



Mapping and Monitoring Mangrove Forests Using Google Earth Engine

Trainer: Abigail Barenblitt

University of Maryland/NASA Goddard Space Flight Center

Dates: September 14, 16, 21, and 23, 1-4pm GYT/EDT; 12-3 CDT/PET/COT

Workshop Website: <https://sites.google.com/uah.edu/mangroves-gee-samz-sept-2020/home>

Description:

This workshop is the third in a series offered by SERVIR-Amazonia focused on using remote sensing to monitor mangroves in Guyana. Previous workshops have included skill-building on the basics of Synthetic Aperture Radar (SAR), preprocessing SAR data, and using SAR and optical imagery to identify changes in mangrove extent and to map mangrove structure. This workshop will build on these previous topics to guide participants in building a simple application in Google Earth Engine (GEE) that will incorporate both optical and SAR data to map mangrove extent along Guyana's coast. The workshop will be led by Abigail Barenblitt, a research scientist at the University of Maryland and NASA's Goddard Space Flight Center.

Expected outcomes:

- Participants will gain an understanding of the methods to generate a mangrove extent map using optical and SAR data in GEE and how to integrate them into their existing workflows.
- Participants will gain skills for basic app development in GEE
- Participants will develop a beta version of a mangrove monitoring app in GEE

Prerequisites:

- Fill out the pre-workshop survey here: <https://forms.gle/vSdco3GHXZSmxQAp8>
- A basic understanding of remote sensing concepts
- A computer with internet access
- A Google Earth Engine account (if you do not already have an account, you can create one here: <https://signup.earthengine.google.com>)
- GEE works best with the Chrome web browser, so please consider installing Chrome: <https://www.google.com/chrome/>
- Install QGIS - download here: <https://qgis.org/en/site/>

About the trainer:

Abigail Barenblitt is a Faculty Assistant at NASA Goddard Space Flight Center And University of Maryland. She works in Dr. Lola Fatoyinbo's mangrove science lab creating GEE apps and tutorials. Her work focuses on studying land cover changes and creating country-specific mangrove maps.



Agenda

(SA) - SERVIR-Amazonia

(AB) - Abigail Barenblitt

(ALL) - all participants

DAY 1: MONDAY September 14 -

Time	Lecture / Lab	Homework
1:00-4:00 PM Georgetown Time	• (SA) Welcome and Opening Remarks ○ Brian Zutta, SERVIR-Amazonia ○ Kelsey Herndon, NASA ○ Dr. Oudho Homenauth, CEO NAREI ○ Professor Paloma Mohamed-Martin, Vice Chancellor XI, University of Guyana • (SA) Logistics • (ALL) Introductions and ~1 minute description of how your work/institution intersects with mangroves, why interested in using GEE to monitor mangroves • (AB) Overview of agenda and objectives – 10 minute break – • (AB) Intro to Google Earth Engine and overview of existing mangrove monitoring platforms • (ALL) Break out into homework pairs/groups	• Look through the GEE Cookbook • Explore GEE Apps • Practice importing Assets

Day 2: WEDNESDAY September 16 -

Time	Lecture / Lab	Homework
1:00-4:00 PM Georgetown Time	• (ALL) Review homework • (AB) Random Forest Classification (RFC) in GEE – 10 minute break –	• Adjust RFC made in session • Try new RFC for Tatvan, Turkey



	• (AB) Random Forest Classification in GEE continued	
--	---	--

Day 3: MONDAY September 21 -

Time	Lecture / Lab	Homework
1:00-4:00 PM Georgetown Time	• (ALL) Review homework • (AB) Mangrove Extent Mapping in GEE with optical and SAR data – 10 minute break – • (AB) Accuracy Assessment in QGIS	• Adjust RFC made in session • Create RFC for 2014

Day 4: WEDNESDAY September 23-

Time	Lecture / Lab	Homework
1:00-4:00 PM Georgetown Time	• (ALL) Review homework • (AB) Creating an App in GEE • (AB) Calculating Results – 10 minute break – • (SA) Post-workshop survey • (SA) Next steps	• Add to app created in session • Explore example app code