

# Up, up and away; balloon launch supports research

The Battelle Memorial Institute teamed with Sisters-based ISTAR, headed by Steven Peterzen, to perform the launch of a stratospheric balloon from Sisters Eagle Airport last week.

Battelle is the world's largest nonprofit organization which supports research in a variety of scientific investigation such as NEON, the NSF arctic program, Brookhaven National Laboratory, Idaho National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory as well as several other national laboratories.

Last year, Battelle funded the Sisters High School RISE program that includes a stratospheric balloon project that the local high school students design, construct and launch.

According to Peterzen, the purpose of last week's test flight was to demonstrate that the Differential Segmented Aperture (DSA) is an enabling technology for high-altitude and space systems. To achieve this goal, Battelle has contracted ISTAR to orchestrate the launch and flight operations of a stratospheric balloon with a CubeSat payload having DSA's on the top and the bottom of the suspended

gondola connected to low-cost radio-frequency and digital equipment.

The near-space environment of the stratosphere simulated some of the challenges of operating the DSA in low earth orbit (LEO). In addition, typical stratospheric balloon platforms utilize traditional antennas (patch, monopole, and dipole) for Sat Com and or telemetry. The system for tracking, commanding, and receiving creates the need for multiple antennas — one or more per signal of interest (SOI) — resulting in an increase in system size, weight, power requirements and cost (SWAP-C), while decreasing function agility.

"Obviously, balloon and space platforms are extremely SWAP limited, so any performance gains have direct impact on mission availability," Peterzen explained. "The successful test of the DSA demonstrated a potential means to consolidate the multiple antennas currently used in most stratospheric-balloon platforms and promote the DSA as an innovative antenna for spacecraft."

The 10,000-cubic-meter balloon (0.3 million cubic feet) was launched from Sisters Eagle Airport Friday morning, October 16, reaching an altitude of 37.46 meters (121,545 feet) and



PHOTO PROVIDED

The Battelle Memorial Institute and Sisters-based ISTAR launched a research balloon from Sisters last week.

maintained flight for approximately two hours. The balloon was built in the USA by Raven Aerostar. Once fully inflated and reaching the desired float altitude, the balloon expands to a height of 75.73 feet and width of 90.36 feet.

The flight was terminated by IRIDIUM commands the afternoon of the day of the launch. The Battelle payload had a mass of 36 pounds. The payload impacted in the area southeast of Paulina, near White Butte Creek. Recovery of the flight system and payload were being carried out at press time.

"Launch operations were orchestrated by ISTAR and carried out by our local support team made up of Rima Givot; Sisters High School students Sasha Stolasz and Corbin Fredland; Corbin's sister Molly Fredland; along with Rod Gunson, Teri Ast, and Rod Moorehead, who also captured video and photos using an RC glider," Peterzen reported. "The Battelle technicians and engineers Nicholas Romano, Forest Banks, Shannon Pitts and Micah Meleski joined the team in the launch operations and post-flight systems recovery."

# Teen driver cited after running off road

A teen driver and passengers escaped injury when a new driver ran off a forest road southwest of Sisters last week.

On the night of October 22, Sisters deputies responded to a reported crash on Edgington Road near Sisters. The location of the accident was a short distance from the site of a recent fatal crash that took the lives of three teenage girls earlier this month.

The driver in the Thursday night accident had just received their driver's license and had two passengers in the vehicle.

No one was hurt in the incident.

The Sheriff's Office reminds new drivers and their parents that it is a violation of the law to operate a vehicle with non-family passengers within the first six months of receiving a driver's license.

Due to recent similar incidents the Sheriff's Office is asking parents to have discussions with young drivers about the seriousness of operating motorized vehicles.

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