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SPACE INFORMATION SHARING ECOSYSTEMS AS A TOOL FOR CLIMATE ACTION

Abstract

A space information-sharing ecosystem can facilitate space and climate policy interaction at an international level. A united effort of global participants with a focused space architecture and supportive space policy can characterize climate change with precise, factual data. The ability to collect and interpret space-based data relies on science and technology, but sharing that data is a policy question. For example, Landsat and Copernicus programs included the policy decision to make the collected data freely available. These policy decisions were not automatic and had considerable debate and controversy. These large public programs demonstrate the value of shared information, and the ability to combine data from multiple space assets which can serve to overcome the limitations of each. It is in our collective interest to expand the opportunities to share climate data derived from space sources.

While climate action benefits from space data, expanding space-based systems to combat climate change depends first on space safety accessibility and sustainability. Such diplomatic challenges engaging climate change can be instructive for the space sustainability community. This perspective informs the international space discourse on climate change because it illustrates why space and climate policy should interact. National defense, civil space, and commercial industry perspectives on space use are inextricably intertwined. For example, space assets in multiple orbit regimes are key to trend monitoring to verify the efficacy of policies implemented to detect and reduce atmospheric fluorocarbons and Greenhouse Gas (GHG) emissions. Such systems also enable treaty monitoring and compliance for global environmental trends. Thus, multidisciplinary contributions to existing and planned earth observation systems can augment and catalyze the necessary funding, attention, and utility for earth observation sensors in ways that assure their successful design and development.

MITRE's work in support of the U.S. Department of Commerce (Office of Space Commerce) informs this paper to highlight space systems' unique capability to provide global environmental information and insight and offer considerations for emerging roles that the international space community can assist in addressing climate change. Recognizing this interdisciplinary benefit, fostering a space-related information-sharing ecosystem is essential to ensure transparency, confidence, trust, data provenance, and spaceflight safety. Doing so realizes Environmental Security Climate Resilience with the most significant efficacy, equipping space law and policy to evolve in ways that enable the continued growth of mixed LEO constellations to support earth observation.

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