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NOT ALL SPACE DEBRIS IS JUNK – A COMPREHENSIVE MANAGEMENT STRATEGY FOR
CULTURALLY SIGNIFICANT SPACECRAFT.

Abstract

Space heritage relates to the human exploration of space in the 20th and 21st centuries. It consists of objects and places on the surface of the Earth, in Earth orbit, on other planetary bodies and throughout the solar system. It represents a distinct social and technological phase in human evolution.

By far the largest off-earth component of this heritage resides in Earth orbit. Since the launch of Sputnik 1 in 1957, Earth orbit has become filled with debris – over 29 000 pieces 10 cm and larger, and millions of fragments below this size. The proliferation of space junk has the potential to affect satellite services that the people of Earth rely on to deliver telecommunications, Earth observation, navigation, timing and more. It is widely recognised that some form of active debris removal is needed to secure access to space for the future.

However, some of this debris has historic and heritage value. Gorman (2005a, 2005b, 2009, 2015) has established that numerous defunct satellites in Earth orbit have cultural significance for populations of Earth for their historic, aesthetic, scientific and social values as defined by the internationally recognised guidelines of the Burra Charter (2013). Such satellites include Vanguard 1, the oldest human object in space, Telstar 1, the first active telecommunications satellite, and Syncom 3, the first geostationary satellite. For such satellites, protection in situ is an appropriate management strategy when the collision risk is low. Gorman (2010) outlined a process to protect culturally significant space objects, including an assessment of the nature of the resource, formal and informal heritage lists, an International Council on Monuments and Sites technical committee, and an environmental impact framework.

This paper builds on Gorman's previous work and elaborates on mechanisms and concepts necessary for ensuring that some culturally significant spacecraft survive into the future. While heritage is often perceived as a constraint to development, this paper shows that it can be regarded as an opportunity in Earth orbit with which to test the principles needed in space environmental management and to promote inclusiveness as recommended by the Vienna Declaration (1999). It's no longer enough to treat space junk as isolated individual units. Viewed as part of an archaeological 'assemblage' or cultural 'spacescape' which spans variable gravity contexts, culturally significant space artefacts enable end-users on Earth to feel connected to space as the common heritage of humanity.