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Space Architecture: Habitats, Habitability, and Bases (1)

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THE INTERNATIONAL SPACE STATION ARCHAEOLOGICAL PROJECT: NEW INSIGHTS INTO
DESIGNING SPACE HABITATS

Abstract

The International Space Station has been continuously inhabited for over 21 years, with more than 250 visitors from 19 nations (42

This paper presents several phases of ISSAP's research and results to date. The first is a long-term study of NASA's historic photo archive and Inventory Management System from ISS. This included a study of crew-created visual displays in different areas of ISS, which identified how these displays intersected with identity. A second study mapped the distribution of different population groups (women/men, different nationalities, different space agencies) on ISS by module - a result never before possible for a space habitat. We conducted an ethnography of the return of ISS objects to Earth to understand the meaning and significance of the objects as part of a whole system. Finally, we conducted the first archaeological experiment to take place outside Earth. The Sampling Quadrangle Assemblages Research Experiment (SQuARE) was carried out by the crew of Expedition 66 between January and March 2022. Six sample areas around the station were photographed by crew every day for 60 days in a process analogous to archaeological excavation, offering an unprecedented view of how objects and spaces were used. Avenues of future work inspired by our results so far include the ways that restraints such as handrails, Velcro, and resealable bags are used by the crew to replicate the effect of gravity in different locations of ISS.