RESULTS FROM THE SCIENCE INSTRUMENT DEFINITION TEAM FOR THE GONDOLA FOR HIGH ALTITUDE PLANETARY SCIENCE PROJECT. N. Chanover[1], S. Aslam[2], M. A. DiSanti[2]. C. A. Hibbitts[3], C. I. Honniball[4] L. Paganini[2], A. Parker[5], M. F. Skrutskie[6]. E. F. Young[5]
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The Gondola for High Altitude Planetary Science (GHAPS) is an observing asset under development by NASA's Planetary Science Division that will be hosted on stratospheric balloon missions intended for use by the broad planetary science community. GHAPS is being designed in a modular fashion to interface to a suite of instruments as called for by science needs. It will operate at an altitude of 30+ km and will include an optical telescope assembly with a 1-meter aperture and a pointing stability of approximately 1 arcsecond with a flight duration of ~100 days. The spectral grasp of the system is envisaged to include wavelengths spanning the near-ultraviolet to near/mid-infrared (~0.3-5 μm) and possibly to longer wavelengths.

The GHAPS Science Instrument Definition Team (SIDT) was convened in May 2016 to define the scope of science investigations, derive the science requirements and instrument concepts for GHAPS, prioritize the instruments according to science priorities that address Planetary Science Decadal Survey questions, and generate a report that is broadly disseminated to the planetary science community. The SIDT examined a wide range of solar system targets and science questions, focusing on unique measurements that could be made from a balloon-borne platform to address high-priority planetary science questions for a fraction of the cost of space missions. The resulting instrument concepts reflect unique capabilities offered by a balloon-borne platform (e.g., observations at spectral regions inaccessible from the ground due to telluric absorption, diffraction-limited imaging, and long duration uninterrupted observations of a target). We discuss example science cases that can be addressed with GHAPS and describe a notional instrument suite that can be used by guest observers to pursue decadal-level science questions.