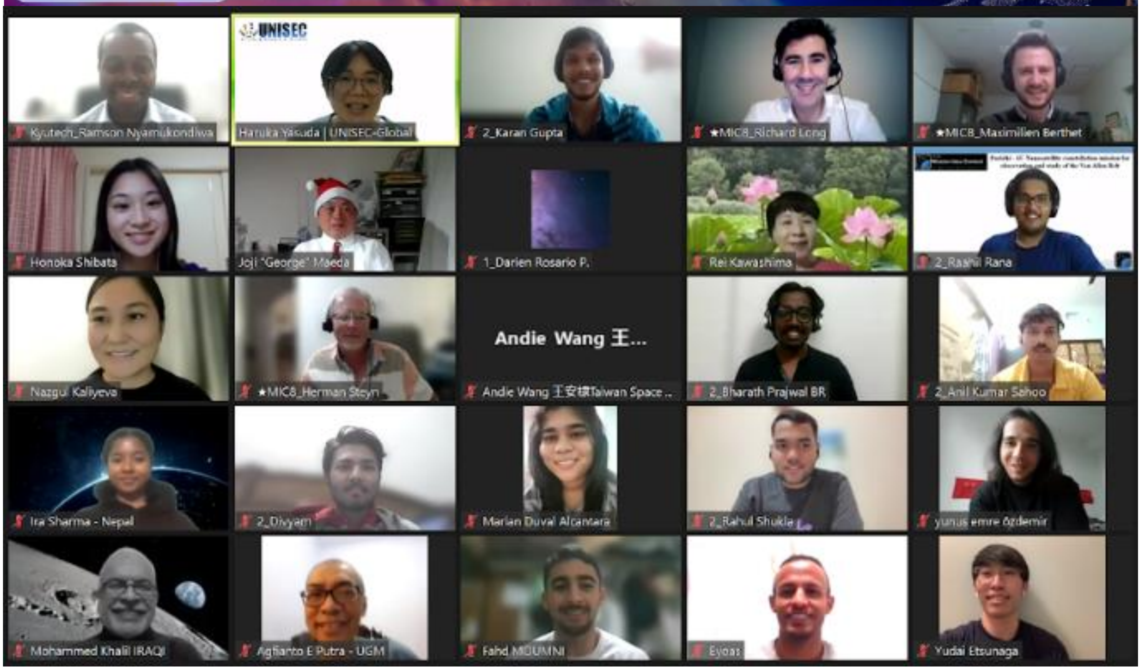
UNISEC-Global The 39th Virtual Meeting

December 16th, 2023, 22:00-24:00
(Standard Japan time GMT +9)



The following report was prepared by UNISEC-Global Secretariat
December 16th, 2023
Japan

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1. Opening Remarks

Paolo Marzioli, University of Sapienza Rome

Dr. Paolo Marzioli received his PhD in Aeronautical and Space Engineering at University of Sapienza Rome in 2021, with a thesis based on nano-satellite navigation systems. He belongs to the S5Lab Research Group, where he participated in the development of four nano-satellites and three stratospheric payloads, as of 2022. He coordinated several student projects in space systems development for different international programs. He is an Assistant Professor at Aerospace Systems at the Department of Mechanical and Aerospace Engineering (DIMA) at the Sapienza University of Rome, where he teaches "Spacecraft Design" and "Aircraft Systems" with shared credit. His research topics are related to small space systems development, navigation and tracking systems for novel aerospace mission profiles and concepts, Space Traffic Management, and space debris identification and tracking. Until he was a doctoral student, he was a student representative for UNISEC-Italy.

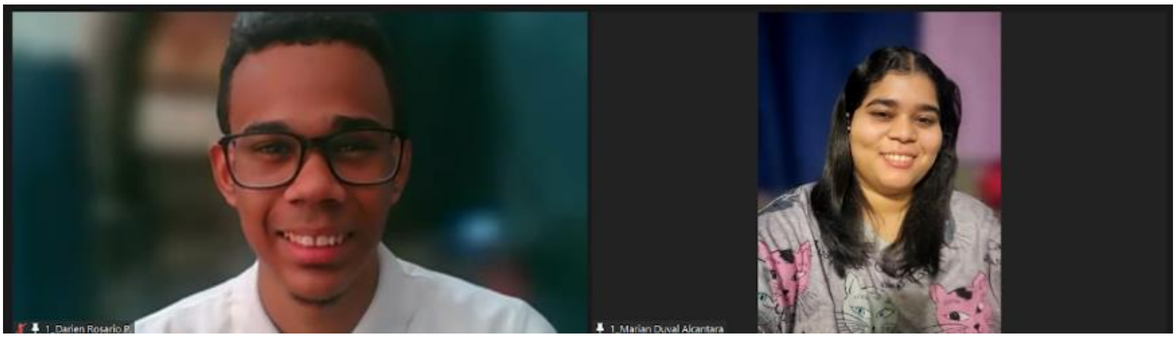
Pictured: Dr. Marzioli giving the opening remarks

Highlights:

- Presentation of MIC8 finalists and a CLTP12 Briefing
- Also talked about why participation in UNISEC Global is important based on his personal experience
- He personally has had a history of growing with UNISEC during his academic career
- Won second prize at the pre-MIC5 meeting in the testing of tomato in orbit cultivation
- Continued being a student representative and mentored other people
- Joined 2022 meeting when appointed UNISEC co-point of contact from Italy
- What he has learned about UNISEC is international partnerships in the field of aerospace engineering
- Through this platform, he learned many lessons through the experiences of training and mentorship
- **Advice to participate**
    - Involve oneself then teams
    - Share projects with others and contribute
    - Push limits further and be best than what we are

2. MIC8 Semi-Finalist Presentation and Q&A (1)

Marian Duval and Darien Rosario, Universidad Acción Pro-Educación y Cultura


Pictured: Marian and Darien during their presentation

Highlights:

- The team's project is a 3U CubeSat constellation mission for Sargassum monitoring
- **Sargassum is a type of seaweed that has been impacting the South American community**
- Sargassum contributes to climate change and pollution
- Foul smell and its appearance affect tourism, aqua ecosystem, health of locals in the coastal
- Solution lies in utilizing technology to predict and combat sargassum, CubeSats is useful here
- **Mission Objective is to:**
    - predict the arrival of sargassum, research health impact of emission, analyze environmental change
- Phase 0: constructing 3U with respective propulsion systems
- Phase 1: Sending the CubeSat constellation to space aiming to launch in 2028 aiming for 400 km orbit
- Phase 2: Data acquisition by monitoring sargassum at 6-hour intervals
- Phase 3: Data transfer through 9600 bits per second hot duplex UHF radio with a monopole UHF loop antenna
- Phase 4: Descend through the Integrated propulsion system and Timely Satellite Replacement
- Satellite Sargassum Spectrum range of 242 to 664 nm allows to learn about different types of sargassum
- Data streams include satellite imagery, scenography and technological data.
- Structural Design is a 4kg CubeSat with 30x10x10 cm dimensions, 3000 cm² volume, uses PM200 Propulsion
- Power of the solar cells will be halted for 38/100 minutes due to the Solar eclipse
- Generates 6 watts per hour power
- For the specific orbit, requires delta-v from 400km orbit to a 750km orbit at 186.1686 m/s
- Sargasso seas cover up 5.2 million km² while the satellite covers more than 8 million km²
- The mission uses the Walker Delta pattern
- Support from Ministries of Environment, Higher Education, Science & Technology, Energy and Tourism
- A team of 10 people working
- Total estimated costs of 397,731.87 dollars plus extra 30% taxes - total cost
- A total of 108 months dedicated to the project from Oct 2023 to Oct 2032
- Challenges are financial limitations, space debris, solar flares, component lifespan, and transition to the ISS

Q&A:

Herman Steyn: It is not clear to me what is planned to be used as an IDC for this mission. The propulsion system is also not clear if it can supply enough delta v. Do you change the orbit from 1 to 400 km to 750 km and then also do the plane changes because it seems you want 3 planes for this mission? Can they just comment on the propulsion system as well as the IDCs they plan to fly?

Maximilien Berthet: Any comments, team members?

Darien Rosario P: Yes, we have discussed about the propulsion system. We have researched and tried to simulate possible outcomes. It is going to be a little bit complicated with our mission and the three planes for the work of the constellation. We have a little bit of a problem in the area and we apologize for that

Maximilien Berthet: **I think, Professor Steyn's second question was about attitude control. How do you keep the satellite pointing?**

Darien Rosario P: Yes, we will use an array of sensors. Sun Sensors that always point at the sun. And we will basically have 92 controller sensors that will correct the position of the satellite in the orbit. We did not describe in the presentation because we didn't have the time to develop that idea but the general idea is to use Sun sensors to position our satellite and correct the position of the satellite using those sensors.

Herman Steyn: And what about the actuators? You are talking about the Sun Sensors and the attitude control. What type of actuators do you plan to use?

Maximilien Berthet: I think Professor Steyn's question is about actuators versus sensors. Sensors can detect where the satellite is pointing whereas the actuators can be used to change the orientation.

Darien Rosario P: Can you repeat the question?

Herman Steyn: I am just saying that you are telling us about the sensors to detect the attitude and orientation of the satellite but to maintain that orientation, especially when you do propulsion maneuvers, propulsion firing, you want to maintain a certain orientational attitude. What type of actuators do you plan to use for maintaining that attitude?

Maximilien Berthet: Darien or Marian, any comments? Maybe it is something that is still in the draft stage?

Marian Duval Alcantara: Sure, Sure. We are planning to use the data gathered from the sensors and use the thrusters in order to maneuver the CubeSat. So, in case the direction of the antenna changes slightly by solar wind or any space debris, we just can adjust it automatically with the programming on the onboard computer using the thrusters, of course.

Herman Steyn: Does your thrusters have more than one thrust and nozzle or only one thrust and nozzle? How does the thrust system look like? I am not familiar with the PM200 thrust system. Is it more than one thruster nozzle or only a single thruster nozzle?

Marian Duval Alcantara: It is just a single thruster and depending on the position that is to be modified, it will vary its intensity because you know, it works like sending impulses to maneuver the CubeSat. So, based on that, the thruster we have alters its intensity and it will be changing direction accordingly.

Herman Steyn: Okay, so if you have a single nozzle thruster, you can thrust it in a certain direction, to change the position of the satellite or the orbit of the satellite but you will not be able to control the orientation of the satellite around the 3-axis: X, Y and Z axis. For that, you need to generate a taught around the X-axis, to roll the satellite around the Y-axis, and to pitch the satellite around the Z-axis. So, you need more than one thruster to generate enough thrust in a certain direction to generate a specific thrust. So, a single nozzle thrust will not do that for you. So, I think you need to look into the attitude control system a little bit more in detail to determine what kind of actuator, like reaction wheels, or magnetorquers, you guys are going to use for changing the attitude of the satellite.

Marian Duval Alcantara: Yes sir, we were planning actually to play with the Earth's magnetic field. It goes off since we are trying to be as most cost-effective as possible. So, I don't know if my friend provided this explanation while explaining the guidance navigation and control system but yes, we are planning to play with the Earth's magnetic field.

Herman Steyn: Okay, so you are planning to use magnetorquers, torque coils, or torque rods? You interact with as a magnetic field?

Marian Duval Alcantara: Yes, that was on the plan. To use also some sensors and magnetorquers as well to play with the magnetic field.

Herman Steyn: That also has its limitations but you need to investigate a bit more about the attitude control. Attitude sensing is fine but on the attitude control side, you need to look a bit more detail into that

Marian Duval Alcantara: Yes, sir.

Maximilien Berthet: Yes, Thank you. I think that is very useful advice and I echo Professor Steyn's comments.

Richard Long: Thank you very much for the presentation and it was a very interesting and important topic, as I can see. My question again follows a little bit from Professor Steyn's question relating to your Delta V. So, if I understand well, you propose to dispose of the spacecraft into a geostationary graveyard orbit. And I wonder if you could just clarify that because I think your delta V requirements might be beyond the capacity of the propulsion system you have selected. You mentioned that the spacecraft will be operated continuously until they disintegrate at 80 kilometers. So perhaps, are you doing some kind of error-breaking lowering the perjury to dispose of the spacecraft or do you actually intend to take it out to a geostationary graveyard orbit?

Maximilien Berthet: Any reaction from the team?

Darian Rosario P: Yes, our first idea was to put the satellite in the graveyard orbit basically, using the propulsion model. The required Delta V calculated in the presentation was to put the satellite in orbit. But, we missed to put the required delta V to put it in the second orbit at 36,000 km in the work. So, I apologize for the misconception. It is just to put it in the orbit of operation.

Richard Long: I see, yeah. So, I think you might struggle with the propulsion capabilities to get it to a graveyard orbit. So, it would be worth considering lowering using the residual delta-V capacity you have at the end of life to lower the perjury and perhaps dispose of it that way.

Q: Richard Long: And one other question, if I may, very briefly. You mentioned that the total hardware cost of around $400,000 plus some contingency margin. I wonder, have you estimated the total mission cost? The cost-benefit that provides to the overall problem because I note that you say the cleanup operations cost around US $1.5 million per kilometer of coastline. To manage, what is your overall mission cost? Have you estimated this and the benefit to the effort to clean up the sargassum?

Marian Duval Alcantara: Well, we were looking at the project without gaining any profit from it but just helping the Caribbean, Latin America, and obviously the Dominican Government since they are spending so much money on the sargassum cleaning and they could build a mitigation plan based on the data gathered and also the scientific community who benefit from the data gathered by the CubeSats since the data will be displayed in the SatNOGS website. So, we did not think about gaining since this was more like a social impact project rather than a financial impact like having an economic revenue for us. So, we didn't consider that part. But yes, we think that with the mitigation plan that the government can build based on the data gathered keeps us inside the scientific community inside the government. So, we will be highly effective.

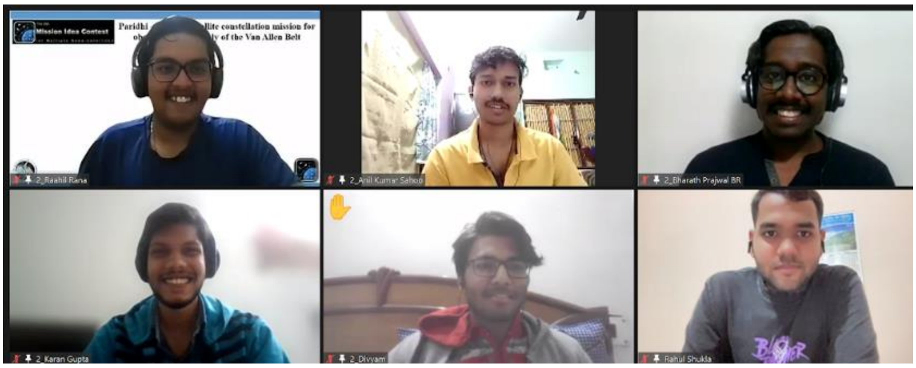
Richard Long: Yeah, I see. I understand. My question is actually about the cost of the mission overall, not the revenue but the expense, the cost of the mission. So, you have given a price for the hardware, the spacecraft but then there are other operational costs and to manage throughout the life of the mission. Do you anticipate those to be quite low? Do you have a plan of where you might gain funding to manage those costs and to cover them?

Marian Duval Alcantara: Yes, yes. In the presentation, we have mentioned that we will be getting the funding from the government and also, the government is doing conversations with Brazil in order to do a partnership to work in fighting sargassum. So, we have government support and the international relationships are building. We think we will have the money to keep our mission alive. We took into consideration that, in case they stopped supporting us, we think it would be the end of the mission because compared to previous normal satellite missions, it is expensive. But in regards to the countries' view, it is expensive so it won't be cost-effective if we stop receiving the help from the government. But we don’t have a plan for it. That is a risk.

Richard Long: Okay, okay. Good, it is good to identify that risk. And they are good exercises to plan the overall mission cost and that I think, will help you in putting forward your case and applications for funding and working with partners. Okay, thank you.

3. MIC8 Semi-Finalist Presentation and Q&A (2)

Ashish Shinde, Indian Institute of Space Science and Technology



Pictured: Ashish and his team presenting their MIC8 idea

Highlights:

- Paridhi- A 6U Nanosatellite constellation for observation and study of the Van Allen Belt
- Van Allen Belt - region in space with very high energy particles and intriguing antimatter
- This mission observes and studies the specific belt.
- High radiation levels could harm spacecraft system, interfere with communication, threaten astronaut safety
- Contributes to know about the mysteries of anti-matter
- **Mission Objectives are to study**: South Atlantic Anomaly, analyze radiation environment and understand the correlation between radiation and antimatter
- A 6U CubeSat which is made up of aluminum 6061: 4U for payloads and 2U for electronics
- Entrance area for ions used by the MagIS Payload
- Shielding layers and coating for thermal protection
- Total weight should be around 8.2 kg excluding thermal and panels
- Robust radiation shielding strategy to protect sensitive components
- Dissipate the charges that accumulate on the surface
- Payloads: Magnetic Ion Spectrometer, triaxial magnetometer, Retarding Potential Analyzer and RADFET
- Sensors:
    1. Sun Sensor - monitors the sun’s position
    2. Nadir Sensor - observes the earth’s surface beneath the satellite
    3. Magnetometer- measures Earth’s magnetic field
    4. Dosimeter - Measures radiation levels
- The considered actuators are reaction wheels, magnetorquers planned to be built in the ISDSP lab
- Data volume is predicted to be 200 Mb/ revolution
- For MagIS, PER ORBIT - 6.2 to 7 Mb and in 1 day, 81 Mb
- One satellite will interact with the Van Allen Belt for 15.57 hours per day.
- Pre-launch preparation includes designing, manufacturing, testing payload sensors, vibration, and thermal testing, and establishing partnerships with ground stations.
- These will be done at ISRO or EPDL Lab, IIST
- The launch phase includes integrating CubeSats into PSLV and choosing a launch window
- IN-Orbit operations include monitoring solar panels and establishing ground station communication.
- Starting the project in January 2024 and expecting to launch by July 2025

Q&A

Richard Long: Thank you for the presentation. So, regarding your pointing requirements, you have a number of constraints. One being the sun for power raising, and then orbit velocity pointing maintaining in order to capture. The highest intensity of flux of physical particles of interest and then of course you have your communications pointing requirements for the antenna. How constrained are you with the duty cycle between each pointing event? Are they separated in time or do you see some overlap with the different pointing needs?

Karan Gupta: Thank you for the question. I think, since the charge coming basically into our sensors is a relatively small period of time, during that time, I don't think there is much overlap with the requirement of the power that is the sun. But other than that, we haven't actually checked for solar power and communication. Without that, overlapping is not an issue.

Herman Steyn: Thank you for the presentation. It is a very interesting and challenging mission. It is not clear to me how you're going to monitor anti-matter. Can you please explain which sensor will be able to monitor the antimatter part? I know the outcome of it, radiation or charged particles, but how are you going to monitor antimatter?

Karan Gupta: Okay, so we have seen previous missions where we have read that antimatter is basically confined in the Van Allen Belt. And it is substantially more than expected from normal particle degrees. It's basically coming from the interaction of the upper layer of the atmosphere and cosmic rays and is getting confined. So, our primary payload is the MegIS, it basically has 2 sensors like one of them is on the upper side and one is on the lower side and there is a magnetic field. So, if a positive charge comes, it will curve around to the upper part and the negative charge will turn around to the lower part. By calculating the Q/M ratio, we can actually identify that if it is the mass of an electron, but if it is positive, then we can tell that, okay, it has to be anti-electron. So, that is our idea.

Maximilien Berthet: Thank you for your response. I have a very short question as well. So, you mentioned that the orbit is very stable and takes about 100 years to re-enter. So, on one hand, it is good but on the other hand, it can create space debris. So, how do you plan to minimize space debris created in this mission? And since your satellite spends a long time in space, how can you make sure that it eventually comes back to the atmosphere?

Karan Gupta: We don't have any external propulsion source that basically makes it come down but we expect the drag will eventually cause it to slow down and come down. I think Anil can answer that question. His connection is lagging.

Herman Steyn: What is the orbit altitude? It is not clear to me the orbit altitude of the 6U satellite constellation.

Maximilien Berthet: If I am not mistaken, it is 400 by 2000 kms.

Herman Steyn: Yeah, so it will take an extremely long time to deorbit from 400 by 2000 kms. So, they should think about how to reduce the time to de-orbit after the mission is over. Maybe deploy some drag device to increase the drag and come down quicker. You don't need propulsion to do it.

Karan Gupta: Actually, we have an idea for that. After the operation is over, maybe we can orient the satellite in such a way that the solar panels will receive more drag. So, maybe we can implement that. Actually, that was a good issue raised by you, we haven't thought about it.

Herman Steyn: Yeah, but if you do it that way, you must still have a functioning satellite so that the satellite is still able to control the attitude and maintain the attitude for the maximum drag. It will be much easier if your attitude control system is not operational after the end of your life. To deploy a balloon or a sail. That way, the drag will increase and come down sooner.

Karan Gupta: Yes, that is a good idea. Basically, you are suggesting that we have an additional drag source that we can deploy along the satellite.

Maximilien Berthe: Yes, that is very good advice. One question I have is about the launch opportunities. So typically, CubeSats can be launched as piggyback alongside other spacecraft but a 400 by 2000 kilometers orbit is very specific and I am not sure many spacecraft are launched into such orbits so you may need to purchase a special rocket just for your satellite and that may incur a huge cost. Is that something you have considered and would you be prepared to change the orbit in order to benefit from a piggyback launch?

Karan Gupta: Yes, I think, maybe, we should have more flexibility in the orbits. Like our first idea was that we would be a side project for a more major satellite and that would go with the PSLV rocket. But it could be that, if it is going, especially for this mission, then it depends. If ISR agrees, then we can have a special rocket just for this satellite, but we can definitely improve our orbit flexibility so that maybe it can go with other satellites.

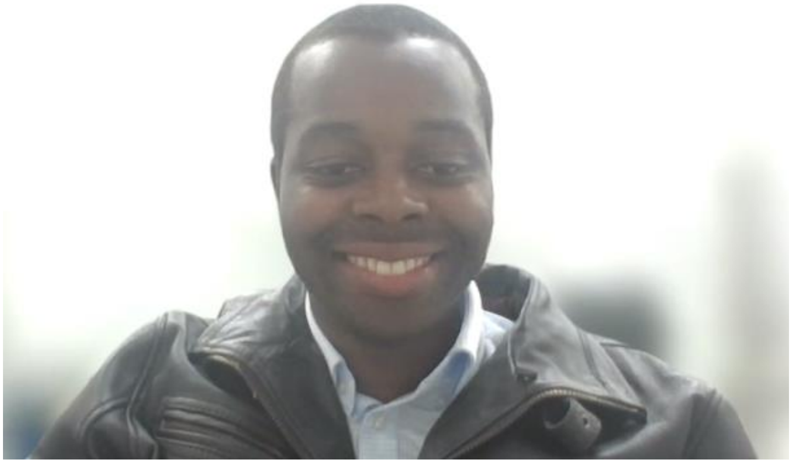
Maximilien Berthet: Yes, that is a good idea. And if you can find, for example, a scientific satellite that will go into a little bit close to what you want, maybe not exactly the same but close, then this could really reduce your cost. So, that's one option.

Karan Gupta: Yes, so we have to find a perfect launch center for that.

4. CLTP-12 Briefing (1)

Ramson Munyaradzi Nyamukondiwa, Kyushu Institute of Technology

Dr. Ramson Munyaradzi Nyamukondiwa is a recent PhD graduate from Kyushu Institute of Technology and also a recipient of the CLTP-12 Program. He was also a member of the BIRDS-5 team from Zimbabwe. He is currently a Space Systems Engineer at Zimbabwe National Geospatial and Space Agencies (ZINGSA). He also was a lecturer at the University of Zimbabwe. His field of specialization is electrical and space systems engineering, software-defined radio, electronics and communication engineering, and IT. His research interests lie in small satellite development, satellite communication, deep space studies, and software-defined radio.



Pictured: Dr. Nyamukondiwa sharing his CLTP-12 experience

Highlights:

- The CLTP Program is a capacity-building program in space technology.
- Organized by UNISEC Global in collaboration with AOTS and Nihon University
- Learning entire satellite development process from systems engineering to project management
- Goal was to apply the skills and advance their knowledge and understand the entire satellite subsystem
- Learn from other professionals and expand the network and collaborate with each other

- Learn teaching skills on knowledge transfers
- Participated in activities ranging from museum tour to laboratory tours, visit ground station
- Reviewed hardware and software and participated in lectures
- Training topics included development environment and programming, EPS
- Command and handling subsystem, Communication and ground system and Sensor subsystem, Fusion 360
- Satellite Bus Labs: Component checking activities to programming to outdoor test (AI and T testing)
- Satellite Mission Design and Implementation:
    - Specific training on carrying out missions from planning to procuring to tests
- Created a group presentation on a mission based on weather parameter detection
- Special appreciation expressed towards UNISEC for the opportunity

Q&A

Maximilien Berthet: I had a small question about extending CLTP specific to African countries. Do you think it will be feasible to launch a spin-off of CLTP specifically for Zimbabwe or for other countries in the region?

Yes, definitely. I think that is the reason they are checking the people mainly from non-space faring countries so that we can get this experience and then we can be able to go and do such programs also in African countries like in Zimbabwe.

5. CLTP-12 Briefing (2)

Nazgul Kaliyeva, Al-Farabi Kazakh National University

Nazgul Kaliyeva is a PhD student at Al-Farabi Kazakh National University and also currently works as the acting professor. Her field of specialization is Mechanics and interests of research are Theoretical Mechanics and Celestial Mechanics, Control Theory, Spacecraft Attitude Control System and Small Spacecrafts Formation Flying. She was a participant at CLTP-12.

Pictured: Nazgul Kaliyeva during her presentation

Highlights:

- CLTP12 was organized at Nihon University from Aug 21st to Sept 1st, 2023
- Training based on HEPTA-Sat toolkit
- Toolkit equipped with 6 subsystems
- The goal was to understand the elements in a satellite system through learning, experiencing and sharing
- Campus tour - Nihon University; talked about laboratory's ongoing projects
- First three days covered the subsystems lessons studying how to design, integrate and operate them

- Two days was dedicated to designing own mission based on the HEPTA-Sat training
- Designed FHANNY-SAT: a mission that monitored natural disasters – intercoming satellite communication
- Visits to Japanese Space Companies like Astroscale, Exospace, AXL Space
- Acquainted with training in teaching practice
- The course was organized in an exceptional manner
- Gained practical skills in field of Space Systems and CubeSat Designing and their subsystems
- Plans on implementing the knowledge during coursework and sharing it with peers
- Acknowledgement towards organizers

Q&A

Rei Kawashima: Thank you for the wonderful presentation. My question is, after the program, did you do something to apply what you studied to your students or your university?

Yes, next semester, I have one course on Satellite Design. So, I want to implement part of this course in my lectures and seminars. I, with my peers and colleagues who also took part in the previous CLTP, want to organize the course in our university. So, we are looking for ways on how to do it.

Prof. George Maeda: I have a question. So, this was your first time in Japan?

No. Ten or eight years ago, I had an internship at the Laboratory of Professor Shinichi Nakasuka, Tokyo University during my PhD study. So, after a long period, I came to Japan.

Prof. George Maeda: So, I guess many things surprised you about Japan. What surprised you the most about Japan?

Oh! First, the technology, the high technologies, of course! Very kind people and I like Japanese food.

Richard Long: I have a question, if I may. You have enjoyed a really in-depth experience with the HEPTA-Sat Program. What do you think would be the greatest advantage of delivering the HEPTA-Sat training to students and professionals? What is the best thing that you can think the program delivers overall?

I think this practical course is not only for students, novice engineers but also professionals in this field of satellite design. For example, engineers can only make the structures but the designing also depends on other subsystems.

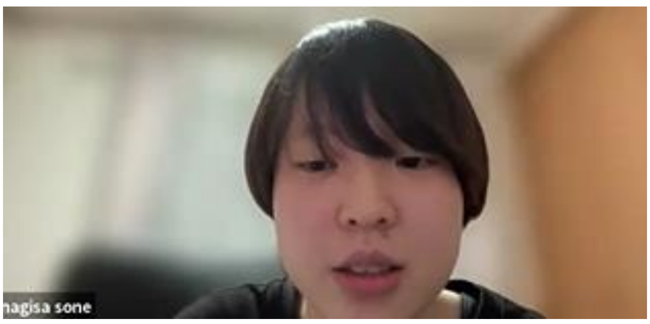
Richard Long: Yes, I agree. I think you fit in an important point because as we learn more and especially as we learn more about the particular systems in a spacecraft, we tend to specialize and become more focused and I think it is very good and important for all engineers of all disciplines to have a global vision in a global understanding at the very top.

Q: Herman Steyn: You have done the HEPTA-Sat training now. What do you think is the next step? In Kazakhstan, do you think that project will be worthwhile to start a CubeSat project either in university or maybe elsewhere in Kazakhstan? or do you already have a CubeSat project running?

A: Yes, thank you. Our university, as a national university, has launched 2 satellites in 2017 and 2018. So, we had a little experience of developing CubeSats.

6. CLTP-12 TA Briefing (3)

Nagisa Sone, Nihon University



Pictured: Nagisa Sone was at TA at the CLTP-12

Highlights:

- Sharing her experience of being a Teaching Assistant (TA) of HEPTA-Sat Training at Nihon University
- Currently also involved in a satellite development project
- Acting as the Sub project Manager and Mission data analysis
- Went to Taiwan and South Africa for the Training
- Main role was to extend technical support, develop HEPTA-SAT contents and prepare for trainings
- Most of the TA members belongs to the Yamazaki Lab
- At CLTP12, 12 TAs participated
- A 6U CubeSat named PRELUDE is being developed to detect seismic precursors in the ionosphere
- Scheduled to launch in 2024
- Before CLTP, contents are discussed and created and training materials are thoroughly checked
- During CLTP, support is extended to participants for project queries and living help
- After CLTP, assistance in sharing of feedback and update the training
- As a TA, learned to work as a teacher and work in a team, understanding all point of views
- The experience of the training not only contributed to the knowledge but also helped personal development
- Advice of organizing more such programs where people want to initiate satellite development

7. Presentation on "Restart of UNISON-Global"

Honoka Shibata UNISEC Student Intern

Pictured: Honoka Shibata during her presentation

Highlights:

- UNISON is a student organization and it is under UNISEC- JAPAN.
- Works as student network across universities and laboratories
- Initiates and collaborates for student-led projects
- UNISON-Global was launched on 2013 as a global student network to connect students across borders
- Was inactive due to Covid pandemic
- To restart UNISEC-global, strengthening the connections between students is important
- 2 student meetings have been held; at 38th virtual UNIGLO meeting and at 9th UNISEC Global Meeting
- Meetings for information sharing and planning for UNISON inaugural projects
- Presentation by each country, paper airplane contest and group discussions were conducted
- Collaboration discussions
- UNISON-Global will act as a platform of networking of laboratories of different countries
- Plan on connecting through a WhatsApp community to share information through topic-based channels
- Once connected, recruiting a core team and then organizing events as a team will take place
- Sharing of the current student representatives and call for other students to join

Pictured: Sharing of the WhatsApp community of Unison-Global

Q&A

Fand Moumni: Thank you for the wonderful presentation. So, I have a question about the people located in Japan. What is the percentage of Japanese students who are/were in the community before the global pandemic? I wonder if there were enough Japanese students.

Honoka Shibata: Yes, actually the UNISON-Global was launched by Japanese representatives and there were about 4 or 5 active Japanese students members to promote UNISON-Global activities. However, the number of the student members that actively participated in the activities were a bit limited. So, I cannot exactly say how many students were in the UNISON-Global.

Fand Moumni: yeah, but like the percentage of specifically the Japanese students?

Honoka Shibata: Kawashima-San, do you have the number of students or the percentage of the Japanese students at UNISON-Global?

Rei Kawashima: Oh, UNISON-global is just re-launched so very few people know about UNISON-Global in UNISEC-Japan but I think we have more than 800 student members in UNISEC-Japan. But yes, less than 10 people including Shibata-san but why are you asking this question?

Fand Moumni: Because we also had an idea to have a kind of community. I mean apart from UNISON-Global and basically, we were thinking that maybe 4 students or usually more active in this kind of activity and mostly, the challenge was the language that is English. So, I wanted to ask the question to know if you face the same challenge?

Honoka Shibata: Yes, we are actually facing the same challenge right now. I am not sure of the situation before the covid pandemic because I joined UNISON-Global just 3 months ago but right now, including me, there are 5 Japanese students and we are allocating more Japanese students to join UNISON-Global. So, the number of the WhatsApp community currently is 38 and so 5 Japanese members out of 38 which means that Japanese students might find it a bit difficult to join the international organization. But I like to listen to the difficulties by explaining the possibility and potential of UNISON-Global and how it can get a positive impact.

Prof George Maeda: UNISEC Global collects a membership fee. What about UNISON-Global?

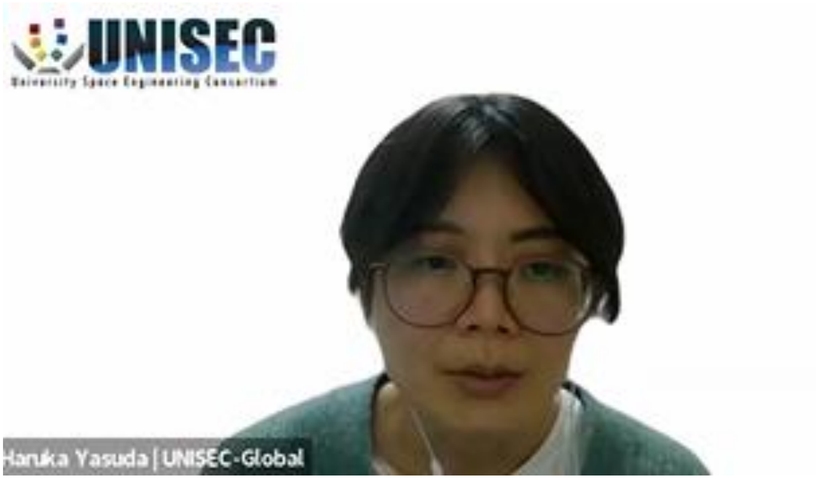
Honoka Shibata: Yes, that is also a topic of discussion right now. I think it is very difficult to set a specific amount of fee for all the global student members. In Japan, it might be normal to collect a membership fee but we also would like to hear the opinions of other students on the topic and as Kawashima-San said that this project has just started, I would like to set up a platform where I can ask a questionnaire about the UNISON-Global system to systems directly.

Karan Gupta: What are the future plans you are planning for UNISON students?

Honoka Shibata: There is a 10th UNISEC Global Meeting in South Africa and there will be in-person student session and to prepare for the in-person student session, we are planning to do virtual student meeting which includes workshops about topics of 10th global meeting so that students can prepare the pre-knowledge before the meeting and maybe, then we can have more efficient discussion in person next year.

8. Announcement and Acknowledgement

Haruka Yasuda, UNISEC-Global



Pictured: Yasuda-san announcing the latest updates from UNISEC-Global

- **Establishment of New Local Chapter**
  - UNISEC- New Zealand
    - Established with two universities
    - the University of Auckland and University of Canterbury

- **9th UNISEC-Global Meeting**
  - The 9th UNISEC Global Meeting was successfully conducted.
  - Venue: X-Nihonbashi Tokyo, Japan, in-person event
  - November 27 - December 1, 2023
  - Collaboration with Nihonbashi Space week
  - Presentation material will be uploaded to the website: https://www.unisec-global.org/meeting9.html

- **10th UNISEC-Global Meeting and 13th Nano-Satellite Symposium**
  - Next venue: Stellenbosch University, South Africa
  - November 25-29, 2024

- **Mission Idea Contest (MIC8)**
  - Final presentation was held on November 29, 2023, during the 9th UNIGLO Meeting
  - Results and presentation material has been uploaded to the MIC8 Website: http://www.spacemic.net
  - The full papers of the finalists will be published as MIC8 e-book.
  - The **MIC9 theme is "Lunar Mission"**. Other details will be announced later

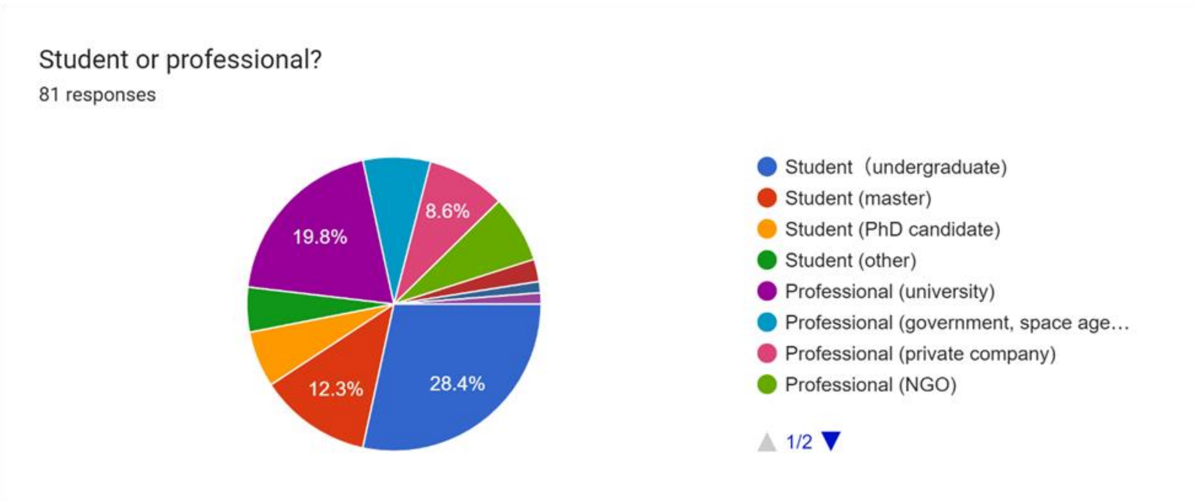
- **Launch Opportunity: J-Cube**
  - Special Discounted opportunities
  - 1U, 2U, 3U, deployment from International Space Station
  - Collaborate with UNISEC-Japan's University
  - Technical support will be provided

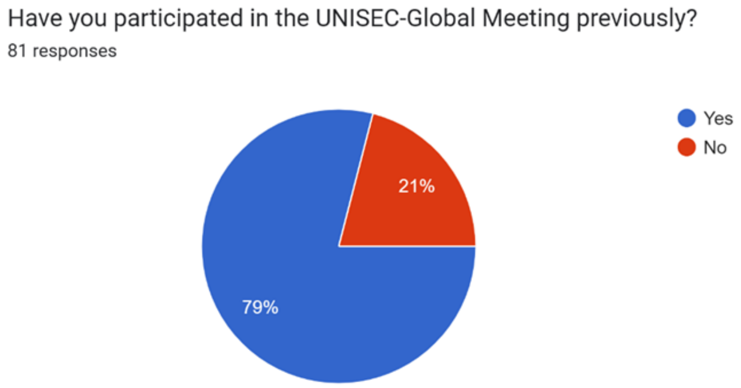
- **40th UNIGLO Virtual Meeting**
  - Date: January 20, 2024 22:00 - 24:00 (JST)
  - Host: TBD
  - Theme: TBD
  - Virtual UNISEC-Global Meetings takes place third Saturday of almost every month of 2023

9. Participant Statistics

81 registered participants from **32** countries and regions for the **39th** Virtual UNISEC-Global Meeting.

Country/Region	Number of registrations	Country/Region	Number of registrations
Argentina	1	Nepal	2
Australia	1	Netherlands	1
Bangladesh	2	Nigeria	1
Bulgaria	2	Peru	1
Burkina Faso	5	Philippines	2
Chile	1	Romania	1
Colombia	1	Rwanda	1
Dominican Republic	2	South Africa	1
Egypt	5	Taiwan	4
France	1	Thailand	1
Germany	1	Tunisia	1
India	9	Turkey	2
Indonesia	1	UAE	1
Italy	2	UK	3
Japan	21	US	1
Kazakhstan	1	Zimbabwe	2




Have you participated in the UNISEC-Global Meeting previously?
81 responses
Yes
No
21%
79%


Talking: Rei
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https://www.instagram.com/unisec_japan/
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Thank you