**Payload Lineup**

* HELIOS

HELIOS is designed to demonstrate venting of helium from the weather balloon for further application in future flights. For this flight, it will only vent enough helium to slow the rate of descent starting at a predetermined height. In future launches, it will allow us to achieve new records for maximum height by preventing the balloon from popping due to expansion. HELIOS will also take pressure and temperature measurements throughout the flight both inside and outside of the balloon, providing the first data for conditions inside the balloon.

* Cmd

The Command Module is the flight tracking and telemetry system for the Balloon Payload Program. It broadcasts GPS coordinates and altitude data from the balloon via VHF radio transmitters to the chase vans, operating ground radio stations and recording the data stream. It also has a cellular transmitter for sending GPS coordinates to one of the tracking crew, for a redundant form of tracking. Finally, data streams from the balloon payloads themselves are stored locally by a network transceiver housed inside the command module, for redundant data collection.

* Stress Eaters

The goal of the payload is to demonstrate stress states of a polycarbonate material under tension. By looking through a polarized lens and taking pictures, the stress state of the material will be recorded throughout the flight. Temperature, Pressure, humidity, and altitude readings will also be recorded periodically.

* THERMOS

This payload gets the temperature inside boxes made of four different materials, pink foam, black foam, MLI, and acrylic. This data will be used to test the insulation of each material.

* MASIV

MASIV stands for Measuring Atmospheric Spectrum Infrared to Visible light. Our payload will be recording the light intensity, pressure, and temperature at different altitudes at different absorption lines specifically H2O and O3 levels. We will have a GoPro taking pictures and videotaping during the flight.

* WhiteBox

“triggering an actuator”

* Bach’s Box

Bach's Box is a weather sonde that provides atmospheric data that can be used for forecasting and long term trends. It measures the temperature, humidity, and pressure.

* IRIS

The IRIS payload is equipped with two infrared cameras that will take both still images and video during the balloon flight. A GoPro, mounted on the side of the payload will record infrared video, while a smaller camera at the bottom of the payload, takes still images of the ground below.