Project HALO — High Altitude Lift-Off

A Project of the Huntsville Alabama L5 Society

Space Launch 1 Purpose and Goals

Project HALO Space Launch 1 marks the completion milestone for Project HALO Phase 1, **Proof of Concept**. As such, this launch attempt represents the final test for Project HALO to proceed onto Phase 2, **Operational Rockoons**, when we can start to fly student payloads.

Primary Goals of HALO Space Launch 1

1. ☐ Launch the balloon without damaging the balloon, gondola, or rocket
2. ☐ Maintain the temperature inside the oxidizer tank to high altitude
3. ☐ Successfully launch the rocket from the balloon
4. ☐ Verify computer predictions using data transmitted from rocket

Benefits of Meeting Primary Goals

- Gain confidence to proceed onto Project HALO Phase 2
- Have one success from which to approach potential donors and clients

Honors from Meeting Primary Goals

- First amateur group to have a successful rockoon mission
- First group (amateur or professional) to ignite a hybrid rocket at high altitude
  - Important data point for future hybrid rockoons
  - Important data point for hybrid upper stages

Secondary Goals of HALO Space Launch 1

1. ☐ Have the rocket exceed an altitude of 50 nautical miles (US space border = 92.6 km)
2. ☐ Have the rocket exceed an altitude of 100 kilometers (IAF space border = 54 n.mi.)
3. ☐ Recover the rocket, whether or not it fires
4. ☐ Recover the balloon gondola, especially if it is bringing back the rocket

Benefits of Meeting Secondary Goals

- Have one success from which to approach potential donors and clients
- Can place the recovered rocket in a museum (how about the Air & Space?)
- Can inspect recovered rocket and/or gondola for damage
- Can recover valuable electronics for future reuse

Honors from Meeting Secondary Goals

- First amateur group to get their own rocket into space
- First group (amateur or professional) to get a hybrid rocket into space
- First amateur rocket recovered from space

Potential Records from Getting into Space

- Highest altitude achieved by an amateur rocket (by any means)
- Highest altitude achieved by an amateur rocket launched from a balloon (rockoon)
- Highest altitude achieved by an hybrid-motor rocket (any organization)
- Highest altitude achieved by an amateur hybrid-motor rocket
- Least expensive rocket-to-space program, start to first flight — (less than $ 20,000)
- Least expensive rocket space mission, manufacturing and operations — (less than $ 8,000)