IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)
Interactive Presentations - IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (IP)

Author: Dr. Jonathan McDowell
Harvard-Smithsonian Center for Astrophysics (CfA), United States, planet4589@gmail.com

# DOES SPACE START AT 80 KM? REVISITING THE KARMAN LINE

**Abstract**

I review the Karman argument for the delimitation of space and show that for plausible satellite properties and the observed range of atmospheric conditions, gravitational forces exceed aerodynamic forces for an object travelling at orbital velocity when its altitude is above a geodetic altitude H, where H lies between 70 and 90 km in almost all cases. I compare this theoretical treatment with an empirical analysis showing that elliptical orbit satellites often survive when their perigees are 80 km or more, but never when the perigee drops below 80 km. I conclude that the Karman calculation does provide a sensible choice for the delimitation of outer space, but that limit should be at 80 km rather than the oft-quoted 100 km value.