Questions & Answers Session 2

Please type your questions in the Question Box. We will try our best to get to all your questions. If we don't, feel free to email Cindy Schmidt (cynthia.l.schmidt@nasa.gov) or Amber McCullum (amberjean.mccullum@nasa.gov).

Question 1: where can I find GEDI products? Are they available to download?
Answer 1: The GEDI products should be available within the next couple of months. The release timing of each product depends on what processing level it is at, here is the site for more information about that: https://gedi.umd.edu/data/download/. Once the products are available, the level 1 and 2 data will be accessible from the LP DAAC (https://lpdaac.usgs.gov/), and the level 3 and 4 products will be available via ORNL DAAC (https://daac.ornl.gov/).

Question 2: How species distribution models and habitat suitability model works with climate and environmental variables in R??
Answer 2: There are tools developed in R that combine species occurrence data with environmental variables (from WorldClim: http://www.worldclim.org/bioclim). We have mentioned a couple project with GEO BON that are creating new R packages as well. Here is the website for Wallace, which we mentioned:
https://cmerow.github.io/RDataScience/3_4_wallace.html. If you are interested in a follow-up training once those packages and tools are ready, we would love to hear your feedback.

If you want to get started right away, here is a great website on how to get started with species distribution models in R:
https://jcoliver.github.io/learn-r/011-species-distribution-models.html. Here is another site focused on habitat suitability in R:
http://gsp.humboldt.edu/OLM/R/05_05_SpeciesDistributionModelins.html

Question 3: hello, is the Lidar available online? is it free and open software? thanks
Answer 3: I think this is in reference to the GEDI data, which we have discussed in the previous question.

Question 4: In what data forms will the GEDI data be available to the public?
Answer 4: https://gedi.umd.edu/data/products/

Question 5: Would like to see example of Bon in a box when available using terrestrial example. When will bon in a box be functional?
Answer 5: BON in a Box tools are currently under development. Stay tuned! We plan to include some of the tools in future training.
Here is the website to check Bon in a BOX status:
https://geobon.org/bon-in-a-box/

Question 6: Will countries who join GEO get higher resolution, updated data if these countries?
Answer 6: GEO is more about developing and providing access to tools and other portals. The data used for GEO projects are freely available through ESA, NASA and others.

Question 7: Are there any EBV for arthropods?
Answer 7: EBVs are general biodiversity variables that can be used across a range of species. More information can be found here:
https://geobon.org/ebvs/what-are-ebvs/

Question 8: I would be more interested in the GEOBON EBVs for forest ecosystem services? How can they be measured in data-scarce regions?
Answer 8: You may be interested in GEO Earth Observations for Ecosystem Accounting EO4EA, which is focused on Ecosystem Services. More information can be found here:
https://www.eo4ea.org/

Question 9: What kind of satellite imagery will be used by Dr. Maria Kavanaugh, Oregon State University, to develop the Dynamic Seascapes applications for classification? Secondly will that Global model be tuned according to the local climate?
Answer 9: You can find out more information about Seascapes here:
http://www.marinebon.org/seascapes.html
https://academic.oup.com/icesjms/article/73/7/1839/2458882

Question 10: The point came up about the Navajo nation and a mountain range that falls within there and I was wondering, with this type of data, is there any consideration going into sovereignty and how mapping certain areas could remove Indigenous nations ability to have privacy from oppressive forces. I know that governments have satellites themselves, but are there considerations given to how public and accessible this is?

Answer 10: This is a great question, and when we work with tribal groups we do our best to be sensitive to concerns about data sovereignty. However, all NASA data is public and freely available (as we are funded by the taxpayer) and generally our data is more coarse than private satellites and sensors. NASA does not share any tribal data or knowledge. I (Amber McCullum) have worked with the Navajo Nation Department of Water Resources for a few years now, and we are very serious about prior informed consent when using any of the Nation's data (we are working on a drought project). We not share any tribal data or knowledge publically. We are also always open to hearing more about how we can best work with tribal groups to be sensitive to these issues.

Question 11: For change detection we need baseline data. How long are the datasets you are comparing?
Answer 11: The Landsat archive extends from the mid-1980s to current

Question 12: Lidar data is available for India ?
Answer 12: ± 51.6 ° latitude globally.

The GEDI Lidar employs 3 laser transmitters, beam-splitting optics, and an optical dithering device to produce 14 ground tracks spaced 500 m across-track (total swath width of 6.5 km).

Question 13: Interested in ecosystem services and remote sensing, if there are any tools to use for ecosystem services and remote sensing except for InVEST Model, please share
Answer 13: We recommend that you look at the website for GEO's Earth Observations for Ecosystem Accounting (EO4EA). There are several people on that team that could answer your questions.
https://www.eo4ea.org/the-team

Question 14: Can we use remote sensing for measuring the deforestation caused by the tree beetles?

Answer 14: Yes, it would be measured using landcover change detection. The ARSET series "Advanced Webinar: Change Detection for Land Cover Mapping" found on the ARSET site covers these techniques. Exercises and QGIS and R instructions within. It is possible to track changes such as tree mortality and wildfires. Landsat historical records and NDVI, or NBR can be used. Scale will be a factor here.

Question 15: Hi, There are a lot of species portals and tools out there.... How would something like the GBIF relate to / feed in to something like iNaturalist (or vice versa)? Seems like there's a lot of redundancy.

Answer 15: There is a lot of redundancy. Which is why GEOBON can be seen as a portal of portals. Also note that every portal has a different goal or function. For example iNaturalist uses citizen science for mapping and sharing observations. While GBIF is organized by governments and has a network of participating countries.

Question 16: For observation data in gbif or any other website where data can be shared by everyone (e.g. ebird), how do you take into account of false positive from the dataset?

Answer 16: GBIF has a site where they talk about tracking methods and sorting, but this is an issue they are trying to address. You can read about GBIF data standards here:
https://www.gbif.org/standards

Question 17: How and where can we obtain documentation of the cases presented in the demonstration, please?

Answer 17: The case studies has information on the GEOBON websites. Contact us if you would like more information. These projects are all just beginning and in a couple years the models and data should be made available. You can read more about the projects here:
https://geobon.org/about/projects/

Question 18: Are these Geo BON datasets exportable as CSV files?

Answer 18: The only data that you can currently download are through the EBV portal (https://vat.gfbio.org/geobon-cop/#/). You can get Changes in average local terrestrial

diversity, Changes in local bird diversity and Forest cover. You can download the results as a GeoTIFF

Question 19: The map of life data does it also cover aquatic organism like benthic macroinvertebrates?
Answer 19: No it does not include benthic macroinvertebrates