Suborbital Rocketry: Payload Design and Involvement
Greater Midwestern Space Grant Conference
How to get involved

- Hobby rocketry
  - amateur
  - professional
- Student design
- RockOn!
- RockSat
RockOn!

- Created in 2007
- A program created by Chris Koehler and NASA for organizations interested in payload design
- Great way to jump on board
- A precursor to RockSat— the next step
RockSat C

- An open ended program in which students have the chance to create their own payload.
- Starts in September (IFF, design reviews), Launch in June.
- The year is spent developing the payload, design and build!
- A real-world design process with strict deadlines and reviews.
How I got involved

- RockSat C, 2008/09– U of M’s team MinnRock
- A simple payload with video camera, accelerometers, magnetometer, and light sensor
- GPS receiver, scratched prior to flight
Results

- Accelerometers and other analog sensors worked as planned.
- The on board camera failed to record video.
- The light sensors captured good data and recorded spin rate.
- NASA’s rocket took on water.
MinnSpec is the University of Minnesota’s RockSat team

Minnesota Spectroscopy – 2 forms of laser spectroscopy

Student driven team with a modular concept

MinnSpec is made up of three teams… MinnLase, AugSpec, MinnRock II
Payload components
Results

- NASA’s rocket suffered a mechanical failure and lost pressure during flight, causing a water to flood payloads
- Both spectrometers did not return any readable data
- Other analog sensors like accelerometers, light sensor, pressure sensor worked as designed
Data

Light Intensity vs. Time

High Accelerometers

Interior Pressure vs. Time
Launch