

# Eclipse Activity Report (EAR)

## Nationwide Eclipse Ballooning Project

Issue #12

2/2/2017

<http://eclipse.montana.edu>

## EAR Issue 12 Summary

This and all previous issues of EAR can be found at:  
<http://eclipse.montana.edu/news/>

### General Updates

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#### Communication

Next Telecom 2/16/2017 at 11AM MST. We will spend about 20 minutes on updates then open the floor for questions.

- Call toll free 855-797-9485
- Pass code 921-692-445# then # again

#### Technical Telecom 2/23/2017 at 10am MST

- Call toll free 855-797-9485
- Pass code 921-692-445# then # again

### Action Items

- **Send Shane your team website or blog to be added to the eclipse ballooning page**
- **Invite students to join the Eclipse Ballooning Project Student Communications Google Group here:**  
<https://groups.google.com/forum/?hl=en#!forum/sgebpsc>
- **Next Telecom 2/16/2017 at 11AM MST**
- **Technical Telecom 2/23/2017 at 10:00AM MST**
- **Consider sharing the donation opportunity with potential donors!**

# General Updates

## T-minus

As of this writing, we are 28 weeks, 4 days, 15 hours, 00 minutes and 34 seconds away from the moon's shadow reaching Oregon's coast as the Great American Eclipse begins.

## HAB Survey

The FAA has convened a committee to provide recommendations for updating the FAR 101 regulations on unmanned free balloons. This committee is interested in learning more about academic and amateur balloon programs and we are soliciting you to participate in our short survey. The survey should only take a few minutes to complete. **We need this information quickly and the survey will only be open until February 3, 2017.** Please feel free to pass along the link to this survey to any and all balloon programs that you think would be interested. Below is the link to the balloon program survey:

[https://und.qualtrics.com/SE/?SID=SV\\_5u9R3IEg5YuUttH](https://und.qualtrics.com/SE/?SID=SV_5u9R3IEg5YuUttH)

Additionally, there is interest in understanding your experience with contacting anyone associated with Flight Services, Air Traffic Control, or the FAA. While some groups have good cooperative relationships, others have not. Please email Berk Knighton [bknighton@chemistry.montana.edu](mailto:bknighton@chemistry.montana.edu) with any information that you would be willing to share by February 6, 2017.

## EBP Donation Site

Many eclipse ballooning teams are reporting financial need. To help with this situation, we have created a donation account with the National Space Grant Foundation (hereinafter, the Foundation). The Foundation is a non-profit 501(c)(3) organization whose purpose is to support and enhance the Space Grant Consortia in every state to carry out education, research, and public outreach activities. The fees

associated with having the account with the Foundation are minimal and very competitive compared to other entities such as GoFundMe. Donors will receive a receipt for their records.

The spirit of this opportunity is to make funds generally available to teams. Funds collected will be distributed to the project teams based on availability, merit, and need. If a donor wants to make a substantial donation to a specific team, however, this is possible on a case-by-case basis.

If you would like to request funds, please send a letter as an email attachment to Angela Des Jardins ([Angela.DesJardins@montana.edu](mailto:Angela.DesJardins@montana.edu)) with the following information.

1. Team descriptive information, including location, make-up, and goals.
2. Existing resources.
3. Needed resources. Explain what objectives you are trying to accomplish and why you need the requested resources to accomplish those objectives.
4. A budget. Describe the costs (give quotes where appropriate) for the requested resources. If appropriate, rank the priority of the costs.

Please note that it may be some time before we have funds available and that we will not be able to fund all requests.

## Individual Team Calls

If you have not already done so, please visit <http://eclipse.montana.edu/individual-team-telecom-schedule/> to schedule a time for your individual team call.

## Project Calendar

<http://eclipse.montana.edu/ebp-calendar/>

A calendar for the Eclipse Ballooning Project (under the "News" tab) events and activities (individual team flights/tests, tracking server downtime, telecom dates and more) can be found using the link above. This schedule will be updated regularly, so be sure to check

back often. In order to update upcoming team flights or tests involving the Iridium tracking system, please click the spreadsheet link on the page and fill out the bottom most row. This spreadsheet will be used to update the calendar with individual team activity.

## Server Update

We are still working towards transferring to a more robust server to house the tracking website, but in the meantime, the lab server is up and running 24/7 for any flights or tests. Any scheduled downtime for the server will be posted on the project calendar.

## Explore Science: Earth & Space 2017 toolkit

<http://www.nisenet.org/earthspacekit-2017>

## June 20<sup>th</sup> Dry Run Flight

We will be filling NOTAMS for all teams for the dry run and eclipse day flights. Please begin considering your June 20<sup>th</sup> dry run flight launch location and share

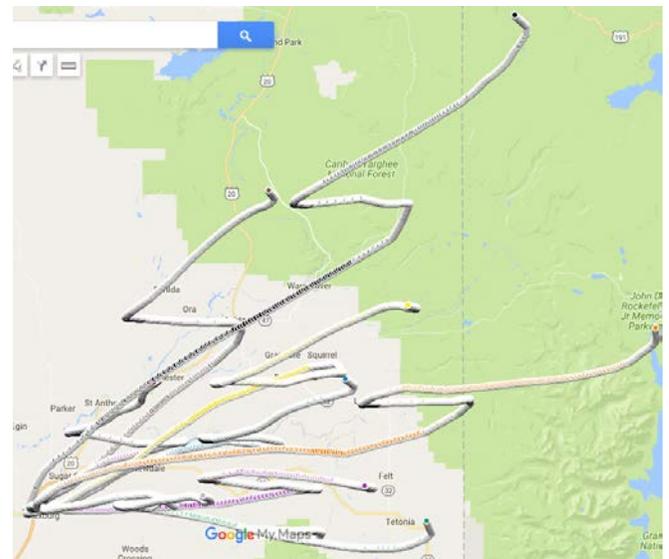
these with Shane so we may begin sharing plans for this event with the FAA.

## Eclipse Launch Times

Shooting for an ascent rate of  $\sim 5\text{m/s}$  will allow for the largest window for hitting the 60-80K feet range during totality (rise too fast your balloon may pop before totality and rise too slow and you may be too low or you will have to launch much earlier, also risking a balloon burst before totality). Assuming a rise at about 1,000-1,200 feet per minute, each team's launch time will be about 1 hour prior to totality. A balloon fill guide can be found on the "HAB Resources" page.

## Historical Flight Predictions

Historical predictions for August 21<sup>st</sup>, 2008-2016 can be found here: <http://eclipse.montana.edu/ebp-airspace/>. We are still in the process of running all the predictions and using them to create shareable Google Maps, therefore if there is not a link on your provided lat/long coordinates yet, please check back soon.



Also, note that these predictions were ran using a mostly constant ascent rate of  $\sim 5\text{m/s}$ , a ceiling of 29,000m and a descent profile created from Montana Space Grant balloon flights and parachute (the descent will vary depending on your parachute).

# Testing the Tracking Payload Reminder

Keep in mind that when testing the Iridium tracking payloads, the system must be outside and/or have a clear unobstructed view of the southern sky in order to get a GPS lock.

## Instructional Videos

<http://eclipse.montana.edu/ebp-instructional-videos/>

If you have any suggestions for short instructional videos, please email those ideas to Shane.

## Meet with us in DC

Angela, Jen (leading the Radiosonde Project), Randy and Shane from the Montana leadership team will all be at the Space Grant yearly meeting in DC. This will be our last chance to meet with anyone in person before the August 21<sup>st</sup> eclipse so please take advantage of meeting with us during this time.

# Team Activity

## What's Up?

Is your team doing something interesting you would like to share? Tell us what you are up to, please send Shane any details, photos, diagrams, etc. of your activity and we will feature it here!

# Technical Activity

## FFmpeg – Updating Ground Station and Video Pi Software

Both the ground station and video payload software are being updated to incorporate new features and better streaming capabilities. Currently, the goal is to use FFmpeg (cross-platform solution to record, convert and stream audio and video) on both the ground and pi side

to remove the requirement of VLC for live streaming. This will eliminate the number of times the data must be encoded and decoded and should make for a more stable video stream. Once this has been completed new versions of the ground station and video payload software will be made available (with instructional videos on how to set up and run the new software).

## ProBoards

<http://eclipsedesign.proboards.com/>

New troubleshooting tips/solutions and ideas are being shared on a near daily basis. Check out the discussions!

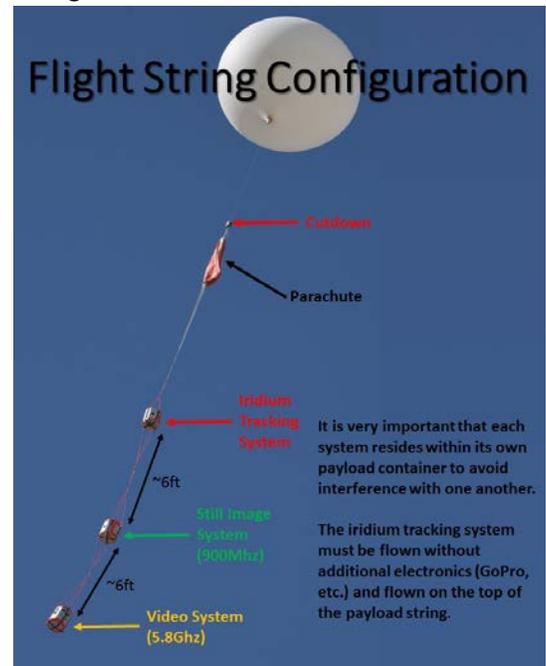
## GitHub

<https://github.com/MSU-BOREALIS>

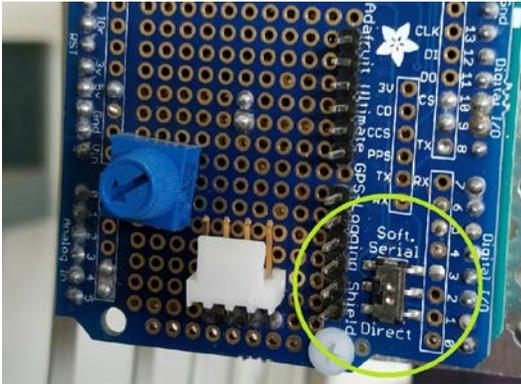
# New FAQs

See answers at <http://eclipse.montana.edu/faq/>

- What configuration should tracking, still image and video payloads be attached the flight string?



- Why won't the ground station track and why aren't we receiving GPS coordinates?



- What could cause poor tracking of our payload during flight?

- Telecom 2/16/17, 11 AM Mountain Standard Time
- Technical Telecom 2/23/2017, 10am MST
- Consider sharing the donation opportunity with potential donors!

## Communication

- The next group **telecom** will be Thursday February 16<sup>th</sup> at 11 AM Mountain standard time. At the telecoms, we will spend about 20 minutes on updates then open the floor for questions.
  - Call toll free 855-797-9485
  - Pass code 921-692-445# then # again
- A technical Telecom will be held Thursday February 23<sup>rd</sup> at TIME!!!!!!!!!!!!!!!!????? MST.
  - Call toll free 855-797-9485
  - Pass code 921-692-445# then # again
- Facebook page:
  - <https://www.facebook.com/EclipseHighAltitudeBallooning/>
- Twitter:
  - [https://twitter.com/Eclipse\\_HAB](https://twitter.com/Eclipse_HAB)

## Action items

- Report to Shane your Milestones 1-7 (excluding Milestone 3)
- Send Shane your team website or blog to be added to the eclipse ballooning page
- Invite students to join the Eclipse Ballooning Project Student Communications Google Group here:
  - <https://groups.google.com/forum/?hl=en#!forum/sgebpsc>