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

Members of BIRDS -1, -2, -3, -4 and -5, on 30-Oct-2020 in front of the lab building

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BIRDS Project Newsletter

Issue No. 64
(24 May 2021)

Edited by:
G. Maeda
革新的宇宙利用実証ラボラトリー
Laboratory of Lean Satellite Enterprises and In-Orbit Experiments (La SEINE)
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

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.*

La SEINE

SEIC Space Engineering International Course

All back issues of this newsletter can be easily downloaded.
Go to here: http://birds1.birds-project.com/newsletter.html and scroll down to the desired issue.

Table of Sections

Continued on the next page

From Mongolia **The Guest Box**

Image Credit: einalem @Flickr

This photo comes from Turo – his explanation is on the next page.

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

End of Table of Sections

← 九工大正門 Main Gate of Kyutech on 5 May 2021

Each year, this is a special public holiday in Japan: 子供の日 (the day to celebrate children). Kids' Day.

CONTINUED FROM PREVIOUS PAGE ….

The place that looks like the surface of another planet with abandoned life is the Mongolian Gobi, as you see this figure. Asia's largest desert was once a haven for plants and wildlife, including dinosaurs. The Nemegt Basin is a geological region in Mongolia, located in the northwestern Gobi Desert. Many dinosaurs, dinosaur eggs, and trace fossils have been discovered from there. The region is about 650km from Ulaanbaatar. My favorite dinosaur which the fossils found in the Mongolian Gobi is the *Tarbosaurus bataar*. It is unbelievable for me that 65 to 70 million years ago, 5000kg giant predators with 60 large teeth, a close relative of the T-Rex were living here. Also, the first Velociraptor fossil was discovered in the Mongolian Gobi, in August of 1923. Today, thanks to its leading position in the Jurassic Park film series, Velociraptor is one of the dinosaur genres which is most familiar to the general public.

- Turo (BIRDS-1 member, Mongolia), 11 May 2021

JSPS provides the airfare funds of BIRDS Int'l Workshops and for Ground Station Workshops.

JSPS Reminder

When you publish a paper on a topic related to BIRDS, please include this acknowledgement in the paper:

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

01. JAXAGA School, collaboration between JAXA and Saga Prefecture

Introducing

JAXAGA

(JAXA x SAGA)

School

https://www.yumeginga.jp/

佐賀県立 宇宙科学館
SAGA PREF. SPACE and SCIENCE MUSEUM
ゆめぎんが
佐賀県武雄市武雄町永島16351（武雄温泉保養村内）
TEL 0954-20-1666　FAX 0954-20-1620
https://www.yumeginga.jp

ジャクサガ スクール

JAXAGA SCHOOL とは

佐賀県とJAXA（宇宙航空研究開発機構）が連携し、宇宙を切り口とした教育プログラムを通じて、未知へチャレンジする心、科学への興味や郷土への誇りを育むための場所です。

JAXAGA SCHOOL　校長　佐賀県知事 山口 祥義

Governor Yamaguchi,
Governor of Saga Prefecture

Head of this school

ジャクサガ スクール

JAXAGA SCHOOL 名誉校長

JAXAGAスクール、いよいよこの夏に開校！
このたび名誉校長に就任しました、JAXA宇宙飛行士の金井宣茂です。 宇宙授業やキューブサットの開発を通して、みなさんと宇宙の秘密、佐賀の魅力を勉強するのが今から楽しみです。
一緒に日本の宇宙開発の未来を目指しましょう!!

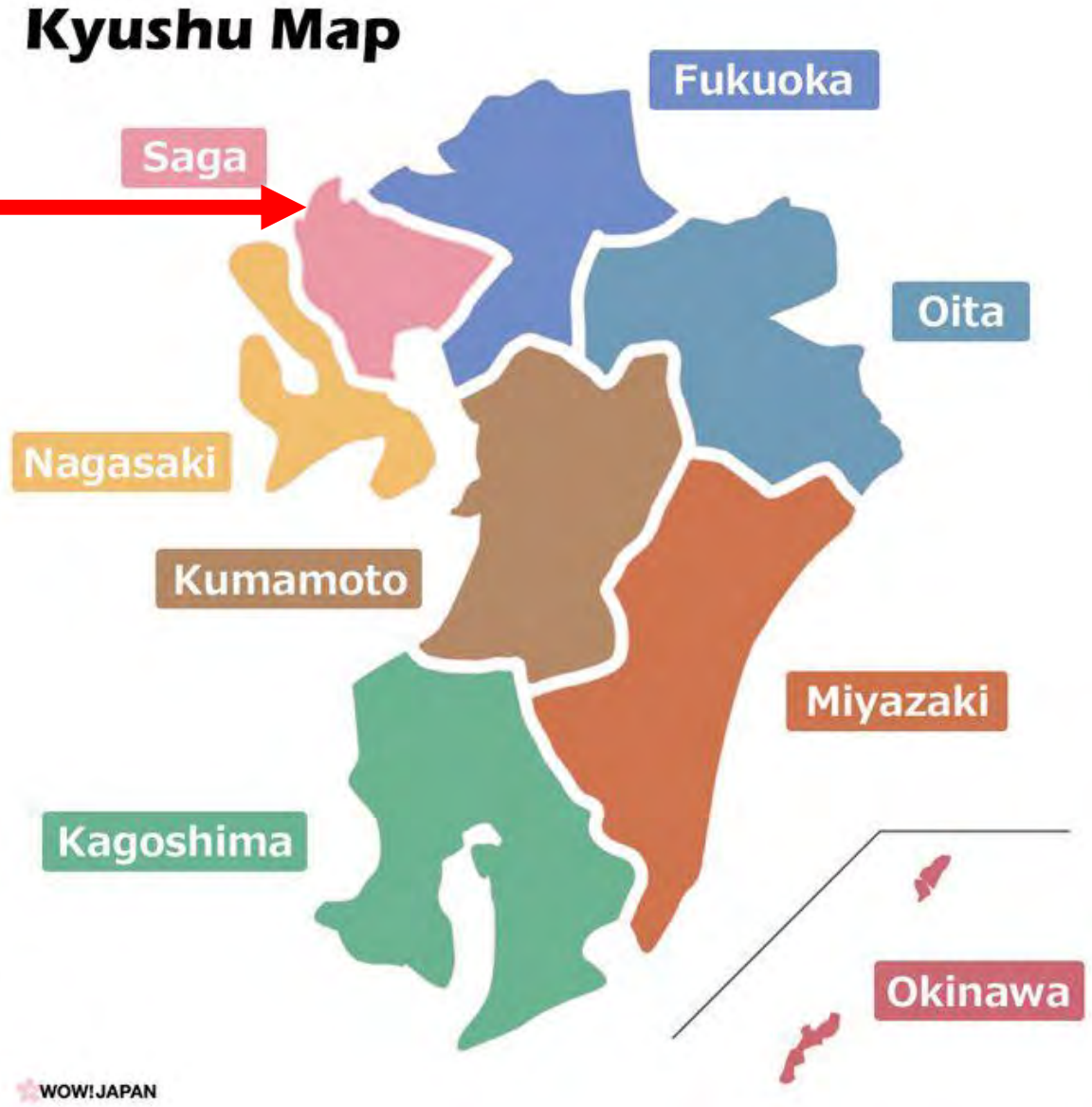
有人宇宙技術部門　宇宙飛行士運用技術ユニット　宇宙飛行士グループ　宇宙飛行士

Astronaut Kanai

Honorary head of this school

Saga Prefecture is here

It is famous for its *Saga International Balloon Festival*



https://dsimg.wowjpn.goo.ne.jp/rs/?src=https://wow-j.com/images/ext/allguides/01903/kyushu_en.jpg&maxw=750&maxh=0&resize=1

Saga Prefectural Space and Science Museum

佐賀県立宇宙科学館 ゆめぎんが

Saga Prefecture's Goal:

Create more awareness/excitement about space among primary and secondary school kids.

Hence, this space outreach initiative.

九州工業大学体育会
@kyutech_taiiku

九工大　部活募集

Posters

19 April 2021
Tobata Campus

FULL LIST OF CLUBS: https://www.kyutech.ac.jp/campuslife/activity-report_k.html

九工大衛星開発プロジェクト @FUTABA

Soccer

https://twitter.com/horyu2?lang=ja

Table tennis

茶道 = Japanese Tea Ceremony →

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

←wind instruments

https://www.youtube.com/watch?v=nb0ynMoovfY

水泳部 The swimming club

活動日時 ： 月、水、金、土曜日 、17時～19時 （※部員の時間割次第で変更予定）
活動場所 ： 九工大プール（武道場横にあります！生協前看板に地図あります！）

水泳部の PR
1. 初心者と経験者、どちらも安心の泳力別練習メニューで高い部員満足度！
2. 公式の大会にも出場！毎年、全国大会にも出場！
3. 学生生活が充実するたくさんのイベント！
4. 他大学との交流戦もあります！
5. マネージャーも大募集！

連絡先
Mail : kit_swim_team@gmail.com
Twitter : @kit_swim

少しでも興味がある人は九工大プールの部室まで！

American football

Car club


百人一首
同好会
活動日時
水・金
曜日
活動場所
学生会館
初心者大歓迎!!


剣道部
武道場
火金18時
土10時
詳しくはTwitter迄


九工大
航空部

Below: Rugby


ラグビー部
部員
マネージャー
募集中
月・木・金 16:30～
土 10:30～
LINE
〈Twitter〉
@kyutech_rugby
初心者歓迎


弓道部
初心者大歓迎

End of club posters

Clubs of the School of Engineering (Tobata Campus)

九州工業大学 工学部

部活動・サークル一覧

https://www.tobata.kyutech.ac.jp/wp-content/uploads/2020/03/2020club_kougakubu.pdf

03. Athletics at Kyutech – sports for good health and for friendships

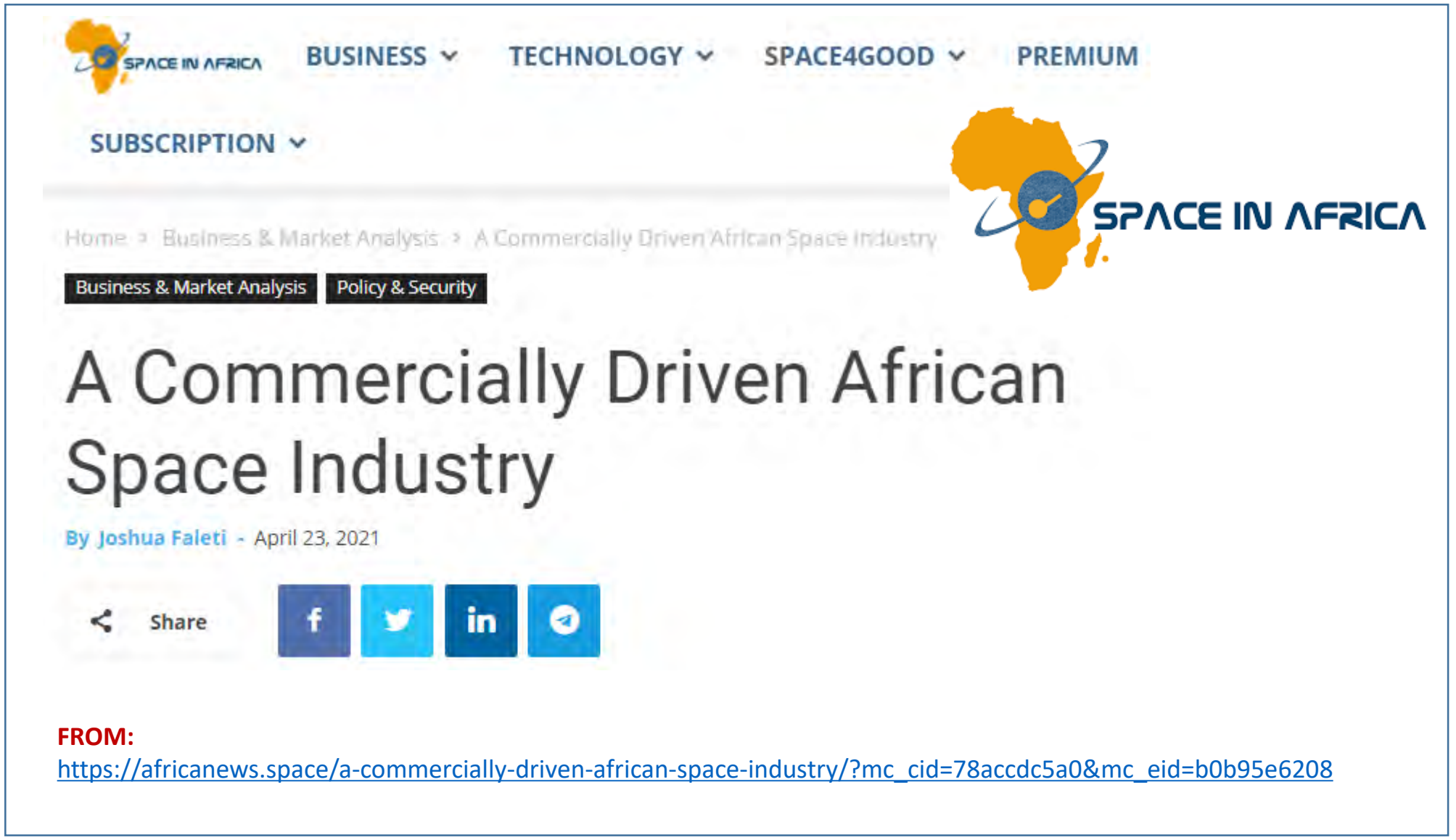
← This photo was taken on 25 April 2021 at Kyutech gymnasium 檣山館 (Shouzankan).

Some students favor indoor soccer over outdoor soccer. This photo is courtesy of Takashi Oshiro (大城貴司), who is a first year Masters student of SEIC. He hails from Okinawa.

Foreign Students Sports Club (FSSC) is a student club of Kyutech. Nearly every weekend, members play basketball, indoor or outdoor soccer, etc., to socialize and to get physical exercise. For a complete list of clubs at Kyutech see:

https://www.kyutech.ac.jp/campuslife/activity-report_k.html

04. The case for a commercially driven space industry for Africa



FROM:
https://africanews.space/a-commercially-driven-african-space-industry/?mc_cid=78accdc5a0&mc_eid=b0b95e6208

I think Mr Faleti is largely correct in this essay.

- G. Maeda

Much like any industry or venture as complicated and expensive as the space industry, the space industry is usually entered first by the government, with a corollary centralised operation system. This is because the government is usually the only entity with enough resources – finance wise and workforce wise – to venture into such expensive projects.
This has been the case with the space industry. The federal governments of interested countries carried out the first dances with space. The African space industry is not any different. However, unlike our European, Asian and North American counterparts with a now commercially driven and decentralised space programme, Africa's space industry is still largely centralised, being undertaken by the government and its agencies.

The Present African Space Industry

The African space industry is largely government-driven. This can be attributed to a lot of reasons which are not relevant for this analysis. However, despite its initial success, the African space industry cannot rely only on centralised governmental activity. Governmental agencies, due to a lack of strong incentives for the efficient allocation of resources, poor aggregation of dispersed information, and resistance to innovation due to reduced competition – amongst others – are severely limited in their capacity to establish a self-sufficient space industry. Herein lies the essential need for a commercially driven space industry. A centralized, government-led space programme will inevitably focus on "space-for-earth" activities in the public interest, such as national security, basic science, and national pride.
This vulnerability is perhaps visible in Nigeria Communications Satellite Limited's (NIGCOMSAT) struggles, which is almost entirely owned and managed by the government. Egypt's NileSat is a good example of the right approach, with its fortunes increasing after it became publicly traded.

A Commercially Driven Space Industry

Prominent space-faring industries have experienced a shift in operational models, realising the importance of a commercial Industry. The shift from public to private priorities in space is especially significant because a widely shared goal among commercial space's leaders is achieving a large-scale, largely self-sufficient, developed space economy. Historically, private-sector leaders have been issuing warnings that a centralized model would undermine progress on public and, especially, commercial priorities in space.

In the United States of America, public-private partnerships "spurred activity and innovation within the space sector that heralded a broadening of the space economy". According to Matthew Weinzierl, they led to an increase in private non-satellite-related commercial launch activity that included a drive toward "reusability"—that is, the capacity to employ components of launch vehicles and spacecraft multiple times. Thanks to this approach, SpaceX has entirely upended the rocket launch industry, securing 60% of the global commercial launch market. This exemplifies the necessity of a commercially driven space industry.

Ensuring a Commercially Driven African Space Industry

Africa has already taken its first steps in ensuring a commercially driven space industry. Africa is enjoying the new entrepreneurial space age and beginning to see more startups and commercial spin-offs. Commercial ventures are developing space technologies and offering space-enabled services to address market demands in various sectors, including telecommunications, defence, security, maritime, aviation, mining, agriculture, environment, development, education, and health.

However, Africa has a long way to reap the full benefits of a commercially driven space industry. The regulatory frameworks in place do not create an optimum enabling environment for private sector participation. Most space-faring African nations barely have a national enactment, much less a dedicated enactment seeking to maximise the benefits of the private sector.

In certain other cases, the government, instead of taking a purely regulatory position in the space market, they venture into the market themselves, posing an unnecessary challenge for private entities who often cannot compete with the inexhaustible resources at the control of the government. NigComSat's fielding of a Direct-to-Home (DTH) platform, NextTv, in 2019 as a reflection can be seen as an unfortunate example of this.

As mentioned above, the next step to take in Africa's space industry is its commercialisation. The shift from public to private priorities in space is necessary because a widely shared goal among commercial space's leaders is achieving a large-scale, largely self-sufficient, developed space economy. A commercial space industry – with its appurtenant efficient allocation of resources, structured aggregation of dispersed information, and affinity for innovation due to increased competition – will unavoidably propagate Africa's space industry into a new dawn of capacity and self-sustainability and self-sufficiency usually associated with and are consequences of a commercially driven space industry, as it has historically done.

This is not to say that the government has no part to play in a commercially driven space industry. Historical analogies suggest lessons for how the public sector can play a facilitative role. To ensure a commercial space industry, the government must create an enabling environment. This could be by way of necessary enabling legislation, funding, partnership, amongst others.

A commercially driven space industry may not be the panacea to Africa's space industry challenges. Nevertheless, the advantages of a commercially inclined industry may permanently address the industry's present pressing predicaments.

Joshua Faleti

Faleti Joshua is an avid lover of space in all its incomprehensible nature. He holds a **LL.B** degree, and is a pessimist in his free time.

From Wikipedia:

Bachelor of Laws (Latin: Legum Baccalaureus; **LL.B**.) is an undergraduate law degree in the United Kingdom and most common law jurisdictions – except the United States.[1] It historically served this purpose in North America as well but was phased out in favour of the Juris Doctor degree.[2] Bachelor of Laws is also the name of the law degree awarded by universities in India, Pakistan, Kenya, Ghana, Nigeria, South Africa, Botswana, Israel, Brazil and Zambia.

05. UNISEC-Global makes presentation at 58th STSC of COPUOS

As most of you know, UNISEC-Global has “observer status” at United Nations COPUOS. This means that the organization can issue an annual statement during STSC of COPUOS.

Rei Kawashima, Secretary-General of UNISEC-Global, made a statement at the 58th STSC (UNCOPUOS) on 26 April 2021. STSC is normally convened in Vienna each year in February. However, due to COVID-19, it was conducted online this year. Listen to her full statement: https://www.youtube.com/watch?v=bCtlYsLvRhc

COPUOS = Committee on the Peaceful Uses of Outer Space、宇宙空間平和利用委員会
STSC=Scientific and Technical Subcommittee

All material (sample shown at the right) presented at STSC is available on line at this website:

https://www.unoosa.org/oosa/en/ourwork/copuos/stsc/2021/index.html

← STSC in a normal year.

STATEMENTS
•Click here for List of Speakers
SESSION DOCUMENTS
DAILY JOURNALS
TECHNICAL PRESENTATIONS
•List of technical presentations for the 58th session of the STSC
IAF SYMPOSIUM ON "GLOBAL VIEWS ON HUMAN SPACE EXPLORATION", TUESDAY, 27 APRIL 2021, 15:00 - 17:00 CEST
•Programme
DIGITAL RECORDINGS OF STSC 2021
STSC 2021 MEETING GUIDELINES
•Remote Conferences - Infographics
•INTERPREFY - 4 steps to participating in a meeting with remote simultaneous interpretations - see instructions below in all official UN languages
  - [ARABIC] [CHINESE] [ENGLISH] [FRENCH] [RUSSIAN] [SPANISH]

•INTERPREFY - HOW TO JOIN
  - Guide to meetings for participants with speaking and listening function
  - Guide to meetings for participants with listening function

•Audio-video requirements for pre-recorded statements
•Suggested Mics & Headphones
•VIC Meeting Guidelines
•COVID-2019 Quick Guide


UNITED NATIONS
Office for Outer Space Affairs
“
The global participation of COPUOS underlines the **unique nature of the Committee** as the platform **for dealing with space affairs at the UN** with established, emerging and non-space faring nations all well represented.
This **expanding interest reflects** our **shared dependency** on space and **how prominent space affairs have become** for countries all around the world.
”
Simonetta Di Pippo
Director, Office for Outer Space Affairs
58th Session of the Scientific and Technical Subcommittee

Past presentations at COPUOS

06. Manufacturing of satellites in Africa

The African space industry is growing at a remarkable rate. This growth is evident in the increasing number of satellites Africans have launched in the last few years. The ever-rising government allocation to the space industry is a further testament to the coming-of-age of the local space industry. The local satellite manufacturing industry is, however, …

The rest is at the link below (subscription is required).

https://africanews.space/local-and-foreign-contracted-satellites-in-the-african-space-industry/?mc_cid=9011bb25c2&mc_eid=b0b95e6208

07. When in Adelaide: visit the Australian Space Discovery Centre

One-minute video: https://www.youtube.com/watch?v=FvdFYxiywoE

OPENED ON 31 MARCH 2021

https://www.industry.gov.au/news/australian-space-discovery-centre-is-go-for-launch

08. Outstanding meeting programs created by Mark Angelo Purio of BIRDS-4 team

Since last summer, UNISEC-Global has been conducting monthly meetings in virtual mode (via ZOOM). For each meeting, Mark Angelo Purio (BIRDS-4, Philippines) creates beautiful and colorful programs; they are presented on the next few pages.

Great job, Mark !

-- The Editor of BPN

ALL MEETING INFO (current and previous) CAN BE FOUND HERE:
http://www.unisec-global.org/virtual-meeting.html

6th Virtual UNISEC-Global Meeting

Shinichi Nakasuka
The University of Tokyo

Hiroshi Koyama
Mitsubishi Electric Corporation

Alim Rustem Aslan
Istanbul Technological University

Tatsuya Arai
Oceaneering Space Systems

Feb 20, 2021
10:00pm – 00:00am
(GMT +09:00)

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

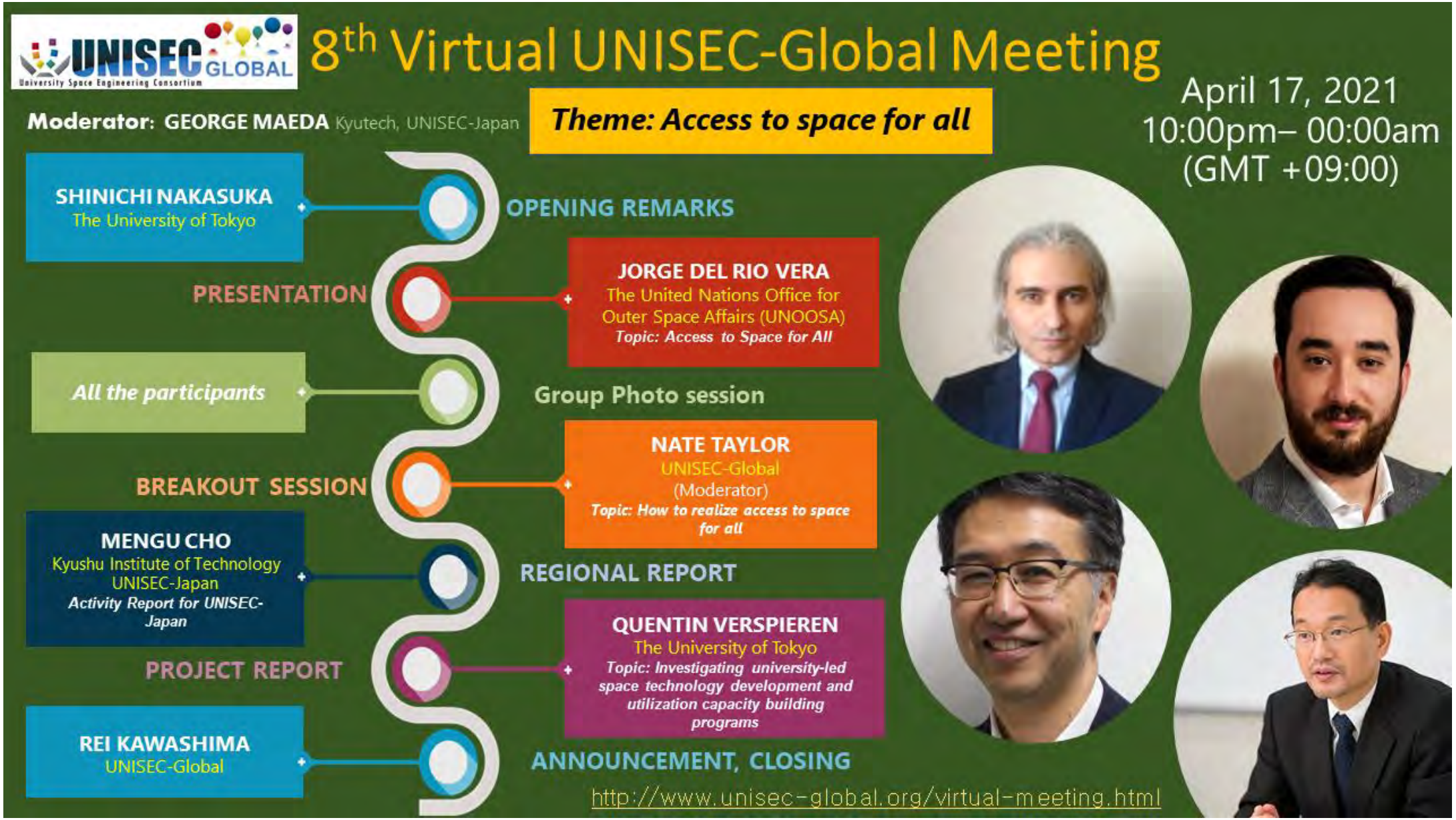
Program

Welcome & Opening	**Shinichi Nakasuka** The University of Tokyo
Presentation 1	From a UNISEC CubeSat to human spaceflight **Tatsuya Arai** Oceaneering Space Systems
Breakout Discussion	Topic: Hands-on training during the pandemic Moderator: **Nate Taylor** UNISEC-Global
Regional Report	Topic: UNISEC Turkey **Alim Rustem Aslam** Istanbul Technological University
Corporate Presentation	**Hiroshi Koyama** Mitsubishi Electric Corporation
Announcement & Closing	**Rei Kawashima** UNISEC-Global

UNISEC GLOBAL
University Space Engineering Consortium

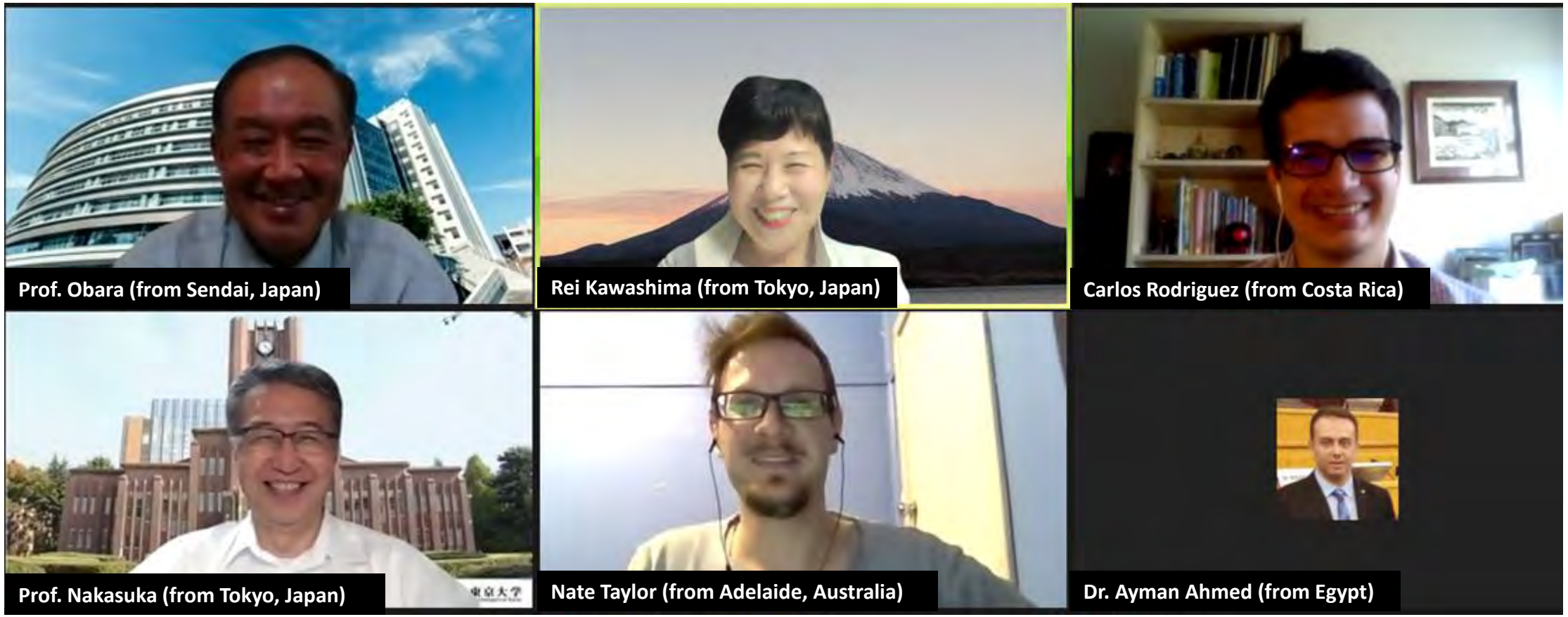
UNISEC Global Virtual Meeting #6

UNISEC Global Virtual Meeting #7



UNISEC Global Virtual Meeting #8

UNISEC Global Virtual Meeting #9



Screenshot of the meeting presenters and organizers

9th Virtual Meeting of UNISEC-Global, 15 May 2021

You are encouraged to attend the monthly meetings of *UNISEC-Global.*

It is a good way to stay on top of happenings/trends in the global academic community for space engineering.

ALL VIRTUAL MEETING INFO (current and previous) CAN BE FOUND HERE:

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

UNISEC-Global activities in 2021

UNISEC Global Calendar

UNCOPUOS Scientific and Technical Subcommittee, 58th session: April 19-30, 2021: Vienna, Austria

13th IAA Symposium on Small Satellites for Earth Observation (Virtual): April 27-29, 2021

UNCOPUOS Legal Subcommittee, 60th session: 31 May - 11 June 2021

UNCOPUOS 63rd session of the Committee on the Peaceful Uses of Outer Space: Vienna, Austria, August 25 - September 3, 2021

Samara Space international summer space school: August 30 - September 10, 2021

the 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates (IAC2021) (Dubai): October 25-29, 2021

7th Mission Idea Contest for Deep Space Science and Exploration with Nano/Micro Satellite (MIC7) final presentation: November 13, 2021

27th Asia-Padific Regional Space Agency Forum (APRSAF) 2021, Hanoi, Vietnam: November 30 - December 3, 2021

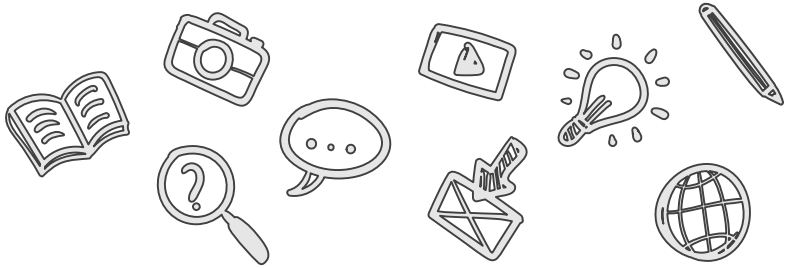
BPN Español

- No. 3 -

Fatima Duran

El Salvador

Estudiante SEIC/PNST



Editor's note: This is a recently initiated Spanish-language column for this newsletter. It is written by Fatima, a PNST fellow of SEIC. You can send comments directly to her.

Ground Sensor Terminal (GST)

¡Bienvenid@s! En este nuevo artículo de BPN Español, quiero compartirles sobre el **'Ground Sensor Terminal (GST)'**, diseñado y fabricado por **Pooja Lepcha**, de Bután, quien cursa su segundo año de doctorado en KYUTECH.

❑¿Qué es GST?

Es el segmento básico de un **sistema de recopilación de datos a distancia**. Está compuesto por diferentes sensores, los cuales, recopilan datos y los transmiten al satélite. Cualquier satélite que esté configurado para recibir los datos recopilados por una terminal GST, puede recibirlos y enviarlos a una estación terrestre. Hay dos tipos de GST: Fijas (**fixed GST**) y móviles (**mobile GST**).

❑Componentes

La terminal GST cuenta con un procesador, suministro de energía eléctrica, transmisores LoRa, antena y sensores. Se puede utilizar cualquier tipo de sensor, y estos se pueden comunicar con el microprocesador principal usando los principales protocolos de comunicación como SPI, I2C, UART, y también USB.

Si quieres conocer más detalles sobre GST, te invito a leer **GST Column**, escrita, mes a mes, por Pooja.

Ground Sensor Terminal (GST)

- **Comparativo entre GST móvil y GST fija**

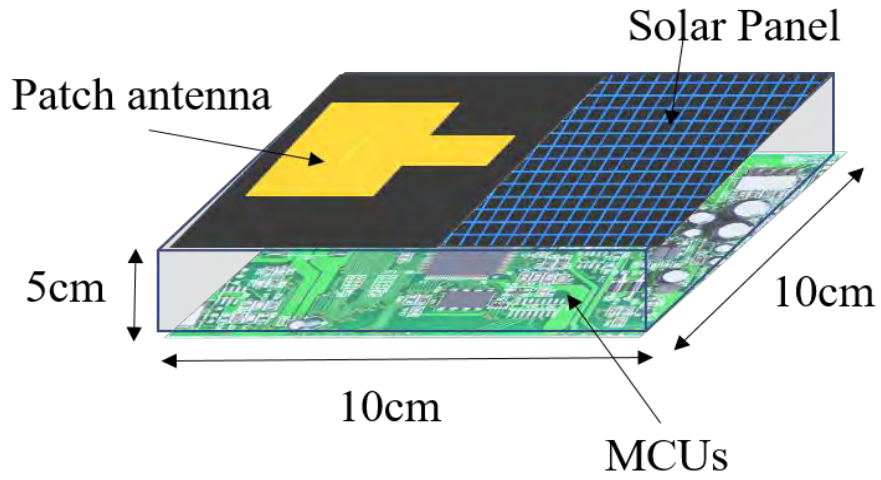


Fig. 1. Configuración de una GST móvil.
Puede ser implementada para el rastreo de vehículos y monitoreo de accidentes.

Fig. 2. Configuración propuesta para una GST fija, la cual ha sido implementada por Pooja, en Kyutech.

Ground Sensor Terminal (GST)

- **Diagrama de bloques y circuito impreso de una GST de tipo fijo.**

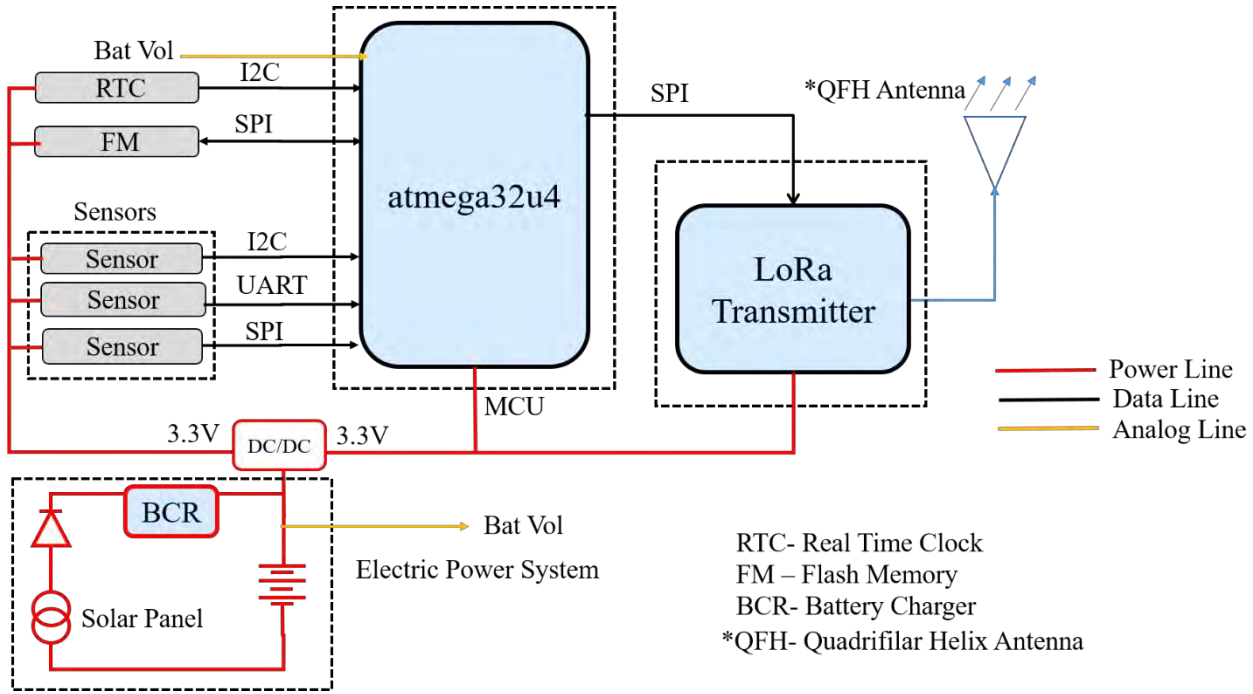


Fig. 3. Diagrama de bloques de una GST fija.

Fig. 4. Circuito impreso de una GST fija.

Ground Sensor Terminal (GST)

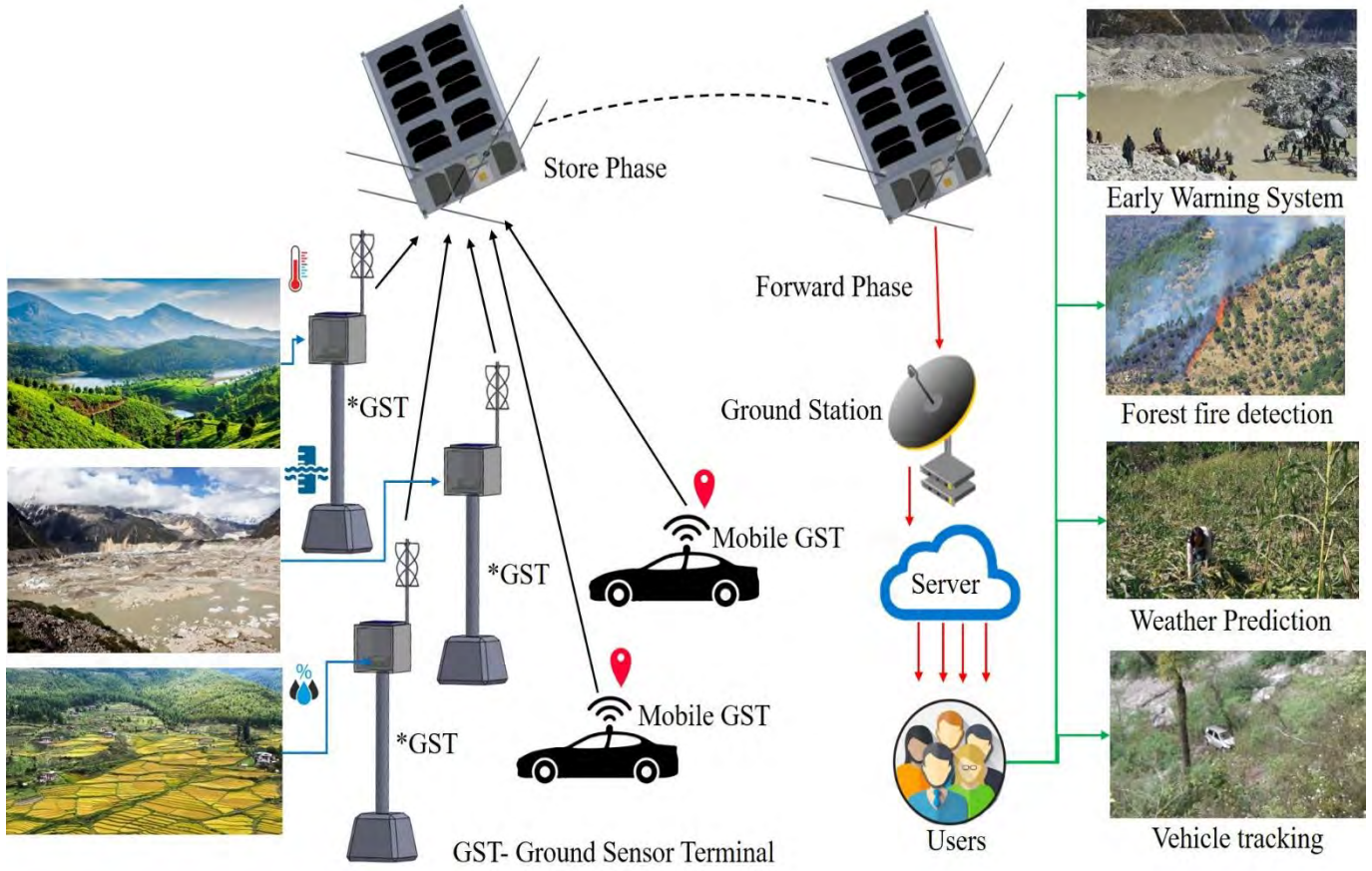


Fig. 5. Propuesta de implementación de GST fijos y móviles.

- **¿En qué ayudaría la implementación de GST fijos y móviles en países en vías de desarrollo?**

Por ejemplo, el GST fijo podría usarse para recopilar datos de temperatura y humedad, logrando una mejor predicción del clima, lo cual beneficiaría directamente la agricultura. También, se puede recopilar datos sobre el nivel del agua de los ríos, y generar un sistema de alerta temprana para prevenir inundaciones. Asimismo, se pueden usar otro tipo de sensores para monitorear los niveles de contaminación del aire, incendios forestales, etc. Por otro lado, el GST móvil se puede utilizar para el rastreo de vehículos y monitoreo de accidentes.

END OF THIS COLUMN

Due to authorization issues, this article by Hari will appear in Issue No. 65 of the BIRDS Project Newsletter. Please come back next month to read it.

- Editor

BIRDS-4 Golden week!

11. BIRDS-4: Golden Week !

From April 29 to May 5, Japan celebrated a series of holidays which means no work for most businesses and government institutions. During this week, Japanese people usually travel to various places, but because of the pandemic the movement of people was greatly reduced.

For this article, let's see where some of the BIRDS-4 members spent their golden week. Some opted to stay at home while others went to nearby places, making sure to follow government implemented safety protocols.

(Top) Nakayama (callsign: JE6VHE) spent his Golden Week communicating with other amateur radio enthusiasts.

(Top right and bottom) Esteban from Paraguay, a new BIRDS-4 team member, made Takoyaki with his Japanese friends. Yum!

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Article by:

Izrael Zenar BAUTISTA

12 May 2021

BIRDS-4 Golden week!

Marloun and Adolfo went to **Green Park** where a lot of beautiful flowers bloom during spring. There's also a zoo inside where you can go up close with the animals such as kangaroos. They went with other SEIC students, Pooja and Aekjira

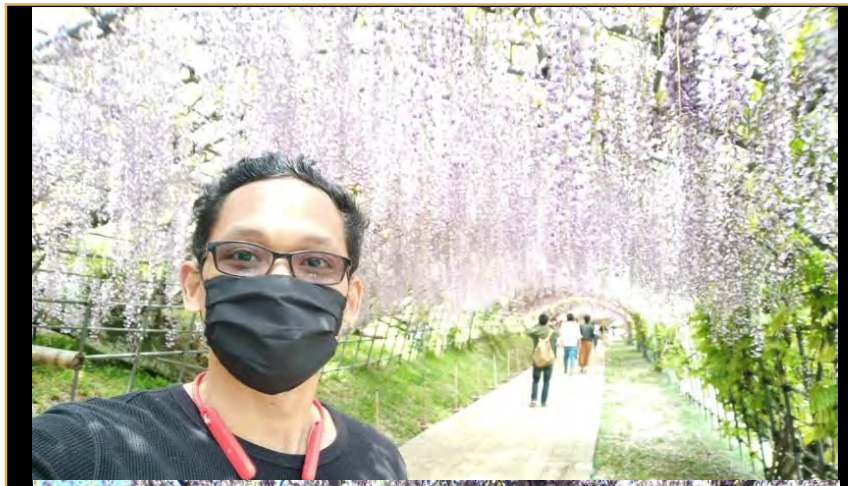
https://www.tripadvisor.com/Attraction_Review-g303160-d1819555-Reviews-Green_Park-Kitakyushu_Fukuoka_Prefecture_Kyushu.html

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Article by:

Izrael Zenar BAUTISTA

BIRDS-4 Golden week!



On the other hand, I went to the nearby **Kawachi Wisteria Garden** where a tunnel of beautiful wisterias can be seen!

Be sure to come to this place if you come to Kitakyushu during spring (end of April – early May)

BIRDS-4
JOINT GLOBAL MULTI-NATION BIRDS SATELLITE PROJECT

Article by:

Izrael Zenar BAUTISTA

MORE INFO HERE: https://www.japan-guide.com/e/e4881.html

BIRDS-4 Golden week!

Mark (at right) also went to Wisteria Garden on a different day, while Hari (at left) went to Mount Sarakura for a refreshing view of Kitakyushu City from atop this mountain.

Looking down on Kitakyushu from the top of Mt. Sarakura

BIRDS-4
Joint Global Multi-Nation Birds Satellite Project

Article by:

Izrael Zenar BAUTISTA

End of this article

UiTMSAT COLUMN

Column No. 17

Editor: FATIMAH ZAHARAH BINTI ALI (*ali.fatimahzaharah@gmail.com*)
PhD CANDIDATE, LABORATORY OF SPACE WEATHER AND SATELLITE SYSTEM
COLLEGE OF ENGINEERING
UNIVERSITI TEKNOLOGI MARA (UiTM), SELANGOR, MALAYSIA
15 May 2021

UNIVERSITI TEKNOLOGI MARA

UiTM Sentiasa Di Hatiku
"UiTM Always in My Heart"

THE FIRST DEVELOPMENT STAGE OF ASEANSAT PROJECT

ASEANSAT project team has completed the Subsystem Training and work breakdown structure assignment for the technical team members (I have covered this issue in Column No. 15). Now, the ASEANSAT technical team is in the initial stage of 1U CubeSat development where the presentation of Mission Design Review (MDR) has successfully held on 6th May 2021 at 1.30 pm (Malaysia Time).

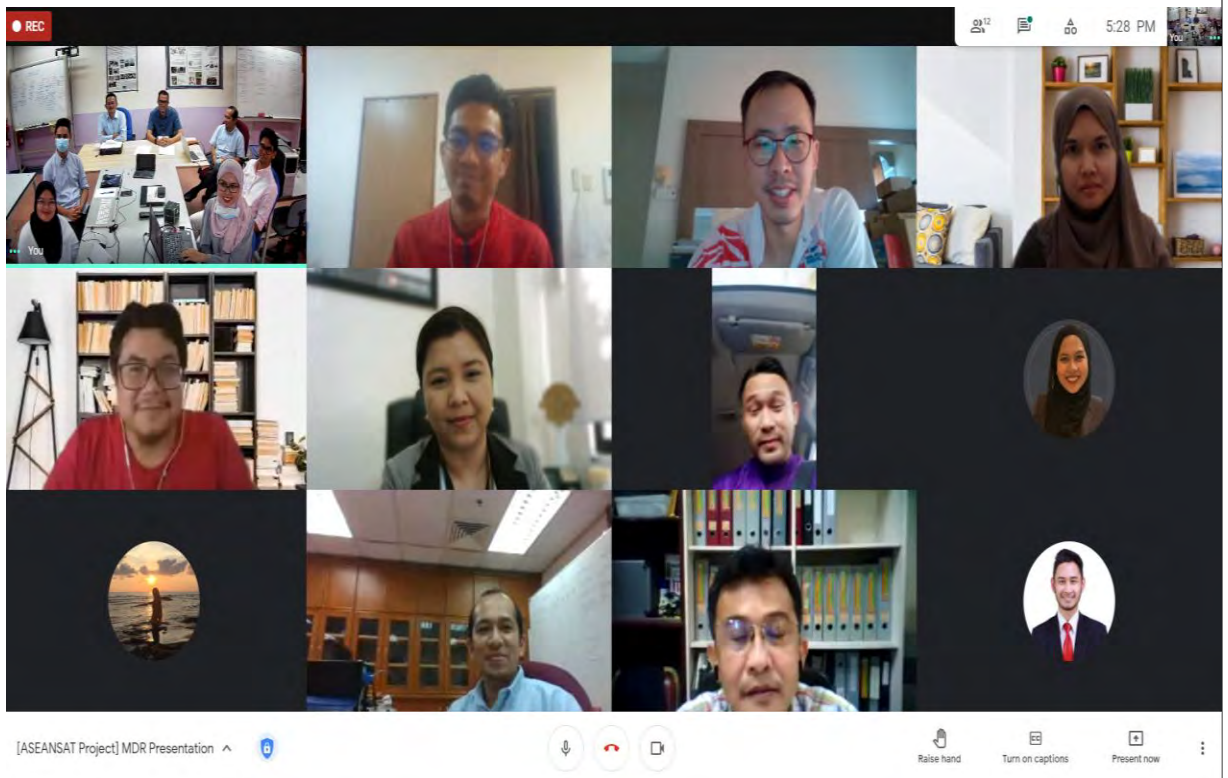
Figure 1: Panels and the ASEANSAT team after the end of MDR presentation.

The presentation was done virtually through Google Meet platform with members from The University of Perpetual Help System DALTA (UPHSD), Philippines, and those in Malaysia that cannot cross the state and district due to the Movement Control Order (MCO). Some of the project members and MDR panels who stay within the same district attended the event at the Laboratory of Space Weather and Satellite System in UiTM.

Three (3) panels have been appointed for the MDR presentation, who were Norizham Hamzah (Managing Director of Mercu Tekun Sdn. Bhd., Malaysia), Kamal Irfan Ahmad Shakir (Project Engineer in Mercu Tekun Sdn. Bhd., Malaysia), and Su Wai Ng (from Malaysian Space Agency, MYSA). Their knowledge and experiences have assisted the ASEANSAT team in designing the feasible mission design while grasping the valuable inputs and advises that would lead to the next stage of project's progress.

Figure 2: Mr Norizham Hamzah (on the right in light blue shirt) was commenting on the mission presentation that was given by the person in charge of camera mission, Fatimah Zaharah.

Figures 3: Some of the MDR attendees that were present in the lab.

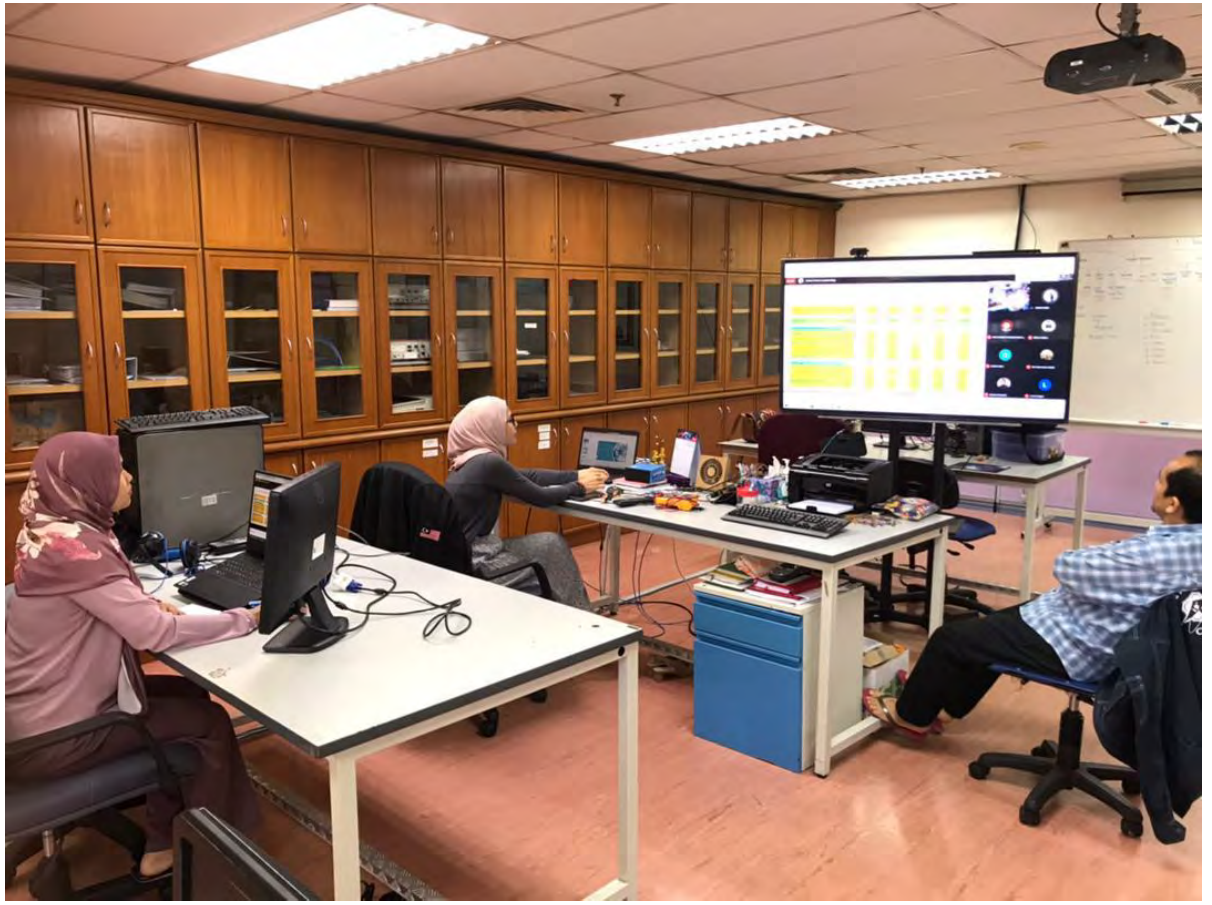


Figures 4: The attendees in online platform

There were two (2) missions presented during the event and other related subsystems that are essential for the mission achievement. The missions and the subsystems presented were:

- Camera mission (CAM)
- Store-and-Forward mission (S&F)
- Attitude Determination Control Subsystem (ADCS)
- Communication subsystem (COMM)
- Electrical Power Subsystem (EPS)
- On-Board Computer subsystem (OBC)

Prior to the MDR presentation, ASEANSAT technical team has done weekly meeting since March 2021. The weekly meeting was held through online platform for other team members who were not stationed in UiTM. The meeting was held on every Thursday to update the planning and progress of each assigned subsystem and mission payload by the technical member.



Figures 5: One of the weekly progress meeting that was held through Google Meet platform. Each of technical members are required to present their update and planning on their assigned subsystem or mission payload. This is to ensure all members are on track for project development.

13th May 2021 was the first day of Eid Mubarak of all Muslim around the world. The celebration continues for a month though it must be done modestly in respecting the new norm.

During the celebration, we would wear traditional attires such as Baju Kurung and Baju Melayu. In the picture, I am in a green Baju Kurung (at most right) while Amirul is in blue Baju Melayu (at most left).

On behalf of ASEANSAT Technical Team from UiTM, I would like to wish *Happy Eid Mubarak* (or in Bahasa Melayu 'Selamat Hari Raya Aidilfitri') to everyone. Stay safe and take care.

End of Malaysia's Column

13. Blank

14. LaSEINE Annual Progress Report 2020 is now available in pdf

The Japanese-language document shown at the right is now available for your inspection
https://kyutech-laseine.net/download/images/laseineApr2020.pdf

It is issued each year at the end of the Japanese fiscal year (ends 31 March). This report (for FY 2020) is 88 pages long and is 5.3 MB in size. Some parts are written in English.

Reports of previous years are available at this web link:
https://kyutech-laseine.net/download.html

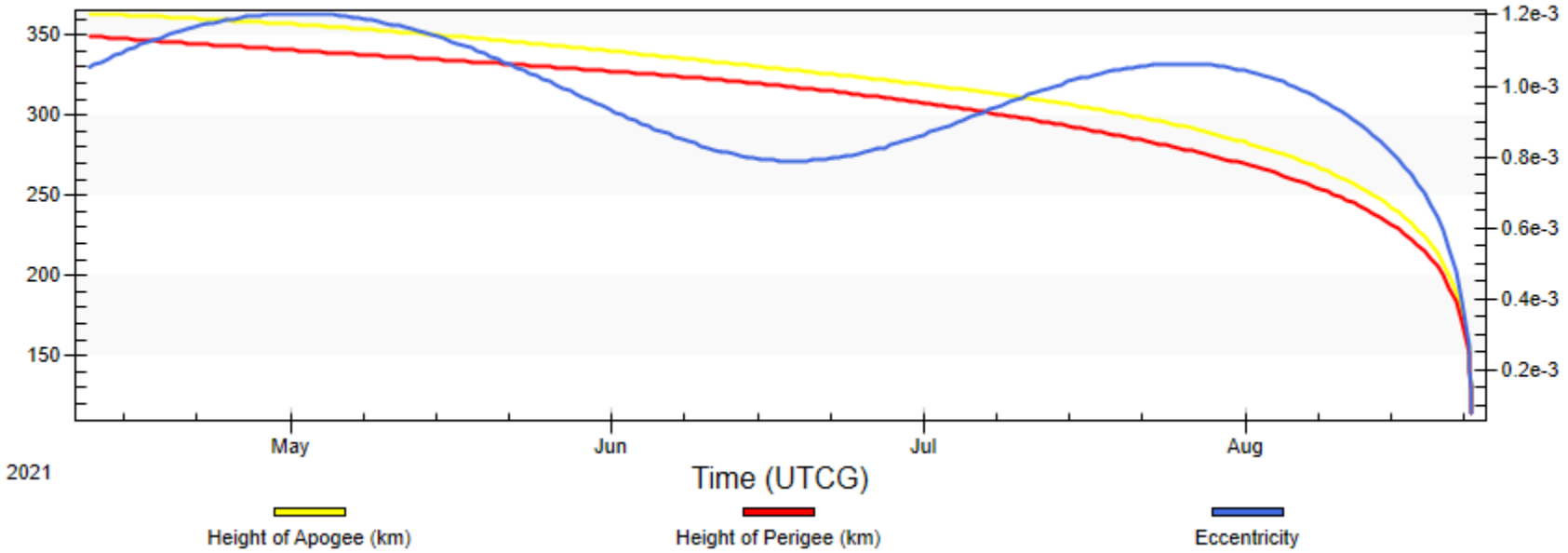
九州工業大学 革新的宇宙利用実証ラボラトリー
Laboratory of Lean Satellite Enterprises and In-Orbit Experiments, Kyushu Institute of Technology

15. BIRDS-3: De-orbiting time – very very preliminary estimates

According to simulations by STK software, re-entry can be estimated in the following way (just estimates):

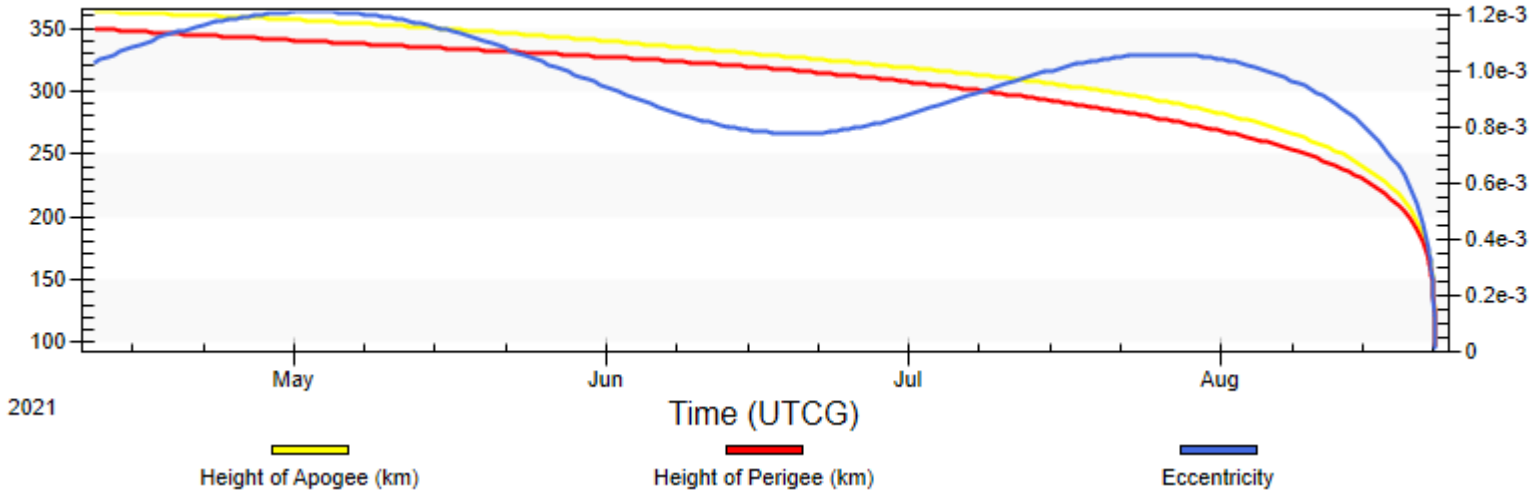
1. *NepaliSat* (Nepal) – Re-entry on 22nd August 2021
2. *Raavana* (Sri Lanka) – Re-entry on 22nd August 2021
3. *Uguisu* (Japan) – Re-entry on 24th August 2021

[Simulations performed by Pooja of Bhutan.]

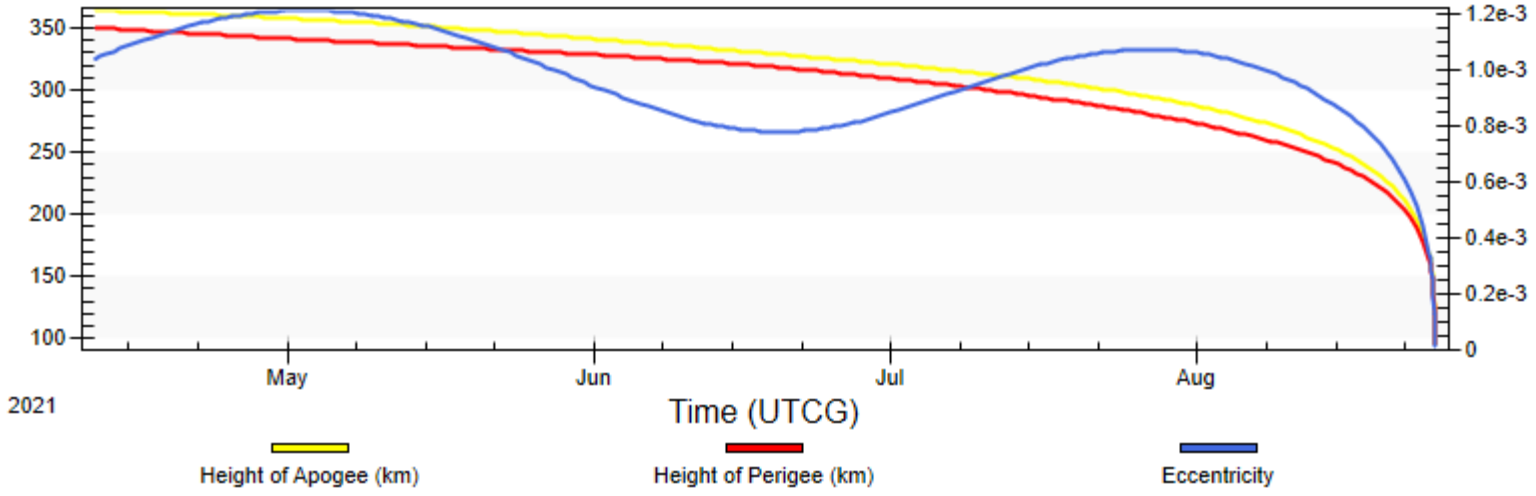


Satellite of Nepal (estimate only)

Continued on the next page



Satellite of Sri Lanka (estimate only)

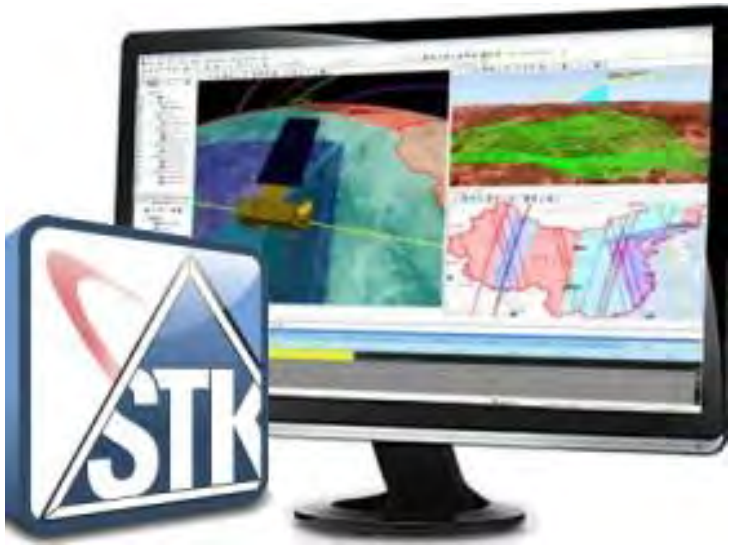


Satellite of Japan (estimate only)

Continued on the next page

At the right:

STK as explained by Wikipedia



Systems Tool Kit (formerly **Satellite Tool Kit**), often referred to by its initials STK, is a multi-physics software application from Analytical Graphics, Inc. (an Ansys company) that enables engineers and scientists to perform complex analyses of ground, sea, air, and space platforms, and to share results in one integrated environment. At the core of STK is a geometry engine for determining the time-dynamic position and attitude of objects ("assets"), and the spatial relationships among the objects under consideration including their relationships or accesses given a number of complex, simultaneous constraining conditions. STK has been developed since 1989 as a commercial off the shelf software tool. Originally created to solve problems involving Earth-orbiting satellites, it is now used in the aerospace and defense communities and for many other applications.

STK is used in government, commercial, and defense applications around the world. Clients of AGI are organizations such as NASA, ESA, CNES, DLR, Boeing, JAXA, ISRO, Lockheed Martin, Northrop Grumman, Airbus, The US DoD, and Civil Air Patrol.

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

16. Report from the Philippines

UPDATES FROM THE PHILIPPINES

May 15, 2021
University of the Philippines Diliman
Quezon City, Philippines

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S4S congratulates NCKU SPACELAB team

April 20, 2021

Congratulations to the National Cheng Kung University (NCKU) SPACELAB team for the successful delivery of the IRIS-A 2U cube satellite to the US, where it will be launched to space via SpaceX's Falcon 9 rocket! IRIS-A's mission objective is to demonstrate Internet of Things (IoT) communication technology in space. The tentative launch date is June 24, 2021.

The IRIS Team, which includes Filipino engineers, is also working on IRIS-B, a 3U CubeSat with in-orbit intelligence remote sensing data processing demonstration as its main objective.

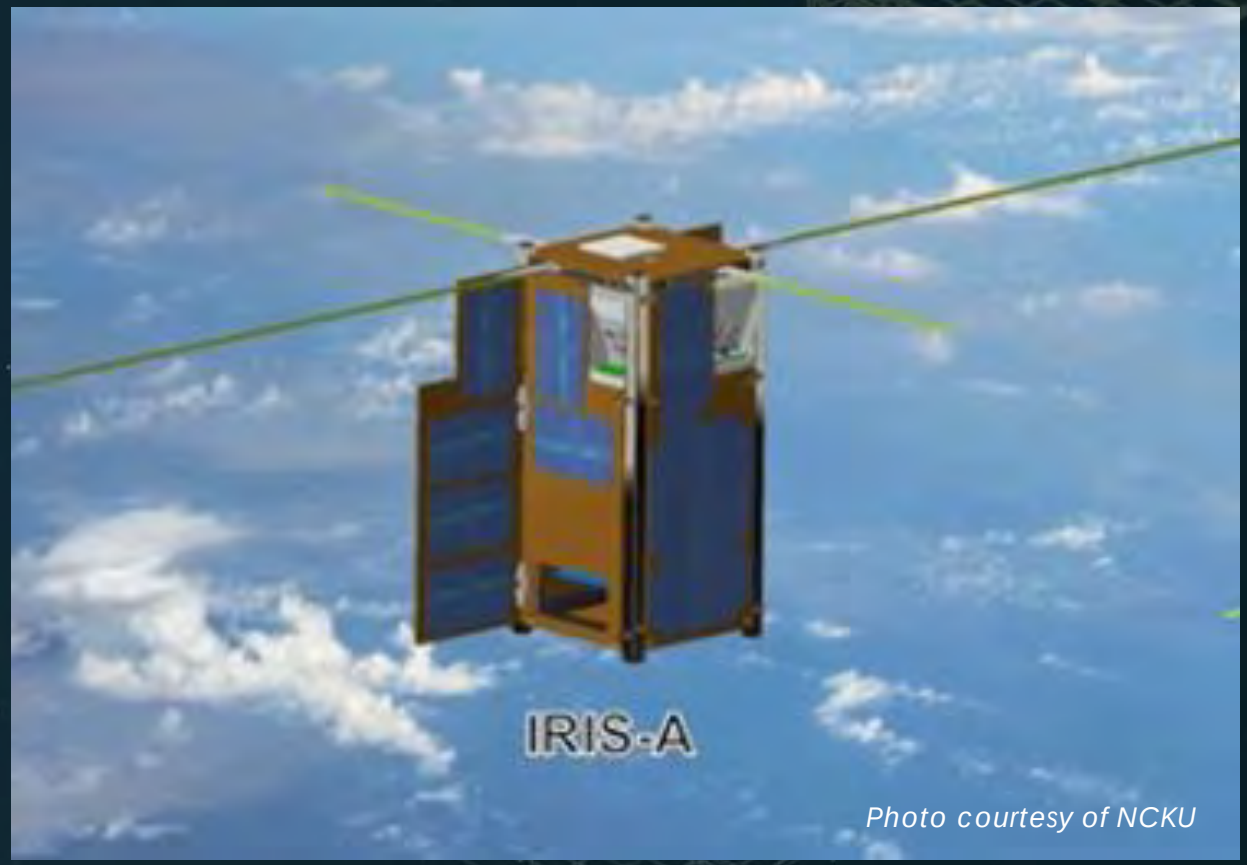


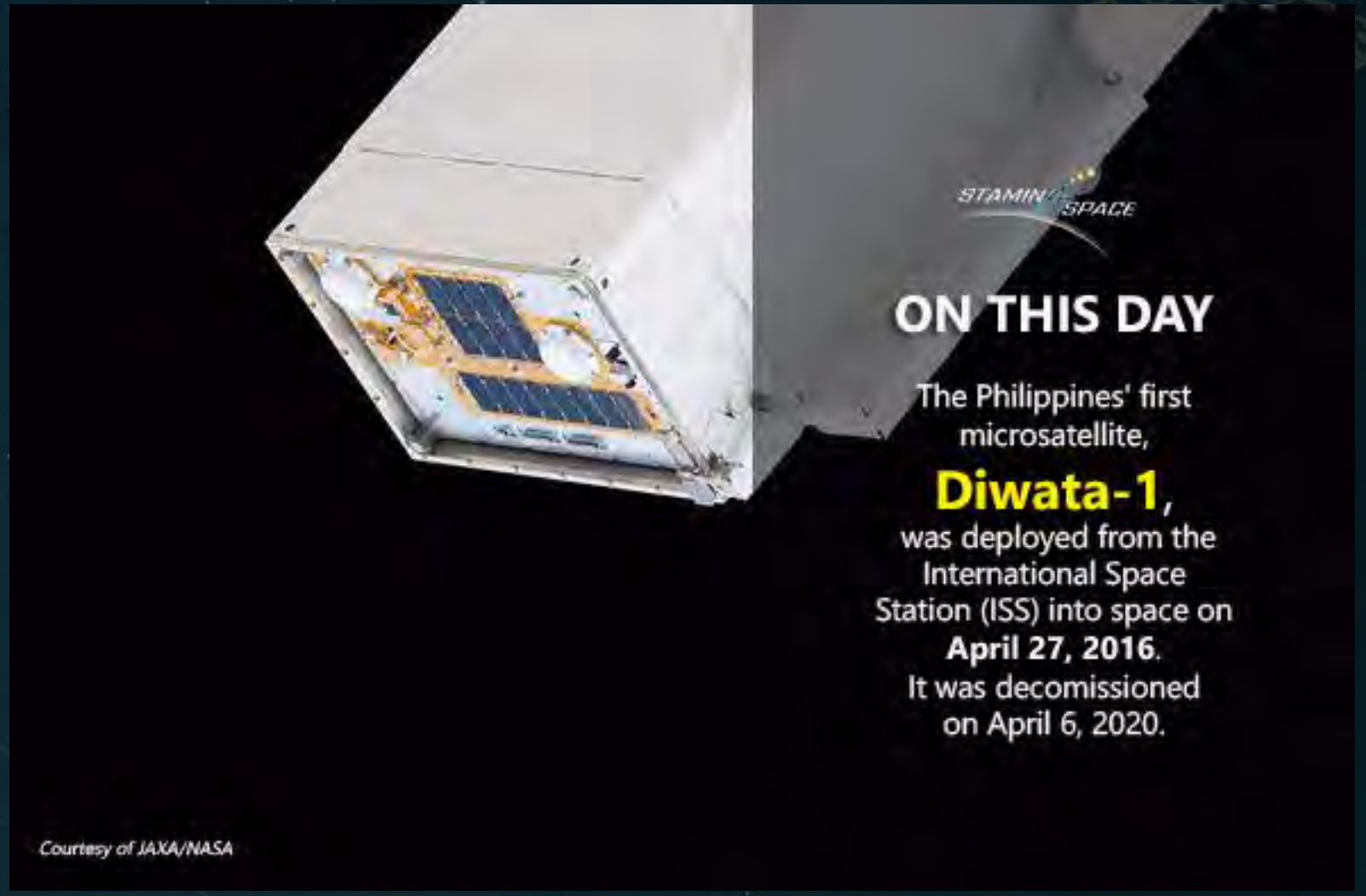
Photo courtesy of NCKU

More details about IRIS-A:
http://satellite.ncku.edu.tw/iris_a.html

Diwata-1 Deployment 5th Year Anniversary

April 27, 2021

Here's the live stream link for those who would like to re-watch the livestream of the deployment



Graphics Interchange Format of the Diwata-1 deployment coverage from JAXA

Understanding Changes in Tropospheric Chemistry

Through Ground-based Measurements and Remote Sensing Techniques

April 27, 2021

The STAMINA4Space's Advanced Satellite Development and Know-How Transfer for the Philippines (ASP) Project, in partnership with Asia-Pacific Network for Global Change Research (APN) and the UP Diliman Institute of Environmental Science and Meteorology (UP-IESM), held a virtual webinar entitled "Understanding Changes in Tropospheric Chemistry Through Ground-based Measurements and Remote Sensing Techniques" on April 27, 2021.

Experts from different institutions gave different presentations about the following topics:

1. "Chemical, Optical and Hygroscopic Properties of Particulate Matter from Urban Sites in the Philippines" by Dr. Mylene Cayetano
2. "Climate Change Impact on Biogenic Emissions in Southeast Asia" by Dr. Justin Sentian
3. "The Impact of El Nino-Induced Peat Fire on PM10 Levels in Indonesia" by Dr. Nina Yulianti
4. "The Mixing Height and Particulate Matter Concentrations" by Dr. Ronald Macatangay
5. "Remote Sensing for Air Quality Monitoring" by Engr. Roseanne Ramos
6. "The Philippine TCCON (Total Carbon Column Observing Network) Site" by Dr. Gerry Bagtasa
7. "Satellite Data Products for Weather, Air Quality and Atmospheric Processes in the Coming Decade" by Dr. Gay Jane Perez

For those who are interested, you can re-watch the live stream HERE.

Photo from the UP-IESM Facebook Page

Maya-3 and Maya-4 Turnover

April 28, 2021

Congratulations to STeP-UP Scholars Batch 1 for the successful turnover of the cube satellites, Maya-3 and Maya-4, to the Japan Aerospace Exploration Agency (JAXA).

We wish you all the best on the next steps of your satellite development journey!

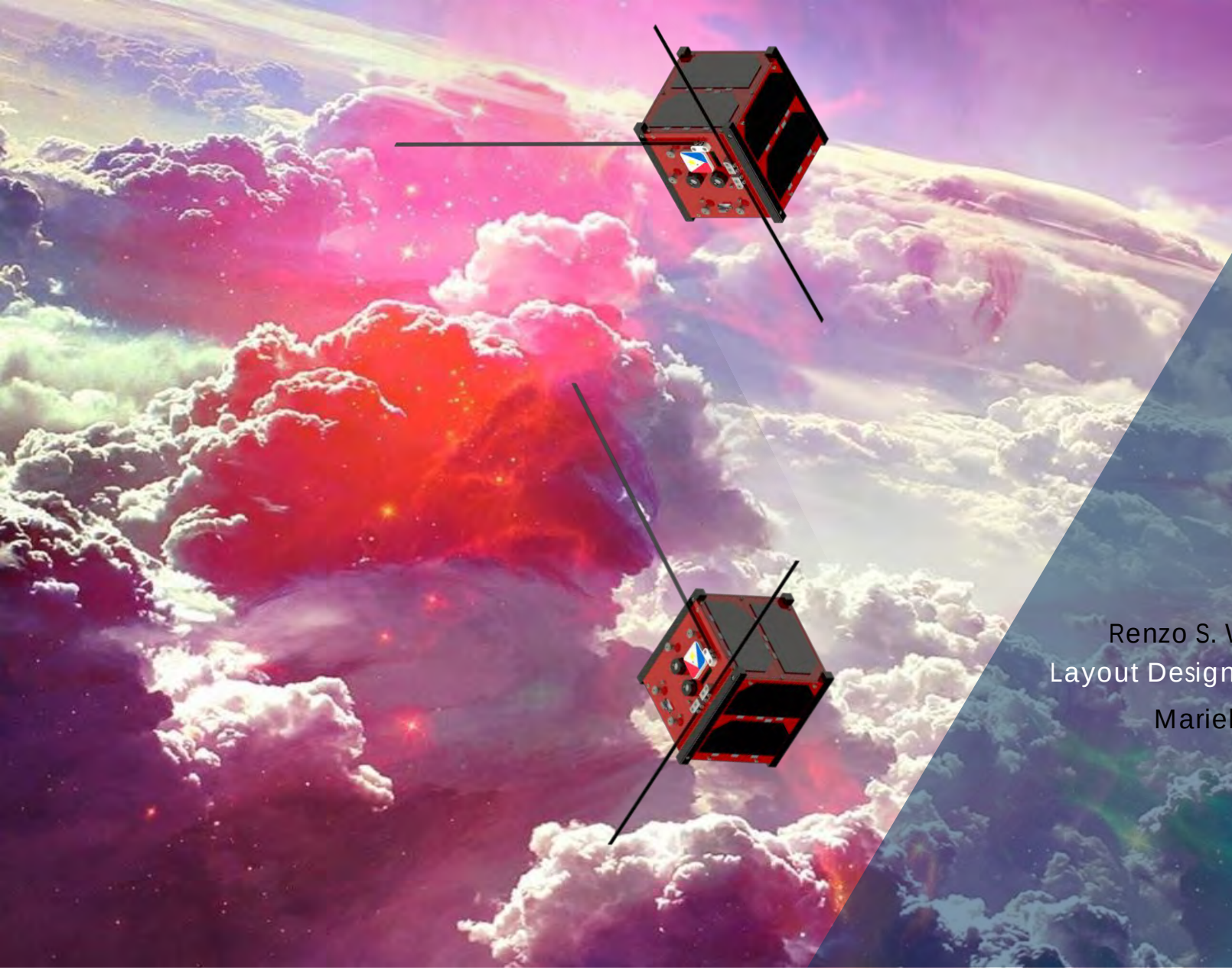
Virtual STEM Career Talk

April 30, 2021

Photos (left) Publicity Material courtesy of Check Marks the Spot page; (right) a screen capture of the live streamed event

STAMINA4Space was invited to be part of the second installment of the COMPASS 2021. STAMINA4Space Ground Receiving, Archiving, Science Product Development and Distribution (GRASPED) Project Satellite Operations Engineer Matthew Medrano and other guest speakers talked about their careers and personal experiences in the STEM track.

🖳 For those who are interested, you can re-watch the talk HERE.
Timestamp: 44:09



Updates from STEP-UP

scholars

"The 19th step..."

May 2021

University of the Philippines- Diliman
Quezon City, Philippines

Prepared by STeP-UP scholars

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Contributing Writer

Charge it up!!!
Battery Charging of Maya-3 and

Measuring the battery voltage of Maya-3 and Maya-4 prior to ending the charging procedure

Packing the cube satellites into the pelican case for the handover to JAXA

The last battery charging of the Maya-3 and Maya-4 cube satellites was conducted on April 26, 2021. Full charging was done a few days before the handover to make sure that the satellites will have enough stored charge before deployment from the International Space Station (ISS).

The activity was facilitated by BIRDS-4 Filipino members in Japan in coordination with the BIRDS-2S members in the Philippines.

Thank you so much for the usual support, Sir Izrael, Sir Marloun, and Sir Mark! :)

Handover of Maya-3 and Maya-4 to JAXA

Photo courtesy of Engr. Bautista

The Maya-3 and Maya-4 cube satellites were successfully handed over to the Japan Aerospace Exploration Agency (JAXA) on April 28, 2021. On behalf of the scholars, Dr. Takashi Yamauchi of the Laboratory of Lean Satellites Enterprises and In-Orbit Experiments (LaSEINE) of Kyushu Institute of Technology and Engr. Izrael Bautista of the BIRDS-4 Satellite Project were present during the event.

The cube satellites are expected to be launched to the International Space Station (ISS) in August and will be deployed into orbit from the ISS on a later date.

BIRDS' EYE

UPDATES FROM STEP-UP BATCH 2

May 15, 2021
University of the Philippines, Diliman
Quezon City, Philippines

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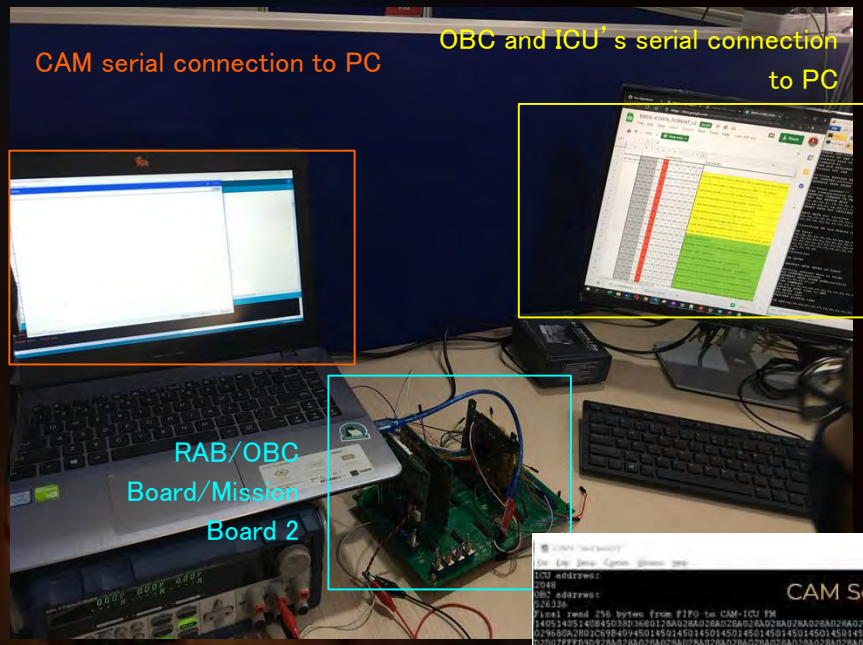
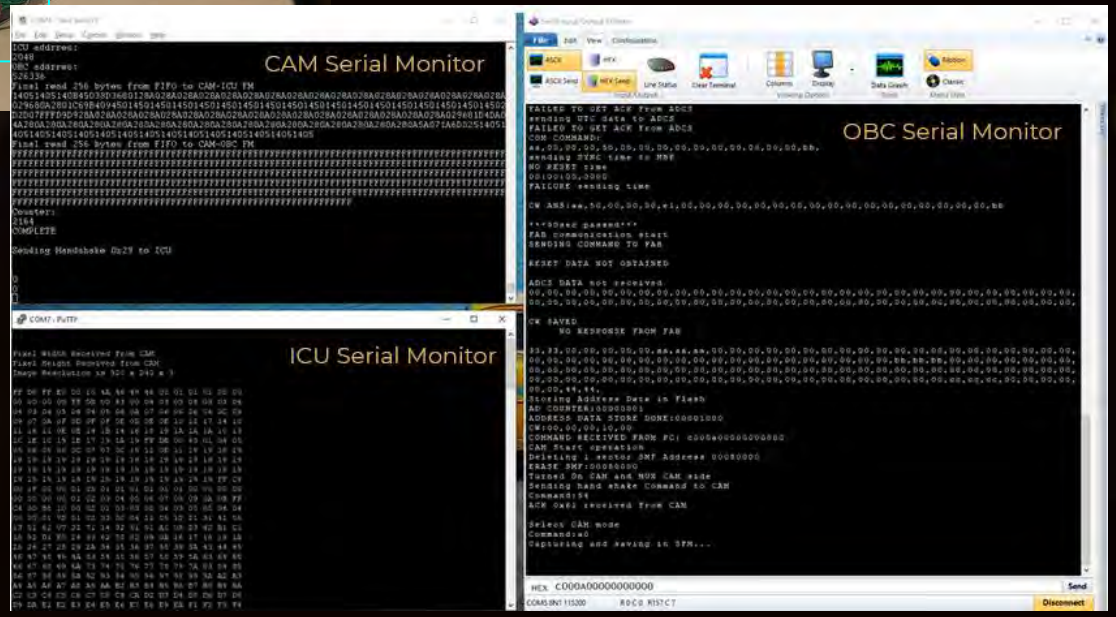


The Camera Mission (CAM) was able to communicate with the OBC and ICU Mission. The CAM mission initiates after receiving a command from the OBC. It will then send the chosen resolution to the ICU mission. After capturing the image, the hex data will be saved to both CAM-OBC and CAM-ICU shared flash memories. The ICU will then begin to process the image and classify it as whether it is Earth or Non-Earth.



CAM UPDATES

END OF REPORT FROM THE PHILIPPINES

17. Ibukun (BIRDS-1, Nigeria) successfully defended Phd thesis on 17 May 2021

Evaluation of SRS similarity and repeatability in the Qualification Testing of Space Components

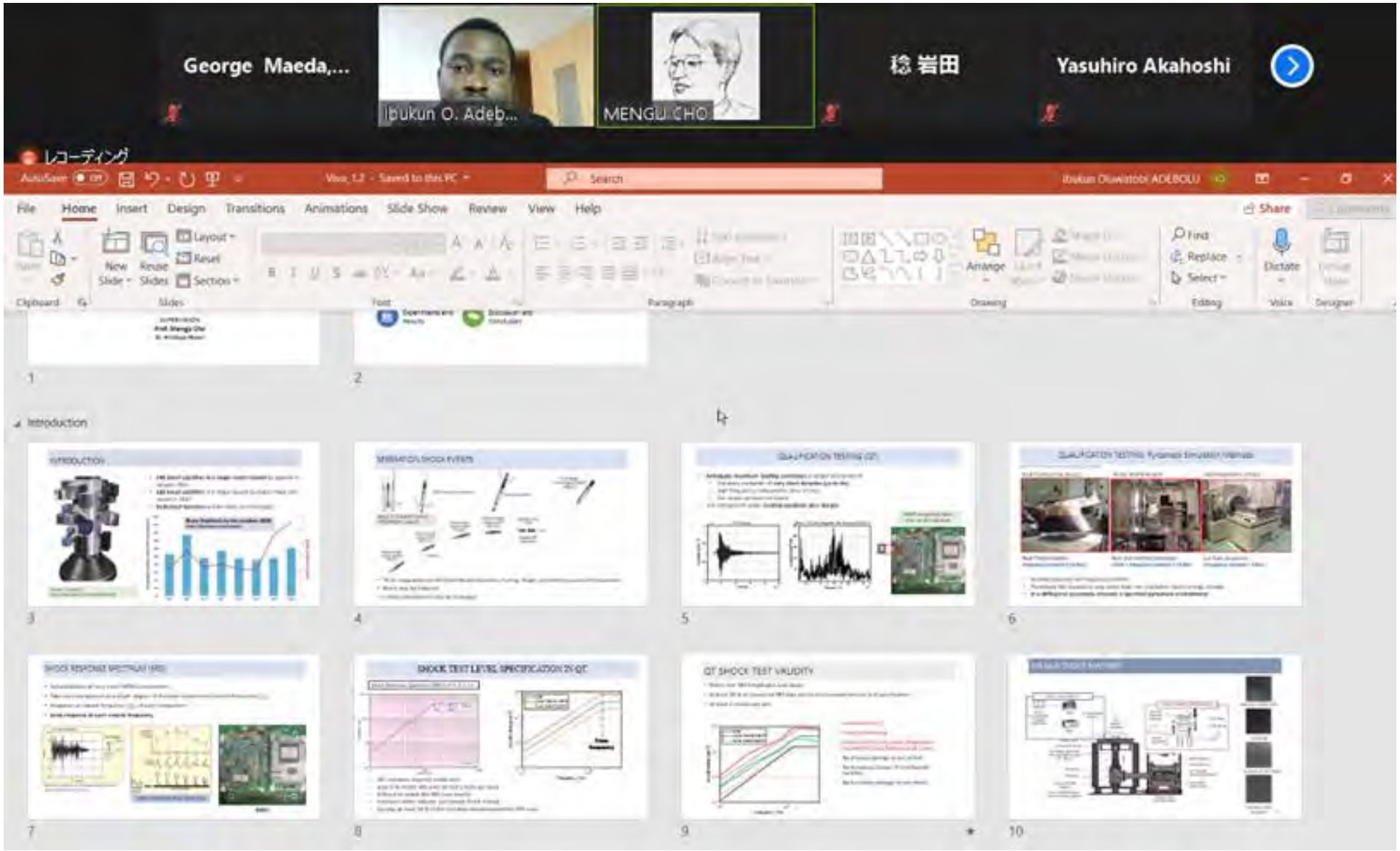
Adebolu Ibukun Oluwatobi
(17595906)

Final Thesis Defense
May 17th, 2021

SUPERVISION
Prof. Mengu Cho
Dr. Hirokazu Masui

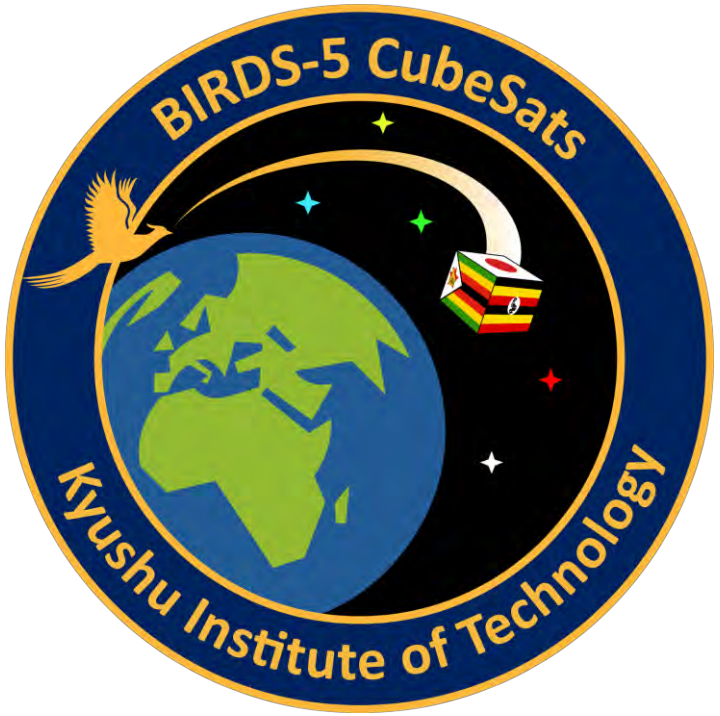
On 17 May 2021, Ibukun defended the above Phd thesis via ZOOM. He arrived at Kyutech in the fall of 2015, and joined the Nigerian team of BIRDS-1 Project; his Nigerian team mate was Taiwo. After that, he contributed immensely to other Kyutech satellite projects. Also, he performed countless satellite operations as our satellites passed overhead. So Ibukun: *All the best to you in all future endeavors. Stay in touch.* Editor.

BIRDS-1 barbecue during the evening of 2 May 2016. Ibukun (wearing the NASA logo) shares a photo op with Dr Kim and with fellow BIRDS-1 members from Mongolia (Amur, Erka, and Turo). Photo by the Editor.



← Ibukun's Phd thesis defense … screen shot of his ZOOM session of 17 May 2021.

END OF THIS SECTION



The following sections are the BIRDS-5 articles for May 2021 (compiled by Fahd)

PINO development status

Mariko Teramoto

and PINO team

14 May 2021

PINO development going smoothly!

The preamplifier (charge amplifier) board is almost ready for flight.

But we need further adjustment of passive components on the board to get the best performance for the selected sensors.

Calibration experiment of PINO sensors with the preamplifier and control electronics are about to start soon.

19. BIRDS-5: Schedule management

UGANDA

JAPAN

ZIMBABWE

By : Victor Mukungunugwa
BIRDS 5 Project Manager

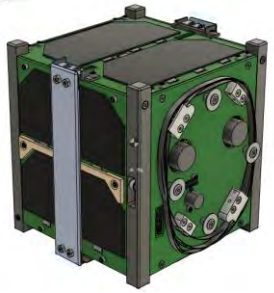
08/May/2021

PROJECT OUTLINE IN SUMMARY

BIRDS-5 project is currently in the **Engineering Model stage** and BIRDS-5 members are currently ordering the printing and population of PCBs

Bread board Model

Engineering Model



Flight Model

Official launch 17/07/2020

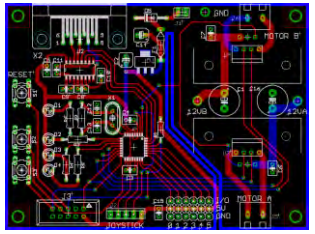
Mission Definition Review 29/09/2020

PDR 29/12/2020

Critical Design Review 31/07/2021

Flight Readiness Review 31/10/2021

Launch TBA



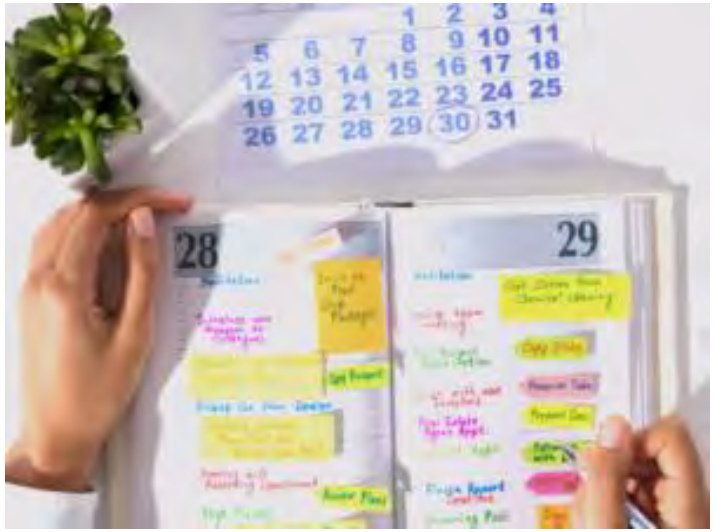
← BIRDS-5 Designed PCBs using Eagle software

https://www.autodesk.com/products/eagle/blog/autodesk-eagle-first-flights-webinar-series/

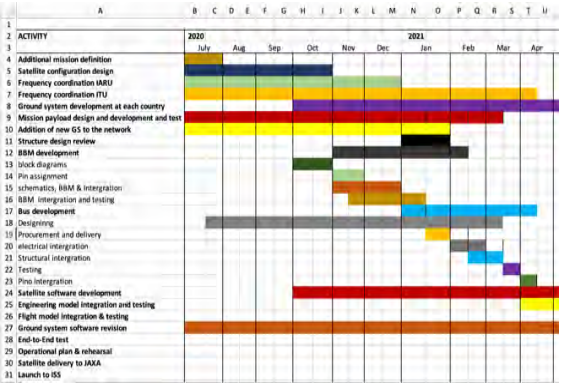
Methods of scheduling

BIRDS-5 project manager utilises many channels to schedule, synchronise and manage time.

All methods are harnessed together to ensure members will not miss deadlines

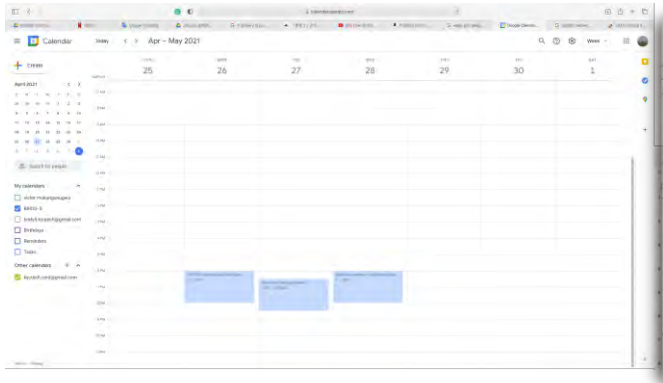


https://www.uopeople.edu/blog/how-to-make-a-school-schedule-for-students-and-stick-to-it/



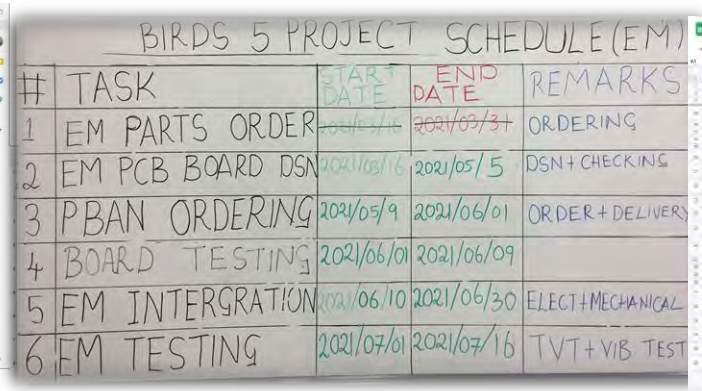
Gantt Chart

BIRDS-5 members have access to this Gantt chart using the Google drive



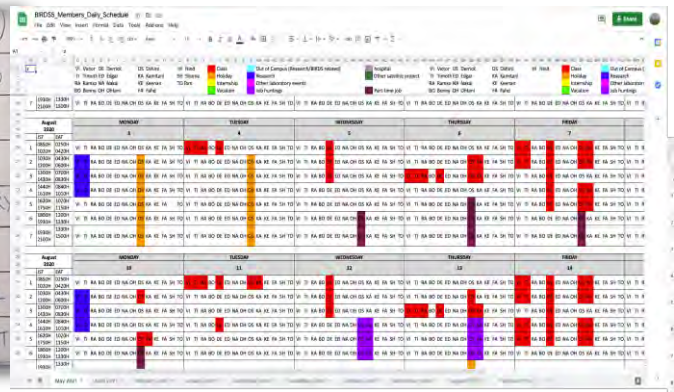
Google calendar

Every BIRDS-5 member receives notifications for emails



Laboratory Board

In the BIRDS Project Room major milestones are tabulated on the board for the team's viewing

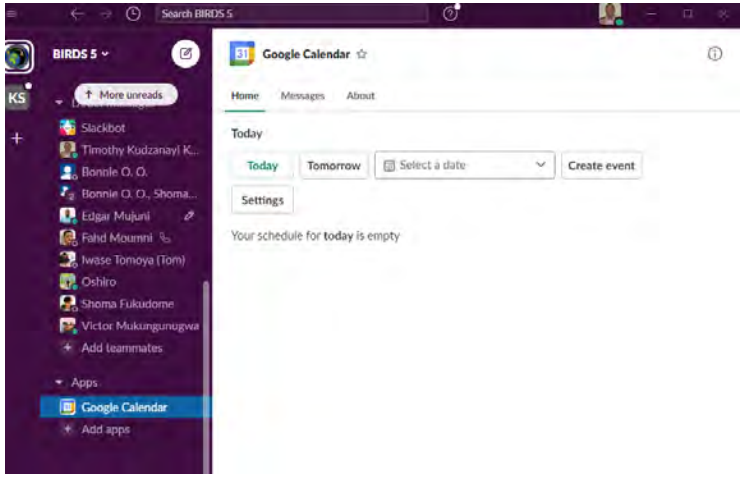


Member schedule

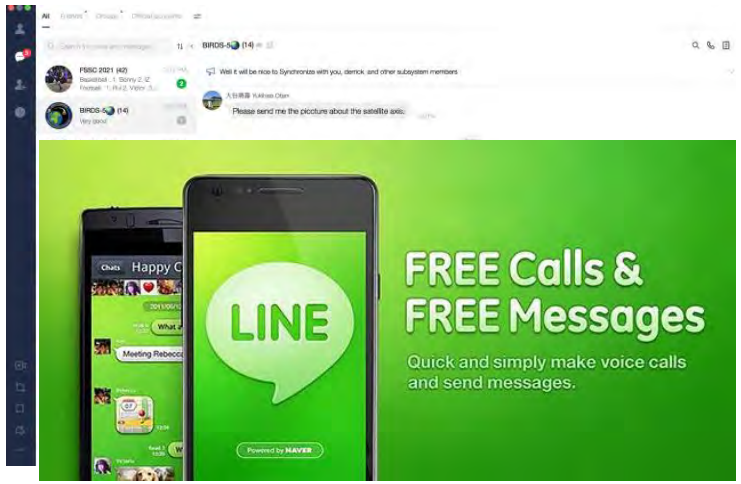
Every BIRDS-5 member fill in their daily schedules making it easy to synchronise meeting timings

Communication Channels

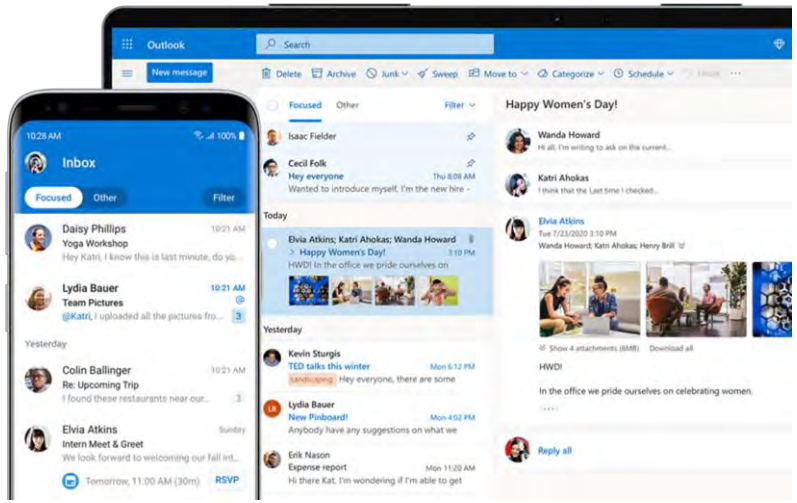
Slack



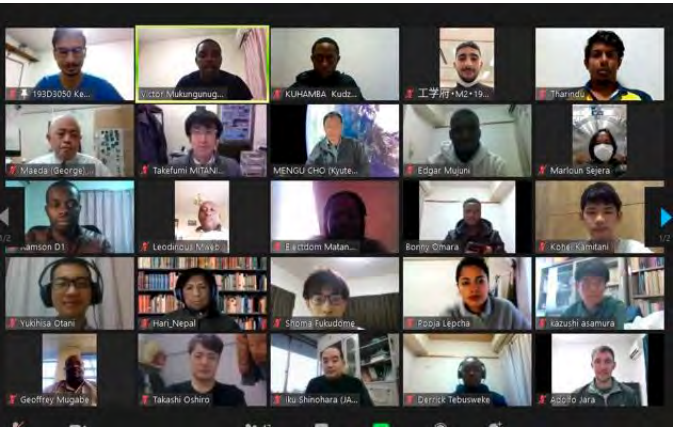
Line



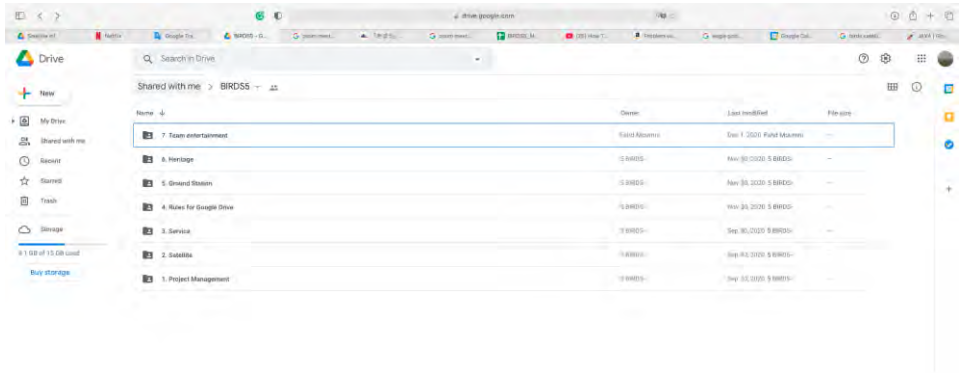
Outlook



Zoom



Google drive

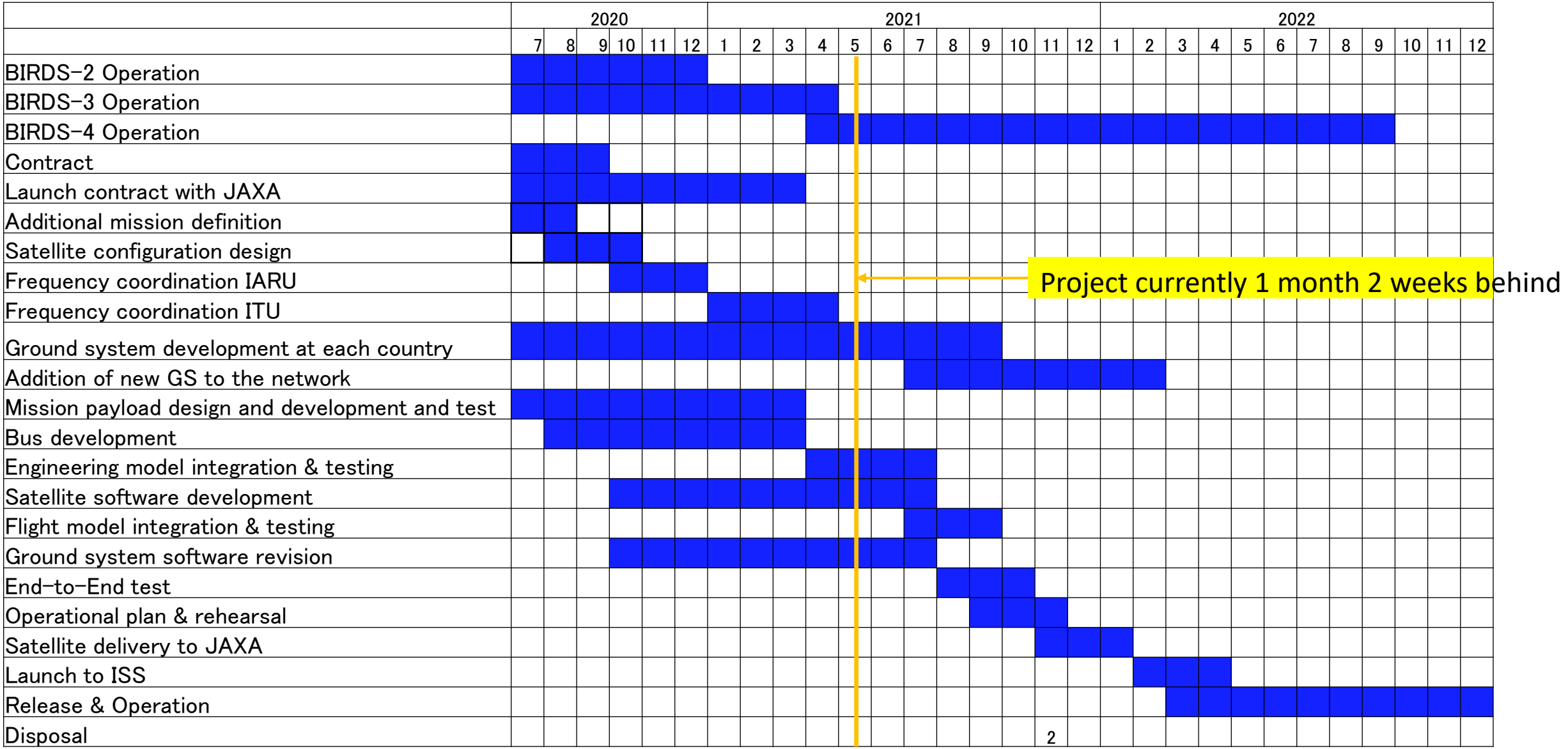


Comparison

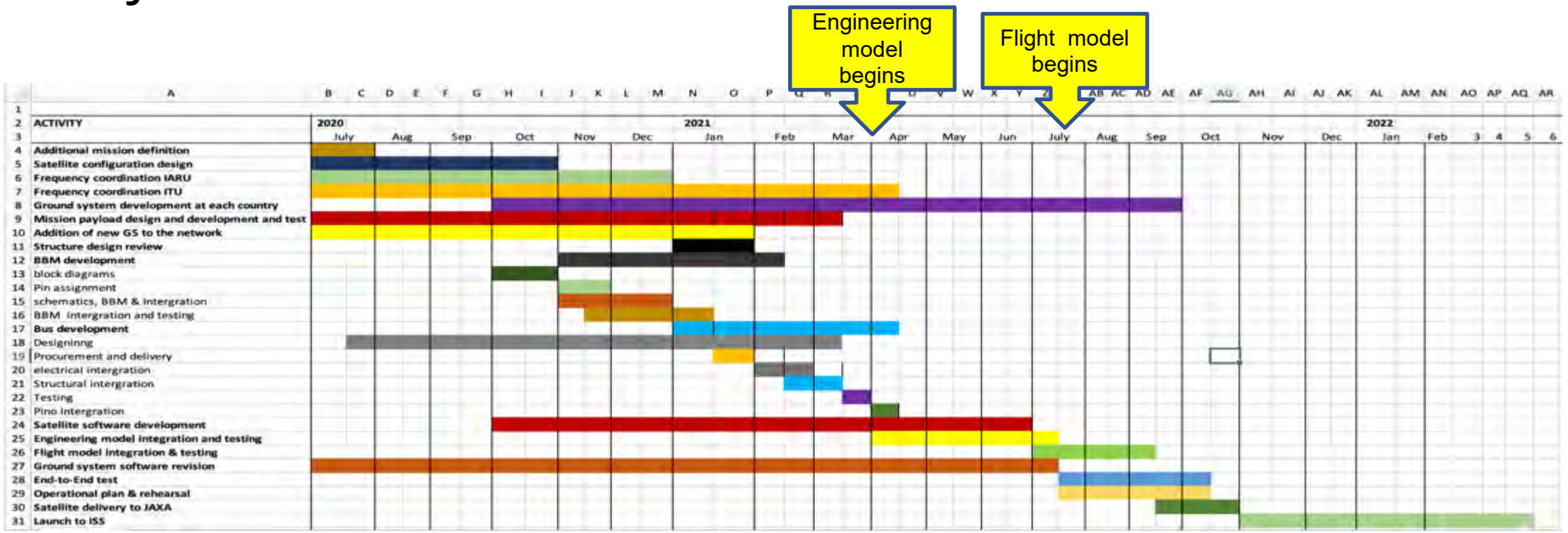
Despite proper scheduling, some deadlines are not met due to many other factors

Platform	Rational
Gantt Chart	For easy visualization of the tasks over time Progress monitoring
Google Calendar	Zoom links for meetings included in time schedules Can be easily accessed by members
Slack	File sharing, Notifications, Broadcasted messages etc.
Boards in the Birds room	Easy visibility Major milestones and monthly task can be easily viewed in the BIRDS room
Outlook	For all communication, sharing files with Professors and other superiors.
Zoom	For remote meetings and file sharing especially in the COVID time

Professor Cho's Schedule from the Project Kick-off



Project schedule as of PDR



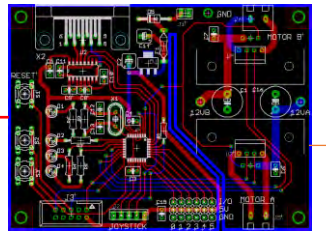
After the conclusion of the PDR, BIRDS-5 members have been working hard to meet the deadline and one big lesson learnt is that **time is never enough**.

Schedule Adjustments

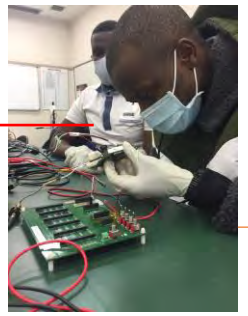
Schedule and deadlines in the BIRDS Room

BIRDS 5 PROJECT SCHEDULE (EM)

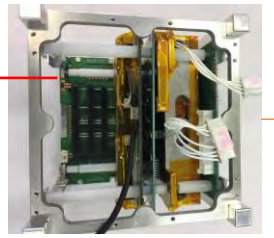
#	TASK	START DATE	END DATE	REMARKS
1	EM PARTS ORDER	~~2021/03/16~~	~~2021/03/31~~	ORDERING
2	EM PCB BOARD DSN	2021/03/16	2021/05/5	DSN + CHECKING
3	PBAN ORDERING	2021/05/9	2021/06/01	ORDER + DELIVERY
4	BOARD TESTING	2021/06/01	2021/06/09	
5	EM INTERGRATION	2021/06/10	2021/06/30	ELECT+MECHANICAL
6	EM TESTING	2021/07/01	2021/07/16	TVT + VIB TEST



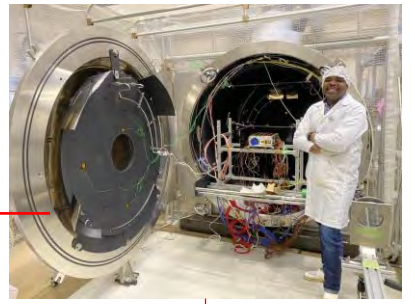
PCB Design



PCB Board testing



Engineering Model Integration



Thermal Vacuum testing

Vibration testing

Impacts to the schedule

COVID 19

The Impact of COVID 19 negatively impacted on the progress of the project. Satellite building project requires subsystem to subsystem member interaction and this involves working together and meetings which is not favourable in COVID times. This has greatly affected progress, in some instances working in the lab is suspended to control the COVID spread. Moreover companies are not working in their full capacity which made them inefficient especially in 2020.

Skills level

90% of the members are in their first satellite building project and there is need to develop some skills of which at times induces mistakes that deeply affect progress.

Management

Management of a satellite is a very challenging task for the challenges are diverse and at times beyond management control.

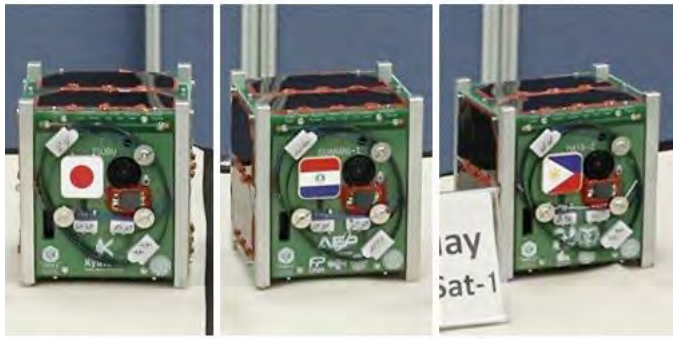
Professor Cho's estimated dates for the satellite delivery

Professor Mengu Cho

Timeframe and Duration:

- Planned delivery date to JAXA: [December 2021]
- Desired launch date: [March/April 2022]
- Desired deployment date: [March/April 2022]

Satellite Delivery



Tsuru GuaraniSat-1 Maya-2

https://humans-in-space.jaxa.jp/kibouser/pickout/72633.html

Satellite launch

Satellite ISS Deployment

https://amsat-uk.org/2021/03/12/iss-cubebsat-deployment/

End of this section

Improving the DLP

By : Kohei Kamitani
2021/5/10

DLP Design

The structure of DLP is as shown in the figure on the right.

The Boom is made of plastic parts and the Boom is fixed to the panel using spring hinges.

After release into space, the fishing wire that holds the Tip in place is burned off with the nichrome wire, and the DLP is deployed by the spring hinge.

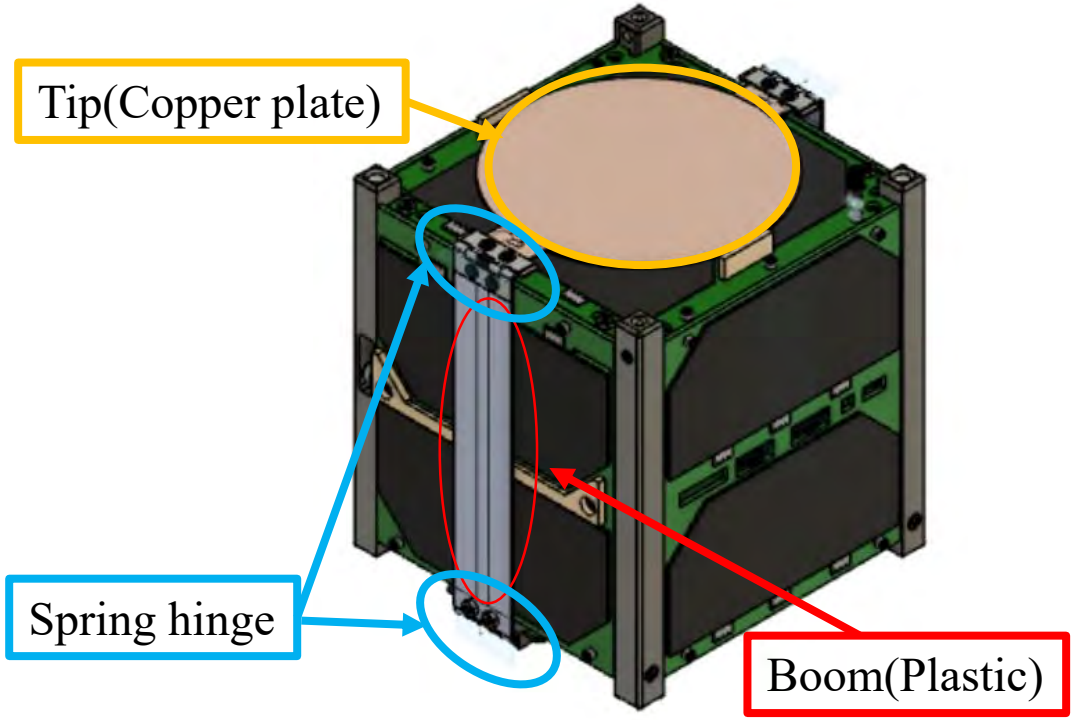
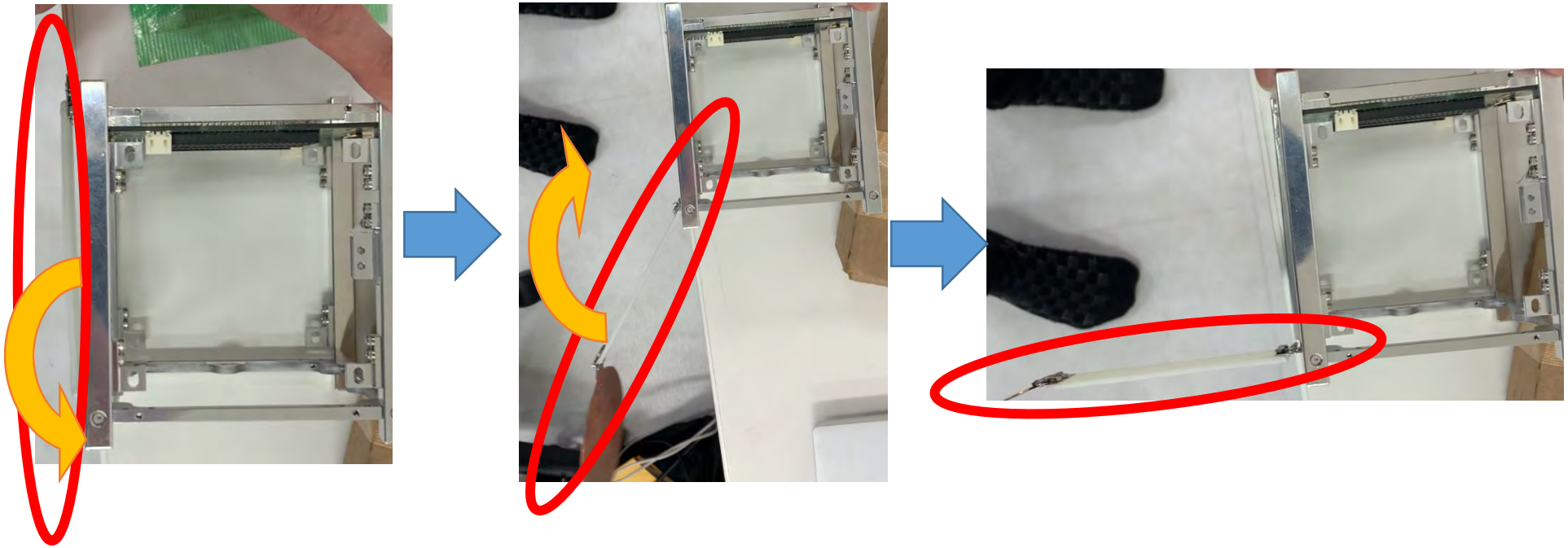


Fig.1 DLP design

Fig.2 After Deployment

Problems of DLP design

When DLP deploys, Boom over-deploys and can damage the satellite body and the other probe.



As shown in the picture, once the Boom is deployed, it deploys nearly 180° and then returns to around 90° .

Improving the DLP

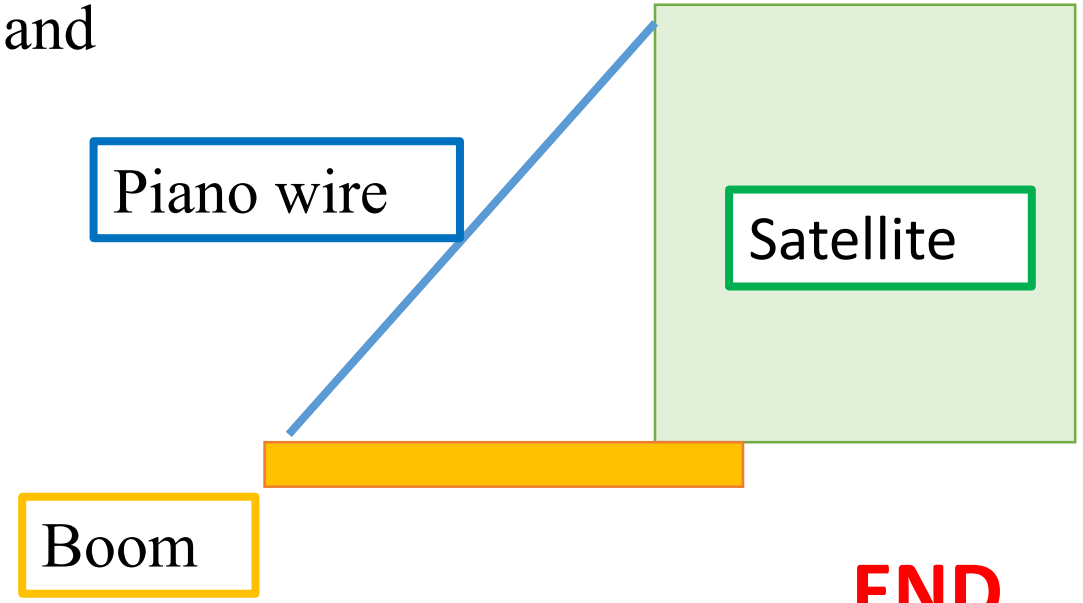
Slightly extend the length of the boom to prevent it from deploying nearly 180°.

Change the material of the Boom from plastic to metal to increase its strength.

Boom(Plastic)

Metal

The piano wire connects the Boom to the satellite and prevents it from over deploying.



I will be verifying these new improvements in the future.

END

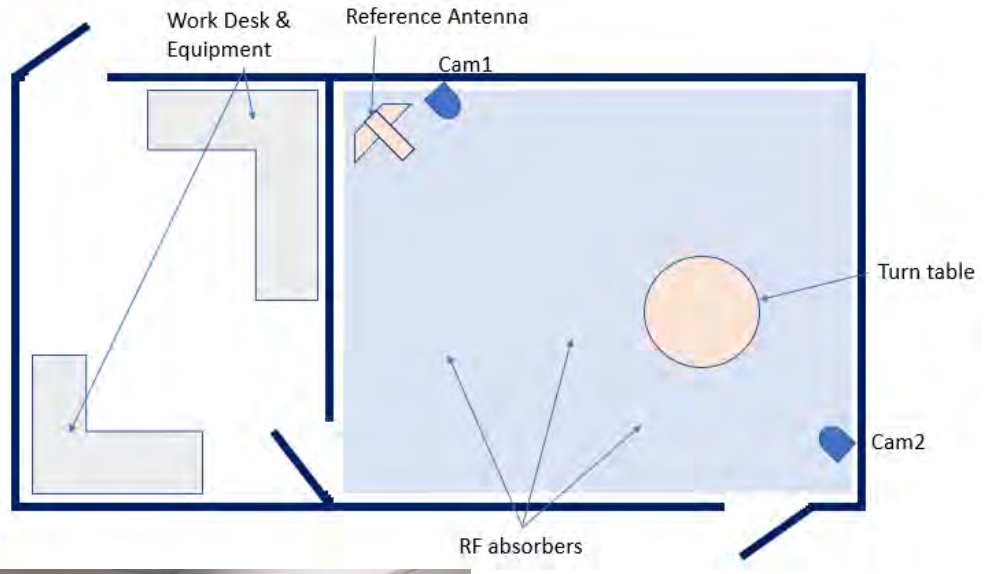
BIRDS-5 Anechoic Chamber test preparation

By: Edgar Mujuni

7th May 2021

Anechoic Chamber Test Preparation

- Anechoic Chamber is one of the facilities here at Kyutech, used to conduct various satellite communication tests.
- This is a room where almost all the reflected electromagnetic waves from a point source are absorbed. It is therefore an **echo-free** environment.
- When communicating with satellites in LEO, we do not depend on reflected radio waves from the ground station to the satellite and vice versa. We use direct radio signals through space.
- This is why we always simulate in the anechoic chamber (get rid of reflected waves).
- The radio wave absorption in the anechoic room is done with asymmetrically (pyramidal) structured foam layers placed on top of ferrite tiles.



Above: Kyutech Anechoic Chamber

Below: Edgar & Ramson preparing the satellite for the test

Set-up & Clean-up

- In one of the previous weeks, BIRDS-5 team conducted their tests in the anechoic chamber.
- Setting up the chamber and cleaning up after the tests is a very tiresome process and therefore requires a lot of manpower and teamwork.

- The entire BIRDS-5 team is directly involved in this process, divided into two.

- Team A (Ramson, Edgar, Tom, Fahd, Shoma, Kamitani & Victor) did the chamber set up.

- Team B (Edgar, Ramson, Tom, Oshiro, Bonny, Otani, Derrick & Keenan) did the clean up after the tests.

Set-up session

Clean-up session

Calibration & Testing

We used the chamber for 4 consecutive days to conduct the various tests on our UHF & VHF antennas, and UHF communication with our satellite.
The tests included;

- Antenna Tunning for UHF & VHF (S11 Parameter Measurement)
- Radiation Pattern Measuring(E & H-planes)
- UHF Transceiver Sensitivity Measurement

Ramson talks about the tests & results in his article

Calibration of the Set-up

Chamber after set-up

END

An Overview of Anechoic Chamber Results

By : Ramson

Date: 12/05/2021

Test Carried Out

- This article gives an overview of expected tests, some analysis and how the results are presented:

Test – 1 : Antenna tuning (Measuring the S11)

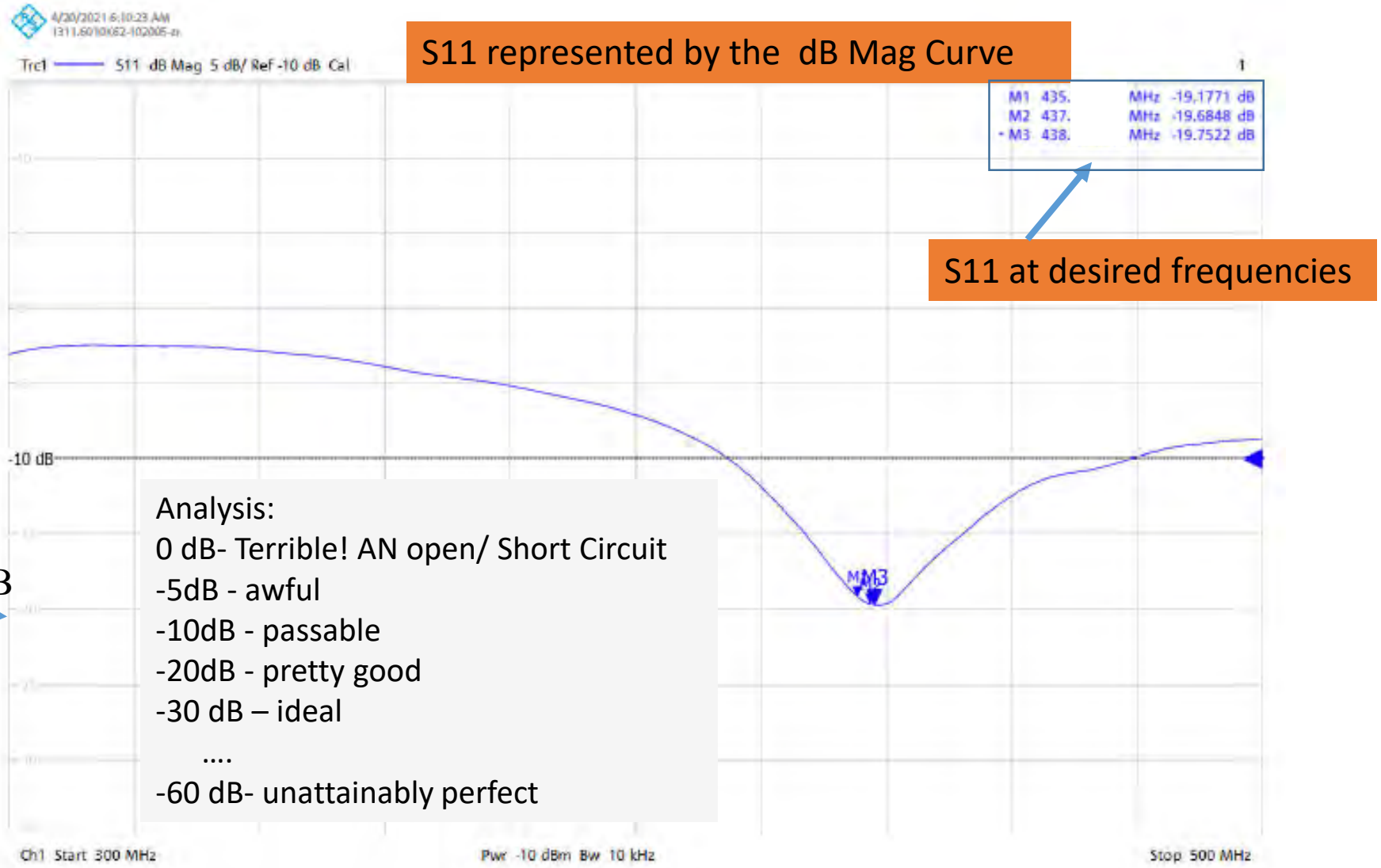
- Determining S11 parameters

Test – 2 : Measuring Dipole Antenna Radiation Pattern

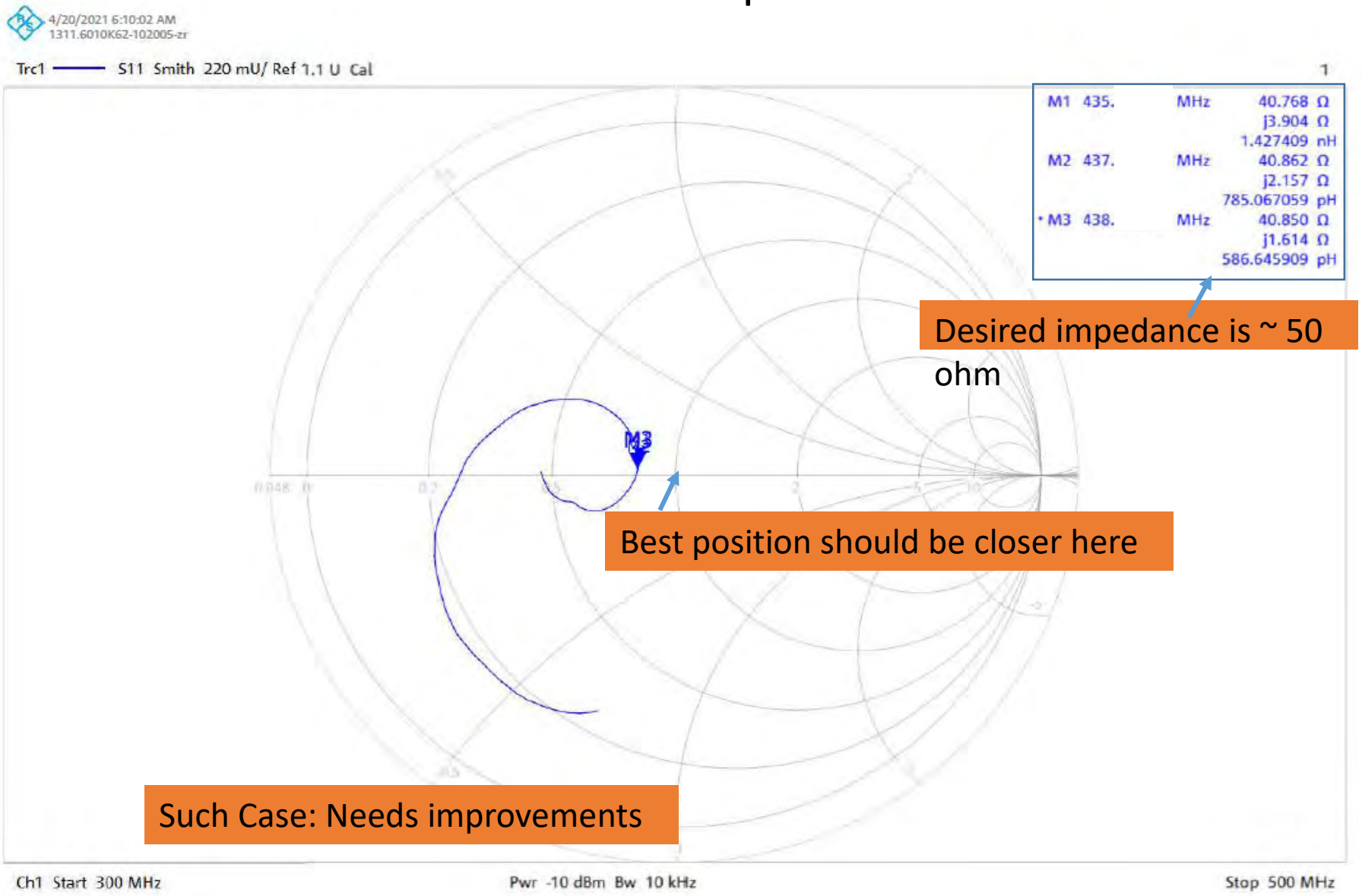
- UHF antenna pattern in
  1. E and H planes
  2. Determine the antenna gain

- Test – 3 : Measuring TRX Sensitivity with Dipole Antenna for 14Byte CMD
  - Calibration
    - Measure cable loses in Up and Downlink
    - Determine the path loss for Up and Downlink
      - Theoretical and Practical
    - Determine the gains with respect to the
      - Reference antenna, Commercial dipole antenna and Birds antenna.
  - Measure received and transmitted signal power at the antenna
  - Uplink success rate

S11 Value for UHF Dipole Antenna



S11 Smith Chart UHF Dipole Antenna



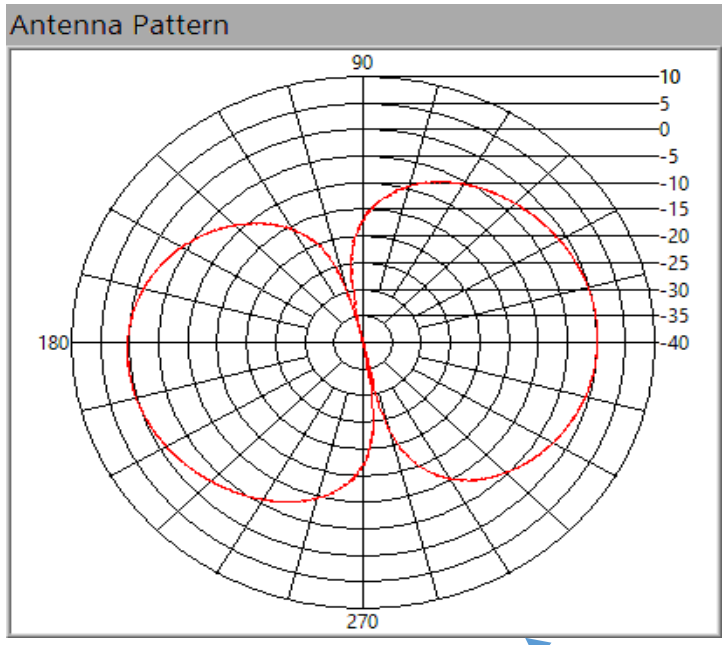
Desired impedance is ~ 50 ohm

Best position should be closer here

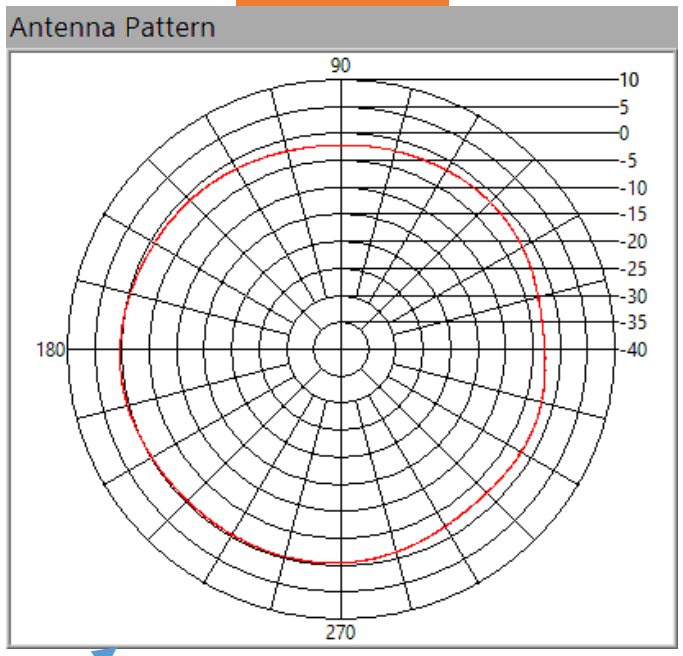
Such Case: Needs improvements

UHF Dipole Antenna Radiation Pattern

E- PLANE



H- PLANE

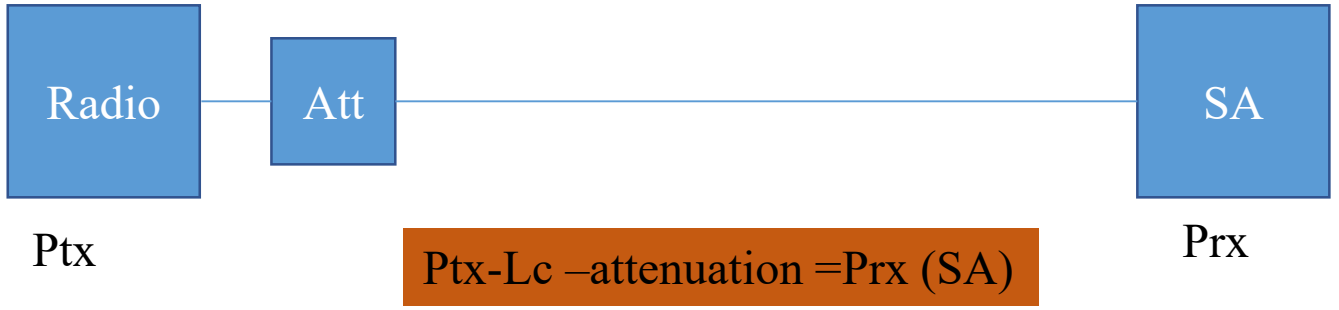


Ideal radiation patterns for E and H planes

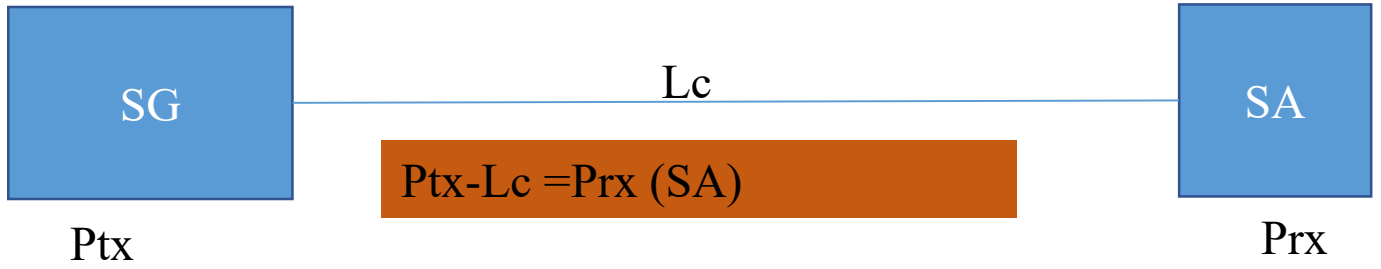
- Gains slightly above 0 dBi (values not disclosed) hence need for improvements
- Expected gains should be between: 1 to 2.2 dBi

Calibration Uplink/ Downlink

- **Radio Transmission Output**



- **Cable Losses**



Abreviations

SA: Spectrum analyser
Att: Attenuation
SG: Signal generator
Ptx: Transmitted power
Prx: Received Power
Lc: Cable losses

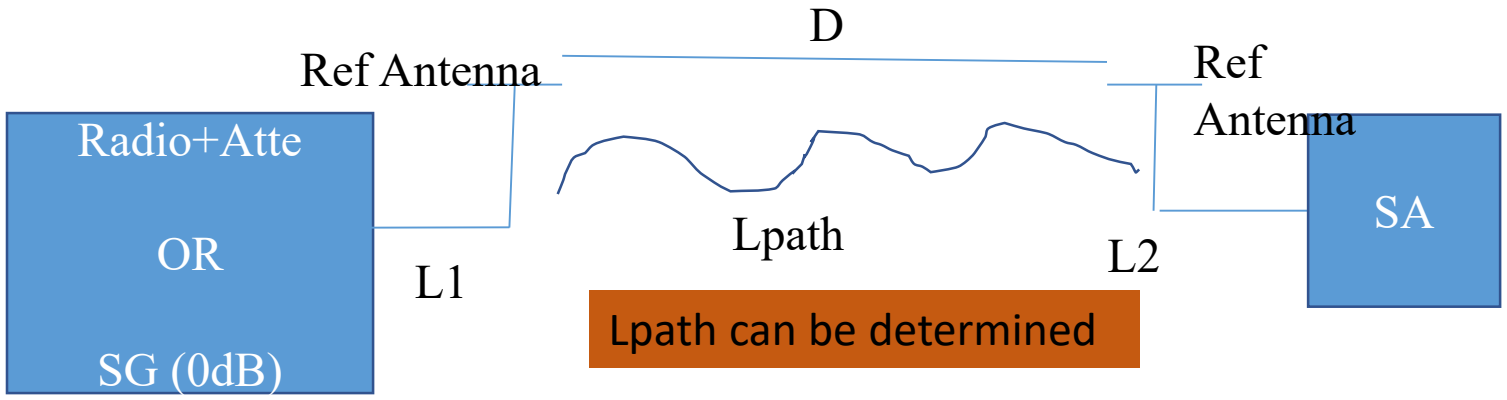
Transmitted power from the radio and cable losses can be calculated as above

Uplink

- **Path Loss**

  - Theoretical: Lpath= 20log (4*pi*D*f /c)
    where pi=3.14.., D(measured)m, f (uplink and downlink) MHz, c= 3*10^8 m/s^2

  - Practical



Testing the Antenna Gain in Uplink

Rx Antenna	Prx (dBm)	Antenna Gain
Ref Dipole Antenna with 9.9 dB attenuation	-55.7dBm	2.2 dBi (standard)
Commercial Dipole Antenna	-47.4 dBm	0.6 dBi (standard)
BIRDS Dipole Antenna	X dBm	X dBi (Not disclosed)

Measured and verified with SG setup as well as Radio setup

SA: Noise floor= -112 dBm

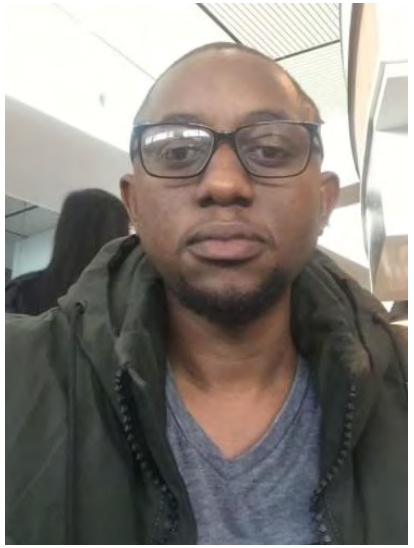
Sensitive Testing

Variable Attenuation(dB)	Total Att excluding Sat Antenna	Expected Prx using SAT Antenna	Packet Success Rate (ftx=435. MHz)
90	138	-90.6	Good
92	140	-92.6	Good
94	142	-94.6	Good
96	….	…	…..
…..	….	….	……

- Sensitivity test results can be given like in the table above
- Good: can be written in numbers
- BIRDS got a pretty good sensitivity test result

END

Attitude Visualisation



By : Timothy Kudzanayi Kuhamba

Date : 8 May 2021

Mission Statement:

The customer requires the satellite to capture the necessary data to carry out the project missions (Land Use and Cover ,Water quality using multispectral cameras).

End Users:

- Developers
- Government stakeholders
- General Public
- Education departments

Mission Scenario

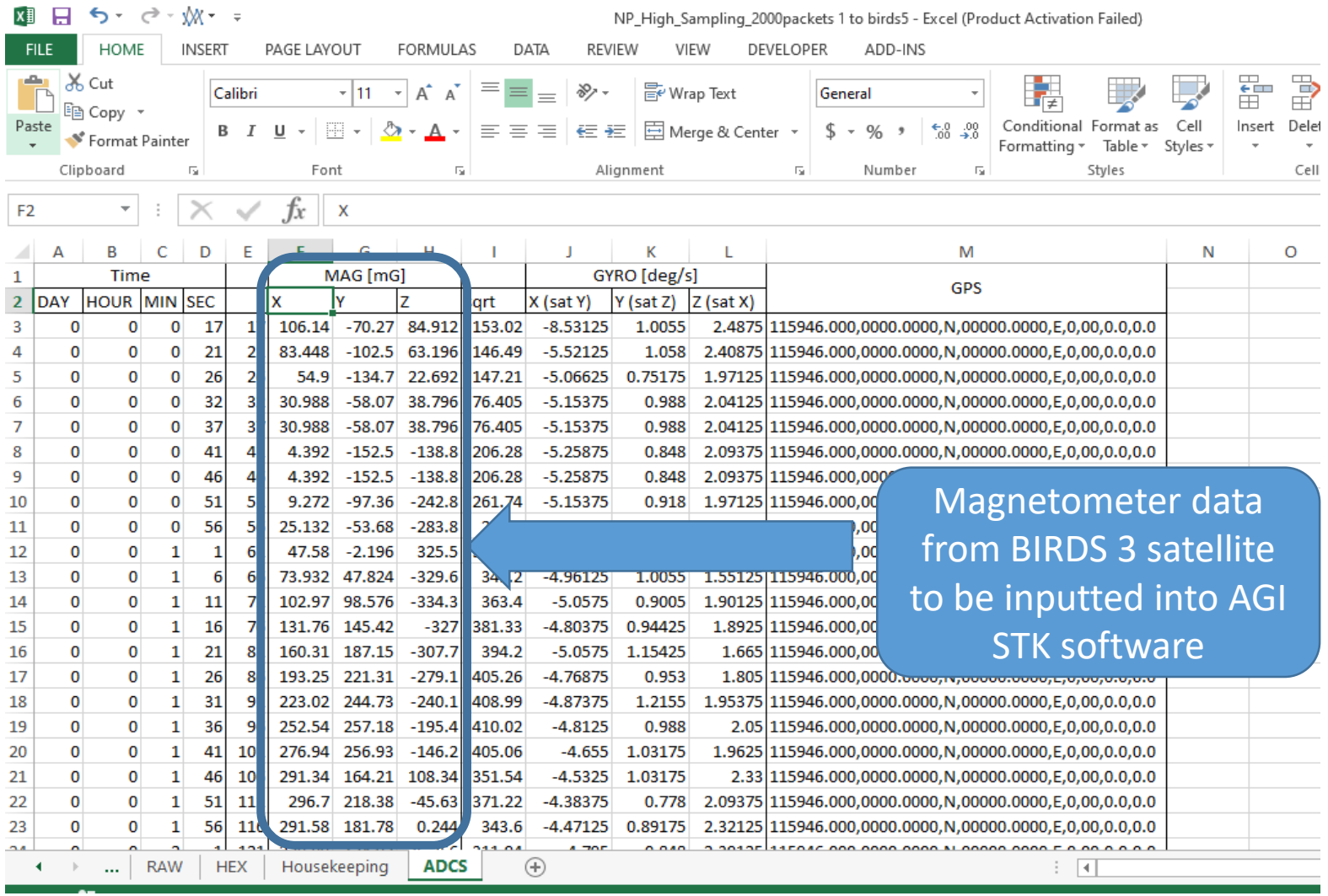
1. Swaths of the satellite to different target areas
2. Check which target areas can be covered (water quality and land cover missions)
3. Compute the access times
4. *Check the orientation of the satellite sensor before satellite passes the target*
5. *If the satellite sensor is facing to the earth*
6. Send a shutter command to the satellite when the satellite is passing the target area

Visualization

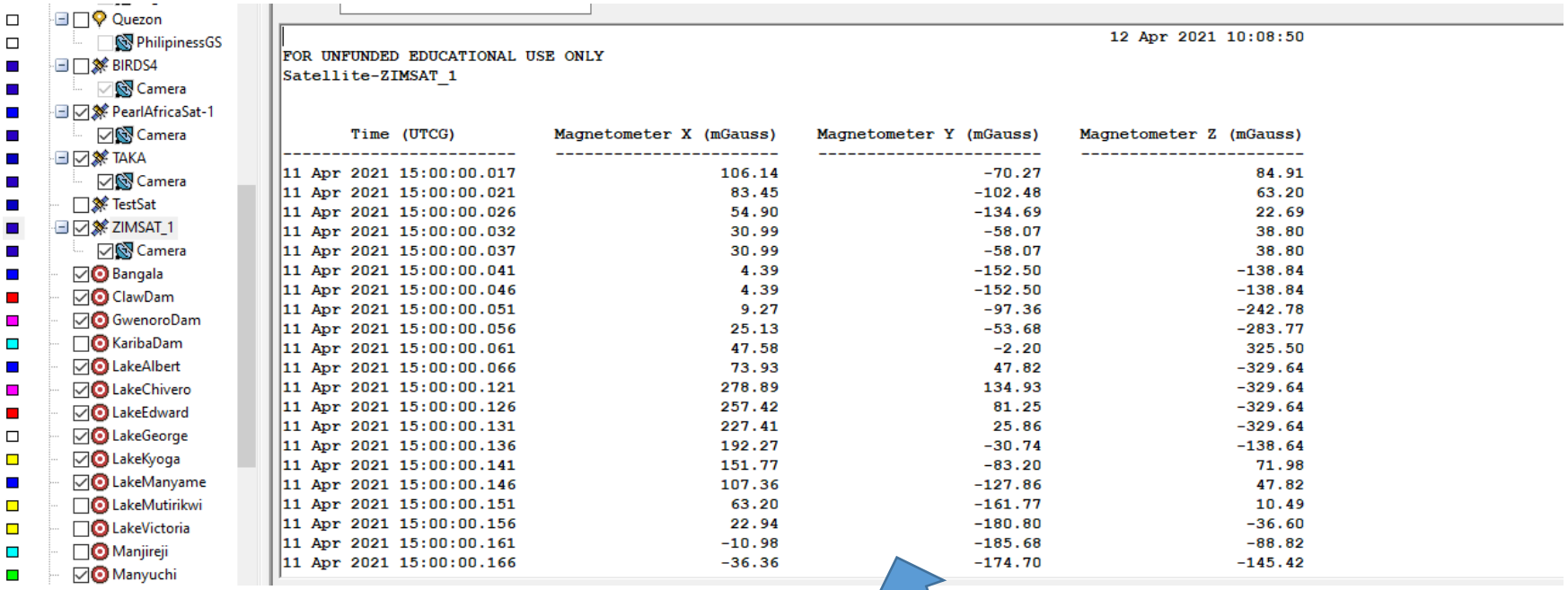
Inputs

- Moment of Inertia of Satellite
- Mass of the Satellite
- Two Line Elements
- Altitude of the Satellite
- Target Areas (Water Bodies or land areas)
- Field of View (FOV)
- Magnetometer Data

High sampling BIRDS-3 data



Magnetometer Data



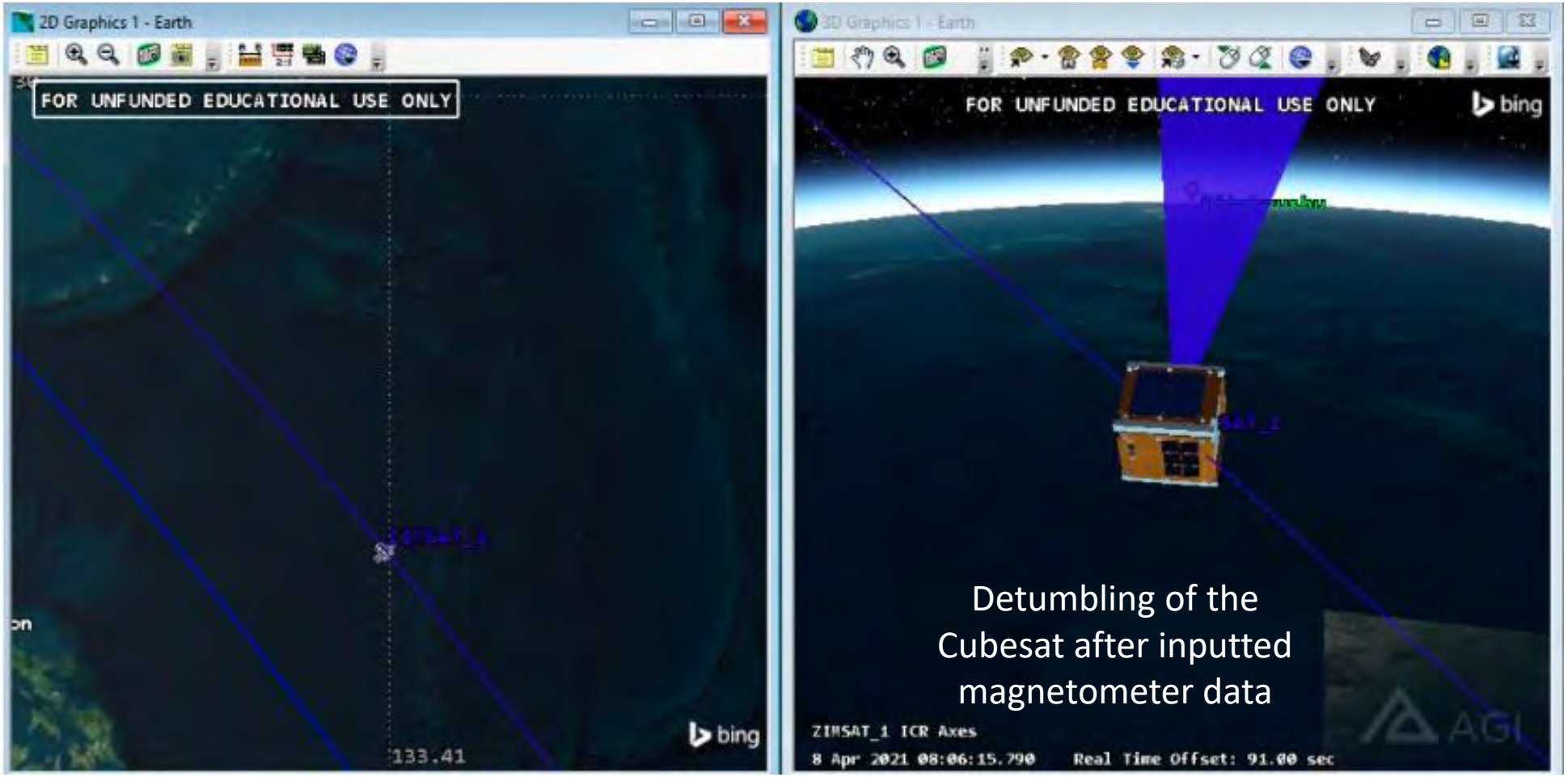
12 Apr 2021 10:08:50

FOR UNFUNDED EDUCATIONAL USE ONLY
Satellite-ZIMSAT_1

Time (UTCG)	Magnetometer X (mGauss)	Magnetometer Y (mGauss)	Magnetometer Z (mGauss)
11 Apr 2021 15:00:00.017	106.14	-70.27	84.91
11 Apr 2021 15:00:00.021	83.45	-102.48	63.20
11 Apr 2021 15:00:00.026	54.90	-134.69	22.69
11 Apr 2021 15:00:00.032	30.99	-58.07	38.80
11 Apr 2021 15:00:00.037	30.99	-58.07	38.80
11 Apr 2021 15:00:00.041	4.39	-152.50	-138.84
11 Apr 2021 15:00:00.046	4.39	-152.50	-138.84
11 Apr 2021 15:00:00.051	9.27	-97.36	-242.78
11 Apr 2021 15:00:00.056	25.13	-53.68	-283.77
11 Apr 2021 15:00:00.061	47.58	-2.20	325.50
11 Apr 2021 15:00:00.066	73.93	47.82	-329.64
11 Apr 2021 15:00:00.121	278.89	134.93	-329.64
11 Apr 2021 15:00:00.126	257.42	81.25	-329.64
11 Apr 2021 15:00:00.131	227.41	25.86	-329.64
11 Apr 2021 15:00:00.136	192.27	-30.74	-138.64
11 Apr 2021 15:00:00.141	151.77	-83.20	71.98
11 Apr 2021 15:00:00.146	107.36	-127.86	47.82
11 Apr 2021 15:00:00.151	63.20	-161.77	10.49
11 Apr 2021 15:00:00.156	22.94	-180.80	-36.60
11 Apr 2021 15:00:00.161	-10.98	-185.68	-88.82
11 Apr 2021 15:00:00.166	-36.36	-174.70	-145.42

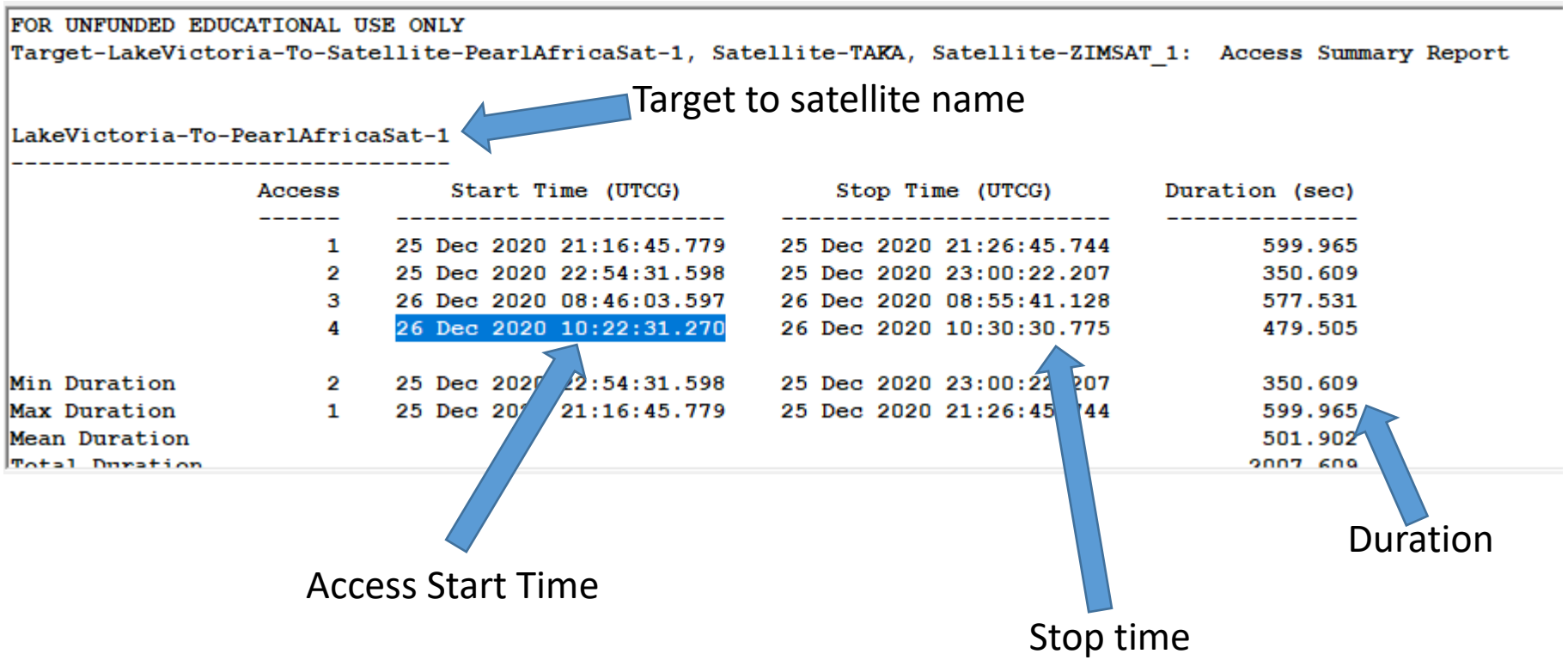
Magnetometer data inputted into AGI STK

Detumbling of CubeSat



Detumbling of the Cubesat after inputted magnetometer data

Computed Access times

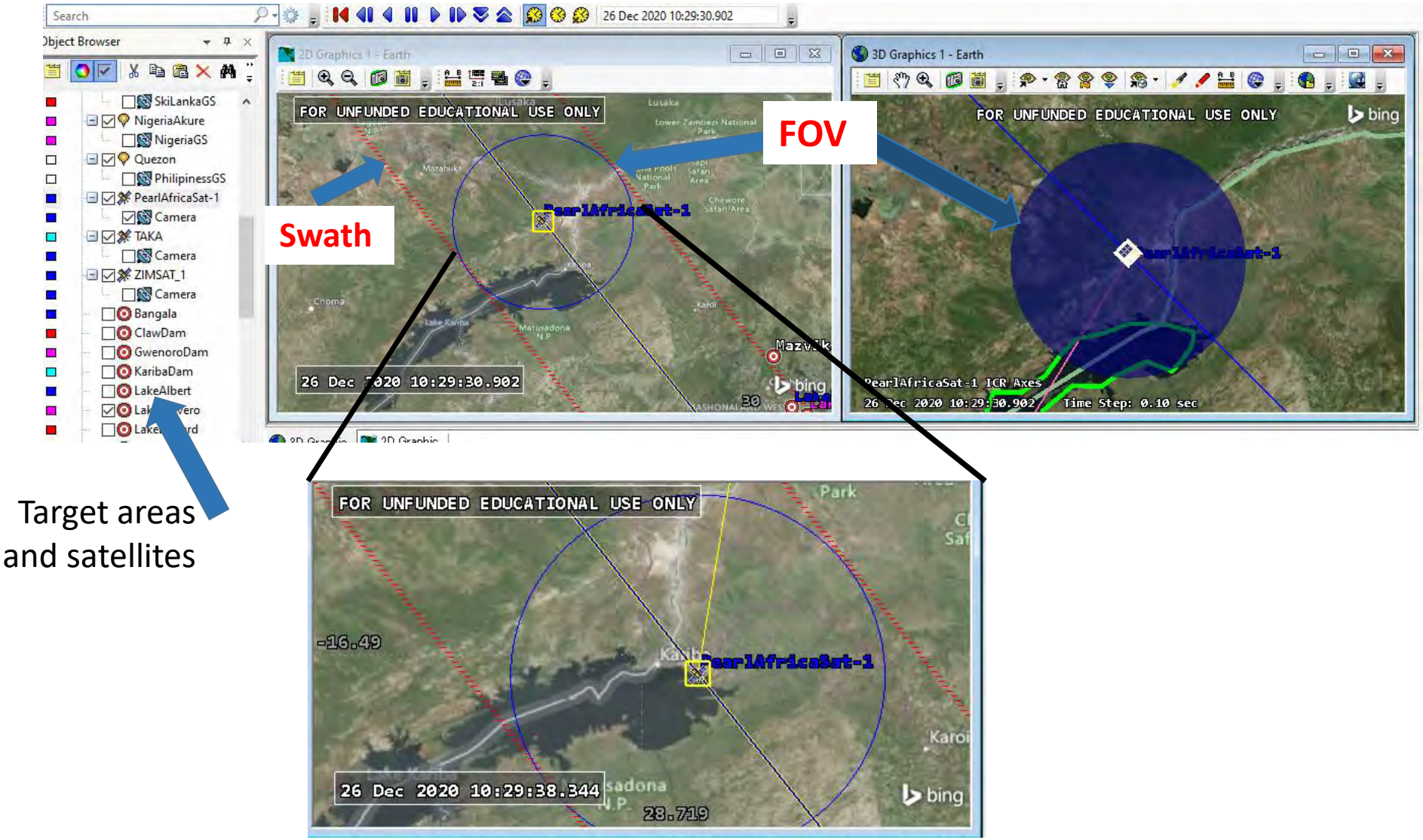


FOR UNFUNDED EDUCATIONAL USE ONLY
Target-LakeVictoria-To-Satellite-PearlAfricaSat-1, Satellite-TAKA, Satellite-ZIMSAT_1: Access Summary Report

LakeVictoria-To-PearlAfricaSat-1

	Access	Start Time (UTCG)	Stop Time (UTCG)	Duration (sec)
	1	25 Dec 2020 21:16:45.779	25 Dec 2020 21:26:45.744	599.965
	2	25 Dec 2020 22:54:31.598	25 Dec 2020 23:00:22.207	350.609
	3	26 Dec 2020 08:46:03.597	26 Dec 2020 08:55:41.128	577.531
	4	26 Dec 2020 10:22:31.270	26 Dec 2020 10:30:30.775	479.505
Min Duration	2	25 Dec 2020 22:54:31.598	25 Dec 2020 23:00:22 207	350.609
Max Duration	1	25 Dec 20 21:16:45.779	25 Dec 2020 21:26:45 744	599.965
Mean Duration				501.902
Total Duration				2007.609

ADCS Visualization



Success Levels

END

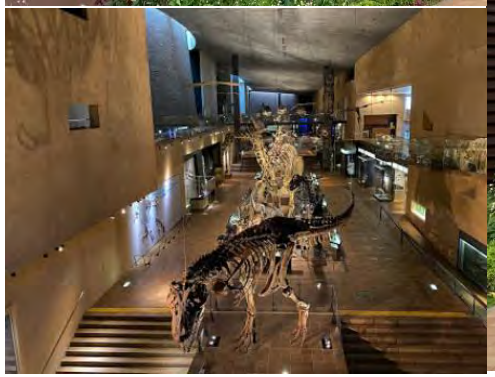
Success Levels	Criterion
Minimum	• To design satellites into correct orbit and be able to visualize areas on map • Simulate the access times for the specific target areas and also ground station networks (water bodies) and land use
Medium	• Visualize the satellite Field of View (FOV) before and after passing the target areas • Load input user data (magnetometer and simulate access for the satellite) • Capturing the target of interest within 500m range
Full	• Capturing the target of interest within 100m range • Write a paper about the performances of the Visualization software
Extra	• To visualize that the camera is pointing downward or not before capturing a target

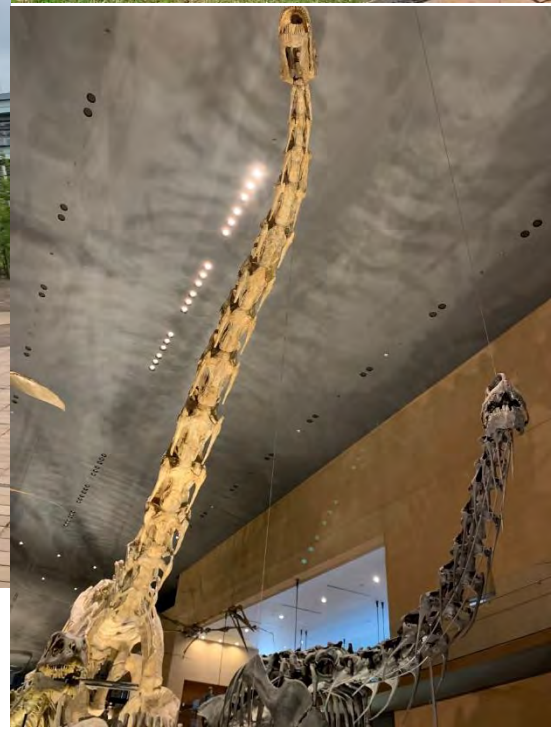
Museum tour during Golden Week

OMARA Bonny

May 8, 2021

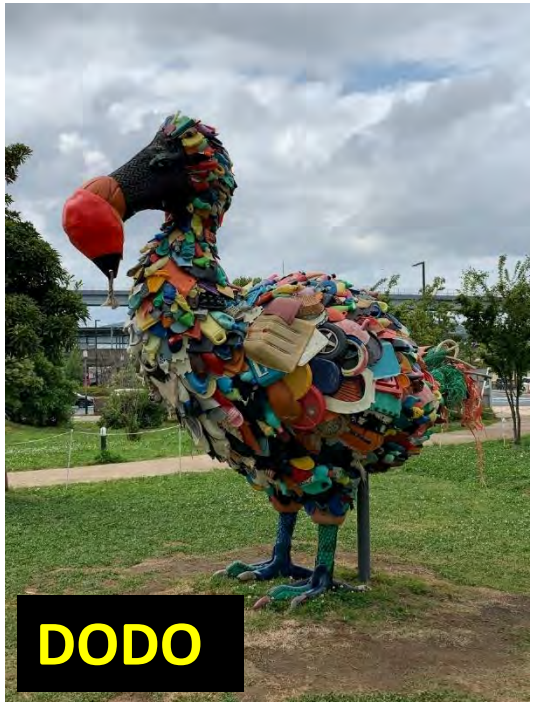
Kitakyushu Museum of Natural & Human History



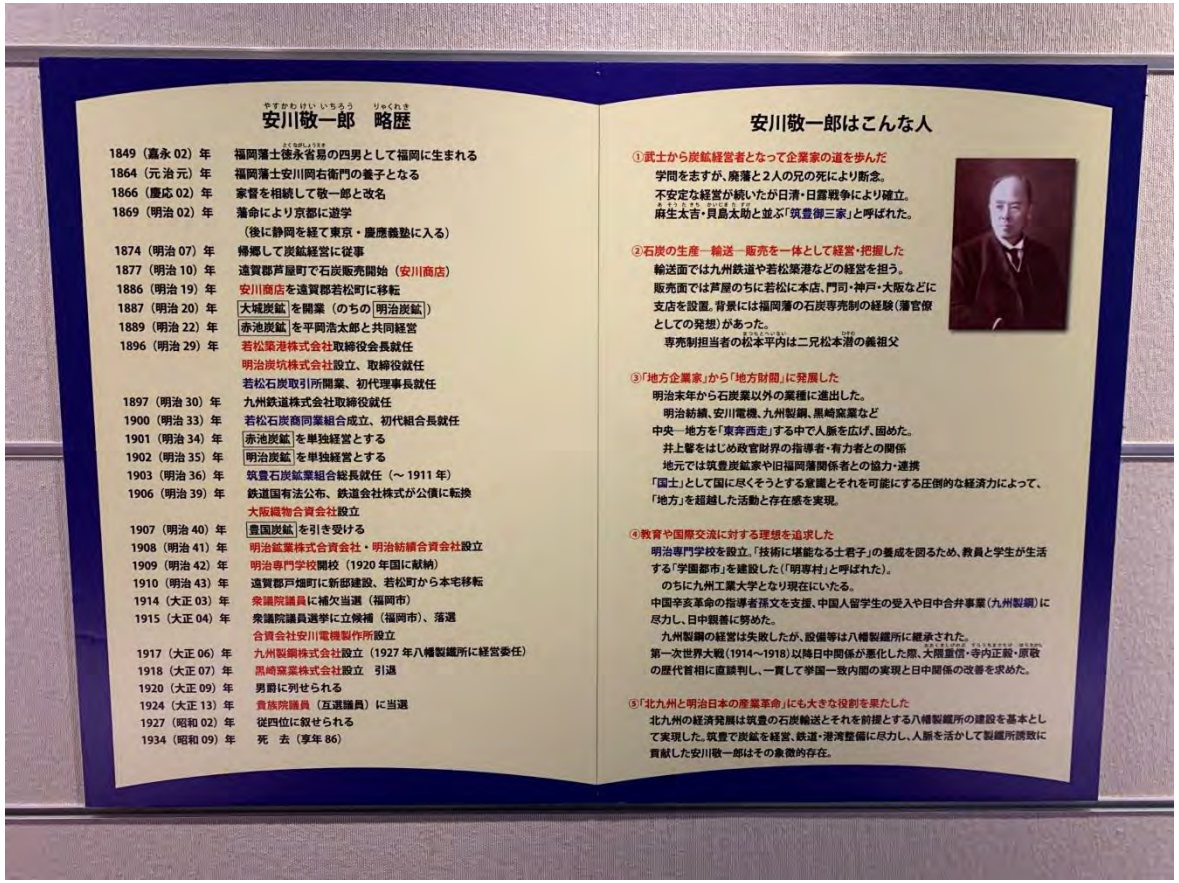


Diverse museum that exhibits topics such as dinosaurs, archeology & local culture.

Histories that you would want to know!



This symbolizes the promotion of the SDGs (sustainable development goals). Reproducing the animal called ‘dodo’ with daily waste that we can find nowadays in our oceans



安川敬一郎　略歴

1849（嘉永 02）年	福岡藩士徳永省易の四男として福岡に生まれる
1864（元治 元）年	福岡藩士安川岡右衛門の養子となる
1866（慶応 02）年	家督を相続して敬一郎と改名
1869（明治 02）年	藩命により京都に遊学 （後に静岡を経て東京・慶應義塾に入る）
1874（明治 07）年	帰郷して炭鉱経営に従事
1877（明治 10）年	遠賀郡芦屋町で石炭販売開始（安川商店）
1886（明治 19）年	安川商店を遠賀郡若松町に移転
1887（明治 20）年	大城炭鉱を開業（のちの明治炭鉱）
1889（明治 22）年	赤池炭鉱を平岡浩太郎と共同経営
1896（明治 29）年	若松築港株式会社取締役会長就任 明治炭坑株式会社設立、取締役就任 若松石炭取引所開業、初代理事長就任
1897（明治 30）年	九州鉄道株式会社取締役就任
1900（明治 33）年	若松石炭商同業組合成立、初代組合長就任
1901（明治 34）年	赤池炭鉱を単独経営とする
1902（明治 35）年	明治炭鉱を単独経営とする
1903（明治 36）年	筑豊石炭鉱業組合総長就任（～ 1911 年）
1906（明治 39）年	鉄道国有法公布、鉄道会社株式が公債に転換 大阪織物合資会社設立
1907（明治 40）年	豊国炭鉱を引き受ける
1908（明治 41）年	明治鉱業株式合資会社・明治紡績合資会社設立
1909（明治 42）年	明治専門学校開校（1920 年国に献納）
1910（明治 43）年	遠賀郡戸畑町に新部建設、若松町から本宅移転
1914（大正 03）年	衆議院議員に補欠当選（福岡市）
1915（大正 04）年	衆議院議員選挙に立候補（福岡市）、落選 合資会社安川電機製作所設立
1917（大正 06）年	九州製鋼株式会社設立（1927 年八幡製鐵所に経営委任）
1918（大正 07）年	黒崎窯業株式会社設立　引退
1920（大正 09）年	男爵に列せられる
1924（大正 13）年	貴族院議員（互選議員）に当選
1927（昭和 02）年	従四位に叙せられる
1934（昭和 09）年	死　去（享年 86）

安川敬一郎はこんな人

①武士から炭鉱経営者となって企業家の道を歩んだ
学問を志すが、廃藩と2人の兄の死により断念。
不安定な経営が続いたが日清・日露戦争により確立。
麻生太吉・貝島太助と並ぶ「筑豊御三家」と呼ばれた。

②石炭の生産―輸送―販売を一体として経営・把握した
輸送面では九州鉄道や若松築港などの経営を担う。
販売面では芦屋のちに若松に本店、門司・神戸・大阪などに支店を設置。背景には福岡藩の石炭専売制の経験（藩官僚としての発想）があった。
専売制担当者の松本平内は二兄松本潜の義祖父

③「地方企業家」から「地方財閥」に発展した
明治末年から石炭業以外の業種に進出した。
明治紡績、安川電機、九州製鋼、黒崎窯業など
中央―地方を「東奔西走」する中で人脈を広げ、固めた。
井上馨をはじめ政官財界の指導者・有力者との関係
地元では筑豊炭鉱家や旧福岡藩関係者との協力・連携
「国士」として国に尽くそうとする意識とそれを可能にする圧倒的な経済力によって、「地方」を超越した活動と存在感を実現。

④教育や国際交流に対する理想を追求した
明治専門学校を設立、「技術に堪能なる士君子」の養成を図るため、教員と学生が生活する「学園都市」を建設した（「明専村」と呼ばれた）。
のちに九州工業大学となり現在にいたる。
中国辛亥革命の指導者孫文を支援、中国人留学生の受入や日中合弁事業（九州製鋼）に尽力し、日中親善に努めた。
九州製鋼の経営は失敗したが、設備等は八幡製鐵所に継承された。
第一次世界大戦（1914～1918）以降日中関係が悪化した際、大隈重信・寺内正毅・原敬の歴代首相に直談判し、一貫して挙国一致内閣の実現と日中関係の改善を求めた。

⑤「北九州と明治日本の産業革命」にも大きな役割を果たした
北九州の経済発展は筑豊の石炭輸送とそれを前提とする八幡製鐵所の建設を基本として実現した。筑豊で炭鉱を経営、鉄道・港湾整備に尽力し、人脈を活かして製鐵所誘致に貢献した安川敬一郎はその象徴的存在。

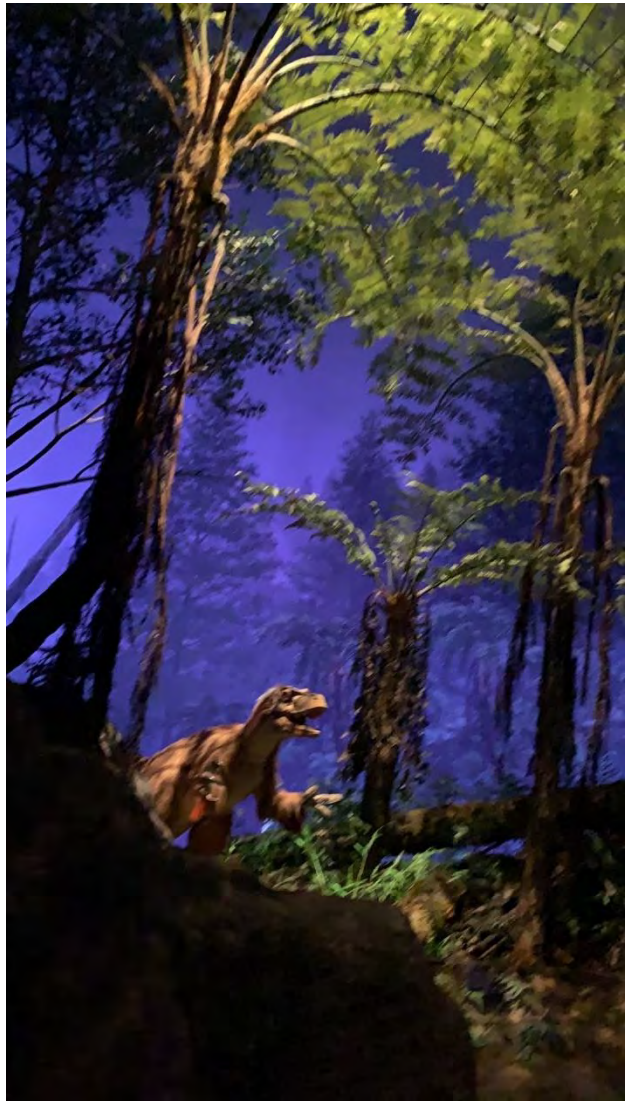
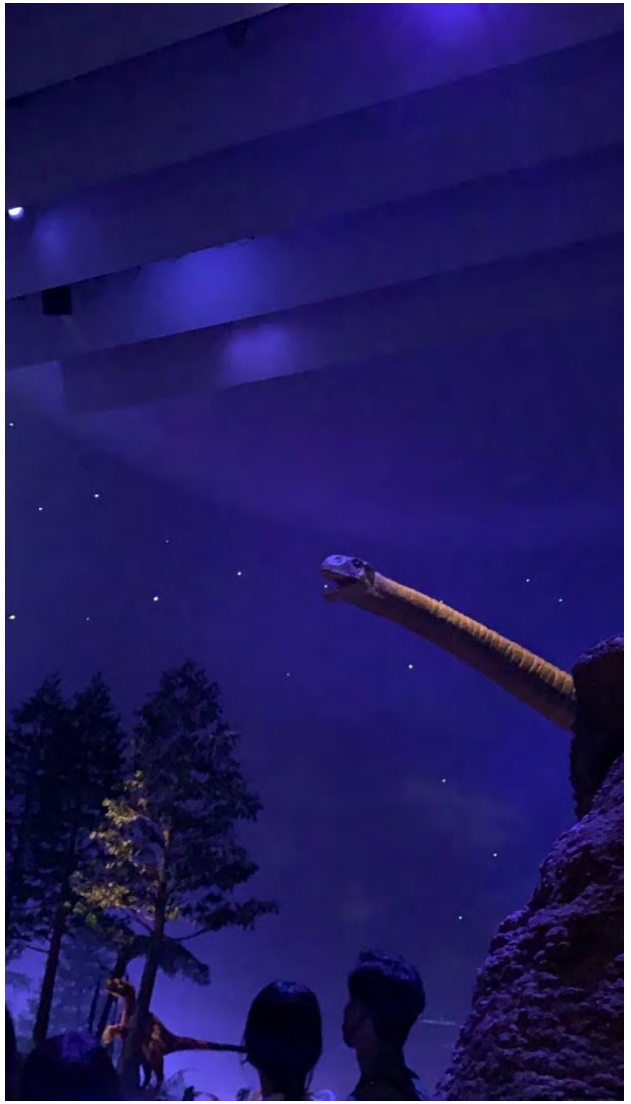
This is an exhibition about Mr. Yaskawa who doubled as the founder of Yaskawa Electric and of our university (Kyushu Institute of Technology -- formerly named Meiji Senmon Gakko)

The biggest Moon Rock exhibited in Japan

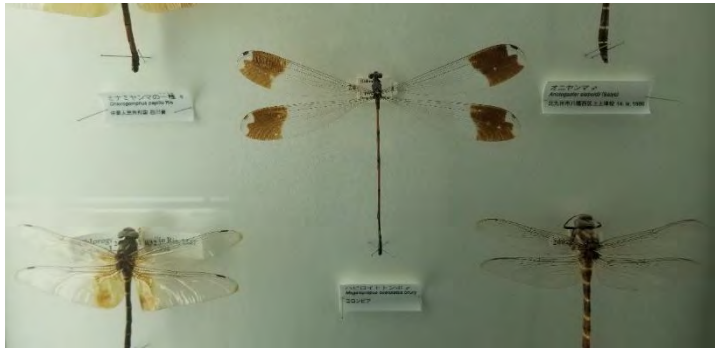
Not only serves merely information about the past, prehistoric period, it has the live attraction movie-like except it has the robot that similar the real dinosaurs about how dinosaurs live in the past, although the explanation given in Japanese, I was astonished by how they managed to make the visitors get the insights.

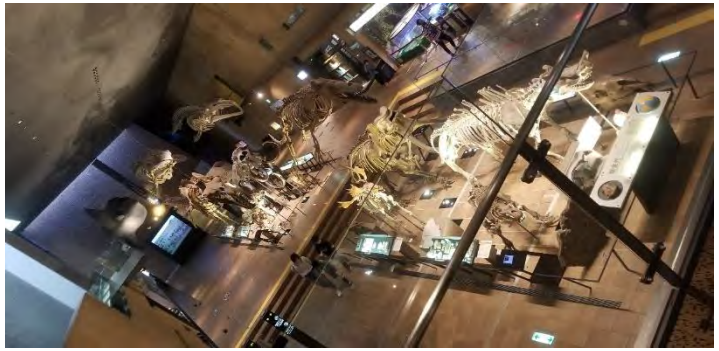
Robotic dinosaur's movie clips



Other exhibits, for discovery





END

Tanga Table English Cafe

By: Keenan Chatar

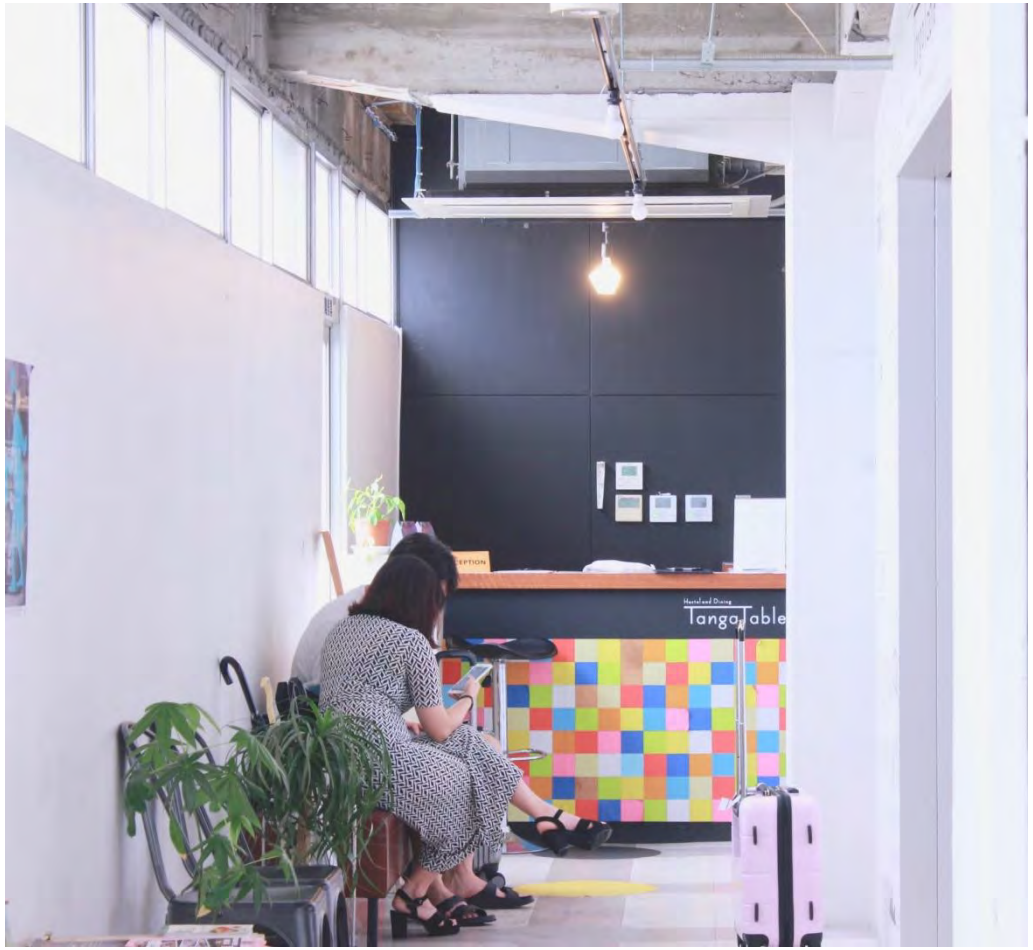
09/May/2021

- Event to meet and chat in English
- For foreigners to interact with Japanese locals who want to speak in English!
- Make friends and share stories

- The idea of “Tanga Table” was born from the desire to showcase the attractive aspects of Kitakyushu City to travelers.

- Tanga Table is a hostel and restaurant that offers “modernized local food of Kitakyushu”

- Located by Tanga Market, one of the best markets in Japan



Tanga Table
Source: https://tangatable.jp/en/

- Meeting and interacting with people from all over the world

- Follow them on social media to see their schedule

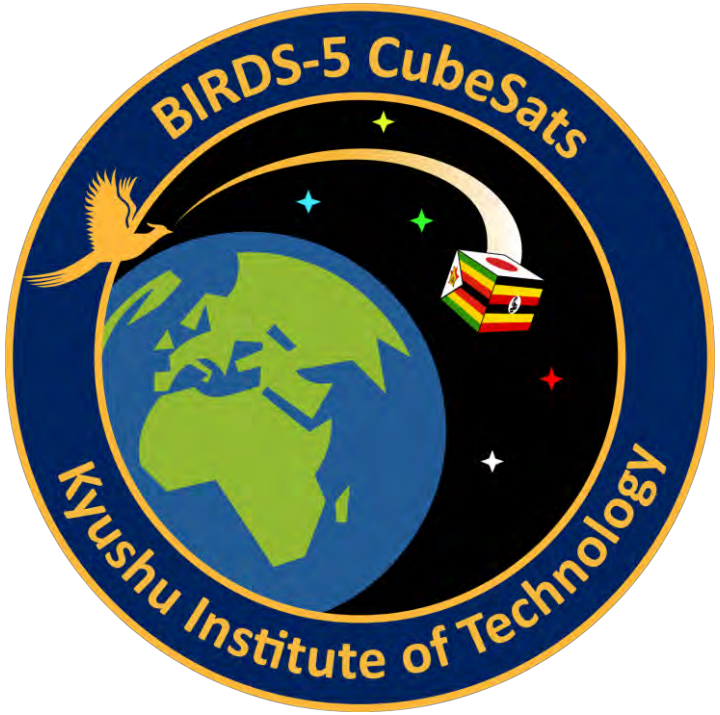
- Instagram: https://www.instagram.com/englishcafekitaq/

- Facebook: https://www.facebook.com/Englishcafekitaq/

END

End of BIRDS-5 reports for this month.

Thanks to Fahd for the compilation work.
- Editor



25. Kyutech researcher participated in online info event between Japan and Mexico

On 18 May 2021, Kyutech researcher Dr. Rodrigo Cordova participated in this Japan-Mexican informational event online.

According to him, 139 persons attended this online event.

J-CSTP KIT

J-CSTP KIT

J-CANSAT KIT Renta ($100usd + Tax)

Los participantes pueden rentar el kit por la duración del taller técnico. El kit será enviado a los participantes previo al taller y deberá ser devuelto 5 días después de la finalización del programa.

Requisitos

Candidatos con fuerte interés en la tecnología espacial y con una gran motivación para ampliar sus conocimientos de diversos temas relacionados con los subsistemas satelitales y tecnologías emergentes son bienvenidos a aplicar.

* Tener computadora personal * Mínimo de edad: 15 años

MORE INFO HERE:
www.mirai-innovation-lab.com/j-cstp/

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26. “S-Booster 2021” deadline has been extended

+----------+

3. ”S-Booster 2021" extended deadline for your business idea proposal!

+----------+

Space-based business idea contest "S-Booster 2021" hosted by the Cabinet Office, Government of Japan, is now accepting space business ideas from Asia-Oceania regions. S-Booster is a contest to solicit ideas for new space-based businesses from people who aim to launch new projects in their companies or start new businesses. 10 million Japanese Yen (Around 92,600 USD, at 108 JPY to the dollar) will be awarded to the Grand Prize winner!

The application deadline for “S-Booster 2021” has been extended from [5pm on Thursday, May 20, 2021 (JST)] to [5pm on Monday, May 31, 2021 (JST)]. *“S-Booster 2021” is waiting for your application!*

Hosted by:

Cabinet Office

There are a series of “S-Booster” related webinar archives and online lectures available on S-Booster YouTube channel which you might find helpful.
https://www.youtube.com/channel/UCkp0Se3C5OSX9tGQD4IiZ9w

Please visit “S-Booster 2021” website for more details.
https://s-booster.jp/en/2021/

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This newsletter is archived at the BIRDS Project website:
http://birds1.birds-project.com/newsletter.html

When a new issue is entered in to the archive, an email message is sent out over a mailing list maintained by the Editor (G. Maeda, Kyutech). If you wish to be on this mailing list, or know persons who might be interested in getting notification of issue releases, please let me know.

This newsletter is issued once per month. The main purpose of it is to keep BIRDS stakeholders (the owners of the satellites) informed of project developments.