Resources for the GEE workshop at BIU

Sign up 

**Agenda**

time location

09:30 - 10:00 A [Welcome](https://drive.google.com/file/d/0B2ZPSmsZLcfwTFF4d2FXVGRGenRHVmpUa3hmOFdFMmU2bS1n/view?usp=sharing)

10:00 - 10:15 A Opening Session

10:15 - 11:00 A Remote sensing in a Nutshell 2

11:00 - 11:30 A Projects Using GEE – Code explained 3

11:30 - 11:45 A Coffee break

11:45 - 13:15 A GEE in JavaScript Environment – hands on 4

13:15 - 14:00 **B** Lunch break

14:00 - 15:15 **C** The dynamics of woody vegetation in Israel

15:15 - 15:45 A Coffee break

15:45 - 17:45 A GEE Advanced Examples 5

17:45 - 18:00 A Coffee break

18:00 - 18:30 A GEE in Python Environment 6

[BIU Orientation map](http://www.biu.ac.il/Tour/campus-map.pdf)

A Computer Lab: Bld. 505 class 203

B Cafeteria Rosmarin: Bld. 409

C Ron's Presentation: Bld. 102

**10:15 - 11:00 Remote sensing in a Nutshell**

[Presentation](https://docs.google.com/presentation/d/16Ejcd85MXKe3-qOiPJJrm3IEXkkpSKwcrVPnOvTPh20/edit?usp=sharing)

Radiance [Reflectance TOA / Surface](http://gsp.humboldt.edu/olm_2015/Courses/GSP_216_Online/lesson4-1/radiometric.html) Sun

Brightness Temperature / Emissivity Earth

MODIS [Channels](https://modis.gsfc.nasa.gov/about/specifications.php)

[MODIS Products Table](https://lpdaac.usgs.gov/dataset_discovery/modis/modis_products_table)

[MODIS TILES (GRID)](https://modis-land.gsfc.nasa.gov/MODLAND_grid.html)

[MOLT](https://e4ftl01.cr.usgs.gov/MOLT/)

LandSat [Channels](https://landsat.usgs.gov/how-do-landsat-8-band-combinations-differ-landsat-7-or-landsat-5-satellite-data)

[glovis next](http://glovis.usgs.gov/next/)

[WRS-2 Path/Row to Latitude/Longitude Converter](https://landsat.usgs.gov/wrs-2-pathrow-latitudelongitude-converter)

JavaScript [Intro to JS](https://www.khanacademy.org/computing/computer-programming/programming)

GEE [GEE for Dummies - Part I](http://slides.com/miguelangelmenarguez/google-earth-engine-for-dummies-i#/) Interfaces & JavaScript basics

[GEE Explorer](https://explorer.earthengine.google.com/)

[GEE](https://code.earthengine.google.com/)

**11:00 - 11:30 Projects Using GEE – Code explained**

Night-time lights

Proville, et al. (2017). Night-time lights: A global, long term look at links to socio-economic trends. *PLoS ONE* 12(3): e0174610. <https://doi.org/10.1371/journal.pone.0174610> [GEE code](https://code.earthengine.google.com/a097d1fad41b9664d2600af53bbb492e)

[Monitoring the Syrian Humanitarian Crisis with the JRC’s Global Human Settlement Layer and Night-Time Satellite Data](http://www.researchgate.net/profile/Christina_Corbane/publication/303549455_Monitoring_the_Syrian_Humanitarian_Crisis_with_the_JRC's_Global_Human_Settlement_Layer_and_Night-Time_Satellite_Data/links/5747fd5308aef66a78b08583.pdf)

שינוי בכיסוי היערות הגלובלי במאה ה21

Hansen, et al. (2013). [High-resolution global maps of 21st-century forest cover change](http://www.yadvindermalhi.org/uploads/1/8/7/6/18767612/hansen_science-2013.pdf). *Science*, 342,850–853. <http://dx.doi.org/10.1126/science.1244693>.

[Supporting materials](http://science.sciencemag.org/content/suppl/2013/11/14/342.6160.850.DC1/Hansen.SM.pdf)

<http://earthenginepartners.appspot.com/science-2013-global-forest>

# [Introduction to Forest Change Analysis in Earth Engine](https://developers.google.com/earth-engine/tutorial_forest_01)

Bastin, et al. (2017). [The extent of forest in dryland biomes](https://docs.google.com/viewer?a=v&pid=forums&srcid=MTM5NzU5NzMwNTc1NDM3NDg5OTYBMDgzNTgzNTQ5MDgxMTg5MjAyMzYBQWNjY1czaHJCQUFKATAuMQEBdjI&authuser=0). *Science* 356, 635-638.

מיפוי מקווי מים והשתנות בזמן

Pekel, J.F.; Cottam, A.; Gorelick, N.; Belward, A.S. [High-resolution mapping of global surface water and its long-term changes](https://www.nature.com/nature/journal/v540/n7633/full/nature20584.html). Nature 2016, 540, 418–422.

<https://global-surface-water.appspot.com/>

מיפוי אוטומטי של אזורים אורבניים

Trianni, et al. (2015). [Scaling up to national/regional urban extent mapping using Landsat data](http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7052336). *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 8.7 (2015): 3710-3719.

**11:45 - 13:15 GEE in JavaScript Environment – hands on**

[GEE for Dummies - Part II](http://slides.com/miguelangelmenarguez/google-earth-engine-for-dummies--2#/) GEE basic objects with examples

[ee.Map](https://code.earthengine.google.com/bc4c65cb6fa27e4a04d25db934087851) & ee.Geometry

[ee.Image](https://code.earthengine.google.com/5bb81bfb7460492a831ab6e4313654fa) [2nd](https://code.earthengine.google.com/e64916e2865b62b7389e8091b08326aa)

[ee.ImageCollection](https://code.earthengine.google.com/aa5299d6723b796e622746a30d84ddca) [2](https://code.earthengine.google.com/e32621397bb4e7a1e9cdcbb315bcea95)nd

ee.Feature

ee.FeatureCollection

[GEE for Dummies - Part III](http://slides.com/miguelangelmenarguez/deck#/)

[GEE for Dummies - Part IV](http://slides.com/miguelangelmenarguez/deck-3#/)

[Download geotiff](https://code.earthengine.google.com/a95838b058cee1719a64402a8de972a4)

[Importing vector data with Fusion Tables](https://code.earthengine.google.com/3697b557d48c696c9f709b3efec0f95f)

[Fusion Tables explanation](https://developers.google.com/earth-engine/importing)

[מיפוי נזקי מעבר טורנדו בעזרת ירידה ב NDVI](https://code.earthengine.google.com/ab1e6b4aacfd10bbff6f5164964860d9)

UI

A UI to (a) interactively filter a collection, (b) select an individual image from the results, (c) display it with a variety of visualizations, and (d) export it.

[The code](https://code.earthengine.google.com/b4c16794becc65f06a2c193983df0bca)

Night-time lights [GUI](https://code.earthengine.google.com/651c1b9048b2a844e9cb3602a0d69373)

תרגיל: כתבו קוד המציג מפת NDVI ומאפשר למשתמש להקליק על המפה ולקבל בגרף סדרת זמן של NDVI

**17:45 - 15:45 דוגמאות מתקדמות ב GEE**

<https://code.earthengine.google.com/ad142294f9e18b166cf2571781f9c9fc>

**18:30 - 18:00 הדגמת שימוש ב GEE בסביבת Python**

מומלץ להוריד התקנה של [python 2.7 Anaconda Distribution](https://www.continuum.io/downloads)

יש לשים לב להוראת התקנה אם קיימת גרסה של Python במחשב

הסבר קצר על Python API והבדלים מ JavaScript API

הדגמה של התקנת Python API בהתבסס על Python 2.7 Anaconda Distribution

הדגמת קוד שנכתב ב Python API

[הורדת סדרת זמן של MODIS NDVI והצגת גרף.](https://drive.google.com/open?id=0B2ZPSmsZLcfwSncwSXdnNGI2bkU)

[הורדת נתוני מודל בפורמט ראסטרי לפי מצולע בטווח תאריכים](https://drive.google.com/open?id=0B2ZPSmsZLcfwMWMtUjdSYUVsWE0)

[הדגמה של הצגת מידע און ליין בעזרת Python API דרך Jupyter Notebook](https://drive.google.com/open?id=0B2ZPSmsZLcfwbDFRSXc3VHdsb1k)

[דוגמאות לקוד Python API](https://github.com/google/earthengine-api/tree/master/python/examples/py)

אנא השיבו על [**משוב**](https://goo.gl/forms/0sO2MA6hYJak6Y6A3) קצר

תודה.