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

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

Archive website: http://birds1.birds-project.com/newsletter.html
All back issues are archived at this website.
Acknowledgment of support: This newsletter is supported, in part, by *JSPS Core-to-Core Program, B. Asia-Africa Science Platforms.*

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BIRDS Project Newsletter

Issue No. 50
(24 March 2020)

Edited by:
G. Maeda
Laboratory of Spacecraft Environment Interaction Engineering (LaSEINE),
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 Bhutan

The Guest Box

Paro Airport is the only international airport in Bhutan; it has been classified as one of the most dangerous airports in the world. The airport is surrounded by Himalayan mountain peaks as high as 18,000 feet, and only 8 pilots are certified to land on this runway.

-- text and photo by Chirag Sharma (Bhutan)

SEE A VIDEO ON THE NEXT PAGE

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

End of Table

Extension of the Guest Box:

A cool video about landing at Paro Airport of Bhutan:
https://www.youtube.com/watch?v=SbLHah4XUwk&t=530s

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.

01. This is the 50th issue of the “BIRDS Project Newsletter”

Congratulatory messages from Astronaut Dr. K. Wakata (JAXA) and other devoted readers of this newsletter

The logo above was designed by Kafi and Antara (BIRDS-1, Bangladesh)

BIRDS Project Newsletter　50号の発行、誠におめでとうございます。また記念すべきこの50号にメッセージを寄せることができること、大変嬉しく思います。

JAXAは2017年4月に九州工業大学と国際宇宙ステーション「きぼう」からの超小型衛星放出に関する包括的な連携協力協定を締結し、多くの衛星を「きぼう」から放出してきました。中でも、BIRDS　Projectは、2017年7月7日にBIRDS-1放出、2018年8月10日にBIRDS-2放出、2019年6月17日にBIRDS-3放出により、これまで計11機の超小型衛星放出に成功してきました。

数は多いですが、1つ1つどの衛星も各国の若い技術者が各国を代表して来日し、熱意を持って開発した衛星であり、放出の瞬間の彼らの熱意と、各国現地や筑波宇宙センターで見守る多くの皆様の感動の様子は忘れることのできない、とても印象的な衛星放出となりました。

また、BIRDSプロジェクトは、Airbus-GEDC Diversity in Engineering Award、宇宙開発利用大賞、国際宇宙航行連盟（IAF）から教育者に送られる最高の賞である2019 Frank J. Malina Astronautics Medal、SSIPから送られる2019 Better Satellite World Award等、大きな賞を数多く獲得され、その活動の成果は日本のみならず、世界中で称賛されております。これは日々の九州工業大学関係者をはじめ、来日する技術者皆様の熱意や努力が実を結んでいる証です。

JAXAとしましても引き続き九州工業大学と連携し、宇宙開発利用に係る人材育成や技術基盤の構築等、SDG'sに貢献するとともに、「きぼう」の利用成果の最大化を推進して参ります。

国立研究開発法人　宇宙航空研究開発機構(JAXA)
理事、有人宇宙技術部門長
若田 光一

The message from Dr Wakata is in Japanese (this page) and in English (next page).

Congratulations on the publication of BIRDS Project Newsletter No. 50. I am very pleased to be able to write to you on the occasion of this publication milestone.

JAXA reached a comprehensive cooperative agreement with the Kyushu Institute of Technology (Kyutech) on April 2017 to deploy nanosatellites from the International Space Station via the Japanese Experiment Module “Kibo”. “Kibo” has already deployed many satellites -- and in particular, satellites for the BIRDS Project. This amazing capacity-building project has successfully deployed eleven satellites. These are:

- BIRDS-1 on July 7, 2017 (five satellites)
- BIRDS-2 on August 10, 2018 (three satellites)
- BIRDS-3 on June 17, 2019 (three satellites)

The number of satellites of BIRDS Project is a lot, however each BIRDS satellite was developed by young, enthusiastic engineers who had come to Japan to build a satellite for their respective nations. It was an unforgettable and very impressive experience for me to watch eleven deployments at the Tsukuba Space Center alongside the many people involved in the BIRDS Project and with their countries’ representatives.

In addition, the BIRDS Project has received many major awards, such as the Airbus-GEDC Diversity in Engineering Award, the Space Development and Utilization Award (Government of Japan), the 2019 Frank J. Malina Astronautics Medal (for Prof. M. Cho), which is the highest award for educators presented by the IAF (International Astronautical Federation), and the 2019 Better Satellite World Award presented by the SSPI (Space and Satellite Professional International). Hence the BIRDS Project has received accolades not only in Japan but also from organizations around the world. This is proof that the enthusiasm and hard work of Kyutech staff and students are bearing fruit.

JAXA will continue to collaborate with Kyutech in contributing to the United Nations SDG's, such as human resource development as well as the construction of a technical infrastructure for space development and utilization. JAXA’s aim is to maximize the benefits of “Kibo” for humanity.

Koichi Wakata, Ph. D.
Astronaut, Vice President and Director General
Human Spaceflight Technology Directorate
JAXA

Congratulations to Prof Cho, Prof Maeda, and the rest of the Kyutech team on this important milestone. The BIRDS Project has had a profound impact on the democratization of space technology by including developing countries, and the exploration of the benefits of small satellite missions for emerging space nations. During the development of **Project Irazu**, the Kyutech team provided invaluable support to help us launch and operate the first Costa Rican satellite, which we used to monitor carbon fixation in our country's rainforests. I look forward to following the progress of the project through the newsletter and learning about its future achievements.

Marco Gomez Jenkins,
Costa Rica,
original project
manager of
Project Irazu

Congratulations on the ***50th Newsletter of the BIRDS Project***!
I have been impressed by what the BIRDS Project had realized so far.
The project has produced well-trained, highly motivated space engineers who have real experiences with real satellites. It has been a pleasure to observe how the students involved in the projects overcame difficulties and became proud of what they achieved.

Usually, the struggle behind projects are not known and the supporting effort are rarely appreciated as it is invisible to the outside world. I would like to express my sincere appreciation to George Maeda sensei. With his continuous publication of this monthly newsletter, I think that BIRDS Project went well. All the newsletters of the past are full of his generosity and warmth to all Kyutech students and staff involved in this international project.

I believe that the BIRDS Project will continue to contribute to realizing "Vision 2030-ALL." We will see a world where university students can participate in practical space projects in all countries in 10 years. The BIRDS Project is certainly one of the important driving forces of this vision.
Congratulations again and let's keep moving towards a better future.

UNISEC
University Space Engineering Consortium

With warm regards,
Rei Kawashima,
UNISEC, and
UNISEC-Global

A marriage that lasts for fifty years is a Golden marriage. In this Golden issue of the BIRDS Project Newsletter, I would like to thank the Kyutech team notably Professor Mengu Cho and Dr. George Maeda for the persistent effort in producing a consistent high-quality and fully-informative newsletter for the BIRDS family. The Newsletter has been the focal point of the whole BIRDS family in gaining intellectual pabulum of up-to-date information on BIRDS, CubeSats, and relevant techniques. It also serves as a bridge to strengthen the ties among BIRDS members through the sharing of photos, updates, and opinions. Looking back, we have indeed come a long way in terms of technology maturity, culture understanding, and mutual friendship. Thank you! Editor George Maeda! Congratulations and Happy 50th Issue!

Jyh-ching Juang, Phd
Professor
Electrical Engineering
National Cheng Kung University, Taiwan

One more thing. About fifty years ago, humans landed on Moon. We are now fighting against 2019-nCoV, which began to outbreak from Wuhan, China, in early January 2020. Once this becomes pandemic, the ultimate solution under consideration for human beings is to migrate to another planet. So far, the BIRDS community has been focused on CubeSats in low Earth orbits. Perhaps, we should look beyond that for space exploration and settlement in the future.

Message to Cho lab, UNOOSA, and all BIRDS/PNST Participants

Seven years ago, when I started out as an assistant professor in Cho sensei's lab at Kyutech, BIRDS had yet to be conceived and PNST was in its infancy. We had a handful of brave first-wave students, interest from a few countries, initial support from UNOOSA and MEXT, and Cho sensei's unparalleled vision and drive.

From this early stage, I was blessed to spend two years traveling the globe and working with dozens of incredibly talented international and Japanese students at Kyutech in support of a common dream: launching our own satellites into space.

Now, every time I turn around, it seems that a new BIRDS team from a new country has joined in this exceptional adventure by venturing into orbit with ingenuity and flair of their own, paired with core tenants of satellite design, testing, and operation instilled by Kyutech and its tremendous faculty and staff.

BIRDS, its precursors, and all those involved remain close to my heart and are frequently discussed with my friends and colleagues in the U.S. and throughout the world. Without fail, those introduced to your efforts and accomplishments react with admiration and curiosity. The sky is engraved with your satellites, and you should be proud!

It was an absolute honor to be part of this effort. The program has changed and will continue to change many lives for the better, including my own.

John Polansky, Phd

Message for 50th Issue of BIRDS Project Newsletter

Since its first issue in January 2016, the BIRDS Newsletter has become a welcome source of information on the BIRDS small satellite projects. It is always impressive to read to what extent BIRDS activities are contributing to bringing together like-minded people from so many different countries that share the interest to build space technology capacity as a strong basis for our common space future.

I would like to congratulate and thank all the authors of the past 50 issues and in particular the newsletter's Editor, Prof. George Maeda, for their dedicated work and for bringing all the contributions together in an always well-made, highly informative and lively monthly newsletter. I am looking forward to many more forthcoming issues of the BIRDS Newsletter.

Dr. Werner Balogh
World Meteorological Organization (WMO),
Officer-in-Charge,
Space Systems and Utilization Division,
WMO Space Programme

As a member of BIRDS-2 project, *Universiti Teknologi MARA* (UiTM), and Malaysia (in a bigger context) is very honored to have this opportunity to be collaborating with Kyutech and all countries of the BIRDS Project. The involvement of UiTM in BIRDS-2 project gives significant impact not only to students but also to local space communities hence acts as catalysts for indigenous space program in Malaysia. The project not only limited to the technical aspects but provides chances for international linkages and collaboration through various channels; one of them is BIRDS Newsletter.

The monthly BIRDS Newsletter gives opportunity to local editors from each BIRDS countries to share information not only space activities, but covers bigger spectrum includes cultural and social activities in the country.

For this 50th issue of BIRDS Project Newsletter, I would like to congratulate all editors and contributors to this BIRDS Newsletter led by Mr George Maeda as Chief Editor for the splendid efforts to ensure the Newsletter is published every month, packed with interesting and informative contents. I wish the BIRDS Newsletter will continue to be a knowledge sharing platform and a medium to strengthen the linkages among the BIRDS members.

Assoc. Prof. Ir. Dr. Mohamad Huzaimy Jusoh
Director Center for Satellite Communication
Faculty of Electrical Engineering
Universiti Teknologi MARA
40450, Shah Alam, Selangor, MALAYSIA

← **presenting at 4BIW in Bangladesh, 2019**

TO:
BIRDS Satellite Project Team,
Kyushu Institute of Technology

BIRDS Project Newsletterが創刊50号を迎えられる事を心よりお祝い申し上げます。BIRDSファミリー、そして世界中の小型衛星関係者に向けて、タイムリーかつ貴重な情報を発信し続けられましたこと感謝申し上げます。私もBIRDSファミリーの一員として毎回楽しく読ませて頂いております。九州工業大学および関係各国の皆様と衛星ミッションの実現に向けて協力する機会をいただいたことに感謝申し上げます。今後の九州工業大学およびBIRDSファミリーのますますのご発展を心よりお祈り申し上げます。

I would like to sincerely congratulate **BIRDS Project Newsletter** on its 50th issue. I really appreciate your continuing to provide timely and valuable information to the BIRDS family and worldwide small satellite community. I also enjoy reading as a family member every time. I am very grateful to have the opportunities to work with Kyushu Institute of Technology and international partners to realize a lot of satellite missions. I wish the Kyushu Institute of Technology and BIRDS family for many more successful missions.

Sincerely yours,
Hiroki AKAGI
Deputy Director
JAXA Houston Office
Texas, USA

There is a great need for bringing advances in the space sciences to public attention and **BIRDS Newsletter** does an especially good job in doing just that. On behalf of Brac University, it gives us great pleasure to congratulate **BIRDS Newsletter** on its 50th issue publication. The newsletter has established itself as a vital resource for the BIRDS Community -- educators, students, stakeholders, by covering everything from educational theories to the latest technologies and by providing a forum for strong and disparate voices.

Today it is impossible to imagine the BIRDS community without the **BIRDS Newsletter** Monthly. We hope it is delighted and auspicious for the newsletter and its contributors. Best wishes to Mr. George Maeda and his exceptional staff on the 50th issue of this important, informative and interesting newsletter.

May your responsible voice continue to be heard for many years to come.

Kafi & Antara
Engineers, Brac Onnesha Satellite
Members, BIRDS-1 Program
Brac University, Bangladesh

27 Nov 2019 – 4BIW, Dhaka, Bangladesh →

I want to congratulate the BIRDS Project with its big success through the years -- and I wish a bigger win in the future.

I hope to read **BIRDS Project Newsletter** and see the lives of my colleagues. I wish a good luck to all the readers! Your passion made this newsletter a great communication tool! Congratulations!

Kateryna Aheieva, PhD
Head of Account Management
– Space Business Intelligence Group

On this special issue of the BIRDS Project Newsletter, on behalf of the Paraguay Space Agency and the National University of Asuncion, I would like to thank all members and send my most profound appreciation to be part of this unique project such as BIRDS. My country couldn't be in it at a better moment for this New Space era.

As a country without any satellite technology, seeking to be part of this sector, the BIRDS Project was the right opportunity to develop space capacity at a very competitive university. We are looking forward to continuing to work together in pursuit of space exploration.

Jorge Kurita, Ph.D.
General Director
of Planning and
Management Directorate
AEP, Paraguay Space Agency

BIRDS Project Congratulatory Message

I want to use this singular opportunity to congratulate Prof. Mengu Cho and the entire faculty, staff, global partners and students involved in the **BIRDS Project** on the success of the development inspired project.

The 5th generation of the project is a validation of the excellent crafting and delivery of the project, I can say this as the Project Manager of BIRDS-1.

The project is no doubt a great example of innovative engineering education, diversity, and global workforce development that keeps developing countries at the centre stage. All of these are evident in awards like the :

- 2017 Airbus GEDC diversity award in engineering
- 2019 IAF Frank J. Malinda Astronautics Medal and
- 2019 Better Satellite World award.

Also, a shout out to the golden jubilee edition of the **BIRDS Project Newsletter** led by Assistant Prof. George Maeda. Hearty cheers to the next decade of transformative space education from Kyutech.

TEJUMOLA Taiwo Raphael, Ph.D
Assistant Professor
Space Applications,
Space Systems Engineering
International Space University,
Strasbourg. France
https://www.isunet.edu/

- BEng, Electrical Engineering - Ahmadu Bello University, Nigeria
- MSc, Space Systems Engineering - Kyushu Institute of Technology, Japan
- PhD, Space Systems Engineering - Kyushu Institute of Technology, Japan

Congratulations for reaching the 50th Issue of the **BIRDS Project Newsletter** and Félicitations for enabling five generations of BIRDS constellations!

It was an honor to be part of the adventure, working alongside a diversity of people, all animated by the common goal of reaching the stars. BIRDS has been a stepping stone for many countries to start or expand their space activities, while enabling quality space workforce development. BIRDS is also a remarkable example of unity and mutual assistance using space engineering as a tool to address national problems.

As we all move forward in our respective directions, let's remember we are still here for each other, united with the common space passion. I wish all BIRDS members many more generations of space activities and I look forward to keeping accomplish more together pushing the limit of space even further.

Pauline Faure, Phd
-Assistant Professor
-Lockheed Endowed Professorship
-Cal Poly CubeSat Laboratory Adviser
Aerospace Engineering Department
Cal Poly, San Luis Obispo, California

Big Fifty of the BIRDS Project Newsletter: A Down-to-Earth Information Sharing Platform

On its 50th edition of BIRDS-Newsletter, we congratulate the whole team for their continued efforts to transform a none-spacefaring country to a spacefaring within a short span. We enjoyed reading the 49th issue of BIRDS-Newsletter and had a chance to know how Japan went for space exploration since 1984. Among other interesting information, we also liked Astronaut Dr. Doi's talk for SEIC participants. We also had an opportunity to observe the BIRDS-Laboratory during our visit to Kitakyushu Institute of Technology (Kyutech) in 2019.

Kyutech is the No.1 in the academic operator of small satellites in the world, primarily due to the BIRDS program. Nepal is fortunate to be a part of this program. Located between two giants also for space technology: China on North and India on all three sides, Nepal also made a reasonable step towards space exploration. Through the collaborative works between the Nepal Academy of Science and Technology (NAST) and Kyutech, Nepal was able to deploy its ever built first Satellite: a tiny NepaliSat-1 on the Low-Earth Orbit. Because of this program, two Nepalese Engineers got the opportunity to sharpen their knowledge and skill in Japan. The NAST has been encouraged and motivated to launch its space program in the future thanks to the BIRDS-3 program of Kyutech, which is consistently providing support for human resources development. We strongly believe in having many more projects in the future beyond the BIRDS program.

The BIRD's Abbreviation for us sounds like: A timely Birth of the NepaliSat-1 that Inspired Nepali youths expanding their wings of curiosity to explore their ability in learning the Universe more closely and studying Aerospace Engineering, and by Realizing the vast potential in themselves they are Determined for building the second generation of Satellites to boost Nepalese economy through technological advancement in future.

We look forward to having collaborative research work between Nepalese Universities and Kyutech soon. We wish the whole BIRDS-team all the best for their future endeavor.

Dr.-Ing. Ramesh Kumar Maskey
Professor of Civil Engineering (Water & Energy)
Academician, Nepal Academy of Science and Technology
Madan Bhandari University of Science and Technology Development Board, Nepal

ULyS^{3}ES

stands for

University Laboratory for Small Satellites and Space Engineering Systems

It resides in the College of Engineering's Electrical and Electronics Engineering Institute (EEEI) of UPD, the University of the Philippines at Diliman.

Congratulatory message from the Philippines

Congratulations to the BIRDS Project Newsletter on the 50th issue! This marks a Golden Milestone for Kyutech and the BIRDS Project Community.

The BIRDS newsletter has been a valuable source of information on the activities of the BIRDS community. It is also quite entertaining and we look forward to it every month!

We thank Asst. Prof. George Maeda and his team of contributors for their tireless efforts in producing the newsletter.

Maraming Salamat Po at Mabuhay!

Prof. Joel Joseph Marciano Jr.
STAMINA4Space Program Leader

and the

STAMINA4Space Team

Kyushu Institute of Technology
BIRDS Project

c/o Assistant Professor
George Maeda
Laboratory of Spacecraft Environment Interaction Engineering (LaSEINE),
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

As editor of the newsletter, I wish to express deep thanks to the staff and students of UPD (Univ. of Philippines at Diliman) for providing an outstanding article each month about events in your country. Always fascinating stuff.

- G. Maeda

Message for BIG FIFTY of the *BIRDS Project Newsletter*

Now with its 5th series (BIRDS-5) kicking off soon, the BIRDS Project has come a long way. Bhutan is happy to be part of the BIRDS family.

The first news of Bhutan's space initiatives appeared in Issue No. 10 of the **BIRDS Project Newsletter** (published in November 2016). Ever since, a lot of news about Bhutan has been published and our students have also contributed and continue to contribute to the newsletter.

This issue of **BIRDS Project Newsletter** is the 50th (BIG FIFTY) issue. We would like to congratulate the BIRDS Project for this milestone. We hope that future issues of the newsletter will continue to keep us updated on the BIRDS Project and in general the space sector as a whole.

Message from:

Jigme Tenzing
Director
Department of IT and Telecom
Ministry of Information and Communications
Royal Government of Bhutan

End of 50th Issue Congratulatory Messages for the *BIRDS Project Newsletter*

Heartfelt thanks to all who wrote messages. G. Maeda, 19 March 2020.

02. 50th anniversary of Japan's first satellite

On 11th Feb. of 2020, Japan celebrated the 50th anniversary of its first satellite. It was launched from Uchinoura in Kagoshima Prefecture.

Launch mass 24.0 kg
Power 10.3 watt

Ōsumi (or Ohsumi) is the first Japanese satellite put into orbit. It was launched on February 11, 1970 at 04:25 UTC with a Lambda 4S-5 rocket from Uchinoura Space Center by **Institute of Space and Aeronautical Science**, University of Tokyo, now part of the Japan Aerospace Exploration Agency (JAXA). Japan became the fourth nation after the USSR, United States and France to release an artificial satellite into successful orbit on its own. The satellite is named after the Ōsumi Province in the southern islands of Japan.

Photo and English text from:
https://en.wikipedia.org/wiki/Ohsumi_(satellite)

THE YOMIURI SHIMBUN

讀賣新聞

2020年(令和2年) 2月9日日曜日

13 S 社会 30

国産1号衛星 後世に

「おおすみ」打ち上げ50年

元技術者 資料集め

日本初の人工衛星となった「おおすみ」の打ち上げから11日で50年となる。当時の重要な資料の収集に取り組む元技術者は、「歴史を残し、後世に伝えていきたい」と思いを新たにしている。

日本初の人工衛星「おおすみ」の資料を集める中部博雄さん（鹿児島県肝付町で）

おおすみは1970年2月11日、名前の由来となった大隅半島に位置する鹿児島県内之浦町（現肝付町）の発射場から打ち上げられ、地球を回る軌道への投入に成功した。ソ連、米国、フランスに続く快挙だった。

宇宙航空研究開発機構（JAXA）元職員の中部博雄さん（73）は、おおすみを打ち上げるロケットの開発に携わった技術者の一人。2011年に打ち上げ場所に近い鹿児島県に移住し、おおすみにまつわる資料集めを始めた。

収集は困難を極めた。行方がわからなかったり、変色して読みづらくなったり。知り合いの研究者から古いロケットや衛星の計画書などを借り、電子データ

03. Incoming students of Zimbabwe

Starting in April of 2020, we have three students joining SEIC from Zimbabwe. Each introduces himself on the following pages.

They are with ZINGSA

Zimbabwe National Geospatial and Space Agency

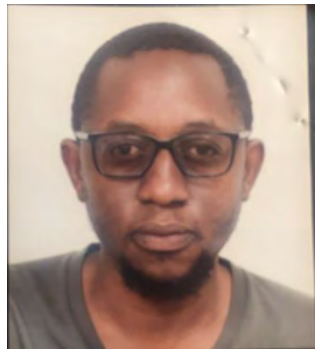
Kyushu Institute of Technology
Zimbabwe Research Students for 2020

Ramson

Victor

Timothy

Timothy Kudzanayi Kuhamba



Timothy Kuhamba is the National Coordinator for World Space Week Zimbabwe since 2014. Kuhamba funded the World Space Week celebrations from 2014 to 2017 until the Government of Zimbabwe realized his efforts single efforts by sponsoring the World Space Week Quiz 2018 which was aired on National Television. He is also a recipient of the *Space Generation Advisory Council (SGAC) 2019 Africa Space Leader Award*. Kuhamba has ten years working experience in the Broadcasting Engineering and Regulation.

Mr Kuhamba holds a Bachelor Honours in Applied Physics from National University Science in Zimbabwe and Post Graduate in Satellite Communication from *African Regional Centre for Space Science Technology Education English* where he was the best graduating in 2013. He also holds in diploma in Regulation and Freedom of Expression and. He is currently completing studying a Master in Communication Engineering at the University of Zimbabwe in March 2020. Kuhamba is the first graduate from Zimbabwe of the Can Satellite Leadership Program (CLTP-10) at Nihon University Japan 2019. He is also a contributor for space technology for articles to the Africa online space magazine https://africanews.space/

Victor Mukungunugwa

Victor Mukungunugwa is a career-oriented person offering versatile techniques and proficiency in the aerospace engineering fraternity. He is graduate Aerospace Engineer from the *National Aerospace University* of Ukraine.; upon completion he attained a cum laude Hons degree in Aircraft and Rocket engineering which he was awarded the Best aircraft engineer. Victor posses hundreds of fying hours moreover, a vast experience in aerial technologies which include aerial mapping, mining surveying, mineral exploration, wild life management, surveillance, reconnaissance etc. He achieved these qualities while working for Terracam Pvt Ltd as a Senior project manager for UAV operations.

Further more, Victor worked as assistant lecturer at *The Witwatersrand University* in South Africa. Currently he is working in the Research and Development unit for *Zimbabwe National Geospatial and Space Agency* (ZINGSA). Victor enjoys ice skating, playing held hockey and soccer. He also enjoys building remote controlled aircraft and flying them for recreational purposes. Victor is multi-lingual and would like to learn Japanese language, culture and how to cook Japanese food.

Ramson Nyamukondiwa

- Ramson Munyaradzi Nyamukondiwa is a highly motivated, goal-oriented and professional Electronics Engineer and Information Technology Lecturer at the University of Zimbabwe. He is skilled with 6 years of extensive integrated work experience in engineering, lecturing, research, publishing, and management. Currently Ramson is a permanent Full time IT lecturer for undergraduate, certificate and diploma students at the University of Zimbabwe from 2017 till present. Moreover, he is a part time IT tutor at Zimbabwe Open University from 2018 till present. He also worked as a media communication manager at EVA communications, Network Engineer at Tesol Pvt Ltd both in Zimbabwe, and as a research assistant in Electronics and Information Engineering Department at Chonbuk National University in South Korea.
- He obtained his Masters of Engineering degree in Electronics Engineering under the Korea Government Scholarship Program. His area of specialisation was in digital communication systems where he implemented a number of signal error correction coding schemes for satellite and other wireless communication systems over different channel conditions. He has been and is actively involved into publishing of papers and he has presented on international conference platforms orally or by means of posters. He has been active in student welfare and learning programs as he was an honourable ambassador for international students in *Jeollabukdo Province* in South Korea. In addition, he has done his undergraduate bachelor's degree in Electronics Engineering under the Zimbabwe government scholarship program which he successfully completed in 2013.

Photos from the end of Year 2019

Pizza parlor not far from ZINGSA

Conference hall of ZINGSA

ZINGSA is currently located on the campus of this university in Zimbabwe

END OF ZIMBABWE INTRODUCTIONS

04. Japan's contributions to the United Nations Programme on Space Applications

UNITED NATIONS
Office for Outer Space Affairs

About Us ▾ Our Work ▾ Space4SDGs ▾ Information for... ▾ Events ▾

Our Work > Secretariat of COPUOS > Committee and its Subcommittees > STSC 2020 Session

Scientific and Technical Subcommittee: 2020

Fifty-seventh session (3 - 14 February 2020)

On 10 Feb. 2020, Ms. Hazuki Mori, Associate Administrator [shown in the photo at the right], R&D Directorate, JAXA, delivered a Japan Government Statement before 2020 STSC (**Science and Technology Subcommittee**) of COPUOS at the UN in Vienna, Austria. A part of this statement covered Kyutech activities -- please see the next page for the text.

Ms. Mori delivers statement at STSC on 10 Feb. 2020

Part of the Japan statement related to PNST

Madam Chair,
Japan has also contributed to the Basic Space Technology Initiative. In cooperation with UNOOSA, the Kyushu Institute of Technology (Kyutech) offers students from developing countries the opportunity to participate in the **Long-term Fellowship Program on Nano-Satellite Technology (PNST)**. During the program, students take part in the development of a nano-satellite and use testing facilities available at Kyutech. This Fellowship Program accepts three students in the Master course and three students in the Doctorate course each year.

The post-graduate program offers training in the field of space technologies to students from developing countries or countries with economies in transition where educational infrastructure for hands-on experience through nano-satellite development is limited. The program aims to further worldwide nano-satellite development efforts and promote the peaceful and innovative use of outer space with the participation of a larger number of countries for the benefit of all of humanity.

Full Japan statement is here
https://www.unoosa.org/documents/pdf/copuos/stsc/2020/statements/2020-02-10-AM-Item05-02-JapanE.pdf

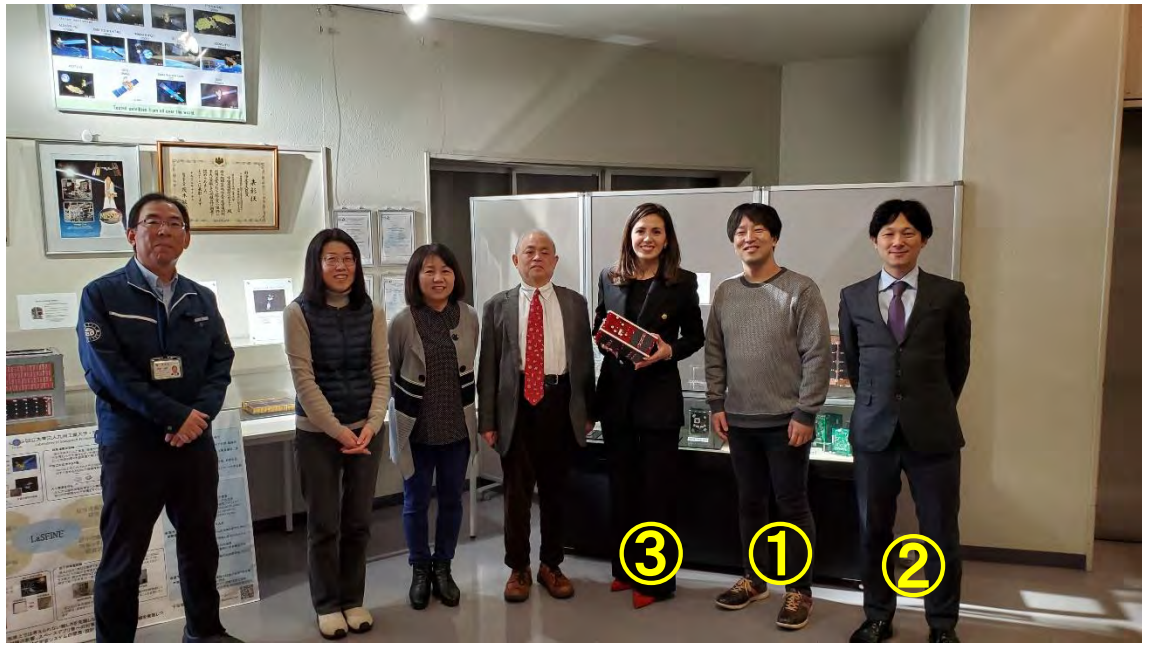
Ms. Mori delivers the Japan statement (in the big screen)

05. A visit by Axelspace to Kyutech

On 20 Feb. 2020, members of Axelspace visited Kyutech and spoke to SEIC students, as shown at the right.

From Axelspace were:

① Yuya Nakamura, CEO
② Tomohiro Kawamura
③ Kateryna (“Kate”) Aheieva



06. Incoming students of Uganda

Starting in April of 2020, we have three students joining SEIC from Uganda. Each introduces himself on the following pages.

BONNY OMARA

Date of Birth: 23rd August

I am Bonny OMARA, Head Information and Communication Technology at the Ministry of Science, technology and Innovation holding a Bachelor Degree in Computer Engineering from Busitema University and a Post graduate diploma in Information System Management from Uganda Management Institute.

Motivation for BIRDS – 5:

My career has been both challenging and rewarding, yet I still strive for new challenges with greater responsibility that will allow me to demonstrate my full potential. Studying Master of Science in Space Engineering is an opportunity I would love to dedicate myself too wholeheartedly to ensure that I become part of the cohort to launch the satellite for my country by the year 2022.

Languages: Fluent in English and Luo both spoken and written.

Projects Under taken:

- Application of GIS in an effective and efficient fire disaster emergency response and management, Karunya Institute of Technology, Tamil Nadu, India.
- Development of Water Atlas for Ministry of Water and Environment.
- Developed Mobile Phone for Water (M4W) under Ministry of Water and Environment.

Interpersonal Competence:

I am a self-driven, results-oriented and open minded person who strongly believes in professionalism and team work. I deeply treasure innovation and creativity in providing solutions to challenges

Hobbies: Adventure, Cumulative Leaning and playing Volleyball

Home sweet foods: Millet, Cassava, Potatoes, Chicken, Fish and fruits.

Important Sites to Visit in Uganda:

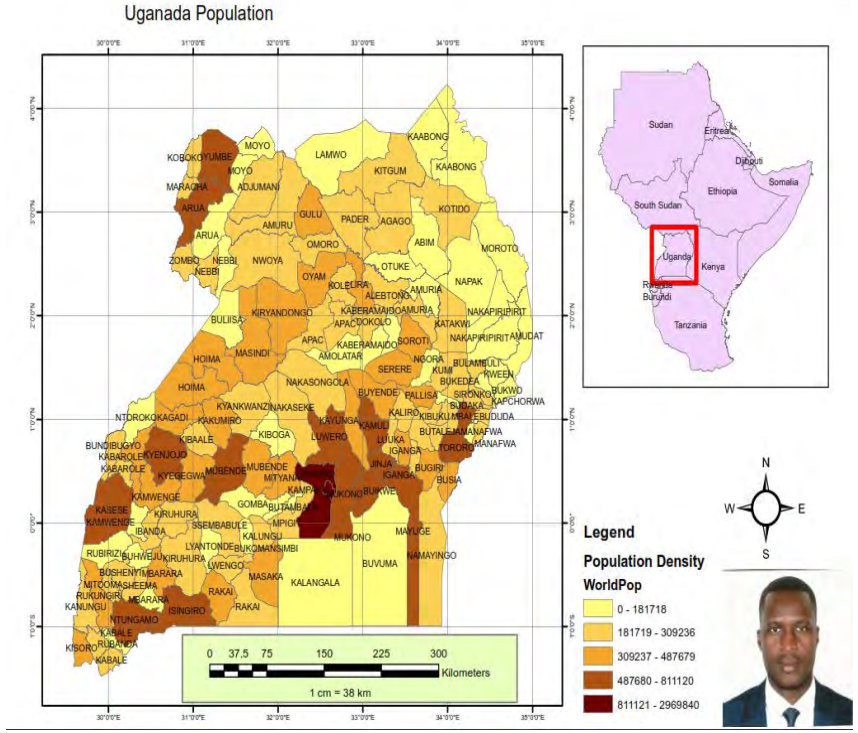
Murchison Falls National Park

Bwindi Impenetrable National Park

Queen Elizabeth National Park

Fun and Serious Facts about Uganda

- Official Name is the Republic of Uganda.
- Kampala is Uganda's national and commercial capital bordering Lake Victoria, Africa's largest lake.
- President of Uganda is Yoweri Kaguta Museveni since 1986.
- A population is about 39 Million (estimated)
- Life Expectancy – 54 years for Men – 55 years for women.
- Area – 241,038 Square Kilometers – 93,072 Square Miles 26% lakes, Rivers, Wetlands.
- Main Exports – Tourism, Coffee, Fish, and related fish products, tea, tobacco, cotton, corn, beans, Sesame, Vanilla.
- Uganda is one of the Youngest Population Nations in World – 55% under 18 years old
- Uganda is a landlocked country but is located by the largest Lake in Africa – Lake Victoria.
- The Equator runs through Uganda.



EDGAR MUJUNI

Personal Information

- **Birth day:** March 20

- **Motivational for BIRDS:**

I am very excited into Joining BIRDS-5 project in Kyutech.

I am looking forward to acquiring knowledge and hands on experience about the entire process of launching a satellite into space, starting from mission planning, design and construction, testing, launching and in-orbit operation monitoring.

YES I will build it, and will be my country's first satellite into Space.

- **Hobbies:**

Swimming, Travelling, Research & Discovery.

- **Favourate Foods at Home.**

Matooke, Rolex, Irish

- **Languages**

Runyankole, Luganda, English

- **About home:**

I recommend you visit Uganda the Pearl of Africa for lots of adventure such as, Kitagata HotSprings, Lake Mburo National Park & Kibale National park.

Academic Background

❖ **Academic Qualification**

- Bachelors Degree in Telecommunications Engineering, Kyambogo University.

❖ **Academic interests**

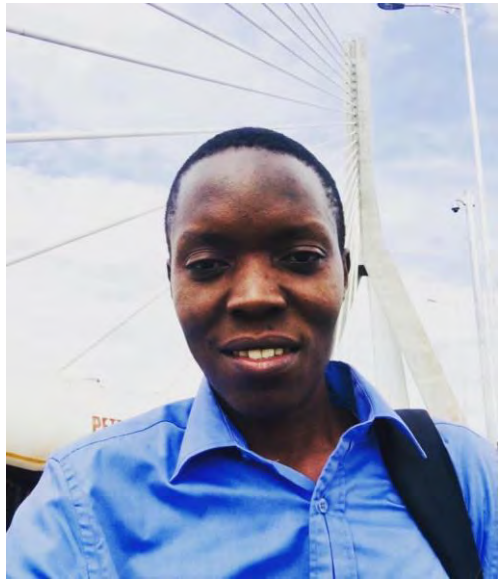
- Space Science & Aeronautics
- Telecommunications
- Robotics

❖ **Achievements**

- Awarded a certificate of participation from Valeo Innovation Challenge, Making 2030 cars Smarter & more Efficient, Paris-France, 2015
- Presented the best Individual Project, “Design & Construction of an Automatic Stamping Robot” to Kyambogo University Department of Electrical & Electronics

❖ **Skills**

- Installing, Programming & Maintenance of HF, VHF & UHF Radio Communication Systems
- Familiarity with Analog Circuit, Digital Circuit, PCB design, schematic capture, board layout, vendor interface analysis and simulation
- Computer Programming(C, C++, Python)
- Security Gadgets Programing & installation(Access Control systems, Intruder Alarms, CCTV)



DERRICK TEBUSWEKE

Personal Information

❖ **Birth day:** August 8

❖ **Motivational for BIRDS-5:**

I am delighted to join BIRDS-5 project in Kyutech, since I have always had an interest in space systems engineering.

I am interested in learning all stages of satellite development and its electrical power system design – mainly power source, storage, distribution, regulation and control, plus noise mitigation during on-board switching to energize the payloads. This being a mostly practical course, I hope to harness my electrical and electronics theoretical knowledge in helping to design the satellite power protection mechanisms, and its ground station.

❖ **Hobbies:**

Football, Tennis, Research and development, Board games, Technology enthusiast.

❖ **Favorite Foods at Home.**

Rolex, Matooke, Rice, Chicken.

❖ **Languages**

English, Luganda.

❖ **Some best places in Uganda to Visit:**

Sipi Falls, The Royal Kasubi Tombs, White water rafting on River Nile, Birds watching at Entebbe Wildlife Education Center, etc .
https://www.visituganda.com




Academic Background

❖ **Academic Qualification**

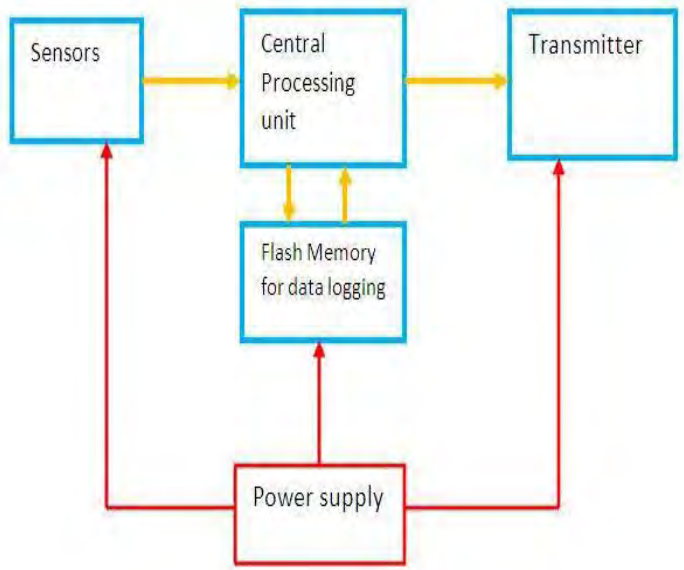
- Bachelors of science Degree in Electrical Engineering, Makerere University Kampala.

❖ **Academic interests**

- Electrical and Electronics Engineering
- Space science
- Embedded systems

❖ **Achievements**

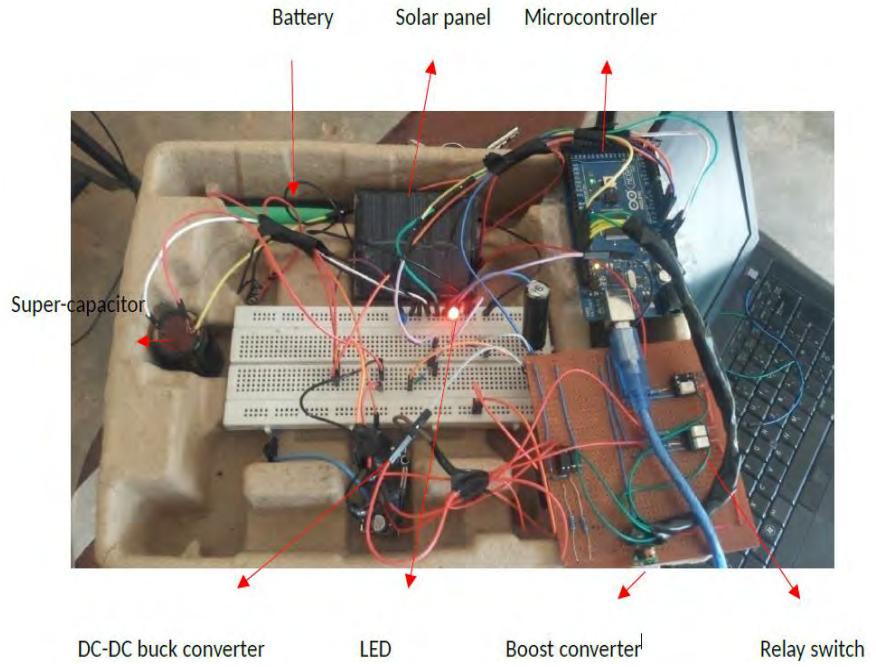
- Designed a hybrid energy storage change-over system for automatic weather stations in Uganda as my final year project, this controlled battery charging and depth of discharge, plus delivering peak power during data transmission from an energy supply loop of solar panels, ultra-capacitors and alkaline batteries.
- Designed a mobile application to help doctors collect vital information from pregnant ladies so as to ascertain their risk of pre-eclampsia from an embedded equation of health parameters.
- Certificate in Stand-Alone Solar PV Technology



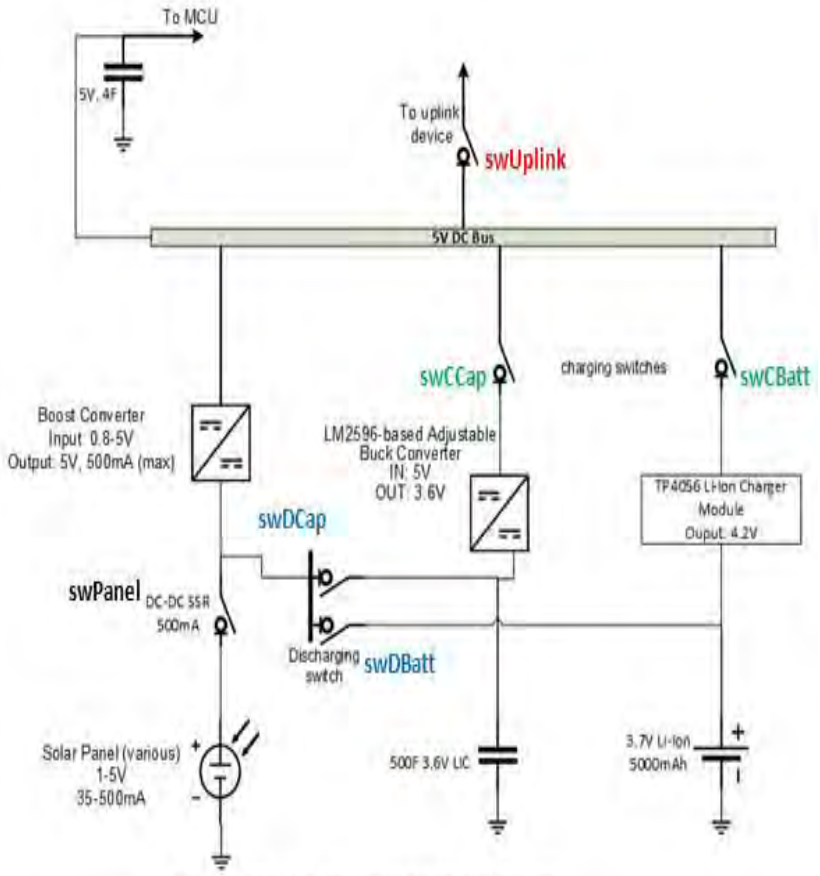
Automatic Weather Station

❖ Skills

- **Programming languages;** Arduino C, Java for android, Python for backend web development, MySQL for database query, MATLAB, C+.



Finished circuit for the AWS system

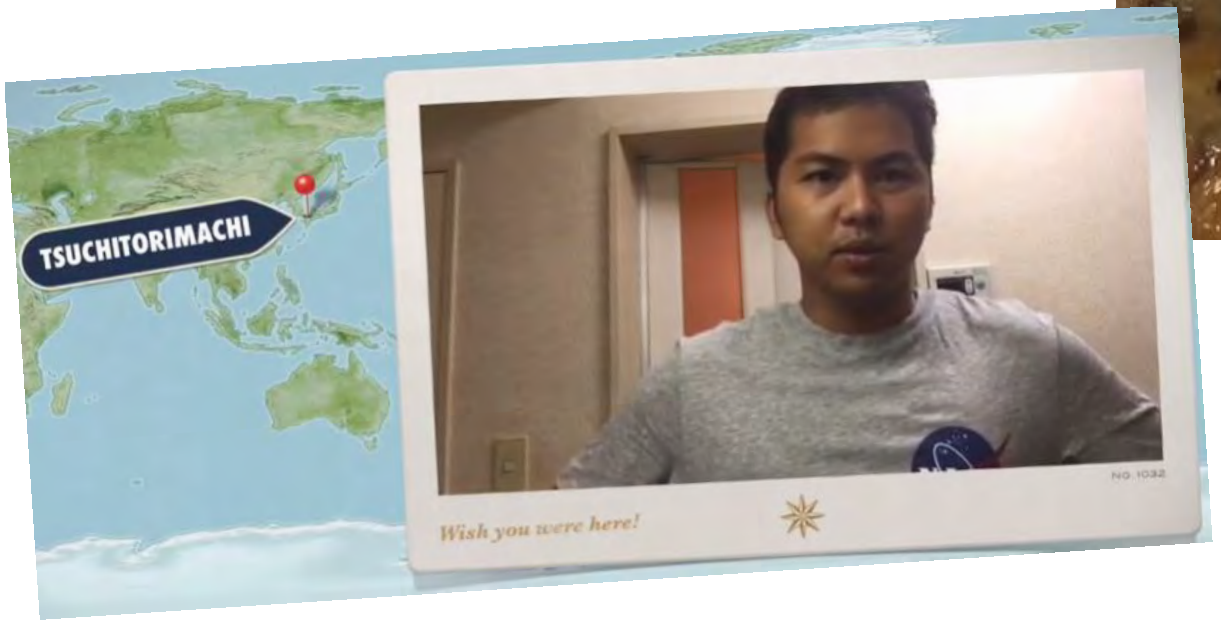


Full system of an Automatic Weather Station schematic including supercapacitor

End of self-intros by the incoming students of Uganda

07. Mark's stovetop barbeque ribs

Kyutech SEIC has many talented students – and Mark (BIRDS-4, Philippines) is one of them. Check out his famous (on our Tobata Campus) ribs with this YouTube video.



HERE IS THE LINK ….. check it out
https://www.youtube.com/watch?v=OiQimkYn-Bg

Now available at the SEIC YouTube Channel :

BIRDS-4 Satellite Project Member Introduction

69 views • 4 months ago

BIRDS-4 Satellite Reaction Wheel Test

81 views • 5 months ago

Stovetop BBQ Ribs (with Recipe) by Mark Angelo Purio

32 views • 5 months ago

ABE Initiative participants at Kyushu Institute of...

28 views • 5 months ago

Pasta Cooking by Juan (Costa rican Student)

50 views • 5 months ago

Creamy Chicken Pasta Recipe By Hoda (Egyptian...

37 views • 6 months ago

BIRDS-3 Satellite Project Press Conference 2019

20 views • 7 months ago

BIRDS-3 Members Introduction

16 views • 7 months ago

Update of Space Activities in Nepal

Hari Ram SHRESTHA

BIRDS-3

March 11, 2020

Proposal for National Space Research Center in NAST

नेपाल विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठान (नास्ट)
आ.व. २०७६/०७७ कार्यक्रमको दुई चौमासिक (साउन – फागुन) सम्मको प्रगति विवरण

क.स.	कार्यक्रमको नाम	वार्षिक कार्य सहितको वार्षिक लक्ष्य	अर्धवार्षिक प्रगति (साउन - पौस) सम्म	साउन - फागुन सम्मको प्रगति	भौ.प्र.
		- वायुउर्जा टर्वाइन डिजाइन सम्बन्धी प्रारम्भिक कार्यहरु शुरु गर्ने ।			
२.९	सानो जलविद्युत कार्यक्रम	- प्रयोगशालाको स्तरोन्नती गरी जलविद्युत क्षेत्रका विभिन्न संस्थासँग समन्वय गरी देशमा आवश्यक पर्ने अनुसन्धानात्मक कार्य, नीति तथा प्राविधिक तालिमको व्यवस्था मिलाउने । - (Thermal nano spraying जस्ता विदेशी प्रविधि को देशमै प्राविधि हस्तान्तरणको माध्यमबाट भित्याई अध्ययन अनुसन्धान सुरु गर्ने ।	- Model मा कार्य हुँदै गरेको ।		
२.१०	सूचना प्रविधि कार्यक्रम	- ग्राउण्ड स्टेशन कन्ट्रोल केन्द्रको निर्माण तथा स्तरोन्नती कार्य सुरु गर्ने - राष्ट्रिय अन्तरिक्ष अनुसन्धान केन्द्रको स्थापना सम्बन्धी प्रारम्भिक प्रतिवेदन तयार गर्ने ।	- ग्राउण्ड स्टेशन निर्माण सम्पन्न भयो । - राष्ट्रिय अन्तरिक्ष अनुसन्धान केन्द्रको स्थापनाका प्रारम्भिक प्रस्ताव निर्माण गरी मन्त्रालयमा पेश गरेको ।		
२.११	भुकम्प पूर्व चेतावनी प्रणालीको व्यवस्थापन	भुकम्प पूर्व चेतावनी प्रणालीको स्तरोन्नती एवं परीक्षणलाई निरन्तरता दिने । (कोभिड-१९ यस कार्यक्रमको निरन्तरता राष्ट्रिय, अन्तर्राष्ट्रिय संस्थाहरुको प्राविधिक सहयोगमा निर्भर रहन्छ)	भुकम्प पूर्व चेतावनी प्रणालीको स्तरोन्नती र मर्मत कार्य गरी IGC सँग समन्वय गरी सेन्सर अपडेट कार्य भइरहेको ।		
२.१२	प्लास्टिक इन्धन कार्यक्रम	- प्लास्टिकको इन्धनलाई डिजेल र पेट्रोलको रुपमा स्थापित गर्ने । - व्यवसायिक व्यवस्थापनको नमूना प्रणाली विकास गर्ने । - सहकार्यको वातावरण निर्माण गर्न आवश्यक जानकारी मूलक सामग्री निर्माण गर्दै माग भए बमोजिम कार्यशाला गोष्ठी आयोजना गर्ने ।	प्लास्टिकको इन्धनलाई डिजेलको रुपमा Euro 4 को certification प्राप्त मेसर्सको र पेट्रोल व्यवसायिक मोडेलमा तैजाने गरी PPP Model मा जाने अन्तिम तयारी भएको । गण्डकी र बागमती प्रदेशमा कार्यशाला गोष्ठीको तयार गरी सकेको ।		

NAST has proposed to Ministry of Education Science and Technology (MoEST) the establishment of National Space Research Center in NAST.

NAST

Commitment to Host a Workshop During FY 2021

During my trip to Nepal, I met Dr.sunil Babu Shresth, Vice-Chancellor of Nepal Academy of Science and Technology (NAST). He told that NAST has confirmed to Kyushu Institute of Technology (Kyutech), Japan to host the BIRDS International Workshop in Nepal on 2021. A commitment was sent to Kyutech as the workshop aims to discuss the utilization of new technology in ground station and satellites for country and society. He added that through the workshop, a good relationship with BIRDS network countries will be established.

Dr. Rabindra Prsaad Dhakal, Chief Faculty of Technology NAST, is in communication with the Professor George Maeda of KyuTech (BIRDS workshop coordinator).

For this workshop NAST will arrange meeting halls, rooms and meals for participants, various printing expenses, local ground transportation and other workshop expenses occurring inside of the Nepal as a local host.

Photo credit: Dr.snul Babu Shrestha,Dr.Rabindra Dhakal,Er.deebodh (facebook)


अन्तरिक्ष सपना

Satellite's dream of youths after deployment of NepaliSat-1 under the BIRDS-3.

Published News Interview

Dr.Sunil Babu Shretha at NAST Ground Station with Er.Dibodh during operation time.

NAST Ground station Update:

Dr.Rabindra dhakal told me that NAST is going to buy iCOM 9100 radio. This to be used for Nepal ground station operation of NepaliSat-1 and other nanosatellites under BIRDS Project. Currently NAST has acquired iCOM-9700.

Outreach

During satellite pass at NAST GS

Hon. Minister Giriraj Mani Poharel (MoEST) at NAST Ground Station with NAST's management , academician and staffs

Interactive knowledge sharing program on space and satellite together with Astranis space company of US at NAST in presence of satellites developers, space campaigners and student.

Reference:Dr.Rabindra Pd.Dhakal (facebook wall)

I would like to acknowledge the JSPS Core to Core Program and Kyushu Institute of Technology for supporting this workshop in Nepal.

NAST in 1st Space Workshop and Training at Sindhuli, Nepal

Dibodh Lamichhane
Nepal Academy of Science and Technology (NAST), Nepal

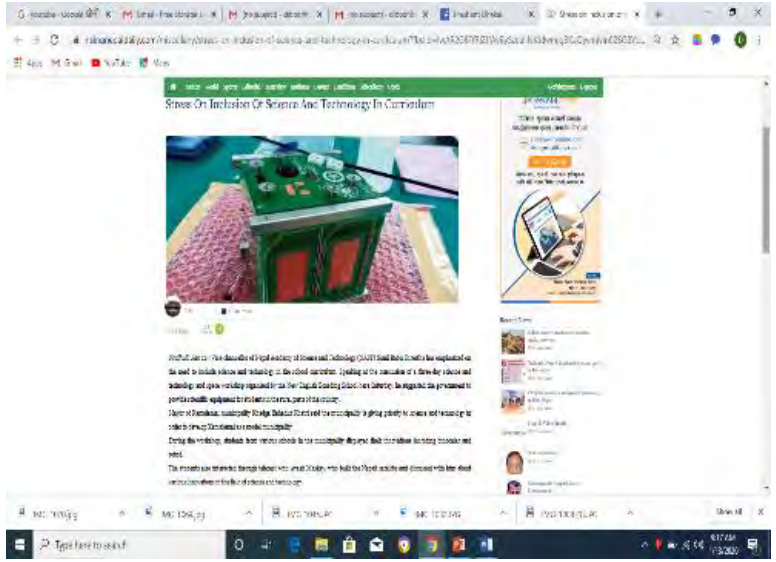
March 11, 2020

Introduction and Objectives of the 1St space workshop

Inauguration the Space Workshop by VC sir ,NAST

I begin this article with beautiful saying "If the forest and mountain does no come to Buddha, Buddha must go to forest and Mountain. If the poor cannot come to education, education must reach at the plough, in the society and everywhere." The first space workshop and exhibition in the country is the continuity of positive vibes of Nepalisat-1. The major objective of this program is to create public awareness, sensitized primary and secondary school children in the area of Space science and technology. This platform provided opportunities to understand space technology in low fee paying school trying hands on different space technology based activities like CanSat, rocketry, Satnogs based ground station, telescope, robotics etc.

Source:NEWS



Presentation, lecture, video chat with Nepalisat1 Project Manager Abhas Maskey has popularized Space science and technology among students. Total of 40 students from 6 low-fee paying school. Students participated in 3 days Workshop from January 8 to 11 (2020).

Presence of chief guest Vice Chancellor of NAST, Dr. Sunil Babu Shrestha, not only motivated students and showed clear path for their career but also popularized science and technology in society and higher authority of local governing bodies. Vice Chancellor suggested the Nepal Government to provide scientific equipment for students in the rural parts of the country.

2020 first Space Workshop & Training to Technically deprived educational institutes by NAST

Photos: From First Space Workshop and Training,Sinduli Nepal

Conclusion

Nepal Academy of Science and Technology (NAST) will continue such programs in all seven States of the country. Vice Chancellor has committed to all support for such program so that we can have leaders in future for science, technology and innovation in the country.

Thank you.

The mayor of Kamalamai Munacipality of Sindhuli Mr. Khadga Bhadur Khatri said the Munacipality will be giving priority to science and technology in extreme level in order to develop Kamalamai Munacipality as model Munacipality in science, technology and innovation.

END OF REPORT FROM NEPAL

09. A great capacity building success story of the BIRDS Project

The main goal of the BIRDS Project is *sustainability*

This is best exemplified by the **BIRDS-2S Project** (or **STeP-UP Project**) of the Philippines. Eight students (shown at the right) are building two 1U CubeSats that are basically the same as the three CubeSats that were built for the Kyutech BIRDS-2 Project.

Thus far:

- ☐ Kick-off: 18 Jan, 2019
- ☐ MDR: 30 May, 2019
- ☐ PDR: 17 Jan, 2020

STeP-UP scholars (from left to right): Christy Raterta, Marielle Magbanua-Gregorio, Gladys Bajaro, Lorilyn Daquioag, Renzo Wee, Bryan Custodio, Judiel Reyes, and Derick Canceran with DOST Secretary Fortunato dela Peña (center). **Photo by Mae Ericka Jean Picar, STAMINA4Space**

See a local news article about this innovative project on the next page

Meet UP's next satellite builders

April 25, 2019 | **Written by Andre DP Encarnacion**

University of the Philippines
Shaping minds that shape the nation

On June 29, 2018, a peculiar little satellite was launched into space aboard a Falcon 9 rocket in Florida, USA. As far as Philippine satellites go, space enthusiasts are familiar with the balikbayan box-sized class of microsatellites like Diwata-1 and Diwata-2. But this nanosatellite, **Maya-1** was even smaller.

Created by Filipino scholars Adrian Salces and Joven Javier as part of the Kyushu Institute of Technology's (Kyutech) **BIRDS-2 Project**, Maya-1 tipped the scales at barely over a kilogram, while carrying hardware that could facilitate communication in disaster scenarios. It was the first Filipino built nanosatellite and would be an inspiration for future developments in the Philippines.

A few years ago it was difficult to imagine us Filipinos having our own satellites, let alone having qualified personnel to build them. But with the success of Maya-1, as well as the Diwata microsatelllites, the UP and the Department of Science and Technology-funded STAMINA4Space program (formerly PHL-Microsat) have launched a project that will develop this future crop of satellite builders.

The name of the project is STeP-UP, and its scholars will not only be trained to build satellites like Maya-1, but they will also be doing almost all their work in-house.

See the full article here:

https://www.up.edu.ph/index.php/meet-ups-next-satellite-builders/?fbclid=IwAR3b9yw84b4KZBgsnT2ajeWQCgDWvMyoPCjdKNqKXtiSHUN8lhWuAzAy0WM

10. The new intern at UNISEC-Global

We [meaning "UNISEC-Global"] are happy to introduce our new student intern – Madina Niyazbekova. She can speak English, Russian, Kazakh and Japanese languages.

Self-introduction from Madina:

"I am very glad to become part of the ***UNISEC-Global*** family. My name is Madina and I am from Kazakhstan. At the moment, I am a graduate student at Josai International University with major in International Relations. As the new UNISEC intern, I hope to contribute to the further development of Space Engineering education worldwide. I will do my best towards bright futures in space development and exploration!"

From the *Facebook* [13.3.2020] of

11. President of AEP (the space agency of Paraguay) interviewed on Paraguay TV

VIEW THE INTERVIEW (15 minutes, in Spanish):
https://www.youtube.com/watch?v=Bb28dUtzo9w&feature=youtu.be

This interview was summarized in English by Dr. Rodrigo Cordovo (staff of LaSEINE).

Screen shot of the interview

PARAGUAY TV interviewed Ministro Cnel (R) Liduvino Vielman Diaz on 10 March 2020.

Ministro Cnel (R) Liduvino Vielman Diaz talked about the Paraguay Space Agency (AEP), its structure and main objectives. He emphasized not only the potential to develop space related projects with current national infrastructure and human resources, but also the lack of space engineers that can lead and execute those projects. Thus, AEP created the project "Paraguay al Espacio" (Paraguay towards Space) whose main objectives are the formation of human resources and development of new infrastructure.

[continued on the next page]

Continuation of the English summary by Rodrigo . . .

Its core project is the development of the small satellite called GuaraniSat-1, in collaboration with JAXA and Kyutech, along with the formation of human resources (Postgraduate studies of Adolfo and Anibal in Kyutech). The main objective of the GuaraniSat-1 is the formation of human resources. The functions of this satellite will be aimed towards epidemiology control of Chagas disease (Health application) and capturing images of Paraguay territory.

The investment was 250,000 USD, clarifying that it covers [1] the development of the satellite, [2] postgraduate studies of Anibal (first graduate in aeronautical engineer from Asuncion National University) and Adolfo (electronics engineer), [3] the construction of 2 ground stations, and [4] the training of station operators.

AEP is tightening the cooperation with other space agencies such as Mexican Space Agency towards the development of a similar project as GuaraniSat-1, and also with Open Cosmos Ltd. and UK space Agency. AEP is also working with the Ministry of Education and Science to bring up the interest of younger generations in space science and technology.

End of English summary

12. 2020 Bhutan Space Week Report

BHUTAN SPACE WEEK 17-23rd February 2020

In celebration of the 40th Birth Anniversary of His Majesty the King

For the promotion, education and outreach of space science and technology in the country

Report by Pooja Lepcha

Photos courtesy: DITT Facebook Page

https://www.facebook.com/dittbhutan/

Day 1: Opening Ceremony and Space Seminar

Day 1 began momentously with following keynote speakers in additional to speakers from various organizations:

1. **Lyonchen Dr. Lotay Tshering** (Hon'ble Prime Minister of Bhutan)

2. **Lyonpo Karma D. Wangdi** (Hon'ble Minister, Ministry of Information and Commuication)

3. **Jigme Tenzing** (Director, Department of Information Technology and Telecom)

4. **Dr. R Umamaheshwaram** (Scientific Secretary, Indian Space Research Organization)

Space Seminar Speakers

Karma Yonten
(Head, Office of Performance Management)
Overview of Bhutan's Space Program

Kiran Kumar Pradhan
(Dy. Ex. Engineer, Department of Information Technology and Telecom)
BHUTAN-1 - Development and Operation

Kinlay Paydon Dorji
(Planning Officer, Gross National Happiness Commission)
Space Technology for Socio-Economic Development

Dr. Cigay Tshering Dorji
(CEO, Thimphu TechPark)
Spinoffs of Space

Tandin Wangchuk
(Lecturer, College of Science and Technology)
The CANSAT concept

Space Seminar Speakers

Ugyen Jigme Rangdrel
(Student, The Royal Academy)
Panoptes Telescopes

Dipika Chhetri
(Royal Office for Media)
Space Break & Space Club Bhutan

Bhutan TechForce
(Group of students)
High Altitude Data
Collection Device

Anuj Pradhan
(Aerospace Engineering student)
Hydro Rockets

Sonam Tenzin
Student
Building a Moonbase

BHUTAN SPACE WEEK
17-23 FEB, 2020
Department of Information Technology & Telecom
Ministry of Information and Communications

Speakers and Participants

Students from many schools participated in the Space Seminar. The highlight of the day was the surprise visit by His Majesty the King of Bhutan. All the participants were overjoyed by the audience from His Majesty the King.

Day 2: Final Round of Quiz Competition

Call for participation in the quiz competition was sent out to all the schools in the Bhutan from grades 9-12. A total of 23 schools registered.

A preliminary selection was conducted in their respective schools. Top 10 schools were selected and called to the capital city, Thimphu for the second round and final round.

Round 2 in full swing.

Day 2: Final Round of Quiz Competition

Ten teams competed against each other to get to the final round. 5 teams made through to the final round.

The final round was broadcast on national television

Day 2:Winners of Quiz Competition

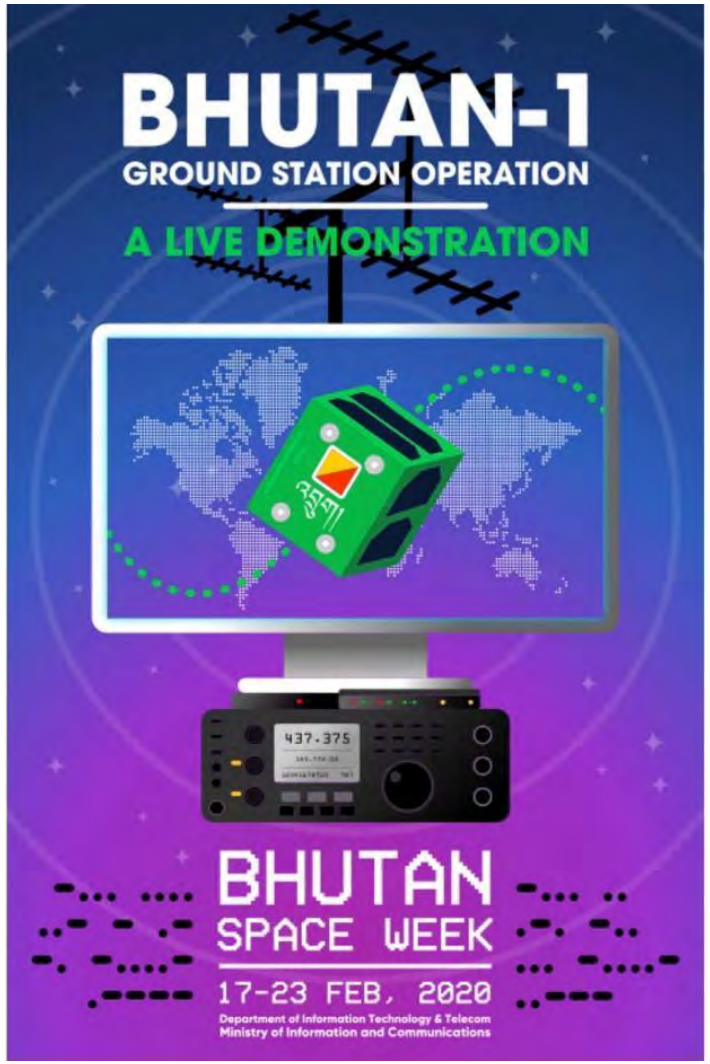
1st Winner, Team Orion,
The Royal Academy

2nd Winner, Team Clever Squads,
Changzamtog MSS

3rd Winner, Damphu Helios,
Damphu CS

The first team won a Robot Car Kit, the second team won a telescope and the third team won a Video Car Kit

Day 3, 4, 5: Live Demonstration of Bhutan-1 Operation



Space engineers who graduated from Kyutech performed live demonstration of Bhutan-1 satellite which is part of BIRDS-2 CubeSat constellation.

A briefing session about ground station operation was conducted before the live demonstration. Many students participated in these sessions.

Day 3, 4, 5: Demonstration in action

BHUTAN SPACE WEEK
17-23 FEB, 2020
Department of Information Technology & Telecom
Ministry of Information and Communications

The students showed keen interest in the operation.

Space-themed Movie Screenings

Throughout the week, space-themed movies were screened every evening in the movie theatre for the students to watch for free.

BHUTAN
SPACE WEEK
17-23 FEB, 2020
Department of Information Technology & Telecom
Ministry of Information and Communications

Closing ceremony of Bhutan Space Week

Bhutan Space Week ended with the celebration of His Majesty the King's 40th Birth Anniversary. The first of its kind, ***Bhutan Space Week*** was a huge success. I congratulate the whole team for unwavering enthusiasm in executing this.

Bhutan Space Week covered in the News

Bhutan to observe first Space week

Chimi Dema

In an effort to bring the country's focus on space science and technology, the Department of Information Technology and Telecom (DITT) would be launching Bhutan Space Week next month.

The event, this year would be observed from February 17 to 23, to commemorate the 40th birth anniversary of His Majesty The King and also to promote, educate and outreach space science and technology.

At a press conference on January 28, DITT officials said that a series of activities including space seminar, space quiz competition and space-themed movie screening, among others would be held during the week.

The seminar would highlight the country's first venture into space technology including the development of first satellite CubeSat Bhutan-1 which was released into

IX to XII can take part in the space quiz in groups of four. The official said that a preliminary test will be conducted across the country to select the best 10 teams.

In the meantime, eligible students wishing to participate can register with DITT until February 8.

The winners, officials said would be rewarded with prizes including robot car development kits and personal telescopes.

The event would also demonstrate the operation of BHUTAN-1 which can be tracked from the ground station at the ministry.

BHUTAN-1, currently operating in a low altitude of about 500km to 1,500km, passes around the country three-four times a day for five minutes, a press release from the ministry stated.

It was developed by Bhutanese engineers at the Kyushu Institute of Technology as part of their master degree course

Bhutan's space and satellite journey

Phub Dem

Bhutan's journey in space technology began in 1988 when it became a member of the International Telecommunication Union (ITU) and was allotted its first orbital slot.

According to Karma

nessing space resources, many did not know about Bhutan's orbital slots.

However, due to lack of capacity, he said that two orbital slots are not used currently.

Subsequently, a nanosatellite developed and designed by a team of four Bhutanese engi-

In addition to a free transponder, Indian Space Research Organization (ISRO) also helped the country set up a ground station for the SAS, and training for the ground station staff.

Others include numerous workshops related to space

gramme is expected to initiate outreach and educational activities since there were no such initiatives in the country.

Karma Yonten said that the programme was inspired by His Majesty's vision to utilise space resources and technologies for the benefit of Bhutan,

gramme. "We should focus on becoming producers of the new technology, not just consumers."

The government has allocated Nu 305 million for space and satellite activities to build 3U and 5U satellites, for orbital slot filing, satellite network

http://www.bbs.bt/news/?p=128450

Bhutan's first Space Week starts

Feb 17, 2020

Bhutan entered into the world of space science and technology by launching its first satellite in 2018. So in celebration of Bhutan's space journey and to commemorate the 40th birthday of His Majesty The King, the Ministry of Information and Communications launched Bhutan's first Space Week today.

End of this Bhutan report by Pooja

UiTMSAT COLUMN

Column No. 3

Editor: FATIMAH ZAHARAH BINTI ALI
PhD CANDIDATE, LABORATORY OF SPACE WEATHER AND SATELLITE SYSTEM
FACULTY OF ELECTRICAL ENGINEERING
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UNIVERSITI TEKNOLOGI MARA

UiTM Sentiasa Di Hatiku
"UiTM Always in My Heart"

VISITS TO HOKKAIDO UNIV (JAPAN) and ACTIVITIES IN UNISEC MALAYSIA WORKSHOP 2020

In my previous article of BIRDS Project Newsletter Edition of February 2020, I have written about the visits to two institutions in Bangkok, Thailand by the representatives from Centre for Satellite Communication (UiTMSAT), Faculty of Electrical Engineering, UiTM, and MCM Value Sdn. Bhd. With the same mission and objectives of looking for potential collaboration, the visit has continued to an academic institution that has vast experiences in space technologies, Hokkaido University.

Figure 1 : (Left) The main gate of Hokkaido University. (Right) Me in front of one of the oldest buildings in the university. Note that the visit was in February during winter.

Hokkaido University is located in Sapporo, Japan. As the visit happened in February, the snowing season was still in the full swing. It has been another experience for the representatives of UiTMSAT, Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh, the Director of UiTMSAT, me, and Sr Ts Masnizan Che Mat from MCMV. The representatives were given a warm welcome by the Director of Space Mission Center, Professor Dr. Yukihiro Takahashi.

In a meeting during the visit, the three stakeholders, UiTMSAT, MCMV and Space Mission Center from Hokkaido University, have exchanged the information about each institution and achievements where through these, a collaboration in space activities could be prospected. The meeting was ended with Letter of Intent (LoI) signing session between those three institutions indicating an early comprehension has obtained. Right after the meeting, the representatives were given a great visit to Laboratory Measurement for Optical Remote Sensing, guided by the PhD student, Ahmad Shaqeer, explaining about the developed technologies used in the lab. It was an honour to be welcomed by the Space Mission Center team in Hokkaido University!

Figure 2: Prof. Dr. Yukihiro Takahshi was giving a brief introduction about his center to Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh and Sr Ts Masnizan Che Mat.

Figure 3: Discussion session in the meeting between Prof. Dr. Yukihiro Takahshi, Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh and Sr Ts Masnizan Che Mat, about the potential project collaboration in space technologies.

Figure 4: LoI signing session between three stakeholders right after the meeting ended.

Figure 5: From left, Sr Ts Masnizan Che Mat, Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh, and Prof. Dr. Yukihiro Takahshi, showing the signed LoI indicating an achievement of comprehension between three stakeholders.

Figure 6: Associate Professor Ir. Dr. Mohamad Huzaimy Jusoh were giving a souvenir from UiTM, Malaysia to Prof. Dr. Yukihiro Takahshi as a sign of gratitude for having UiTMSAT and MCMV to Space Mission Center in Hokkaido University.

Figure 7: The participants from UiTM to UNISEC Malaysia Workshop 2020.

On 15 to 16 February 2020, Universiti Sains Malaysia (USM) as one participants in University Space Engineering Consortium (UNISEC) Malaysia has conducted an UNISEC Malaysia Workshop 2020. In this workshop, all involved UNISEC participants including UiTM's students took part to discuss the space activities projects and directions of the team towards the space technologies. They were divided into three teams, Hot Altitude Balloon, Small Satellite, and Rocketry. 11 UiTM's undergraduate students were participated and had learned new things about the space engineering while acquiring new experiences in cooperating with other students from other universities. This is a good start for the students to gain an interest in space technologies. Many students are expected to join the team when this local workshop is planned to resume.

Figure 8: Syazana Bashirah, the PhD student from **BIRDS Project** *was giving a talk to workshop's participants as she was invited as speaker to the event to share about the current space technologies.*

Figure 9: UiTM's students were listening to the talks given by the invited speakers. This was when they theoretically learned new things about space engineering.

Figure 10: The leader of UiTM's team, Muhammad Aqeel Mohd Razimi was summarizing his team involvement in the UNISEC Malaysia Workshop 2020 to the other participants.

Figure 12: One of the team in the event was conducting a discussion about future activities with respective mentors who have expertise in space technologies.

Figure 13: Muhammad Aqeel, representing UiTM's team was given certificates for the involvement in the event.

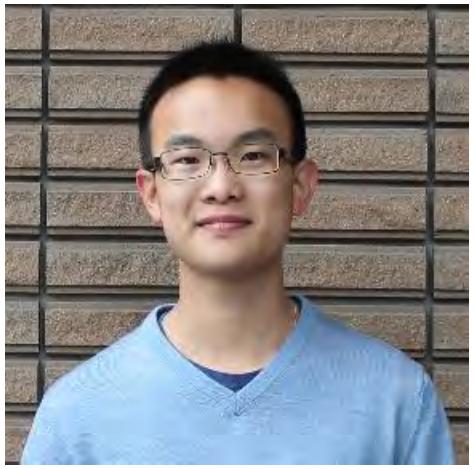
Figure 14: All participants of the events taking picture in front of the hall where the event was conducted.

Figure 11: One of the activities conducted in the event – sharing session by speaker from space-related field.

End of Malaysia's Column

BIRDS-4 reports for March 2020 are on the following pages

BIRDS-4 Ground Station Software



Timothy Ivan Leong

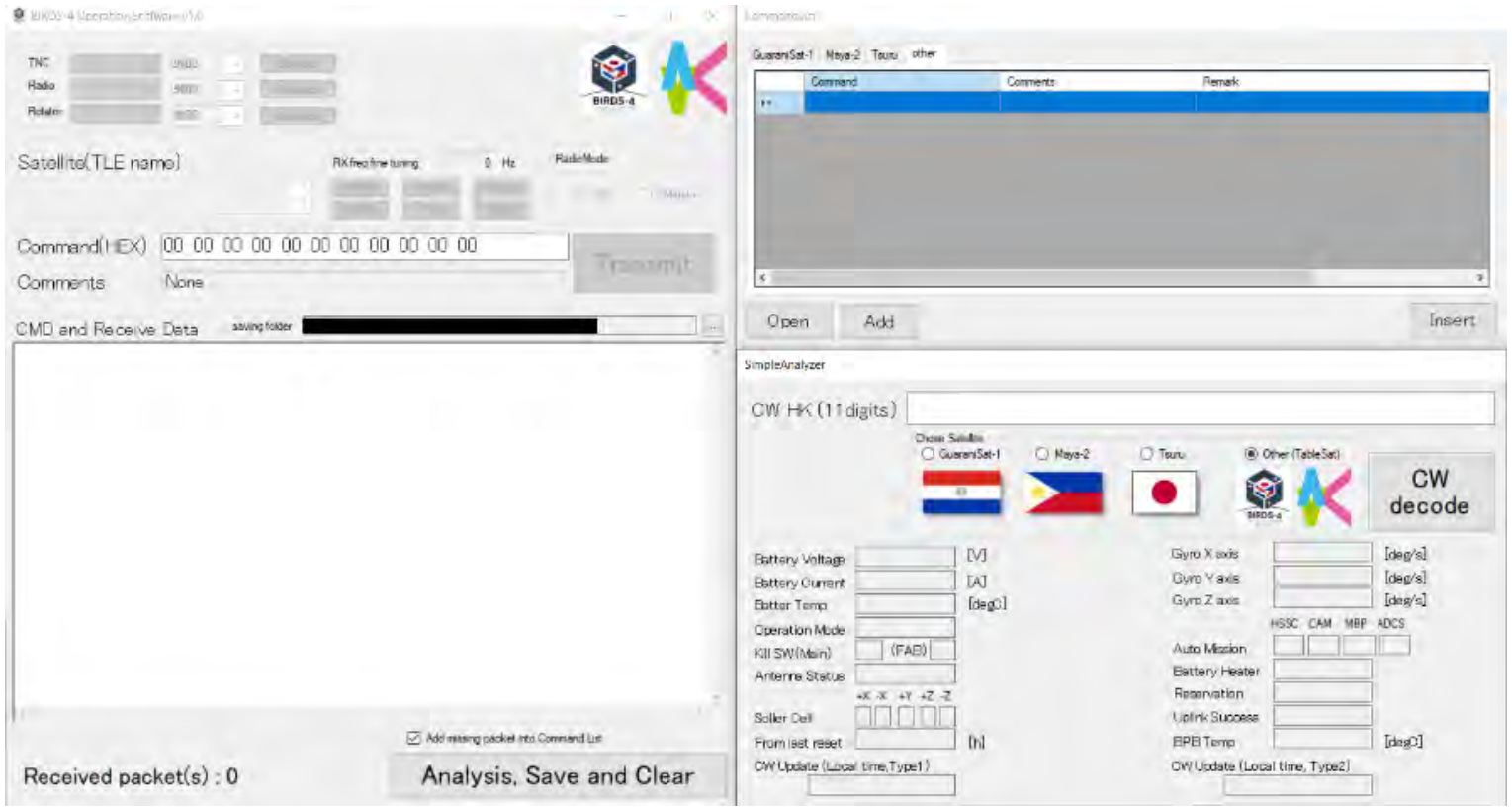
March 7, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

BIRDS-4 Ground Station Software

The BIRDS-4 Ground Station software will be our main interface of communication with the BIRDS-4 satellites once they are in space. The software was developed by Daisuke Nakayama. It allows users to easily communicate with the BIRDS-4 satellite and minimize errors and complex command input.

The interface allows us to send command to the satellite and receive the data from the satellite. A list of command can even be saved as a csv file then loaded inside the ground station software to easily input the commands we want to send to the satellite. An interface has also been created to decode and present the CW data the satellite send. The software is also able to detect missing packet and create a command to ask for them again.



BIRDS-4 Ground Station Software interface

On the side, a program has been created to recombine data together when there were missing packet in the first download. Another program has also been created to decode and show jpeg images.

Future development of the software will include a program that will allow to decode data from the different missions (they are currently saved as hex data) and save them into csv format to further ease the processing of data from the satellite.

Egypt's Space Activities

Hoda El-Megharbel

March 7, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Space Activities in Egypt

Written By: Hoda Awny El-Megharbel

Egyptian Satellites: Egypt joined space age gradually through small research and remote sensing satellites. In 1998, Egypt became the first Arab country to put a telecommunications satellite into space with the launch of NileSat 101. That satellite was followed in 2000 by Nilesat 102, which helped in the distribution of hundreds of satellite TV channels.

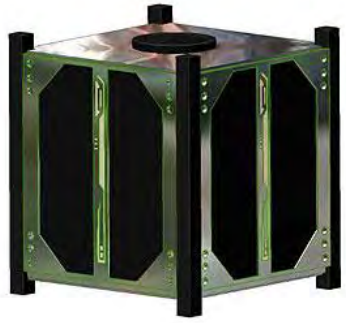
Artist's representation of NileSat 101 [source]

In 2007, Egypt launched EgyptSat-1, which became the first Egyptian remote-sensing satellite. The newest Egyptian satellite, TibaSat-1, is a communication satellite, which was launched in November 2019. Egypt currently has the highest number of launched satellites in Africa. [source]

NARSSCube-1-2 are educational Nano-satellites launched in 2019 to image the Earth in Monochromatic color/color. [source]

Artist's representation of NileSat 201 [source]

Artist's representation of EgyptSat-1 [source]



NARSSCube-1-2 [source]

Space Activities in Egypt

Written By: Hoda Awny El-Megharbel

Egypt's Space Program: The objective of the program was to acquire technological knowledge and enhance capabilities, as well as building required infrastructure to achieve self-capability for Egypt to design & manufacture its small satellites.

Organizations: National Authority for Remote Sensing and Space Science (NARSS) is a pioneering Egyptian institution in the field of satellite remote sensing, established in 1971.
The Egyptian Space Agency will work on the full realization of the commercial and social benefits of space for Egypt.

[1]

[2]

[3]

Logos of the institutions related to Egypt's space activities
Image references [1, 2, 3]

In 2017, the African Union passed legislation to establish the African Space Agency. The main objective of establishing the African Space Agency is to maximize the benefits of the current and planned space activities in Africa and minimize the duplication of efforts in order to optimize access to space-derived data, services, products and information in the continent.
Egypt was endorsed as the host of the African Space Agency at the 32nd Ordinary Session of the Assembly of the African Union which was held at the African Union Headquarter in Addis Ababa, Ethiopia in February 2019.

Party for Graduating Members

Yasir M. O. ABBAS

March 5, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Party for Graduating Members

Written By: Yasir ABBAS

On 15th of February 2020, BIRDS-4 team had amazing time in a Mexican restaurant in Kokura. The event was well organized by Murase-san, the food was delicious and the atmosphere was awesome.

The team celebrated the graduation of three of its members, Hisatsugu-san, Nakayama-san and Nozaki-san. We all wish them a happy successful academic, work and social life in their days to come.

Graduation and birthday celebration cakes!

Part of the food

BIRDS-4 members at the restaurant

Beside the gathering there was a side birthday party for those who was born in February: Mark-san and Hisatsugu-san.

The Mexican food was superb, it was a new experience for most of the team but some of the team had nostalgia. Obviously you can guess who, the Paraguayans of course!

In the orders, free drinks were part of the deal. Personally I did not enjoy this free bar because the restaurant had neither alcohol-free nor sugar-free drinks, but I decided to enjoy observing people.

Luckily no one came to the restaurant driving! We all had fun. It was a day to remember.

DC-DC Converter and Diode Tests of FAB for Battery Protection

Hari Ram Shrestha

March 7, 2020

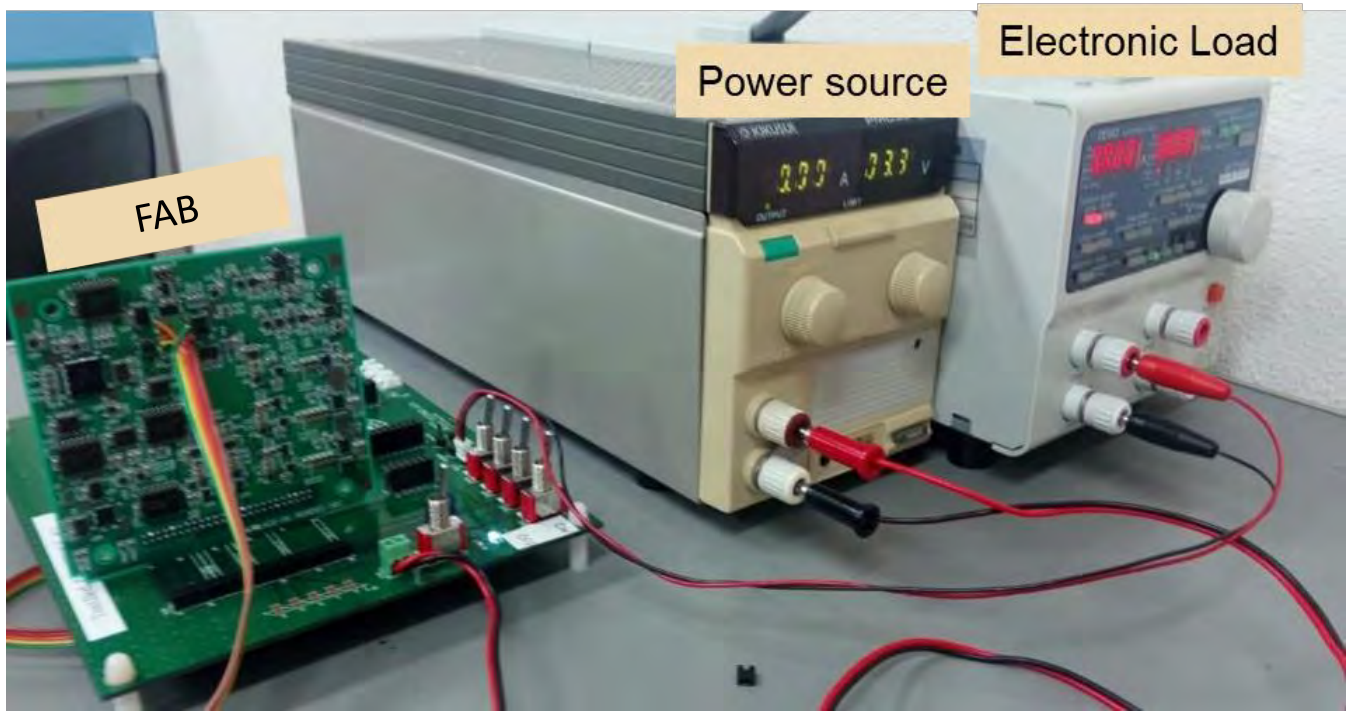
BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

DC/DC Converter Test

Written By: Hari Ram Shrestha

The FAB (Front Access Board) for EPS of BIRDS-4 Project CubeSat is using the LTC3119 Buck-Boost DC/DC converter; the purpose of the DC/DC Converter is to provide constant output voltage either higher or lower than the input voltage. The DC/DC converter is a power electronic device for the source. In this test, LTC3119 accepts DC input power supply and provides a DC output voltage.

In the BIRDS-4 CubeSat project, the battery is selected as the NiMH battery in 3S2P. It always provides the output constant voltage of 4.2 V for the battery charging even if the input voltage is higher or less than the 4.2 V.



Test equipment

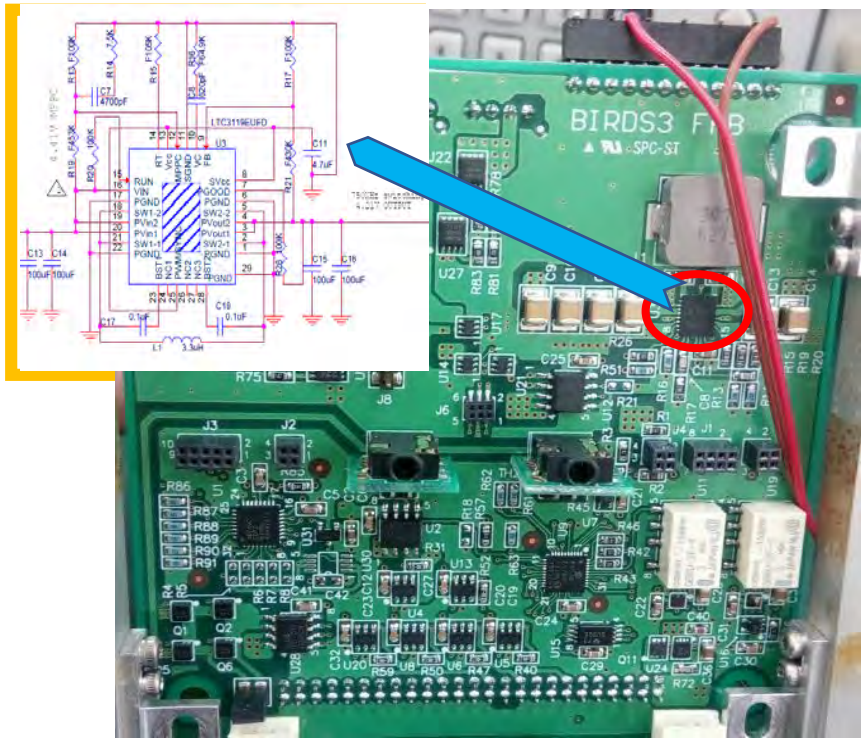
DC/DC Converter Test

Written By: Hari Ram Shrestha

At the beginning of the test, the power source provides the required DC voltage with a constant current for battery, the status of the current and voltage should be monitored from the electronic load and power source. The battery consumes the constant current for charging after some time, the consumed current gets low.

Input Voltage (mV)	Input Current (mA)	Battery Voltage (mV)	Status
4654	596	4155	CC
4657	602	4186	
4661	612	4192	
4657	**588**	**4199**	
4654	**604**	**4229**	CV
4655	596	4237	
4745	458	4248	
4760	394	4250	
4774	332	4248	
4779	291	4248	

Results of the DC-DC test
CC: Constant Current, CV: Constant Voltage
Reference: BIRDS-4 Battery Verification report

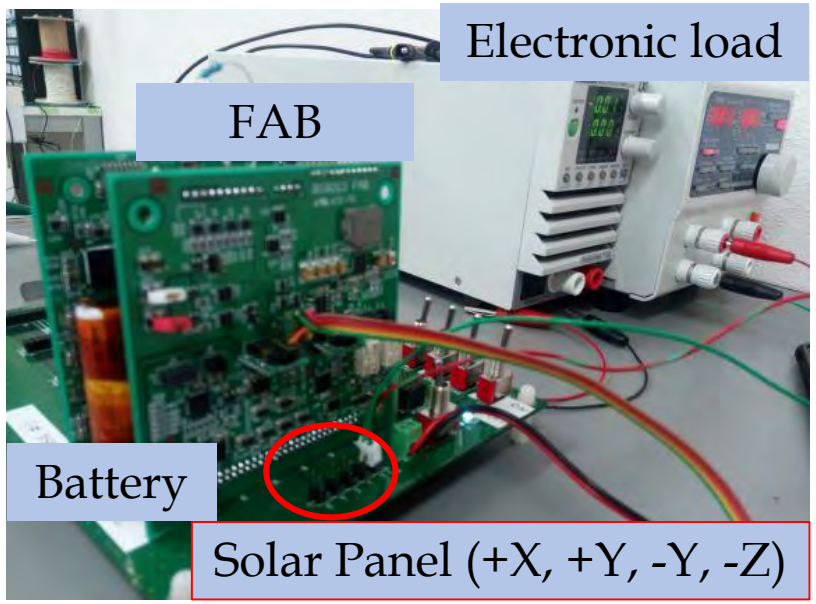


FAB board and schematic diagram of DC/DC component

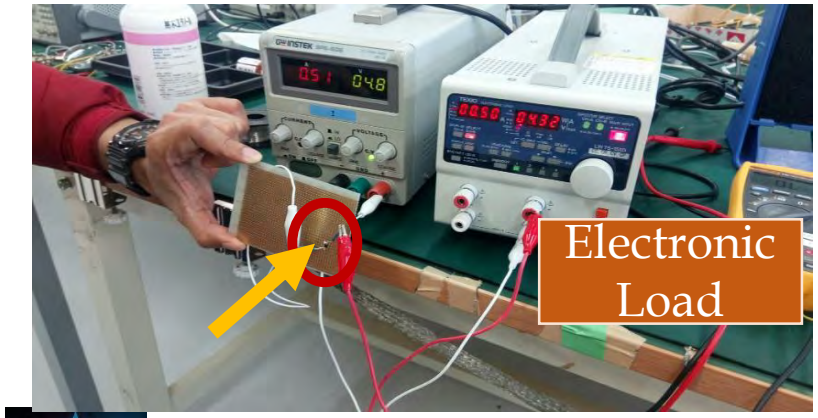
The real function of the DC/DC converter in CubeSat is to protect the battery from overcharge hazards caused by the power source of solar panels of CubeSat. The test is necessary due to one of the major inhibits for solar power generation to the battery.

Diode Test set up and Results

Written By: Hari Ram Shrestha



The test setup



The purpose of the diode test in BIRDS-4 CubeSat is to verify the 3S2P NiMH battery protection for the over-discharge phenomenon during the eclipse by measuring current flow and voltage from the battery to power generation source.

During the test; a diode was used to block the reverse direction current flowing on the test bed of FAB. This test was conducted using the electronic load and the FAB PIC programming. It behaves as an open circuit if the current flow in a reversed direction. If we measure the value before turning on the electronic load the diode shows the voltage drop in the terminal; however, when the electronic load is turned on, the load current became zero, meaning the diode blocked the reverse current to the cathode from the anode.

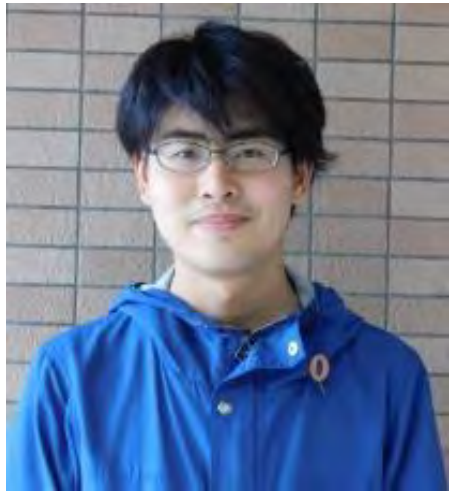
(At Test bed) Panel	Test results with electronic load	
	Before	After
(+X)	V= 1.32 V, A= 0	V =0, A=0
(+Y)	V= 1.34 V, A= 0	V =0, A=0
(-Y)	V= 1.36 V, A= 0	V =0, A=0
(-Z)	V= 1.35 V, A= 0	V =0, A=0

Results before and after the test

Voltage source = 4.8 V
Used current by the electronic load = 0.5 A
Voltage drop = 0.48 V
Power loss = 240 mW

References: BIRDS-4 Battery Verification Report and BIRDS-4 EPS CDR
LTC3119 data sheet,analog.com

How to Measure Antenna Pattern Easily



Daisuke Nakayama

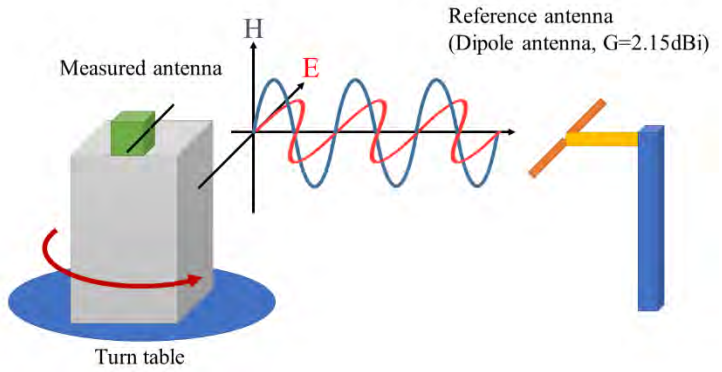
March 7, 2020

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

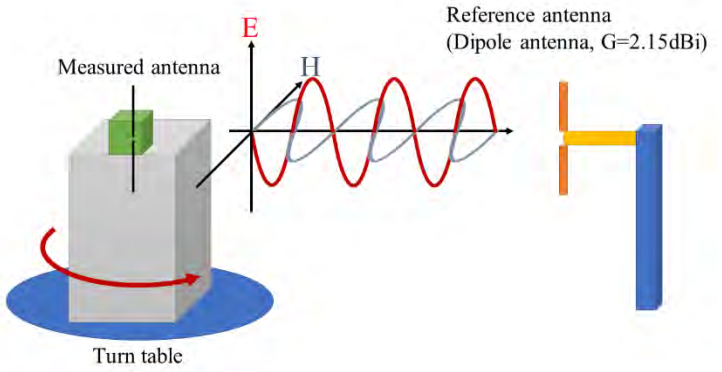
How to Measure Antenna Pattern Easily

Written By: Daisuke Nakayama

One of our mission is Hentenna demonstration on orbit. Hentenna is the name of an antenna that we demonstrate. We use a dipole antenna or monopole antenna for conventional CubeSat communication. BIRDS-4 is also using it for main communication and APRS. Research on monopole and dipole antennas have been widely conducted. Evaluating the characteristic of dipole or monopole antennas is easy. The complete antenna pattern can be obtained with only two types of measurements for such types of antennas. However, Hentenna is a new type of antenna and it is as such difficult to predict the antenna pattern and the direction of the main polarization of the antenna due to the influence of internal equipment on the CubeSat; therefore, many measurements had to be performed.



Test method for horizontal antenna patterns of dipole antenna: An 8-shaped antenna pattern (commonly known as electric field plane pattern) is measured.



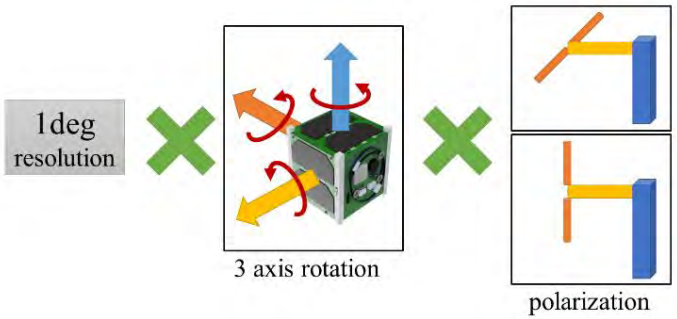
Test method for vertical antenna patterns of dipole antenna: A circular antenna pattern (commonly known magnetic field plane pattern) is measured.

In the conventional measurement method, the antenna is placed on the turntable while the radio wave emitted from the antenna is measured and the received power is measured at different degrees. If we want a radiation pattern with a resolution of 10 degrees, we can obtain the pattern by measuring it 36 times. Hence, we only need to measure the receiving power for dipole or monopole antenna 72 times. BIRDS-4 needed a resolution of 1 degree, 3 axis of rotation and 2 polarization, which caused us to measure the receiving power 2160 times. It was really tiring way of conducting such a test.

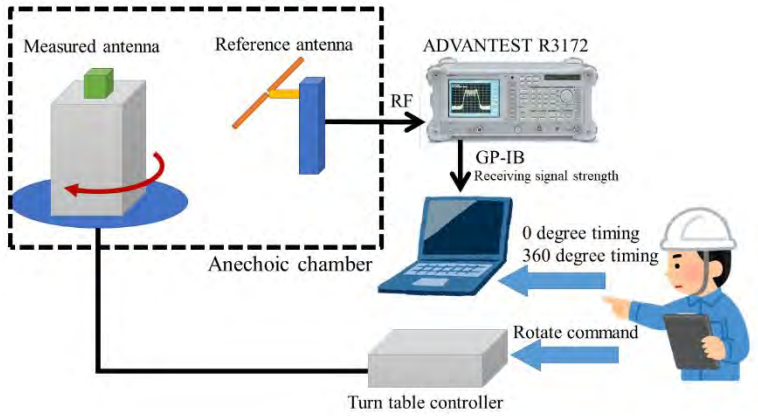
How to Measure Antenna Pattern Easily

Written By: Daisuke Nakayama

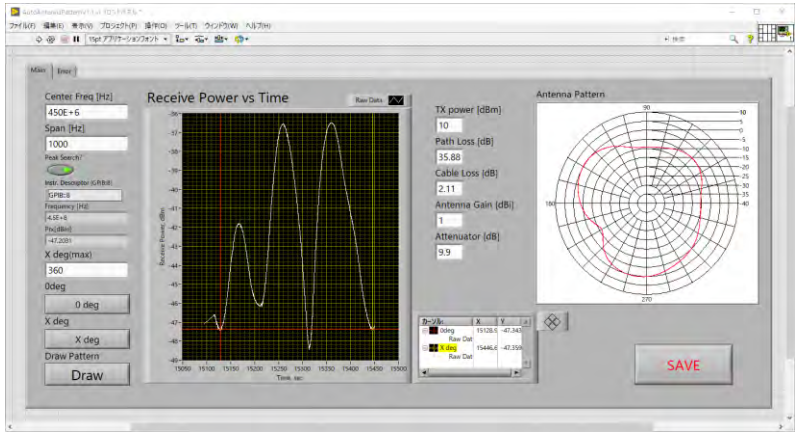
Our anechoic chamber is a really big facility. To measure faster without a big budget, I considered measuring the received power in the time domain and convert it into angle over time. I, thus, developed a software for an easier antenna measurement. ADVANTEST released the driver for the spectrum analyzer (ADVANTEST R3172) for LabVIEW, so I used LabVIEW to develop the software.



Measurement plan for Hentenna
Point of measurement = 360/1 × 3 ×2 = 2160 point

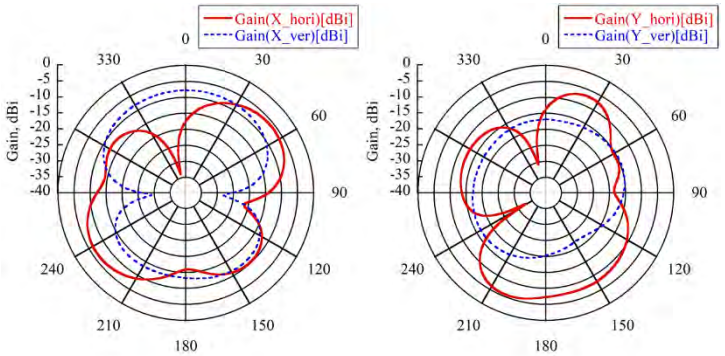


New test method for radiation pattern



The radiation pattern measurement software developed using LabVIEW

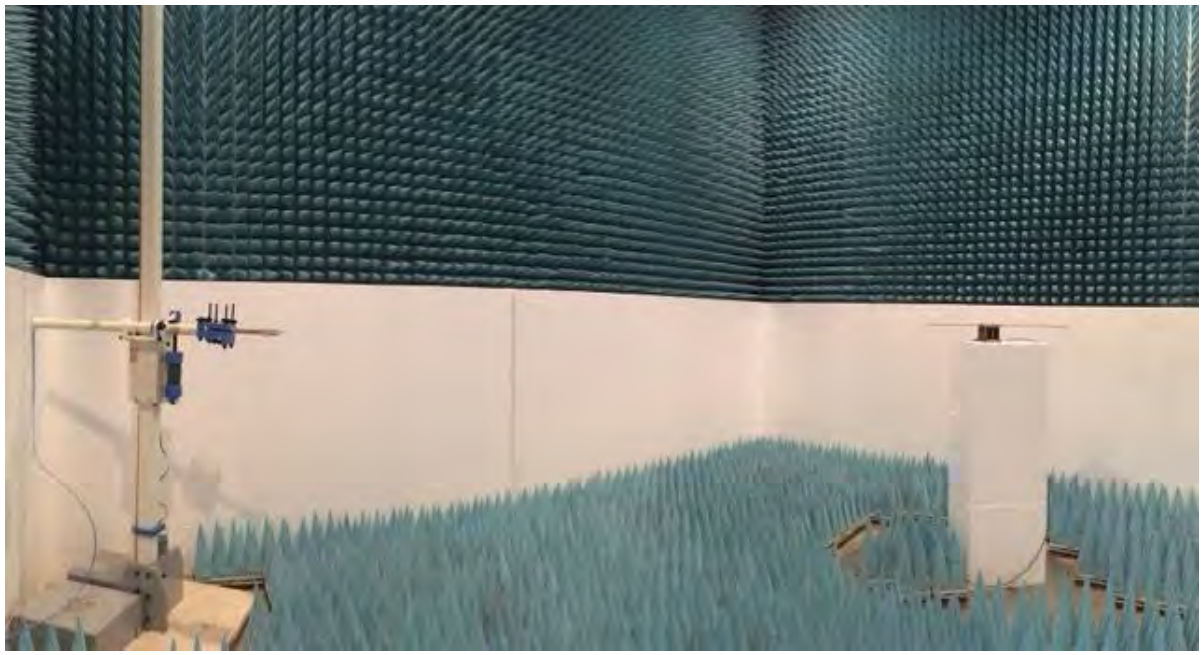
This software is recording time and the receiving power from the spectrum analyzer via GP-IB after setting. The engineer starts rotating the turntable from several minus angles (e.g. 350deg). When the angle becomes 0 deg he/she clicks the "0 deg" button and when the angle becomes 360 deg he/she clicks the "x deg" button. He/she stop the turntable. After that, by clicking the "Draw" button, the software shows the antenna pattern.



The radiation pattern of Hentenna (FM)
Left: X axis rotation, Right: Y axis rotation

How to Measure Antenna Pattern Easily

Written By: Daisuke Nakayama



Some anechoic chamber test photos

Our turntable has 2 speed modes: the slower one spends 5 min for 1 rotation while the faster one spends 1.5 min on 1 rotation. This software tries to record as much as possible during the rotation. The recording intervals were approximately 0.11 and 1.3 degrees. This value is enough for measuring for 1 deg. The software I developed could interpolate the data and convert it to every-1-degree data.

This software is currently being used for the development of a new satellite antenna at Kyushu Institute of Technology.

Team Goes to a Turkish Restaurant

Yuma Nozaki

March 5, 2020

The Turkish restaurant

Written By: Yuma Nozaki

On February 20, we visited the Turkish restaurant "ERTUGRUL" and had a good time there. The restaurant is located near Kokura station. The origin of the restaurant's name is actually coming from an old ship's name. In 1890, a Turkish ship encountered a typhoon and sank in Japanese waters. Japanese living near the coast rescued some of the crew. ***Editor : see next page for more about this ship.***

BIRDS-4 members at the restaurant

Turkish dish, Iskender Kebab

We ate the Turkish dishes such as Iskender Kebab. This dish is coming on a plate as kebab with bread, tomato sauce, salad and yogurt. It was very delicious. I drank ***raki*** that is a famous liquor in Turkey. It was the first time I had some. The taste was unique and good. Once or twice a month, you can watch belly dance show there. I would like to go there to watch the dance some time. I recommend you to visit there, too, if you are interested!

The Turkish restaurant: Ertugrul [source]

Voyage of frigate Ertuğrul to Japan, by Major General Osman Nuri Pasha (1839-1906).

Notes by G. Maeda, The Editor

There is a lot of history behind this Turkish ship called ***Ertuğrul***. See the link below for more historical information.

Monument at the Kushimoto Turkish Memorial and Museum, Japan.

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

MORE DETAILS: https://en.wikipedia.org/wiki/Ottoman_frigate_Ertu%C4%9Frul

End of BIRDS-4 reports of March 2020

20. Report from Paraguay

FIUNA FPUNA UNG

CApacity BUilding in REsearch & Innovation For Space

The "CABURE+I 4S" Project

Newsletter

News from Paraguay
March 2020

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

Edited by:
Cristhian Coronel

Paraguay Space Agency

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

Mr. Carlos Ozuna is an 8th semester electronics student at the Faculty of Engineering UNA (FIUNA). Carlos is currently doing an internship at the Mechanics and Energy Lab (LME) at FIUNA.
Advisor: Dr. Stalder.

The study of region D of the ionosphere, around 70km altitude, is a little peculiar. Satellites monitor higher altitudes and weather balloons are limited to a few kilometers, so we’re revising other alternatives, such as the use of the VLF band.

The propagation of VLF waves in the earth-ionosphere waveguide depends on the ionospheric conditions, which change during the day and night.
In addition, during solar events, excess in x-ray emissions increases the process of photoionization, so the specific parameters of the ionosphere change the height of the reflected VLF signals.

To detect these signals we made a 1.10m side loop square antenna, optimized to capture the 21.4KHz frequency from a transmitter located in Hawaii (NPM) that will then be analyzed by an SDR with the help of a sound card, in charge of a digital-analog conversion system.

Building a loop antenna to study the ionosphere. A Mechanics and Energy Lab project.

This picture shows how the antenna looks. Once finished it should be able to capture the signals from the transmitter in Hawaii.

Building a loop antenna to study the ionosphere. A mechanics and energy laboratory project.

To build this antenna we used easy to acquire materials such as: PVC pipes, connectors and enameled copper wire.

The PVC pipes that we use had 1 inch diameter. It is assembled with 4 pieces of 78cm length and 4 pieces of 25cm length. PVC connectors: 1 four way connector, 4 elbow connectors, 4 “T” connectors. 500g of enameled copper wire of 0.5mm diameter was utilized.

Connectors used here

Here are the construction steps:
Step 1. Connect all T connectors
Step 2. Assemble frame using 4 way connector
Step 3. Build base of antenna with the four 25cm PVC pipes
Step 4. Install antenna legs with elbows connectors
Step 5. Wind the antenna with the enameled copper wire
Step 6. Tune to the desired frequency using capacitors

Carlos B. Ozuna L., Electronics Engineering student from Universidad Nacional de Asunción (UNA) – Facultad de Ingeniería (FIUNA)
March 2020

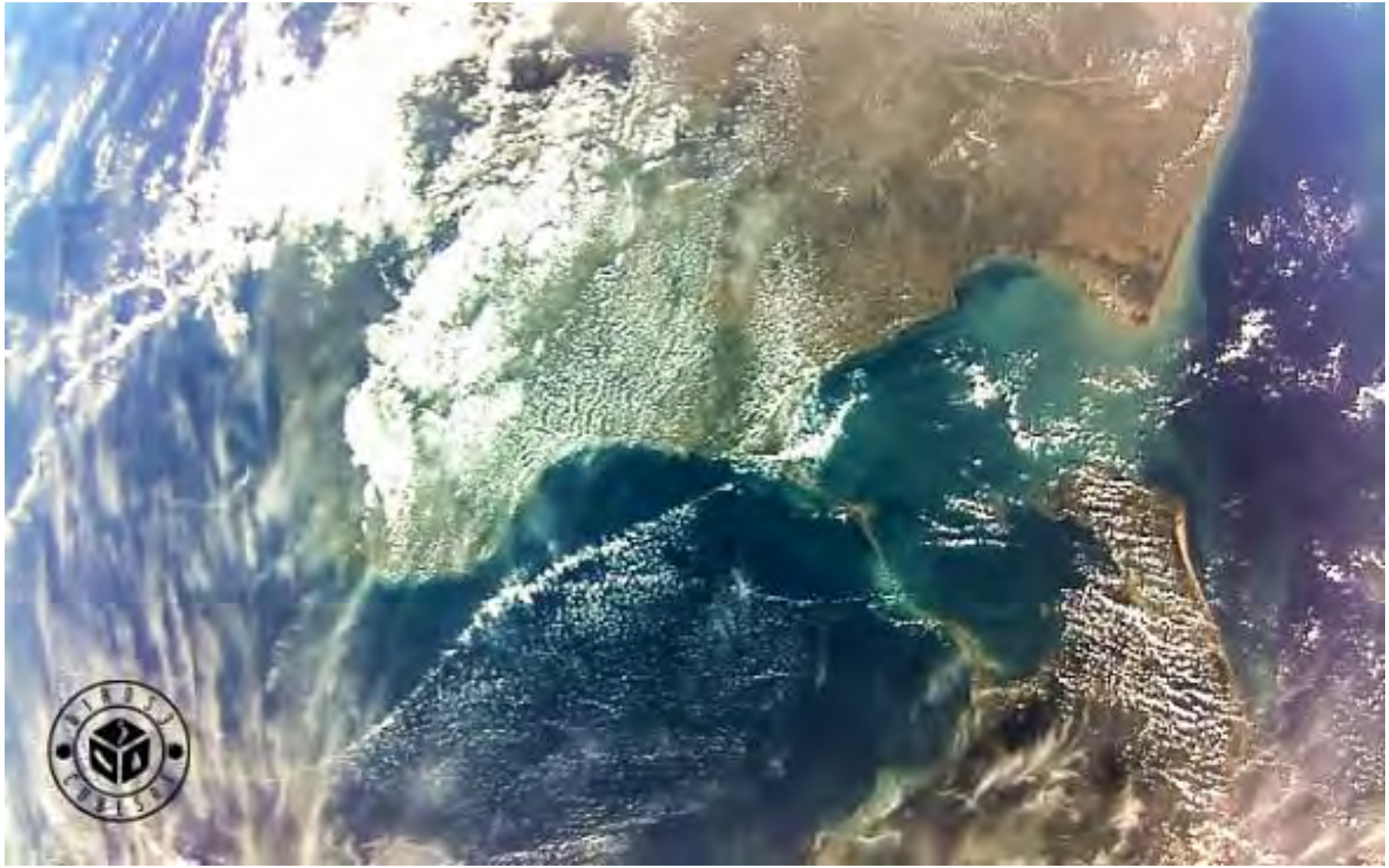
Welcome AEP’s newly appointed Research Project Director

I am Blas Fernando Vega, an electronics engineer, graduated from the National University of Asunción, School of Polytechnics, with a major in industrial control. My final undergraduate degree project was on the implementation of a temperature and diameter controller for the Arduino platform applied to an ABS plastic filament extruder for 3D printers.

I have worked for multinational corporations such as the Coca Cola Company (subsidiary in Paraguay) and AB InBev (CERVEPAR). During my tenure on those companies, I was in charge of instruments and programming of industrial machinery for the production of beverages and soft drinks. After this exposure to the industry, I then pursued a Master's degree in Satellite Instruments at the National Commission of Space Activities (CONAE) Argentina. I am currently working on my master's thesis, which is the implementation of the "CGR" algorithm of Contact Graph Routing, used in software for interplanetary communications, and the measurement of performance parameters on a Nanomind A712 board computer for CubeSat’s.

Blas F. Vega L., Electronics Engineer, Research Project Director – Paraguay Space Agency (AEP)
March 2020

21. BIRDS-3: Images from space



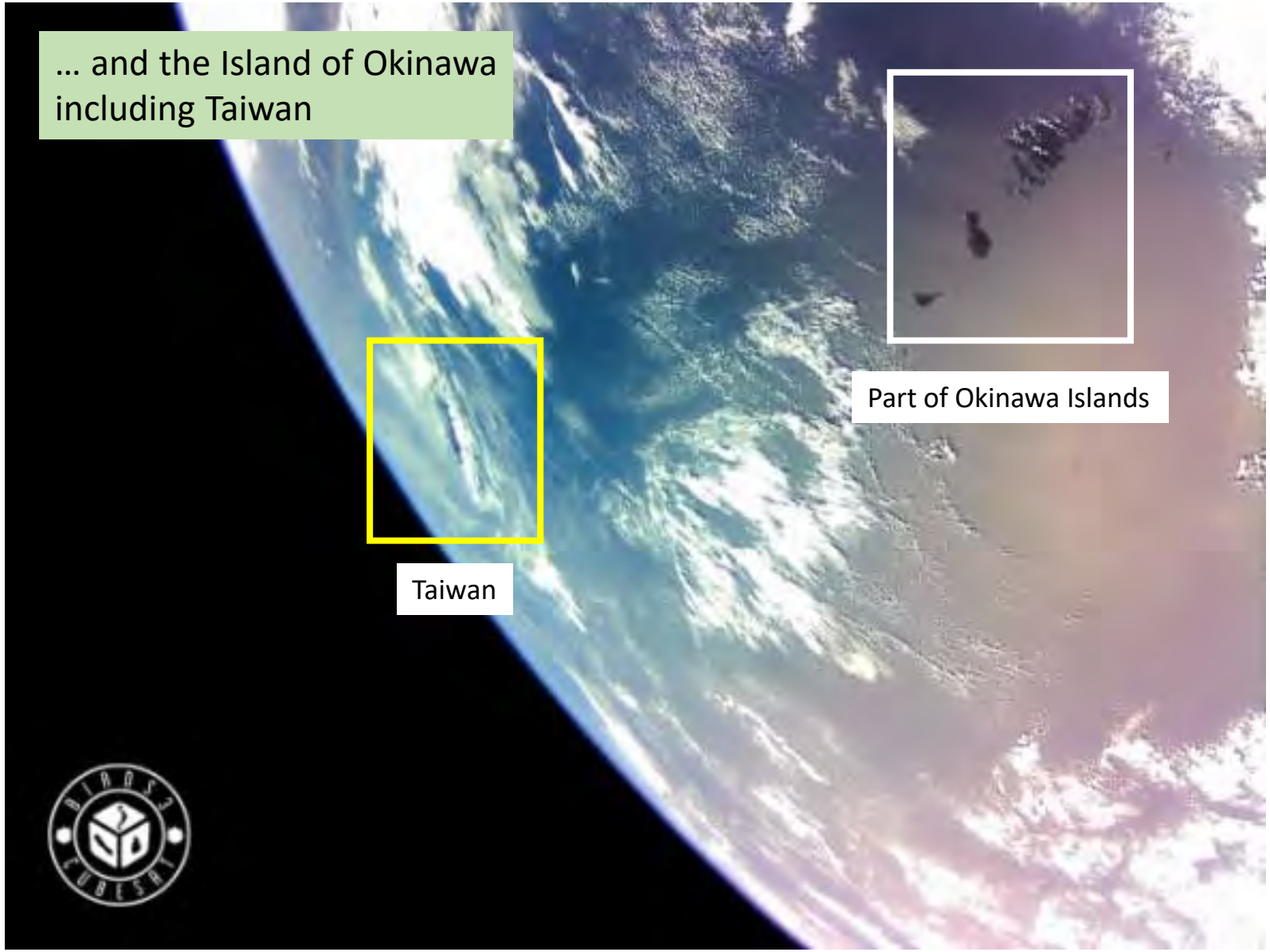
BIRDS-3

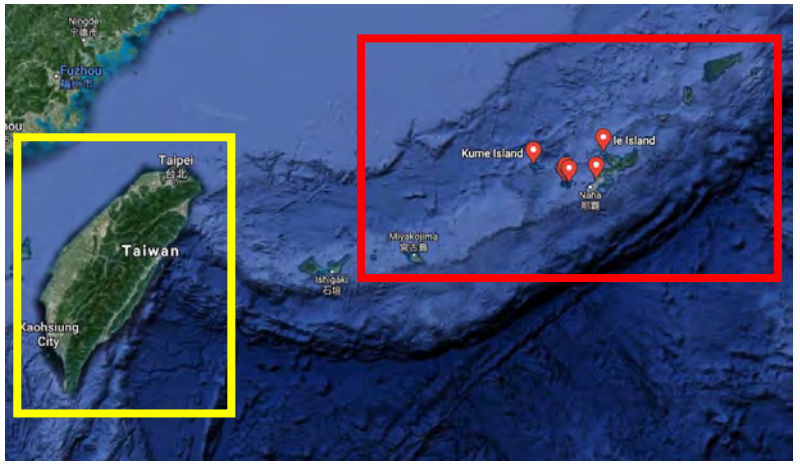
Images from Space

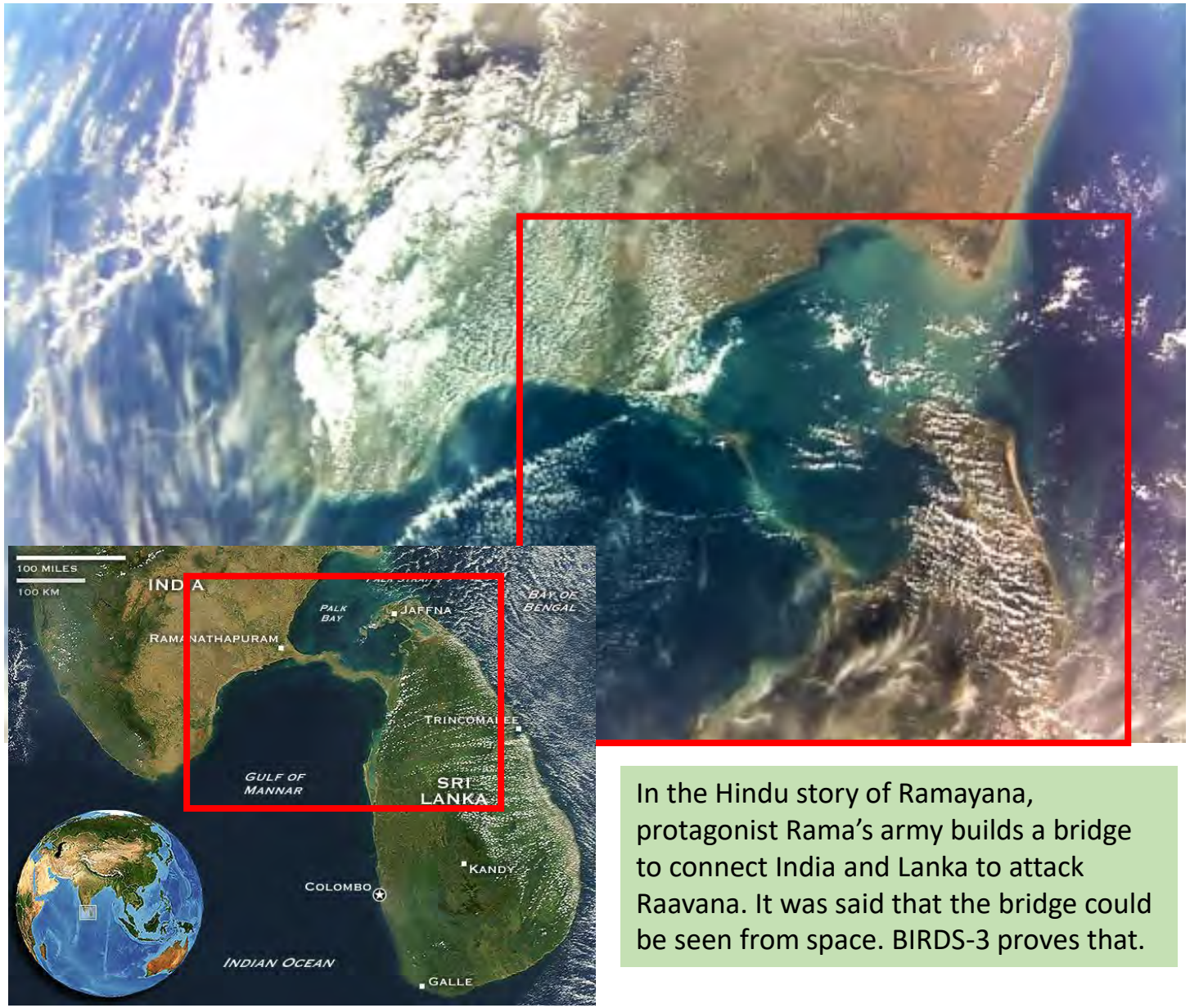
By Abhas
Project Manager of BIRDS-3
15 March 2020

BIRDS-3 satellites have been taking images from all over the world. In a recent attempt to take images of Japan, the team was able to take a snap of Kyushu Island where Kyutech is located…

… and the Island of Okinawa including Taiwan







In the Hindu story of Ramayana, protagonist Rama's army builds a bridge to connect India and Lanka to attack Raavana. It was said that the bridge could be seen from space. BIRDS-3 proves that.

Rama's Bridge: A Bridge Built By Monkeys

SHARE:

Monday, July 10, 2017

In the great Indian epic of Ramayana, penned several thousand years ago, author Valmiki speaks of a bridge over the ocean connecting

Link: HERE

Okinawa Island in Japan

March 13, 2020 Outreach

Amami-Oshima, Tokunoshima, Yoronjima Island, Okinoerabu Island an...

More

Kyushu Island in Japan

March 8, 2020 Outreach

Raavana-1 was able to capture Japan. There are shown Kyushu and the ...

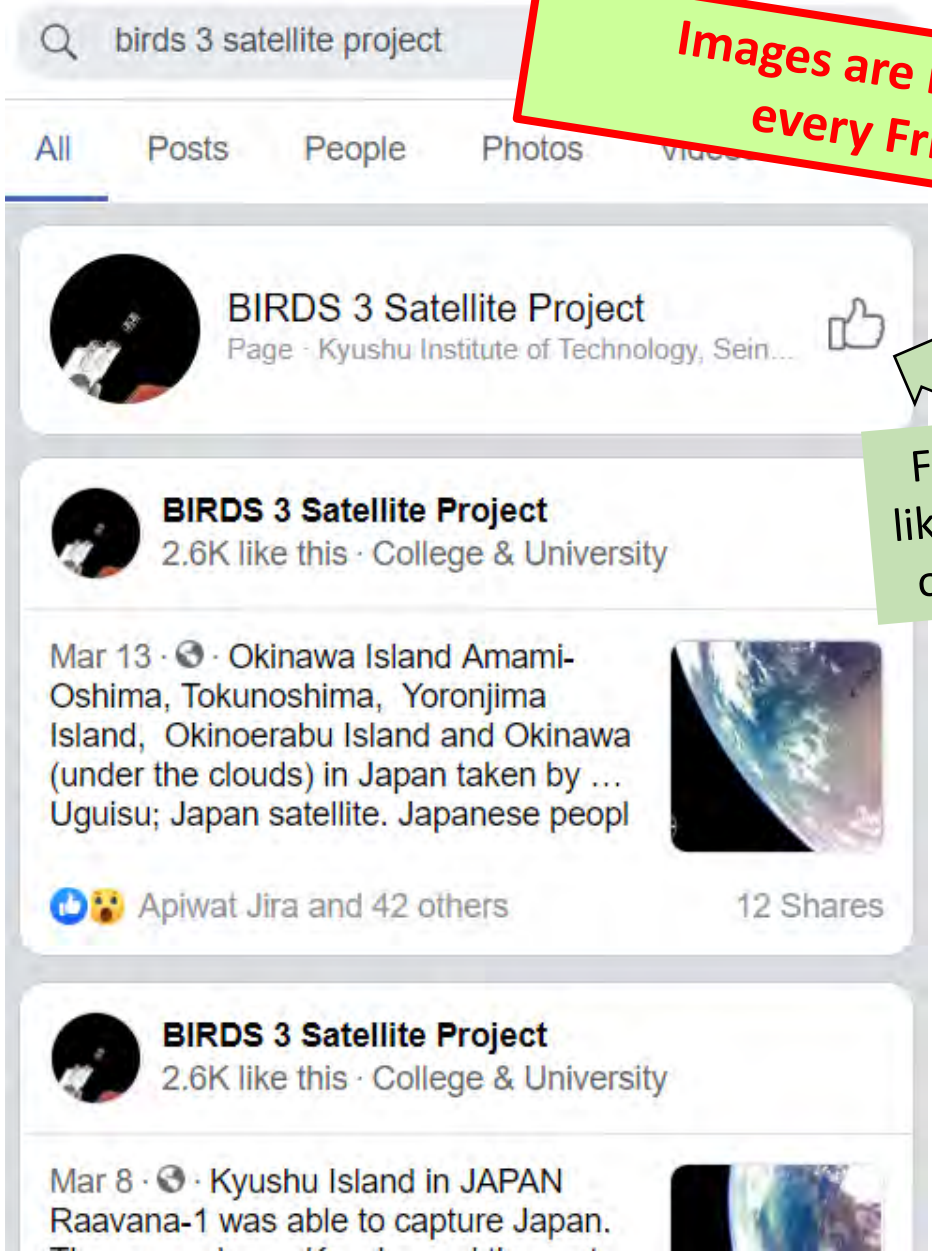
More

The Palk Strait between Sri Lanka and India

February 28, 2020 Outreach, Sri Lanka

Palk

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



Images are released every Friday

Follow us by liking our page on Facebook

END OF THIS BIRDS-3 REPORT

22. BIRDS-3: Farewell to two Japanese members: Sasaki-san and Kakimoto-san

Sasaki-san oversaw the structure of BIRDS-3, worked on the safety review documents and led the Flight Model assembly.

This month, **BIRDS-3 team** will be saying **goodbye** to two outstanding members of BIRDS-3. *We would like to wish them all the best for their future.*

Kakimoto-san oversaw the OBC software development and worked with all subsystems to ensure that the core part of satellite functions well.

3rd Ground Station Workshop

15-20 January 2020

Report by *Pooja Lepcha* (Bhutan, BIRDS 2 & 3)

14 March 2020

Program of the Third Ground Station Workshop
Date: January 15th-20th, 2020
Venue: Kyushu Institute of Technology, Kitakyushu Japan

Date	Time	Activity	Speaker	Venue
1/14 (Tue)		Arrival at Kitakyushu		
		Day 1		
1/15 (Wed)	9:00-9:10	Workshop Introduction	Prof. George Maeda	2nd Floor of SVBL building
	9:10-9:20	Objectives of this workshop	Pooja	2nd Floor of SVBL building
	9:20-9:35	Overview of Workshop Activities and Schedule	Apiwat J.	2nd Floor of SVBL building
	9:35-11:00	Tour to Kyutech Facilities and Ground Station	Apiwat J.	1st Floor SVBL building
	11:00-12:00	Satellite Ground Station and Radio Communication	Apiwat J.	2nd Floor of SVBL building
	12:00-13:00	Lunch Break		
	13:00-14:00	Satellite Commanding & Telemetry	Apiwat J.	Seminar Room
	14:00-15:30	Presentations from Participants about their Home Country and Institution		Seminar Room
	15:30-15:40	Short Break		
	15:40-17:00	Presentations from Participants about their Home Country and Institution		Seminar Room
		Day 2		
1/16 (Thu)	9:00-10:00	Radio Regulation	Apiwat J.	Seminar Room
	10:15-12:00	BIRDS Local Ground Station	Apiwat J.	Seminar Room
	12:00-13:20	Lunch Break		
	13:20-14:00	BIRDS-3 Satellite Missions, status, on-orbit results and challenges	Abhas Maskey	Seminar Room
	14:00- 17:00	Training on BIRDS-3 Satellite Operation Using BIRDS-3 GS Software and FM back-up Model Satellite	Makiko, Tharindu, Pooja	Seminar Room
		Day 3		
1/17 (Fri)	9:00-12:00	Local ground station installation training -Hands on Rotator/antenna Calibration -GS Antenna Testing	Apiwat, Kishimoto, Nakayama	Ground Station
	12:00-13:20	Lunch Break		

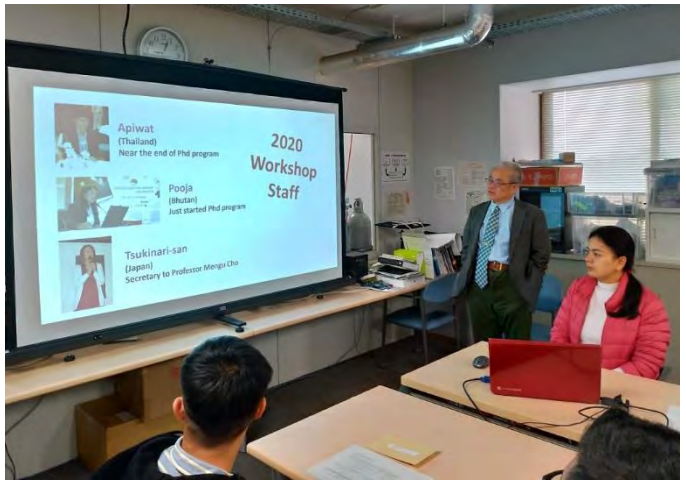
La SEINE

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE • FOUNDED 1932 •

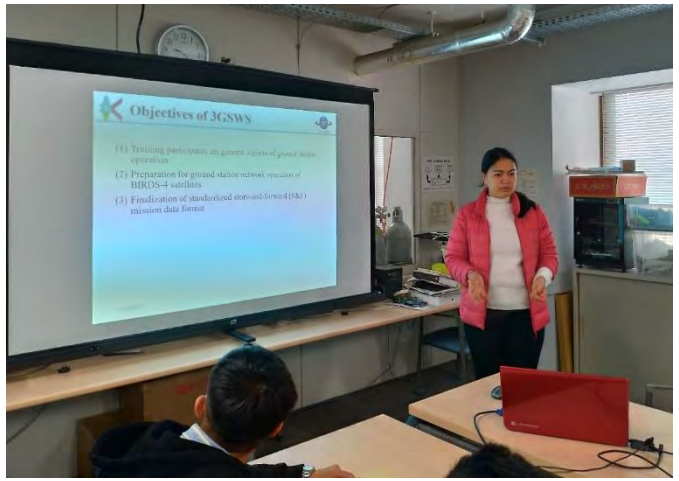
	13:20-14:20	BIRDS-4 Satellite Missions Introduction and Concept of Operations	IZ	Seminar Room
	14:20-17:00	Training on BIRDS-4 Satellite Operation Using BIRDS-4 GS Software and Engineering Model Satellite	Nakayama, Marloun	Seminar Room
		Day 4		
1/18 (Sat)		Excursion		
		Day 5		
1/19 (Sun)	9:00-10:40	-Planning for Future GS Network Operations of BIRDS-3/BIRDS-4 Satellites Wrap-up and Summary for Ground Station Operation -Lessons learnt from each GS operation	Apiwat J.	Seminar Room
	10:40-11:00	Break		
	11:00-12:00	Introduction to KITSUNE satellite and mission concepts	Necmi	Seminar Room
	12:00-13:20	Lunch Break		
	13:20-14:20	Establishing Satellite-based Store-and-Forward Remote Data Collection using KITSUNE	Tharindu/Pooja	Seminar Room
	14:20-15:20	Mission Proposal Activity: Satellite-based Store-and-Forward Remote Data Collection in respective countries	Pooja	Seminar Room
	15:20-15:40	Short break		
	15:40-17:20	Detailed discussion and demonstration on making of Ground Sensor Terminal	Pooja	Seminar Room
		Day 6		
1/20 (Mon)	9:00-10:15	BIRDS-4 APRS-Digipeater and Store-and-Forward Missions: Objectives and Demonstration Using BIRDS-4 EM Satellite	IZ, Yasir, Hoda	Seminar Room
	10:15-10:30	Break		
	10:30-12:00	Open discussion on experiences, results, problems, challenges of BIRDS-3 operations and areas of improvement and recommendations for future network operations		Seminar Room
	12:00-13:30	Lunch Break		
	13:30-15:30	Technical Panel Discussion: -Collaboration on Defining the Remote Data Collection System and Subsystem Requirements -Standardizing the Ground Sensor Terminal interfaces and data format -GS manual		Seminar Room
	15:30-16:00	Closing Remarks and Award ceremony for BIRDS-3 GS Uplink Competition	Prof.Mengu Cho	Seminar Room
1/21 (Tue)		Departure from Kitakyushu		

FINAL DAY

Day 1: Workshop Introduction



Maeda sensei gave Workshop Introduction



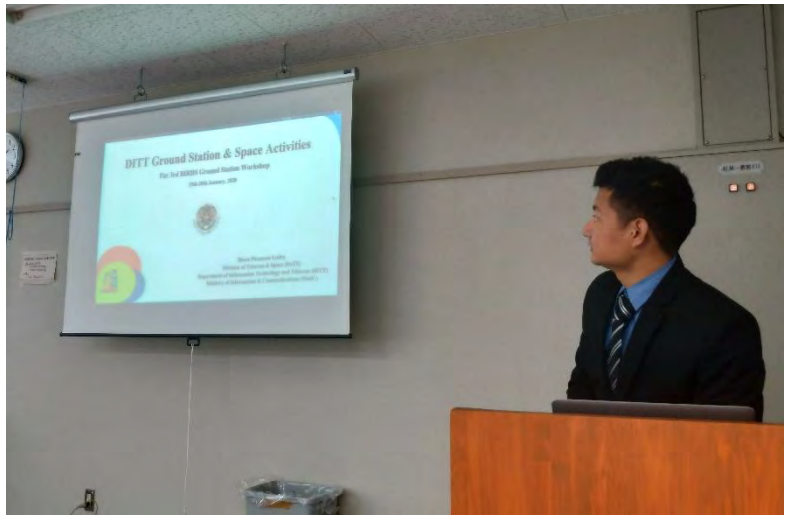
Pooja gave presentation about the Objectives of Workshop

Apiwat briefed about activities that would be conducted in the workshop

Maeda sensei introduced Tsukinari san without whom the workshop would have been impossible. Thank you Tsukinari san!!!

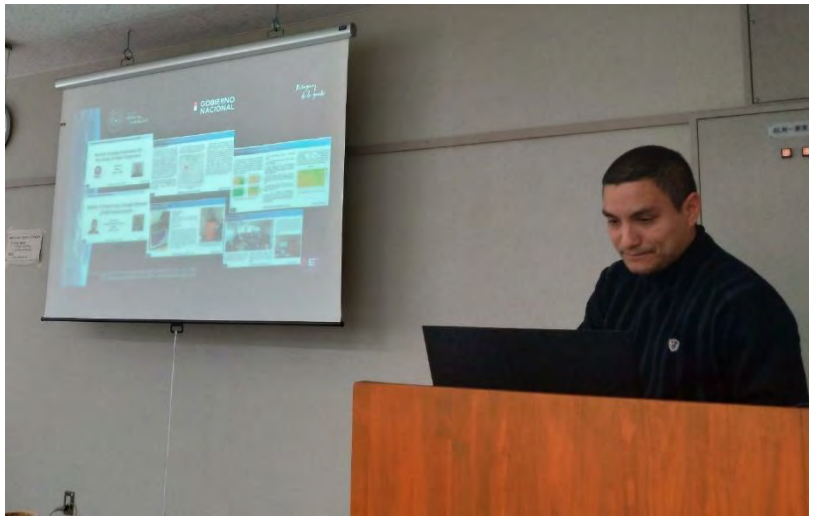
The participants were taken for lab tour in Kyutech facilities and Ground Station

Day 1: Presentations from Participants



Dawa from Bhutan

Fatimah from Malaysia



Javier from Paraguay

Luis from Paraguay

Day 1: Presentations from Participants

Anne from the Philippines

Dibodh from Nepal

Ke Yen from Taiwan

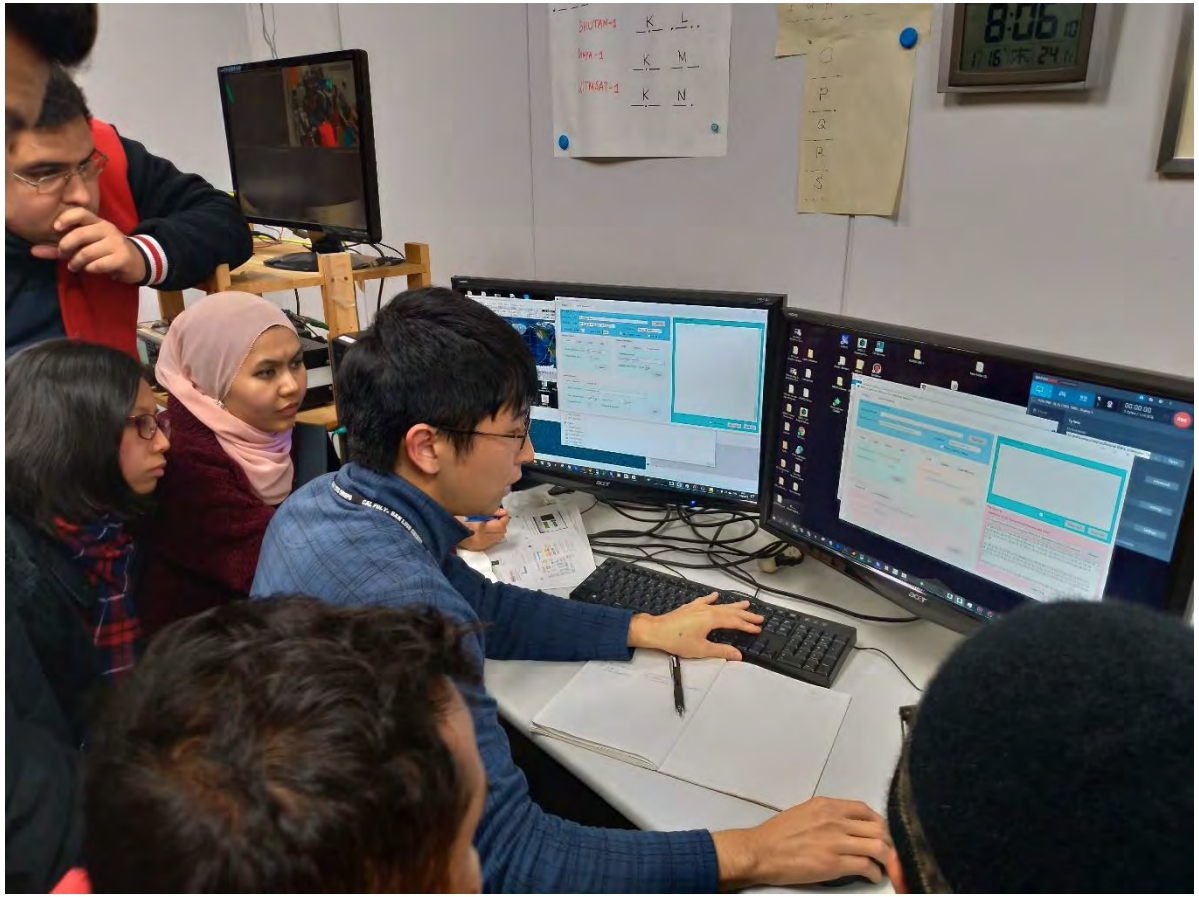
Apiwat also gave presentations about radio communication, satellite commanding and telemetry

Day 2: BIRDS-3 Introduction and Mission Status

In the morning session, Kakimoto from BIRDS-3 presented about BIRDS-3 missions and their current status

The participants listened enthusiastically

Day 2: BIRDS-3 Satellite Operation Demonstration



Pooja on the left and Kakimoto on the right demonstrated BIRDS-3 satellite operations, sending uplink to the satellite and how the downlinked data are handled. Reconstruction of images were also demonstrated from the downloaded packets

Day 3: BIRDS Local Ground Station Installation

Apiwat introduced the components of BIRDS Ground Station and showed how to operate them

Nakayama introduced how to test antenna performance using Vector Network Analyzer

The session was very informative as the participants could see how each element of the Ground Station are connected.

Day 3: BIRDS Local Ground Station Calibration

Makiko demonstrated how antenna is calibrated. This is one of the most important sessions of the ground station workshop because most of the BIRDS network countries have issues with antenna calibration. She also asked the participants to do a hands-on the calibration.

Day 3: BIRDS-4 Missions and Concept of Operation

BIRDS-4 project manager, Izrael and Adolfo present about BIRDS-4 missions

Izrael and Mark also give a hands-on BIRDS-4 satellite operation using BIRDS-4 operation software and EM satellite

Day 5: KITSUNE Satellite Introduction and Missions Concept

KITSUNE Project Manager, Necmi, gave an introductory presentation about KITSUNE satellite and its missions

Tharindu presented about Store and Forward mission in KITSUNE. BIRDS Network countries would be involved in this mission

Day 5: Mission Proposal Activity

The participants were divided into three groups and were asked to discuss how KITSUNE store and forward mission can help them solve socio-economic issues in their countries using the mission. They were later asked to present their ideas.

Day 6: BIRDS-4 Store and Forward Mission

Yasir from BIRDS-4 gave a presentation about Store and Forward Mission in BIRDS-4 satellites. He also demonstrated about how to digipeat a message using handheld radio and satellite payload.

Day 6: Standardization of Data Packet Format

One of the objectives of Ground Station Workshop was to finalize data packet format for store and forward data packet. Federico from Paraguay and Izrael present their ideas about the format

Apiwat also had an open session to discuss about problems in each of BIRDS countries and about future network operations

Day 6: Closing ceremony and Award Ceremony




Tharindu from Sri Lanka, Apiwat from Thailand, Tuguldur from Mongolia and Dawa from Bhutan on behalf of their ground station receive prizes for winnng in BIRDS-3 ground station uplink competition from Cho sensei





Participants gave feedback about the Workshop. Cho sensei gave a closing remarks and congratulated all the participants for being part of the workshop

Day 6: Group picture

3rd Ground Station Workshop *came to a end with many lessons learnt and good memories.*

Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

(Sat., 18 January 2020)

Apiwat Jirawattanaphol

Thailand, BIRDS-1

Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

Written By: Apiwat Jirawattanaphol

Mojiko Retro

Mojiko Station

Only 15 mins from Kokura Station and claimed to be based on the old Termini Station in Rome, the actual station building is preserved and renovated to give visitors feeling of nostalgia. This is our gateway towards our destination. A great place to start the excursion.

3GSWS participants arrival at Mojiko Station

Group photo in front of the Mojiko Train Station Building

It was rain but we fight!!

Mojikō Station (門司港駅, Mojikō-eki) is a railway station on the Kagoshima Main Line in Moji-ku, Kitakyushu, Japan, operated by the Kyushu Railway Company (JR Kyushu). More information about Mojiko station

Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

Former Moji Custom Building

Old Moji customhouse impressive building of red brick making. The old Moji customhouse had taken an active part as a liaison office in the Nagasaki customhouse at the Meiji era. A present building is a thing rebuilt by burning down.

http://www.retro-mojiko.jp/

Former Moji Custom Building
https://matcha-jp.com/en/1878

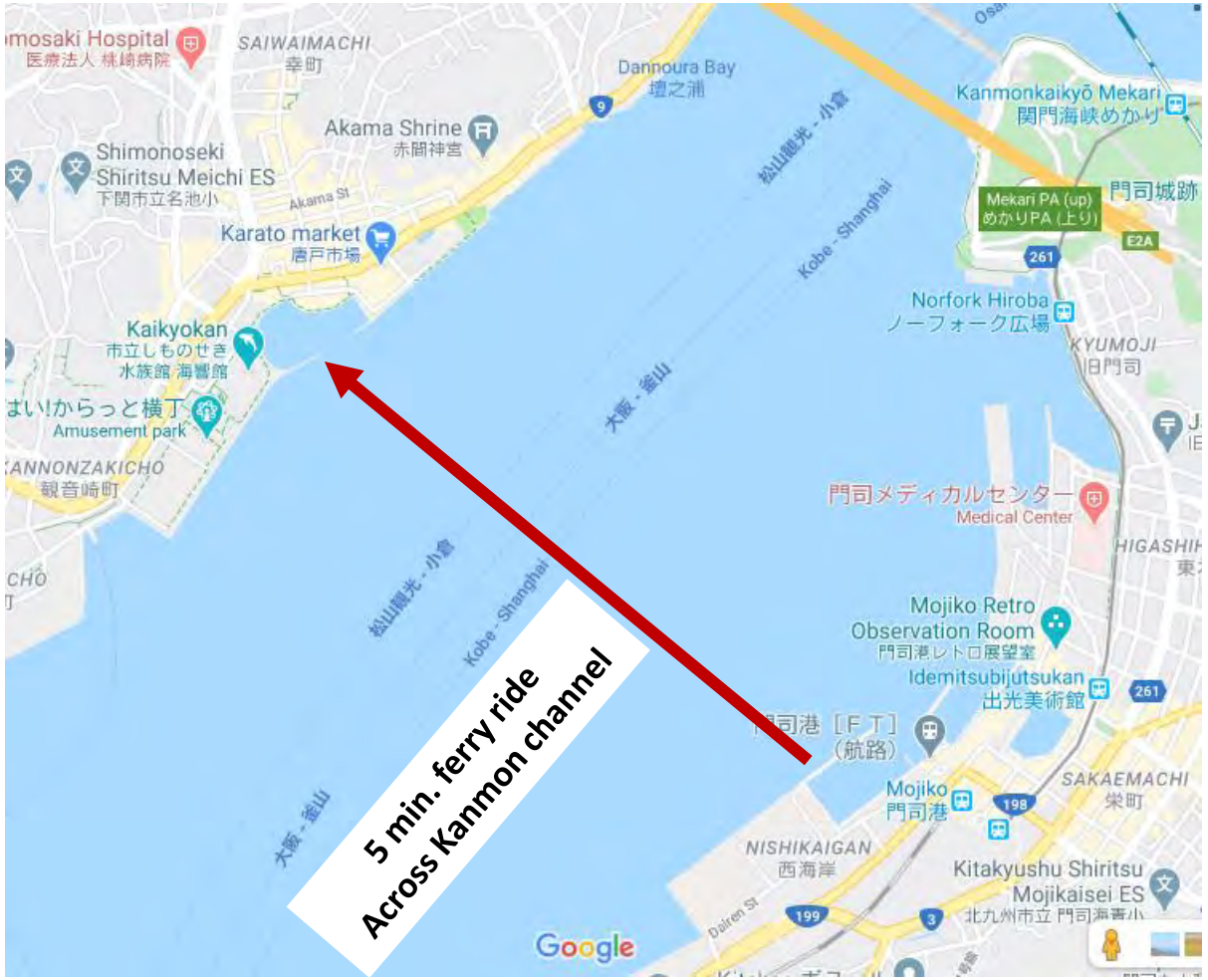
Checking on the illegal sample

Anne in front of the building

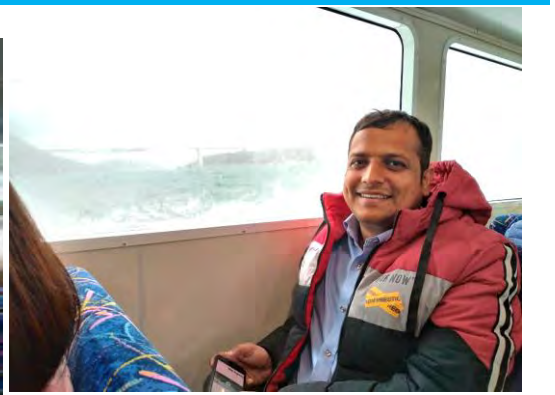
Sample of illegal drug catch by custom office

Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

From Kyushu to Honshu . . .



Group photo in the ferry.



Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

Kyushu Railway History Museum

Just 3 minutes walk from the Mojiko station, the museum is fully equip with all historic trains and equipment. Old ticket and machine are shows inside the museum.

Train Museum

Kyushu Railway History Museum.

Inside the Kyushu train museum, panorama show is schedule for 5 times/day and many of Kyushu train historic equipment are inside the museum.

Ground Station Workshop Participants' Visit to Mojiko & Shimonoseki

Karato Fish Market

By just a 5-minute ride on a ferry, we were at another major island in Japan, Honshu. The famous Karato fish market located in the city name Shimonoseki. The fresh seafood are widely serve here. Everyone were enjoy lunched time with super fresh Sushi.

Photo in front of puffer fish "FUGU" at Karato market

Atmosphere at Karato market

End of report by Apiwat

24. Report from the Philippines

Expanding Knowledge

March 03, 2020

University Laboratory for Small Satellites and Space Engineering Systems, Electrical and Electronics Engineering Institute, University of the Philippines Diliman

Students who are taking the "Introduction to Satellite Communications" course were given a tour of the ULyS³ES facilities in line with one of the course objectives: to provide the students with an overview of the disaster applications of amateur radio units in satellites.

Photos of their visit to the Research Laboratory ULyS³ES Building-1 (first three photos from left) and Full Anechoic Chamber in ULyS³ES Building-2(rightmost photo).

Maya-3 and -4 featured in Manila Bulletin

February 24, 2020

The first Philippine university-built nanosatellites - Maya-3 and Maya-4 - have been featured in Manila Bulletin, the Philippines' largest English language broadsheet newspaper by circulation.

Read more here:
https://news.mb.com.ph/2020/02/24/scholars-develop-nanosatellites/?fbclid=IwAR1UcFjvd82Wpo4lpw3WiyTRo_7gy1iiwzqLH9xj_qOrdxiK861b-m161R8

Photo courtesy of Manila Bulletin

Message from the Philippines

Message from the Philippines

Congratulatory message from the Philippines

Congratulations to the BIRDS Project Newsletter on the 50th issue! This marks a Golden Milestone for Kyutech and the BIRDS Project Community.

The BIRDS newsletter has been a valuable source of information on the activities of the BIRDS community. It is also quite entertaining and we look forward to it every month!

We thank Asst. Prof. George Maeda and his team of contributors for their tireless efforts in producing the newsletter.

Maraming Salamat Po at Mabuhay!

Prof. Joel Joseph Marciano Jr.
STAMINA4Space Program Leader

and the

STAMINA4Space Team

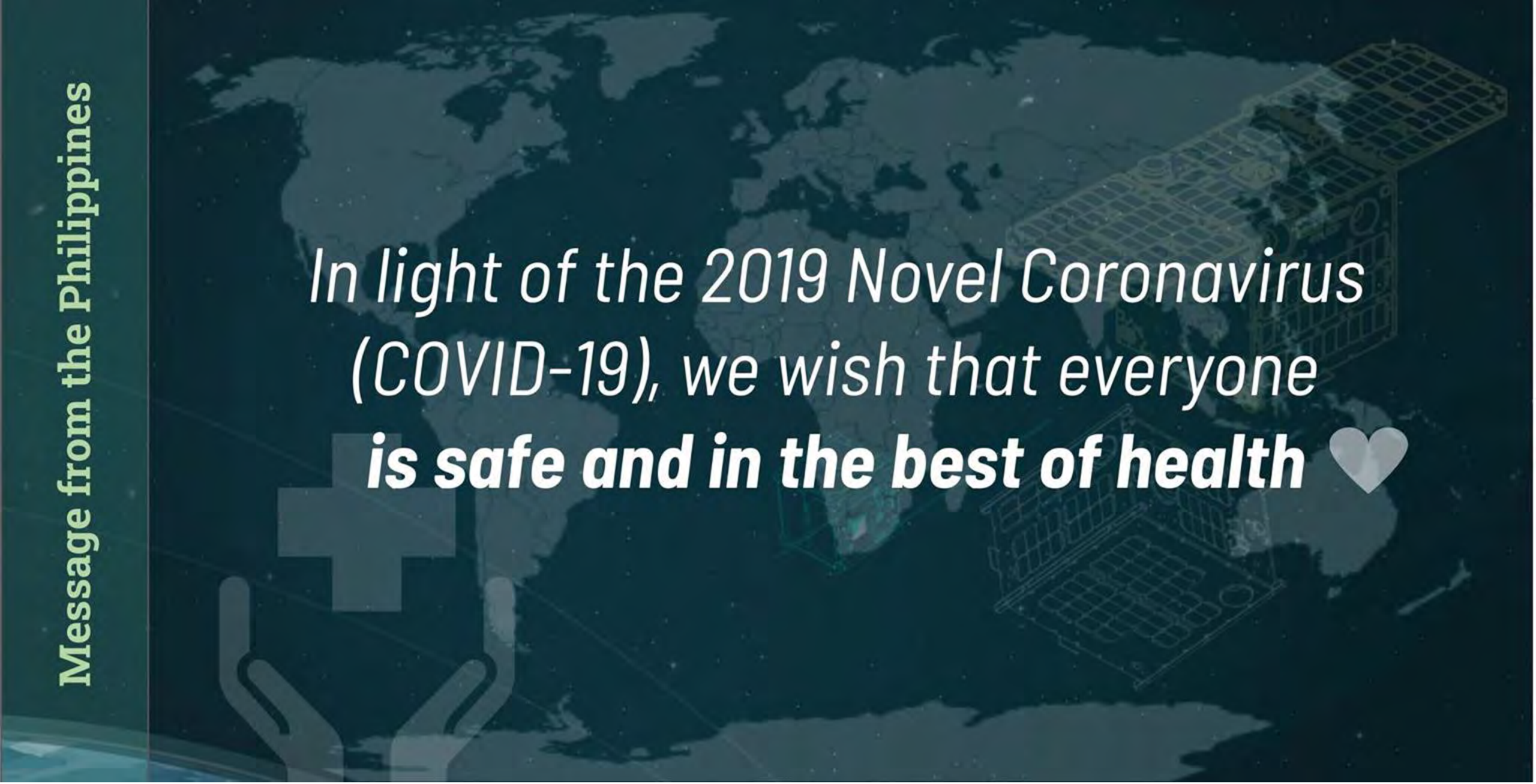
Kyushu Institute of Technology
BIRDS Project

c/o Assistant Professor
George Maeda
Laboratory of Spacecraft Environment Interaction Engineering (LaSEINE),
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

Message from the Philippines

From the STeP-UP scholars, a big congratulations to the 50th issue of the BIRDS Project newsletter!

Per ardua ad astra!


Message from the Philippines
In light of the 2019 Novel Coronavirus (COVID-19), we wish that everyone
is safe and in the best of health

25. NASA is working with university teams to develop tiny tech for space trips

SPACE.com RSS

News Tech Spaceflight Science & Astronomy Search For Life Skywatching Forums

NASA is working with university teams to develop tiny tech for space trips

By Elizabeth Howell **17 March 2020**

While NASA has big plans to return humans to the moon in 2024 under its Artemis program, the agency is also thinking small by working to support the development of tiny robots and satellites.

NASA announced that it will collaborate with nine university teams to develop satellite technologies related to navigation, propulsion and the management of heat transfer in small machines. The agency did not specify the launch dates for the satellites, and not all of them will necessarily go to space. But the overall goal is to "help blaze the trail" for future crewed missions, NASA officials said in a statement. . . . .

SEE THE FULL ARTICLE HERE: https://www.space.com/nasa-university-teams-develop-small-sat-tech.html

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Fifty

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.