



Part 3: Questions & Answers Sessions

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 Lola Fatoyinbo (lola.fatoyinbo@nasa.gov) or Abigail Barenblitt (abigail.barenblitt@nasa.gov).

Question 1: Is there a more recent mangrove extent dataset or app such as for 2019 or 2020?

Answer 1: The datasets we use for this app are ones we generated using the same techniques covered in Part 2 of this workshop. Simard (biomass) and GMW (extent) have 2019 datasets:

<https://www.nature.com/articles/s41561-018-0279-1>

<https://www.mdpi.com/2072-4292/10/10/1669>

Question 2: In last week's training for the time series you used different polygons and trained the model twice – can you not use your trained model from one time step for multiple time steps?

Answer 2: The trained model pulls in data for a particular year of interest so it relies on the Landsat imagery and training for that specific year. We have to use another model to accurately classify a different year. If we were to reuse that model or polygons it would not be as reliable.

Question 3: In GEE, is there a share to a "group" concept? Or, is it "everyone" or just specific users, one at a time?

Answer 3: You can invite people to join a folder of scripts you have. So anyone you share with can edit and share those scripts. In our lab we have a shared group of assets.

Question 4: Is it possible to run the GEE script sequentially i.e. only a selected chunk of it?

Answer 4: You would have to comment out the parts you don't want to run and then comment pieces back in.



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Question 5: Does the zoom level affect the display on different screen sizes?

Answer 5: It shouldn't make much of a difference on the computer monitor but it may be affected on mobile devices.

Question 6: When do we use (), [], and {}? When do we use TRUE instead of FALSE in the script? How do you comment/uncomment multiple lines at once?

Answer 6: It depends on the requirements of the arguments you are calling in. We can use TRUE instead of FALSE if we always want a layer to show. () is often for assets. You can highlight a few lines and use Command + '/' in a Mac to comment or uncomment multiple lines (Ctrl + '/' on PC)

Question 7: How do you know the code palette is for what colour?

Answer 7: You can Google hex color codes and use a site like <https://hexcolorcodes.org/color-chart>

Question 8: When I zoom in and click on a yellow pixel, it gives me a value of 23-25, not 45. Does the color scale bar need to be calibrated (in regards to the Simard height data)?

Answer 8: The color scale may need to be recalibrated because it is a global dataset and we are looking at a particular country but the yellow pixels should show as anything from high 20's to 45.

Question 9: Hi, could you get HBA pixel values by hovering on the layer without clicking on the map, such as a tool tip function?

Answer 9: It's not a tool I have played with. There are hover zoom tools available, but I'm not sure about the values.

Question 10: While adding functionality to the check boxes (around line 270), instead of writing the same code 4 times, is it possible to use a loop and make it automatic?

Answer 10: GEE doesn't have explicit "loops" but there are ways to simplify your code by storing it in another script and calling that script in.

Question 11: How do we export the final map into jpeg?

Answer 11: Currently, this is not a GEE capability.



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Question 12: How would you create a bar chart for about 3 years showing a change in mangrove area over time?

Answer 12: You could import a table of values of all 3 years and make a bar chart from that. Or if you have a raster file with multiple values for diff years you can make a bar chart with that.

Question 13: Using the chart at the end, when I've clicked on each year and want to go back to another year, the chart is not displayed anymore. Instead I can open a new link with the chart. Can I somehow reset the function so it will display in the app?

Answer 13: You may have to include `.reset()` somewhere in your dropdown code. I would need to see your code.

Question 14: Can you talk briefly about what specific steps were necessary for quickly customizing and producing "Country specific" apps? For example at the least you would have to create a new "var Guyana" type variable for each country. Can you speak to specific best practices to make this as painless as possible?

Answer 14: Yes, so first you would need to create or gain access to raster and vector files specific to your country. In my case, I had to generate these layers. However, depending on your topic of focus and region of focus layers may already be available. What I like to do is create a list of all the layers I want to display and for each layer think about what makes sense for the display. Do I want a checkbox or some sort of scroll? Are there layers I want to auto display for the user or not? For SDGs, we want to look at the number of ha gained or lost.

Question 15: Can you embed the app in a website with iframe or other tools?

Answer 15: I have not used iframe, but you can embed apps into a google site.

Question 16: How can I find the other app examples?

Answer 16: If you go to the scripts tab in the editor and scroll down you will see an option for user interface to see examples.

Question 17: Can HDF, NC files be analysed in GEE? Or is it just the images?

Answer 17: For now you can only import geotiffs. We have converted these files to raster to import.



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Question 18: Is it possible to create better mangrove coverage layers and improve the accuracy? The area you zoomed in on was 80% ok but other sections of mangrove coasts weren't identified.

Answer 18: The version we shared in this series is a draft. You can improve the accuracy. Balance the time and cost with field measurements using satellite data. Additional training data in the model helps. Post process cleaning is part of the process.

Question 19: In Sundarbans mangrove forest area how do I calculate height of the mangrove forest where tidal processes are actively dominant?

Answer 19: We don't take tide into account, it is part of the height error calculation. Usually the variations in tidal level are below the height measurement sensitivity (on a global scale our error is about 3 meters, locally we can get the error down to about 2 meters).

Question 20: Which type of data set was used in this case study?

Answer 20: We used a raster file that was similar to what we created in Part 2 of the series. It is a mangrove extent map we created.

Question 21: Is it possible to run selected lines of the script? And what is the shortcut to comment/uncomment lines?

Answer 21: As far as I know the only way to run only a few lines of script is to comment out the lines below. The shortcut is Command + '/' (Mac) or Ctrl + '/' on PC

Question 22: What should we do when the code does not perform as we want? How do we check?

Answer 22: Look at what error you are getting if you are getting an error. Often it's as simple as a missing line or spelling mistake. If the function or command isn't performing what you expected you can search the Docs tab for other options.

Question 23: What does HBA stand for in the Code line 322?

Answer 23: Basal Area Weighted Height



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Question 24: It is possible to put in the last part of the code, in the section to select the year to change the word indefinite to show the area in hectares?

Answer 24: Can you rephrase?

Question 25: I saw sort of sedimentation on Guyana image, just around the mangrove areas, could this code be applicable as well to monitor the sediment? or the TMS (Total Suspended Matter) in time series? what satellite images that we can use to do that?

Answer 25: With TSM you may have to use different bands of interest. Previous studies have used Landsat and Sentinel to look at sediment, but it's not something I have personally done yet.

Question 26: Is it also possible to create an app through GEE Python API?

Answer 26: I have not worked with the API, but I do not believe so.

Question 27: What sort of biodiversity are explained in the pathfinder? vegetation? or else?

Answer 27: A variety of biodiversity datasets are included. Please check it out!

Question 28: Where do we access the 2020 imagery for use for research purposes?

Answer 28: Please see GMW for the 2019 map. The 2020 Landsat imagery can be accessed following the steps in Part 2 of this tutorial and changing the dates.

Question 29: How would the application work if you had a feature collection (multiple ROI instead of a single geometry)?

Answer 29: You could use a collection with multipolygon ROI. With a multipolygon it would still run the same way.

Question 30: How can I attach photographs of mangrove sites along the coast?

Answer 30: I can import pics but they must be converted to a geotiff. You may have to georeference though.

Question 31: Are you going to do a next version of this workshop? I know people interested in this!

Answer 31: Thanks! Perhaps, we conduct 12-14 online training series per year.



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Question 32: Do you think this approach can be used to create similar apps for images that were locally generated using other open source software like R or Python and imported to GEE as Assets?

Answer 32: Yes. Anything you can convert to a raster or vector can be imported to GEE as assets.

Question 33: I would like to know please how to save the final result after treatment to use it for example in a report?

Answer 33: If referring to publishing the app, you can do so via an option at the top of the GEE interface.

Question 34: When adding the GMW dataset to the map, can you choose other areas than Guyana? If so, how?

Answer 34: Import a shapefile for your ROI, and instead of clipping to our region, you would clip to your particular study area.