## BalloonSat Program Timeline

Here is a suggested timeline for completing a BalloonSat program. Feel free to adjust as necessary.

## **Start of Program**

Locate an amateur radio group to launch your BalloonSats

Determine when and how to order (pay for) the balloon (1200 gram from kaymontballoons.com)

Find a welding company who will supply lifting gas (hydrogen or helium)

Build the avionics (flight computer and sensors)

Test the avionics

Learn to use the avionics

Determine avionics considerations/limitations (sensor orientation, exposure, hand warmers, etc.)

Position and orient the avionics to determine the size and shape of the airframe

Paper design airframe making use of camera bay, avionics bay, and sensor bay

Add hatch closure and tethering tubes to paper design

Deconflict design issues (like tubes covering camera apertures)

Measure twice and cut once

Test fit twice and glue once

Integrate avionics into the airframe

Test BalloonSat for functionability (can avionics be started in place and will they collect data)

Test BalloonSat for shaking (will it hold together)

Test BalloonSat for dropping (will it hold together when it lands)

Test BalloonSat for cold operation (will it continue to operate in the cold of near space)

Write up a launch checklist

Test the launch checklist

Determine the proper order of BalloonSats on the tether (must one be below another)

Learn to predict a balloon flight

Learn to track the near spacecraft (aprs.fi/call-sign)

Make daily flight predictions the week prior to launch

Determine location of launch site (based on predicted winds and landing zone)

Arrange to pick up the lifting gas

## Day or Two before Launch

Tether the BalloonSats and integrate them into the near spacecraft

Load fresh batteries and a SD card inside of each camera (leave powered off)

Place a hand warmer (unopened) and battery (disconnected) inside of each BalloonSat

Close each BalloonSat with two rubber bands

## At the Launch Site (while the balloon is being filled)

Lay out the near spacecraft

Open BalloonSats and place the hand warmers

Turn on the camera

Verify commit pins are in place

Connect the batteries

Close hatch with rubber two bands

Remove commit pin just prior to launch