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THE STRATOLLITE: THE DAWN OF PERSISTENT REMOTE SENSING AND CONTINUOUS  
REAL-TIME DATA COLLECTION

**Abstract**

Real-time continuous remote sensing for long periods of time requires costly orbital satellite constellations or specific geostationary orbits. Historically, high-altitude platforms, UAVs, and aircraft have provided lower cost options for continuous data collection but come with fixed mission duration limitations, creating a unique capabilities gap for any platform with adequate payload capacity capable of low-cost, long-duration (weeks, months, years) persistence over customer-specified areas of interest for remote sensing applications.

World View, the world leader in stratospheric technology and innovation, has filled this gap with the creation of the Stratollite. The Stratollite is a remotely operated stratospheric vehicle with revolutionary new control capabilities that is unlocking unique applications for commercial and government remote sensing customers. The vehicle provides point-to-point navigational steering over large distances and persistent flight capabilities over specific areas of interest. The Stratollite operates at altitudes of up to 95,000 ft. ( 29km) for days, weeks, and eventually months on end, with a payload capacity of 50kg and 250W of power. World View conducted 8 Stratollite missions in 2017, including three from its new global HQ (the world's first fully integrated stratospheric operations facility), located directly adjacent to Spaceport Tucson in Arizona, USA. The Stratollite has been designed to carry any and all sensor packages and payloads in support of a multitude of applications, with early options including electro-optical contextual and high-res, near infrared contextual and high-res, hyperspectral, and full motion video. To date, the Stratollite has already surpassed continuous mission duration records held by high-altitude military UAV platforms.

For all sensor types, the Stratollite delivers both resolution and accuracy that exceeds the capabilities of aircraft-based imagery sensors and existing remote sensing satellites. The Stratollite and its ability to loiter over an area for up to months at a time make it an unequalled performer for targeted imagery applications, resulting in higher revisit rates and temporal resolution.

The purpose of this presentation will be to present the results of the Stratollite test flight and RD program, including an overview of the core altitude control system that has allowed for breakthrough navigation and station-keeping, the presentation of mission profile data, and the various results achieved and data captured from on-board sensor configurations.