14TH IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND DEVELOPMENT (D3)
Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and Development (1)

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EXTENDING SPACE EXPLORATION BY EVOLVING AN EARTH-MOON PLANETARY DEFENSE CAPABILITY

Abstract

Planetary Defense (PD) entails the technical means for mitigating asteroid impact threat and building a viable political framework to arrive at a reliable state of readiness to defend Earth from extraterrestrial impactors. This is an advocacy paper combining pragmatic arguments based on current, effective and reliable technologies. Short and long-term scenarios to create the essential global defense structures are discussed. Based on such a premise, an acceptable policy solution for all states might be possible. In the first step, we propose to identify existing systems within the nuclear-military-industrial complex as well as those in the civilian domain that might be deployed immediately to set up and conduct a series of exercises showcasing the limits of our current capabilities for PD. Next, we propose and visualize a near-term goal in setting up a globally responsive PD network (fire-station analogue) based on an intergovernmental model under the current political institutional umbrella of the United Nations International Asteroid Warning Network (IAWN) and Space Mission Planning Advisory Group (SMPAG). Each nation with a PD office would take cooperative action under UN coordination. In this model, a network of PD sites are deployed around the world; based on Earth in the respective territories of participating states. Such a model contributes to Transparency and Confidence Building Measures (TCBM) through cooperation on technology development, data sharing, specialists exchange and mitigation infrastructure. In the following step, we propose and visualize to evolve a multipurpose facility on the far side of the Moon, which benefits from the intergovernmental experience and the well rooted confidence from TCBM foundations laid earlier. The base could be used for a variety of applications across scientific, commercial, transportation and defense sectors. Such an installation would thrive only when built and operated by an authority respected globally by all states without exception. A gargantuan task, which is achievable if enough confidence is achieved among nations. We also base the political architecture on recent historical experience in international relations and cooperation. In particular, it is based on the will of sovereign states to cooperate on environmental issues, collaborate on complex projects like the international space station, CERN, ITER and to further develop the Responsibility to Protect paradigm toward achieving perpetual peace and to enhance the long term survivability of our species and the biosphere. PD offers a clear

argument why the future outer space regime has to be based on a renewed determination for global cooperation.