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SUSTAINABILITY, SATELLITES, AND GROUND-BASED OBSERVATORIES

Abstract

As more and more space applications that improve human life on Earth are developed, it has become increasingly clear that sustainability on Earth and sustainability in near-Earth outer space are inextricably intertwined. This was one of the major conclusions of the recent White Paper prepared by the students of the 2013 International Space University-University of Australia Southern Hemisphere Summer Space Program (ISU-UniSA SH-SSP 2013), entitled ‘Common Horizons’ (<http://commonhorizons.wordpress.com>).

This White Paper was focused on considering these topics from the perspective of the ‘Global South’, those countries that lie in whole or part south of the Tropic of Cancer. How can these countries, each of which has different needs and resources, make effective use of developing space capabilities to further their own sustainable future? The team focused on understanding the “big picture” related to industry, education and the critical space infrastructure that underpins so much of our global society.

During the White Paper research and deliberations, several proposals were made for recommendations that the team did not have sufficient time to work through in the short time they had. Two especially promising ones involve space weather and space debris, both threats to the long term sustainability of outer space. This paper takes up these proposals for the Global South, examining the value of filling in the gaps in the networks of magnetic observatories for space weather and optical debris observatories in the Global South by installing both additional magnetic observatories and small debris monitoring telescopes. The paper also explores these observatories as they could spur space activity and assist in the development of science, math, and engineering education in the Global South.