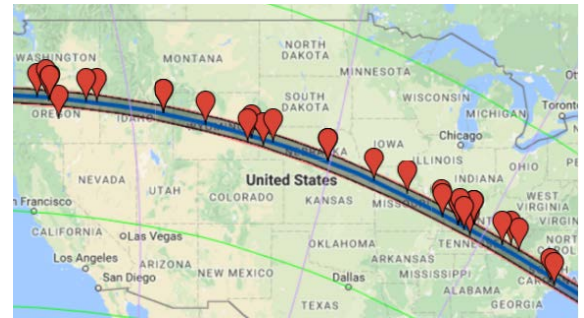




# Eclipse Ballooning Project

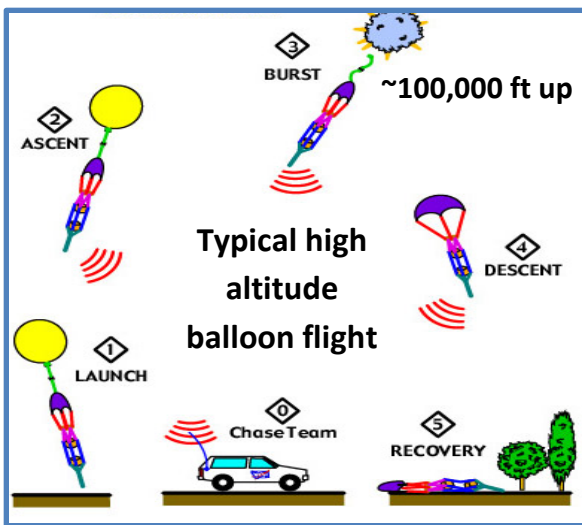
Project overview as of March, 2017

<http://eclipse.montana.edu>



**BELIEFS:** We believe strongly in making the most of the 8/21/2017 ‘Great American Eclipse’ event, in the realms of the general public, education, and creating meaningful long-lasting partnerships. We also believe strongly in giving the student participants career-making opportunities. We endeavor to use the most cutting edge tools, resources, and communication.

**WHAT:** Students will conduct high altitude balloon (HAB) flights from about 30 locations across the 8/21/2017 total eclipse path, sending live video and images from near space to the NASA website. Video and images of a total eclipse from near space are fascinating and rare. It’s never been done *live*, and certainly not in a network of coverage across a continent.



**WHY: #1: Public engagement.** Total eclipses are rare and very impactful events. The Eclipse Ballooning Project is in a unique position to engage the public in an awe-inspiring and educational way, *right as the eclipse is happening*.

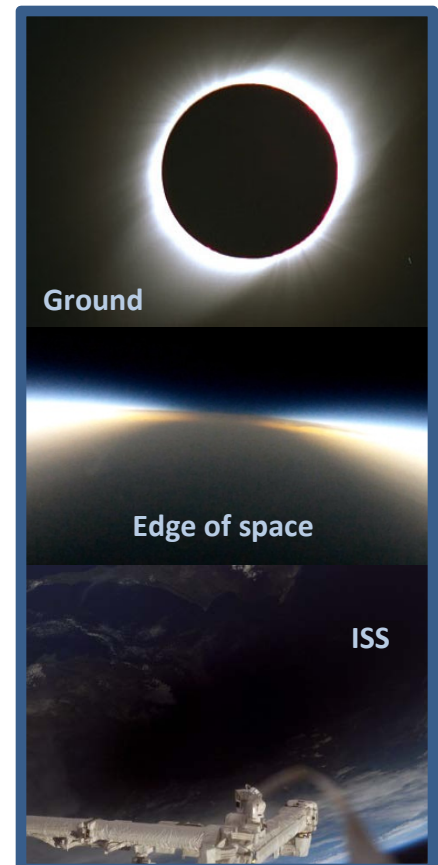
**#2: Workforce development.** This project presents an amazing hands-on learning opportunity for the hundreds of students who are participating.

**#3: Partnerships.** Several long lasting partnerships with federal agencies and corporate sponsors have developed and will continue to mature.

**WHO:** Official participation includes 56 teams from 32 states. Organization and planning is led by Montana Space Grant with assistance from many other Space Grant Consortia.

**WHEN:** Eclipse totality: 1:17 PM (Oregon coast) to 2:47 PM (South Carolina coast) eastern time on **August 21<sup>st</sup>, 2017**. Major project milestones:

- July 2016 [complete]: workshop to build common payloads
- Academic year 2016-17: virtual workshops to train, test, and brainstorm
- June 20-21, 2017: full dry run
- October 27-28, 2017: Eclipse Ballooning Conference





**WHERE:** Live from 30 locations along the eclipse path to hundreds of millions on NASA.gov and NASA TV (most recent NASA estimates).

**FUN CHALLENGES:** While uploading live video and images from the edge of space to the internet has been done by an academic HAB group, carrying out a network of flights from across the country that is streaming live video to the NASA webpage and linked pages presents a few challenges. These challenges provide compelling training opportunities for the

student participants and make the project exciting and meaningful for the teams.

Challenges conquered: creating a high altitude balloon-borne downlink system capable of streaming live video, collaborating with dozens of groups of mentors and students at locations spread across the country, securing agreements with industry partners/donors, and making the necessary media arrangements so that the live content can be shown on the NASA web page.

**EXPERIMENTS:** In addition to the common camera payloads that will provide near real time footage of the moon's shadow on Earth and the darkened sun, teams will fly a secondary payload of their choice. Links to information and pictures about each team's secondary payload will be included online. In a second effort in collaboration with NOAA and NSF, 100 radiosonde balloons will be flown to

gather important science data on eclipse effects to our atmosphere.

**COSTS:** Funding is provided by the NASA Science Mission Directorate for the primary payloads, about \$3,700 each for all systems, balloons, and project management (NASA grant number NNX16AB84G). Individual team costs such as travel, student support, and helium are supported by local NASA Space Grant Consortia.



## CONTACT:

- Your local Space Grant: [nasa.gov/offices/education/programs/national/spacegrant/home/](http://nasa.gov/offices/education/programs/national/spacegrant/home/)
- Overall project: Angela Des Jardins, [Angela.Desjardins \[at\] montana.edu](mailto:Angela.Desjardins@montana.edu)
- Participation details: Shane Mayer-Gawlik, [shane.mayergawlik \[at\] montana.edu](mailto:shane.mayergawlik@montana.edu)
- Ballooning basics: <https://www.balloonchallenge.org/tutorials>
- Atmospheric Science Team: Jennifer Fowler, [Jennifer.Fowler \[at\] mso.umt.edu](mailto:Jennifer.Fowler@mso.umt.edu)

**SPONSOR:** If you're interested in sponsoring the project, please visit <http://spacegrant.org/ballooning>