

HARP

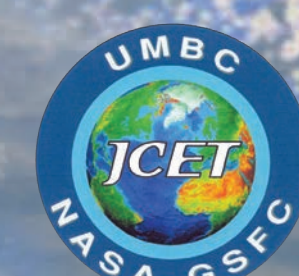
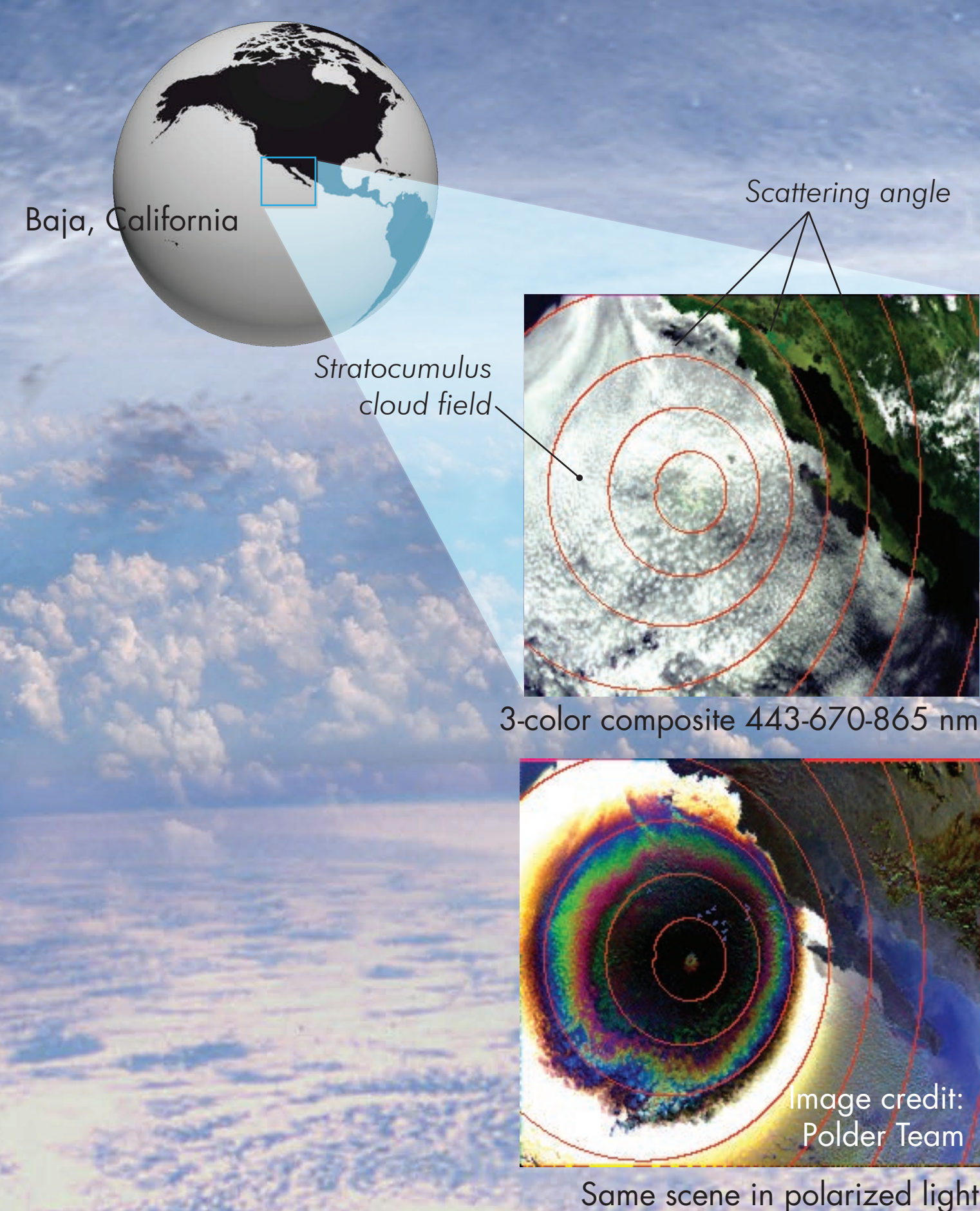
Hyper-Angular Rainbow Polarimeter

In-Space Validation of Earth Science Technologies (InVEST)

The HARP instrument is a wide field-of-view imager that splits three spatially identical images into three independent polarizers and detector arrays. This technique achieves simultaneous imagery of the same ground target in three polarization states and is the key innovation to achieve high polarimetric accuracy with no moving parts. The spacecraft consists of a 3U CubeSat with 3-axis stabilization designed to keep the image optics pointing nadir during data collection but maximizing solar panel sun pointing otherwise. The hyper-angular capability is achieved by acquiring overlapping images at very fast speeds.

OBJECTIVES:

- Validate new technology as required by the NASA Decadal Survey Aerosol-Cloud-Ecosystem (ACE) mission
- Demonstrate the on-flight capabilities of a highly accurate wide field-of-view hyper-angle imaging polarimeter for characterizing aerosol and cloud properties
- Demonstrate that CubeSat form-factors can provide high-quality Earth Sciences data



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