UNISEC-Global The 25th Virtual Meeting

September 17, 2022, 22:00-24:00
(Standard Japan time GMT +9)

The following report was prepared by UNISEC-Global Secretariat
September 17, 2022.
Japan

Table of Content

1. Presentation on “Tokyo International Conference on African Development 8”

George Maeda, UNISEC-Global

He graduated from the University of Maryland in 1981, with a BS degree in electrical engineering. He then received a master’s degree in the same field from Cornell University in 1982. He went to work for AT&T Bell Laboratories, Kyushu University and Kyushu Institute of Technology (Kyutech). While at Kyutech, he was instrumental in BIRDS Satellite project and was responsible to get non-space fairing countries onboard the project. He retired in early 2022 and now serves as an advisor to UNISEC-Global.

Pictured: Maeda-san presenting about his keynote speech in TICAD8

Highlights:

- August 25-26 KiboCUBE Academy Session by JAXA, UNOOSA and UNISEC in Tunisia
- KiboCube Academy is an educational activity
- Proved theoretical knowledge to develop, operate and utilize a CubeSat
- Event took place in Tunisia (https://www.ticad8.tn)
- Keynote address by George Maeda
- **KiboCUBE Academy lectures can be accessed here:**
    - https://www.unoosa.org/oosa/en/ourwork/access2space4all/SatDevTrack_Webinars.html#Tag1
- Help newcomers, non-space engineers enter field of putting CubeSats into space
- August 27-28 2022 TICAD: Tokyo International Conference on African Development
- Tunisia is squeezed between Libya and Algeria, about 12 million people Is building a CubeSat a good way for a country to get started in space
- **KiboCUBE helps countries launch their first satellites into orbit**
- Building a satellite will help to acquire skills
- Old space to new space
- New space has allowed new avenues for countries to develop human resource
- Major Point: For sustainable development of space, human resource development is critical
- Learning by doing is critical in satellite development
- This is because there are unforeseen challenges that can only be overcome by doing
- **1U CubeSat is reasonable investment for country with tight budgets**
- Institutions like JAXA, UNISEC-Japan and Kyutech have programs for space capacity

2. Award Ceremony on “Tunisia Space Essay Competition Award”

Samer Lahouar, UNISEC-Tunisia

Dr. Samer Lahouar has a PhD in Electrical Engineering from the Virginia Polytechnic Institute and State University, Virginia, USA Dr. Lahouar currently an Assistant Professor and Researcher at the Center for Research on Microelectronics and Nanotechnology of Sousse, Tunisia I am the National Contact Point for the Horizon Europe Program – Space

Pictured: Dr. Lahouar announcing names of the winners of Tunisia Space Essay Competition

Highlights:

- Organized on 27-28 August 2022 in Tunisia
- Idea proposed by UNISEC-Global
- Objectives: see what Tunisian youths think of the space sector
    - How to get Tunisian youths interested in space activities
    - Contribute to space activities so that Tunisa becomes a mature space fairing
- Essay topic:
    - **Why should Tunisia become engaged in space?**
    - Could submit in three commonly spoken languages: Arabic, French or English
- 15-25 year old could apply, targeted to young students and adults
- Online form and essay, all done online
- 96 valid responses where 49 were girls and 47 were boys
    - English language essays highest entry
    - Selection criteria included age limit, word limit, minimum error
- If tie break, relation to UN’s SDGs
- Three winners from nine shortlisted individuals
- **Selim Skhiri** (Age 24, Student)
- **Alae Bouchiba** (Age 21, Student)
- **Hayadar Al Houssein Elouaer** (Age 15, High School)
- Winners will be contacted later to be picked up
- Excerpts from essay included how satellites could help Tunisia
- Also includes how space exploration can solve problems at home
- Announcement
    - **1st Conference on SPACE Science, Technology, Application & Regulation**
    - **Shortened as SPACE STAR**
- 27-29 October 2022, Sousse, Tunisa
- Official website: http://spacestar22.crmn.tn

3. Regional Report: UNISEC-Ethiopia

Yeshurun Alemayehu Adde, UNISEC-Ethiopia

Dr. Yeshurun Alemayehu Adde (Kibret) has a PhD degree in Business Administration (focusing on Servant Leadership) and is a PhD scholar in Mechanical Design Engineering (focusing on Space Robotics) in Addis Ababa University. He has also an MSc degree in Mechanical Design Engineering from Addis Ababa University, Postgraduate Diploma in Marine Engineering from Bahir Dar University, and B.Tech. in Mechanical Engineering from Defense University. His research interest includes space robotics, dynamics and control, solid mechanics, unmanned vehicle systems design, and rocketry design. Dr. Adde currently works as the Deputy Director General of Ethiopian Space Science & Technology Institute. He is the founder and chairman of African Aeronautics and Astronautics Center.

Pictured: A file photo of Dr. Adde. He outlined some of the space activities happening in Ethiopia

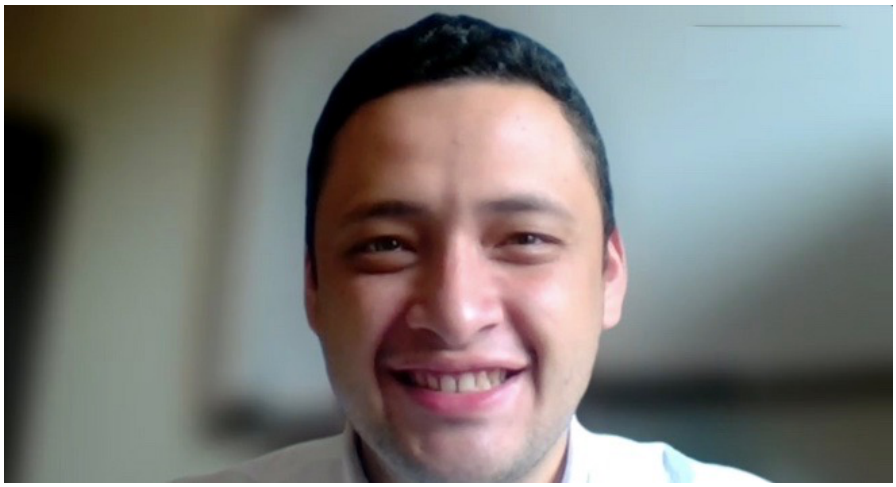
Highlights:

- Ethiopian Space Science Society (ESSS) established in 2004
- Establishment of Ethiopian Space Science and Technology Institute in 2014
- In 2012, establishment of Entity Observatory Research Center (EORC)
- The center has four telescopes for observation
- Graduate program in Masters and PhD
- **Recently established Space Science and Geospatial Institute (SSGI) in 2022**
- EORC and SSGI **merged into one institute** to form a big governmental body
- SSGI has space sector and geospatial sector
- Research and consultancy in astrophysics
- SSGI also has remote sensing department and aerospace engineering
- Geospatial data from China, processing and providing to different stakeholders
- Private and Non-Government Initiatives include:
    - FARIS, N-Jet Dynamics, NERD, APS, AAAC
    - UNISEC-Ethiopia
- UNISEC-Ethiopia will become the pioneer to inspire students to understand space
- The country is working on end-to-end systems (from manufacturing to launch)
- Material research for launch instrumentation
- Establishing Assembly, Integration and Testing (AIT) testing
- Site selection for launch facility in Ethiopia
- Besides research, graduate programs are available for aeronautical/space engineering
- **PhD for Aerospace is also now available**
- Infrastructure including ground stations, labs
- Organizing workshops for intellectual exchange and local conferences

4. CLTP-11 Briefing Session from Graduates I

Andrés Felipe Guarnizo Saavedra, UNISEC-Colombia

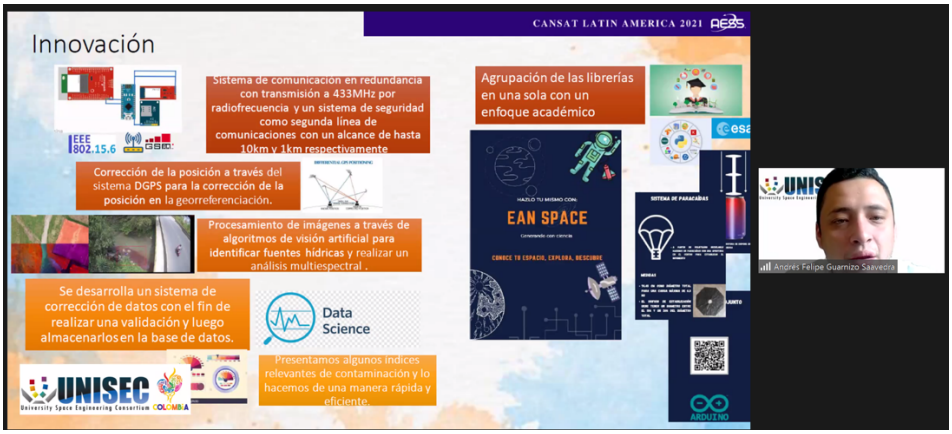
Andres Felipe Guarnizo Saavedra is Electronic Engineer with a master's degree in Electronic and Computer Engineering from the Universidad de Los Andes. With experience in the design, supervision and implementation of academic projects in the field of control and automation, knowledge in programming languages and systems analysis. He is currently working as an assistant professor at the university of EAN in the faculty of engineering and the director off the Mechatronics Engineering program from April 2022.



Pictured: Andres updating the UNISEC community on Colombia's program

Highlights:

- Several activities for space such as building cansat in Colombia
- Coordinating with different organizations to attain a unified goal
- Attended CanSat Leader Training Program-11 (CLTP-11)
- Learned to build entire satellite development cycle from design to launch of model rockets
- Store and Forward CubeSat system for tracking and Micro Weather Station Monitoring
- Satellite takes data from sensor stations and ships
- Satellite communicates to ground station, command station commands the satellite
- Schedule management was very tight to demonstrate end-to-end system
- In CLTP-11, extreme motivation to show the entire system working
- Was able to demonstrate store and forward application using Ground Sensor Terminal (GST)
- Was extremely happy to show all the system working in the HEPTASat Training



Pictured: Andres showing some of the activities in space being conducted in Colombia

5. CLTP-11 Briefing Session from Graduates II

Mark Angelo Cabrera Purio, Kyushu Insitute of Technology

Mark Angelo Cabrera Purio is a registered electronic engineer and space systems engineer. Mark has experience in teaching as an assistant professor at the University Adamson in Philippines, Philippines. As a Ph.D. Candidate in the University of Kyushu institute of technology, he is currently involved in space systems engineering work under various nano-satellite projects from mission ideation to satellite operations. Designs printed circuit boards for different payloads in a 1U, 3U, and 6U satellite, providing support for space environment testing and day-to-day operations of satellites in orbit.

Pictured: Mark sharing his experience on CLTP-11 training

Highlights:

- Involved in CubeSat satellite projects including KITSUNE which was launched in 2022
- Involved in CanSat Leadership Training Program 11 (CLTP 11)
- Learned end-to-end CubeSat development methodology through HeptaSat training toolkit
- Exposure to some of the work Nihon University is doing, venue of CLTP 11
- Self placed hands-on training including rocket launch, gather data wirelessly
- Participants had to go to Akhihabara station to buy additional components for CLTP 11
- Learning both hardware and software side and also had to practice teaching
- Had to work in a multidisciplinary, multi-cultural team
- Developed positive attitude and ability to work under pressure, manage time

Pictured: Mark remarked on how CLTP-11 participants had to teach what they learned to students

6. CLTP-11 Briefing Session from Graduates III

Alisher Aden, Almaty University of Energy and Communication

Alisher is a Ph.D. Student at Almaty University of Energy and Communication in the department of space and engineering. Alisher also hold a master's degree from the same university in the space and engineering and he is currently a teacher in the same field as he pursues his PhD studies.

Pictured: Alisher sharing his experience on CLTP-11 training

Highlights:

- HEPTA-Sat is a hands-on study of small satellite design and engineering
- CLTP is a program on space education which aims to teach actual process of satellite design
- CLTP-11 had 20 participants from all around the world including Kazakhstan, Peru, Thailand
- Schedule Day 1-5 was introduction and rocket launch
    - Gave big picture of what was expected and what the participants should be doing
- Schedule Day 6-9 was mission design and implementation
    - Implementation of ultrasonic sensor to measure distance
    - Teaching practice allowed participants to share experience and learn to teach
- Schedule Day 10-14 was mission result presentation and teaching practice
- Thankful to UNISEC for providing such a platform to learn new things and create a network

Pictured: Alisher showing data and sharing photos of his rocket launch activity during CLTP-11

7. CLTP-11 Briefing Session from Graduates IV

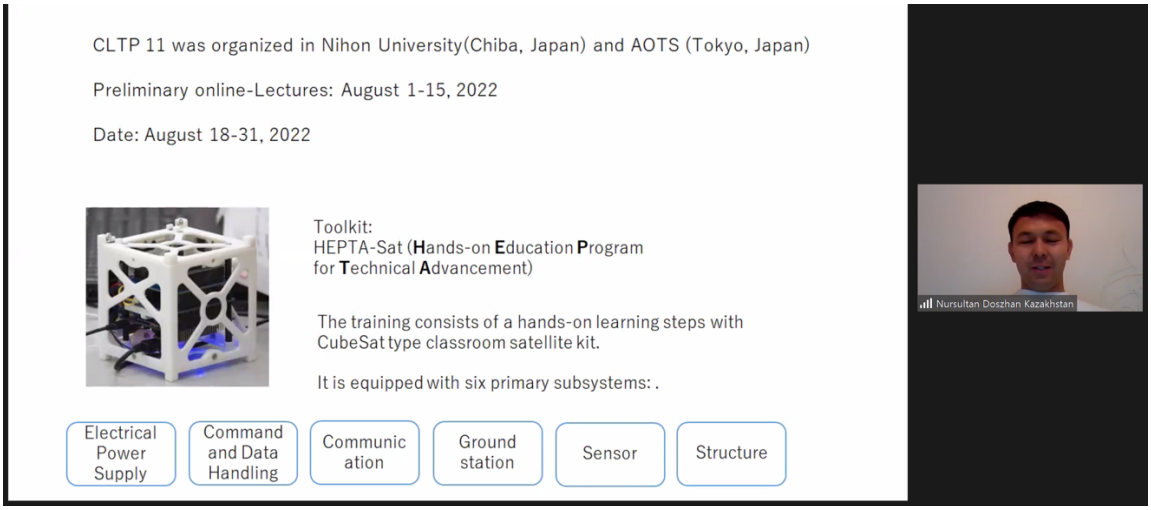
Nursultan Doszhan, al-Farabi Kazakh National University

Dr. Nursultan Doszhan has a Ph.D. from al-Farabi Kazakh National University in the program of Space Engineering with specialization in nanosatellite development, small spacecraft systems, electronics, mechanical and electrical engineering. He is currently a senior lecturer at al-Farabi KazNU, Department of Mechanics.

Pictured: Dr. Doszhan sharing his experience on CLTP-11 training

Highlights:

- HEPTA-Sat (Hands-on Education Program for Technical Advancement)
- Primary subsystems including EPS, CDH, COMMS, GS, STR and Sensors
- 7 main steps from learning, integration, lectures, assembly, design and presentations
- Day 1-3, entire satellite system
- Day 5 was rocket launch for CanSat
- Day 6 was mission design of HEPTASat
- Day 7, field trip to Akhibara to buy components
- Based on the components that were bought, the missions could be selected
- Mission design was imaging mission for rainfall precipitation forecasting



Pictured: Dr. Doszhan explaining the HEPTASat toolkit and CLTP-11 training

8. Announcement and Acknowledgement

Samuel Ndayizene, UNISEC-Global

- **11th Nano-satellite Symposium**
  - Full Paper Submission: **October 3, 2022**
  - Presentation: October 17, 18, 19 (morning)
  - Pre-MIC 8 workshop during the event
  - Official website: http://nanosat11th.itu.edu.tr/index.php

- **Pre-MIC 8**
  - Presentation at workshop (not contest), October 19, 2022 in Istanbul
  - Official website: http://spacemic.net/

- **8th UNISEC-Global Meeting**
  - UNIGLO opening: October 19, 2022 in Istanbul
  - Local chapter presentation and breakout session: October 20, 2022
  - Local chapter empowerment workshop: October 21, 2022
  - Official website: http://www.unisec-global.org/meeting8.html

- **26th Virtual UNISEC-Global Meeting**
  - October 8, 2022 22:00-00:00 JST time
  - Special lecture by Prof. Mengu Cho
  - Theme: "Introduction to Mission Assurance Handbook for University-base Lean Satellites"
  - Download handbook: http://unisec.jp/ma/mission_assurance_handbook_en.pdf

- **Memorandum of Understanding Signing**
  - Between UNISEC-Global and International Academy of Astronautics (IAA)
  - Completed on September 17, 2022 in Paris
  - **Message from IAA**
    - IAA is supporting Mission Idea Contest since MIC I
    - Awards for students for specific topics
    - Preparation of special books for small satellite missions
    - Provides good hope for academia coming through UNISEC-Global
    - MoU will form a formal basis for peaceful space activities
    - Provide students and youths the opportunity
    - Education and academic institutions are coming together for space

- **Future Planning**
  - World Space Week Celebrations by Australian Space Agency first week of Oct
    - https://www.industry.gov.au/australian-space-discovery-centre/schools-space-program
    - **Presentation: Australis OSCAR 5: Australia's first student-built satellite**
  - 11th Nano-satellite Symposium, 8th UNISEC-Global Meeting, Pre-Workshop for the 8th Mission Idea Contest (PreMIC8: Online or in-person TBD), Turkey: October 17-21, 2022

- Details of **39th International Symposium on Remote Sensing of Environment**
  - Turkey: April 24-28, 2023
  - Oct 14, 2022 Extended Abstract Submission

- Details of **39th International Symposium on Remote Sensing of Environment** (Continued)
  - Nov 18, 2022 Abstract Acceptance Notification
  - Dec 02, 2022 Deadline for Early Bird Registration (March 01, 2023 Camera Ready)
  - https://isprs.org/documents/orangebook/app5.aspx
    https://isrse39.com

- Details of **Pre-8th Mission Idea Contest (PreMIC8)**
  - MIC8 will be held in 2023
  - In 2022, hosting regional competition is encouraged
  - Pre-MIC8 workshop will be held in Istanbul (or virtually) in October 2022
  - Mission carried by multiple satellites made of 6U CubeSat or smaller
  - No restriction on the number of satellites as long as there is logic to support that
  - Constellation with no inter-satellite link missions and formation missions with inter-satellite link both are encouraged

- Details of **J-CUBE** opportunity
  - Special (discounted) launch opportunities (1U-3U)
  - Collaboration with UNISEC-Japan's university
  - Application deadline: October 13, 2022
  - Website: http://unisec.jp/serviceen/j-cube

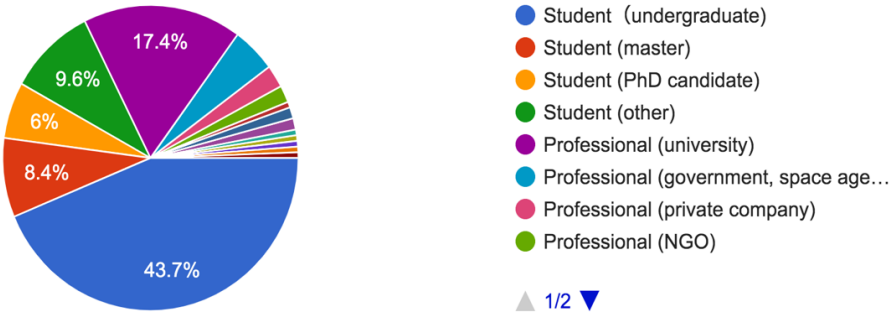
9. Participant Statistics

167 registered participants from **26** countries participated in the 25th Virtual UNISEC-Global Meeting.

Country/Region	Number of registrations	Country/Region	Number of registrations
Algeria	2	Kenya	10
Bangladesh	6	Nepal	3
Bulgaria	1	Pakistan	5
Canada	1	Philippines	9
Chile	3	Rwanda	2
Colombia	1	South Africa	1
Egypt	4	Sudan	1
France	1	Taiwan	2
Ghana	1	Thailand	2
India	17	Tunisia	72
Indonesia	1	Turkey	2
Japan	13	United States	1
Kazakhstan	3	Zambia	3

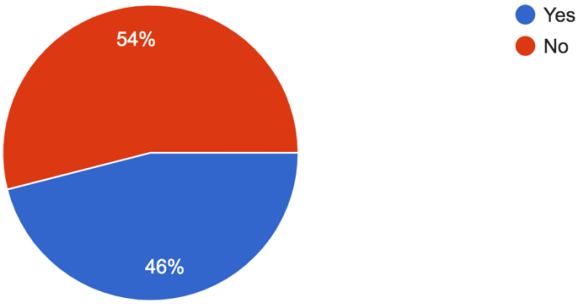
Student or professional?

167 responses



Have you participated in the UNISEC-Global Meeting previously?

163 responses



Thank you