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DUBAI, UNITED ARAB EMIRATES

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WORLD MAJLIS AGENDA

SPACE WEEK
17-23 October 2021

LESSONS FROM SPACE

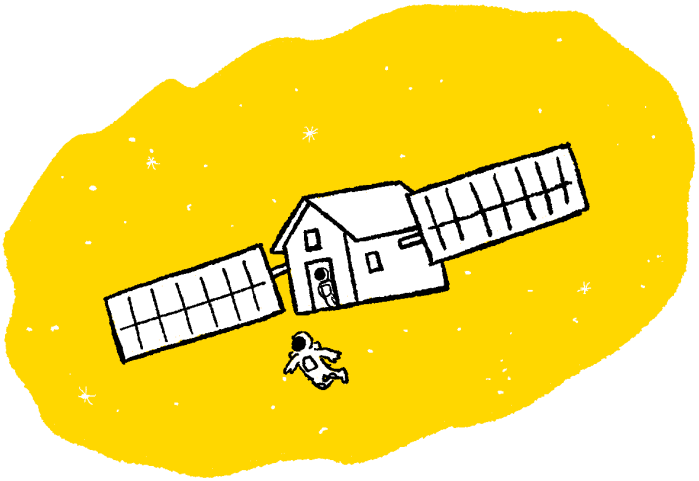
Applying approaches from space to fight climate change

in collaboration with India and Switzerland

DATE Tuesday, 19th October 2021

TIME 4.00 to 6.00 PM UAE

VENUE India Pavilion



THE CONVERSATION TOPIC

LESSONS FROM SPACE

Applying approaches from space to fight climate change

Technological innovations developed for space exploration and manned space flight offer rich potential here on Earth, at a time when efficient resource management is becoming mission critical for humanity.

Space exploration and the fight against climate change have deep connections. Historically, the first major customer for solar energy was the U.S. space programme, and applications like the monumental solar wings that power the International Space Station have helped improve solar technology.

When in orbit, astronauts recycle everything on board, and learn to reproduce oxygen, water, and food from waste. They are trained to sustain prolonged periods in confined spaces and embrace their environment's limitations by using innovative alternatives to their routines on Earth.

Applying such self-sustaining approaches from space could provide a valuable lesson in circular living and better resource management here on Spaceship Earth. As these lessons learned from space exploration inspire new approaches to fight climate change, questions arise as to how these changes should be applied.

How could a space-like way of living help us act more sustainably?

Can approaches from space be replicated on Earth?

How is space technology evolving, and what innovations are helping us today to fight climate change?

Ultimately, could space exploration provide a possible alternative to living on Earth?

MODERATOR

SAEED AL GERGAWI

Director, Dubai Future Academy, UAE

Saeed Al Gergawi is the Director of the Dubai Future Academy, the capacity-building arm of the Dubai Future Foundation, which works in building and developing capacity in future foresight by empowering leaders with the skills necessary to adapt to the future. Prior to joining the Dubai Future Foundation, Saeed worked as the Program Manager for the "Mars 2117" initiative at the Mohammed bin Rashid Space Centre, the UAE's 100-year space exploration strategy. In addition, Saeed was a member of the strategic planning team for the Emirates Mars Exploration Project "Probe of Hope".

PARTICIPANTS

ABDULLA AL SHEHHI

Acting Head for Space Science and Technology Section, UAE Space Agency, UAE

Abdulla joined the UAE Space Agency in 2016, and currently is acting head for Space Science and Technology Section. He's part the Emirates Mars Mission (EMM) working in the thermal subsystem of the hope-probe. Abdulla has also worked in various activities in the 4th Industrial revolution technologies including Virtual Reality (VR) and Nanotechnologies applications within the space-sector. He's a certified Project Management Professional (PMP) and PMI Agile Certified Practitioner (PMI-ACP).

Among his other accomplishments are publishing journal and conference papers predicting the UAE's renewable energy mix in 2030, conducting a feasibility study of launching rockets from the UAE, designing the first Mars Glider, and utilizing nanofluids in the thermal management of small satellites; work that was presented at the International Astronautical Congress, in Australia and United States.

Prior to joining the Space Agency, Abdulla did his research and development activities and his Master's degree in Mechanical Engineering at Masdar Institute of Science and Technology in cooperation with the Massachusetts Institute of Technology (MIT), graduated with a first-class honors degree, and was awarded as UAE's top graduate by His Highness Sheikh Mohammed Bin Rashid Al Maktoum for his outstanding achievements.

PROFESSOR CLAUDE NICOLLIER

Honorary Professor, Swiss Federal Institute of Technology

Member of Space Innovation (Lausanne), Switzerland

Claude Nicollier became an astrophysicist after studies in physics in Lausanne and astrophysics in Geneva. He served part-time with the Swiss Air Force from 1966 to 2004, and flew on the Venom, Hawker Hunter and F-5E Tiger aircraft types. He was active as a First Officer on the DC-9 aircraft with Swissair from 1974 to 1976.

He was selected in 1978 in the first group of astronauts of the European Space Agency, then joined the NASA Johnson Space Center in Houston, Texas, for full training as Mission Specialist on the US Space Shuttle, following an agreement between ESA and NASA. He served as a crew member on four Shuttle missions between 1992 and 1999, including two on-orbit interventions on the Hubble Space Telescope. During his last mission in December 1999, he performed an 8-hour spacewalk to install new equipment on the orbiting observatory. He spent more than 1000 hours in space during these four missions.

He is a member of Space Innovation in Lausanne, Switzerland, and an honorary Professor at the Swiss Federal Institute of Technology. He is also a member of the Federal Commission for Space Affairs, which advises the Federal Council on matters related to the space policy of the Swiss Confederation.

EMMANUELLE DAVID

Executive manager, EPFL Space Center (eSpace), Swiss Insitute of Technlogy (Lausanne), Switzerland

As Executive Manager at EPFL Space Center, eSpace is an interdisciplinary unit responsible for the federation of space activities at the school, which hosts a research initiative on sustainable space logistics and the Space Sustainability Rating.

Emmanuelle has 10 years' experience in space transportation in academia, agency and industry from pre-development projects up to launch operations. She holds Space Engineering degrees both from the University of Technology of Compiegne, France, and the Technical University of Braunschweig, Germany. In 2021, she completed a certificate of advanced studies at the Swiss Institute of Technology in Zürich in Technology and Public Policy: Policy Process.

She is engaged in increasing diversity and inclusion in scientific and engineering fields, is a part of a mentor program for the Swissteciadies and is also a member of the management group from the Swissteciadies Network from the swiss academy of Science (SATW). She is a member of Women in Aerospace and supports the Space Generation Advisory Council "our Giant leap" initiative.

NAOKO YAMAZAKI

Former JAXA astronaut and second Japanese woman in space

Space Policy Committee member, Japan

Naoko Yamazaki is an astronaut and space policy expert. She earned a Master of Engineering degree in Aerospace Engineering from the University of Tokyo in 1996, then started working for Japan Aerospace Exploration Agency (JAXA).

In 1999, she was selected as an astronaut candidate, and went on to qualify as a Soyuz-TMA Flight Engineer in 2004 and NASA Mission Specialist in 2006. On April 5, 2010, Yamazaki was aboard Space Shuttle Discovery as part of the crew of STS-131, an assembly and resupply mission to the International Space Station.

Yamazaki retired from JAXA in 2011 and has served as a member of the Japan Space Policy Committee since 2012, a Chairman of "Sorajo (Women in Aerospace)" under the Japan Rocket Society since 2015, and a representative director and co-founder of the Space Port Japan Association since 2018.

DR SOMANATH SREEDHARA PANICKER

Director of Vikram Sarabhai Space Centre, Indian Space Research Organisation, India

Somanath Sreedhara Panicker is the Director of Vikram Sarabhai Space Centre (VSSC) of Indian Space Research Organisation (ISRO), which is the lead centre responsible for Launch Vehicle development. In the 35 years of service in ISRO, he handled various responsibilities including Director of Liquid Propulsion Centre of ISRO, Associate Director of VSSC, Project Director of GSLV Mk-III Rocket and chief of different technology domains. With a strong background in design, development and management of Launch Vehicle Systems, he is presently serving as Chairman of the Management councils of Launch Vehicle Programs and 'Gaganyaan', the human spaceflight program of ISRO, steering the technology development and management across ISRO.

Mr. Somanath has been awarded many honours from ISRO and professional bodies in India. He is a member of the International Academy of Astronautics. Presently, Mr. Somanath serves as a Vice-President of International Astronautical Federation in charge of the Technical Activities. Mr. Somanath represented India in the delegation to UNCOPUOS and other international space activities.

VIRTUAL PARTICIPANTS

PROFESSOR BRIAN P. SCHMIDT AC FAA FRS

Vice-Chancellor and President, The Australian National University, Australia

2011 Nobel Laureate Physics

Professor Brian P. Schmidt was appointed Vice-Chancellor and President of The Australian National University (ANU) in January 2016.

Professor Schmidt is the 12th Vice-Chancellor of The Australian National University (ANU). Winner of the 2011 Nobel Prize in Physics, Professor Schmidt was an astrophysicist at the ANU Mount Stromlo Observatory and Research School of Astronomy and Astrophysics before becoming Vice-Chancellor.

Professor Schmidt received undergraduate degrees in Astronomy and Physics from the University of Arizona in 1989, and completed his Astronomy Master's degree (1992) and PhD (1993) from Harvard University. Under his leadership, in 1998, the High-Z Supernova Search team made the startling discovery that the expansion rate of the Universe is accelerating. Fellow of the Australian Academy of Science, the United States Academy of Science, and the Royal Society, he was made a Companion of the Order of Australia in 2013.

DR GIOIA D. MASSA

Project Scientist, NASA Kennedy Space Center, USA

Gioia Massa is a NASA scientist at Kennedy Space Center working on space crop production for the International Space Station and future exploration endeavors. She conducts research to study nutrition and flavor in space-grown crops, supports science in a variety of space-station hardware, and works with external investigators. She is active in education and outreach programs related to plants in space. She has a BS in Plant Science from Cornell, a PhD in Plant Biology from Penn State, and postdoctoral research from Purdue and Kennedy Space Center. She has worked in the areas of plant space biology and bioregenerative life support.