

Open and accessible teaching data for the National Ecological Observatory Network

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Key Points

- **Deciding factors for choosing figshare**

Anyone can download the data, the variety of file types accepted, retention period guarantees, DOIs for each data set, and a versioning system.

- **Break down the data**

Organise the data in sections so users don't have to download the entire piece of data if they're looking for a specific piece of information

- **Tips for others wanting to share their data**

Be forward thinking about how you want to use the data and include relevant keywords for discoverability.

About NEON

NEON is the National Ecological Observatory Network. We're a National Science Foundation funded project that's operated by Battelle. NEON's mission is to provide continental-scale ecological data across the entire United States including Puerto Rico, Hawaii, and Alaska.

It's really about providing that data to the public, aimed at anyone. They can then use that data to answer questions looking at ecological forecasting, climate change, and invasive species.

The mission is to provide this data to the community, including providing education regarding the skills and background needed to ask those types of questions. NEON has everything from hyperspectral remote sensing data to DNA barcoding and genetics data from beetles. That range of data products is incredibly diverse. Part of the education mission is to provide the data skills needed to work with these different types of data products. We have

curated sets of data products that vary: some are cleaned up and some aren't depending on what we really want to be teaching. We're using figshare to host teaching data subsets and hosting the NEON and proxy NEON data on the NEON Science Portal.

My role is to create those education materials and teaching workshops. We're starting to develop more undergraduate materials for people who are interested but may not be doing their own research yet. Everything we have out there now is more geared toward practitioners and researchers, whether that's graduate students, early or late career researchers.

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How we organized our data on figshare

We decided to have a NEON Data Skills account rather than individual researcher contributors because the data is coming from NEON, not from me. That way, no matter who is uploading the data, it's still coming from NEON as the provider of that data.

As far as organising it, it's still an ongoing discussion. Each dataset is created in conjunction with an original lesson series, but we definitely find that they get used for later ones, as well. So, whether we organise data thematically - all of the meteorologic data or remote sensing data, for example - or if we organise them by lesson series content, is yet to be determined.

Right now, we have things organised by the lessons they are used in and have broken it down within that so someone doesn't have to download all of the spatiotemporal data - they can just download what's relevant for them.

Why we chose figshare to share our research

When deciding on figshare, a few of the important points were that:

- anyone could search and download data - they don't need an account
- the ability to accept any file type since there are many file types associated with the data NEON produces
- figshare's guaranteed retention period
- the ability to have DOIs for each data set and a versioning system

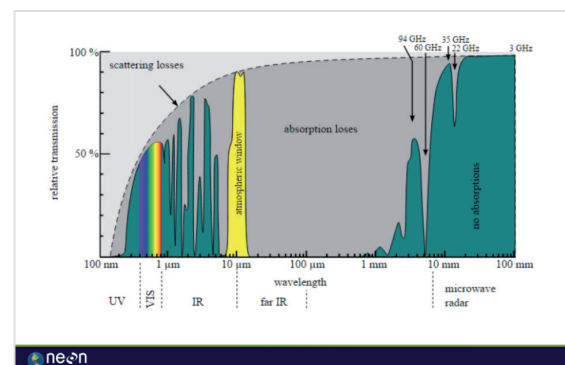
The aim of making the data open and easy to access is so that as many people as possible can use these tools and have it help their research (and education in the classroom as we expand to the undergraduate space). We want the data to be accessed from as many different sites and people all over the world

as possible. Our focus is primarily North America because of the data, but the skills can be applied to any data that anyone is working on.

Tips for others looking to make their data open and accessible

Think about how you want to use the data in the future, not just now. Also, think about the keywords you're using to help people search for the materials. The hope is that someone would be using figshare to look for other datasets and come across a NEON teaching data subset.

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Introduction to hyperspectral remote sensing
NEON Data Institute

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