

## ICES Abstract

Title: NASA Advanced Space Suit Pressure Garment System Status 2023

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This paper discusses the current focus of NASA's Advanced Space Suit Pressure Garment Technology Development team's efforts, the status of that work, and a summary of longer term technology development priorities and activities. The Exploration Extra-vehicular Activity Mobility Unit (xEMU) has been the team's primary effort over the past several years. ICES papers in 2022 detailed the design of the xEMU pressure garment components. This paper outlines the design updates to the xPGS since that time. More notably, this paper documents the various tests executed with the xPGS to evaluate its performance, durability, and acceptability for microgravity and Lunar missions. An overview of ongoing and planned xEMU testing and training is provided. The PGS team's transition from xEMU development and testing, to supporting the Exploration Extravehicular Activity Services (xEVAS) vendors will also be discussed. In addition, technology development efforts in coordination with the EVA and Human Surface Mobility Program (EHP), the NASA Engineering Safety Council (NESC) and the Small Business Innovation Research (SBIR) Program will be discussed in the context of supporting sustaining EVA operations on the Lunar surface over the coming decade. Finally, a brief review of longer-term pressure garment challenges and technology gaps will be presented to provide an understanding of the advanced pressure garment team's technology investment priorities and needs.