

Losing Access to Space

Are we building a fence around our planet?

A personal view - John I Davies

A recent article in Space Daily [1] flagged by a BIS news group [2] raised again the concern that we may be fencing ourselves in to our planet with orbiting debris. The interstellar ambitions of i4is and our companions in this long-term endeavour may thus be rendered unachievable even in the long term.

Debris around Earth.
Credit: ESA



A look around Google Scholar finds much legal & regulatory, a fair bit on proposals for remediation and some about equipping satellites to de-orbit themselves.

There seems to be little on long term scenarios including statistical analysis of debris and collisions. Here is a comment in a 2021 paper from the 1st ESA NEO and Debris Detection Conference (2019)-
conference.sdo.esoc.esa.int/proceedings/sdc8/paper/206/SDC8-paper206.pdf

It is important to emphasize that this framework is not intended to make forecasts of the debris environment, while future iterations may provide useful forecasts, research is still needed to better understand the appropriate model structures and specifications for forecasting [3].

Who is working to yield that research?

My amateur judgement, for what it's worth, is pessimistic. I see no plausible scenarios which do not make access to space hazardous to the point where debris collision is the most significant inhibiting factor limiting our exploitation and exploration of space - possibly to the point where crewed missions are too risky for all but the foolhardy and we simply have to do without space as a resource.

Just as an interplanetary civilisation is a prerequisite for human access to the stars, our access to space is a prerequisite for an interplanetary civilisation. No space means no interstellar.

At Principium I will be keeping an eye on this issue and we would welcome comments from readers - especially those with a professional interest in our long-term access to space.

[1] *A world without access to space*, Oct 25, 2021 www.spacedaily.com/reports/A_world_without_access_to_space_999.html

[2] groups.google.com/g/astronautical-news

[3] *An Integrated Debris Environment Assessment Model*, Akhil Rao and Francesca Letizia, 8th European Conference on Space Debris