in the last month's article, we changed new antenna and rotator, but BIRDS antenna rotator didn't work well. After that, we changed its rotator. This rotator was for SPATIUM project and it has a bigger size than BIRDS' one. This rotator is working well at the moment. I decided firstly to develop tracking software for SPATIUM which will be used for BIRDS later.

SPATIUM's new rotator is bigger than BIRDS but it's actually from the same company and same series.

LabVIEW software (left) and rotator controller (right)

BIRDS had used SatPC32 for tracking the satellite. This software can be used for tracking with new rotator but it has only 1 deg of step unit. New rotator's mechanical accuracy is 0.3 deg. We can bring out the performance with a new software.

HORYU project used its original LabVIEW software for tracking. I used its calculation part and developed command part for new rotator. After all, SPATIUM rotator moved smoothly and signal was strong and continuous.

SPATIUM Yagi antenna on rooftop: This is not for the amateur band.

13. BIRDS-4: Update on the BIRDS ground station of Nepal

BIRDS-3+4 : GS update from Nepal

Hari Ram SHRESTHA

BIRDS-3/4

April 15, 2019

BIDS notice Invitation for Ground station

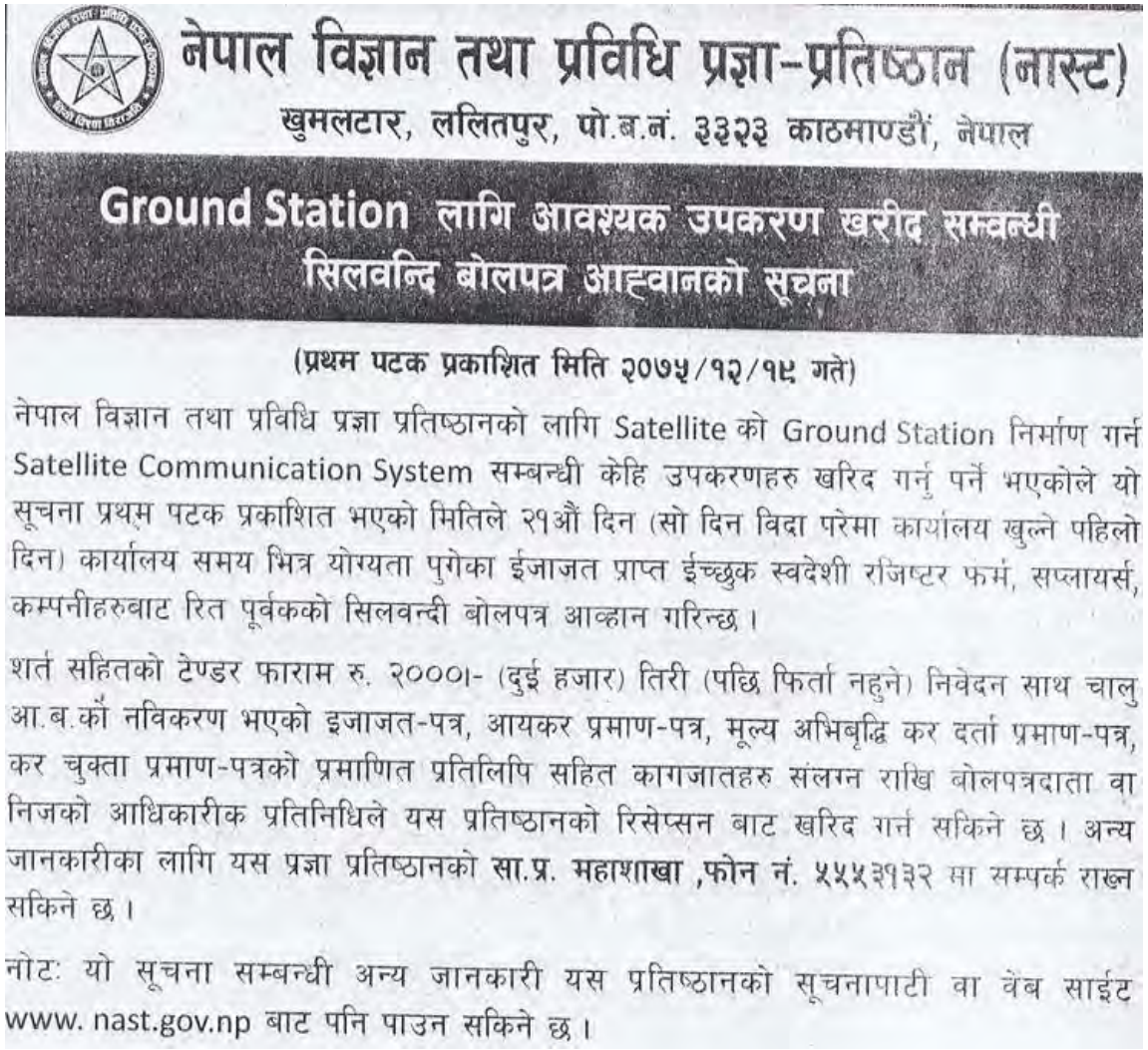
Written By : Hari Ram Shrestha

Nepal Academy of Science and Technology(NAST) has published the Bids Notice Invitation for the establishment of the Ground station for BIRDS -3 Satellite in Nepal.

The first notice was published 2nd April 2019 where some criteria must be met according to the rules of bidding. Nepalese companies , suppliers or private firms can apply for bidding.

The notice for bidding will last for 21 days to apply the sealed tender.

The said bidders must be submitted to NAST their Tax clearance, VAT clearance certificate and bank balance statement.



नेपाल विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठान (नास्ट)

खुमलटार, ललितपुर, पो.ब.नं. ३३२३ काठमाण्डौं, नेपाल

Ground Station लागि आवश्यक उपकरण खरीद सम्बन्धी सिलवन्दि बोलपत्र आह्वानको सूचना

(प्रथम पटक प्रकाशित मिति २०७५/१२/१५ गते)

नेपाल विज्ञान तथा प्रविधि प्रज्ञा प्रतिष्ठानको लागि Satellite को Ground Station निर्माण गर्न Satellite Communication System सम्बन्धी केहि उपकरणहरु खरिद गर्नु पर्ने भएकोले यो सूचना प्रथम पटक प्रकाशित भएको मितिले २१औं दिन (सो दिन विदा परेमा कार्यालय खुल्ने पहिलो दिन) कार्यालय समय भित्र योग्यता पुगेका ईजाजत प्राप्त ईच्छुक स्वदेशी रजिष्टर फर्म, सप्लायर्स, कम्पनीहरुबाट रित पूर्वकको सिलवन्दी बोलपत्र आव्हान गरिन्छ ।

शर्त सहितको टेण्डर फाराम रु. २०००।- (दुई हजार) तिरी (पछि फिर्ता नहुने) निवेदन साथ चालु आ.ब.को नविकरण भएको इजाजत-पत्र, आयकर प्रमाण-पत्र, मूल्य अभिबृद्धि कर दर्ता प्रमाण-पत्र, कर चुक्ता प्रमाण-पत्रको प्रमाणित प्रतिलिपि सहित कागजातहरु संलग्न राखि बोलपत्रदाता वा निजको आधिकारीक प्रतिनिधिले यस प्रतिष्ठानको रिसेप्सन बाट खरिद गर्न सकिने छ । अन्य जानकारीका लागि यस प्रज्ञा प्रतिष्ठानको **सा.प्र. महाशाखा ,फोन नं.** ५५५३१३२ मा सम्पर्क राख्न सकिने छ ।

नोटः यो सूचना सम्बन्धी अन्य जानकारी यस प्रतिष्ठानको सूचनापाटी वा वेब साईट www. nast.gov.np बाट पनि पाउन सकिने छ ।

News Maker : Nomination

Written By: Hari Ram Shrestha

समसामयिक

भूउपग्रह निर्माता : समाचार निर्माता २०७५

Satellite Developer: News Maker2075

आभास मास्के | हरिराम श्रेष्ठ : वैज्ञानिक

समाचार निर्माता २०७५

नेपालमा केही भएन र नेपालले केही गरेन भनेर दाम र नामका लागि योग्य युवा अस्ट्रेलिया, क्यानडालगायतका कमाउ देशमा जान दौडिइरहँदा भूउपग्रह वैज्ञानिकद्वय आभास मास्के, २९, र हरिराम श्रेष्ठ, ३२, नेपाललाई पहिलो स्याटेलाइट दिई समाजमा गतिलो उदाहरण बनेका छन् । जापानमा नेपाली आर्थिक स्रोत र जनशक्ति

ekantipur

नेपाल

राष्ट्रिय साप्ताहिक

NEPAL

अभिलेखालय

गृह पृष्ठ | समसामयिक | विचार | जीवनशैली | अर्थ | मनोरञ्जन | खेलकुद | साहित्य | ब्लग | यात्रा | थप

Kantipur Nepal (National) Weekly Magazine nominated *Hari and Abhas* as one of the Positive News Maker for Country for year 2075 BS. (April 14 2018 to April 13 2019)

Magazine wrote – NepaliSat-1 was developed under the BIRDS-3 Project in KyuTech where Nepal is part of. Hari and Abhas are Nepal's representative for the team who made the satellite.

नेपाल सरकारका तर्फबाट नेपाल विज्ञान तथा प्रविधि प्रज्ञा प्रतिष्ठान (नास्ट) र जापानको क्युसु इन्स्टिच्युट अफ टेक्नोलोजी (क्युटेक) बीच सम्झौता भई करिब १ वर्ष ६ महिनामा नेपालीस्याट-१ (बड्स-३) परियोजनाअन्तर्गत बनाइएको यो स्याटेलाइटले भविष्यमा उन्नत किसिमको तस्बिर आफैं खिच्न सक्नेछ । यसका लागि अन्य विकसित देशको भर पर्नुपर्दैन । भविष्यमा नेपालले कुनै पनि प्राकृतिक प्रकोपको प्रारम्भिक पूर्वचेतावनी प्रणालीको विकासका लागि महत्वपूर्ण भूमिका खेल्ने र अन्त्यमा भूउपग्रह प्रविधिमा प्रयोग हुने अत्यावश्यक सिस्टम विकास गर्नेछ ।

निर्माण तथा परीक्षणपछि सञ्चालन तयारीमा रहेको नेपालीस्याट-१ प्रक्षेपण ४ वैशाख ०७६ मा हुँदैछ भने इन्टरनेसनल स्पेस स्टेसन (आईएसएस) बाट अन्तरिक्ष कक्षमा जेठ अन्तिमसम्म छाड्ने तयारी छ । दैनिक १८/१९ घन्टा भोकै खटेको सम्झँदै हरिराम भन्छन्, "भुटान, बंगलादेश तथा श्रीलंकाले आफ्नै स्याटेलाइट बनाइसकेको सन्दर्भमा हाम्रो यो स्याटेलाइट अन्तर्राष्ट्रिय प्रविधिका लागि एक महत्वपूर्ण उपलब्धि हो ।"

प्रकाशित: चैत्र २७, २०७५

Website Source link

Integration of CAM Mission and ICU

Hoda El-Megharbel

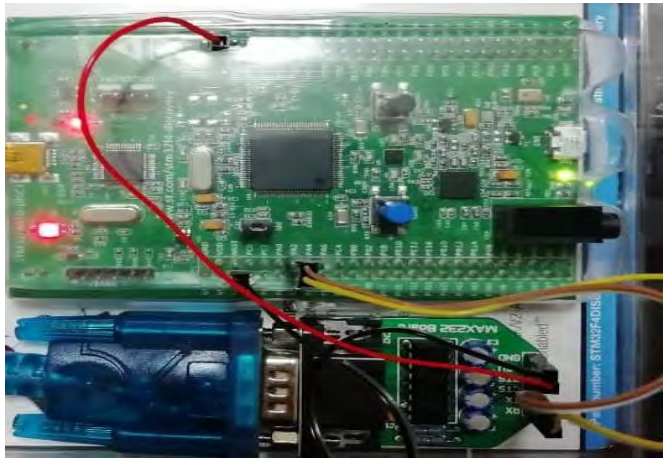
BIRDS-4

April 5, 2019

Image Classification Unit and CAM Mission

Written By: Hoda Awny El-Megharbel

By the end of the competition between PBL teams, three members from the winning team joined the BIRDS-4 team. The new members worked to improve the design proposed before based on suggestions from the other members and the comments from KyuTech staff during the final presentation.



Hardware Testing of ICU for PDR

The new mission benefits can be summarized as more efficient and focused use of the on-board main mission camera to collect images about interesting areas in addition to selecting the most relevant images for downlink.

The design of the Image classification Unit (ICU) is intended to be a modular design that can be integrated with any camera-based CubeSat and a first step to implement an automatic object detection with the higher resolution satellite imagery.

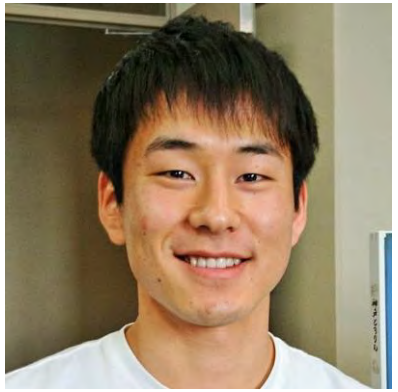
After meetings and discussions, the block diagram of the ICU was finalized in coordination with the main mission requirements and constraints.

The ICU shall classify the images taken by CAM mission into predefined categories, it shall also help the project team to validate the efficiency of the used algorithms for the benefit of the CubeSat imagery.

The proposed Block Diagram of the system is to be implemented on the same board with the CAM mission to facilitate the images analysis and to give control for the main mission over the ICU.

Currently the team is working on developing the Software Algorithm as well as Hardware integration with main mission Board.

Yasir Abbas presenting the progress in ICU during PDR



My Internship in Malaysia

Tomoaki MURASE

BIRDS-4

April 2, 2019

My Internship in Malaysia

Written By: Tomoaki MURASE

I have been to Malaysia to do an internship for 2 weeks in March, 2019. This internship was an overseas experience project in KyuTech. There are many foreign internships like this one. I applied for the internship because I wanted to know how to work in a different society and to experience the job life in a company. Also, I wanted to know the required skills to function as a member of the society.

I worked at KDDI Malaysia Sdn Bhd. The company services consist building IT system, global network and communication service. The office and the company is located in Malaysia. My task was to research about IoT (Internet of Things) system for the factory in Malaysia. They already researched about IoT platform usage in Japan, but they still didn't do it in Malaysia.

I was doing a research on this. For example, I was searching answers to the questions like: "how do IoT provider build the system?", "what kind of sensor do they use for IoT platform?", "which communication system do they use?", and I reported the answers to these questions. The way to work on it was to search companies using Internet and call them to make an appointment and visit them to discuss it.

It was hard for me to research like that. Sometime it did not go very well. To make an appointment by calling was a hard task for me. They could not understand what I wanted because my English was poor at first. So, they asked me to send a message instead of calling. In the end, I managed to make myself understood and could communicate well with them.

Overall, it was an irreplaceable experience for me.

Twin Tower (in Kuala Lumpur)

This building is the symbol of Kuala Lumpur which a lot of travelers visit it every year. The office of KDDI Malaysia is located around there.

My Internship in Malaysia

Written By: Tomoaki MURASE

At first, I made phone call to a sensor device manufacturing company because I thought they had the sensor with a communication module, but the reply was not good. There were a lot of sensors and communication modules. So, they couldn't answer our questions like "what sensor do you manufacture?" "what communication method do you use?" as long as I didn't express what I wanted to use the sensor for concretely.

Then, I made phone calls to IoT providers. Because they treat IoT from system instrumentation to after service, they could answer my questions. There were a lot of company that treated IoT solution. In the end, I could make an appointment with 4 companies.

The companies that I visited provide many IoT solutions. For example, One used IoT for vending machine. With it, you can know how many canned juice remains inside from information that you can get from the sensor. From this information, you can replenish canned juice without having to physically check the machine.

In this way, I visited multiple IoT companies. They bought an IoT device (sensor device and communication device) from the component supplier. And they installed it in the factory and then monitor their operation. Finally, they provided the information to the customer using an user interface (UI). The sensor and communication device that they provided (or buy from the supplier) to customer was depending from customer to customer.

According to their budget and the sensor system that can fit in the factory, they changed the communication system and the type of the sensor. So there is no best way of installing IoT platform in the factory. It is important to consult the client closely to provide the sensor that best fit their needs.

Company Logo

BIRDS-4 Preliminary Design Review (PDR) Presentation

Reported by

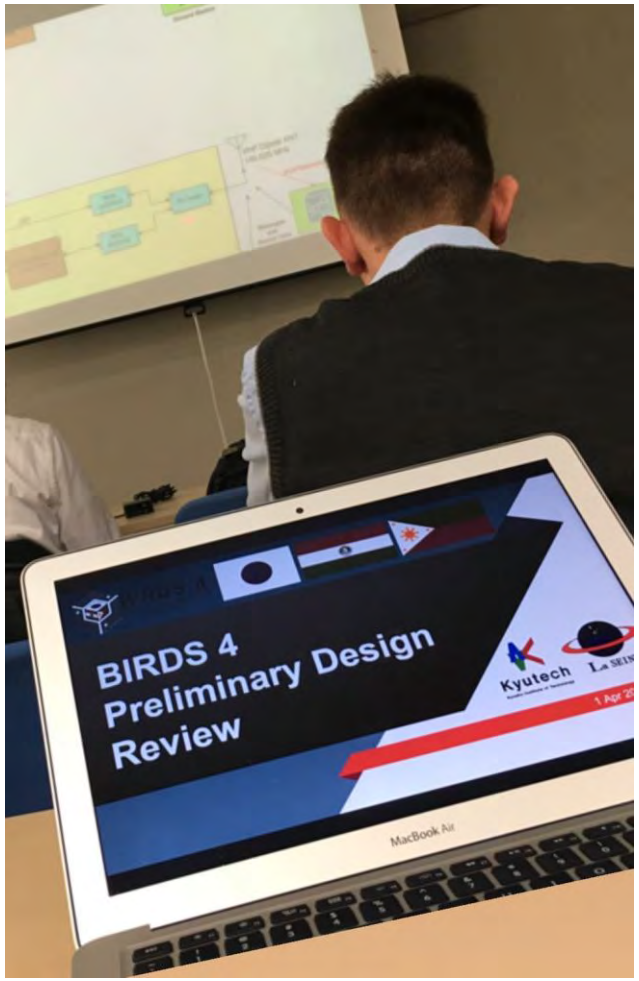
Anibal Mendoza & Yasir Abbas

BIRDS-4

APRIL 7, 2019

BIRDS-4 PDR

Written By: Anibal Mendoza



From the seminar room during PDR

Date and location:
13:20 – 18:00,
1 April 2019.

Seminar Room of the 4th floor of S2 Building at Kyushu Institute of Technology, Tobata Campus, Japan

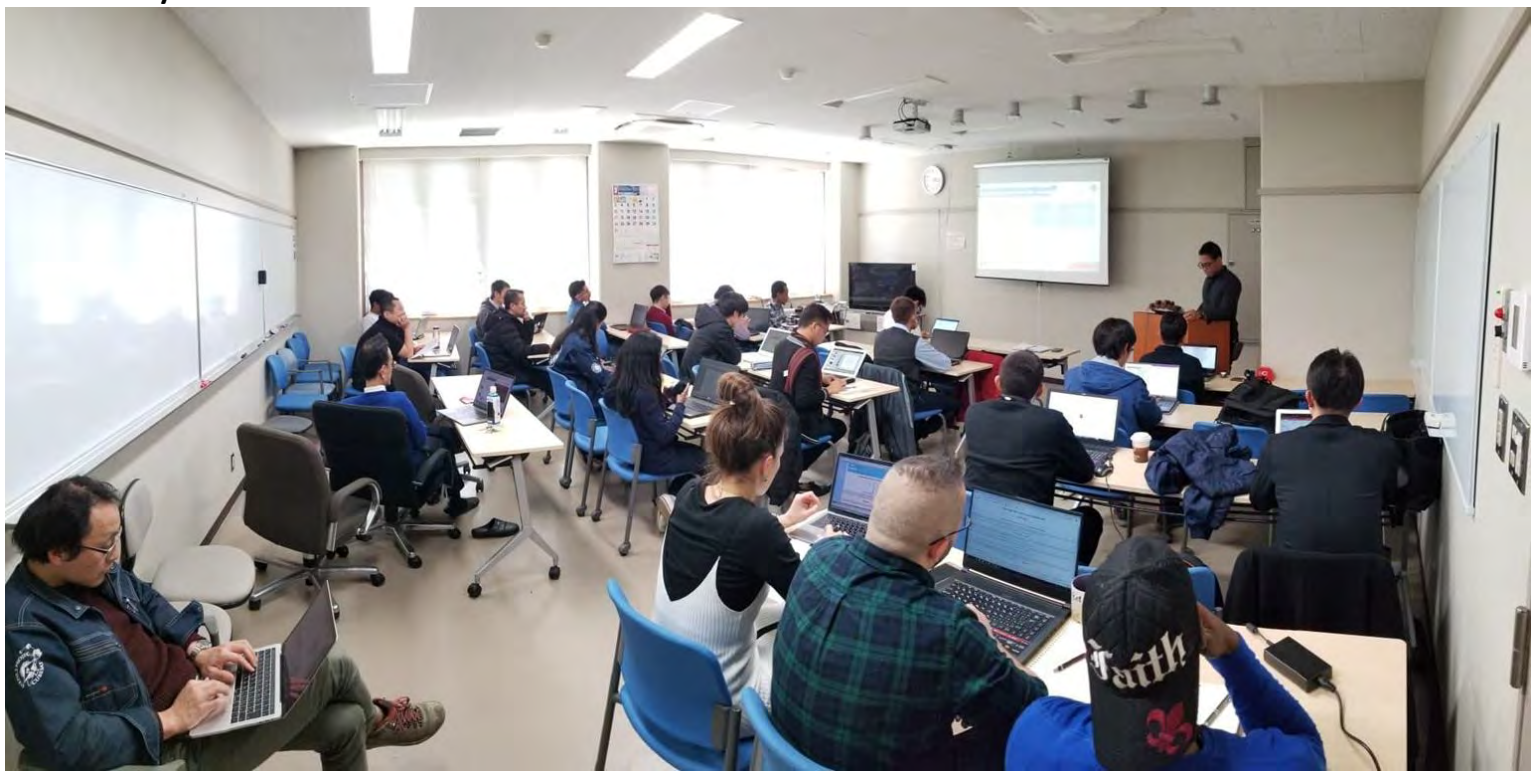
What is PDR?

The PDR demonstrates that the preliminary design meets all system requirements with acceptable risk and within the cost and schedule constraints and establishes the basis for proceeding with detailed design. It will show that the correct design options have been selected, interfaces have been identified, and verification methods have been described [source].

PDR started with the introduction given by Izrael Bautista, followed by the explanation of each mission and subsystem presentations made by members of BIRDS-4 team.

BIRDS-4 PDR

Written By: Anibal Mendoza



The meeting was attended by almost the complete BIRDS-4 team, Prof. Cho and other laboratory staff, in addition to some members of BIRDS-1, -2 and -3 teams.

Present audience asked many questions and gave comments on the presentations, after each subsystem or mission is explained by its responsible member.

The clock was ticking, and because of this, Prof. Cho started to focus more on the differences with other BIRDS projects, since it was already beyond the scheduled time for the PDR to end. Hence, we moved on quickly as it got close to the end.

BIRDS-4 PDR - Missions insights

Written By: Yasir Abbas

Camera Mission (CAM):

During the PDR, the digital processing of the camera mission is assigned to the new added mission that is called ICU. A discussion was raised about the relationship with the ADCS and CAM mission.

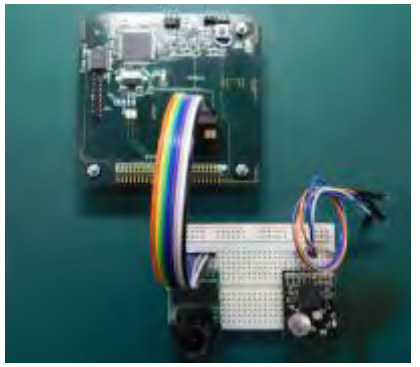
For further researches, the images will have metadata about the satellite orientation.

The GPS role in imaging was also discussed, whether it will always be on or just on call. How does the camera mission acts when it is of or not locked to the GPS satellites.

ArduCAM used in BIRDS-4

Image Classification Unit (ICU mission):

This unit will use a machine learning algorithm to train a program that will help classify the images on-board of the satellite.



Boards used for ICU

BIRDS-4 PDR - Missions

Written By: Yasir Abbas

Perovskite Solar Cell (PSC):

The issues encountered during the testing and how they had been solved were discussed.

The radiation test results weren't there yet so the board of professors asked to be informed about it when it's available.

Perovskite cell prototypes

Store and Forward Mission (SF-WARD):

The ground segment will uplink the data in APRS format so both SFWARD and APRS-DP will authorized to work on the same channel.

The mission will use two transceivers for testing and investigating the previous challenges.

PCB used for Store & Forward missions

BIRDS-4 PDR - Missions

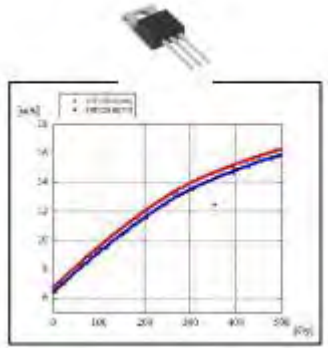
Written By: Yasir Abbas

Active ADCS Mission:

The board asked to include the tests that have been in the PDR document as well as the power consumption of all the modes.

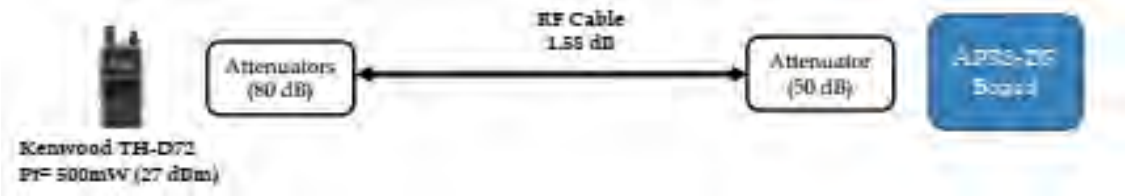
APRS-DP Mission

More field and long-range tests were asked to be done to verify the link budgets.



TMCR Mission:

The plans for integrating NTU should be performed as early as possible.



HNT Mission:

The board was worried about the time of receiving the STM. The tests that have to be done was discussed.

Modified structure of BIRDS-4 to be used as Hentenna

BIRDS-4 PDR - Subsystems comments

Written By: Anibal Mendoza

Structure (STR)

Responsible: Yigit Çay

Recommendations were to use a thicker ground plane for the PCB. Cuts and modifications in the design have to be done as soon as possible, to try to finish on schedule.

Communication Subsystem (COM)

Responsible: Marloun Sejera

All the information is going to be transmitted in the frequency application data

In uplink, Addnics put 1 more baud, instead of 9600 bps, 600 bps.

Need of follow the link margin and update.

On Board Computer (OBC)

Responsible: Adolfo Jara

Information about the OBC updates and how secure they are.

In case that PSC fails, operation of camera and ADCS will still be possible.

BIRDS-4 PDR - Subsystems comments

Written By: Anibal Mendoza

Electric Power System (EPS)

Responsible: Hari Shrestha

In the RF noise test, probe was tapped on the COM board, hence it should be redone.

COM board getting noise from EPS components column was already measured from EPS board.

Table needs an update according to the new setup.

Professor Cho pointed out that measurement of the power loss in blocking diode is needed to be added.

Ground Station (GS)

Responsible: Daisuke Nakayama

Operation is planned to start by Summer of 2020.

Ground station antenna must be ready before BIRDS-3's release (launch to ISS: April 17)

Antenna Deployment (ANTDEP)

Responsible: Yuma Nozaki

Deployment model 1 is going to be the one used for antenna deployment.

Clarifications about a problem with NiChrome wire were discussed.

CDR Schedule

Seminar room during the PDR for BIRDS-4

CDR Date:

CDR stands for the Critical Design Review. By the end of the PDR, the team has to focus in boards and systems implementations and testing, to the engineering module will be ready for the CDR.

The CDR is agreed to be held on the **5th of September 2019.**

17. BIRDS-4: Antenna deployment update

BIRDS-4
Antenna Deployment
Test and Improvements

Yuma Nozaki

April 7, 2019

What is Antenna Deployment?

Written By: Yuma Nozaki

- The purpose of this system is to achieve the deployment of antenna successfully by using the burner circuit.
- If antenna is not deployed, satellite's mission will be a failure. Antenna helps to send and receive data between satellite and the ground stations. The data are very important. For example, mission data, temperature of satellite etc. We cannot receive any important information when this system doesn't work. That's why this system is very significant.
- In BIRDS-4, we use four antennas, UHF and VHF dipoles (a pair of antennas directing opposite directions).

Previous BIRDS project used two or three antennas. This is the first time to use four antennas!

Before the antenna deployment

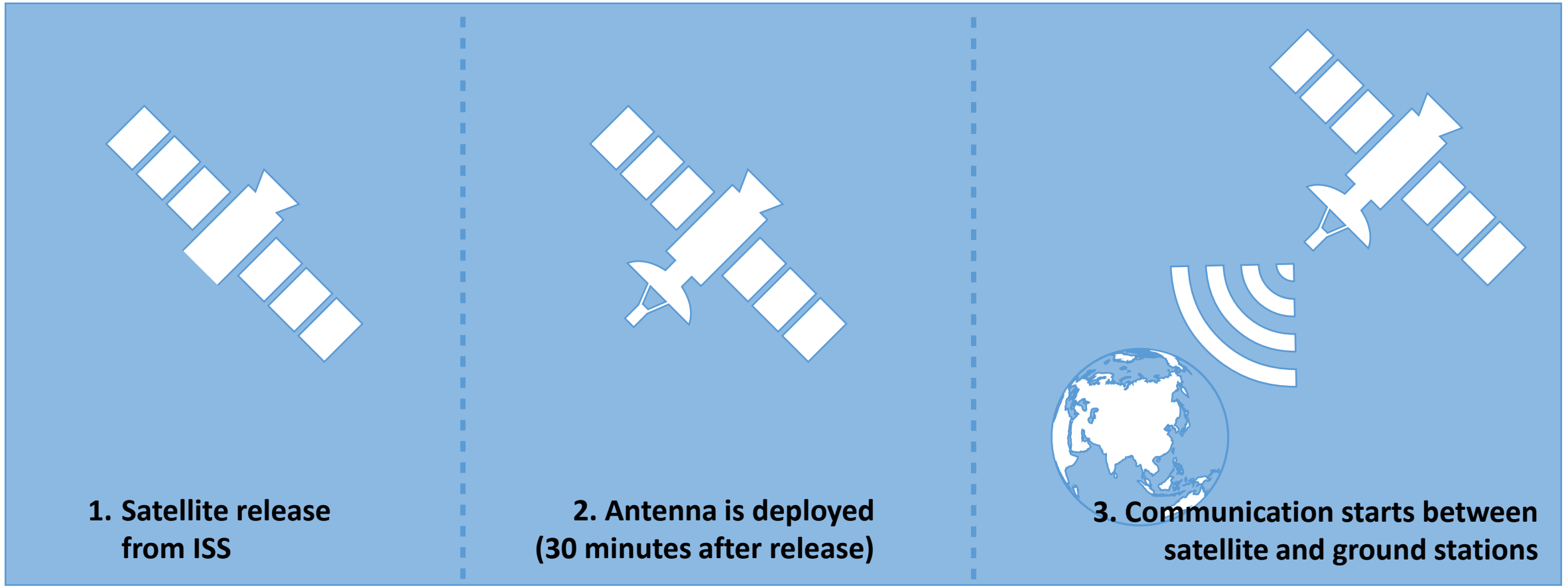
Antennas have been fixed by fishing string before the deployment. Burner circuit melts the fishing string by a command from the OBC. I demonstrated the system to check how the antennas deploy.

In the future, I am going to do functionality test using Despatch chamber and anechoic chamber. Despatch chamber test is to check how antenna deploy under nearly space environmental conditions. Anechoic chamber test is to check how antenna does work.

After the antenna deployment

Process of Antenna Deployment

Written By: Yuma Nozaki



Process of antenna deployment

Antenna Deployment Test

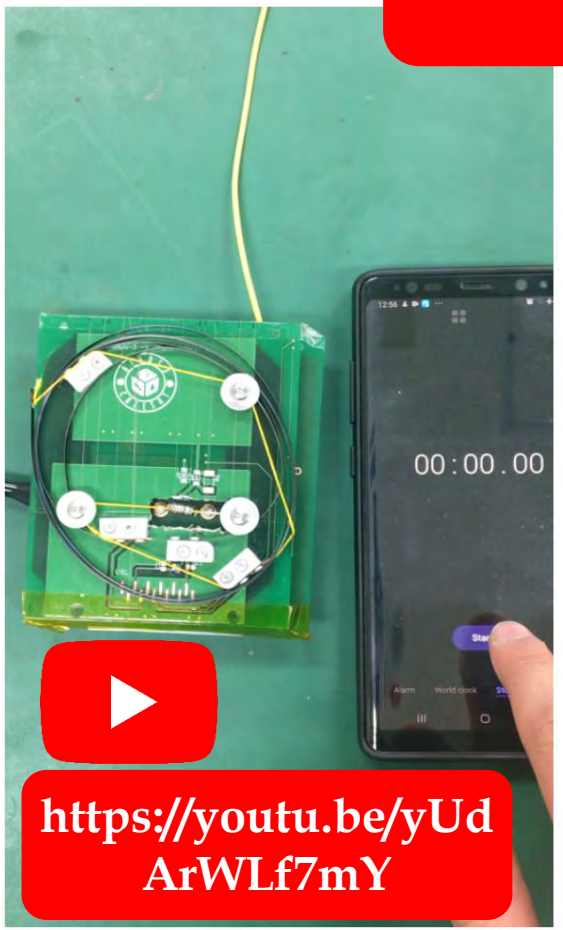
Written By: Yuma Nozaki

We have made YouTube videos for two models

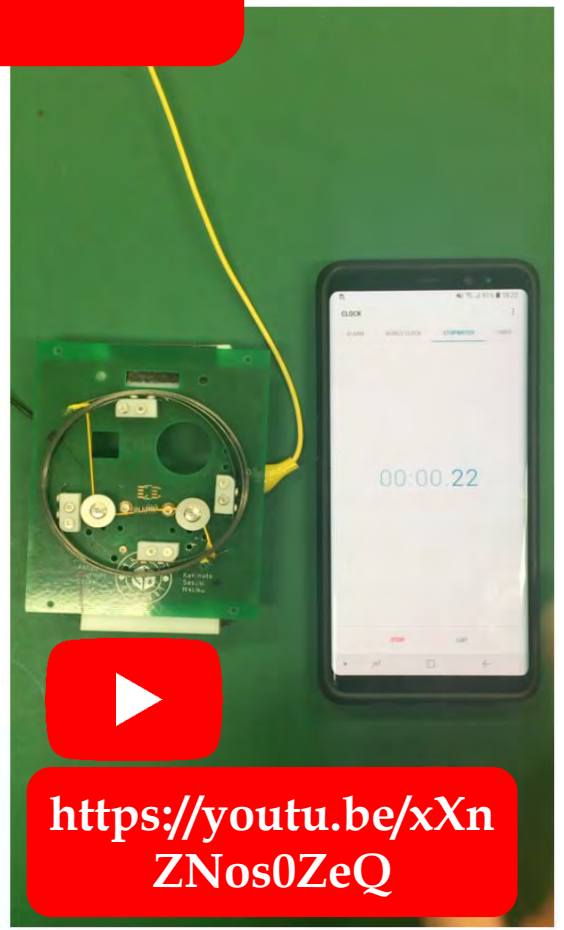
Model1: This is the main model. The main feature of the model is using the VHF dipole antenna. It is to improve VHF performance.

Model2: This is the backup model. Model1 has a problem where tension in the antenna is very high after it is rolled up. This tension might be a cause of antenna deployment failure. Therefore, we will use Model2 if Model1 is too risky.

Follow the links to check out the antenna deployment videos on YouTube!



Deployment test using model 1



Deployment test using model 2

UNISAT-1 PROJECT

Prepared by: Siti Amalina Enche Ab Rahim
Research Coordinator
Center for Satellite Communication (UiTMSAT)
Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM)
19.April.2019

UiTMSAT-1

Universiti Teknologi MARA (UiTM) has deployed its first nano satellite into space, **UiTMSAT-1**, which is the Malaysian's university nanosatellite, on 10 August 2018.

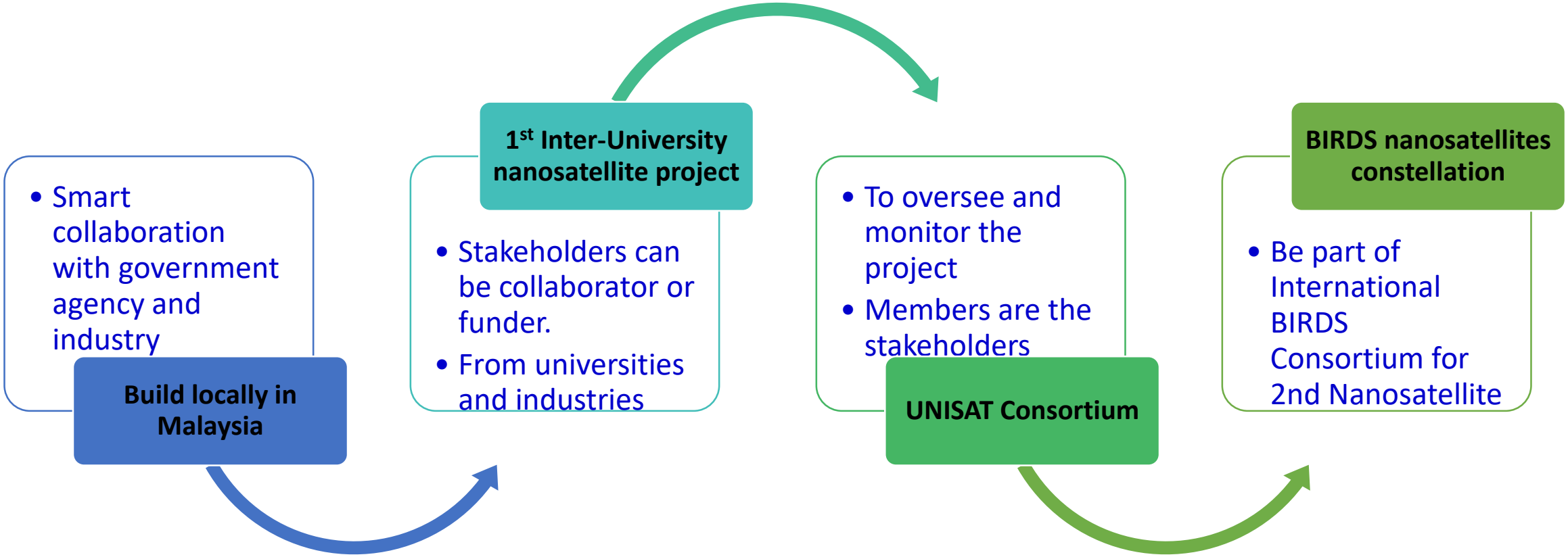
It is the result of a joint collaboration project called Joint Global Multi-Nation BIRDS-2 project with Bhutan and the Philippines led by Kyushu Institute of Technology (KyuTech), Japan.

This success has forged UiTM in the field of nanosatellite technology.

UNISAT-1 PROJECT

The success of the BIRDS-2 project has inspired UiTM to lead the second nanosatellite development project, **UNISAT-1**, but this time it will be developed in Malaysia and its members comprise students / lecturers from local and international universities.

UNISAT-1



Min size: 1U | Duration: 2 years project | International collaboration with LaSeine, Kyutech

IMPACTS OF THE PROJECT

1. Students will graduate with Masters/PhD and **Professional Engineer/Technologies**.

2. **Exposure and hands-on** on the process of the development of nanosatelite.

3. A functional, fast and **practical platform** in the development of nanosatelite in Malaysia.

4. Development of **human capital** and expertise in this area.

5. **Empowering national collaboration** between universities, government agencies and industries.

1st UNISAT CONSORTIUM TECHNICAL MEETING

- Date: 16 January 2019
- Venue: UiTM
- Participants: 9 representatives from local universities, 1 representative from Malaysian space agency, 1 representative from space industry

Objectives:
1. To present the idea of UNISAT project.
2. To have a round table discussion and to establish a mutual resolution among its potential stakeholders on the UNISAT-1 project.

Welcoming words from Assoc. Prof. Dr. Juliana Johari our Deputy Dean (Research & Innovation) from Faculty of Electrical Engineering, UiTM to the guests.

1st UNISAT CONSORTIUM TECHNICAL MEETING

The participants of the 1st UNISAT Consortium Technical Meeting

UNISAT-1: CURRENT PROGRESS

- After the UNISAT Consortium Technical meeting, there were follow-up meetings with the potential stakeholders.

- In these meetings, detailed discussion on the project were carried out in order to identify the challenges faced by the stakeholders to participate in this project and to find out the suitable solutions for each party.

Follow-up meetings with 2 potential stakeholders (local universities) who are interested with UNISAT-1 project

UNISAT-1 : CURRENT PROGRESS

- The follow up meeting will continue in coming weeks with another 2 potential stakeholders.

- Once the list of stakeholders is finalized, we will proceed with MoU and MoA

- Expected kick-off date: end of 2019

OpenGov Recognition of Excellence Malaysia 2019

- Recently, UiTM received the Recognition of Excellence award from OpenGov .
- This recognition is for UiTM's efforts on the UiTMSAT-1 project, which is a big contribution to the country.

19. International students of Kyutech (including BIRDS students) took field trip

Group photo at the Second Observation Deck of Mekari Park

Go here for original details:
http://www.kyutech.ac.jp/english/en-news/topics/entry-6361.html

2019 Field trip for Kyutech international students

Update: 2019.03.29; by university administration offices.

On March 8th, 2019, forty international students from 15 countries took part in the annual field trip. This year, the students visited various sites in the **Kanmon area**, such as the strait, the bridge, undersea tunnel, tower and shrine, and so on, so that they could come in touch with Japanese engineering technology.

Thanks to the beautiful weather, the students had chances to take lots of pictures everywhere against the blue sky. At first, they visited the Second Observation Deck of Mekari Park overlooking the Kanmon Straits, and then they walked through the Kanmon Pedestrian Tunnel under the Kanmon Straits, which is unique around the world. After arriving at the other end of the tunnel in Shimonoseki, the students also received a 'Kanmon TOPPA! Commemorative Certificate' as a proof that they walked under the straits (under the sea!).

Cont'd next page.

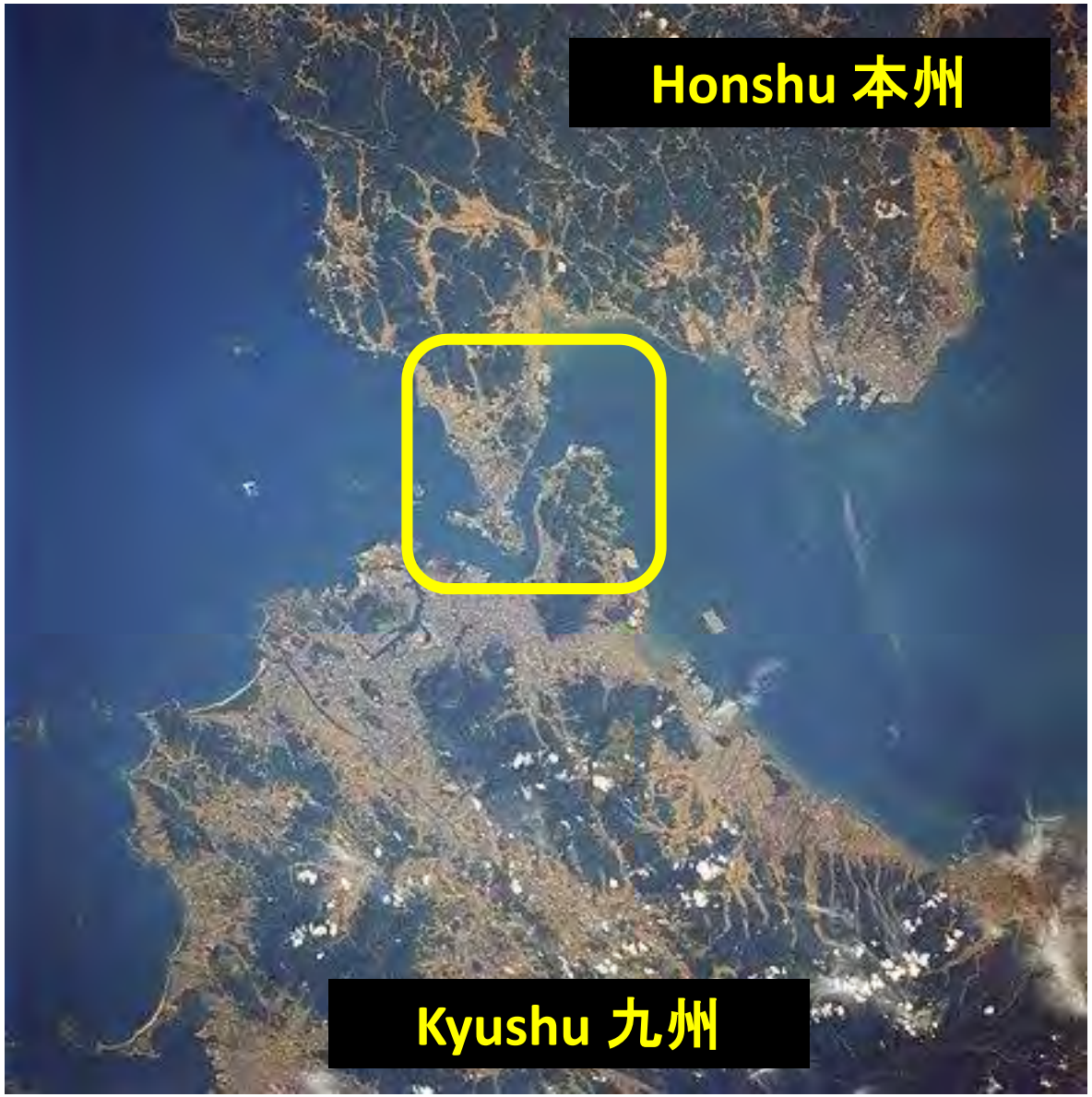
While moving by bus, the students learned about Dannoura sea area which is well known as the final battle field of the Genpei War (the civil war in the 12th century), and the history of the Kanmon Straits. The students also challenged and actively answered to the quizzes about the Kanmon straits such as the number of ships which pass through the straits a day, the number of times the tidal current changes in a day and the height of the Kaikyo Yume Tower etc.

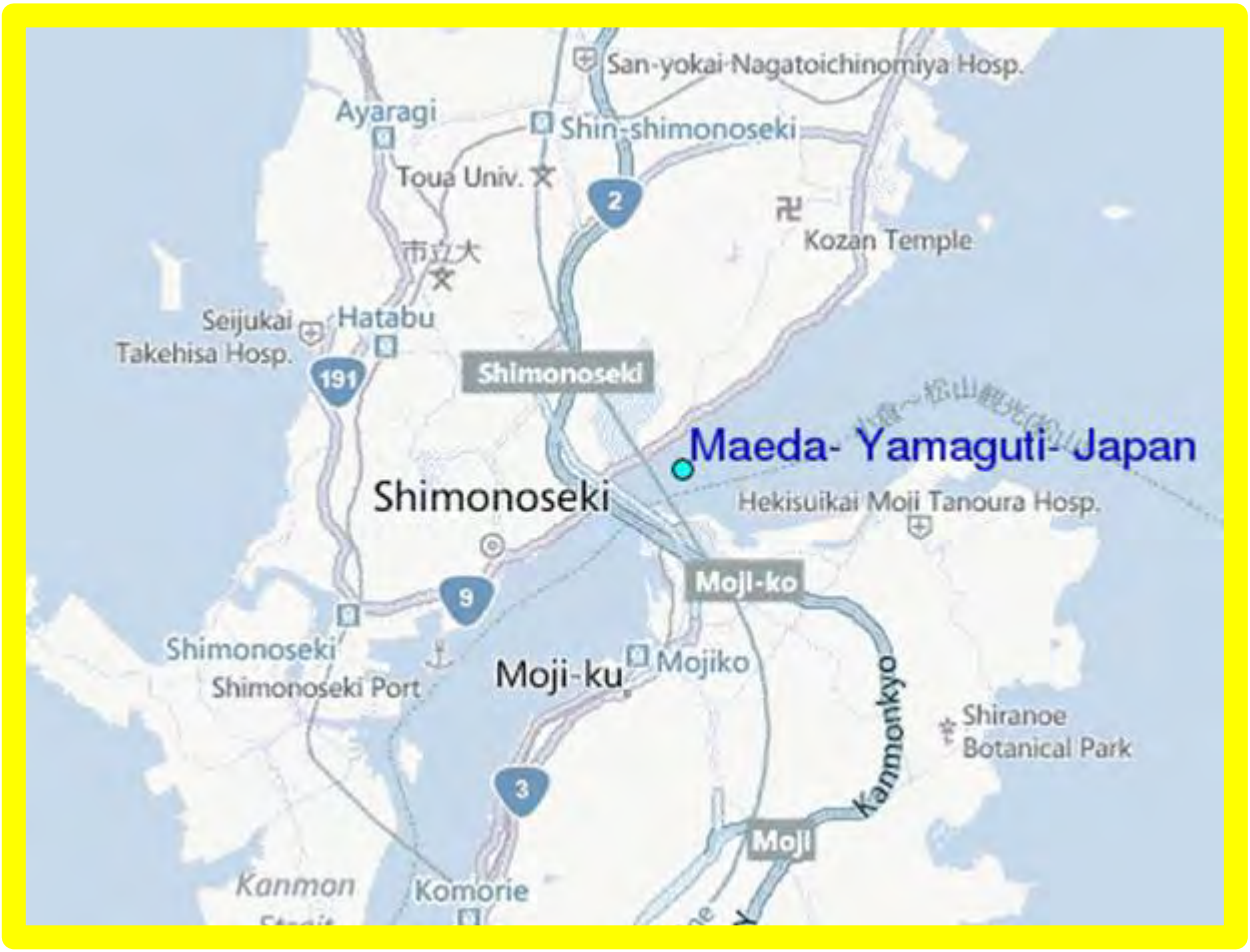
During the visit to **Akama Shrine** (see the photos at the right) many of the students showed interest in the ghost story of 'Hoichi the Earless', and gazed eagerly at the statue of Hoichi. At Kaikyo Yume Tower, the final destination, the students had an opportunity to take a full 360° view of Shimonoseki City, the straits, Ganryu-Jima Island, the Seto Inland Sea, and the Hibiki Nada Sea**. After that, they took the Kanmon Ferry from Shimonoseki back to the Moji area.**

Akama Shrine

This trip was a fantastic opportunity for all of the students not only to learn about the geography, history, and culture of the area they live in but also to meet and interact with the students from other campuses.

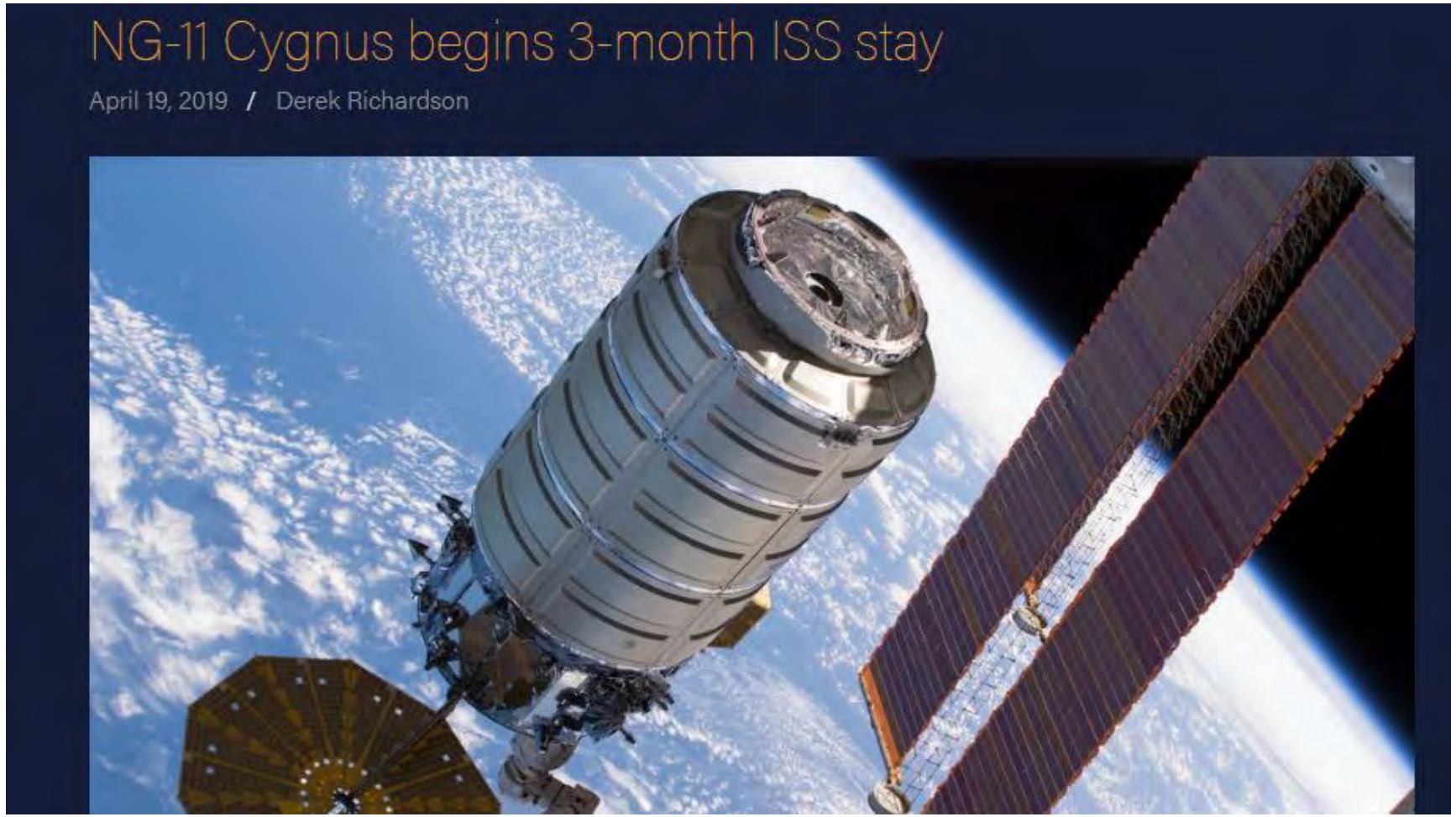
Students riding the Kanmon Ferry back from Shimonoseki to Moji
– see map on the next page





The upper (northern) island is Honshu Island while the lower (southern) island is Kyushu Island. They are separated by the Kanmon Strait, which is busy with ship traffic. END OF OF THIS SECTION

20. NG-11 (containing BIRDS-3 satellites) berths with ISS



Capture of Cygnus by the space station's *Canadarm2* remote manipulator system took place at 09:28 UTC April 19, 2019.

See short article: https://www.orbital-velocity.com/news/2019/4/19/ng-11-cygnus-begins-3-month-iss-stay

21. What is the difference between docking and berthing?

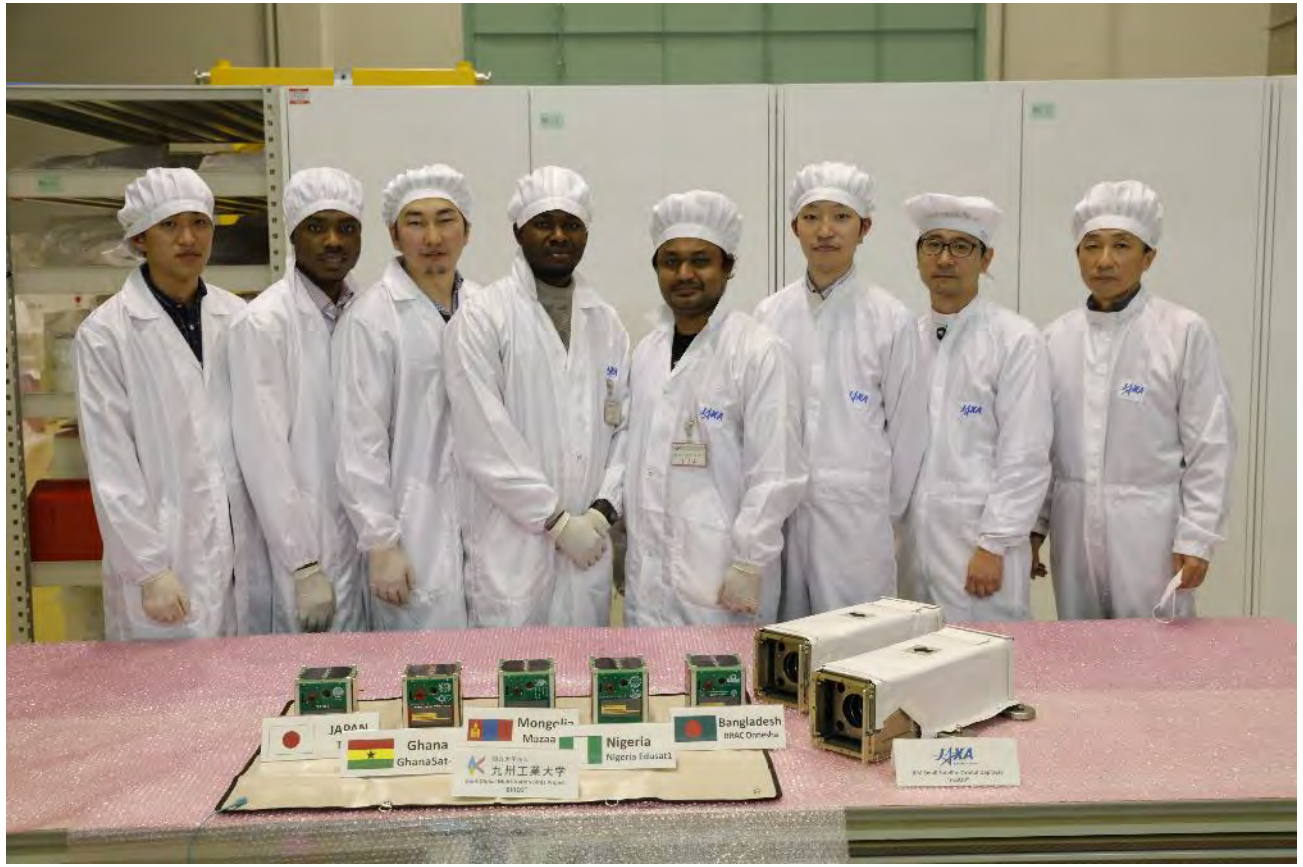
DOCKING

BERTHING

See the full article: https://www.spacestationexplorers.org/docking-vs-berthing/

22. Orbital decay of BIRDS-1 – they are all coming down soon

Report by Apiwat J. -- BIRDS-1



Members of BIRDS-1 hand off five CubeSats to JAXA at the Space Station Test Building, Tsukuba Space Center. / February 9, 2017

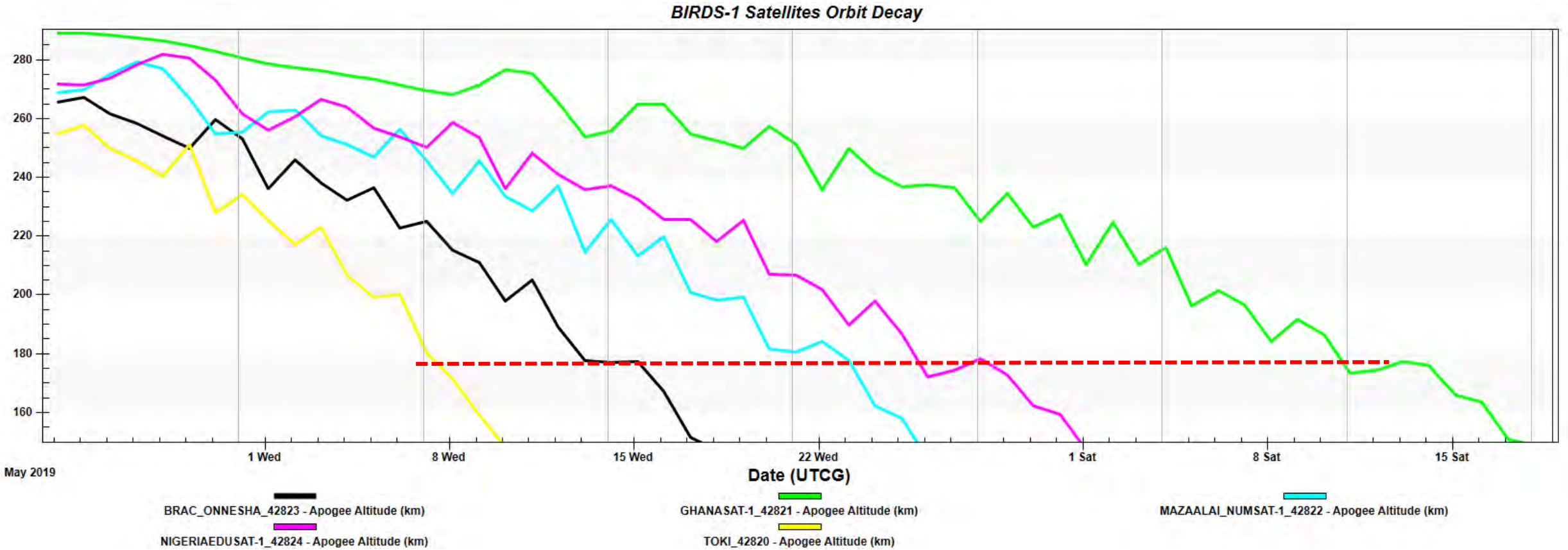
© JAXA

Deployment of BIRDS-1

© JAXA

Five of BIRDS-1 CubeSats were successfully deployed from the International Space Station on July 7, 2017 and now it is almost 2 years that they have been up there. Currently, BIRDS-1 altitude are about 270-280 km above the Earth. It is expected that they will de-orbit in next 1 month (May 2019).

BIRDS-1 Orbit Decay



According to calculations using STK software, five of BIRDS-1 CubeSats are expected to de-orbit in May 2019. Currently, the satellites are 270-280 km above the Earth.

End of Report

23. A report about ABE training by Ms. Hind, a member of SEIC

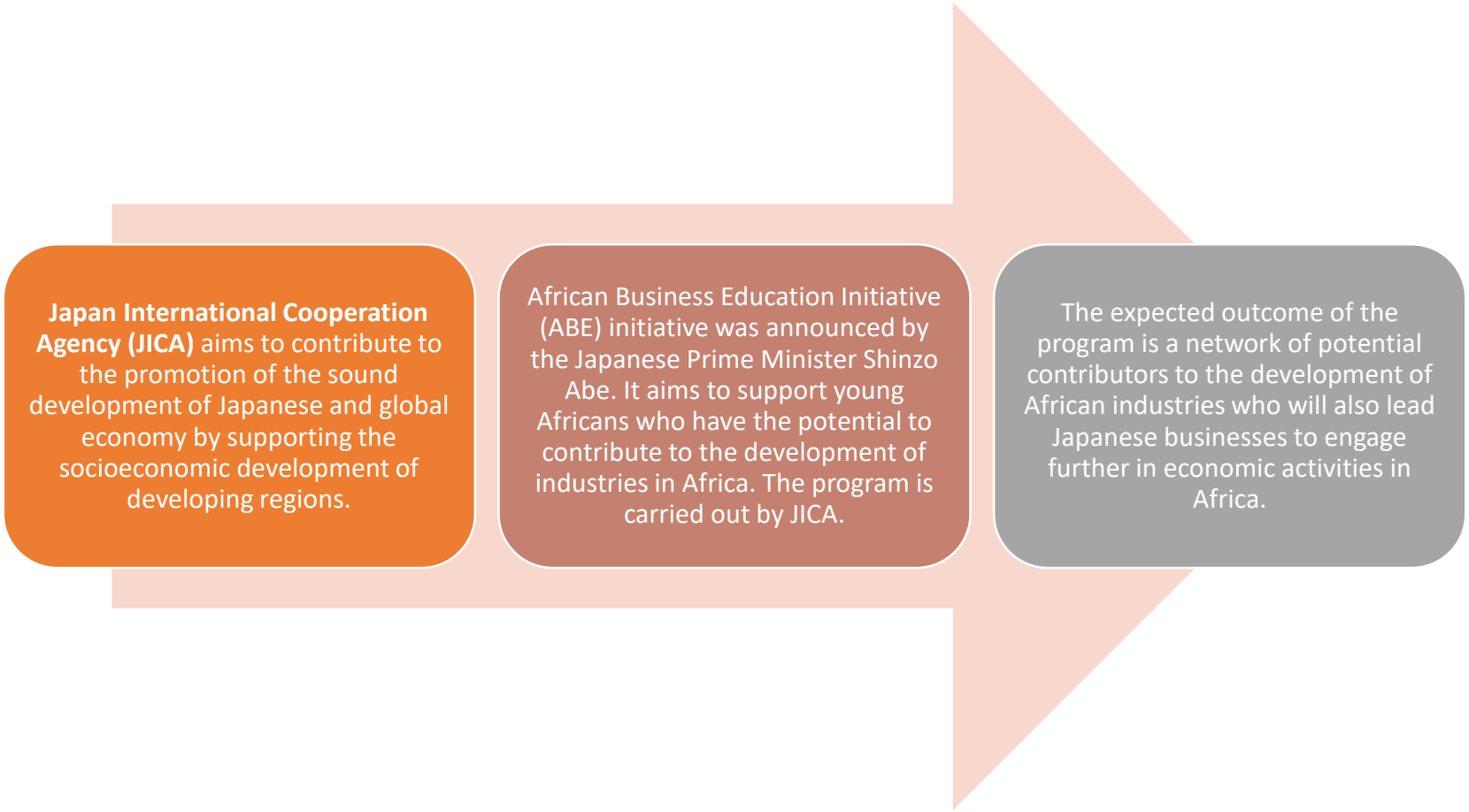
The following report was submitted by Hind Mahmoud Elhaj who is an ABE Fellow here at Kyutech. She recently attended an ABE training program in Tokyo with another Kyutech ABE Fellow, Senior Shimhanda.

ABE Initiative is a scholarship program operated by JICA.
See:
https://www.jica.go.jp/english/countries/africa/internship.html

ABE 5th Batch Joint Program March 11-15

By: Hind Mahmoud

JICA and ABE Initiative



ABE Joint program

Hind Mahmoud Elhaj and Senior Shimhanda are ABE 5th batch participants who are enrolled in Kyushu Institute of Technology.

We went to Tokyo in March 11th 2019 to attend the joint program which is aimed to help us attain an opportunity to do a summer internship in one of the Japanese companies which is mandatory for every ABE participant, as well as further our understanding of the Japanese business culture.

Day 1

Fly to Tokyo

Orientation session, The Key elements for Initiator of African Business lecture by JICA and JICE people and registration to JICA Tokyo Center.

Day 2

Small Innovation Can Change The World lecture and workshop by Seiichiro YONEKURA a professor of Hosei University.

He explained and gave examples for the different types of business innovations such as new Products, new processes, new markets, ...etc. and one can develop new an economic value by mixing an African feature with a Japanese one to create new business with renewed economic value.

For the workshop, he divided the participants into six groups and each had to come up with an innovative business idea. At the end one business plan was chosen and awarded

Day 3

The African business networking fair was held in Toshi Center Hotel. The Parliament of African Union Parliamentary Friendship League and JICA headquarter representatives has attended for the opening ceremony.

More than 60 Japanese companies varying from small to large has participated in the fair and are interested in expanding their business in Africa. Some of the companies were willing to provide summer internship for ABE participants.

For three hours ABE participants had the chance to go around and introduce themselves to the companies they are interested in, understand the companies' interest and tell how they can be of help to their African countries.

A Walk in Odaiba After the Fair

Teamlab Borderless Tokyo Visit

Day 4

Strengthen of networking lecture and workshop by Ms. Makiko TAKEMURA a Chair of International Women's Club Japan (IWCJ).

In a one hour lecture, Ms. Takemura has explained the roles and functions of network from a global business point of view. She also gave examples on how network is formed and its importance on the early stages of forming a business.

During the workshop the same six groups were asked to implement the business idea they presented in Dr. Seiichiro workshop considering marketing, investors, product development, etc. Then participants had to vote on the best business plan.

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Thirty-Nine

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.