

Re: radiation shielding for a habitat

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Cray74_at_gmail.com

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Alfred Montestruc wrote:

> *How much is needed and of what type?*

As a rule of thumb: a lot of mass.

> *This winds up being about 23.1 to 33.92 foot thick (7.03–10.34 meters)*

> *of liquid water.*

That's about correct. 14.7 pounds of mass per square inch should give you radiation shielding on par with Earth's atmosphere.

> *Is this a reasonable approximation?*

Yes.

> *Or does someone have a better reference with hopefully*

> *less massy shielding ideas?*

You could use thinner shields of denser materials, and some layered multi-material shields have certain advantages against different types of penetrating radiation, but a ~30ft thick wall of water is a good start.

> *I am aware that this much will not be needed all the time, but even for*

> *a radiation shelter this is pretty heavy.*

I believe you can get substantial protection from most radiation threats with, say, a meter or two of water. If you want a temporary storm shelter, a big tank of water reaction mass is a good start. You need the water for the engines, and it can serve as shielding, too.

Mike Miller, Materials Engineer