IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

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LEVERAGING SPACE INFORMATION-SHARING ECOSYSTEMS FOR MARKETPLACE-LIKE CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT

Abstract

This paper develops and operationalizes space information-sharing ecosystems as a "Marketplace" for climate action and sustainable development. The study underscores the critical role of international collaboration in harnessing space-based data for climate change characterization. It emphasizes the necessity of a united global effort, underpinned by an integrated space architecture and space policy frameworks, to generate precise and actionable climate data.

The discourse highlights the policy dimensions of data sharing, illustrated by the decision-making processes behind the Landsat and Copernicus programs' open data policies. These examples underscore the debates and controversies accompanying such policy decisions yet demonstrate the substantial need and benefits of making space-derived climate data broadly accessible. By facilitating the amalgamation of data from diverse space assets, these policies have significantly enhanced our ability to address climate change's multifaceted challenges.

The presentation explores the symbiotic relationship between climate action, space safety, accessibility, and sustainability. It presents space diplomacy and policy interaction as essential to advancing space sustainability and pivotal for expanding space-based climate initiatives. The narrative extends to how national defense, civil space, and commercial sectors' perspectives on space utilization converge in the context of climate policy, particularly through earth observation systems that monitor environmental trends and policy efficacy in reducing harmful emissions.

The work of The MITRE Corporation, in support of the U.S. Department of Commerce's Office of Space Commerce, is the foundation for this analysis, showcasing space systems' unique capabilities in providing global space sensor insights and how space innovation can be retooled for socio-economic climate impact. The paper proposes proactive engagement in fostering information-sharing ecosystems. Such ecosystems are vital for ensuring transparency, building trust, and promoting spaceflight safety, ultimately facilitating environmental security and climate resilience. It advocates for the interdisciplinary integration of earth observation systems, highlighting the need for increased funding, attention, and utility to ensure effective design and development. This approach enriches the dialogue on climate change and paves the way for innovative satellite constellations to support sustainable development goals, embodying the session's focus on societal and economic applications, challenges, and benefits of Earth Observation data.

Leveraging SSA principles and TraCCS's technological foundation, the paper suggests creating a marketplace for climate change monitoring by enabling optimized satellite constellations dedicated to mon-

itoring climate change indicators. This paper also discusses the socio-economic benefits of such a marketplace, including developing value-added services for climate resilience and promoting economic growth and innovation in climate technologies.