



Brian Dodson

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Hi, David,

I'm tying up the Interplanetary hydrogen Zomb. According to the ATLAS 1 mission (launched on Atlantis), the density of neutral hydrogen near the Earth's orbit is roughly 0.165 atom/cc. Based on this, I worked out two numbers. The amount swept out by the physical bulk of the Earth in a year is about 3×10^4 kg, while the amount swept out by the volume of the Earth's gravitational dominance (about 1 million km, as you suggested) in a year is about 7×10^8 kg. Not very much in the great scheme of things, I'm afraid.

Best, Brian

Hi Brian, many thanks for that. I needed this figure to see whether hydrogen loss or gain by the Earth is significant in determining the balance of water (sea volume) on an expanding Earth. It looks like gains in total ocean volume are mostly due to release of water from crustal rocks as the Earth expands, which is why the proportion of the Earth covered by ocean can keep pace as the surface area increases. I imagine that the Earth loses hydrogen at the upper atmosphere as well as gaining by gravitational attraction. This is just for background, feel free to comment if anything occurs to you. Cheers, David. 2011 Nov 1.