Up, up and away at Balloon Operations

Photo by Laura Pellegrino

Harvey Harris, Balloon Operations resource manager, communicates with launch, air and recovery crews.

by Laura Pellegrino
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Before man went into space, someone had to do research on the effects of high altitudes on his body. Before a new satellite is launched, someone has to conduct tests to determine its range.

Balloon Operations, a tenant unit at Holloman, is that someone. They do the first stage research, tests and development of projects like these and many others, said Ted Dyer, Balloon Operations site manager.

The team averages six or seven balloon launches a year.

First, a researcher presents the group with an idea or question. Can a surveillance camera read a license plate from a satellite in space? How do weapons work in different layers of the atmosphere? Then the team gets the idea in the air — along with the equipment to test it.

The team has the choice of using either a free flight balloon, which can travel to altitudes of up to 135,000 feet, or a tethered balloon, which can travel to altitudes of up to 15,000 feet.

Balloons are purchased from a manufacturer.

"We tell them how much the payload is going to weigh and which test we're doing," Dyer said. "They tell us what size the balloon needs to be."

When there's a balloon mission, the team's six members increase to 80, Dyer said. Additional members come from the team's parent organization, located at Kirtland Air Force Base, N.M. They need the manpower to get the helium into the huge balloon, conduct all the preflight tests, and get the balloon in the air.

"The most challenging thing is getting that plastic bag off the ground in one piece," said Joe Longshore, Balloon Operations superintendent.

The heat seeking missile is one successful experiment on the team's resume. During the test phase, balloons lifted a ring of magnesium flares to be used as the missile's target practice.

The team also tested the effects of destroying an incoming chemical warhead. The question was, "How far would a chemical disperse in the atmosphere?"

The team detonated a small device that released non-toxic substances with consistencies similar to toxic gases. They used a balloon carrying equipment to take measurements of the substance's dispersion and dissipation rates.

It typically takes six hours for a balloon to rise and complete all tests. The team maneuvers the balloon from their control room, where they also communicate with the Federal Aviation Administration and track the weather.

After the balloon has completed its mission, the payload is dropped and parachuted to the ground. The helium is released from the balloon and all pieces are recovered.

The job is rewarding because it's so different, Longshore said.

"You see the job from beginning to end, from the balloon launch phase to the recovery phase, you're a piece of all of it," he said.

Accomplishments

Holloman's Balloon Operations has been the forerunner in the area of first stage development of many of our nation's defense programs and scientific research programs, including the following:

Brilliant Anti-Tank program

The BAT is an acoustic and infrared guided sub-munition that seeks out, tracks and defeats armored targets launched from Army Multiple Launch Rocket System.

The Galileo Probe

The Jupiter Landing Module that has been exploring Jupiter and its moons since December 1995.

Balloon Altitude Mosaic Measurements

BAMM was used to develop instrumentation used to obtain baseline data for surveillance systems.

Gamma Ray Advanced Detector program

The Gamma Ray program was the first large balloon ever launched from Antarctica. It was used to test a gamma radiation detector while also obtaining scientific data from the 1989 Super Nova.

A Balloon Operations member prepares a balloon for launch.

Above: The Balloon Operations team fills a balloon with helium before a night launch.

Right: Balloon Operations members watch as a payload is lifted in preparation for flight.

Courtesy Photos

A balloon takes off just after sunset.