



Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Re: Weather Balloon Questions

32 messages

Thomas Renkevans - NOAA Federal <thomas.renkevans@noaa.gov> Wed, Apr 19, 2023 at 12:02 PM
To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>
Cc: "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Mike,

Sorry for my delay here. As far as your questions, those are all in the purview of the radiosonde folks. The site we took other folks to was out at <https://www.weather.gov/soic/>

Our one main POC out there is Daneil Brewer, copied on this email. Hopefully he can address or pass your questions to relevant folks . Mark and I work in the satellite arm of NOAA and know enough about radiosondes (we are both meteorologists by degree) to know enough, but not the details you are asking.

Tom

On Thu, Apr 13, 2023 at 7:23 AM Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil> wrote:

Mark/Thomas—

I am new to DOD/USDI/AARO and would love to come visit your operations to learn more about weather balloon/radiosonde design and operations. If that is doable for you, please let me know some dates/times that would work for you.

In the meantime, I do have three questions, and that concerns the average speed and length of time it takes for a radiosonde to descend back to the ground once the balloon bursts and the parachute deploys? Second, would there be any scientific reason to have two balloons tethered to the same single radiosonde payload? Lastly, we would like a tutorial on how to use your global weather balloon tracking data set.

Thanks

Mike Rabasco

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Tom Renkevans - Division Chief (he/him)
NOAA/NESDIS/OSPO Satellite Products and Services Division
NOAA Center for Weather and Climate Prediction, Room 3600, E/SP05
5830 University Research Court, College Park, MD 20740
Office and Fax: (301) 683-3257
Cell: (240) 691-2416 Thomas.Renkevans@noaa.gov
<http://www.ospo.noaa.gov> ** <http://twitter.com/NOAASatellites>

Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>
To: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>
Cc: "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>

Wed, Apr 19, 2023 at 12:56 PM

No problem, thank you for redirecting.

Daniel, look forward to hearing from you.

Best

Mike Rabasco

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>
To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>

Thu, Apr 20, 2023 at 10:19 AM

Hi Mike,
Are you in the Washington DC area? If so, we could coordinate a visit to my office in Sterling, Virginia where we could go through the balloon preparation process, release of the balloon, and see the live data. If we aren't in the same area, then there may be a weather office closer to you where you could observe the same thing.

Regarding your questions...

1) The speed the radiosonde falls back to the ground is a curve dependent on height and the state of the parachute. When the balloon bursts, the parachute hasn't opened yet and the atmosphere is very thin so the rates can be greater than 60 m/s. As the atmosphere becomes thicker and the parachute fully opens, the descent rate is around 20 m/s and gradually slower to 3-5 m/s near the surface. The total descent time is about an hour, but can be as quick as 20 minutes if the parachute doesn't fully open or if no parachute is used. Some remote sites are not using a parachute (Alaska and a few select CONUS locations).

2) Radiosondes are light (<100grams), so I cannot think of a reason to have two balloons attached to a radiosonde. Even when we do larger payloads for intercomparisons (a styrofoam crossbeam with 4 radiosondes attached plus a heavier specialized instrument) we just use a bigger balloon. Just spitballing....two balloons would be used because both balloons were undersized for the payload or they were attempting to get a very fast ascent rate or if the balloons are on a spreader bar then I suppose they could act like a giant sail and perhaps increase your horizontal distance. If the two balloons are latex and constantly rubbing against each other then that would create weak spots in the material and they would burst early.

3) The global data set that we have is located at NOAA's National Center for Environmental Information <https://www.ncei.noaa.gov/data/us-radiosonde-bufr/archive/>. I've cc'd Jay Lawrimore as he is the person to coordinate with all things data.

I hope this helps. Let me know if you want more details or thoughts on any of these topics.

Daniel

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Daniel Brewer
NWS Sterling Field Support Center
703-661-1208

Thomas Renkevans - NOAA Federal <thomas.renkevans@noaa.gov>
To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Thu, Apr 20, 2023 at 10:32 AM

thanks Daniel... I certainly owe you one (or two!)

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JWICS - trenkevans@doc.ic.gov
SIPR - thomas.renkevans@commerce.sgov.gov

Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>
To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Thu, Apr 20, 2023 at 10:37 AM

Hi Daniel,
Is this related to the UAPs study? I am going to forward this to Imke Durre who is chief of the Products Section and she along with some in her section are the experts who would be able to provide an overview of the upper air data.

Jay

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Jay Lawrimore
Meteorologist, Dataset Section
Climatic Science and Service Division
NOAA's National Centers for Environmental Information (NCEI)
[151 Patton Ave](#)
[Asheville, NC 28801](#)
828-271-4750
fax: 828-271-4022
Follow NCEI on Facebook and Twitter (@NOAANCEI)

Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>
To: Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>

Thu, Apr 20, 2023 at 10:44 AM

Hi Jay,
Yes, it is related to UAPs. AARO is a new group that was established last summer by congress. Sorry, these groups keep popping up and I keep sending them to you for data. Next time, I'll send them to Imke.

Daniel

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Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>
To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Thu, Apr 20, 2023 at 11:18 AM

ok. thanks Dan. good to know. No problem sending to me but Imke will be better able to help you now that all the upper air folks are in her section.
I'll cc you on my email to her.

Jay

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Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>

Thu, Apr 20, 2023 at 11:23 AM

To: Imke Durre - NOAA Federal <imke.durre@noaa.gov>

Cc: Bruce Hundermark - NOAA Affiliate <bruce.hundermark@noaa.gov>, Bryant Korzeniewski <Bryant.Korzeniewski@noaa.gov>, Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Hi Imke,

I talked to Dan Brewer at NWS (cc'd here) about this and told him I would forward to you as you have all the upper air folks and expertise in your section. This is related to the UAP (Unidentified Aerial Phenomena) issue that congress had initiated a study of. AARO is a new group that was established last summer by congress. The request related to NCEI is question 3 - where they would like someone to walk them through the upper air data available to them; specifically the bufr data.

If I can do anything to help please let me know.

Jay

----- Forwarded message -----

From: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Date: Thu, Apr 20, 2023 at 10:19 AM

Subject: Re: Weather Balloon Questions

To: Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>

Cc: Renkevans, Thomas M CIV DOC (USA) <thomas.renkevans@noaa.gov>, Mulholland, Mark F CTR (USA) <mark.mulholland@noaa.gov>, Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>

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Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>

Thu, Apr 20, 2023 at 11:43 AM

To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi there, yes we are in DC (Arlington) so me and my team (3 people) would be happy to take a field trip to visit you. We would also like to talk about how best to plug into and use/visualize your data sets. Thank you for the information regarding my questions.

If this sounds good to you, let us know what days/times best work for you.

Mike

From: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Thu, Apr 20, 2023 at 2:11 PM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>, Imke Durre - NOAA Federal <Imke.Durre@noaa.gov>

Hi Mike,

Regarding the data sets, I'm cc'ing a new person to the thread, Imke Durr. She also works at NOAA's NCEI and can help you with the data portion. That would probably be best done separate from a visit to our facility. NCEI is in Asheville, NC.

For a visit to our site, how about Wednesday, May 3rd at 10am? We could do sooner if you are OK with just a show & tell.

Daniel

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Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil> Thu, Apr 20, 2023 at 3:03 PM
To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>, "Durre, Imke CIV (USA)" <imke.durre@noaa.gov>

We have a conflict then, how about Thursday or Friday of that week?

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> Fri, Apr 21, 2023 at 2:12 PM
To: Thomas Renkevans - NOAA Federal <thomas.renkevans@noaa.gov>

Happy to help! And the whole thing is intriguing...

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> Fri, Apr 21, 2023 at 2:13 PM
To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>
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Hi Mike,

How about Thursday May 4th at 10am?

Daniel

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> Tue, Apr 25, 2023 at 9:58 AM
To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>, "Durre, Imke CIV (USA)" <imke.durre@noaa.gov>

Hi Mike,

Just checking in to see if that date and time works.

Daniel

[Quoted text hidden]

Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil> Tue, Apr 25, 2023 at 12:24 PM
To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>, "Durre, Imke CIV (USA)" <imke.durre@noaa.gov>

Yes that works for me, we might have 4-5 people, is that ok?

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> Tue, Apr 25, 2023 at 1:36 PM
To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>, "Durre, Imke CIV (USA)" <imke.durre@noaa.gov>

Mike,

Yes, 4-5 people (or more) is fine. I just sent you an invite. You can either distribute to the other attendees or if you provide me with their email addresses, I can add them. While we are doing the overview portion from ~10:15am - 11am, remote attendees can listen in. The rest will be more walking and talking. There should also be directions in the invite. Let me know if it doesn't come through. Looking forward to the visit!

Daniel

[Quoted text hidden]

Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>
To: Imke Durre - NOAA Federal <Imke.Durre@noaa.gov>

Tue, Apr 25, 2023 at 1:37 PM

Hi Imke,

I was wondering if you wanted to be part of this meeting on Thursday May 4th? I encouraged Mike Rabasco to reach out to you separately, but if he doesn't, maybe Thursday would be a good time for introductions?

Daniel

[Quoted text hidden]

Imke Durre - NOAA Federal <imke.durre@noaa.gov>
To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Tue, Apr 25, 2023 at 6:24 PM

Hi Daniel,

I have been watching this thread and monitoring it for a conclusion. I have a conflict at that time. On Thursday, May 4, but I would be happy to meet with Mike Rabasco and his group separately to discuss radiosonde data and answer any questions.

Perhaps it would make most sense to do that after his walk-through with you.

I will reach out to him directly to make that offer.

Thanks for checking in on this,

Imke

On 4/25/23, Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> wrote:

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> 4th? I encouraged Mike Rabasco to reach out to you separately, but if he

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>>> *Sent:* Tuesday, April 25, 2023 9:59 AM
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>>> *Sent:* Thursday, April 20, 2023 10:20 AM
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>>> Mulholland, Mark F CTR (USA) <mark.mulholland@noaa.gov>; Lawrimore, Jay
>>> H CIV (USA) <jay.lawrimore@noaa.gov>
>>> *Subject:* Re: Weather Balloon Questions

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>>> <<https://usg01.safelinks.protection.office365.us/?url=https%3A%2F%2Fwww.ncei.noaa.gov%2Fdata%2Fus-radiosonde-bufr%2Farchive%2F&data=05%7C01%7Cmichael.j.rabasco2.civ%40mail.mil%7Ce10a9bdab68d47bf978f08db45954bf6%7C102d0191eeae4761b1cb1a83e86ef445%7C0%7C0%7C638180279765725308%7CUnknown%7CTWFPbGZsb3d8eyJWljoimc4wLjAwMDAilCJQljoiv2luMzliLCJBTiI6lk1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=sccrrJI9wCGkBJyFRak85OGJsAx0qkQLAP9G66Wflg%3D&reserved=0>>.

>>> I've cc'd Jay Lawrimore as he is the person to coordinate with all
>>> things
>>> data.
>>>

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>>> I hope this helps. Let me know if you want more details or thoughts on
>>> any of these topics.
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>>> Daniel

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>>> On Wed, Apr 19, 2023 at 12:57 PM Rabasco, Michael J CIV (USA) <
>>> michael.j.rabasco2.civ@mail.mil> wrote:
>>>

>>> No problem, thank you for redirecting.

7C102d0191eeae4761b1cb1a83e86ef445%7C0%7C0%7C638180279765725308%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikk1haWwiLCJXVCi6Mn0%3D%7C3000%7C%7C%7C&sdata=bkC6K1o%2BFZtLSalXVIaWX%2BY5II6A0XiU4gzSx6qLSvU%3D&reserved=0>

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>>> Daniel Brewer

>>> NWS Sterling Field Support Center

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>>> Daniel Brewer

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>> Daniel Brewer
>> NWS Sterling Field Support Center <<https://www.weather.gov/soic/>>
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> Daniel Brewer
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> 703-661-1208
>

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Dictated with voice recognition software -
Please excuse errors.

"There is nothing so useless as doing efficiently that which should not be done at all." (Peter Drucker)

Imke Durre, PH.D.
Chief, Products Section
Climate Science and Services Division
NOAA's National Centers for Environmental Information (NCEI)
151 Patton Avenue
Asheville, NC 28801
imke.durre@noaa.gov
Direct line: +1 828 271 4870

Customer Support: +1 828 271 4800 or <http://www.ncdc.noaa.gov/contact>
Facebook: <http://www.facebook.com/NOAANCEIclimate>
Twitter: Climate: @NOAANCEIclimate

Imke Durre - NOAA Federal <imke.durre@noaa.gov> Tue, Apr 25, 2023 at 6:44 PM
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Hello Mike,

I have a conflict at the time of the meeting on May 4, but one or two colleagues here at NCEI and I can meet with you and your group at a separate time to discuss the relevant radiosonde data.

Some possible times include the following:

Thursday, May 4, 3:30-4:30pm

Monday, May 8, before 11:30am

Regards,
Imke Durre

On 4/20/23, Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> wrote:
> Hi Mike,
> Regarding the data sets, I'm cc'ing a new person to the thread, Imke Durr.
> She also works at NOAA's NCEI and can help you with the data portion. That
> would probably be best done separate from a visit to our facility. NCEI is

> in Asheville, NC.
>
> For a visit to our site, how about Wednesday, May 3rd at 10am? We could do
> sooner if you are OK with just a show & tell.
> Daniel

>
> On Thu, Apr 20, 2023 at 11:44 AM Rabasco, Michael J CIV (USA) <
> michael.j.rabasco2.civ@mail.mil> wrote:

>
>> Hi there, yes we are in DC (Arlington) so me and my team (3 people) would
>> be happy to take a field trip to visit you. We would also like to talk
>> about how best to plug into and use/visualize your data sets. Thank you
>> for
>> the information regarding my questions.

>>
>>
>> If this sounds good to you, let us know what days/times best work for
>> you.

>>
>>
>> Mike

>>
>>
>> *From:* Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>
>> *Sent:* Thursday, April 20, 2023 10:20 AM
>> *To:* Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>
>> *Cc:* Renkevans, Thomas M CIV DOC (USA) <thomas.renkevans@noaa.gov>;
>> Mulholland, Mark F CTR (USA) <mark.mulholland@noaa.gov>; Lawrimore, Jay H
>> CIV (USA) <jay.lawrimore@noaa.gov>
>> *Subject:* Re: Weather Balloon Questions

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>> <<https://usg01.safelinks.protection.office365.us/?url=https%3A%2F%2Fwww.ncei.noaa.gov%2Fdata%2Fus-radiosonde-bufr%2Farchive%2F&data=05%7C01%7Cmichael.j.rabasco2.civ%40mail.mil%7C5282518b2f484dd0ab1308db41abae00%7C102d0191eeae4761b1cb1a83e86ef445%7C0%7C0%7C638175977852974273%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikk1haWwLiCjXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=9jud0O2FoUOtJB2vyk93K0jz5or1rE8SlajhVTckt54%3D&reserved=0>>.

>> I've cc'd Jay Lawrimore as he is the person to coordinate with all things
>> data.

>>
>>
>> I hope this helps. Let me know if you want more details or thoughts on
>> any
>> of these topics.

>>
>> Daniel

>>
>>
>> On Wed, Apr 19, 2023 at 12:57 PM Rabasco, Michael J CIV (USA) <
>> michael.j.rabasco2.civ@mail.mil> wrote:

>>
>> No problem, thank you for redirecting.

>>
>>
>> Daniel, look forward to hearing from you.

>>
>>
>> Best

>
>
> --
> Daniel Brewer
[Quoted text hidden]

Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>

Wed, Jul 26, 2023 at 8:09 AM

To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi Daniel—

Another general question regarding weather balloon size to weight ratios. I'm trying to get a sense of the lift capacity of balloons based on the size of the balloon. It seems that your standard pico hobbyist balloon with GPS transmitter (about 1-3 meters in diameter) can haul about 16 grams, while weather balloons (3 meters in diameter at launch) can lift upwards of 500 grams or about 1 pound.

Do you have any reference material on this lift/weight ratio to the size of the balloon? I ask, because we see a large number of balloons of this size (1-3 meters in diameter with tethers and some small payloads) over military operating areas. Given the small size, we are trying to get a sense of the weight range such balloons could carry aloft, and then why types of payloads would match that weight.

Thanks

Mike

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Fri, Jul 28, 2023 at 4:20 PM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi Mike,

Regarding the visit, the week of Aug 7th isn't going to work for the program manager to be here. We can push it to the following week, but our conference room is in use all week and the next week). So, our best week isn't until the week of Aug 28th. If that works, I'll pick a date. If you'd prefer to visit sooner, we can make it work.

Regarding the balloon lift vs. size, I'm still looking, but I found the calculations we used when testing balloons. The "Calculations Sheet" has the balloon size data. The "Test" Sheet has how much weight and how fast the balloon traveled. I was hoping to tell you this is how much lift you have per cu.ft of gas, but I haven't come across documentation about that yet...besides googling.

Dan

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Balloon Worksheet.xls

51K

Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>

Mon, Jul 31, 2023 at 9:28 AM

To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi there, thanks for the below, I would love to try to do it sooner, if at all possible (I'll be on TDY to Hawaii, possibly, the week of the 28th.) I could bring a much smaller group, maybe 3 people total? Would that help in terms of logistics?

[Quoted text hidden]

Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Mon, Jul 31, 2023 at 10:50 PM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi Mike,

I'll shoot for the week of the 14th and get a date or two for you. Let me know how many you'd like to bring and we can make adjustments from there. The space we can use is our lab which has a tv monitor and then demonstrate a weather balloon release.

Dan

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Mon, Aug 7, 2023 at 1:15 PM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi Mike,

How about Thursday August 17th at 10am?

Dan

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Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil>

Mon, Aug 7, 2023 at 1:22 PM

To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Perfect. I'll prob have 1-3 people with me.

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Fri, Aug 11, 2023 at 9:52 AM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Mike,

I have to ask...is everyone that is visiting NWS U.S. citizens?

Our plan is to show you an overview of NWS operations for weather balloons, do a demonstration flight, and discuss data flow, but any historical data repository questions we would point you to Jay Lawrimore, cc'd. If there's anything

Daniel

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Jay Lawrimore - NOAA Federal <jay.lawrimore@noaa.gov>

Fri, Aug 11, 2023 at 10:08 AM

To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Cc: Imke Durre - NOAA Federal <imke.durre@noaa.gov>, Bruce Hundermark - NOAA Affiliate <bruce.hundermark@noaa.gov>

Hi Dan,

If there are any historical data questions for upper air they can be directed to Imke Durre or Bruce Hundermark. cc'd here. Imke is head of the section responsible for upper air data.

Best regards,
Jay

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--

Jay Lawrimore
Meteorologist, Dataset Section
Climatic Science and Service Division
NOAA's National Centers for Environmental Information (NCEI)
151 Patton Ave
Asheville, NC 28801

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Mark Mulholland <mark.mulholland@noaa.gov> Fri, Aug 11, 2023 at 11:57 AM
To: Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Dan - It seems like every time there is something in the news about UAPs, you get another set of DoD visitors! 😞 -
Mark M

Mark Mulholland
Office of Space Commerce (MITRE)
(571) 246-1467 (Texts OK)
SIPRNET: mark.mulholland@commerce.sgov.gov
JWICS: mfmulholland@doc.ic.gov

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov> Fri, Aug 11, 2023 at 12:05 PM
To: Mark Mulholland <mark.mulholland@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Sure does. Although this group was supposed to come back in May and had to reschedule. I'm hoping the coordination is helpful in the long run!
Dan

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Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil> Tue, Aug 15, 2023 at 9:47 AM
To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Yes, and we all have TS clearances. Could you please resend the directions etc?

Thanks

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Rabasco, Michael J CIV (USA) <michael.j.rabasco2.civ@mail.mil> Wed, Aug 16, 2023 at 12:49 PM
To: "Brewer, Daniel T CIV (USA)" <daniel.brewer@noaa.gov>
Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Hi there, sorry to ping you again but can you send direction and entrance information?

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Daniel Brewer - NOAA Federal <daniel.brewer@noaa.gov>

Wed, Aug 16, 2023 at 1:10 PM

To: "Rabasco, Michael J CIV (USA)" <michael.j.rabasco2.civ@mail.mil>

Cc: "Renkevans, Thomas M CIV DOC (USA)" <thomas.renkevans@noaa.gov>, "Mulholland, Mark F CTR (USA)" <mark.mulholland@noaa.gov>, "Lawrimore, Jay H CIV (USA)" <jay.lawrimore@noaa.gov>

Sorry! Here you go. If you run into any issues, my phone number is 703-661-1208.

Our address is:
NOAA/National Weather Service
Sterling Field Support Center
43741 Weather Service Road
Sterling, VA 20166

Use the Lightning Road entrance (a safer entrance w/ traffic light)
When you get to the gate, you can say you are visiting Dan Brewer at SFSC.
Once you get through the gate, follow the signs to SFSC.
At the front door, ring the doorbell and we'll let you in.

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