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The Alliance for Collaboration in the Exploration of Space (ACES)

Humanity is now embarking on a new era of space enterprise. Public and private research institutions worldwide are pursuing innovative approaches to advance space science, exploration and development. Space-faring nations, building upon these innovations, are working to expand and diversify their cosmic ventures. Non space-faring nations will also benefit from the pioneering technologies emerging through this space revolution, which ultimately could provide pathways to engage all of humanity on the frontiers of space. But there are gaps in the global framework that today are preventing countries just starting to embark on space initiatives (and that need assistance with what is sometimes called “capacity building”) from fully realizing the potential of space enterprise. Other countries require help to develop space training programs, and in some cases need to work on issues related to the longer-term sustainability of space enterprise, as well as measures to help reduce international tensions in space.

In this regard, the Alliance for Collaboration in the Exploration of Space (ACES) seeks to help define and develop broader areas and measures for collaboration in space enterprise by enabling partnerships among space-related institutes and universities that work in related areas. ACES could promote and enable collaborative exchanges to help define ‘best practices’ (through what is often called “transparency and confidence building measures”) and perhaps help to create new regulatory frameworks. The basic idea is to formulate and help sustain useful collaborative international space research, education and training programs, as well as webinars, aid and assistance programs, and initiatives to promote public awareness on key space-related issues. These efforts at collaboration and joint action would tend to focus on key issues of the day. Thus collaboration and efforts aimed to enhance joint action might well address the following issues: (i) space debris and debris removal; (ii) cosmic hazards and planetary defense (particularly with regard to threatening comets, asteroids, and violent solar storms); (iii) long-term sustainability in space; (iv) space safety standards; (v) capacity building and assistance with space training and education programming; and (vi) advancing new collaborative space programs in general.

Recognizing the potential of enhanced global cooperation among space-related organizations, a global team of space professionals is now exploring diverse and creative ways to engage government agencies, universities, scientific institutions and foundations, and international organizations in developing relevant strategies and new lines of communications that can both promote and enhance worldwide collaboration in space-related enterprise. This will include (but not be limited to) new educational and capacity-building programs, innovative space initiatives enabled through public-private partnerships, specific issues related to space safety, planetary defense, international cooperation, and the creation of new international alliances. Known as the Alliance for Collaboration in the Exploration of Space (ACES), this initiative will seek international collaboration with like-minded organizations. In this way, ACES will help to support efforts to reduce costs, promote safety, enhance the benefits, and accelerate timetables for space exploration and development. Specifically, it is designed to promote the development of new international agreements related to cosmic threats, space safety-related issues, space education and training, and international regulatory agreements where there might be a need for new policies and improved frameworks for international partnerships, cooperative activities, new space safety standards, and other space-related alliances and cooperative actions.

At this point, the prime focus of ACES is on the “softer” sciences and ways to help promote international cooperation in space exploration and development. The purpose and aspiration of this organization is to build an international alliance of space organizations and programs sharing a world view that humanity needs strengthened means of collaboration, and stronger global cooperative frameworks to enable new international ties and agreements on such topics as:

- Space Law and Regulation
- Space Safety Standards, Designs and Practices (including space debris, asteroid and comet hazards and solar storms)
- Space Education and Training
- Capacity Building in Nations Starting New Space Ventures
- Innovative Ways to Initiate and Finance International Space Ventures
- Planetary Defense: Innovative Ways to Address Key Problems such as Space Debris and Cosmic Threats
- A More Secure World: Peaceful Uses Of and Minimized Conflicting Activities In Outer Space
- Enhanced Global Collaboration in Space Enterprise

Rules and International Guidelines for Off-World Settlements: An international webinar in late March to discuss ACES-related issues brought together numerous space experts to discuss current space policy issues, such as how and under what types of international frameworks off-world activities could and should be undertaken. Initial discussions indicated that potential issues under consideration involving off-world habitats could and likely would substantially diverge over time. In one scenario, there could be a rather straightforward deployment of international space stations (or even private space depots) which could operate under a specific partnership or formal framework agreement. Regarding the creation of human outposts on the Moon, the various participants would need to agree on much more detailed guidelines and well-defined lists of “dos” and “don’t” than is currently provided by the Outer Space Treaty” or the “Moon Agreement.” The Artemis Accords set forth some specific principles, but this agreement has been signed by a limited number of countries that do not include all nations currently planning lunar exploration activities within the 2020s. It is possible that institutions collaborating through ACES (including space research and space law and regulatory bodies) could assist in developing an extension of the “Artemis Accords” to generate a more comprehensive “Lunar Accord”, with many more nations agreeing to cooperative standards for international exploration of space.

Cosmic Hazards: There is also a good deal of interest in and concern about cosmic hazards that has been discussed among experts in this area. This is another issue where greater international cooperative actions are needed and much greater public awareness is required. It might be possible to work with ACES members and entities such as the U.N. Office of Outer Space Affairs to develop a better pathway toward initiating more activities to defend against space debris and cosmic hazards, extending the efforts of space agencies and other key organizations in this area.

Space Training, Education and Capacity Building: There is also a clear need for greater levels of education and training in the global space arena, and this subject has been a topic of discussion among participants in the ACES Alliance. Closely associated with space training and education are clearly identified needs in capacity building. In all three of these areas, the ACES Alliance might be able to enable productive collaborative initiatives.

Space Debris Removal and Guidelines for Rendezvous and Proximity Operations: One of the most urgent concerns for space enterprise relates to orbital space debris, active space debris removal, and decisions on how to resolve this growing problem. Currently there is no clear agreement on who is to do it, related issues of liability, and who should pay for such activities. ACES collaborators might be able to undertake useful research in this area and develop credible proposals. Several private entities

would now be able to undertake orbital servicing, assembly and manufacturing, as well as active debris removal. These include Astroscale, and McDonald Detwiler and Associates (MDA), among others. Several countries have also demonstrated national capabilities in this area, including the U.S. China, Japan, Russia, Germany, Switzerland, the United Kingdom, France, Europe (ESA), Canada and Australia. However, although technical competence in this area has significantly advanced, there is lack of agreement as to how such activities might be conducted with clear international agreements on the appropriate processes or regulatory oversights.

These are just four examples of space policy and regulatory issues that ACES could address - forging agreements in areas of international concern regarding missing or inadequate space policies. To date, there has been preliminary collaboration with the following space entities:

Aerospace Corporation, Center for Orbital and Re-entry Studies
European Space Policy Institute
For All Moon Kind
Global VSAT Forum
Institute of Space Commerce
International Association for the Advancement of Space Safety (IAASS)
International Institute of Air and Space law, Leiden University
International Lunar Exploration Working Group
International Moonbase Alliance (IMA)
International Space University
Lifeboat Foundation
McGill University Air and Space Law Institute
Moon Village Association (MVA)
National Space Society (NSS)
Off World Inc.
Outer Space Institute (of Canada)
Secure World Foundation
Space and Satellite Professionals International
Space 3.0 Foundation
Space Renaissance International

In addition to these educational, training, and standards organizations, non-governmental entities, and other space-related institutions, it is also our aspiration to work on an informal cooperative basis with the U.N. Committee on the Peaceful Uses of Outer Space, the U.N. Office of Outer Space Affairs, national space agencies, and other appropriate governmental and intergovernmental organizations to help advance the cause and potential of international collaboration in space.

Over the coming months and years, we hope to create a broader and more effective network of collaborating organizations to explore and find creative ways to help resolve the above issues - addressing organizational and operational challenges in space policy, education and training, capacity building, and safety standards - among other issues noted above.

Next Steps

The idea of creating a new multinational collaborative alliance of space-related institutions and organizations from around the world is still under discussion, and any interested individuals and/or organizations who might be interested in contributing to this dialogue are most welcome to contact: joepelton@verizon.net or jim.crisafulli@gmail.com