-----Original Message-----
From: [redacted] (b)(3)
Sent: Friday, April 30, 2021 11:39 AM
To: Fairbrother, Debora A. (WFF-8200) <debora.a.fairbrother@nasa.gov>
Cc: HANSEN, CHRISTY (GSFC-4000) <christy.hansen-1@nasa.gov>; Drew, Benjamin A. (HQ-TH000) <b.a.drew@nasa.gov>
Subject: RE: [EXTERNAL] Current status of NASA Smart balloon programs

Good morning Ms Fairbrother.

My name is [redacted] and I work over in Chantilly, VA at the NRO. (b)(3)

I am trying to learn more about the active balloon projects that NASA is running and trying to find out if NASA has a real-time Situation awareness capability that is keep track of all your balloon location, and if so how could we get access to it.

We have had multiple military pilots reporting on near-misses with Balloons and have called it in to their Flight Safety Office, because some of the balloons are not showing up in their NOTICE to AIRMEN (NOTAMS)_. I am worried that we might have a future Mishap, so I would like to identify what belong to NASA and what does not.

Example:
I had a Capt, report multiple balloons looking objects, mostly 13NM West of Seymour Johnson AFB to East of the Outer banks.
Duration: From 0800-2000hrs during flying hours Altitude observed: 16-24kft Airspaces included, but not limited to: Echo, Burner, Whiskey 1-14, etc

Observed: 175+ objects between Raleigh and the Far Eastern portion of W-122 4x different Balloons
1) 6ft spherical balloon with ribbed antenna/cord underneath approx 15-20 in length and 1-2 feet in diameter
2) 6ft spherical balloon with ribbed antenna/cord underneath approx 10-15 in length with small unknown payload at bottom of antenna/cord
3) 6 balloons attached together with a shorter, approx. 4ft antenna with ribbed antenna/cord underneath.
4) 4-6 balloons attached together with a small, few foot long antenna underneath with possible payload.

Thank you

v/r

[redacted]

-----Original Message-----
From: [redacted] (b)(3)
Sent: Monday, April 26, 2021 08:08
To: Drew, Benjamin A. (HQ-TH000) <b.a.drew@nasa.gov>
Subject: [EXTERNAL] Current status of NASA Smart balloon program

Good morning Al,

This your friendly neighborhood NRO guy [redacted] making a request for information on the current status of NASA Balloon programs. (b)(3)
I hope all is going well with you.

Could you please direct me to the NASA office that controls or oversees.

Weather balloons are usually helium- or hydrogen-filled balloons which carry instruments on board to send back information on atmospheric pressure, temperature, humidity and wind. They can reach altitudes of 40 km (25 miles) or more and on some occasions, have been sometimes cited as the cause for UFO sightings.

Dues to this problem, I would like to get a better understanding of the programs, and where could I get access to tracking information.

Space 23 May 2007

By Justin Mullins
New Scientist Default Image

Early prototypes of the solar-powered 'smart' balloons have been tested in the last few months. Three of eight have returned data

(Image: ENSCO)

NASA is developing small, cheap "smart balloons" to monitor weather conditions around rocket pads on launch days. The announcement comes only a few months after a space shuttle fuel tank was severely damaged during a sudden and unexpected hailstorm before a launch.

NASA's Kennedy Space Center (KSC) has fast-tracked a team from the technology company ENSCO, based in Melbourne, Florida, US, to build the balloons using technology developed for smart dust - tiny devices capable of sensing their environment and transmitting the data home. "We were working on a 10- to 15-year timescale for smart dust," says ENSCO team leader Mark Adams. "Then they asked us what we could do in nine months."

Adams has already made impressive progress, says Rosemary Baize at KSC's technology transfer office. The solar-powered balloons carry temperature, pressure, humidity and GPS sensors. They are also equipped with transmitters that can work together as a mesh network or, if the balloons drift too far apart, send data back via satellite links.

The balloons, which are filled with helium, weigh only 130 grams and are the size of a beach ball. They have been tested on the Florida coast over the last few months.
Teething problems

The team is currently addressing a few teething problems. "Of the eight balloons we've launched, we've had data from only three of them," says Adams. Most of the problems have stemmed from a tiny experimental GPS system the team is using to reduce weight. When the GPS device fails, the balloon continues to transmit data but the readings are useless because the balloon's location is unknown.

Another problem is that the Sun tends to heat the sensors, giving false temperature and humidity readings. "We're working on better shielding for the sensors," he says, adding that this should be a fairly straightforward engineering challenge.

The team is about to test a swarm of balloons operating together for the first time. "That's when NASA will evaluate the programme again," says Adams, who announced the project this week at the Nanotech 2007 conference in Santa Clara, California, US. "But we could be ready for daylight launches within a year or so."

Self-destruct mechanism

Night flying will be more difficult for the solar-powered balloons. "But with the right kind of power management to save power at night, we could fly them day and night, more or less forever," says Adams.

Weather data is sparse around launch sites because aircraft, unmanned aerial vehicles (UAVs) and even ordinary weather balloons and kites are banned from flying near launch sites before lift-off because of their potential to drift into the flight path.

However, the smart balloons have a built-in self-destruct mechanism that releases their helium, bringing them to the ground just before launch or if they stray too close to the pad. The plan is to launch five balloons around the launch site at hourly intervals and use the data to create detailed models of the local weather before the launch.

Each scrubbed launch costs NASA between $500,000 and $1 million, with up to seven scrubs on some launches. The system could save a significant amount of money by ensuring that there are fewer false scrubs, where weather conditions appear unfavourable but are actually safe enough for lift-off.

Storm sensors

The balloons can be reused, but in practice they are blown so far that most are lost. At $500 each, however, the balloons are relatively cheap. "Collecting the data in this way is much more cost-effective than using aircraft or conventional balloons," says Baize.

Adams says the balloons could also be used to monitor the behaviour of hurricanes, although launching them would be tricky. The dropsondes now used to record data within hurricanes are dropped through a tube out of an aircraft flying through the storm. They then record data for the short time they fall to Earth.

Balloons would stay up for much longer, but they are too fragile to be dropped through a tube. Adams thinks they could be stored on buoys moored in the ocean and launched as a storm approached. "But we've got a way to go before we can make them reliable enough for this," he admits.

Read more:
https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.newscientist.com%2Farticle%2Fdn11911-nasa-develops-smart-weather-balloons-for-launch-sites%2F%23ixzz6t8ikuGNA&data=04%7C01%7Cb.a.drew%40nasa.gov%7C5ca8a1d57a674af7c90208d90bf5143c%7C7005d45845be48ae8140d43da96dd17b%7C0%7C0%7C637553969506643703%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=t%2BuRsfkKrD%2BJsOnPTL7kLvRr2c7t0QCyC24U8PMSz%2Bo%3D&reserved=0

I am currently talking to ENSCO, a NASA Balloon contractor.

(b)(3)