

iHAB PROJECT

Weather balloon
5.5 ft. in diameter,
expands to 20ft.
before bursting at
over 90,000 ft.
Payload: 4 pounds

Parachute
Deploys
when
balloon
bursts

Cord: 15 ft.

First payload
■ Camera
takes pictures
every 10
seconds
■ Two
tracking
and data
gathering
equipment

Cord: 10 ft.

Marshall Dias of Ottumwa, Iowa has always been fascinated with aviation and space exploration. An interest in radio-controlled airplanes from a young age led him to the aviation pilot program at Indian Hills Community College in 1997. Although he didn't continue in aviation as a career, Dias never lost his love of flight related activities. Over a year ago, he began working toward his dream of launching a balloon into near space by becoming a HAM Radio Operator and joining the Ottumwa Amateur Radio Club. The iHAB project was born.

iHAB-1 is the inaugural launch of the i-HAB project. The purpose of the iHAB (Iowa High Altitude Balloon) Project is to design and build a vehicle to fly into Near Space and return with digital photos from its voyage. More information about the project can be found at www.W00TM.com/iHAB.

How high is 100,000 feet?

You can start to get a feel for how high 100,000 feet is by remembering that commercial jets travel at about 30,000 feet. 100,000 feet is about 2/3 of the way through the stratosphere, and the majority of the mass of the earth's atmosphere is below the balloon at that height. You can tell that there are fewer gas molecules at 100,000 feet when you see video from the balloon. The sky is as black as night, but the sun is still visible.

Near space is the region of Earth's atmosphere that lies between 65,000 and 325,000–350,000 feet above sea level, encompassing the stratosphere, mesosphere, and thermosphere. A more understandable definition would be above where a commercial airliner flies but below the realm of an orbiting satellite. The area is of interest for military surveillance purposes, as well as to commercial interests for communications. Currently, craft that fly in near space (nearcraft) are generally high altitude balloons, blimps (non-rigid airships) and sounding rockets.

With the majority of the earth's atmosphere behind it, an iHAB balloon at 100,000 feet truly is at the edge of space. The environment at that altitude can hardly be compared with anything we experience on the surface of Earth. Yet all of us live less than twenty miles from this vastly different place.

Location:

- Saturday, August 28, 2010
- Preflight: 1400Z - 9AM CDT
- Launch: 1500Z - 10AM CDT
- Ottumwa Industrial Airport - [OTM]
IHCC North Campus - Aviation Building
- Latitude: 41.113515, Longitude: -92.432939

iHAB-1 Quick Facts:

- Balloon: 600g Kaymont Totex latex sounding balloon
- Gas: Helium 89.25 cu/ft
- Launch Diameter: 5.54 ft
- Burst Diameter: 19.75 ft
- Payload: 3.6 lbs
- Ascent Rate: 584.21 ft/min (9.74 ft/sec)
- Burst Height: 90,481 ft
- Overall Flight Time: 3.5 hours

Payload:

- Cellular Tracking Boostmobile - Motorola i290
- APRS – W00TM-4
144.39Mhz, OpenTracker+ Alinco DJ-S11 – 350mw
- QRP Beacon
14.066.7 Mhz Homebrew – 1.5W
- Canon PowerShot A470

