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Author: Dr. Shawna Pandya
International Institute for Astronautical Sciences (IIAS), Canada

Dr. Aaron Persad
Massachusetts Institute of Technology (MIT), United States
Dr. Jason Reimuller
Integrated Spaceflight Services, United States
Mr. Kenneth Trujillo
International Institute for Astronautical Sciences (IIAS), United States

SIMULATION OF CONTINGENCY WATER EGRESS OPERATIONS IN OFF-NOMINAL LANDING SCENARIOS

Abstract

Ascent aborts often produce off-nominal water landings, a contingency scenario that drives design of vehicles, spacesuits, and the operational procedures of crew and ground support. Analog environments and simulations allow designers to refine vehicle and suit/seat designs and allow crew to retire risk by practicing complex procedures and preparing for contingencies ahead of flight. In this paper, we outline the development, operations, and evolution of the International Institute for Astronautical Sciences (IIAS) post-landing water egress course. This course allows participants wearing an intravehicular activity (IVA) spacesuit to learn and practice multiple emergency egress scenarios, including side and top-hatch egress from an Orion capsule mock-up, a simulated parachute drop into the water, and how to ingress a life raft while wearing a flooded IVA suit.