

International Cooperation for Space Exploration (1)
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COOPERATION AND CAPACITY-BUILDING OF ASIA-PACIFIC COUNTRIES FOR SPACE
 EXPLORATION

Abstract

Although space exploration is repeatedly characterized as an endeavor uniformly accessible to all humans, few countries since the USA and USSR/Russia in the mid-1900s have had the economic and geopolitical capacities to develop into major space-faring nations, causing inequalities in space-based utilities and development. While many partnerships and capability sharing agreements have been formed to assist with capacity building, there are still specific niches and sensitivities that can only be addressed through sovereign capability development. Recently, however, coordinated efforts via private or state partnerships have opened opportunities for emerging and non-space-faring nations to participate in space exploration.

In the Asia-Pacific (APAC) region, several frameworks exist for collaborative missions through cooperation and knowledge-transfer. Further expanding this ecosystem involves crucial considerations in the hows and whys of participating in space exploration. Efforts in characterizing specific entry points into these cooperative frameworks must be made, leveraging the unique assets of a country. A set of recommendations was drafted during the four-day Asia-Pacific Space Generation Online Workshop 2020 wherein these issues were discussed through working groups composed of university students and young professionals from the APAC region. Three core aspects of regional collaboration for space exploration were identified. These include: (1) space-based data exploitation; (2) uncrewed space exploration; and, (3) crewed space exploration. In data exploitation, element standardization is critical to lower barriers for entry and easing clear international regulations drafting, development of APAC satellite sensor suite; boosting AI and Big Data Value-Chain Distribution; and shared-formulation model for capacity-building programs. For uncrewed space exploration, collaboration can be found through joint space projects initiated by the APAC space-faring nations such as Japan, India, and China; early competence-development through scalable regional space exploration competitions; development of a multi-nation satellite, both as a platform for knowledge-transfer and sustained collaboration; and popularization of spin-in technologies to gain public support for exploration. For human space exploration, regional collaboration can spring from leveraging the rich geography, history, and culture of the APAC nations. To accomplish this, grassroot-level curriculum should be developed and integrated with easy analogue missions. Fundamental cross-border research on APAC-specific aspects of health, psychology, and diversity should also be done to address the current lack of data, with particular emphasis on the Asian and female physiology. These identified facets should allow a coherent drafting for a proposed framework of cooperation that will eventually lead to economic development of these nations and strengthen geopolitical relations.