



Eclipse Activity Report (EAR)

Nationwide Eclipse Ballooning Project

Issue #7
10/28/2016

<http://eclipse.montana.edu>

EAR Issue 7 Summary

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

General Updates

The Transportation of Helium

Ground Station/Launch Locations

Iridium

Stre.am Accounts

Milestone Typo - Milestone 3 is currently slated for
Friday 11/11/2016 at noon MST

Technical Activity

New RFD/Ubiquiti microSD Image Available

New FAQs

Communication

Next Telecom 11/3/2016 at 11AM MDT. 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

Action Items

- Report your ground station/launch location via the Milestones Checklist (reporting version) by 11/4/2016
- 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 11/3/2016 at 11AM MDT!

General Updates

The Transportation of Helium

Compressed helium in a tank (or cylinder) is a division 2.2 material and is thus designated a hazardous material or dangerous good by the Department of Transportation (DOT) as defined by 49 CFR 172.010. This means that the transportation of compressed helium is regulated and therefore it is important that the high altitude ballooning community understand these regulations and how compressed helium can be transported for balloon launches legally.

For your own knowledge or should any red flags be raised questioning your allowance to do so, a document has been created to help inform you on how you can safely and legally transport compressed helium for high altitude balloon launches.

Long story short, under the “Materials of trade exemption,” we may transport compressed helium when adhering to the following regulations:

1. Always transport the high altitude balloons in the same vehicle as the helium tanks
 - a. [Recommendation] Carry the “Materials of Trade” regulations within the transporting vehicle
 - b. [Recommendation] Carry the invoice from place of purchase within the transporting vehicle
2. Each individual tank (or cylinder) of helium must not exceed 220 pounds (100 kg)
3. The tanks (or cylinders) of helium can't have a leaks
4. The tanks (or cylinders) of helium must be secured. Upright is recommended, but since vapor lock is not an issue with helium they may be secured horizontally
5. The tanks (or cylinders) of helium must be labeled with a (green) helium hazmat label
6. The tanks (or cylinders) must be well ventilated (i.e. in a pickup truck and not in an enclosed vehicle)

7. Whoever is driving the vehicle must be made aware that he or she is transporting compressed helium
8. The total weight of the tanks (or cylinders) and its contents (helium) must not exceed a total weight of 440 pounds (200 kg) on a motor vehicle

Make sure to read the document attached within the email along with EAR 7. You will also be able to find this document and the “Materials of Trade” regulations on the Eclipse Ballooning Project website under the news tab and under HAB resources.

Ground Station/Launch Locations

It is time to lock in your ground station/launch locations, and for those who have already reported their locations, to verify those locations as suitable. On the HAB Resources page you will find plenty of resources such as a pre-made KML file with the eclipse and airspace overlays, prediction software and more to help you. **It is also important to make sure you have suitable internet (hardline/WiFi from hardline) at your ground station sites. In areas with the expectation of high volumes of cell use, the networks may be overwhelmed during the eclipse.**

Given that the FAR 101 rules place our flight systems within the exempt (from reporting) status there will be no requirement for position reporting, flight notification or filing of NOTAMs by individual teams. Please check to make sure your team is operating exempt by meeting the following criteria:

- Total payload weight under 12 lbs
- Individual payload weight under 6lbs
- No payload package that weighs more than four pounds and has a weight/size ratio of more than three ounces per square inch on any surface of the package, determined by dividing the total weight in ounces of the payload package by the area in square inches of its smallest surface
- Payload suspension device that requires an impact force of more than 50lbs to separate suspended payload from balloon

There will be some notification, however, in that a contact at the SLC center and Berk (MSGC Flight Director) will see that NOTAMS get filed for each center. It is therefore our (MSGC's) responsibility to provide the listing of the flight operation areas and the number of balloons to be launched. **This task must be accomplished by December 1st thus requiring all teams who have not reported their launch/ground station location or teams who have changed their location(s) to do so to the leadership team by 11/4/2016.**

Iridium

Teams who are planning on flying or testing using the Iridium system please inform the leadership team so proper preparations can be made. This will be automated in the near future once the server swap is complete allowing you perform tests/flights at your leisure.

South-Eastern Nebraska Launch Site Opportunity

The Homestead National Monument in SE Nebraska has expressed interest in hosting a team (ground station and/or launch site). This looks like a great spot with access to internet/power. Please contact Shane for details and contact information if you are interested.



Green Stars on the “Participants” Map

Any eclipse related activities which may lead to a promising launch location for those teams still in need will be listed on the map with a green star. Contact Shane for more info.

Stre.am Accounts

Set up a Stre.am account for your team with the format: **state_teamname_registration#** at <https://stre.am/>

Please email Shane your account name so it can be added to the stre.am/eclipse admin access.

Project Milestone Guide Typo

Thank you to those who caught the typo in the recently released Project Milestone Guide: **Milestone 3 is currently slated for Friday 11/11/2016 at noon MST** assuming the server switchover is completed by then. You will be updated with any changes ASAP.

Technical Activity

New RFD/Ubiquiti microSD Image Available

A new 2GB RFD/Ubiquiti microSD image is available for download on System Resources page (click the Resources tab). This will replace the 8GB image on your microSD cards you received during the workshop giving you more storage space for images/video. Please note that the image must be manipulated with a Pi to run the individual systems. Instructions can be found on the flash drive you received during the workshop or on the System Resources page.

ProBoards

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

We have recently added additional “wizards” from University of Colorado to monitor the forum and help

respond to technical questions. Keep posting questions and any feedback you have to current posts.

GitHub

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

Students – get involved in tinkering with the software!

New FAQs

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

- Where can I find the Project Milestones Guide?
- How do I use wired internet if I am already using Ethernet port on laptop for Ubiquiti modem?
- Where can I access the CAD files for 3D printed parts received during the workshop?
- How do I link RFD modems?
- How do I link Ubiquiti modems?
- What is a good starting point for creating a harness for the payload enclosures built during the workshops?
- What software updates should May workshop teams be aware of?
- How does a student join the Eclipse Ballooning Project Student Communications Google Group?
- *Updated* How do I use the supplied balloon filling equipment and how much helium should I use?

To be added soon:

- Should my launch and ground station location be the same?
- What should I do if I am told by my university that the transportation of helium is regulated and that we are not allowed to personally transport it?
- What should I be aware of when updating Windows 10 on the ground station laptop?

Communication

- Points of Contact for eclipse path state hosts can be found from the FAQ page.
- The next group **telecom** will be Thursday November 3rd at 11 AM Mountain daylight 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
- We're putting together a **social media** team. Anyone interested in helping, please contact Shane or Angela.
- Facebook page: <https://www.facebook.com/EclipseHighAltitudeBallooning/>
- Twitter: https://twitter.com/Eclipse_HAB

Action items

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- Telecom 11/3/16, 11 AM Mountain Daylight Time