

## ***Hands-On Zero Gravity***

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### **Abstract**

Zero Gravity Corporation (ZERO-G) has made human-tended research possible with parabolic flight for fifteen years. Aboard *G-FORCE ONE*<sup>®</sup>, scientists achieve eyes-on/hands-on control of payloads during consecutive periods of high and low-Gs to achieve robust research outcomes on each flight. *G-FORCE ONE*<sup>®</sup>, ZERO-G's specially modified Boeing 727, provides the ideal platform for a broad spectrum of study incorporating up-close monitoring and hands-on manipulation.

Many elements must come together in order to create an environment for success. These elements can be divided among three broad categories: Comprehensive flight planning, inflight awareness/involvement, and post-flight follow up. Thorough attention to the details within each of these groupings create the highest possible chances for a fully successful mission. This session will review and discuss each of these steps from beginning to end with input on lessons learned from previous ZERO-G flight customers (yet to be confirmed). It is anticipated that representatives for different areas of research will support the session including but not limited to medical, structural engineering, and chemical.

Working with ZERO-G, researchers obtain hands-on and eyes-on access to manipulate their payloads in repeated microgravity and hyper-gravity states to immediately affect change and record data for future use. While everyone knows there exists the possibility for sudden and unexpected events, meticulous pre-planning in conjunction with inflight attention to detail and proper post-flight follow up minimizes those chances and provides an environment most suitable for a comprehensive and successful mission.