

Private Astronaut Post-Mission Debrief Interviews Study

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BACKGROUND

The commercialization of space will increasingly include individuals that are not rigorously-selected, highly-trained professional astronauts. Private astronaut missions (PAMs), such as Axiom-1 in 2022, will continue to travel to the International Space Station in the coming years, but the risk of integrating private astronauts with NASA astronauts has not been clearly quantified nor mitigated. An earlier internal NASA operations assessment, which consisted of a comprehensive literature review and interviews of current NASA experts, found that PAMs are likely to increase the risk to NASA astronauts during integrated missions (Landon, Whiting, Russell, Schorn, Passmore, & Roma, 2022). There are ongoing efforts at NASA to mitigate concerns from a medical, psychological, and technical perspective. NASA experts are working closely with PAM providers to offer recommendations and best practices beyond the limits of requirements to ensure crew health and safety. However, efforts are siloed between groups to some extent, and with the rate of PAMs likely to increase, a more comprehensive and integrated process is needed to reduce the burden on NASA resources.

AIMS

The purpose of this project is to understand private astronauts' motivations for journeying to space, their pre-mission preparation period, and their experiences in space. Data will be collected via private astronaut post-mission debrief interviews. This data will inform training needs and in-mission support needed for missions that include private astronauts; the preparation NASA astronauts and mission support personnel will need to work with these integrated crews; and gaps in knowledge to guide research and countermeasure development.

Our study aims to (1) Characterize risks posed by commercialization and private astronaut crew integration in spaceflight operations, as it relates to Team, Human Systems Integration Architecture (HSIA), and Behavioral Medicine (BMed) Risks, (2) Recommend potential countermeasures and identify gaps in current research. Countermeasures may be related to crew selection and composition, training, crew support systems (e.g., medical/psychological support, support from Mission Control, on-board resources), and habitability and human factors design.

METHOD

The BHP Lab will conduct 30-minute interviews with up to eight (8) private astronaut mission (PAM) astronauts (e.g., Axiom) and spaceflight participants (e.g., SFPs or "free flyers" on Polaris Dawn) per year from 2024-2030 to discuss knowledge gaps and needs related to selection and assessment, crew composition, training, crew support systems (e.g., medical/psychological support, support from Mission Control, onboard resources), and habitability and human factors design, which may influence the risk to NASA astronauts. Interviews will then be coded using thematic analysis and interpreted with the assistance of lexical analysis software (e.g., LIWC). As of the end of 2024, we have collected data from one PAM crew. At the conclusion of data collection in 2030, a final report will be prepared integrating all data collected by 2031.

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SUMMARY

Post-return interviews of private astronauts are being conducted to understand their experiences and inform training and countermeasures to ensure the safety of all who journey to the ISS.