

Abstract Submitted
for the OSS21 Meeting of
The American Physical Society

Advanced Terrain Manipulator for Organized Sample Preparation and Handling for Evaluation or Research of Europa (ATMOSPHERE)¹ ISAAC KOZAK, JUDE HADDAD, DOUGLAS MARSH, None — Water is a key component to life on Earth, leading NASA to actively search for sources of water throughout the solar system to gain insight into the conditions necessary for biological genesis. Europa, a moon of Jupiter, is a clear target for such missions inside the solar system, as under its icy crust lies what is believed to be liquid water oceans capable of harboring life. Sampling of surface areas near known cracks provides an opportunity to investigate samples for organic signatures that offer clues to the presence of life on Europa. The ATMOSPHERE rover is designed to gather critical data by means of a sample collection sub-system. The sample collection sub-system on board ATMOSPHERE will be equipped with a drilling apparatus, robotic arm, and sample storage to carry out the sample collection. All components needed for operation of ATMOSPHERE will be designed to survive the harsh conditions of Europa including cryogenic temperatures and high radiation. The ATMOSPHERE mission provides necessary data about liquid water from other celestial sources that targets the formation and sustainability of life that exists off-Earth.

¹Advanced Terrain Manipulator for Organized Sample Preparation and Handling for Evaluation or Research of Europa (ATMOSPHERE)

Isaac Kozak
None

Date submitted: 30 Mar 2021

Electronic form version 1.4