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Assuring a Safe, Secure and Sustainable Environment for Space Activities (4)

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REDUCING VULNERABILITIES OF SPACE ACTIVITIES

**Abstract**

Orbital congestion, contestation and competition are on the rise, and space activities are expected to align with treaties, arrangements, and guidelines elaborated at a time when the space ecosystem was simpler - and it is becoming more complex. In order to cope efficiently with this changing situation, at a time when space systems have become an indispensable enabler for an ever increasing range of socio-economic activities, new rules of the road are necessary. Indeed, these should ensure the sustained stability and security of the space environment, providing norms and standards beyond transparency and confidence building measures, laying the ground for the founding elements of a space traffic coordination (management?). Hence, for us to be dependent on a reliable space-enabled information flow will require a significant decrease of their vulnerability; protection as well as "fail safe" are becoming the chief concerns. This paper will first review the current legal and regulatory provisions under which space activities take place, pointing out some limitations of the international dialogue, which is quite complex, anarchic, and with no clear global leadership, complicated by the dual use (civil and military) of space. Moreover, enforcement appears to be ineffective. It will then consider new public, as well as private, initiatives that are underway, evaluating the robustness of their foundations. Possible avenues are proposed in support of the most recent prominent initiatives, including the possibility for an international agreement on standards and behaviours, or an international civil space organisation inspired by the International Civil Aviation Organisation - ICAO. Emphasis will be placed on the urgency of bringing together these initiatives and processes under a common umbrella, or at least to achieve the convergence of a set of rules noting that international hard law provisions are far reaching. A step-by-step approach is suggested, addressing immediate, mid-term, and long-term actions to provide a stable space environment favourable to LEO large constellations, in-orbit refuelling/repairing, active debris removal, human commercial space-flight, cis-lunar/interplanetary traffic, space resources exploitation, and security/defence operations.