

EAMENA-CPF Training 2020

Week 5: Google Earth Engine and Automatic Change Detection

This week, we will learn how to use Google Earth Engine (GEE) to view and download satellite imagery, how to use this data to highlight vegetation, and how to use an Automatic Change Detection (ACD) script to detect where change has occurred at or around archaeological sites.

To use GEE, you need to sign in with your Google account here:

- <https://code.earthengine.google.com/>

If you have not already signed up you will need to do so here:

- <https://earthengine.google.com/signup/>
- It will take a few days for Google to approve your access to GEE, so please do this promptly if you have not already done so.

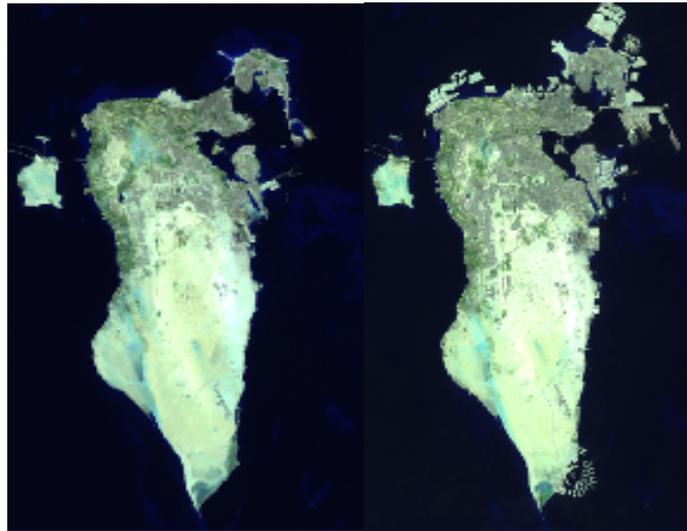
If you have questions or discussion points, contact your Training Manager or post to our Facebook group.

Topics covered:

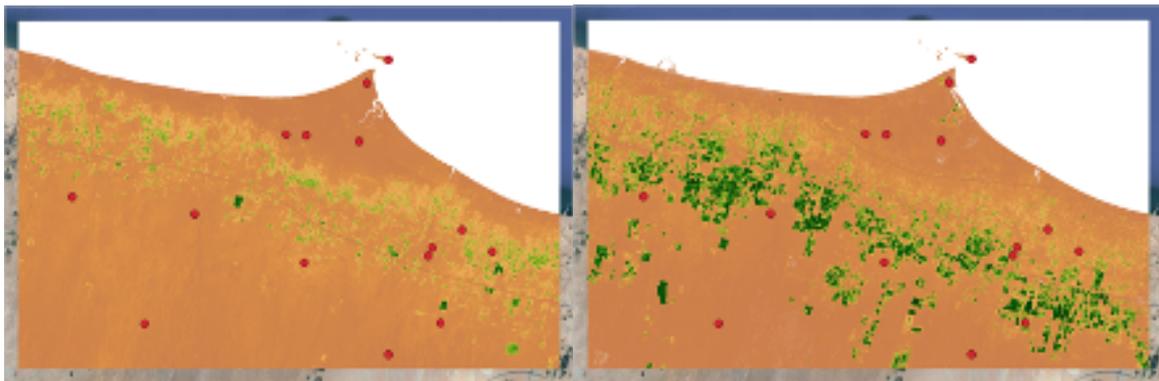
- Using GEE to view and download satellite imagery
- Using GEE to calculate NDVI and create images
- Using data created and downloaded from GEE in QGIS
- Using GEE to run Automatic Change Detection (ACD)
- Validating ACD results in QGIS and Google Earth Pro

Activities:

1. Make sure you have signed up and signed in to Google Earth Engine using a Google account.
2. Follow the tutorials and practice doing the activities suggested in the tutorial documents.
3. Choose ONE of the activities below and send it to your training manager.
 - a. Create one or more maps in QGIS using false colour composites from GEE to illustrate changes in the landscape that have disturbed or could threaten archaeological sites in your area of interest (see **GIS Tutorial 4**).



- b. Create maps in QGIS using NDVI data from GEE showing changes in agricultural or vegetation coverage over time in your area of interest (see **GIS Tutorial 5**).



- c. Validate the results of the ACD script for the Madaba OR Jufra datasets, identifying the disturbances that occurred to archaeological sites that have been detected in GEE (see **GIS Tutorial 6**). Record these in a table and send to your training manager, e.g.

Madaba Sites

Site	Disturbance
al-Teim	- Construction of house in the northeast part of the site. - Road Construction - House development in northwest part of site.
Dhiban	- New road and house in north part of site.