



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

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



Archive website: <http://birds1.birds-project.com/newsletter.html>

All back issues are archived at this website.

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

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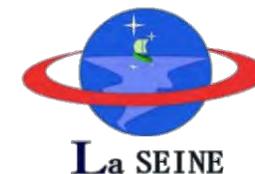
BIRDS Project Newsletter

Issue No. 37
(28 February 2019)

Edited by:

G. Maeda

Laboratory of Spacecraft Environment
Interaction Engineering (LaSEINE),
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan



IMPORTANT MESSAGE TO ALL PERSONS ENGAGED IN THE BIRDS PROJECT

To conduct the three BIRDS international workshops in Ghana, Mongolia, and Bangladesh, we are receiving generous funding from JSPS, the Japan Society for the Promotion of Science. However, JSPS needs to know how effectively their funds are being used in the pursuit of high-quality science. Accordingly, in the past, I have asked you to insert this acknowledgement in all your BIRDS-related publications:

Acknowledgement of support

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



I would be much obliged if you could send the pdf of any such publication so that we can inform JSPS. In this way JSPS can see the benefits of funding BIRDS-related activities. This evidence is critical when we try to renew the funding for BIRDS workshops.

Right now, we are seeking publications issued between 01 April 2018 and 31 March 2019. If you do not have any to offer this time, please make every effort to publish something between now and 31 March 2020 that includes the acknowledgment to JSPS. Upon publication, please send the pdf to me.

- G. Maeda, the Editor, 28 Feb. 2019

All back issues of this newsletter can be easily downloaded.

Go to here: <http://birds1.birds-project.com/newsletter.html> and scroll down to the desired issue.

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From The Philippines

The Guest Box

When you go to Adamson University a figure of this person is posted in every classroom. He is the university's Patron Saint, St. Vincent De Paul.



This remarkable man, born at Pouy in Southern France in 1581, had a rather self-seeking start in the priesthood. Under the influence of spiritual directors like St. Francis de Sales, Cardinal de Berulle, and Andre Duval, he underwent a striking conversion in which he gave his life over to God in the service of the poor. He founded the Congregation of the Mission in 1625, a community of priests and brothers whose end is "to preach the good news to the poor" and the Daughters of Charity (1633), at that time a new form of community where the sisters lived in the world" to serve the sick poor spiritually and corporally. He also established the Confraternities of Charity (lay organizations, both of men and women, founded in parishes also to assist the poor spiritually and corporally) and the Ladies of Charity. These groups continue to the present day in a very large number.

Source: <https://www.adamson.edu.ph/v1/?page=stvincent>

- Mark Angelo C. Purio, PhD Student, BIRDS-4 Member

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See the article (#36) to understand how this logo was selected

01. Olayinka's World – a regular column of this newsletter



Olayinka with NASRDA colleagues in Abuja on 8 November 2018

Starting with Issue No. 30 of this newsletter, Ms. Olayinka Fagbemi began a monthly column called “Olayinka’s World.” She reports on space-related topics in Nigeria. She works for the Space Education Unit of NASRDA, which is the national space agency of Nigeria.



On the next page please find Column No. 7.



OLAYINKA'S WORLD

COLUMN NO 7

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



IAU @100: 100 Hours of Astronomy in Nigeria

This year, 2019, the International Astronomical Union (IAU) is celebrating its 100th anniversary. To commemorate this milestone, the IAU is organising a year-long celebration to increase awareness of a century of astronomical discoveries as well as to support and improve the use of astronomy as a tool for education, development and diplomacy under the central theme "Under One Sky".

The centennial celebrations is expected stimulate worldwide interest in astronomy and science and to reach out to the global astronomical community, national science organisations, societies, policy-makers, students, families and the general public.

Astronomers Without Borders (AWB) Nigeria, joined thousands of people from across the globe to participate in 100Hours of Astronomy, a **100-hour**, round-the-clock, round-the-globe celebration composed of a broad range of activities aimed at involving the public. AWB Nigeria organized as part of the 100 Hour of Astronomy, a school Outreach and a public Astronomy outreach, where members of the public were treated to wonderful views of the sky using the solar glasses at day time and telescopes in the evening.



Students of NAOWA College, viewing the Sun with the aid of solar filters

IAU @100: 100 Hours of Astronomy in Nigeria

**Public Outreach
to observe 100
hours of
Astronomy in
Abuja, Nigeria.**



02. More info about the Epsilon rocket [of JAXA]

“As part of our research on the next-generation solid propellant rocket, we plan to reduce the cost by a third of that for the former M-V Launch Vehicle. However, we are not only thinking about cost reductions. Our ultimate goal is to lower hurdles to space by developing a space transportation system suitable for a new age and by making rocket launches much simpler. Additionally, we will be able to meet the wide range of demands for rocket launches by operating the H-IIA and H-II B Launch Vehicles as well.”

--from the website indicated at the right



Dear All,

With the success of the epsilon rocket last week, the user's manual of the epsilon rocket (including multiple satellites) Japanese / English version was released to JAXA website.

It is available from the link shown below. If you are interested please read.

Japanese version

Epsilon rocket

http://www.jaxa.jp/projects/rockets/epsilon/index_j.html

English version

Epsilon rocket

<http://global.jaxa.jp/projects/rockets/epsilon/>

Sincerely,

Yamauchi, 22 Jan. 2019

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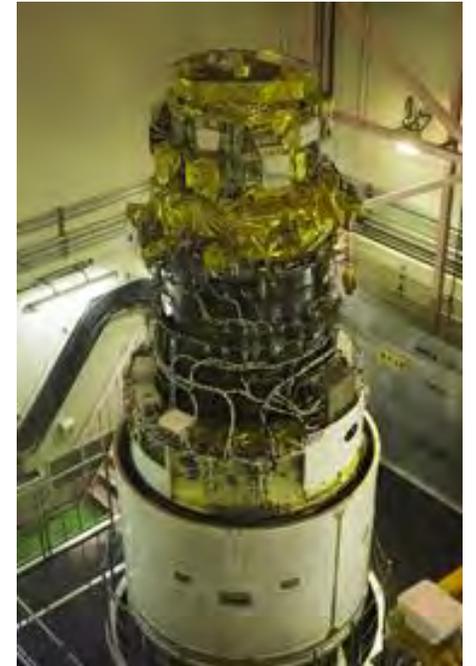
九州工業大学

宇宙環境技術ラボラトリー

山内 貴志 (Yamauchi Takashi)

〒804-8550 北九州市戸畑区仙水1-1

Tel & Fax : 093-884-3229



Launch Records

Flight No.	Launch Date	Payload
Epsilon-4	1/18/2019	The Innovative Satellite Technology Demonstration-1
Epsilon-3	1/18/2018	NEC Small radar satellite "ASNARO-2"
Epsilon-2	12/20/2016	Exploration of energization and Radiation in Geospace "ARASE" (ERG)
Epsilon-1	9/14/2013	Spectroscopic Planet Observatory for Recognition of Interaction of Atmosphere "HISAKI" (SPRINT-A)

03. Sri Lanka BIRDS-3 appeared on Facebook on 23 January 2019



Dulani Chamika

21 hrs · 🌐

Hello Sri Lanka,

Sri Lanka's first satellite will be launched soon.

RAAVANA-1 is a 1U cube satellite designed and built in Kyushu Institute of Technology, Japan, under BIRDS-3 project. 🟢 <https://birds3.birds-project.com/> ... See More — with Tharindu DayaraThna at Kyushu Institute of Technology 九州工業大学.



Nirasha Indunil Congratulations akkiii ❤️❤️❤️🥳 so proud of you!!!

Like · Reply · 1h



Chathura Sri Jayaweera Congratulations.... wish you all the best

Like · Reply · 1h



Thimira Nirmal Congratulations ❤️❤️❤️

Like · Reply · 2m

<https://www.facebook.com/photo.php?fbid=10217339514255299&set=a.2302790204668&type=3&theater>

Interim Report on the Setting up of BIRDS Project Ground Receiving Station

Dr. Olurotimi Akintunde Dahunsi
Centre for Space Research and Applications
Federal University of Technology (FUTA)
Akure, Ondo State, Nigeria
23 January 2019

Editor's note: FUTA is a member of the original 5-nation BIRDS-1 Project (2015-2017).

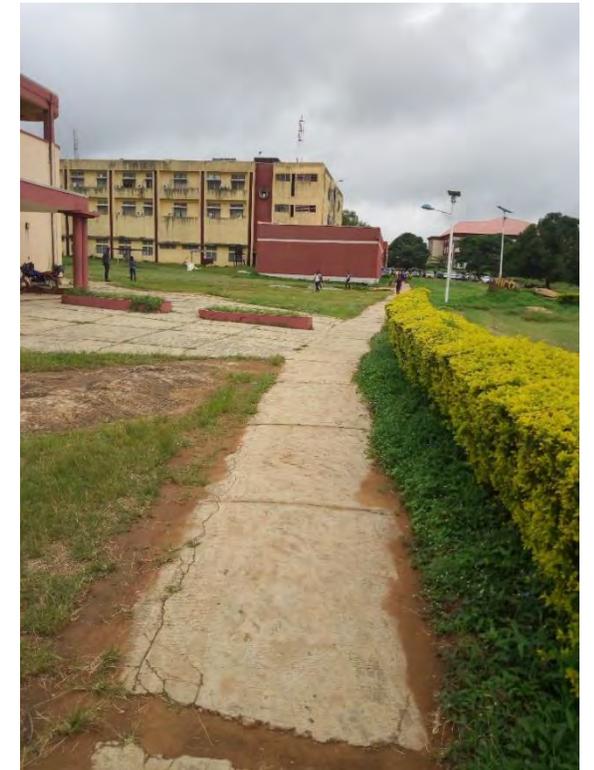
- There had been a set back based on the poor choice of location for siting the station.
- A new location was identified and previous structures dismantled.
- The new location is both roomy and expansive, under a clear sky and free of obstacles.



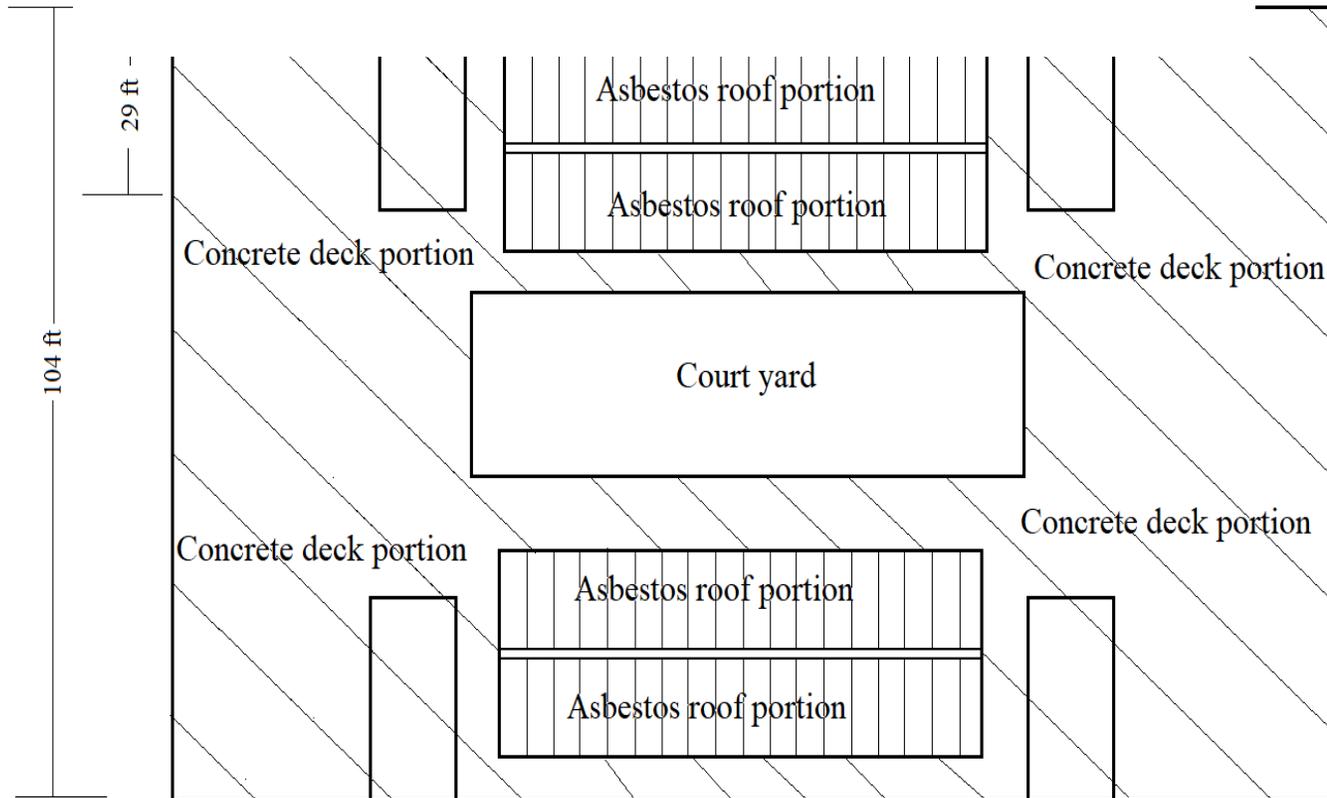
School of Engineering and Engineering Technology Building, Federal University of Technology, Akure, Nigeria



Newly Selected Location of the Ground Receiving Station



Views of Selected Portion of Rooftop Location Siting the Antenna



Antenna System Sub-Components



- The mast was assembled and transported to the rooftop where it was casted in a thick concrete base for stability.
- Assembly of the antenna components on the mast was achieved with the aid of volunteer undergraduate and postgraduate students of the University.

Immediately After Erecting the Mast by Direct Labour



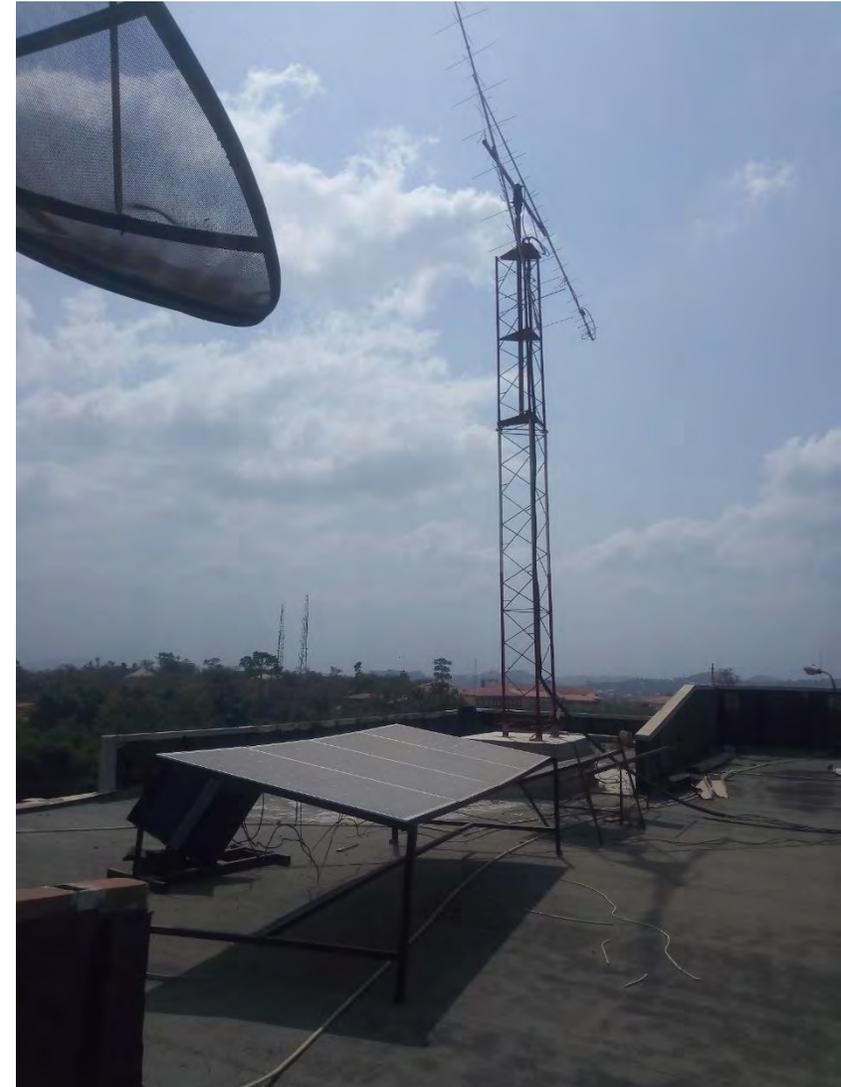
Student Volunteers Assembling the Antenna



Student Volunteers Assembling the Antenna



Student Volunteers Assembling the Antenna



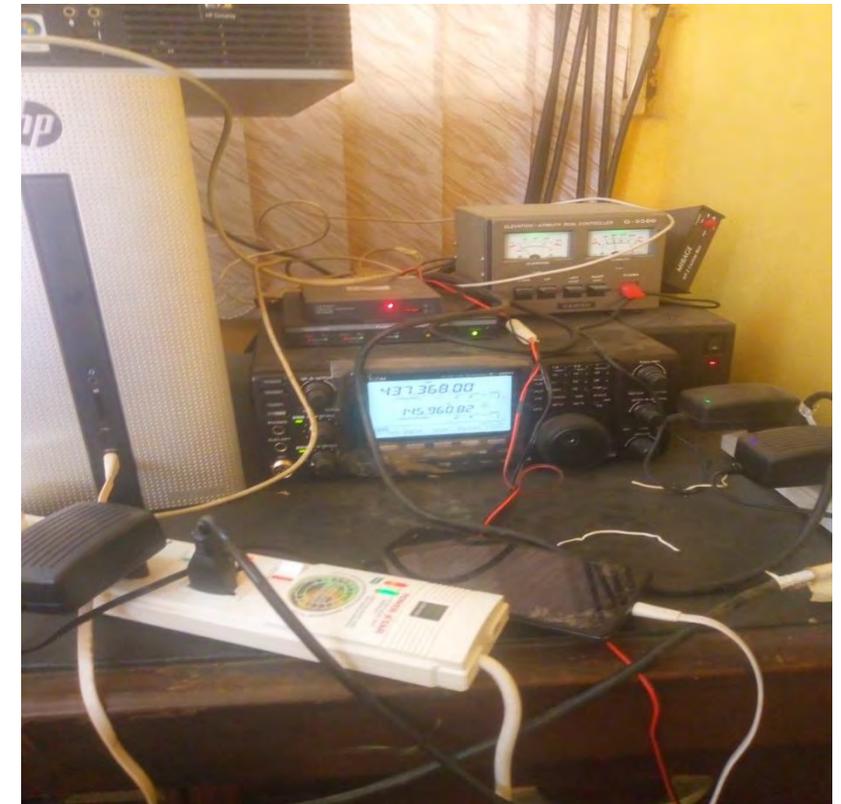
- The Transceiver radio and Yaesu rotor controller were connected to the computer.
- There were running battles with connecting cables and adaptors, drivers and compatibility with operating systems.
- During the tracking test four satellites were tracked successfully.
- Final test where attempts will be made to upload and download signals will be done immediately the problems of cables and compatibility is resolved.

Test Tracking of Satellites in Orbit – 1311HRS January 10, 2019



Satellites tracked:

1. Bhutan-1
2. UiTMSAT-1
3. MAYA-1
4. HORYU-IV



05. Activity report for the space law and policy course recently taught for SEIC

In the previous issue of this newsletter, as the very first section, photos of this space law course were published. Here, I reprint the “Activity Report” produced by the primary lecturer, Dr Werner Balogh.

Activity Report

Space Law and Policy for Engineers: International Dimension of Space Activities

17 December 2018 – 11 January 2019

The course “Space Law and Policy for Engineers: International Dimension of Space Activities” was held as a blocked course in the weeks of 17 to 21 December 2018 and 7 to 11 January 2019. A total of 15 lectures with a duration of 90 minutes were delivered and a written exam was held as part of the final sixteenth lecture on 11 January, in accordance with the course schedule shown at the right.

Continued on the next page

Schedule for space law course by Dr Balogh and Dr Takaya
4th quarter of 2018
Prepared by G. Maeda on 13 DEC 2018.

	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
DEC 2018	16	17 LECTURE-01,02 PERIODS 5,6 HALL C-2F	18 LECTURE-03,04 PERIODS 3,4 HALL C-2F	19 LECTURE-05 PERIOD 4 HALL 5-2A	20 LECTURE-06,07 PERIODS 3,4 HALL 5-2A	21 LECTURE-08,09 PERIODS 4,5 HALL 5-2A	22
	23	24	25	26	27	28	29
	30	31					
WINTER BREAK							
JAN 2019			1	2	3	4	5
	6	7 LECTURE-10,11 PERIODS 5,6 HALL C-2F	8 LECTURE-12,13 PERIODS 3,4 HALL C-2F	9	10 LECTURE-14,15 PERIODS 3,4 HALL 5-2A	11 LECTURE-16 PERIOD 6 HALL 5-2A	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

Period 3: 13:00-14:30
Period 4: 14:40-16:10
Period 5: 16:20-17:50
Period 6: 18:00-19:30

These classes are suspended
12/17 Space Systems Engineering II
12/21 Satellite Power System II
so that you can take the space law course instead.

A total of 32 students of the Space Engineering International Course (SEIC) participated in and successfully completed the course. Requirements for the course completion included attendance, homework and reading assignments, two group exercises and presentations and pass requirements on a final written exam.

The course made use of the Kyutech Moodle Course Page (see <https://ict-t.el.kyutech.ac.jp/login/index.php>), which allowed course participants to access the lecture materials, submit group-exercises and complete the written exam.

Several of the lectures were provided by Dr. Yuri Takaya, Researcher at Tokyo University. This was the second time that the course was offered at Kyutech, with the first instance of the course held in the January-February 2017 time period. In 2018-2019, the course materials have been updated and feedback from the 2017 course participants was taken into account into improving the overall course syllabus and delivery methods.

Course participants again provided helpful feedback via evaluation forms and this will be used to further refine future iterations of the course.

Course participants were asked to self-assess their knowledge about space law and policy at the beginning and then again at the end of the course. The anonymous poll results are included below **[next page]** and indicated that course participants did gain an improved understanding of space law and policy issues.

Werner Balogh
Geneva, 21 January 2019

Class photo [from the previous issue of this newsletter] →



Fig 1. Poll results 17 December 2018 (at the beginning of the course)

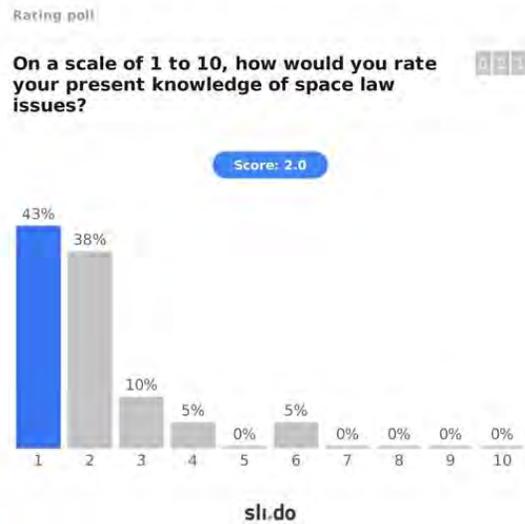
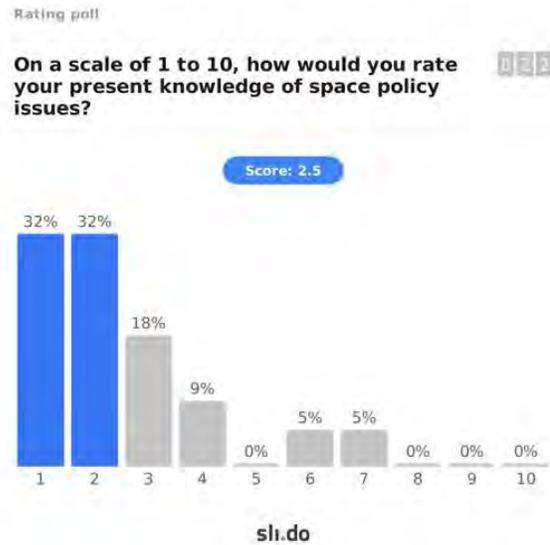
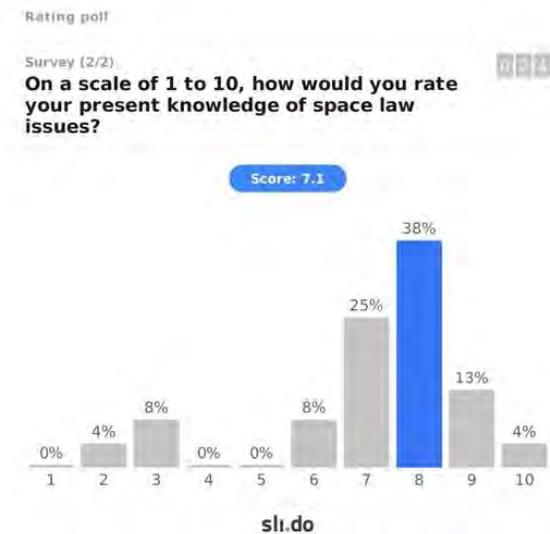
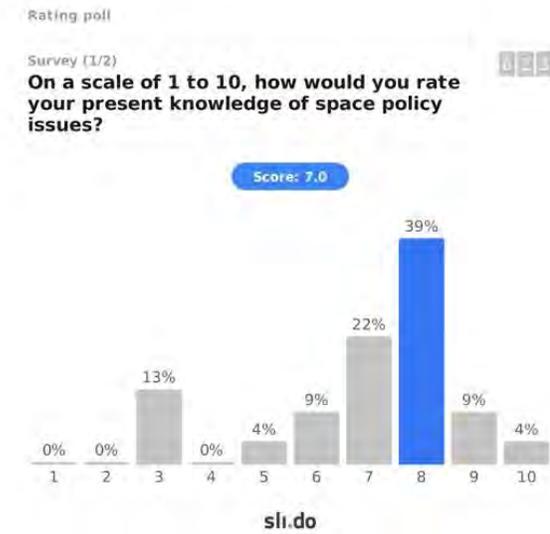


Fig 2. Poll results 11 January 2019 (at the conclusion of the course)



Some comments from the students [selected by G. Maeda]

Dear Dr Werner, Dr Yuri,

Thank you for the amazing lectures. I really enjoyed taking the course. Now, I have a broader perspective and adequate knowledge of space law and policy. This will certainly help me in my career in the space industry.

Best Regards,
Femi Ishola
SEIC Doctoral Student,
from Nigeria, 25 Jan. 2019

Dear Dr. Werner,

I am so glad to know that the space policy class at Kyutech has been repeated and has come to stay finally. I can attest that this class is an essential instrument for Kyutech engineers to understand beyond making spacecraft and have a broader perspective about space and gain essential negotiation skills for "real world". You are contributing immensely to the interdisciplinary training of world class space Engineers from Kyutech and further strengthening the fact that "Kyutech is growing to be the best university for training space Engineers".

Once again, thank you very much for supporting my career since 2013 when I was planning to come to Kyutech. You are one of the great role models for many young space enthusiast from developing countries. I can assure you that you are planting a viable seed in our lives.

Accept my best regards always,
Tejumola Taiwo, Ph.D,
Space Applications Division,
International Space University, France
25 Jan. 2019.

06. Congratulations to the new VC of NAST in Nepal

**THIS LETTER CAME TO ME
ON 25 JAN. 2019 ➔**

The new VC of NAST



Dr. Sunil Babu Shrestha
[bio on the next page]



NEPAL ACADEMY OF SCIENCE & TECHNOLOGY
CENTRAL OFFICE

— NAST —

24 January 2019

Dear Sir/Madam,

Greetings from Nepal Academy of Science and Technology (NAST)!!

On behalf of Nepal Academy of Science and Technology (NAST), we are pleased to inform you all that Dr. Sunil Babu Shrestha has been appointed as the Vice-Chancellor of NAST by the Rt. Honorable Prime Minister of Nepal with effect from January 23, 2019, for the period of Four Years.

We are to acknowledge your support and cooperation in the areas of mutual interest. Please wish him success in leading NAST to newer heights during his tenure.

With best regards, Sincerely yours,
Ms. Neesha Rana
Chief, Planning and Evaluation Division

Brief bio of the new vice-chancellor

Dr. Sunil Babu Shrestha is Vice- Chancellor and Academician of Nepal Academy of Science and Technology (NAST). Dr. Shrestha was a former member of National Planning Commission, Nepal (2015-2018) and served with different portfolio viz: Housing and Urban Development, Water Supply and Sanitation, Science and Technology, Local Development and Federal Affairs and Public Private Partnership. Dr. Shrestha has gained more than 20 years experiences, working in different organizations (Private, Government and Non-government) in various professional and administrative capacities. He had led Nepal's high level delegation to the review meeting on Nuclear Act at International Atomic Energy Agency in Vienna, Austria. He was also head of the National Delegation for the Visit to the Philippine's PPP Center and PPP projects in Philippines. He was a contributor in infrastructure sector for the preparation of Fourteen National Plan of Nepal, Preparation of Integrated Planned Urban Development Guidelines, Preparation of Concept and Salient features of SMART City for Nepal, Preparation of policy guidelines for Smart Village, Cooperative Housing and Preparation of National Report of Nepal for Third United Nations Conference on Housing and Sustainable Development (Habitat-III). He was the main contributor to introduce "One City-One Identity (OC-OI)" an innovative concept for Urban Development in Nepal.

He served as a member of Task Force formed by Ministry of Education, Science and Technology, Government of Nepal to draft policy on Technical & Vocational Education and Skill Development (TVESD) and National Qualification Framework in 2018.

Dr. Shrestha had Bachelor Degree in Civil Engineering and Master Degree in Urban Planning from Institute of Engineering, Tribhuvan University (TU), Nepal. He obtained Doctor of Engineering on "Environmental Development Engineering" in 2004 from Osaka Sangyo University (OSU), Japan. He was trained from different Institutes: Institute for Housing and Urban Development Studies (IHS), Netherland in Urban Management Tools for Climate Change; Weitz Center for Development Studies, Israel in Green Economy-Policy Measures and Implementation of Green Growth; The Institute for Public-Private Partnerships (IP3) USA, in Infrastructure Project Financing Strategies and Techniques, Asian Institute of Technology (AIT) Thailand, in Public Private Partnership; Rotterdam University, Netherland; in Urban Environment Management. Refresher Course in Social and Gender Dimensions of Urban River Restoration: Lesson from Asian Cities.

He was honoured with many medals and awards like Science and Technology Youth Award (2011) from Nepal Academy of Science and Technology; Youth Talent Award (2010) from Government of Nepal, Ministry of Youth and Sports; Excellent Youth Award with Gold Medal (2009) from Nepal Jaycees; Youth Professional Award (2009) from Nepal Engineers Association etc. for his special contribution to the science and technology, engineering and environment field.

He is author of a book "A Sustainable City Planning Methodology for 21st Century (Concept of Food Green City)" He has also published two books on literature: Samjhana Bagaicha (Memory Garden), a collection of memory description of Japan and Bhawana as Taswirharu (Emotional Portrait), a collection of poems. He has many articles published in the field of Sustainable Urban Development and Planning, Environment, Climate Change, Solid Waste Management, Housing, Public Private Partnership, Green Economy, Food Green City and Cooperatives.

He is the Fellow Member of Nepal Engineers' Association (NEA) and active life members of the professional societies like Regional and Urban Planners' Society of Nepal (RUPSON), Nepal PhD. Association (NPA), Nepal GIS Society (NGIS) and Nepal Council of World Affairs (NCWA). Dr. Shrestha is also an expert member of Nepal Forum for Environmental Journalists (NEFEJ).

07. Telecon with Instituto Tecnológico de Hermosillo (ITH) of Sonora State, Mexico

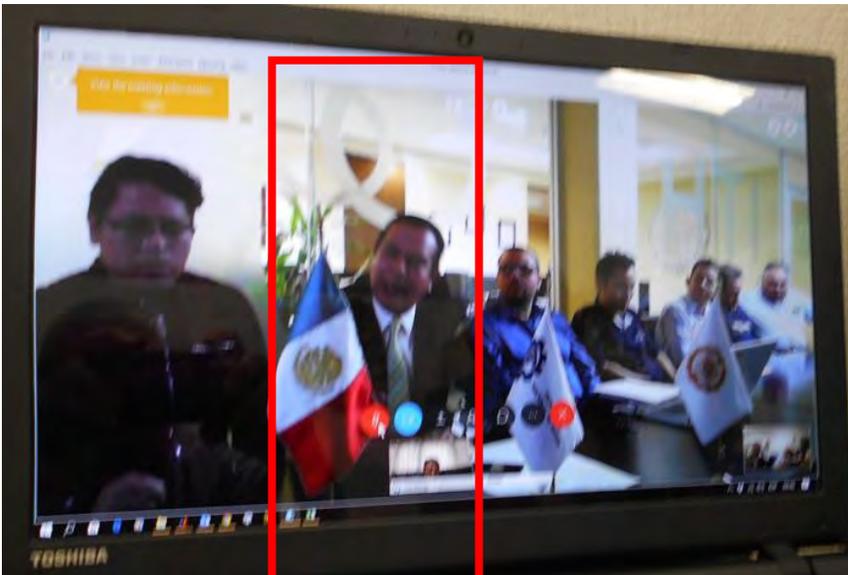


During 9:00 AM – 10:00 AM on Saturday, 26 January 2019, JST, an important telecon occurred between Kyutech and ITH, which is a university that is part of the TecNM system of Mexico.

The ITH side was led by M.C.E. Adolfo Rivera Castillo, Director of ITH. The Kyutech side was led by Prof. Mengu Cho.

It is very likely that ITH will join the BIRDS-5 Project this year.

CONTINUED ON THE NEXT PAGE



ITH Director
Rivera



Instituto Tecnológico de Hermosillo, www.ith.mx,
Ave. Tecnológico y Periférico Poniente
S/N C.P. 83170 Colonia Sahuaro,
Hermosillo Sonora, México



Images of the telecom from the Mexican side



CONTINUED ON THE NEXT PAGE

TECNM IMPULSA EL DESARROLLO PROFESIONAL DE SUS ESTUDIANTES



Hermosillo, Son., 12 de febrero de 2019. TecNM/DCD. El Tecnológico Nacional de México campus Hermosillo, en favor de mostrar el trabajo desarrollado de la comunidad académica, estudiantil y administrativa, llevó a cabo una reunión del Consejo de Vinculación, presidido por Félix Tonella Platt.

In this media article it is mentioned that ITH had an important meeting with representatives of automotive, aeronautics and IT industry of Sonora State, Mexico.

The director of ITH mentioned his promise to support students to build their first satellite with Kyutech.

<https://www.tecnm.mx/academicas/tecnm-impulsa-el-desarrollo-profesional-de-sus-estudiantes>

A photo report of a visit to ITH (Instituto Tecnológico de Hermosillo) on 30 November 2018

[the next six pages]

by

Rodrigo Cordova

Researcher

Laboratory Of Spacecraft Environment Interaction Engineering

Kyushu Institute of Technology

1-1 Sensui-cho, Tobata-ku, Kitakyushu-shi

Japan

Visiting Hermosillo

Our flight was delayed for 3 hours because of fog in Guadalajara, from 6:30am to 9:30am >(



But we arrived safely to Hermosillo!!!



Visiting Hermosillo

And we received an amazing welcome by students, researchers, and directors of TecNM campus Hermosillo!



Prof. Shibata discusses robotics at Kyutech



Dr Rodrigo discusses space engineering at Kyutech

Visiting Hermosillo

In this guided tour, they showed us their laboratories of robotics, electronics and automatization



Visiting Hermosillo

And in this new building, they are planning to create a center of research and development, including aerospace engineering!!!



Visiting Hermosillo

And we had a fruitful meeting with TecNM Hermosillo and the Director of the regional CONACYT, who will support the development of a satellite in collaboration with Kyutech!!!



A visitor from USA, whom workplace is related with visual computing

Antonio Rodríguez Valdez
Director of State Council of Science and Technology (Regional CONACYT).

Aureliano Ceron
Academic subdirector

Ailin Ruiz
International exchange

Sergio Tadeo Leyva
Subdirector of planning and liason

Aaron Cordova
Chief of the department of mechanics

Researcher

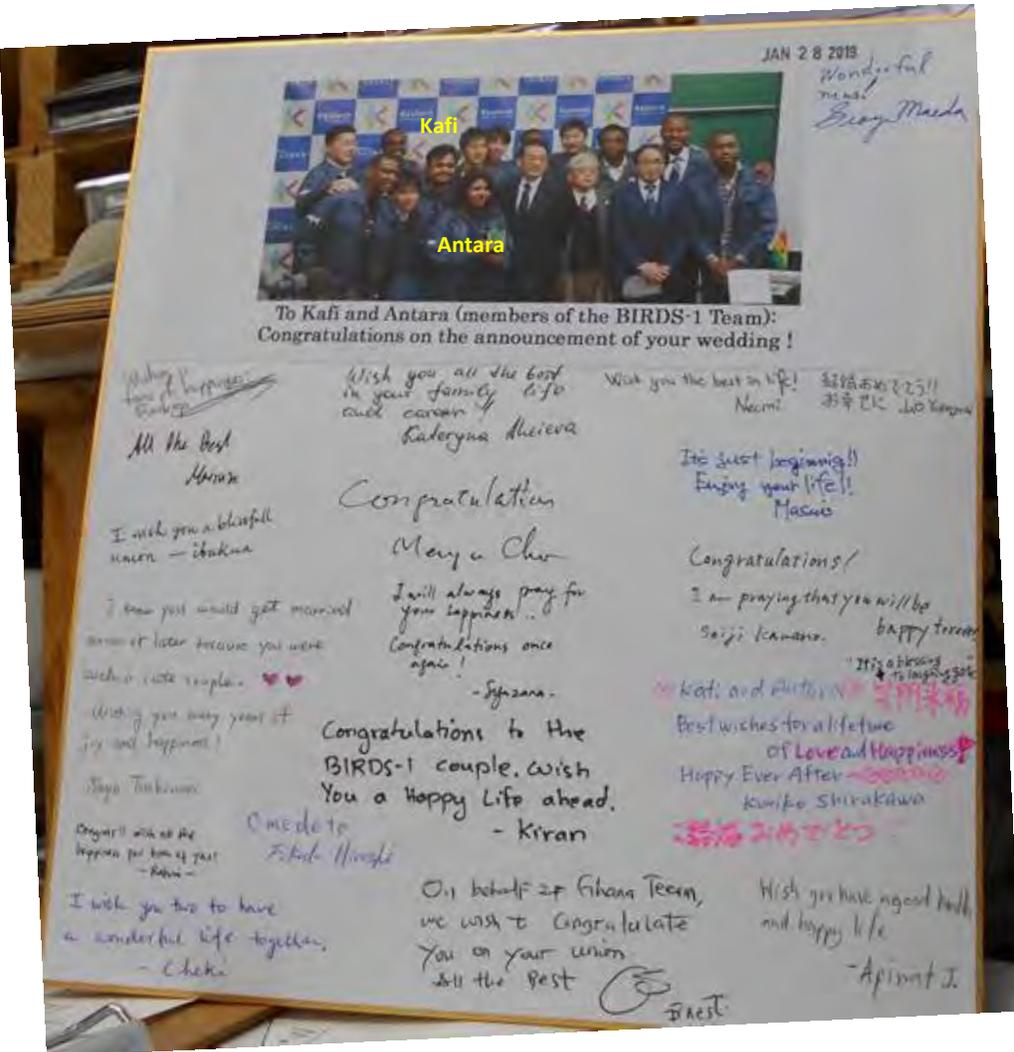
Claudia Leticia Arias
Chief of the department of technology liaison and management

Visiting Hermosillo [last page]

Finishing with an amazing meal with VIP, including two engineers from NASA, the director of OECD (Organisation for Economic Co-operation and Development) in Mexico and Latin America, a National Counselor from Employers Confederation of the Mexican Republic (COPARMEX), Roberto from TecNM, among others also VIP



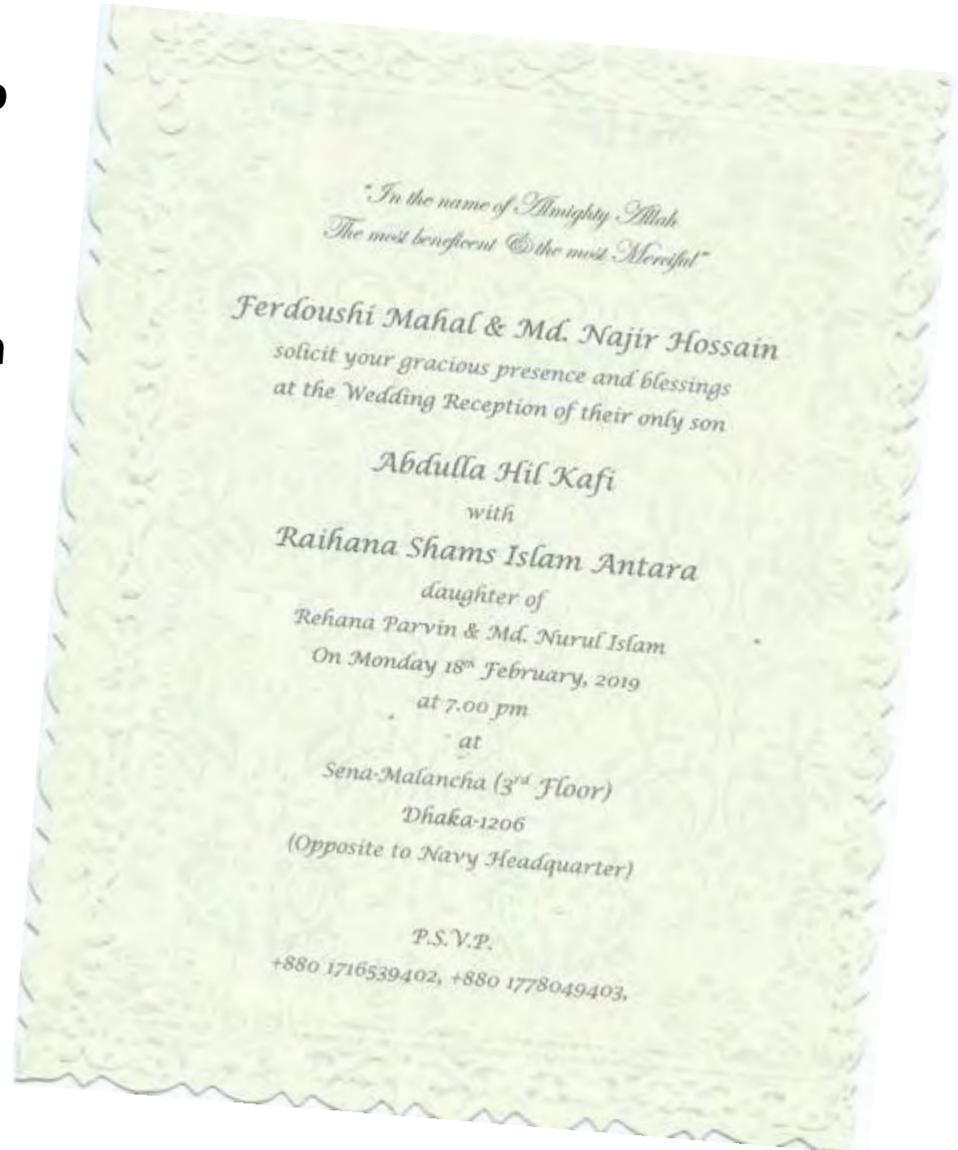
09. Congratulations to Antara and Kafi of the BIRDS-1 Team



Congratulations to Kafi and Antara, who are members of the Bangladesh BIRDS-1 team, from all members of BIRDS-1 through -4

Right: Announcement card

Left: Congratulations card signed by members of LaSEINE



10. The first UiTM MIS (Mission Idea Symposium) at Kyutech

The following report was written by Syazana Basyirah of the BIRDS-2 team.

This “MIS” is a pilot program. It brought 14 UiTM undergrads to Kyutech to help them see the excitement of space engineering. It is hoped that they were deeply inspired by this experience so that they will think about pursuing space engineering as a career as they complete their undergrad program at UiTM. And we hope this pilot program will continue next year as a standard annual event.

-- G. Maeda, Editor

Report on Nanosatellite UiTMSAT-2 Mission Idea Symposium

An International Mobility Program

• *January 23rd, 2019*

• *Prepared by: Syazana Basyirah (BIRDS-2 team)*



اَبُو دَاوُدَ سَيِّدِي تَكْنُو لُو كِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA



INSTITUTION
OF ENGINEERS
MALAYSIA



Kyutech
Kyushu Institute of Technology

Mission Idea Symposium: An Overview



On January 23rd, 2019, a symposium related to Mission Ideas for UiTMSAT-2 Nano-Satellite was conducted in Kyutech by LaSeine and UiTM students. The participants involving 14 undergraduate students (from Universiti Teknologi MARA (UiTM), Malaysia) and BIRDS members (from BIRDS-1 until BIRDS-4 representatives).

The objectives of the symposium are mainly to propose the mission ideas for the next UiTM nanosatellite project (UiTMSAT-2) and gain some knowledge and feedbacks from BIRDS members.

In the morning, BIRDS member representatives make some presentation by sharing their experiences, lesson learned and mission feasibilities during their development in BIRDS Project. The representatives are Maisun (BIRDS-1), Kiran (BIRDS-2), Tharindu (BIRDS-3) and Mark (BIRDS-4). Later after that, the 14 undergraduate students were divided into 4 group with 4 different mission ideas. There was 1 mentor for each group who was assigned to guide and give advise to them where appropriate before the presentation session. There were also participants from BIRDS Ground Station Workshop joined the discussion group and the presentation afterwards.

SHARING SESSION BY BIRDS MEMBERS

Each BIRDS member representatives shared their experiences from their perspectives on the mission feasibilities, what to expect and lesson learned.



Maisun highlighted several key-points: 1) What exactly we want to achieve? 2) Feasibility of missions proposed. 3) Always have backup plans. 4) Document everything. 5) Follow BIRDS 10 Simple Rules



Kiran was sharing his MDR experience on the point of view of System Engineering. Some key-points are highlighted: Understand the stakeholder requirements and satellites constraints

SHARING SESSION BY BIRDS MEMBERS

Mission Idea Symposium 2019

Each BIRDS member representatives shared their experiences from their perspectives on the mission feasibilities, what to expect and lesson learned.

BIRDS-3 representative



Tharindu shared his experience when he was developing the BIRDS-3 satellite. He gave suggestion to the UiTM students to prepare for the major/minor changes that might happen during the development process.

BIRDS-4 representative



Mark shared his experiences during MDR. BIRDS-4 team underwent the MDR on December 28th, 2018 and now they are reviewing all their missions and preparing for the Bread Board Model where every missions and subsystems of the satellites will be integrated.

MISSIONS PROPOSED

CAMERA MISSION

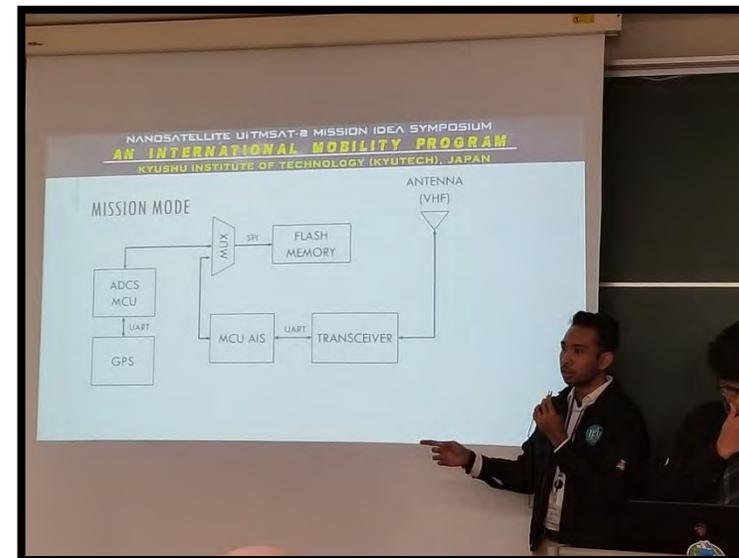
- Disaster mitigation – to reduce loss of life and property by prepared from the mission data collection.
- Deforestation (illegal Logging) – Capture or stop illegal logging activity in the forest within Malaysia
- Lost Connection - Capture affected areas that have lost their connection due to the disasters.



MISSIONS PROPOSED

AUTOMATIC IDENTIFICATION SYSTEM (AIS) MISSION

- Collect, store and transmit AIS messages (Malaysia)
- Transmission rate of data collected (space) to the ground is high
- Provide market intelligence (aggregating data)



MISSIONS PROPOSED

STORM DETECTION MISSION

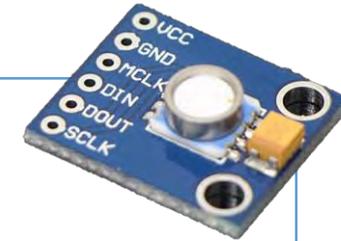
- To give visual aid about the storm formation
- Able to detect approaching storm within any places that the satellite is passing through
- To alert the authorities about the formation of heavy storm at a certain place.



MISSIONS PROPOSED

STORE & FORWARD MISSION

- To predict floods in rural residential area in east coast of Malaysia
- To monitor water rise level in remote areas
- To be alerted of floods in shorter period of time



Group Discussion



Camera Mission Team
Mentor: Mark (BIRDS-4 member)



Store & Forward Team
Mentor: Tharindu (BIRDS-3 member)



Storm Detector Mission
Mentor: Kiran (BIRDS-2 member)



Group Discussion



Automatic Identification System (AIS) Mission
Mentor: Maisun (BIRDS-1 member)

LaSEINE Lab Tour

23 Jan. 2019



They visited LaSeine Laboratory and got some explanation about chambers used to test satellites at different orbit. The tour was conducted by Dr. Necmi (staff) and assisted by Mr. Hasif Azami (member BIRDS-2 team)

Official Group Photo



Finally, we managed to take this group photo together even though the wind was so strong and weather was too cold. We had a wonderful experience together and hopefully the symposium will be continue in the future. Great collaboration and knowledge sharing between BIRDS members and UiTM undergraduates! See you again!

Although not so much these days, Kitakyushu was once an industrial powerhouse (1960s and 1970s). Some of the industry remains and you can take tours.

11. Industrial tours of Kitakyushu – all very interesting

Yaskawa Electric (robots)

▼安川電機ロボット工場



Mitsubishi Material

▼三菱マテリアル東谷鉱山



▲デンソー九州 Denso Kyushu (auto parts)



▲日産自動車九州 Nissan auto manufacturing

産業観光バスツアー

①デンソー九州と安川電機ロボット工場 3月7日(木)8時50分、小倉駅

本市では、ものづくりのまちである特長を生かして、製造業の現場を体感し、生産に携わっている人々と触れ合える「工場見学」を行っています。近年は、世界遺産・官営八幡製鐵所関連施設等の産業遺産や、工場夜景、エコタウン等の環境学習施設などを組み合わせた産業観光を行っています。

新幹線口に集合。16時40分、同所で解散。定40人。料6300円。
 ②日産自動車九州と三菱マテリアル九州工場・東谷鉱山 3月20日(木)8時50分、小倉駅新幹線口に集合。18時同所で解散。定24人。料6800円。
 共通 対小学5年生以上。日帰り、昼食付き。①は2月21日、②は3月6日までにアーバンツアーリスト ☎961・3370へ。産産業経済局観光課 ☎551・8150。

北九州市の産業観光

見どころいろいろいっぱい!

Continued on the next page

企業博物館・資料館

名称	開館時間	休館日	入館料
TOTOミュージアム (小倉北区中島二丁目)	10~17時(入館は 16時30分まで)	月曜日、年末年始、夏 期休暇	—
ゼンリン地図の資料館 (リバーウォーク北九州14階)	10~17時(入館は 16時30分まで)	土・日曜日、祝・休日、 年末年始、夏期休業日	一般100円、 中学生以下無料
わかちく史料館 (若松区浜町一丁目)	10~16時	月曜日、祝・休日、年末 年始	—
ニッスイパイオニア館 (戸畑区銀座二丁目)	10~17時(入館は 16時30分まで)	日曜日、祝・休日、年末 年始	—



Zenrin Map
Museum

<https://www.japanvisitor.com/japan-museums/zenrin>



TOTO Museum



Nissui Pioneer Museum

<http://sangyokanko.com/history/nissui/>



わかちく史料館

<http://www.gururich-kitaq.com/search/category/detail.php?id=198>

From this
issue →



News flyer

<http://www.city.kitakyushu.lg.jp/page/dayori-arc/>

Moji was one of five cities that merged to form Kitakyushu City in 1963. It is the closest municipality of Kyushu in proximity to Honshu. Moji Port (門司港, Mojikou) has been prominent as an international trading port since the late 19th century. Today, although main port activities have been moved to a newer location at Shin-Moji Port, Moji Port retains its relevance as a tourist destination with a flavor from the past thanks to several well-preserved Western style buildings from the Meiji and Taisho Periods.

One of these fine buildings is **Mojiko Station**, the oldest station on the Kagoshima Line. A leisurely walk from the station takes you to the several other historic buildings located in an attractive waterfront area. These buildings were initially constructed about a century ago to accommodate and facilitate flourishing businesses thanks to the thriving trade with the Asian continent. Some of them are open to visitors and house the likes of libraries, cafes, restaurants and museums.

FROM:

<https://www.japan-guide.com/e/e4878.html>



門司港 再び駅の灯
YOMIURI, 2019. 2. 5
3月10日の全面開業に向け、
修復工事が大詰めを迎えた国指定重要文化財「門司港駅」(北九州市門司区)の駅舎が4日夜、試験的にライトアップされ、白い壁が夕靨に浮かび上がった一写真、大野博昭撮影。北九州市によると、本格的なライトアップは、修復工事前の2012年以來、
駅舎は1914年(大正3年)の建築。日本の近代化を象徴する木造の洋風建築で、88年に駅舎では初めて国の重要文化財指定を受けた。本点灯は3月9日から始まり、日没後から午前0時まで行われる。

The station went under extensive renovation and re-opens on 10 March 2019.

- from Yomiuri Newspaper of 5 Feb. 2019

12. Congratulations to JAXA Engineer Akagi !!!

Our JAXA colleague and friend Akagi san moves to a JAXA post at Houston, Texas, as of 1st April 2019.

He has helped Kyutech with these satellite projects:

- ◆ BIRDS-1, -2, and -3
- ◆ Irazu (Costa Rica)
- ◆ UBAKUSAT
- ◆ SPATIUM-I
- ◆ Aoba-Velox-III

Akagi-san:
We all will miss you a lot. The Editor.



Engineer Akagi and Prof. Taiwo at 2017 IAC in Adelaide, Australia.
[Photo courtesy of Taiwo.]



Engineer Akagi (back row, center) with the BIRDS-2 Team
[Photo courtesy of Kiran.]

This photo is from Page 80 of
BIRDS Project Newsletter Issue No. 23



Engineer Akagi displays his anti-gravity properties during the banquet of the **2nd BIRDS International Workshop** at ANUC in Ghana (20-24 November 2017)

**Continued on
the next page**



APRSAF in Manila – November of 2016
[photo by the editor]



COPUOS in Vienna – June of 2016
[photo with the editor's camera]



IAC in Mexico – September of 2016
[photo by the editor]



BIRDS-1 students
with JAXA engineers
at the Tsukuba
Space Center on
9 Feb. 2017

©JAXA



Attending the second
BIRDS International
Workshop in Ghana –
November of 2017



13. Details of the 10th Cansat Leader Training Program have been released



Dear UNISEC-Global Community members,

We are pleased to announce the 10th CLTP information is available now!

Dates: August 19-30, 2019

Venue: Nihon University, Japan

Application due dates:

A) For a Partial Scholarship (to cover a part or all of participation fee) : April 15, 2019

B) For Self-Funded : May 15, 2019

For details, please go to the website!

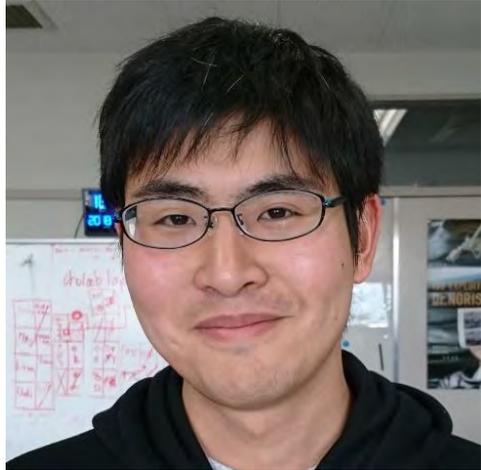
<http://cltp.info/cltp10.html>

The flyer can be downloaded here:

<http://cltp.info/pdf/CLTP10.pdf>

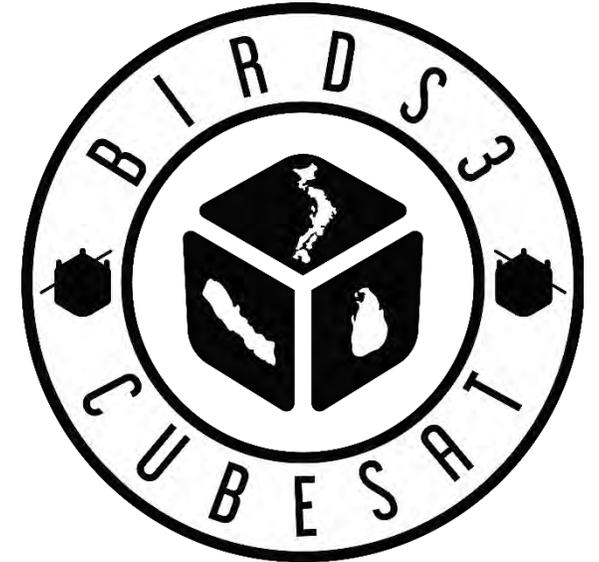
Please disseminate the information to anybody who might be interested.

With warm regards,
Rei Kawashima



BIRDS-3 Call signs awarded

by Daisuke Nakayama
Amateur Radio License Team
February 2, 2019



BIRDS-3 Call signs Awarded

Written by: Daisuke Nakayama (JE6VHE)

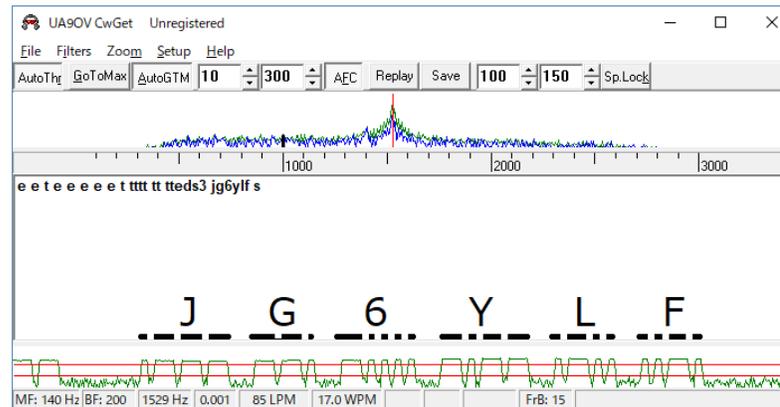
A call-sign is a code used for identifying a radio station. It is sent with the message so the receiving radio station can easily identify the sender. Each station has its unique call-sign which is assigned by ministry of communications of each country. In Japan's case, it is the Ministry of Internal Affairs and Communications (MIC).

To get a call-sign, it is necessary to submit some documents to the government. For BIRDS-3 project, preparation of these documents started as early as 2nd quarter of 2018. Call-signs for BIRDS-3 satellite station at Kyutech were finally granted on Jan 30, 2019 as follows:

Uguisu (Japan)	JG6YLE
NepaliSat-1 (Nepal)	JG6YLF
Ravana-1 (Sri Lanka)	JG6YLG

To completely acquire the amateur radio station license, inspection by the government agency is necessary and BIRDS-3 has secured a schedule for it. After this, the satellites can be handed over to JAXA for launch.

A call-sign for each satellite was decided, so the BIRDS-3 team can make the call sign into the satellite software and begin the "Long Duration Test"



Checking CW beacon for NepaliSat-1 "JG6YLF" during Long Duration Tests

九通陸第18-00017926号
無線局予備免許通知書

免許人の氏名又は名称	九州工業大学衛星開発プロジェクト 中山 大輔		
免許人の住所	福岡県北九州市戸畑区仙水町1-1		
無線局の種別	アマチュア局	免許の番号	
免許の年月日		免許の有効期間	
無線局の目的	アマチュア業務用	運用許容時間	常時
通信事項	アマチュア業務に関する事項		
通信の相手方	アマチュア局		
識別信号	JG6YLF		
無線設備の設置場所又は移動範囲			
軌道傾斜角	51.6 度	軌道周期	93 分
近地点高度	402 k m	遠地点高度	406 k m
軌道の種類	円軌道 同期軌道		
電波の型式、周波数及び空中線電力			
6K00F1D	437.375 MHz	(注1～注6)	(注) 780 mW
500HA1A	437.375 MHz	(注1～注6)	97 mW
備考 別紙のとおり			

平成31年1月7日付けの申請については、識別信号権、電波の型式、周波数及び空中線電力権の記載事項並びに工事落成の期限(平成31年7月30日)及び運用許容時間(常時)を指定し、並びに備考欄に記載の条件を付して予備免許/承認を与える。

平成 31 年 1 月 30 日

九州総合通信局長



Pre-license for BIRDS3 Nepal satellite "NepaliSat-1";
"Call-sign" is "識別信号" in Japanese



“We are ready to go full blast in the space industry. Government has been laying the foundations needed to put up a strong science program and the creation of PhilSA will be the culmination of this preparations, It is high time now for our partners in the industry to join us in this journey to conquer space,” he [Parangit] said.

**Manila Bulletin,
January 30, 2019**

MANILA BULLETIN

The Nation's Leading Newspaper

Gov't, academe, business groups to explore space industry

Published January 30, 2019, 3:14 PM

By *Dhel Nazario*

Gearing towards the creation of the Philippine Space Agency (PhilSA), business groups in the country gathered for the first time on Tuesday for the First Philippine Space Industry Forum, with hopes of spurring new collaborations on space technology applications development.

201
SHARES

Share it!



“With this milestone, we are now able to receive information that can be translated to the enhancement of our capabilities in weather forecasting, disaster management and preparedness, national security, industry building, research, education and international cooperation,” the department’s Undersecretary Rowena Guevara told the same gathering.

The Japan Times,
February 1, 2019



Philippines ready and able to create its own space agency, minister says

KEYWORD

MANILA - The Philippines is ripe to establish its own space agency, the country's science and technology minister said Thursday.

Citing a sufficient pool of manpower and facilities, and actual utilization of space technology, Secretary Fortunato de la Pena told a news conference, “We are proud to say that we are capable and ready for a Philippine Space Agency.”

A bill creating the agency was passed in the House of Representatives last December, while counterpart legislation is pending in the Senate.

De la Pena said the agency would yield “national added security, improved hazard management, progressive climate studies, refined space research, and modernized farming and environmental monitoring, among others” for the country.

He said the Department of Science and Technology has already “assembled the infrastructure, the human resources and the programs and projects needed in the establishment” of a space agency.

Since 2010, he said, the department has already spent 7.48 billion Philippine pesos (nearly \$144 million) for space research and development, supported almost 5,500 scholars, produced more than 1,000 experts in space science and established 25 facilities across the country.

FEB 1, 2019

[ARTICLE HISTORY](#)

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KEYWORDS

[SPACE, PHILIPPINES](#)

RELATED

- [With his eye on celestial billboards, Russian entrepreneur sparks debate about who owns the heavens](#)

“The thrust of the upstream market is to be able to provide us with the technology like the fabrication of space components,” Paringit said. He explained that fabrication of components and parts can be done in the country.

Business Mirror, February 3, 2019

End of space news from the Philippines

Features Science

\$1.5-billion market seen once PHL space agency is created

By **Stephanie Tumamos** - February 3, 2019

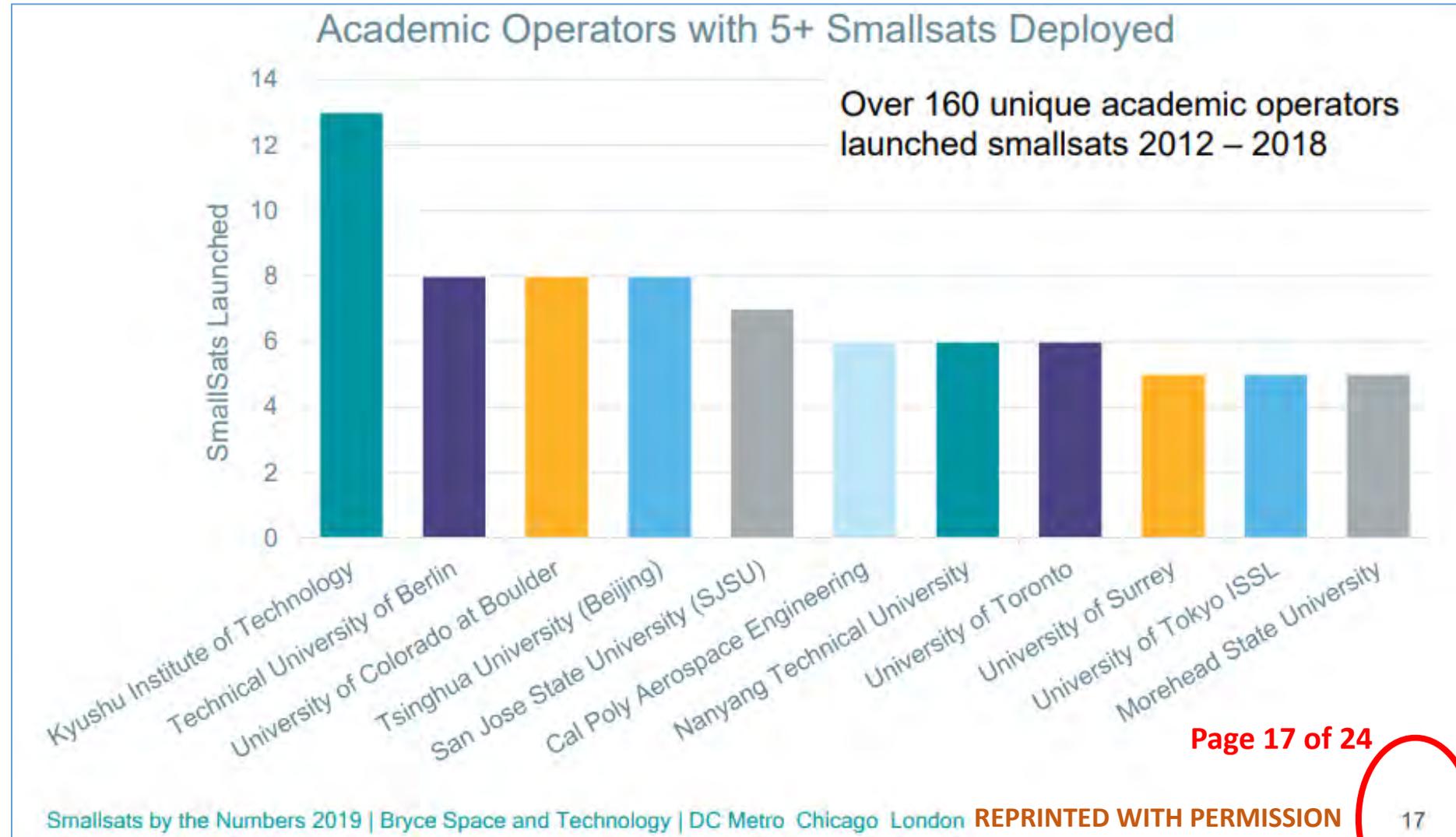


Science Undersecretary Renato U. Solidum Jr. and Executive Director Enrico Paringit of the Department of Science and Technology-Philippine Council for Industry, Energy and Emerging Technology Research and Development in a discussion at the Business Forum on Space Science and Technology held at a hotel in The Fort, Taguig City, on January 29

16. Smallsat deployment: Kyutech pulls ahead of the pack ! ! ! ! ! ! ! !

This is an update on a report issued last year by **Bryce Space and Technology** in northern Virginia, USA.

The title of the report has changed from *Smallsats by the Numbers 2018* to *Smallsats by the Numbers 2019*. And as you can see from page 17 of the new report, Kyutech has pull way ahead of the pack. I encourage you to download this 24-page pdf and see for yourself (the link is below). [This is really, really amazing.](#)



http://brycetek.com/downloads/Bryce_Smallsats_2019.pdf

Cont'd on the next page



This is the cover page of the 2019 smallsat report (24 pages) issued by Bryce Space and Technology.



17. Message to all stakeholders of BIRDS

COPUOS: Committee on the Peaceful Uses of Outer Space、宇宙空間平和利用委員会

If your country is a member of COPUOS (it probably is), then your country has an opportunity to make a **Technical Presentation** about your involvement in the BIRDS Project. You can discuss what you did in front of all COPUOS nations.

Why it is easy to do

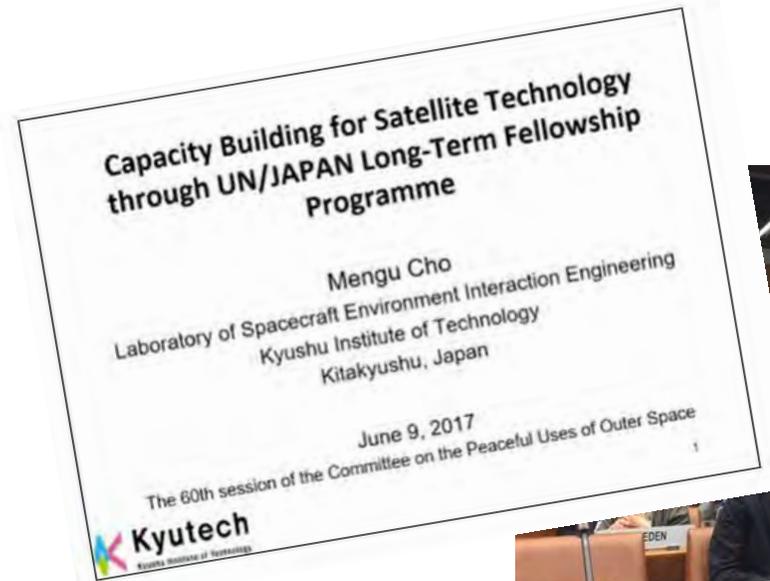
For each COPUOS meeting (every year in Feb. and June), your country sends representative(s) to COPUOS ... whether you know this or not. Often they have nothing to say or announce. Hence, if you raise your hand and say you have a Technical Presentation to offer at COPUOS, it is likely that your foreign ministry will pay your air fare to attend COPUOS so that you can use the time slot (15 minutes) allotted to your country. Easy.

The evolution of COPUOS

BIRDS Project Newsletter Issue No. 36, Page 27.

Prof Cho delivers Technical Presentation at COPUOS [photo below]

BIRDS Project Newsletter Issue No. 17, Page 29.



Japan is a member of COPUOS. So it get slots. In the past, Kyutech has requested slots and as a result has made the following technical presentations at COPUOS. You can easily download the presentation files:

COPUOS: Committee on the Peaceful Uses of Outer Space、宇宙空間平和利用委員会

Technical Presentations at COPUOS by Kyutech

PNST Presentation at the 50th Session of the Scientific and Technical Subcommittee, 13 February 2013

<http://www.unoosa.org/pdf/pres/stsc2013/tech-14E.pdf>

PNST Presentation at the 59th Session of the Scientific and Technical Subcommittee, 10 June 2016

<http://www.unoosa.org/documents/pdf/copuos/2016/copuos2016tech08E.pdf>

PNST Presentation at the 60th Session of the Scientific and Technical Subcommittee, 9 June, 2017

<http://www.unoosa.org/documents/pdf/copuos/2017/copuos2017tech10E.pdf>

Contact the authorities in your country (please do not ask me). You can ask for a presentation slot. Then you can announce to a world body (COPUOS) your achievements in space. Such as BIRDS.



I made a 15-minute technical presentation at STSC (see the TV screen at the left) on 15 Feb. 2019 that discusses PNST and BIRDS. It can be downloaded from the STSC website. Thanks to Ms. Kagiwada (JAXA) for taking both of the photos above.

COPUOS: Committee on the Peaceful Uses of Outer Space、宇宙空間平和利用委員会





The UN in Vienna

The venue of COPUOS



A reception was held by the Gov't of Japan

Part of the delegation from JAXA

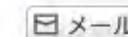
GM and the director of UNOOSA,
Ms Simonetta Di Pippo



報道発表

国連宇宙空間平和利用委員会（COPUOS）科学技術小委員会第56会期の開催（結果）

平成31年2月25日



1 2月11日から22日まで、オーストリア・ウィーンにおいて国連宇宙空間平和利用委員会（COPUOS）科学技術小委員会が開催され、我が国から柳淳・在ウィーン国際機関日本政府代表部次席公使、山口勇・外務省総合外交政策局宇宙・サイバー政策室長及び向井千秋・国立研究開発法人宇宙航空研究開発機構（JAXA）特別参与（宇宙飛行士）を始め、関係府省庁及び機関等が日本代表団として出席しました。

Press release by MOFA 外務省 : https://www.mofa.go.jp/mofaj/press/release/press6_000563.html

Kyutech is mentioned:

6 その他、我が国が進める開発途上国の宇宙能力開発に関するイニシアチブについて、「KiboCUBE」(JAXAと国連宇宙部(UNOOSA)が連携し、開発途上国が開発した超小型衛星を国際宇宙ステーションから放出する機会を提供するプログラム)及び九州工業大学の留学生受入れプログラムを事例として紹介するサイドイベントを、北野充・在ウィーン国際機関日本政府代表部大使、シモネッタ・ディピッポ・UNOOSA部長及びジェームズ・キプシルマ・アルアサ・ケニア宇宙機関長と共催し、約140名が出席しました。

18. The new space law in Japan

Subject: Applying for a Permission Related to the Launching of Spacecraft, etc.,
and License Related to the Control of Spacecraft

Date: 2019/02/08

To: laseine_research_seminar

Dear All,

Space Activity Law came into effect in Japan last year November. For objects released into space, owners (managers) must manage so that spacecraft do not become debris. Satellites (BIRDS, etc.) conducting initial operation in Japan are subject to this law. For details, please look at these links:

<https://www8.cao.go.jp/space/english/activity/application.html> (English)

https://www8.cao.go.jp/space/application/space_activity/application.html (Japanese)

Sincerely, Yamauchi



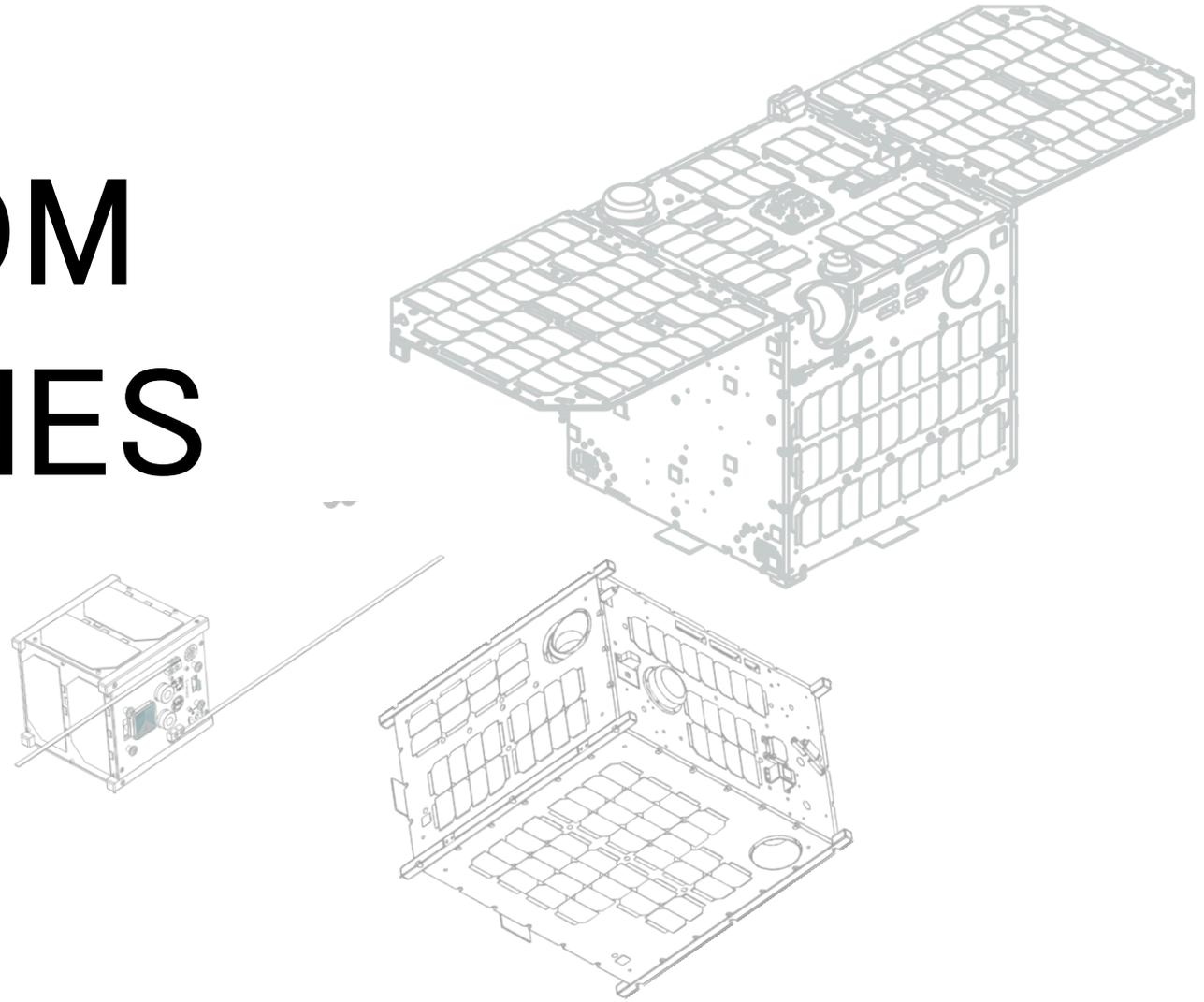
UPDATES FROM THE PHILIPPINES

February 15, 2019

University of the Philippines-Diliman
Quezon City, Philippines

Prepared by:

*Nicole V. Ignacio and Mae Ericka Jean C. Picar
(PHL-Microsat/STAMINA4Space Communications Team)*



STAMINA4SPACE Logo Rationale

Italicized text: Symbolizes stamina, perpetually moving forward



▶ Stars: Main island groups of the Philippines (Luzon, Visayas and Mindanao,) like how they are represented in the Philippines' flag

▶ Blue: Earth; stamina and strength

▶ A shape: Likened to launch path, symbolizes advancement in space Science & Technology

▶ Maroon: symbolizes passion and intensity

▶ Curve: Earth's atmosphere; Orbit

The Development of Philippine Scientific Earth Observation Microsatellite (PHL-Microsat) Program is succeeded by the Space Technology and Applications Mastery, Innovation and Advancement (STAMINA4Space) Program, and will be referred to as such from this day forward.

STAMINA4Space Program

The STAMINA4Space Program focuses on further development of local expertise in Space Technology and Applications (STA) to spur the development of high-value industries in the country, and to address our manifold needs in scientific earth observation for disaster risk reduction and management, resource assessment, environmental monitoring and other applications. Leveraging on advancements in computing and sensing technologies, and the increasing opportunities for access to space, STAMINA4Space uses small satellite technology as a platform for:

- a) Generating valuable DATA from scientific earth observation that lead to more actionable information and responsive programs, policies and interventions across various societal applications;
- a) Building an INDUSTRIAL BASE for high value-add activities and innovations in aerospace technology and affiliated sectors;
- a) Creating an enabling and conducive ENVIRONMENT for interdisciplinary R&D, leading to a stronger local ecosystem for scientific innovation; and
- a) Developing highly trained, specialized researchers, scientists, engineers and S&T workers, and transforming them into T-shaped PEOPLE that work together across different technical disciplines to tackle high-impact, societal-scale challenges for the country.

Read more here: <https://bit.ly/2TO7ffg>

STeP-UP Project Scholars



The eight scholars from different backgrounds and sectors ranging from the industrial, academe, to the armed forces, were personally congratulated by DOST-Philippines Secretary [Fortunato de la Peña](#) on 18 January 2019 at the Meralco Hall, [University of the Philippines Diliman](#).

The scholarships are supported by DOST and DOST-Science Education Institute (SEI).

Read more here:

<https://bit.ly/2Etv4Wr>

In photo from left: Christy Raterta, Marielle Magbanua-Gregorio, Gladys Bajaro, Lorilyn Daquioag, Secretary Fortunato Dela Peña, Renzo Wee, Bryan Custodio, Judiel Reyes and Derick Canceran.

STeP-UP Project Scholars



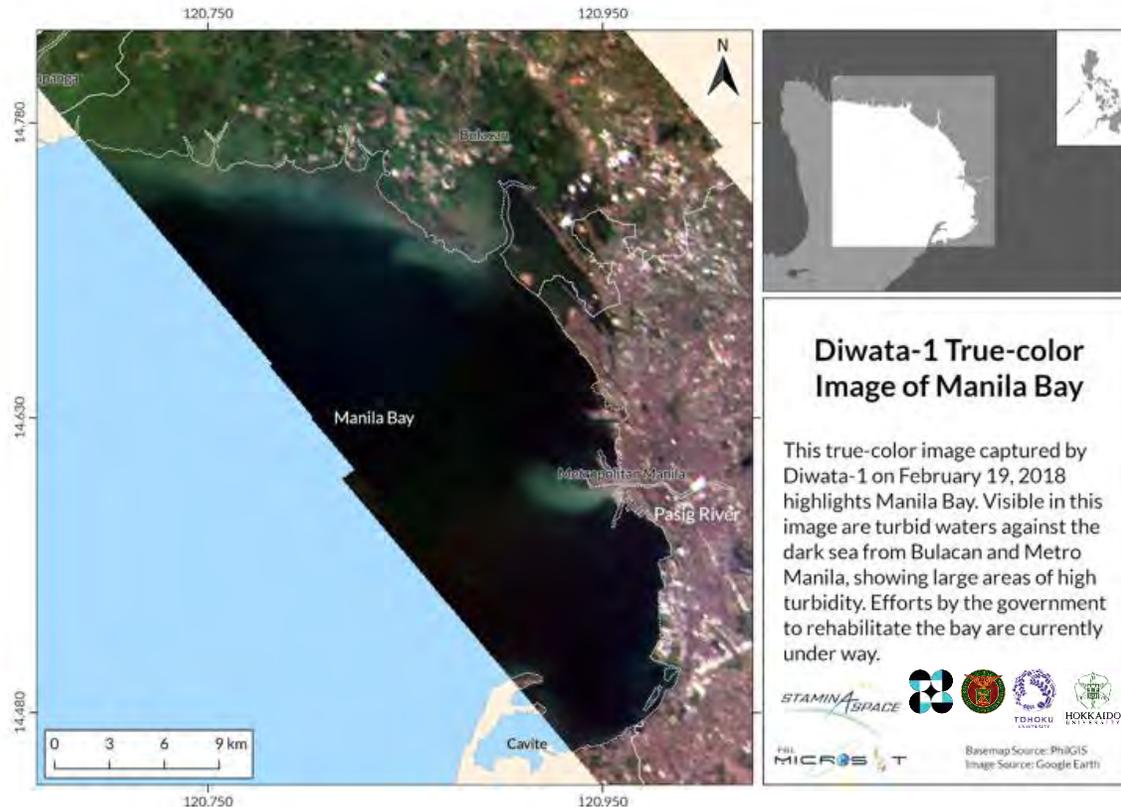
The STAMINA4Space Program's Space Science and Technology Proliferation through University Partnerships (STeP-UP) Project opened the call for scholarship applications last September 2018 for the Master of Science (MS) and Master of Engineering (MEng) in Electrical Engineering under the nanosatellite engineering track in the University of the Philippines Diliman. The nanosatellite engineering track includes the development of 1U cube satellites (cubesats), space environment testing of the cubesats (engineering model and flight model) at the Kyushu Institute of Technology (Kyutech) in Japan, launch of the cubesats via the International Space Station (ISS), and cubesat operations.

On January 18, 2019, the eight scholars were welcomed through a kick-off meeting at the Meralco Hall of the University of the Philippines - Electrical and Electronics Engineering Institute (UP-EEEI). DOST Secretary Fortunato de la Peña, DOST-ASTI Acting Director and STAMINA4Space Program Leader Dr. Joel Joseph Marciano Jr., DOST-PCIEERD Director Enrico Paringit, UP-EEEI Director Dr. Richard Hizon and other members of the STAMINA4Space Program were present during this event.



Photos: (Right) The STeP-UP Scholars with some of the STAMINA4Space Team and DOST Secretary Fortunato Dela Peña (left) Dr. Joel Joseph Marciano Jr. welcoming the STeP-UP Scholars to the program

Diwata-1 images help monitor, sustain Manila Bay rehab



Diwata-1 images help monitor, sustain Manila Bay rehab

PHL-Microsat researchers task Diwata-1 microsatellite to take images of Manila Bay and conduct remote sensing processing and analysis.

After the massive [cleanup and rehabilitation efforts on Boracay](#), all eyes are on Manila Bay as the Department of Environment and Natural Resources (DENR) began rehabilitation operations on January 26, 2019.

On February 19, 2018 at 3:24 GMT+08, Diwata-1 was able to capture an image of Manila Bay using its Spaceborne Multispectral Imager - nearly a year before the rehabilitation project. Satellite data, such as in the form of images yielded by our microsatellite, can help us track changes in water quality.

Read more here: <https://bit.ly/2HWIXiL>

EMC Debugging Solution Seminar



EMC Debugging Solution

24 January 2019

Bicutan, Taguig, Metro Manila

Kenneth John Ibarra and Elaiza Pontrias, two of our STAMINA4Space researchers, attended the EMC Debugging Solution Seminar last January 24, 2019. The seminar covers new conducted emission solution (debugging) technology, including noise analysis & separation in common-mode and differential-mode, real EUT impedance matching, components (coil & capacitor) performance, trial EMI filter design and lastly performance simulation.

In Photo: Engr. Kenneth Ibarra (4th from left) and Engr. Elaiza Pontrias (middle) with representatives of Quantel Pte. Ltd and EMCIS during the seminar in Germanium Rm., 3/F Gold Building, MIRDC Compound, Gen. Santos Ave. Bicutan, Taguig, Metro Manila



In photo: Engr. Arvin Joseff Tan, representative of the STAMINA4SPace Program, during his lecture in BLAST! 2019

Beginners' Learning and Appreciation of Science and Technology 2019

January 26, 2019

Philippine Science Centrum, Marikina City

BLAST! is a one-day activity for primary school students that aims to immerse them in an ultimate science learning experience, as well as foster an early love for science, technology, and the environment. This year, BLAST! 2019 focuses on the science topic of Aeronautics.

This event is organized by the Philippine Society of Youth Science Clubs (PSYSC)-a non-profit organization that promotes the public understanding of Science, Technology, and the Environment in the Philippines.



In photo: Engr. John Leur Labrador, one of STAMINA4Space Program university researchers, presenting in the Electronics Kapihan event.

Electronics Kapihan sa Calabarzon

Jan 31, 2019

Sta. Elena, Cabuyao, Laguna, Philippines

"Electronics Kapihan sa Calabarzon" is a bi-monthly forum for manufacturing companies in electronics, semiconductor and allied services in CALABARZON Region which comprises five provinces: Cavite, Laguna, Batangas, Rizal, and Quezon. 'Kapihan' sessions are those that involve talks or workshops done over coffee and refreshments. The recently held event was sponsored by PCIEERD and featured projects sponsored by the said organization. STAMINA4Space was able to present its past and current activities, with the focus on the localization of developments. Opportunities for local partnerships were presented and inquiries with some prospective partners were tackled during the event.

Read more here: <https://bit.ly/2TTJmD4>

20. JAXA announces the delivery of BIRDS-3 satellites to Tsukuba



宇宙航空研究開発機構
Japan Aerospace Exploration Agency

ISSサイト内で ○ JAXA全体で

Google カスタム検索 検索

宇宙ステーション・きぼう 広報・情報センター

トップページ きぼうタイムズ ライブラリ レポート & コラム メディア・イベント よくある質問 ENGLISH

トップページ > 「きぼう」での実験 > 新着情報 > 4機の超小型衛星を国際宇宙ステーションからの放出に向けて作業開始

「きぼう」での実験
Experiments on Kibo

新着情報

いいね! 0 ツイート G+ B! 0

4機の超小型衛星を国際宇宙ステーションからの放出に向けて作業開始

最終更新日：2019年2月21日

See the website: http://iss.jaxa.jp/kiboexp/news/20190221_birds.html

2019年2月18日に九州工業大学がBIRDSプロジェクト(※1 NEXT PAGE)の第3弾として設計・製作した1Uサイズ(10cm×10cm×10cm)の超小型衛星3機、翌19日にはシンガポール宇宙技術協会との契約に基づきシンガポール国立大学が設計・製作した3Uサイズ(10cm×10cm×30cm)の超小型衛星1機が宇宙航空研究開発機構(JAXA)の筑波宇宙センター(TKSC)にてJAXAに引き渡され、5月から6月頃の国際宇宙ステーション(ISS)にある日本の宇宙実験棟「きぼう」からの放出に向けて搭載作業が実施されました。

なお、今回のBIRDSプロジェクト第3弾は九州工業大学の学生及び同大学に留学しているスリランカとネパールの学生たちによるもので、このうち、スリランカとネパールにとっては国として初めての人工衛星となります。

搭載作業は順調に進んでおり、今後、米国のバージニア州からシグナス補給船運用11号(NG-11)により4月頃 ISSへ打ち上げられる予定です。

CONT'D ON THE NEXT PAGE



BIRDS-3衛星写真/関係者写真

「きぼう」の小型衛星放出機構（J-SSOD）と超小型衛星を前に記念撮影を行う「BIRDS-3」ミッション参加国の関係者ら（出典：JAXA）

※1 BIRDSプロジェクト（正式名：Joint Global Multi Nation Birds）

JAXAと九州工業大学の戦略的パートナーシップ契約に基づき日本の九州工業大学とアジア・アフリカ諸国が参加して、超小型衛星を共同開発・運用する国際的な衛星開発プロジェクト。今回引き渡された3機の超小型衛星は、その第3弾でBIRDS-3と呼ばれる。



SpooQy-1衛星写真/関係者写真

「きぼう」の小型衛星放出機構（J-SSOD）と超小型衛星を前に記念撮影を行う「SpooQy-1」ミッション参加国の関係者ら（出典：JAXA）

BIRDS-3では、日本、スリランカ、ネパールの3カ国が参加し、およそ1年間で、各国がそれぞれ1機、計3機の1辺10cmの小型立方体からなるキューブサットと呼ばれる超小型衛星を開発。それぞれの衛星の名称は「Uguisu」（うぐいす）（日本）、「Raavana-1」（ラーヴァナ・ワン）（スリランカ）、「NepaliSat-1」（ネパリサット・ワン）（ネパール）。スリランカ、ネパールにとっては自国初の人工衛星。

21. The sixth Mission Idea Contest (MIC6) of UNISEC-Global



The screenshot shows the homepage of the 6th Mission Idea Contest. At the top left is a logo featuring a globe with satellite orbits. The main title is "The 6th Mission Idea Contest" with "Mission Idea Contest" in large, bold letters. Below it is the subtitle "For Achieving Sustainable Development Goals with Human Spaceflight". A navigation bar contains buttons for "Overview", "Requirements", "Schedule", "Application", "FAQ", and "Contact". On the right, there is a search bar with "Google Custom Search" and a "Search" button. A "News" section on the left lists a post from February 11, 2019, about the first announcement. The main content area features an "Introduction to the Mission Idea Contest" with a Facebook "Follow us on" link. A yellow callout box is overlaid on the bottom left of the screenshot.

Editor's note: MICs are organized by UNISEC-Global

Overview | **Requirements** | **Schedule** | **Application** | **FAQ** | **Contact**

[Review Team](#) | [Regional Coordinators](#) |

News

- February 11, 2019
First announcement of the 6th Mission Idea Contest

Introduction to the Mission Idea Contest [Follow us on](#) 

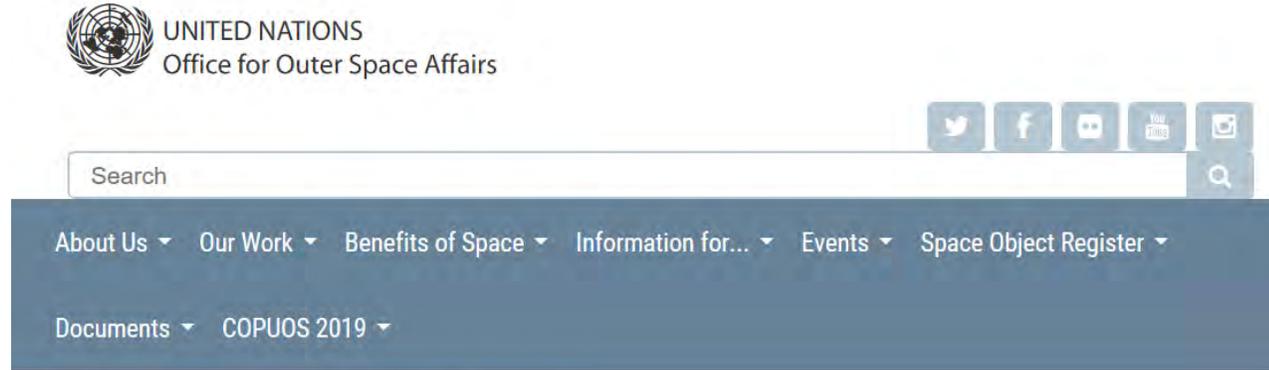
The Mission Idea Contest (MIC) was established in 2010 to provide aerospace engineers, college students, consultants, and anybody interested in space with opportunities to present their creative ideas and gain attention internationally. The primary goal of MICs is to open a door to a new facet of space exploration and exploitation.

Development of micro/nano-satellites started as an educational and research program primarily at university laboratories. As the micro/nano-satellite technology matures, it has spread rapidly across the

MIC6 shifts away from satellites and tries ISS platforms instead

Go to the new MIC6 website: <http://www.spacemic.net/>

22. UNOOSA announces “Space for Youth Competition”



Space for Youth

Space for Youth Competition

LET YOUR IDEAS REACH THE WORLD!



This call is open until
22 March 2019

*See UNOOSA message
on the next page*

Full details: <http://www.unoosa.org/oosa/en/ourwork/topics/space4youth/index.html>

Dear Colleagues,

28 Feb. 2019

Greetings from Vienna! I hope this email finds you well.

The United Nations Office for Outer Space Affairs (UNOOSA) launched the "Space for Youth Competition" in collaboration with the Space Generation Advisory Council (SGAC).

The competition is open to all students and young professionals who want to have their voice heard at the international space community level and to show how their generation can contribute to the achievement of the Sustainable Development Goals (SDGs) through space applications.

Students and young professionals are invited to share their ideas on how space can help achieve the Sustainable Development Goals. All participants shall be aged between 18 to 35 inclusive (up to the day of your 36th birthday) as of 1 February 2018.

Winners will have their papers presented at the "Space for Youth" event and will be part of a document circulated to decision makers and experts from all over the world.

The Competition is open until 22 March 2019. Please find more details at:
<http://www.unoosa.org/oosa/en/ourwork/topics/space4youth/index.html>

It would be appreciated if you could spread the word of this great opportunity.

Best regards, Ayami Kojima, UNOOSA, Vienna, Austria



23. Japan announces “S-Booster 2019” contest for the Asia and Oceania regions

Sponsored by
The National
Space Policy
Secretariat (NSPS),
Cabinet Office of
Japan

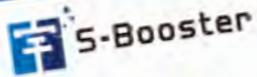
 Cabinet Office

**Cont'd on
the next
page**



The poster features a dark blue background with a starry galaxy. At the top center is a stylized white and blue logo resembling a Japanese character 'フ' (Fu) with a vertical bar. Below the logo, the text 'S-Booster 2019' is written in a large, white, sans-serif font. Underneath this, the words 'Space-based Business Idea Contest' are written in a smaller, white, sans-serif font, enclosed in a white rectangular box. Further down, the text 'The registration will start from March 1, 2019' is displayed in a large, white, sans-serif font. At the bottom, there are two lines of smaller white text: 'We will invite space-based business ideas from the Asia and Oceania regions!' and 'The Contest facilitates the realization of each business idea through open innovation with Japanese companies, and also provides financial support, business coaching and other assistances.'

Website: <https://s-booster.jp/2019/asia/>



Realizing Your Business Idea !

Promoting Win-Win Business Cooperation Between Asia and Japan !

Space Business Idea Contest

S-Booster in Asia 2019

APPLICANT

Individuals and Entrepreneurs in the Asia and Oceania regions

CATEGORIES

- (1) Business Idea of the Utilization of "Japanese Space Asset"
- (2) Space Business Idea in Collaboration with Japanese Companies
- (3) Business Idea of the Utilization of QZSS (Quasi-Zenith Satellite System)



APPLICATION

From 01/02/2019 to 15/03/2019 (1.5 Months)

Asia Round in Thailand

May, 2019

Final Round in Tokyo

November, 2019

Prizes and Other Assurances

- Financial Supports
- Free Business Coaching from Japanese Accelerators
- Opportunities to meet with Japanese Companies and Investors
- A Travel Grant to Tokyo Final Round etc



Organized by



Supported by



Local Host (Asia Round)



24. BIRDS-5 news from Sonora, Mexico



HERMOSILLO

Alumnos del ITH viajarán a Japón para capacitación en manejo de satélites

Serán dos alumnos los que serán seleccionados para acudir a Japón a recibir los cursos del manejo de los instrumentos

por gabriel benitez

16 Feb. 2019

16 de Febrero 2019 · 09:10 hs



<https://www.tribuna.com.mx/hermosillo/Alumnos-del-ITH-viajaran-a-Japon-para-capacitacion-en-manejo-de-satelites-20190215-0115.html>

ITH is a branch of Tecnológico Nacional de México (TecNM) in Hermosillo, Sonora, Mexico.

-----TRANSLATION FROM GOOGLE-----

ITH students will travel to Japan for training in satellite management

Two students will be selected to go to Japan to receive courses on the management of instruments

by gabriel benitez

February 16, 2019 · 09:10 hs

English translation of this web news appears on the next page.

Good news about BIRDS-5 from Hermosillo, Sonora, Mexico



Hermosillo, Sonora.- For the year 2021 students of the Technological Institute of Hermosillo (ITH), they will be responsible for the management of a satellite that will have its station on land in the facilities of the campus, for which they seek to be trained in Japan.

In this sense, through the National Technological Institute of Mexico ITH and in collaboration with the Kyutech Institute of Technology, located in Japan, will launch in October 2021, its first CubeSat category satellite.

For such purposes, an internal call was launched to select two of the best ITH students so that they can attend their training in Asia, and direct the satellite launch project, where students from engineering careers in electronics can participate. aerospace and others.

It was in days past when students and teachers began to work with the equipment that will serve to direct from the ground station the satellite that will be sent to the space, which is a great advance in academic matter.

ITH Director, Rodolfo Rivera Castillo, said that the National Technological Institute of Mexico and the Technological Institute of Hermosillo, have been exploring collaboration and research projects that on this occasion, will allow in October 2021 the ITH has a CubeSat in space .

"We are going to grant scholarships to two students to carry out the development of the CubeSat satellite during their stay in Japan and will be part of a constellation of projects developed by institutions from other countries," he said.

In that sense, he said that the satellite to be launched is part of the Birds project, which in its fifth generation will include the Tecnológico de México and will have direct communication with the devices launched in the fourth generation.

25. Message from the VC of NAST (Nepal) after his visit to Kyutech for satellite handover



Sunil Babu Shrestha
Vice Chancellor of NAST

From: Sunil Babu Shrestha
Date: 2019/02/18
To: Abhas Maskey <editor@--->
CC: George Maeda, Mengu Cho, Harish Shrestha

Dear Abhas,
Thanks for your email and supporting documents.

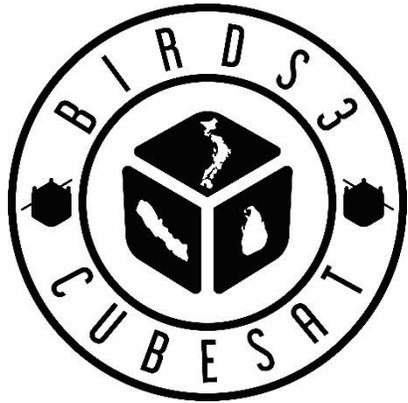
I have returned back comfortably and safely.
Thanks to you, Harijee and other members of BIRDS Project for the kind hospitality and warm cooperation duration my stay in Nepal. It was really a wonderful experience for me to understand more in depth about satellite mission. I hope mission will be successful.

My special thanks goes to Prof. Cho for his kind cooperation and support to me. Please convey my warm regards to him and also convey my remembrance to Prof. Maeda. I hope to see both of them and some of the BIRDS project team in Kathmandu in 2020. I wish for the success of the BIRDS Project.

With regards,
Sunil Babu Shrestha
NEPAL

26. BIRDS-3: Monthly activities report

President of Kyutech, Prof. Oie, presents a mock-up of BIRDS-3 satellite to Vice Chancellor of Nepal Academy of Science and Technology, Dr. Sunil Babu Shrestha on Feb 15, 2019.



BIRDS-3
Jan-Feb '19
Monthly Report
(by Abhas)



BIRDS-3 Activities on Jan-Feb '19



27. BIRDS-3: Handover press conference of 15 Feb 2019

by Dulani of Sri Lanka



BIRDS-3 Official Press Conference



Date : 15th February 2019

Time : From 1pm(JST) onwards

Venue : Kyushu Institute of Technology,
Japan



BIRDS-3 – Press Conference



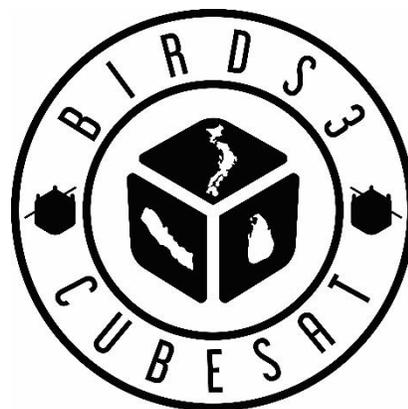
Before the press conference we (Hari and Dulani) had lunch with Prof Cho and NAST's Vice Chancellor Dr. Sunil Babu Shrestha



Dr. Sunil Babu Shrestha's speech in press conference



Prof Cho's speech in the press conference



Kyutech President (Prof. Yuji OIE) gifting the BIRDS-3 mock up to Dr. Sunil Babu Shrestha



At the end of the press conference we took a group picture



Abhas Maskey (Project Manager of BIRDS-3) did a presentation about BIRDS-3 project



Hari (Left) and Abhas (right) took a picture with Dr. Sunil Babu Shrestha (middle) in the clean room

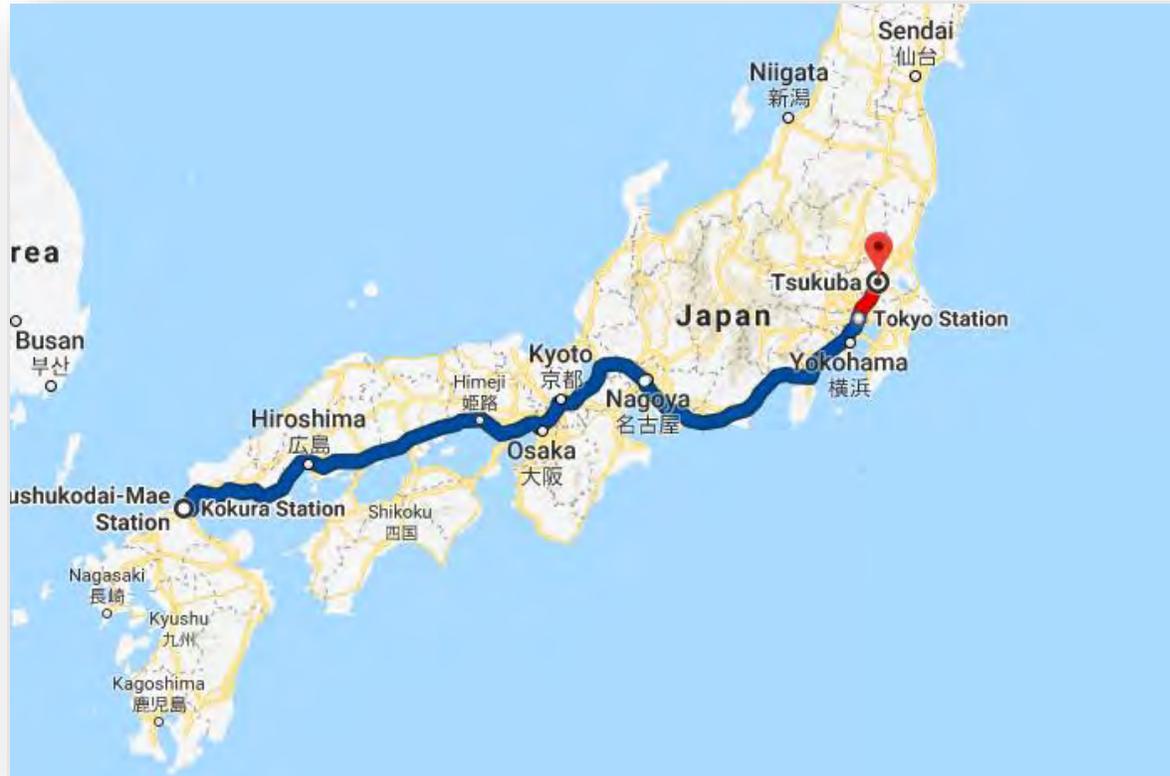
28. BIRDS-3: Satellites were hand carried to JAXA in Tsukuba

Journey from Kyushukodai-Mae to Tsukuba

By: Tharindu Dayarathna of Sri Lanka

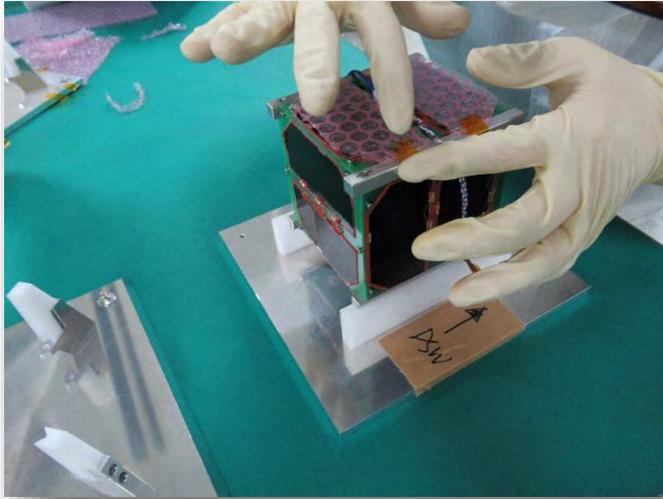


Four members (Kakimoto, Sasaki, Tharindu, Hari) of BIRDS-3 travelled to Tokyo by Shinkansen with satellite around 300 km/hour, before the satellite Travel 7.6km/second on orbit.



The Shinkansen we travelled in

Satellite packaging for carrying to JAXA



Each CubeSat was carefully wrapped with multiple layers of bubble wrap covering all sides a day before place inside Pelican box.

1st Day in Tsukuba



After 7-hour-long journey we went to Sri Lankan restaurant in Tsukuba to enjoy Sri Lankan food



← Kottu
(Very famous food in Sri Lanka. Everyone enjoyed it)



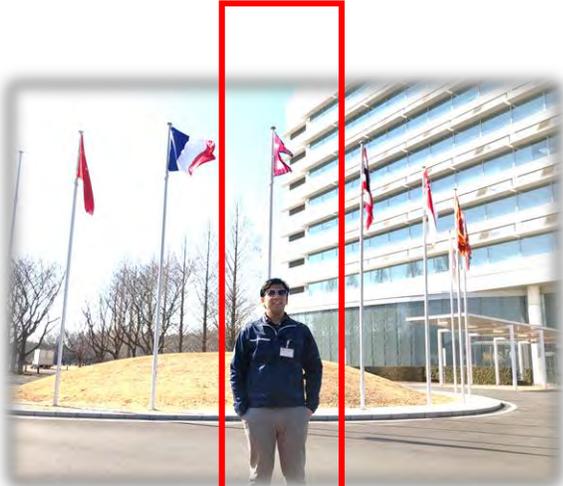
Satellite delivery Day-1



All flags were raised (Nepal, Japan, Sri Lanka)



Before we went inside the JAXA clean Room.



Hari



Tharindu

Satellite delivery Day-2



Group photo with JAXA team © JAXA



Final photo of satellites before Integrating into J-SSOD © JAXA



The team returning with empty Pelican boxes, having successfully delivered the BIRDS-3 satellites. BIRDS-2 also took a photo in the same spot.



BIRDS-2 team

Satellite delivery Day-2 (Night)

After successful delivery of the satellites we went to Tokyo. First destination was Shibuya station to meet Hachiko.

And we had very good dinner in Shibuya



Tharindu and Hari with Hachiko statue

Read about loyal dog Hachiko:-

<https://en.wikipedia.org/wiki/Hachik%C5%8D>





Next day we went to Tokyo Sky Tree.
This is photo of us at the highest point

Final Day (In Tokyo)



Kakimoto
enjoying
the view



Outside view
of the Sky Tree
and its shadow.

29. BIRDS-4: The project selects its project manager



Appointment of the BIRDS-4 Project Manager

by Tomoaki Murase

February 11, 2019

BIRDS-4 Project Manager

Written By: Tomoaki Murase

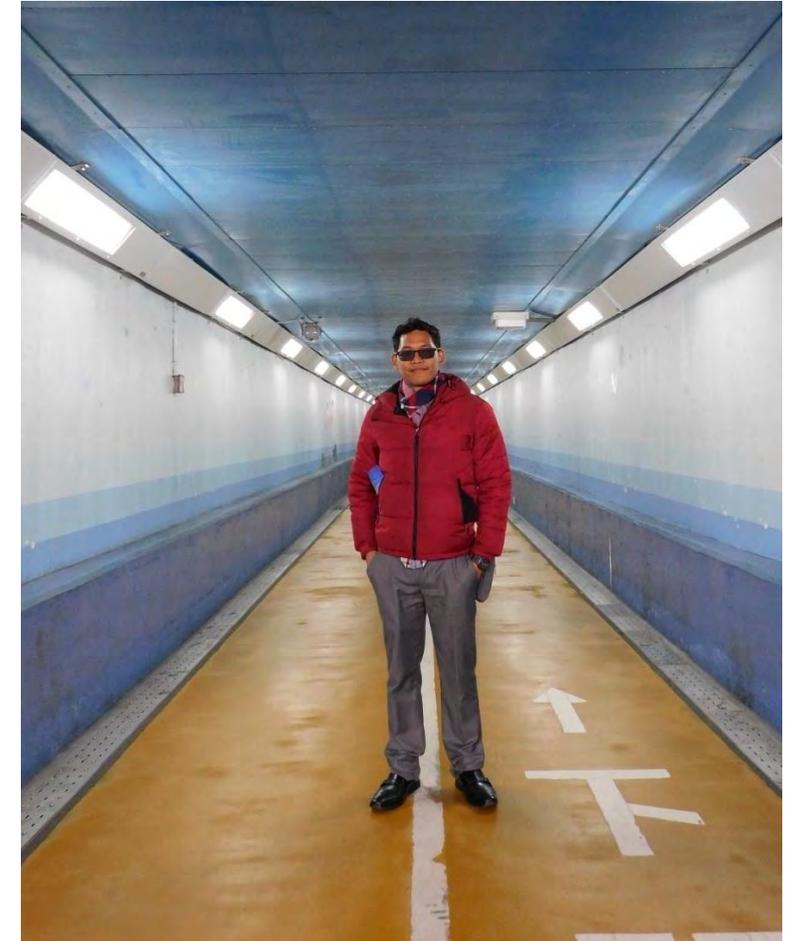
The BIRDS-4 project had a rotation of assigned person for the project management from November to January. Yigit was assigned for November, IZ for December and Marloun was for January.

Finally, BIRDS-4 has appointed **Izrael Zenar Bautista** as the Project Manager! IZ, as the team calls him, is from the Philippines and is taking his doctorate degree at KyuTech. He had significant contributions in the development of Philippines' microsattellites, Diwata-1 and Diwata-2 as a Research Associate; therefore, he knows a lot of things about space engineering and satellite project. He also has an aptitude as the project manager because he works logically and systematically.

We said we should behave each others as project manager. We all have parts in this project. If we behave as project manager of our systems in this project, everything will go more smoothly. So we should do this project with responsibility.



Celebration for IZ's assignment during the lunch time!
From left to right: Mark (PH), Nakayama (JP), Adolfo (PY), Murase (JP), Yuma (JP), Yigit (TR), IZ (PH), Marloun (PH)



IZ is very cool!!!



BIRDS-4 Monthly Outing

by Yuma Nozaki
February 7, 2019

Don Don Tei

Written By: Yuma Nozaki

- On January 15, the BIRDS-4 team went to okonomiyaki shop called “Don Don Tei”.

Okonomiyaki is a Japanese-style pancake made from egg, flour and water with lots of toppings. As the topping, you can add squid, pork, tomato and even cheese!

There are many kinds of okonomiyaki and we wanted to try “Hiroshima-style”, “Kansai-style” and “Tokyo-style” okonomiyakis. Hiroshima-style and Kansai-style okonomiyaki has the same material. However, the difference between them is the recipe. In contrast to them, Tokyo-style is very unique. It is called “monjayaki” in Japanese. It is a watery version of okonomiyaki.

- Monjayaki does not harden to that of a pancake texture because more soup is added to it. Fillings for monjayaki are cabbage, dried small shrimp, red pickled ginger and so on. The ingredients of monjayaki are similar to that of okonomiyaki.



A group photo in front of Don Don Tei

In Don Don Tei, the food tastes great! We made okonomiyaki by ourselves. Japanese students taught international students how to make it. It is a bit difficult to make it because you have to flip it to over, but we had a good time in this restaurant!



*Okonomiyaki: Japanese-style pancake.
When you eat it, you use a spatula.*

Karaoke

Written by: Yuma Nozaki

After we have finished eating okonomiyaki at Don Don Tei, some members went to karaoke. Karaoke is very popular Japanese culture in the world. We went to karaoke shop called "Jan-Kara". We sang the songs like; Queen - Don't Stop Me Now, Madonna - La Isla Bonita, Capenters - Top of the World.

We were singing English songs, and then we even found one Japanese song we can sing altogether:

Butterfly.

The song is theme song of Japanese anime "Digimon Adventure". It is very popular Japanese anime in the world. We had a good time at karaoke shop. I think we've become closer after eating at Don Don Tei and enjoying karaoke!!



We were singing the night away!

Paraguay's President Enacted the Space Policy of the Country

by Adolfo Jara

BIRDS-4

February 7, 2019



Paraguay's Space Policy

Written By: Adolfo Jara

The Space policy of a country is the political decision-making process for, and application of, public policy of a state (or association of states) regarding spaceflight and uses of outer space, both for civilian (scientific and commercial) and military purposes.

The President of Paraguay approved by decree the Space Policy of Paraguay, which aims to develop the use of outer space for scientific and commercial purposes. The document was prepared by the Space Agency of Paraguay (AEP), an institution dependent of the Presidency of the Republic and in charge of implementing this policy. The AEP is an autarkic entity to understand, design, propose and execute policies and programs in space and aerospace in Paraguay.



Mario Abdo, President of Paraguay. Image taken from: <http://www.abc.com.py/>

The document defines what will be the policy of the use of space for the Paraguayan Government.

The Space Policy of Paraguay includes four principles:

Training of human talents: The search and development of human talent will be promoted through training in space sciences and technologies and the various disciplines directly related at the different academic levels. In this sense the AEP is already working with the Kyushu Institute of Technology and is part of the BIRDS-4 Project.

Foment to national development: The insertion of Paraguay in the international space community will be sought, generating wealth and jobs for the country.

Paraguay's Space Policy

Strengthening the country in the field of space activity: Cooperation will be promoted with State institutions responsible for the area of science and technology, aimed at the development of adequately agreed programs and projects.



Image taken from: <https://www.ip.gov.py/>

International cooperation: Efforts that are necessary to promote international cooperation in search of the exchange of knowledge and technologies by society and for the benefit of society will be promoted and coordinated.

The policy takes as its starting point the training of human resources for space science and technology, as well as international cooperation in the exploration and use of outer space.

On the other hand, the promotion of national development through research and innovation is mentioned, which for Paraguay, as a developing country, offers great potential.

From now on, the directors of the AEP must define the strategy that will be used to achieve the objectives set out in the Space Policy of Paraguay.

Currently, the AEP works in the spatial education of children and youth, the country is in the incipient stage, but there is political will to move forward.



Image taken from: <http://www.abc.com.py/edicion-impresa/locales/abre-primer-escuela-de-astronautas-del-paraguay-1655128.html>

BIRDS-4 Advanced PCB Design Training



by Marloun P. Sejera
January 31, 2019

Advanced PCB Design Training

Written By: Marloun P. Sejera

One of the best things about BIRDS project is having senior members that are more than willing to help the new members. BIRDS-3 members are continuously doing such assistance to BIRDS-4 members; one way is by providing trainings on software tools needed for the satellite development.

On late October 2018, Dulani, a BIRDS-3 member from Sri Lanka, conducted two days of training on EAGLE (Easily Applicable Graphical Layout Editor). Developed by CadSoft, this software was used by BIRDS-3 for PCB design of mission boards and subsystems. The training was very helpful in retooling those who have used the software before, but is most beneficial to those who have not.



BIRDS-4 members listening to Dulani's lecture on EAGLE software at Seminar Room.

Knowing that a follow through is needed, Abhas from Nepal and the Project Manager of BIRDS-3 offered to conduct advanced PCB design training. It was scheduled on January 16, 24 and 28, 2019. In the three-day training, he was able to share best practices of BIRDS-3, and learnings that they acquired in designing their boards. Homework was provided so the participants can work on their PCB. Participants were then asked to present their design and he provided suggestions to further improve it.

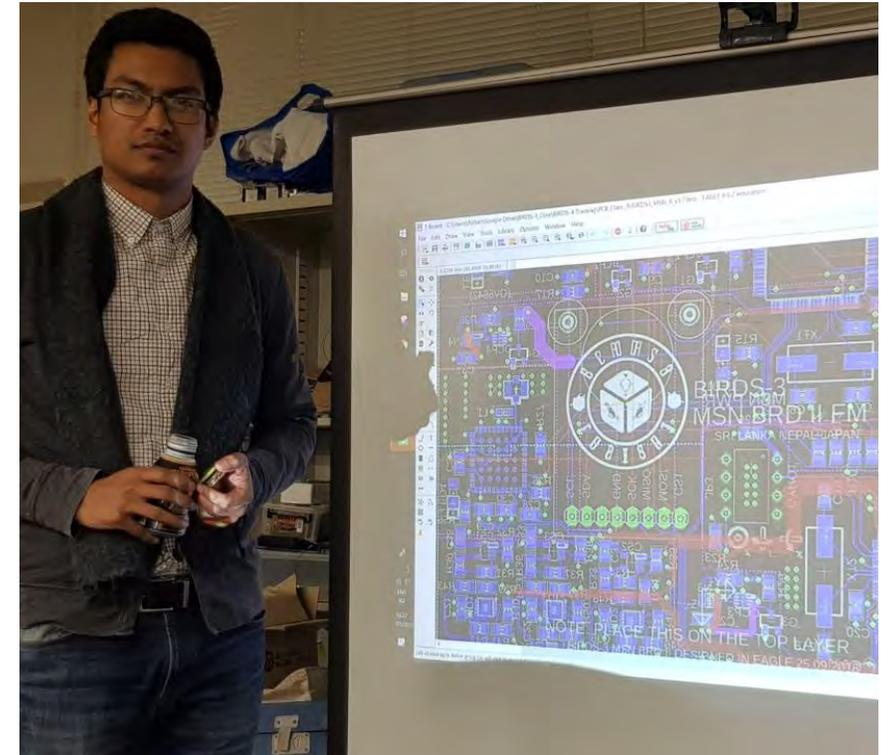
BIRDS-4 members are truly grateful with all the support the team is receiving from senior members and professors involved in BIRDS project.

Advanced PCB Design Training

Written By: Marloun P. Sejera



*BIRDS-4 members listening attentively to the discussion
From left: Adolfo Jara (PG), Mark Angelo Purio (PH), Yuma Nozaki (JP) and Izrael Zenar Bautista (PH)*



Abhas presenting BIRDS-3 Mission Board layout as example

BIRDS-4 Hisatsugu's Birthday



by Izrael Zenar Bautista

BIRDS-4

February 1, 2019

Hisatsugu's Surprise Birthday Celebration

Written By: Izrael Bautista

Birthday celebrations are a way of bringing friends closer and teams more bonded together. BIRDS-4 started holding surprise birthday celebrations to its members last year.

After the team's meeting on January 30, the team surprised Hisatsugu-san, with a birthday cake to celebrate his birthday on February 1. Similar to what was done for other members who celebrated their birthday, the light of the room was turned off, and a surprise cake was given to Hisatsugu! Hisatsugu turned 23 years old.

Hisatsugu's cake was given by me, his tutee. It was also a way of thanking him for helping me during my first months in Japan.

Happy birthday Hisatsugu!



Hisatsugu's Birthday Chocolate cake from BIRDS-4



Giving Hisatsugu's cake



Hisatsugu celebrating his 23rd birthday

Hisatsugu's Surprise Birthday Celebration

Written by: Izrael Bautista



We added more candles for more wishes to be granted.



Hisatsugu had a hard time cutting the cake equally.



*Hisatsugu wishing with his cake. What could be his wish?
BIRDS-4's success, perhaps.*



BIRDS-4 members eating Hisatsugu's cake. It was delicious!

BIRDS-4

ADCS Subsystem Changes / Tests on CD Motor

[CD=Compact Disc]

by Hiroki Hisatsugu

BIRDS-4

February 7, 2019

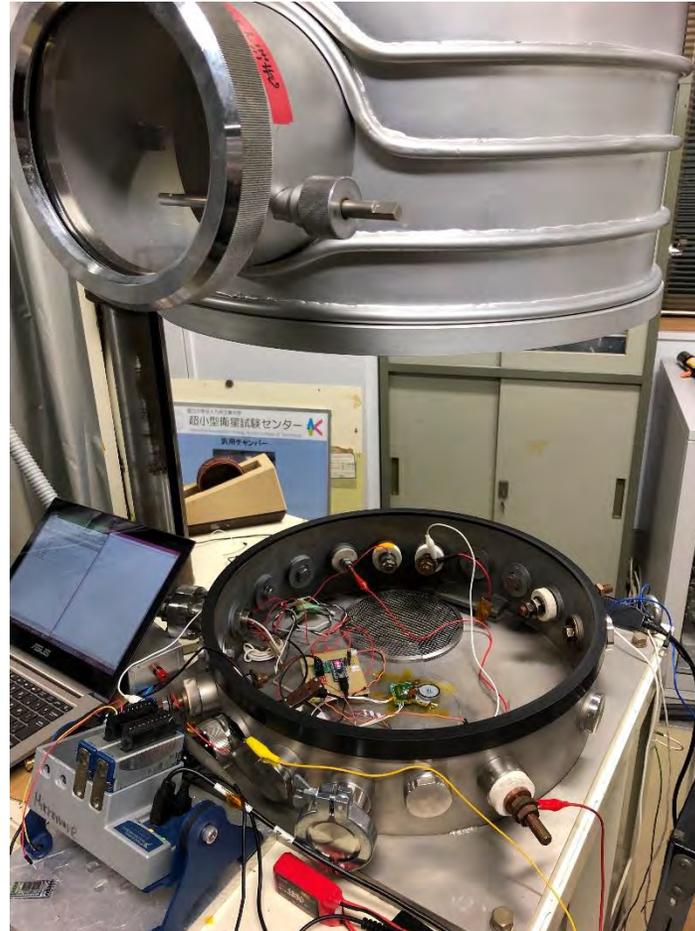


BIRDS-4 ADCS Subsystem Changes / Tests on CD Motor

Written By: Hiroki Hisatsugu

BIRDS-4 ADCS mission contains a reaction wheel onboard as one of its actuators. We are trying to use the motor of the CD drive for this purpose. Attempting to replace the function of the reaction wheel with such a cheap, brushless motor is an important mission for our satellite to be considered as “lean”.

We first tested whether the brushless motor can operate under the vacuum environment. I used the general-purpose chamber in our lab which the photos are taken during the experiment. The cup on the image is sealed down by lowering a vertical mechanism. The chamber is able to create vacuum in 10^{-2} Pa levels to demonstrate the space environment conditions on ground.



General-purpose vacuum chamber



Operating the chamber

BIRDS-4 ADCS Subsystem Changes / Tests on CD Motor

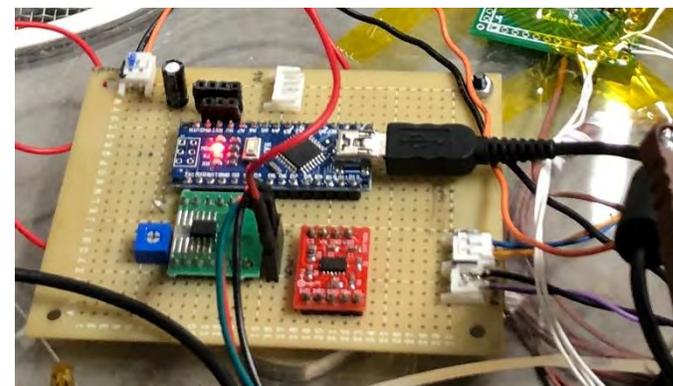
Written by: Hiroki Hisatsugu

As it can be seen on the pictures taken, we created a motor drive circuit and set it to rotate at a fixed rotational speed of 3000 rpm. Moreover, a thermocouple was attached on to the motor to simultaneously monitor its temperature. On the bottom right image, the oscilloscope image showing the rotation speed pulse output from the sensor attached to the motor is given.

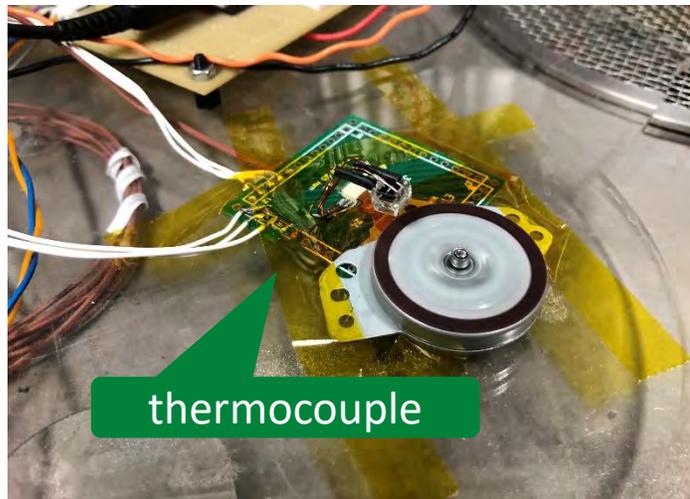
After 50 hours, the motor drive failed. The grease inside evaporated and the shaft subsequently locked. In the space environment having a high vacuum conditions, less than 10^{-3} Pa, a motor with the vacuum grease specifications is required. As a result, we ordered specially designed motors to be further tested.



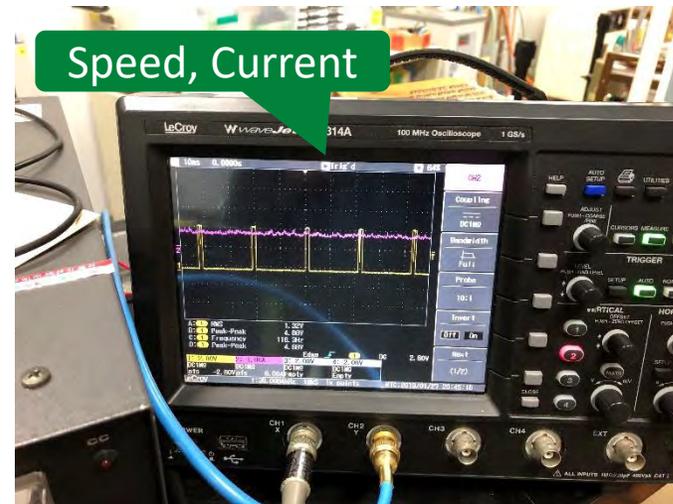
Rotation test



Control Board



3-phase brushless motor



Oscilloscope

Solar Cells for 1U CubeSat: BIRDS-4 Project

by Hari Ram Shrestha
BIRDS-3/4, Kyutech
February 06, 2019

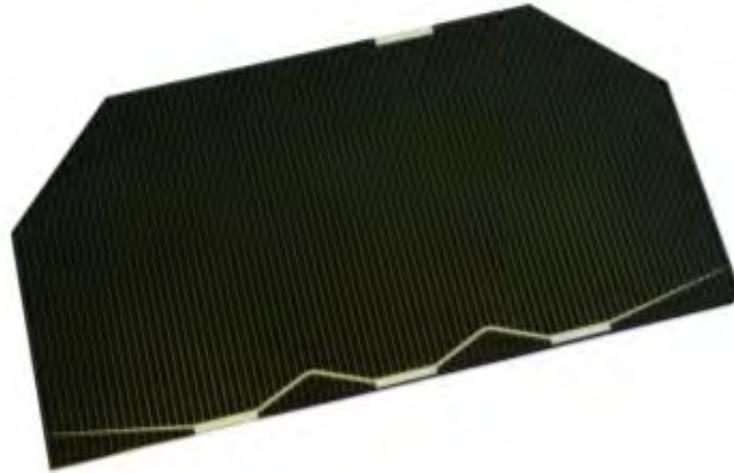


Solar cells : BIRDS -4 Project

Written By: Hari Ram Shrestha

Majority of small spacecraft missions exploit the photoelectric effect to generate energy during their mission. Photovoltaic cells, or solar cells, are made out of thin wafers of semiconductors that produce electric current when exposed to light. Solar irradiation varies as the inverse square of the distance from the Sun and the projected surface area of the panels exposed to the Sun varies as a cosine of the angle between the panel's normal axis.

A CubeSat is a small spacecraft consisting of single or multiple cubic units, each with dimensions $10 \times 10 \times 10 \text{ cm}^3$. Such a limited area together with a mass limit of 1.33 kg means it cannot generate high amounts of electrical energy for a CubeSat. Based on simulation, the average power that can be harvested from 1U CubeSat solar cells is 1.2 W.



Azur space Solar panel

More efficient multi junction solar cells can be used, however, it comes with a high increase in cost.

CubeSats have limited surface area for solar cells attachment and the available area has to be effectively shared with others parts, such as antenna, camera lens, and access port.

The energy harvesting system of BIRDS CubeSat collects energy from 10 cells. Cells are placed pairwise on all of the 5 sides of the satellite in this configuration only three sides of the satellite can be in direct sunlight at any given time meaning that only the cells on those sides produces power.

Design and Mechanical Data

Base Material	GaInP/GaAs/Ge on Ge substrate
AR-coating	TiO ₂ /Al ₂ O ₃
Dimensions	40 x 80 mm ± 0.1 mm
Cell Area	30.18 cm ²
Average Weight	≤ 86 mg/cm ²
Thickness (without contacts)	150 ± 20 μm
Contact Metallization Thickness (Ag/Au)	4 – 10 μm
Grid Design	Grid system with 3 contact pads

A mechanical data of the Azur space solar cell

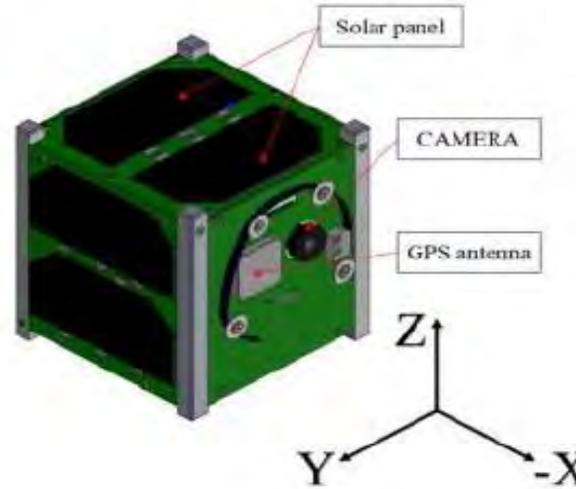
Solar cells : BIRDS -4 Project

Written by: Hari Ram Shrestha

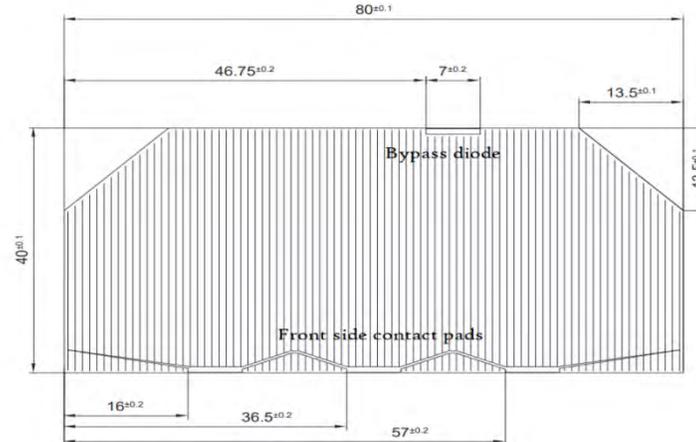
The basic characteristics of a solar cell are the short-circuit current (I_{SC}), the open-circuit voltage (V_{OC}), the fill factor (FF) and the solar energy conversion efficiency (η). The influence of both the diode saturation current density and of I_{SC} on V_{OC} , FF and η is analyzed for ideal solar cells. Tolerable series and parallel resistances are introduced as an evaluation criterion for resistive losses in real solar cells.

For the BIRDS series, AZUR Space Triple junction solar cells are used. Each cell has an area of 60.4 cm^2 and a conversion efficiency of 30%. Power is generated from 5 strings of Solar panels, each string consists of two series connected Solar cells.

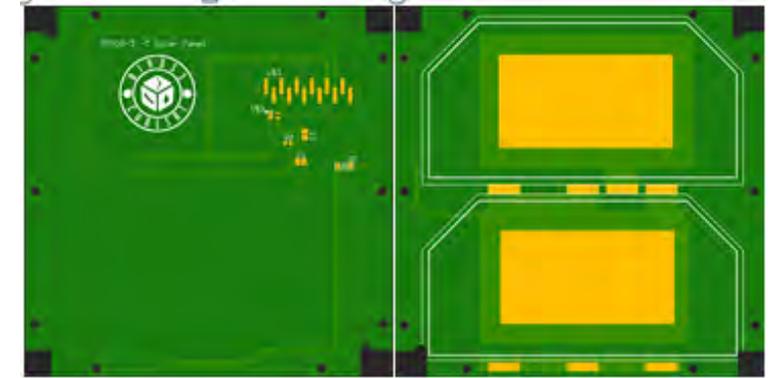
These 5 strings are distributed over the structure which are mounted on five sides (+X, +/- Y, +/- Z) of the CubeSat.



CAD rendered BIRDS-3 CubeSat



Dimension of solar cell from Azur space



Solar panel PCB design for BIRDS -3

Electrical Data

		B0L	2,5E14	5E14	1E15
Average Open Circuit V_{oc}	(mV)	2700	2616	2564	2522
Average Short Circuit I_{sc}	(mA)	520.2	518.5	514.0	501.9
Voltage at max. Power V_{mp}	(mV)	2411	2345	2290	2246
Current at max. Power I_{mp}	(mA)	504.4	503.2	500.6	486.6
Average Efficiency η_{DAME} (1367 W/m ²)	(%)	29.5	28.6	27.8	26.5
Average Efficiency η_{DAME} (1353 W/m ²)	(%)	29.8	28.9	28.1	26.8

Electrical data of the Azur space solar cell used as BIRDS series.

BIRDS-4's Official logo has been decided



by Mark Angelo C. Purio
January 15, 2019

BIRDS-4 Official Logo

Written by: Mark Angelo Purio

In terms of public visibility and distinction, having a logo is an integral part of an organization or a project. A logo, in general, is the face of the project. More than just an image, it conveys the project's goals and embodies the entire project in one clear representation.

BIRDS Project has the tradition of giving each umbrella projects a distinction through its own logo. As shown in the figure, such logos have evolved and have changed from one project to another.

Since BIRDS-4 project begun last October 2019, the members decided to have the logo to better represent the team. In order to come up with a better design, a logo-making contest was launched. Logos were solicited from participating countries through online submission.



Previous BIRDS Satellite Project logos. BIRDS-2 (Left), BIRDS-1 (Mid), and BIRDS-3 (Right)

Ten (10) entries from Japan, Paraguay, Philippines and Nepal were received during the online submission. The BIRDS-4 team members and Prof. Cho chose the winning logo among the submitted entries.

To better represent the BIRDS-4 project, the team also gave input by revising the chosen logo according to the message that it wants to convey to its stakeholders and to the community. As such, the final logo provides meaning through the different marks it possesses.

BIRDS-4 Official Logo

Written By: Mark Angelo Purio

The BIRDS-4 team members would like to express their deep appreciation to everyone who submitted their entries and helped us come up with a logo design that fits the project. Also, thank you Alex Sobieski for rendering the final logo.

You are all part of this milestone by the design which embodies the mission of the project and which represents our team accurately. Now that BIRDS-4 Satellite Project has its logo, winners will be contacted through e-mail and they get to have their names being written on the BIRDS-4 CubeSat.

LOGO ENTRIES

<p>1 </p>	<p>3 </p>	<p>5 </p>	<p>8 </p>
<p>2 </p>	<p>4 </p>	<p>6 </p>	<p>9 </p>
<p>2 </p>	<p>4 </p>	<p>7 </p>	<p>10 </p>

BIRDS-4 Satellite Project Logo Entries

BIRDS-4 Official Logo

Written By: Mark Angelo Purio



Logo Meaning, 1 of 2

Orthogonal Cube Shape

Gives an impression of a cube in an orthogonal perspective which embodies the CubeSat (Cube Satellite) that the team will be designing, building and deploying to space.

Country Flags in the Middle

The flags represent the participating countries for this satellite project: Japan, Paraguay and Philippines. It is arranged to form an orthogonal cube shape as well, taking into consideration their respective geographical locations in the map. Moreover, the connection between the flags symbolizes being one in this endeavor and foster solidarity while building the satellite

Curve Line at the Bottom

This line denotes the earth's horizon as seen from space. Its presence suggests that despite of the satellite being away from our home planet, it will still communicate to earth wirelessly providing important data from its missions.

3 Stars with 4 Points

The three (3) stars represents the three satellites to be built for each of the countries while the star in itself represents the satellite being in space. In addition the intentional use of 4-pointed star denotes that this project is fourth of its kind.

BIRDS-4 Official Logo

Written By: Mark Angelo Purio

Logo Meaning, 2 of 2



BIRDS-4

JOINT GLOBAL MULTI-NATION BIRDS
SATELLITE PROJECT

BIRDS-4 Satellite Project official logo.



Three (3) L-Shaped Chevrons

Being true to its primary mission, these chevrons, aside from forming the hexagonal shape, signifies three letter L's which is an abbreviation of 3 words: *Lean*, *Learn* and *Lead*.

Lean

As an interesting and challenging way to build a satellite, the lean satellite concept emphasizes on building high quality satellites with minimum cost and shortest time possible. Applying such concept, the team is working together to achieve this while focusing on its goals.

Learn

Building the satellite involves learning every aspect of it from technical to managerial work. The team members will acquire the needed skills and aptitude needed to build their own satellite when they return to their home countries.

Lead

As future leaders in terms of space technology for their respective countries, BIRDS-4 team members will be honed to imbibe the team spirit and leadership skills and be frontrunners as advocates of space science and technology to their home countries.

The Language Barrier - Recommendations on how to learn Japanese and English



by Yiğit Çay

BIRDS-4

February 4, 2019

The Language Barrier

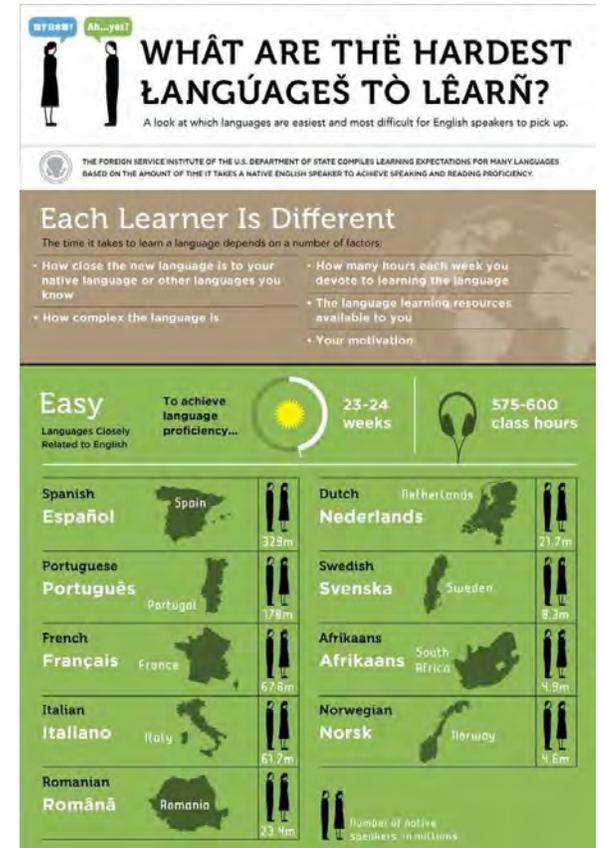
Written by: Yiğit Çay

In one of the first meetings of BIRDS-4 project, we gathered up all old/new members of BIRDS available in KyuTech to understand what they had learned so far. One of the point-outs from there was the everlasting language barrier. Well, I am not an expert in linguistics, but I think I studied foreign languages enough to make some recommendations. I have some relatively good scores in TOEFL, TOEIC, and Japanese Language Proficiency Test (JLPT), but I would like to provide a useful guide to learn a language more with experience than studying hard.

Before coming to the fun part, let me clear out what you need for studying. The first and the most important fact to remember, you don't have to pay a cent. The internet is a gold mine for language learning. Google it and see how many free websites are providing these repetitive applications to force you to remember the vocabulary of or how easy to find good documentation of grammar.

In both languages, English and Japanese, I attended classes provided by the university and benefitted a lot, but the language learning process is mainly up to your hard work. You need to 'breathe' the new language. The best way to motivate yourself is to do so is to surround yourself with that language as soon as possible. Leave yourself to the ocean of experience and try the hard way. Change your computer/smartphone/tablet computer settings to that language. Play your favourite video game in that language. As you fail to read a message from your friend, fail to know what was that the train station's announcement was talking about, you will eventually feel like you need to hone your language skills.

Cont'd next page



Infographic regarding to the language learning levels. Check out the [\[link\]](#) to see the rest of it.

Recommendations to Learn English and Japanese

Written by: Yiğit Çay

English is the main language in our project, so we would like to express ourselves better in it. The best way to do that is to talk to people with better English skills. In the lessons learned meeting, we agreed on certain ways to enhance the communication between people with different English speaking or comprehension skills. We decided to make short meetings with the ones with worse comprehensive skills than average to make sure they understand, as well. Drawings, writing down and translator software need to be used in these short meetings to maximize the performance. The ones with the ability to understand both languages should create a bridge between them.



The screenshot from the speed test of learning website '[Memrise](#)'.

I believe there's a point in the language learning you cover up most of the grammar and have some vocabulary and most of us tend to give up learning at this point due to the overconfidence. If you feel like you're there: study hard. Now is the perfect time to hone your skills and perfect your grammar skills.

Next is to speak as much as possible. If there's nobody around you speaking that language, make sure to follow certain YouTube channels of native speakers, at least.

For Japanese that I'm recently feeling more confident of, the process was pretty much the same besides THE kanji. One of the 3 alphabets is taking much of my language learning time and you need to study pretty much every day to perfect your skills. I do recommend online applications relying on flash-card type learning. It shows the kanji and its related vocabulary, then it asks for its meaning in English, or vice versa. Take kanji learning as a fun activity while trying to figure out the similarities between characters. If you're living in Japan, enjoy understanding your surroundings better every day.

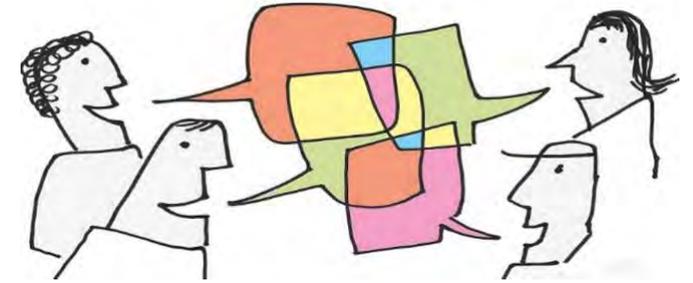
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Notes from the editor regarding the previous article by Yigit of BIRDS-4

I think Yigit says really good things. I hope you will take them to heart. There is no shortcut to learning a language: You have to work at, as he says.

However, my experience is this: If you take the “brute force” approach, you will always fail. Why? Because that approach is not sustainable. Eventually, you will give up because it is no fun. *What this implies is profound: The only sustainable approach is a “fun approach”.* If you want to master a new language, it is imperative that you find the fun ways of doing it – which, of course, are different for each person. There is no “universal fun approach”. You can find your fun approach through trial and error. Try different ways. Discover what is best (i.e., most fun) for you.

Next month, I will say more about how tough it is to learn English/Japanese.



<https://www.google.co.jp/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKewjMkITEiePgAhWOa94KHfyzBPcQjRx6BAGBEAU&url=https%3A%2F%2Fblogs.ntu.edu.sg%2Fhss-second-language-acquisition%2Fwiki%2Fchapter-17%2F&psig=AOvVaw2714ic4LIYDZNi9w3UsI0Q&ust=1551602846680968>

End of this **BIRDS Project Newsletter**

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Issue Number Thirty-Seven

This newsletter is archived at the BIRDS Project website:

<http://birds1.birds-project.com/newsletter.html>

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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.