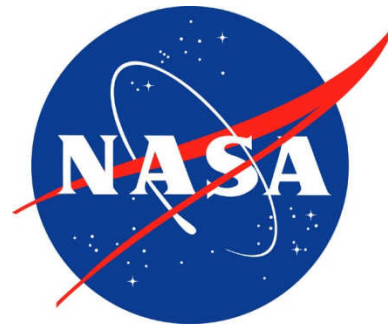




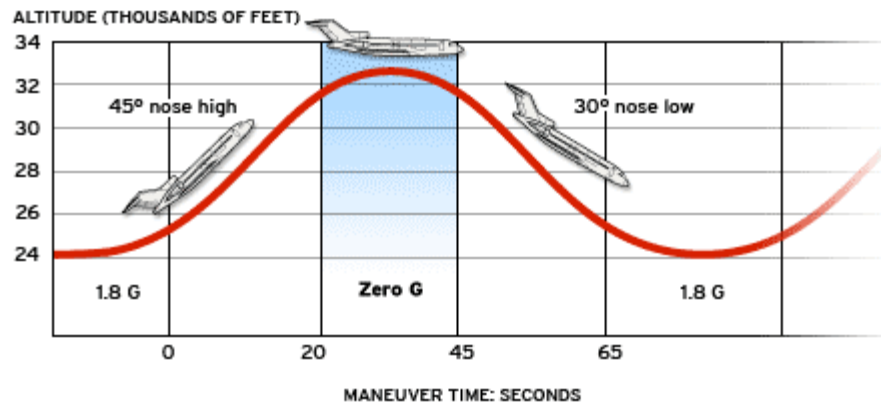
University of Wisconsin

ZeroG Team



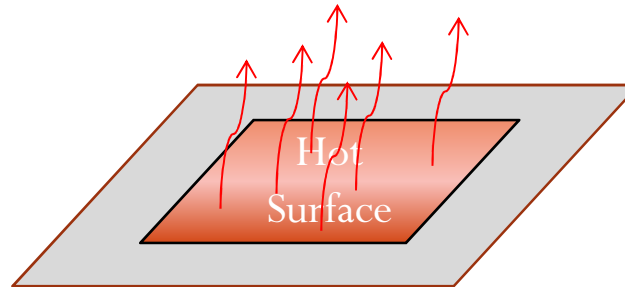
Escaping Gravity

- Following a parabolic trajectory
- Microgravity lasts for ~20 seconds
- Similar to a roller coaster

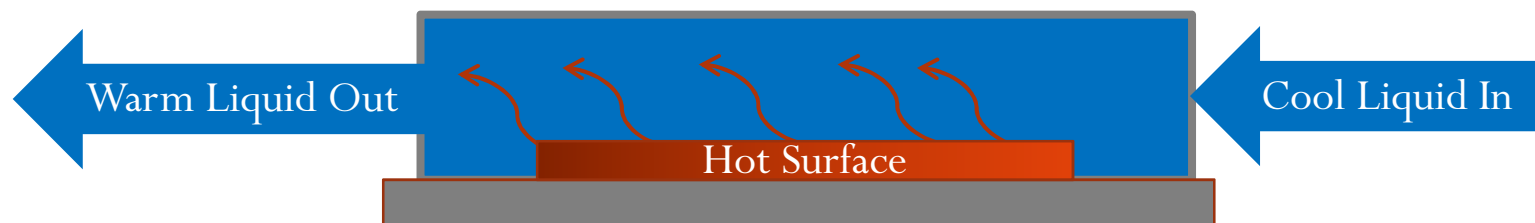


Methods to cool hot surfaces

- Convection (air) cooling

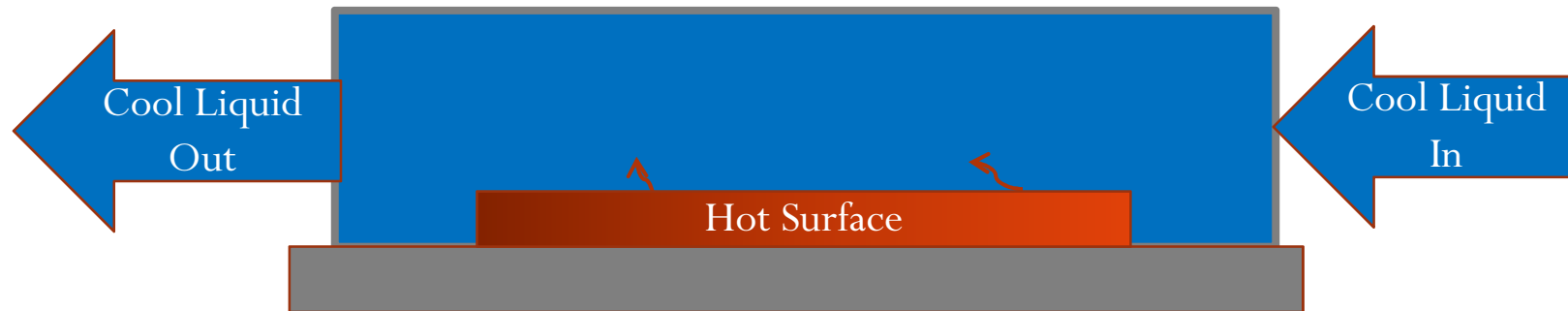


- Liquid Cooling



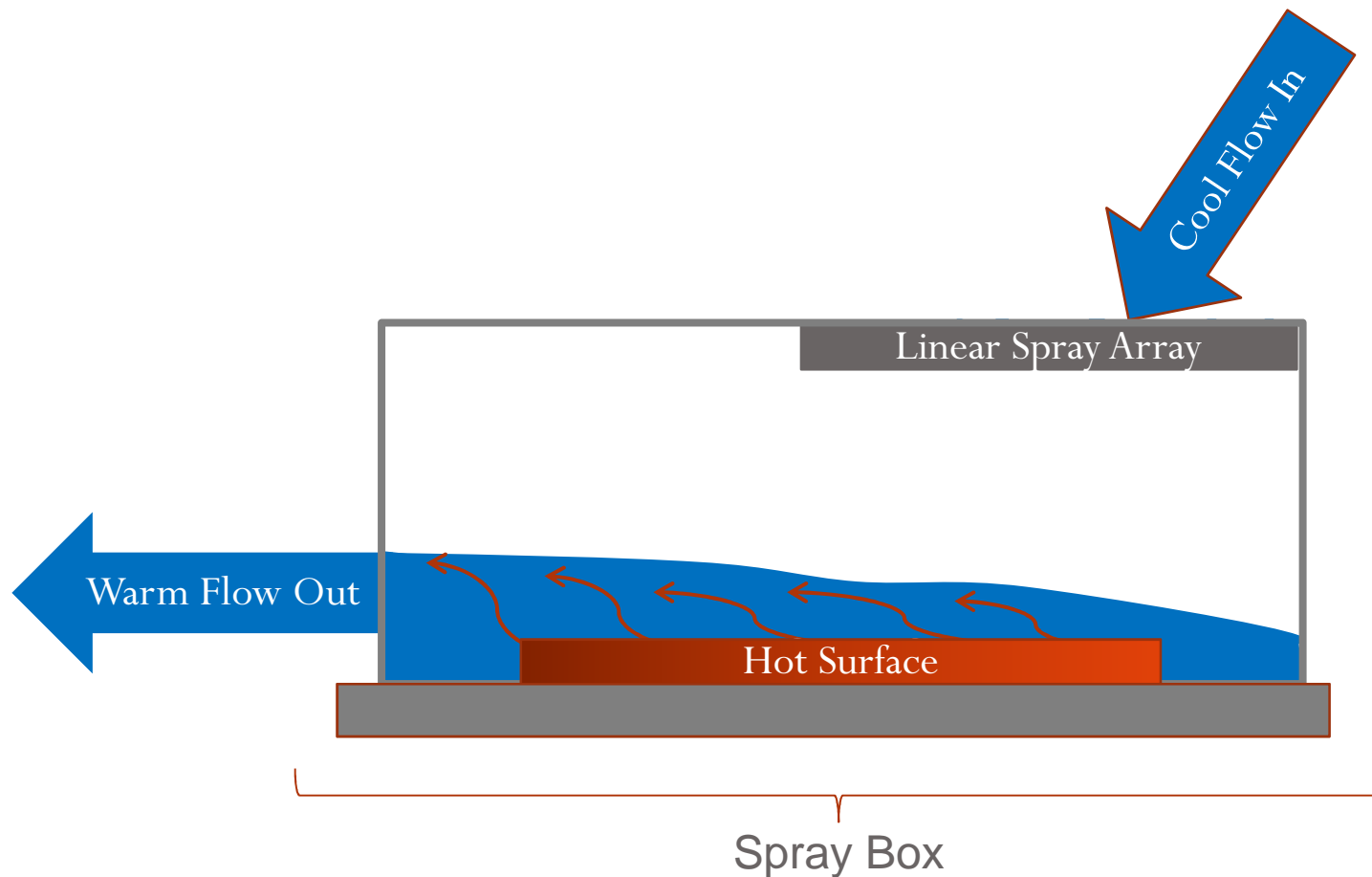
Problems

- Vapor forms on the hot surface and prevents cool liquid from reaching it.
- The hot surface overheats, breaking it.



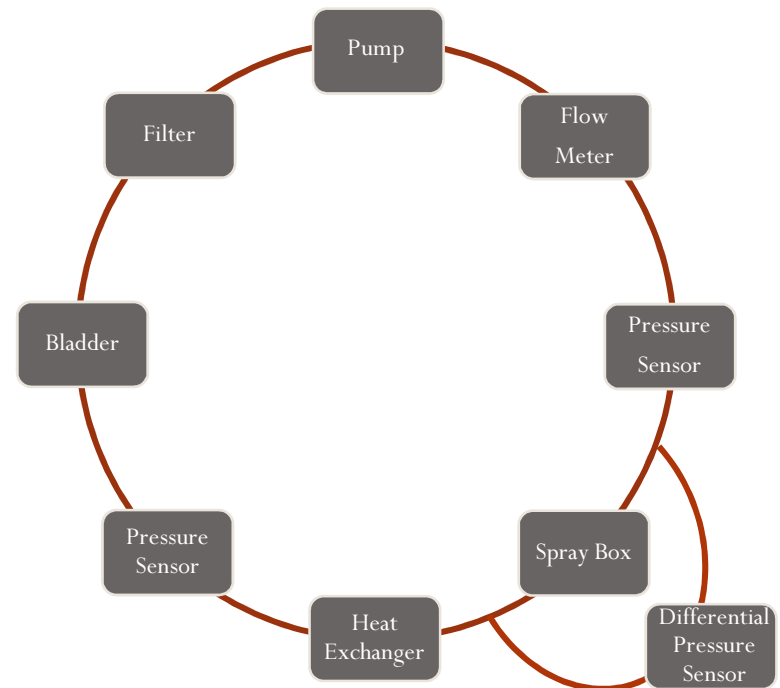
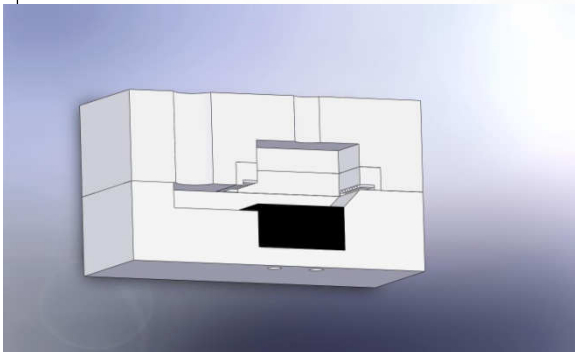
Spray Cooling

- Uses spray droplets to disrupt the vapor bubble



Experiment Design

- Closed flow loop
- Ran continuously during flight
- A laptop recorded data from 8 sensors, 8 thermocouples, and video of the liquid spray



Results:

- Cooling independent of gravity, flow rate dominates

