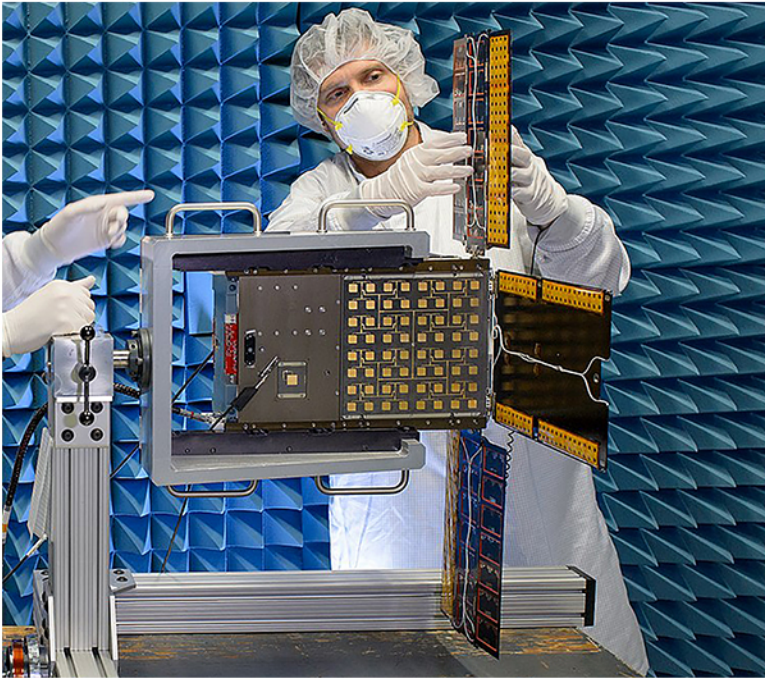


BioSentinel



BioSentinel: The first deep space biology CubeSat mission.

BioSentinel will conduct the first study of the biological response to space radiation outside LEO in almost 50 years.

The limits of life in space – as we know it – is 12.5 days on a lunar round trip or 1.2 years in LEO. As we send people further into space, we need to understand the biological risks and how they can be addressed.

BioSentinel is a yeast radiation biosensor designed to measure the DNA damage response caused by space radiation with the goal of providing a tool to study the true biological effects of the space environment at different orbits.

Why?

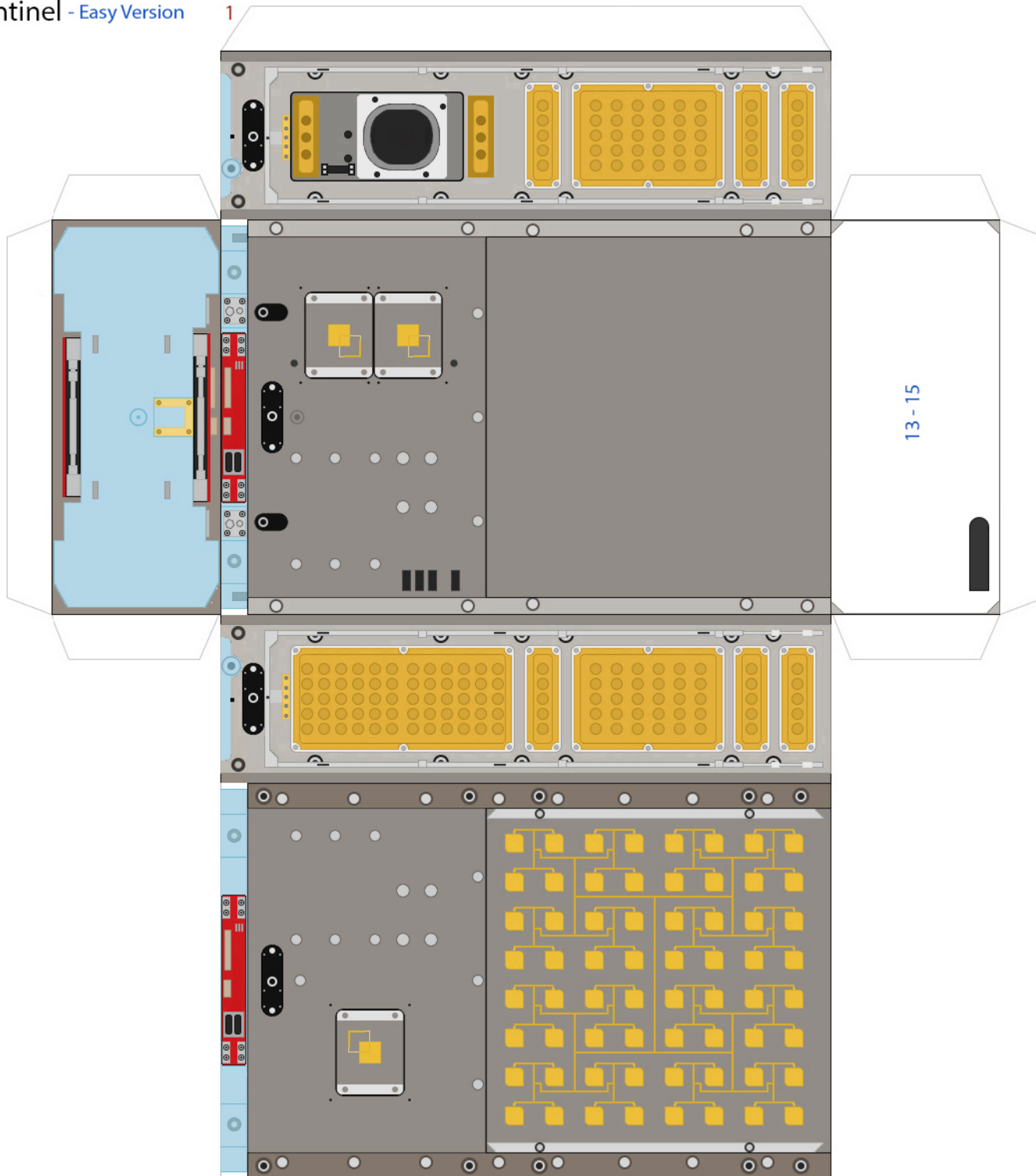
Space radiation environment's unique spectrum cannot be duplicated on Earth. It includes high-energy particles, is omnidirectional, continuous, and of low flux.

To learn the basics of what happens to life in space, researchers often use "model organisms" that we understand relatively well. This helps show the differences between what happens in space and on Earth more clearly. For BioSentinel, NASA is using yeast – the very same yeast that makes bread rise and beer brew. In both our cells and yeast cells, the type of high-energy radiation encountered in deep space can cause breaks in the two entwined strands of DNA that carry genetic information.

Often, DNA damage can be repaired by cells in a process that is very similar between yeast and humans. BioSentinel will be the first long-duration biology experiment to take place beyond where the space station orbits near Earth.

- ☒ Nov. 16, 2022: BioSentinel launched to deep space aboard Artemis I.
- ☒ Dec. 5, 2022: BioSentinel began science operations in deep space.
- ☒ Dec. 19, 2022: BioSentinel began ground control science operations at Ames.





13



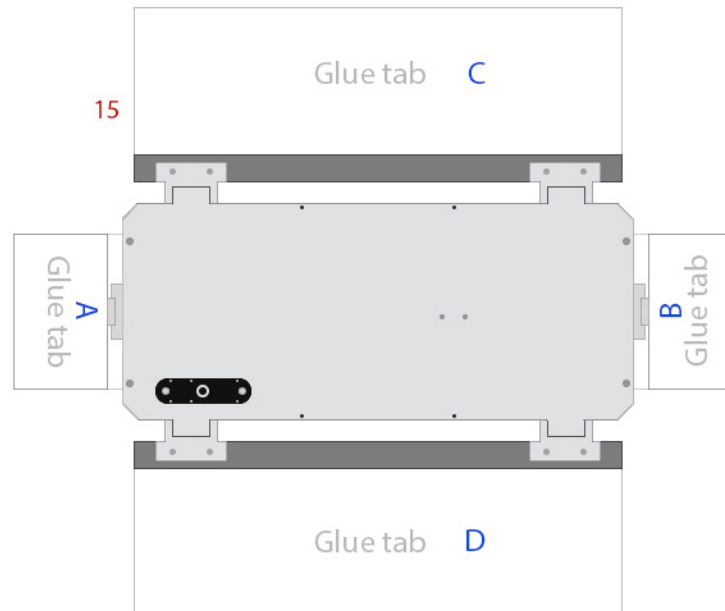
14 - 15

Glue to cardstock

14



15



Glue tab C

Glue tab A

Glue tab B

Glue tab D

Glue 15 to the backside of 14, then to part 13

