



UNISEC-Global The 17th Virtual Meeting

January 22, 2022 22:00-00:00
(Standard Japan time GMT +9)

17th Virtual UNISEC-Global Meeting WELCOME



OPENING REMARKS
Shinichi Nakasuka
University of Tokyo



PRESENTATIONS
Mohammed Khalil Ibrahim, Egyptian Space Agency
Topic: EgSA achievements in Capacity Building in 2021
Maricor Soriano
National Institute of Physics, University of the Philippines-Diliman
Topic: The STAMINA4Space Program -
Transitioning from State University to Space Agency



GROUP PHOTO SESSION
All Participants



UNISEC LOCAL CHAPTER EMPOWERMENT
Nate Taylor, UNISEC-Global

BREAKOUT SESSION
All Participants (MC: Nate Taylor, UNISEC-Global)

ANNOUNCEMENT & CLOSING
Rei Kawashima, UNISEC-Global
and those who have announcements

JANUARY 22, 2022
10:00 PM to 00:00 AM (JST)

THEME:
Local Chapter Empowerment





Moderator: George Maeda, KyuTech, UNISEC-Global
<http://www.unisecc-global.org/virtual-meeting.html>



The following report was prepared by UNISEC-Global Secretariat
January 22,2022.
Japan

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1. Opening Remarks at Start of 2022

Prof. Shinichi Nakasuka, University of Tokyo

Prof. Nakasuka graduated with a Ph.D. in Aeronautics and Astronautics at the University of Tokyo. His main research is on astrodynamics and artificial intelligence. He had joined a computer manufacturer and became involved in research around Artificial Intelligence and automated manufacturing. He became a lecturer at the University of Tokyo in 1990. He was an assistant professor of the Research Center for Advanced Science and Technology, University of Tokyo, and a visiting research fellow in the United States. He has been a professor at the Department of Aeronautics and Astronautics since 2004. He has led the students in his lab, ISSL (Intelligent Space Systems Lab) in developing CubeSats and small satellite. He has been one of the pioneers of small satellite development.



Pictured: Prof. Shinichi Nakasuka giving the opening remarks at start of 2022

Highlights:

- General Discussion: Role of University-based Space community and how to make it stronger community
- University has very unique characteristics which are very good in space development
- Almost all the countries have universities, even without space agency or space industry
- Universities have been participating in practical space development/utilizations activities through projects
- Education and technological development are performed concurrently
- University is not usually seeking for profit, so can be “open”
- Combination of professional faculty members and, young and energetic students
- Professors sometimes can support government’s space policy
- Students can be strong workforce for actual development
- Many professors in different countries already have some relationships through academic conferences
- In Japan, UNISEC was founded in 2002 with 5 universities
- Now it became a very big organization including 52 laboratories from 38 universities ,826 students, 287 individual/company members
- UNISEC Missions:
 - Education and human resource training for space development and utilizations
 - Innovative space technology seeds development



*Pictured: UNISEC and many universities started their own satellite project.
Already 58 university satellites are launched in 2003 to 2019*

Highlights (Continued):

- UNISEC have been supporting the student activities in various field:
 - Joint experiment (Like ARLISS workshop consortium), joint development, joint education, etc.
 - Workshop, symposium, technology exchange, etc.
 - Consultation on legal matters (frequency, export law, etc.)
 - Finding “rivals” within the community!
 - “UNISEC Lecture Series”
- CanSat and ARLISS experiment has been one with the very important activity of UNISEC
- Every year UNISEC students are organizing GC band and in the United State the student brought CanSat which will be lifted in 4km altitude by amateur rocket of United states
- During the descend taking about 15 minutes the student can do various experiment
- CanSat development and cost-free-testing provide excellent opportunity of whole satellite development, project management and system engineering
- Through this kind of training organized by UNISEC, many universities started their own satellite project and already 58 university satellite are launched in 2003 to 2019
- Very important role of UNISEC is to provide student which opportunity to see as a university activity
- Universities can take inspiration from one another
- Feeling of rivalry is very important to encourage the students
- University based space Community characteristics:
 - Emerging countries can see “models” of their own futures
 - How to grow up after the first CubeSat and so on?
 - Feeling of rivalry encourages efforts to improve themselves
 - Advanced universities can teach novice universities
 - Teaching itself can be very important education for advanced universities
 - Usually “open atmosphere,” which accelerates innovations by integration of varied technologies and needs
- Recently why universities can do this kind of space development now? Because:

Highlights (Continued):

- Development of micro/nano/pico-satellites provide universities with easiness to participate in practical space development
- Recent IC technologies, open data platform of remote sensing images can make space utilizations far easier
- These are the very important characteristic of university community so they make the most uniqueness of university community.

To International Level: "UNISEC-Global"



Pictured: UNISEC-Global Vision 2030- ALL

- Concept of UNISEC Global (Vision 2030-ALL):
 - Forums, Conferences, technical competitions
 - Training programs like Hepta-sat training, CanSat Leader Training Program
 - Debris awareness and solutions
 - Support Global space projects initiated by universities
- UNIGLO- Education program activities
 - Mission idea Contest last November in Japan
 - Debris mitigation competition twice
 - CanSat Leader Training Program held almost for 10 years
 - Encouragement of Collaborations
 - Global Space Projects by Member Universities
 - Store & Forward CubeSat "IoT" network
 - BIRDS Project
 - Standardization of CubeSat interface
 - Global University Space Debris Observation Network
- We should join and start to facilitate community activities which is important
- Joint satellite project like QB50 perhaps difficult in COVID-19 situation
- Recommend more research type of project between among the member universities such as:
 - Research on remote sensing to mitigate global problem
 - Various technologies around solar power satellite
 - New concept on Software Defined Satellite (SDS)
 - Idea competition and continuous brain storming

Highlights (Continued):

- Encourage competition rivalry mind between members
- Encouragement through rewards such as "Best Activity of the Year"
- Visualization of each member's space activities
- Every year in Japan a message is made and keep in mind for a year:
 - "A journey of thousand miles begins with a single step"
 - "Persistence pays off"

Q&A:

Mansur Celebi: *You said you are planning to initiate some projects, joint projects. Is it going to include all other universities or just universities in Japan and how are you planning to include other universities as well?*

Prof. Nakasuka: *I think such kind of joint project should include all the universities from all over the world if they are interested so, please discuss that in later meeting so I don't want to, how to say, constrain with only the Japanese universities*

Mansur Celebi: *But you haven't started your projects yet, right?*

Prof. Nakasuka: *Yes, please discuss within yourself [for future projects]*

2. Presentation on "EgSA achievements in Capacity Building in 2021"

Mohammed Khalil Ibrahim, Egyptian Space Agency

Dr. Ibrahim received his B.Sc. in Aerospace Engineering from Cairo University in 1991. In 1996, he received his M.Sc. in Computational Fluid Dynamics from the same university. In April 1998, he received a scholarship from the Japanese Government to pursue his Ph.D. studies in Japan. From 1998 to 2002, he was a Research Assistant at the Aerodynamics Laboratory of the Aerospace Engineering Laboratory (Professor Nakamura Laboratory), Nagoya University. In 2001, he received his Ph.D. degree from the same university in Aerodynamics. Between 2003 and 2008 he was a lecturer at the Aerodynamics Laboratory, Department of Aerospace Engineering, Cairo University. He had participated in very first CLTP training in Japan (2011) and became instructor for CLTP7-8 (2016-2017). Also, he joined in development for Nexus 1U CubeSat and HEPTA-SAT-II. Dr. Ibrahim was nominated to be Deputy Executive Director of the Egyptian Space Agency since September 2019. Dr. Ibrahim's research interests High speed Aerodynamics, Aeroacoustics and Micro/Nano-satellite Developments. (email: mohamed.iraqi@egsa.gov.eg)



Pictured: Dr. Ibrahim giving Presentation on capacity building program of EgSA

Highlights:

- Egyptian Space Agency effectively started in 2019 but Egyptian space activity started quite before since 1998 with 28 engineers. Now total of 350 which include 130 engineers
- Training at Ukraine during Egyptian Space Program -EgyptSat-1
- EgyptSat-1, First satellite launched by Egyptian engineer with help of Ukraine
- After that started investment in infrastructure like environment lab, functional testing lab, payload lab, AIT Lab as well as engineering Model Lab

Egyptian Space Program – EgyptSat-1



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Pictured: Engineers working for EgyptSat-1

- In 2018 a law was drafted to establish Egyptian Space Agency:
“A general economic body called "the Egyptian Space Agency" shall be established, with a legal personality, affiliated with the President of the Republic, as well as, it shall enjoy the technical, financial and administrative independence, it is headquartered in Cairo City, and it has the right to establish branches throughout the Arab Republic of Egypt by decision of its board of directors.”
- It was the milestone in Egypt regarding space activity
- The Egyptian Space Agency’s Objectives:
“The agency aims to create, transfer, localize, and develop space science and technology and possess the own capabilities to build satellites and launch them from the Egyptian lands in a manner that serves the country's strategy in the fields of development and achievement of the national security.”
- Agency’s Organizational Structure:
 - Supreme Council as the President of the Republic
 - Board of Directors as Prime Ministers
 - Agency inside organization structure
 - CEO
 - HR, Financial and Economic Affairs sectors
 - Space Projects and Mission Sector
 - Policies, Legislation and International Relations Sectors
- The core of agency is space projects and mission sector which is core business of agency
- Doing our own space projects, and in addition contributing space activities in Egypt
- Quick overview technical sector:

Highlights (Continued):

- 131 Engineers/Scientist (33 Male / 98 Female)
- Engineering B.Sc. 89, 20 MSc and 11 Ph.D.
- Science 5 B.Sc., 5 M.Sc. and 1 Ph.D.
- Agency Headquarter lie in Cairo government assigned 300 hectors to establish space city
- In 2020, the board of director approved the National Space Program which consist of 6 pillars:
 - Building human and scientific capabilities
 - Exploration of outer space
 - International relations and international cooperation
 - Infrastructure and industrial Development
 - Space legislation and standard
 - Building space mission systems
- Building human resources and scientific capabilities, mainly four programs:
 - Pre-University Program
 - University/Undergraduate Program
 - Post-Graduate Program
 - Professional Training Program
- For Pre-University program, there are 5 programs:
 - Space Dream Series for Kids
 - Workshops/EgSA visits for school students (on Premises)
 - School visits outside EgSA (off Premises)
 - Children University
 - CanSat Workshops (Project Based Education)

Workshops/EgSA visits for school students (on Premises)

 1/4 Days

 240 Students

 2021

 1st to 12th grade



- CubeSat Workshop
- Satellites Mission Analysis, Subsystems and Their Applications
- Astronomy



Mission Design Workshop

CubeSat Workshop

Astronomy Workshop



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Pictured: EgSA educational space activates

- Space Dream Series was broadcasted in last year April- May 2021 for 30 days
- Directed for old school students, educated with space, solar system
- Space Dream series was awarded with Best Award Drama Series from Egyptian Human Rights Foundation
- Frequently Conducting workshop inside Egyptian Space agency
 - CubeSat Workshop
 - Subsystems
 - Night Observations
 - Satellite Mission Analysis, orbits and utilizing different tools

Highlights (Continued)

- School visits outside EgSA (off Premises) dispatch engineers to cover space activities:
 - In last year 3 days' workshop in south Egypt, trained around 36 teachers and 1000 students
 - Educated on Solar Systems, rockets and orbits, satellites and International Space station
 - Sponsored by National Banks of Egypt and bank, and NGOs
- Working with Ministry of Education for Children University
- Developing curriculum for 9 -11 years old students can join University in summer which provides certificates
- Curriculum related to Space Technology and Satellites
- In 2021 December, developed 100 CanSat kit for Workshop which supports three level Application:
 - Plug and Play
 - SW Development also can develop their own payloads
 - Payload Development
- For University/ Undergraduate Program:
 - Egyptian University Satellite Training (EUTS)
 - Space Event Days
 - Capstone Project Sponsorships
 - Establishment of Space Lab
 - International Training for University Students
 - Space Technology Educational Portal
- Annual offering in Egyptian University Satellite Training (EUTS) for 500 students out of 6000 applications
- 2 months of training in summer, 1 month theoretical and 1 month for practical training
- Space Event Day in universities introduced space science technology, satellites, and their applications. Conducted last year for about 15 days
- Capstone Project Sponsorship
 - For summer training to allow students to get funding and super visions for their capstone projects
 - Last year 115 capstone projects were sponsored
- Based on experience in CubeSat development, developed educational kit called Space Keys. Now distributing this kit among 25 universities and 1 high school as well as 5 African countries sponsored by Ministry for Education
- With Ministry for Education Support, international training for high school students last year. 46 students at Samara Summer School at Samara University
- Due to Covid-19 launched, space educational portal where more than 100 recorded lectures and offer 3 certificates which little fee, all developed by engineers
- Launched post graduated programs
 - 4 M.Sc and 3 Ph.D complete Scholarship
- Joint space technology research projects
 - FM/EM of 1U CubeSats, Satellite Subsystems different universities
- More than 65 engineers trained in Ukraine and 20 Engineers trained in China to work as engineer in AIT center
- Also conduct in-house training of AIT and for other technical Skills
- Hosted African Development Satellite Initiative Program, in 2019 16 engineers form Sudan, Uganda, Kenya, Ghana attends this for 2 weeks
- Challenges:
 - Funding limitations
 - Weak space awareness
 - Intellectual property rights, national regulations and export control rules
 - Protected information and unauthorized access

3. Presentation on "The STAMINA4Space Program – Transitioning from State University to Space Agency"

Prof. Maricor Soriano, National Institute of Physics, University of the Philippines-Diliman

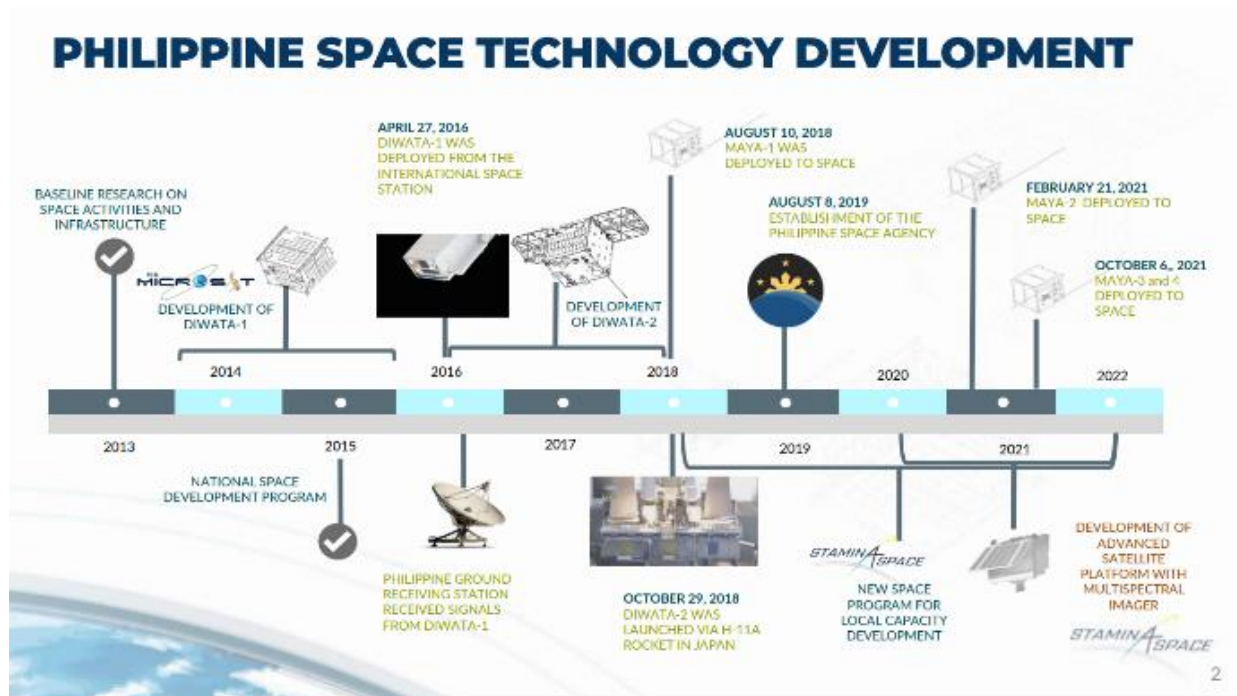
Prof. Maricor Soriano did her PhD at University of the Philippines in 1997. Her research specialty is color, video and image processing. She is currently the Principal Investigator (PI) of the Video and Image Processing Laboratory in National Institute for Physics (NIP). Her laboratory creates hardware and software tools/technologies to answer different agency's imaging needs. Her laboratory caters multidisciplinary requests; from art museums, marine science researchers, medical doctors to anthropologists. Prof. Soriano also serves as the program leader of "STAMINA4Space," funded by the Department of Science and Technology where they make satellite bus and optical payloads locally for future Diwata-3 mission.



Pictured: Prof. Soriano Presenting on "The STAMINA4Space Program – Transitioning from State University to Space Agency"

Highlights:

- Timeline of Philippine Space Technology Development
 - 9 years ago, base line research on space activities and infrastructure began and then Philippines MicroSat program was established funded by Philippines Department of Science and Technology
 - Launched Philippines' first 50 kg satellite in collaboration with Japan
 - By 2015 the national space development program was submitted for valuation of congress
 - In 2016, Philippine's ground receiving station was established and start receiving signal from DIWATA-1
 - 2016 also started development of second 50kg satellite DIWATA-2 which was launched in October 29 2018
 - On August 8, 2019, started development of CubeSats with Philippines Space Agency (PhilSA) was established. That was 6 years after the baseline study
 - STAMINA4Space is ongoing and part of this program includes continuous development of CubeSats as well as new satellite which is 100kg



Pictured: Dr. Soriano Presenting Philippine space technology development timeline

Highlights(continued):

- STAMINA4Space Stands of Space Technology and Application Mastery, Innovation and Advancement which is Department of Science and Technology Program
- The objectives of this program are:
 - Get data from space
 - Build industrial space base
 - Setup environment for R&D
 - Develop People who can do space technology
- STAMINA4Space Program has 5 projects
 - Project 1 Optical Payload Technology, In-depth knowledge Acquisition, and Localization OPTIKAL building optical payload locally
 - Project 2 Building PHL-50: Localizing the Diwata-1,2 Bus System as the country's Space Heritage 50Kg Microsatellite Bus (PHL-50) building local BUS
 - Project 3 Space Science and Technology Proliferation through University Partnership (SteP-UP) which has most engagement with universities
 - Project 4 Ground Receiving, Archiving, Science Product Development, and Distribution (GRASPED)
 - Project 5 Advanced Satellite Development and Know-How Transfer for The Philippines (ASP)
- Dr. Marc Caesar Talampas is appointed as Director of Space Technology Missions PhilSA and Dr. Gay Jane Perez is appointed as Deputy Director General of PhilSA
- STAMINA4Space Program objective which is to develop people
 - Nearly 2/3rd of the program are Male and 1/3rd Female with total 112 member personnel, staff, scholar
- STEP-UP project is where most engagement of university
 - It offers graduate programs on nanosatellite development
 - Developing MAYA nanosatellites locally with BIRDS project Japan

Highlights (continued):

- Establishing UNISEC Philippines
- University-based amateur ground station
- Within the University, UlyS3ES University Laboratory for Small Satellites and Space Engineering Systems established. Features:
 - Lean satellite development
 - Small-satellite simulator systems(s4)
 - Prototyping equipment
 - Full anechoic chamber test facility
 - Amateur radio and satellite station
 - Graduate students' workstations
 - Administration office

We are developing a Local Industrial Base

Locally developed Experimental Modules flying with Diwata-2



Amateur ("Ham") Radio
Payload



Attitude Control Unit (ACU-Ex)



Sun Aspect Sensor (SAS-Z)



Pictured: Philippines Space industries developing space mission components from local industrial base

- Components for University of Space Agency/Industry Transition need three components:
 - Scholarships from government or interested agencies
 - Immersive courses and projects in university
 - Availability of positions in Philippine Space Agency and other interested agencies or industries
- Studying space tech is expensive and cannot expect to pay for training by students from their pocket. We must aim get scholarships funding
- Scholarship funding can come from government or industries which have use for space tech or system engineering
- Space tech is mostly learnt by doing
- Space is not only about the engineering technology there is also communications, law and governance and data science
- Not only the industries or rather university can offer the immersive activities we can also companies and agencies can offer on the job training as well specially those who have space tech
- There must be position for graduates, we can train several students in engineering but the Philippines space agency can only absorb so much. So what can we do with overflow of such high skill sets?
- There are other industries and agencies which have need for space
 - Department of Foreign Affairs
 - Department of Environment and Natural Resources satellite and remote sensing products
 - Department of Agriculture

- Mapping companies
- Aerospace industries
- Again, the component for sustainable University to Space Agency/Industry Transition
 - There must be scholarships from government or interested agencies.
 - Immersive courses and projects in university with industry partnerships
 - Availability of positions not only in Philippines Space Agency and other interested industries/agencies
- There must be synergy between government, academia and industry with smooth transition from university to industry
- Developing local industrial base as much as possible to do space tech, locally developed experimental modules are flying in Diwata-2 that had local partners
- Building cameras for remote sensing engage local companies to create our design rather to manufacture or design
- Engage in several local companies to help in all aspect in manufacturing of the payload and bus.

Q&A:

Mansur Celebi: *I think Dr. Soriano you made a very good point to how a synergy between government university industry because otherwise if you don't collaborate these three parties it will not possible to achieve good projects that's why what you do is train people for space industry and to be able to train people, we need some project which is funded by either government or industry that's why its very important to collaborate these three parties*

Prof. Soriano: *Agreed*

George Madea: *I have a question Dr. Soriano. Do you see the space industry starting to emerging in Philippines? What stage is in that?*

Prof. Soriano: *At the moment the companies that we are engaging are in birth stage because they are learning. Very high tolerance needed for creating space tech and space environment testing. So I can say that we are in leaning phase right now but we can see that the partner we have is already engaged. Industrial partner we have are already contracted. They are very eager to join in this projects to the point that they are volunteering more than what was requested and what was written in the contracts. This is promising because there is sort of local pride in being able to do that. I can sense that when I talk to these company, they are eager to prove themselves to be capable in participating in space tech. I can see they are very enthusiastic during project meetings. They volunteer more than what was stated in contracts. Right now, what we can say is that there might be return of investment if we go to road of CubeSat or small satellites as they are small, cheaper to manufacture and so the discussion with them is that what have we learnt for other companies. If you have company that you like to engage in future project, you tell them that okay please try to build up this part of system in future we always hire you because you already developed that technology so we are actually doing that with the companies that we have engaged already.*

4. Presentation on "Local Chapter Empowerment"

Nate Taylor, UNISEC-Global

As a Duty Manager and Space Communicator at the Australian Space Agency's Australian Space Discovery Centre, Nate Taylor assisted in the development of a team of science communicators to inspire and grow the Australian space sector, delivering and developing space educational resources through UNISEC-Global - including an address to UNCOPOUS in April 2021- and being a core member of UNISEC's Space Education Policy Compendium while facilitating online programs.



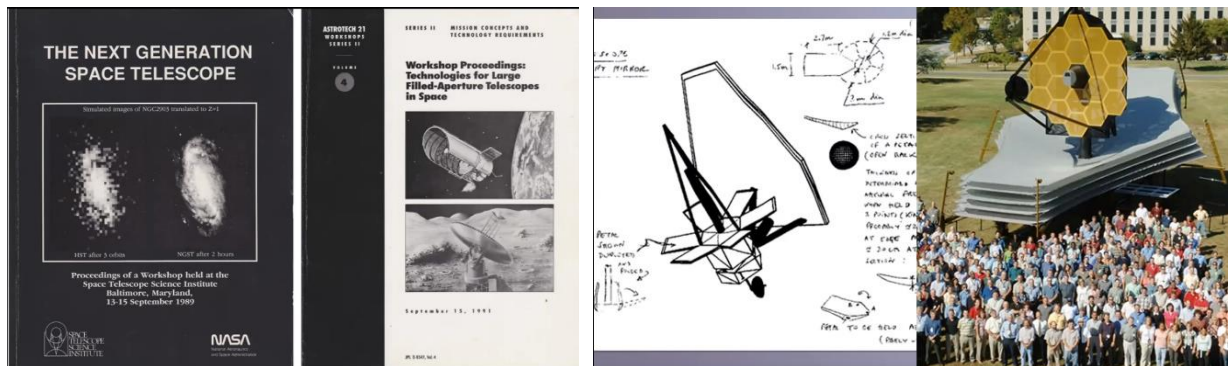
Pictured: Nate Taylor presents on “Local Chapter Empowerment”

Highlights:

- In 1989, several years before the launch of the Hubble Space Telescope, The Space Telescope Science Institute (American Institute) began thinking about what the next major mission should be beyond the Hubble Space Telescope
- An engineer named Pierre Bely who came up with an idea of passive cooling shield to an infrared telescope that could shoot the Sun's thermal background
- Later that year, a workshop was held to come up with a mission concept for this telescope and this gained support from NASA
- In 1993, the Hubble Space Telescope and Beyond Committee was formed. This was formed after the Hubble Space Telescope camera needed replacing and also a human had to go and correct the primary mirror of Hubble.
- NASA was really happy with overall performance.
- With the success, the committee picked up again the idea of putting together cold IR telescope because the IR wavelengths would be able to see through gas and dust clouds in space from old stars much better than an optical telescope can
- Additionally, UV and visible light that was emitted light from distant objects Galaxies and stars would have been stretch by the expansion of the universe so by the time that they would reach us it's in the IR bands.
- Unlike the Hubble, a cold telescope wouldn't be blinded by its own IR emission.
- Several other committees were formed in the years that followed until the early 2000's. That's where the project was renamed the James Webb Space Telescope (JWST) and funding was awarded by NASA to begin designing a primary mirror.
- In 2005 the project entered development phase in collaboration with ESA and the Canadian Space Agency which passed technology development reviews in 2007.
- This was critical because in the 1990s when the concept was created, the original diameter for the primary mirror had to be 6m which required large Sun shield.
- At that time of creating, such large telescope wouldn't be technically feasible to build
- They didn't know how they going to launch it, technology to build it but it actually became reality
- This enabled detailed design and construction process of the telescope to begin
- The critical design review of JWST passed in 2010 where it entered the final design phase after
- In 2016 final construction was completed with robotic arms used to assemble the 18 primary hexagonal mirror segments on JWST
- Hexagonal Symmetry was chosen to make optimized optical power
- In 2019, mechanical integration was completed that was 12 years behind schedule
- On 25 December 2021, JWST was successfully launched on an Ariane-5 rocket from Europe's Spaceport

Highlights (Continued):

- In roughly 3 days' time, it will have travelled a 1.5 million km journey needs to be inserted in its L2 orbit where it starts completing its mission
- **The reason I am telling you all this is** because JWST took over 30 years to complete
 - Needed thousands of technicians from over 15 countries
 - Required all above and funding to become a reality
 - Required consistent determination on an incredible scale and every tiny step would have an impact decade later
 - A brilliant example of how a vision no matter how unlikely can be manifested into reality by the minds and efforts of many people who share that vision



*Pictured: (Left) Hubble Telescope Mission document formed in 1989 and
(right) James Webb Space Telescope from concept to reality*

- Local Chapter Empowerment
 - Four things to talk about Philosophy behind it, UNISEC meeting, Recognition of Local chapters and Congruent systems program
- How can we apply this type of thinking to UNISEC local chapters? Are we actually in harmony together?
- Local chapters have different processes, needs, and goals but we do share the same mission and vision
- The vision of UNISEC Global Space science and technology are used by individuals and institutions in every country, rich or poor, and offers opportunities across the whole structure of society.
- That would be for peaceful purposes and for the benefit of humankind.
- The Mission of UNISEC Global will create an environment that will promote the free exchange of ideas, information and capabilities and especially for young people, including those in developing countries and emerging economies.
- How do we actually achieve it?
 - The nature of UNISEC is that it is collaborative.
 - Diversity of thought and many voices is powerful thing, but how much are we utilizing each other's knowledge and experience? How much are local chapters inspired, encouraged, empowered and how much they helped by others within the UNISEC community to achieve?
 - The idea behind the local chapter empowerment program is to synergize our efforts.
 - By sharing successful systems, processes, and opportunities that we had through other local chapters, we think we can strengthen each local chapter as well as the collective.
 - UNISEC-Global is of this hub, but each local chapter has the opportunity to be leaders that's why this year we really want to empower local chapters in Virtual UNISEC Meetings.
- Start Local Chapters host the Virtual UNIGLO meeting twice per quarter
 - Feb: UNISEC-Turkey
 - March: UNISEC-LC
 - April: UNISEC-Global

- UNISEC-Global Provides the platform zoom room and registration form.
- Local Chapters determines theme/content, speakers, moderators, breakout session/ activities, etc. Take ownership to take control of it
- Virtual Meeting Guide is being developed to help up setting up meetings
- This help to highlight relevant key activity of Local chapters' regions and highlights
- Connects with new contacts as well by inviting to speak in platform
- Attract local attention potentially funding partners and people who can work with projects and corporate memberships
- Self-Nomination or invitation to host these meeting by UNISEC-Global
- Develop Local Chapter of the Year to encourage Local Chapters that they can make a difference locally and internationally.
- Consistent effort and determination like in JWST development are needed when building anything
- Congruent System Program: what are your key plans for the coming year?
- Want to provide opportunities to local chapter
 - Primary example: UNISEC-Japan is the oldest UNISEC chapter established in 2002 and has been extremely successful in Japan in terms of its funding, programs, and membership base
- This knowledge should be shared among local chapters to support their regional activities
- Develop operation handbooks which covers operations, procedures, credo, guiding principles
- Also hold an open seminar which will cover some of content that will be in operation hand book will be organized in a way everyone can join (9th Feb) in Local chapters
- Opportunities for customized consultation to understand the Local Chapter specific position and needs to cover things such as:
 - Building and maintaining membership
 - Communications and promotion
 - Developing relationships with key players in the region including space agencies
 - Operational structures and many more topics
- The way the reflecting mirrors of JWST are arranged is that they have ability to collect large amount of light and transfer that energy to unlock secrets of the universe that happened up to 13 billion years ago,
- It's a really good way to end outline for congruent systems program as a reminder of how individual parts reflecting the same thing can actually be focused into something really powerful.

Comments:

George Maeda: Nate quick question, you mean Local chapter will do twice per quarter that mean UNISEC Global will do it once per quarter, is that correct?

Nate: yes, you got it!

George Maeda: ok Nate, I don't have any question but that was extremely well presented, It was very good

Rei: I have two reasons to proceed this program. One is as you know we have big vision by end of 2030. We would like to spread this activity all over the world but at this moment we have only 21 local chapter. So this is one reason and then the other reason is this virtual meeting in the beginning we have a 100s now we have 30 so I think we need to do something so I don't know what to, obviously we need some platform to collect the new experience and the new knowledge, newer desire or whatever you have we need to do something this year and this is one of the process empowering local chapter so thank you very much so let's move to break out session.

George Maeda: Rei one question in the beginning these virtual meetings were consider temporary to get us through pandemic do you think this will become permanent

Rei: Ok good question We can desire together however I think this is one of the good ways everybody can participate without worrying about transporting fees and all living in houses is very easy. I think we can keep even after the pandemic is over but you know I am not the king

George Maeda: Okay certainly we can maintain this virtual meeting for all of 2022, is that correct?

Rei: I think so, yes

5. Breakout Discussion and Sharing

Moderators: Nate Taylor, UNISEC-Global



UNISEC-Global The 15th Virtual Meeting Breakout Discussion

I. Local Chapter empowerment and networking: (30 mins)

Participants will move through several randomized short duration (3x10 minutes each + 10 minutes for open comments) small group breakout rooms where you can get to know each other a little bit better through casual conversations about how local chapters can be empowered to be leaders in their local community.

Some ideas:

-When entering your room, introduce yourself and give your thoughts on one of these questions, then allow time for others to speak.

- What benefits would you like for members of your UNISEC local chapter?
- How can being a member of a university consortium influence the space industry in your region?
- How can you engage other space industry experts in your region to help share their knowledge?
- What is one action that you can take to improve the experience of members in your chapter?

After closure of Breakout session (10 mins)

II. Open discussion.

Pictured: The session focused Local Chapter empowerment and networking

Discussion Highlights:

- What benefits would you like for members of your UNISEC local chapter?
- How can being a member of a university consortium influence the space industry in your region?
- How can you engage other space industry experts in your region to help share their knowledge?
- What is one action that you can take to improve the experience of members in your chapter?
- Room is divided into 6 groups 3 rounds for each 10 minutes

General Discussion:

George Maeda: I have learnt from the round 1 the speaker was **Gabriel from Philippines**, told Local chapter should organize regular seminars and invite high-power professors who can volunteer and you invite engineering students to capture their imagination into space direction. I think seminar is something local chapter could easily organize it will reach out lot of engineer students

Nate: There was comment in one of the rooms I had about how if you don't have an established university who are quite comfortable with space and don't have professor who are willing to engage in that how do you seek expertise in mentors with in your own region if particular, they don't exist how do you actually go doing that?

George Maeda: First you try to get local professor and if that does not work out then you invite them speak over zoom from overseas.

Nate: I felt the 10-minute breakout was good. We can get hopefully a diverse range of thoughts and opinions. The difficult thing is actually to start a conversation. I will just like to encourage you to throw something out there and see what happens because hopefully it will strike a chord with somebody in that group. **Rustum**, you made some good point about international collaboration in particular and funding which is great, I got to hear about UNISEC Pakistan which quite fascinating what they are doing.

George Maeda: *The solution to conversation...I think some people have natural shyness, right?*

Nate: *yeah absolutely*

George Maeda: *The solution is to throw it out of window*

Nate: *No, not just necessarily throw it out of the window. Sometimes it takes a leap of faith because particularly if you want to develop a network, develop professionally, want to collaborate with other people, at some point you have raise your voice. Don't ever think you voice is not worthwhile*

George Maeda: *absolutely*

Satoru Kurosu: *I got into an interesting discussion with **Mark**, Kyutech student, about what he would like to do if you organize the UNISEC-Global Meeting. We came to the idea that he would like to address real issues of the country because we talk a lot about the typhoon hitting Philippines every year. This is serious issue but if there are some development can help mitigate such kind of thing. If a local chapter has an issue to be solved, they can concentrate on this kind of subject, maybe that would be interesting.*

6. New member acknowledgment, announcements and closing

Rei Kawashima, UNISEC-Global



Pictured: Kawashima-san making announcements for the UNISEC-Global Community

Highlights:

- **Introduction of new members**
 - New Point of Contact for Pakistan
 - Dr. Muhammad Kamran Saleem
 - The University of Central Punjab (UCP)El Salvador
 - Required to submission of universities application forms
- **UNISEC-Local Chapter Empowerment Program**
 - Open Seminar: 15:30-17:30 JST, Feb 9th, 2022
 - “UNISEC history, values, and guiding principles, by Shinichi Nakasuka, University of Tokyo, (one of the founders of UNISEC)
 - An international satellite education program initiated by a university, George Maeda, Kyutech
 - Custom made seminar (a local chapter and UNISEC-Global secretariat) upon request
 - Contact: secretariat@unisec-global.org

- **Launch opportunities**
 - J-Cube which is a JAXA and UNISEC Japan's program is providing discounted launch opportunities in 1U-3U and the deadline is on January 31, 2021(another chance in 2022) shared link <http://unisec.jp/serviceen/j-cube>
- **Next virtual meeting**
 - The date for the next virtual meeting is on **February, 2022 10:00 pm - 0:00 am (JST)**
 - Program:
 - Theme: TBD
 - Confirmed speaker: TBD
 - Local Chapter presentation: TBD
 - HOST: UNISEC-TR (Turkey)
 - Mansur Celebi, Secretary General, UNISEC-Turkey
 - Virtual UNISEC-Global Meetings will be re-structured and take place on the Third Saturday almost every month in 2022.
- **Future planning**
 - 10th Nano-satellite Symposium (Japan): Feb 26 – March 4, 2022 (during 33rd ISTS)
 - the 3rd IAA Latin American Symposium on SmallSats & the 5th IAA Latin American CubeSat Workshop to be held on March 08-11, 2022 in Quito, Ecuador.
 - 73rd IAC: 18-22 September at the Paris Convention Center.
 - <Under discussion>
 - 11th CanSat Leader Training Program, August 15-27, 2022 (TBD), Tokyo
 - 11th Nano-satellite Symposium, 8th UNISEC-Global Meeting (in person), 8th Mission Idea Contest: Oct 17-21, 2022, Turkey (TBD).

Small notes from participants

Nate: Next week **The ISU Adelaide Conference on Space Junk** cross **two days 4-5 February**, its **free** to students to come alone to sole topic **Space Junk**. We have got experts from space agencies and companies from all around the indo-pacific to talk about this issue from things like humanities, law (legal aspects), insurance as well as SSA. What the mitigation are, what are strategies, what are on orbit removals techniques are anything related to space junks.

Madea: is there difference between space debris and space junks?

Nate: not it's just space junk sounds cooler, its what people use in news headlines. Students can join free

Shared link: <https://events.humanitix.com/isuac?=RH>

Rei: is there announcement if you want? Is there anybody's birthday in this month?

Mansur: Mine was yesterday

All: Happy birthday!



7. Participant Statistics

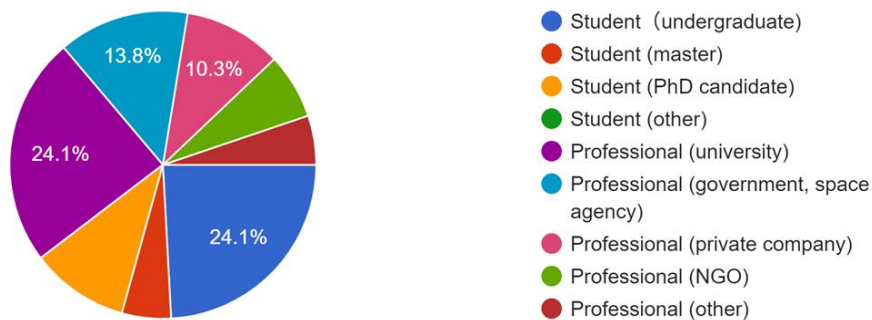
58 registered participants from 23 countries/regions participated in the 17th Virtual UNISEC-Global Meeting.

Country/Region	Number of registrants	Country/Region	Number of registrants
Bangladesh	1	Morocco	1
Australia	1	Nepal	1
Bulgaria	3	Nigeria	2
Cameroon	1	Oman	1
Costa Rica	1	Pakistan	2
Egypt	12	Philippines	11
El Salvador	1	Rwanda	1
Iraq	1	Thailand	1
Japan	10	Tunisia	1
Malaysia	1	Turkey	1
MEXICO	1	United Kingdom	1
Mongolia	2		

8. Participant Questionnaire

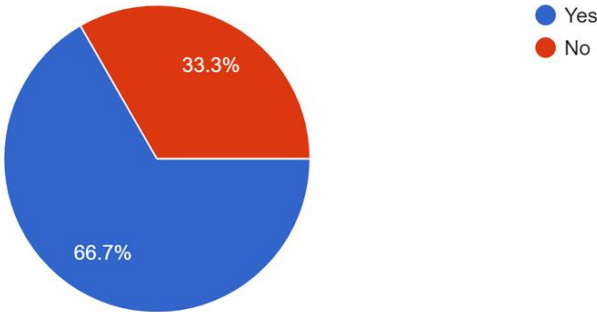
Student or professional?

58 responses



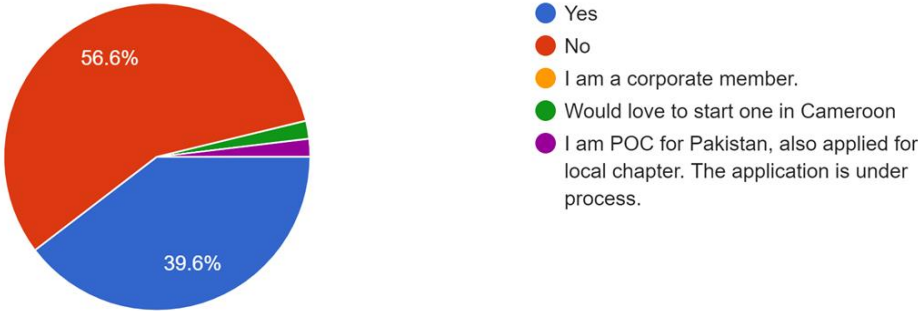
Have you participated in the UNISEC-Global Meeting previously?

57 responses



Do you belong to any UNISEC-local chapters?

53 responses



Thank you