

Hello everyone, and thank you for your willingness to take part in this community science effort!

We already have an excellent network of >60 volunteers that will be sampling Hurricane Sandy as it moves across the eastern USA and Canada, with responses still coming in. The overall goal of this effort will be to obtain an unprecedented spatial and temporal dataset documenting the isotopic composition of rainwater (and snow) associated with this major storm system. Briefly, these data will tell us about water sources and cycling within the storm system – we are hoping to see evidence for changes in water sources to the storm as it first collides with the approaching cold front and then leaves the ocean to traverse the NE USA. These data should help us with our ability to reconstruct storms in the paleoclimate record and may also help us understand and predict the evolution of large storms.

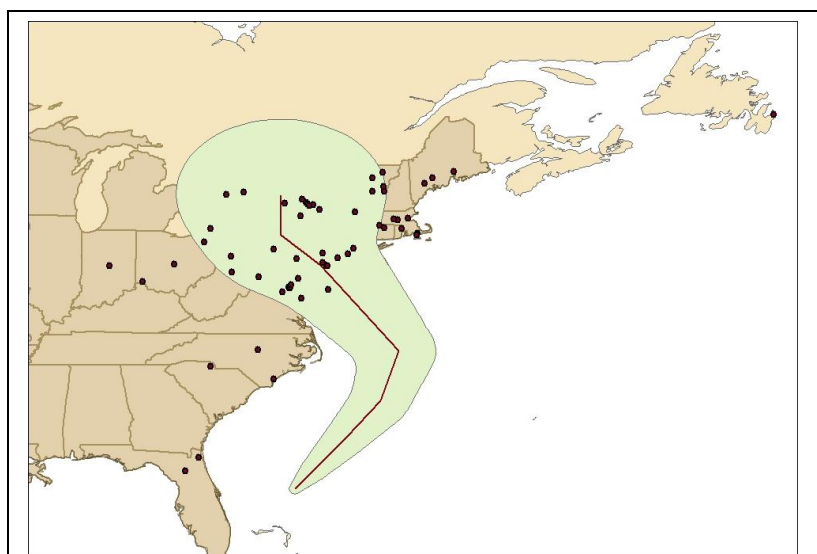
On the following page you will find sample collection instructions. I have tried to make them as simple and flexible as possible, so it's not too much of a burden on anyone to participate, but we also need some standardization so we can compare data we obtain between sites. Before I provide instructions, I'll point out what is hopefully obvious. Sandy is predicted to be a dangerous storm across much of our study area. Please do not put yourself in harm's way to collect samples.

Collecting water isotope samples is easy. There are only 2 things to think about. 1) We want to know when and where the water came from, so do what you need to do to make sure that your collector is collecting all precipitation that's falling during the collection period (e.g., don't put it somewhere that you'll be collecting flood water instead of rainfall, use a deep enough container to collect several inches of precipitation, secure your collector so it doesn't blow away or tip over, put your samples in clean, dry bottles and label them clearly). 2) After the samples are collected, we don't want them to evaporate. This is easy to ensure if you put them in bottles with tight lids and close them securely. We find that it helps to tape the closure shut before shipping so the lids don't jostle loose.

Detailed instructions follow on the next page. I will also post this information to a new webpage, http://wateriso.utah.edu/waterisotopes/pages/data_access/sandy.html, later today. Feel free to steer any other potential volunteers to that site for info. Data and maps will be posted to that site after we receive and analyze the samples. I estimate that this will take 2-4 weeks.

Thank you, and stay safe!

Gabe



Projected track of Hurricane Sandy and network of water sampling volunteers as of 11 am eastern time, 10/27/12.

Sample Collection and Submission: "Sandy" Isoscape

1. **Sample Collectors:** Any container that you can place outside in an uncovered location and access during the storm is OK. Things to think about – can you secure the container so it doesn't blow away? Is the container in a location that it will only sample precipitation falling during the sampling period and will sample all precipitation during the sampling period (for example, if you place the sampler next to a wall it may be shielded from some precipitation depending on the wind direction)? Is the container deep enough to collect the expected amount of precipitation without spilling over (if you're expecting 10 inches of rain in the next 12 hours you would need a 10-inch-deep container if it is a cylindrical shape, deeper if it is funnel-shaped)? Some suggestions:
 - a. If you have a rain gauge this is ideal. Simply empty the gauge each time you collect a sample.
 - b. A household cleaning bucket will work fine. Secure it to a railing, light post, etc. using rope, bungees, or something of your own design, or dig a small hole and partially bury it underground. This setup will also work well if you receive snow.
 - c. I've used an old, cleaned and dried spaghetti sauce jar before. Again, it will need to be secured somehow.

2. **Sample Collection:** We are asking folks to collect samples at (or as close as possible to) 8 am and 8 pm local time each day, any time you're receiving precipitation. This common sampling period will help us analyze data across the sampling network. It also means folks can collect samples at home, which is where I expect most will be as the storm passes. Please start collecting samples as soon as possible, and continue for any 12-hour period where you receive precipitation until we send word, even if you don't think your precipitation that day is part of Hurricane Sandy, proper. The collection protocol:
 - a. Fill your sample container (see #4 below) as full as possible with water from your collector. If you have extra water in your collector, discard it before you re-deploy the collector.
 - b. Close the sample container tightly and label it with a sample ID of your choosing (I'd recommend your initials followed by a 2 digit number, starting w/ 1, but you can choose).
 - c. Fill in all the fields in the attached sample information spreadsheet for each sample. If you are without power or otherwise cannot fill out the spreadsheet at the time of collection please write down the following information to be transferred to the spreadsheet later:
 - i. Sample ID (same as written on the container)

- ii. Date and time the collection of that sample started (when was the sampler last emptied/placed out)
 - iii. Date and time that the sample was collected
 - d. Set aside your samples for shipping.
- 3. Sample Volume: We need a minimum of ~4 ml (not much, 1/6 of a shot of whiskey) for analysis. If it is more convenient for you to send a larger sample that's OK.
- 4. Sample containers:

If you are in a lab and have access to sample bottles, the best containers to use are small Nalgene sample bottles – these have tight-fitting lids and will be resistant to abuse during shipping. Small (1 or 4 dram) glass sample vials are also good, but make sure you protect them w/ foam or bubble wrap (see #5 below).

If you do not have access to lab-grade containers that's OK...any dried, plastic bottle with a tight-fitting lid will work. If we receive your sample in a 20 oz Coke bottle we will sub-sample it in the lab...we may double-check w/ you to make sure you rinsed and dried the bottle before collecting the sample but otherwise no problem!

- 5. Packaging: My recommendation for small bottles and vials is to
 - a. Make sure that if you have multiple samples you label each bottle clearly with a unique ID (we will assign our own ID to the samples when we receive them, so use whatever works for you)
 - b. Secure the closure with parafilm (best) or masking tape (fine) so it doesn't come loose in the mail
 - c. Wrap each bottle in a piece of foam or bubble wrap, then tape it to form a secure 'packet'
 - d. Place your samples in a manila envelope, USPS flat rate box, or courier box for mailing.
- 6. Shipping:
 - a. Please post your samples as soon as possible after the sample collecting stops. We need to get these in house to ensure that we can vouch for the provenance and quality of the samples, plus we want to get the ball rolling on analysis.
 - b. Please ship the samples via USPS, FedEx, UPS, or DHL (expedited shipping is not critical, particularly if your samples are well-sealed containers) to the address below.

- c. I'd appreciate folks covering shipping costs where possible, but if this is prohibitive for you please send me an email at gabe.bowen@utah.edu and I'll provide a FedEx account number you can use for shipping

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