IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Virtual Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (VP)

Author: Dr. Sian Proctor
United States, sian@flightreadysystems.com

# MEALS FOR MARS: A SUSTAINABLE SOLUTION TO FOOD WASTE ON EARTH

**Abstract**

The Meals for Mars project investigates the intersection of food, exploration, and sustainability on Earth by exploring the question, "What would you want to eat on Mars?". It is an evolving look at how shelf-stable foods used during Mars analog missions can be entwined with public engagement and outreach. In 2013, Dr. Sian Proctor participated in a 4-month Mars simulation funded by NASA specifically to investigate food strategies for long duration spaceflight. Before the mission, she invited individuals from around the world to submit recipes using a list of shelf stable ingredients consisting mainly of freeze-dried fruits, meats, and vegetables. This resulted in 25 recipes being created by her and the crew during the 2013 Mars mission which was conducted at the Hawai'i Space Exploration Analog and Simulation (HI-SEAS) habitat. In 2018, Dr. Proctor synthesized the HI-SEAS experience with her geoscience background to formulate the TEDx Talk titled Eat Like A Martian. This presentation focused on how freeze-dried foods could have a positive impact on food transportation, food storage, and food waste around the world. In 2019, Dr. Proctor published the Meals for Mars cookbook and then returned to the HI-SEAS habitat in 2020 for a two week Mars simulation called Sensoria. She used the Sensoria Mission as an opportunity to investigate how crew members felt about pre-packaged freeze-dried meals. The take-away results have been simple: solving issues around human space exploration helps to solve complex issues of human sustainability on Earth. Freeze-dried foods have 98 percent of the water removed which makes it lightweight and perfect for leaving Earth's gravity well, but also perfect for reducing shipping costs worldwide. Because freeze-dried foods are easily transported, shelf-stable for long periods of time, and can be consumed with minimum preparation - they become a disaster relief resource. It is estimated that nearly a third of all food produced in the world is discarded or wasted. People in the United States throw away 40 percent of all purchased foods. Investing in freeze-dried foods has the potential to reduce the amount of food that spoils worldwide. In her presentation, Dr. Proctor will present the Meals for Mars program and her experience engaging the general public to actively participate in space analogs by submitting recipes for the crew to cook while in simulation. She will also discuss ongoing outreach activities that encourage people to be more sustainable and to Eat Like a Martian.