
GWF
GEOSPATIAL WORLD FORUM
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Transforming Global Challenges with Geospatial Analytics

Clark Center for Geospatial Analytics

CLARK UNIVERSITY

CENTER FOR GEOSPATIAL ANALYTICS

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Geospatial World Forum
US Summit: The National Geospatial Ecosystem of the United States
May 15th, 2024

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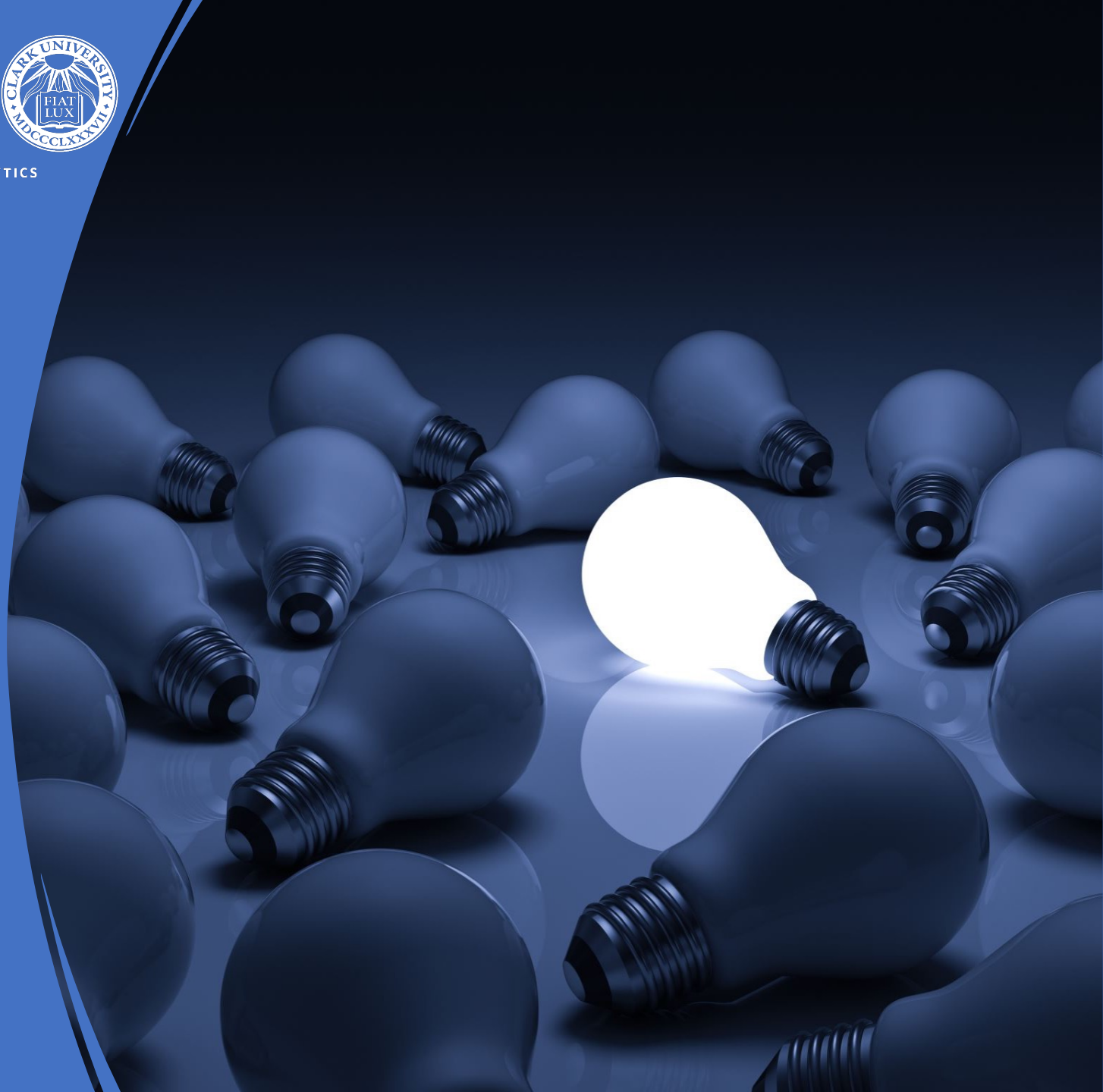
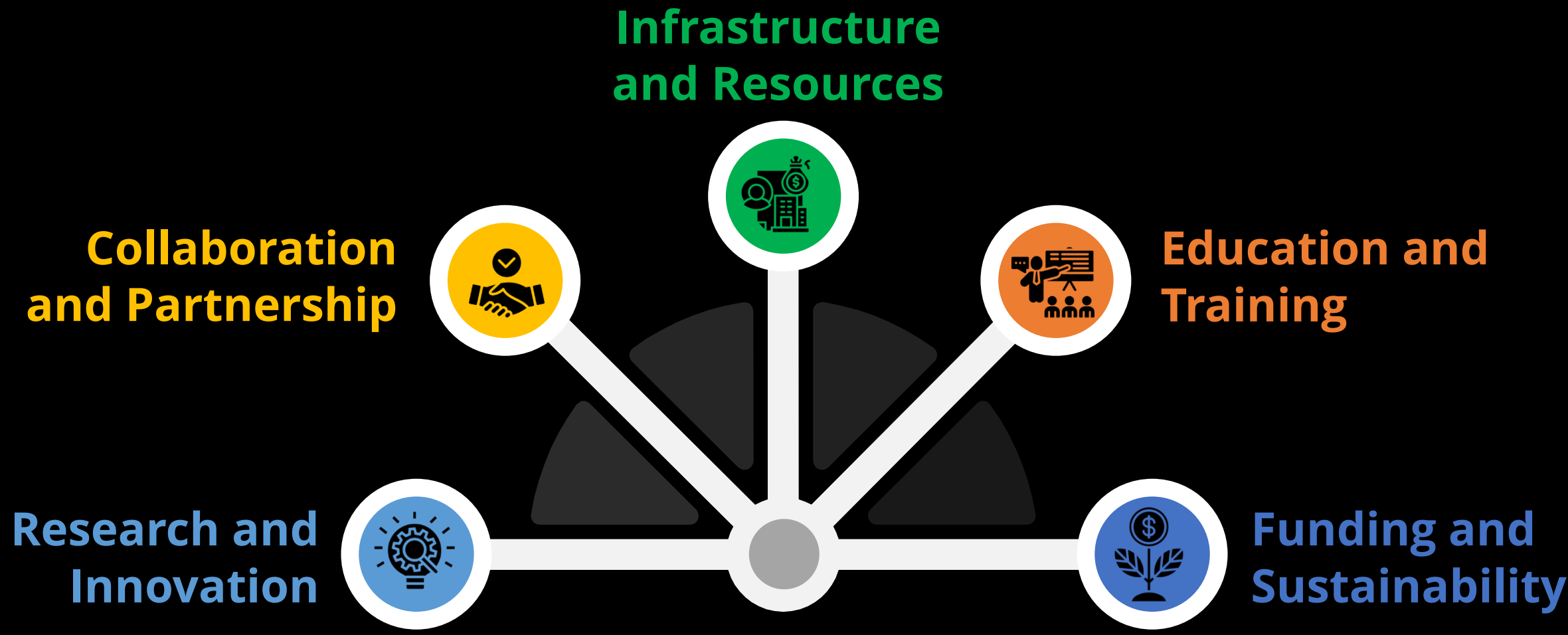
CENTER FOR GEOSPATIAL ANALYTICS

Mission

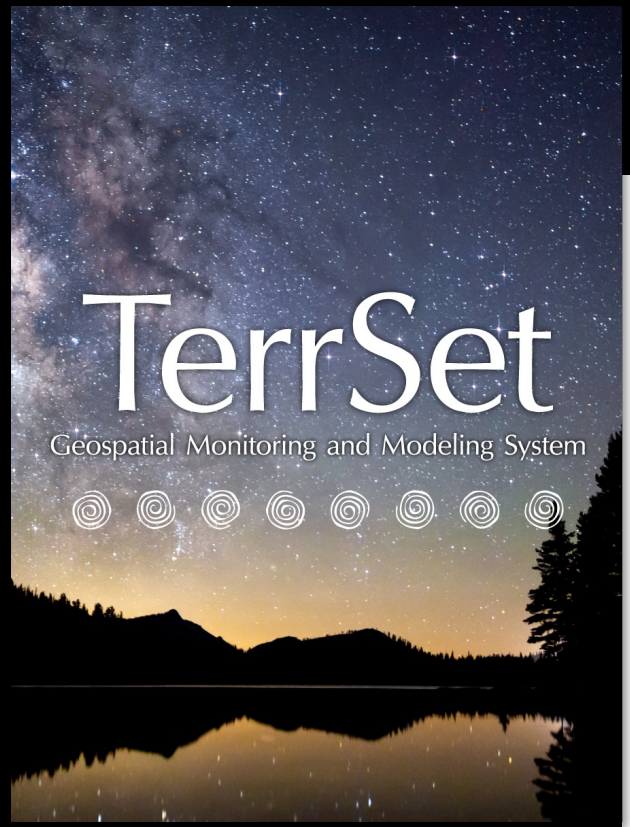
Conducting *transformative research* using geospatial analytics to address *global environmental challenges*, emphasizing *climate change adaptation and mitigation, ecological conservation*, and *agriculture*.



Clark CGA Strategic Functions



Software and Datasets



YaoTingYao Merge pull request #17 from ClarkCGA/yayao

data	Update ui label
doc	doc&ui: Update
font	Initial commit
LICENSE	Initial commit
README.md	1. Updated REA
UDef-ARP.py	Deleted get_im
UDef-ARP_conda_env.yml	Remove prefix
allocation_tool.py	Added calculat
model_evaluation.py	Enhanced (mo
vulnerability_map.py	Revised replac

README GPL-3.0 license

Unplanned Deforestation Allocated Risk Modeling and Mapping Procedure (UDef-ARP)

SOURCE COOPERATIVE | Search | BROWSE | SIGN IN / REGISTER

Read Me

Multi-Temporal Crop Classification with HLS Imagery across CONUS Featured

This dataset contains temporal Harmonized Landsat-Sentinel (HLS) imagery of diverse crop type and land cover classes across the Contiguous United States (CONUS) for the year 2022. The target labels are derived from USDA's Crop Data Layer (CDL). It's primary purpose is for training segmentation geospatial machine learning models. It includes 3,854 chips of 224 x 224 pixel area at 30m spatial resolution.

Provided By @clarkcga • Published on August 10, 2023

crop type | land cover | segmentation | hls | agriculture

Multi-Temporal Crop Classification with HLS Imagery across CONUS

Dataset Description

Dataset Summary

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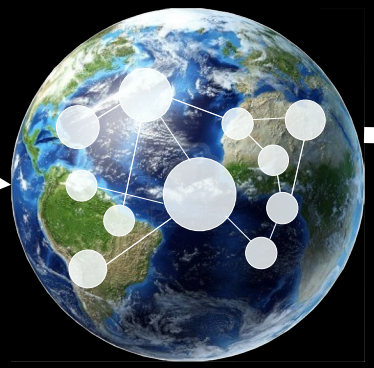
Foundation Models for Geospatial Analytics

Earth Foundation Model(s)



Mapping

Change Detection

Classification

Segmentation

Prithvi Foundation Model

- Transformer-based geospatial foundational model
- Using 1TB of Harmonized Landsat-Sentinel 2 (HLS)
- 6 bands as input (RGB + NIR + 2 SWIR)
- Downstream applications: *Crop, Flood and Mangrove Mapping, Cloud Gap Filling, …*

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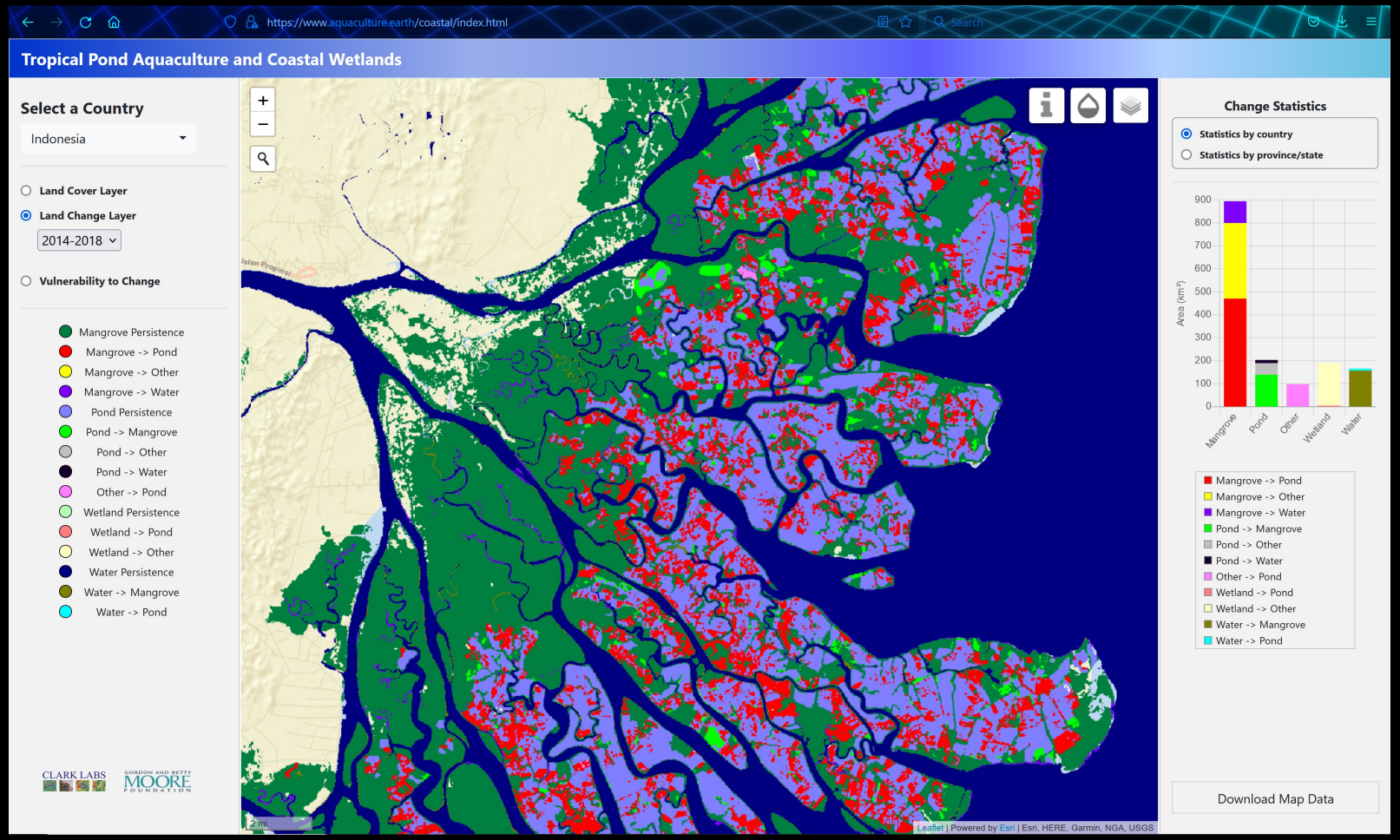
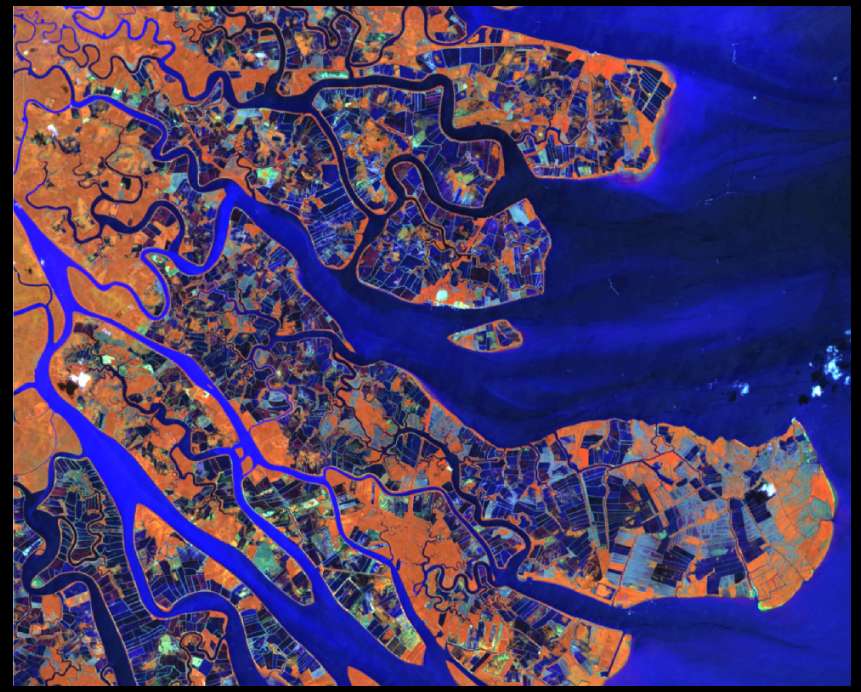
Global Monitoring of Aquaculture and Coastal Habitats



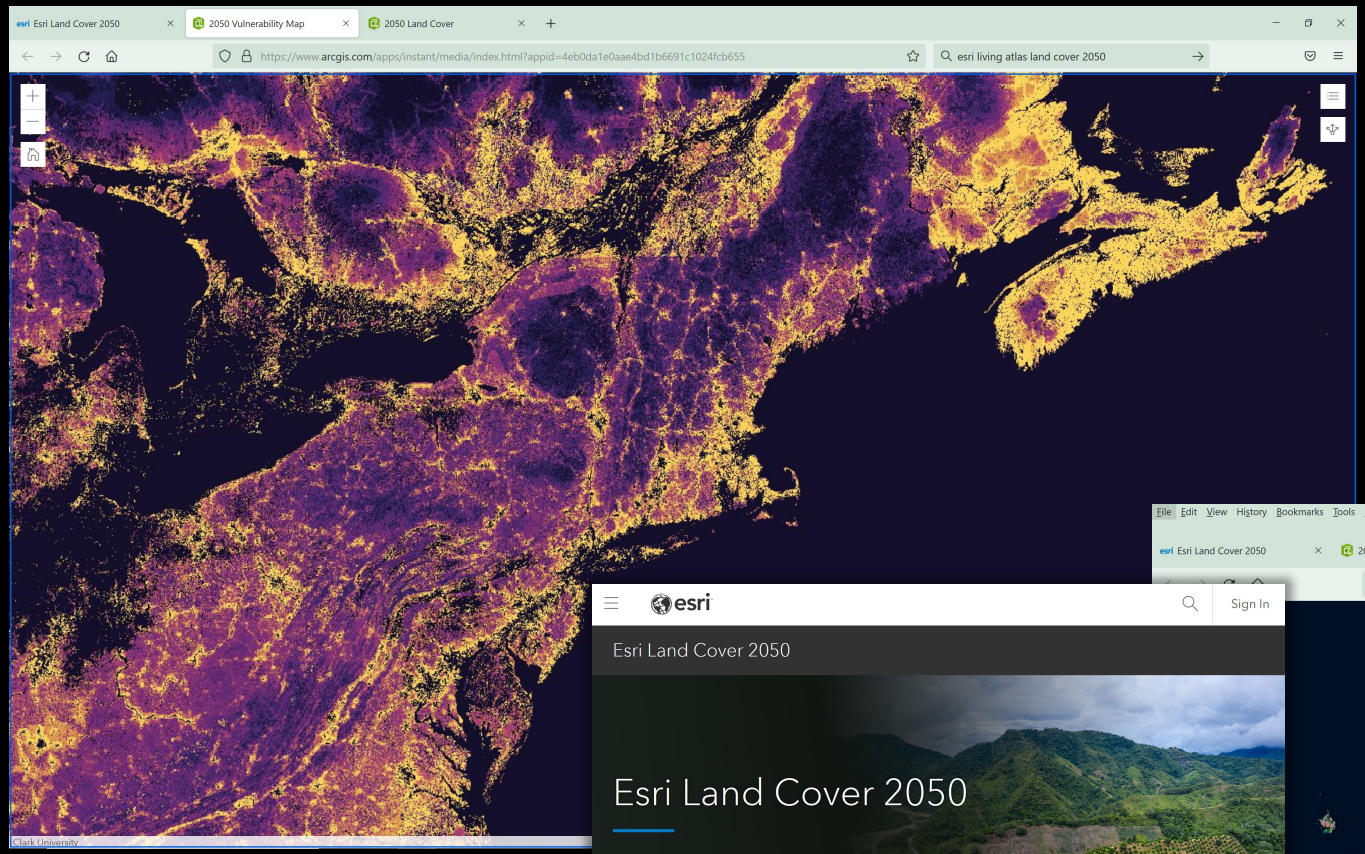


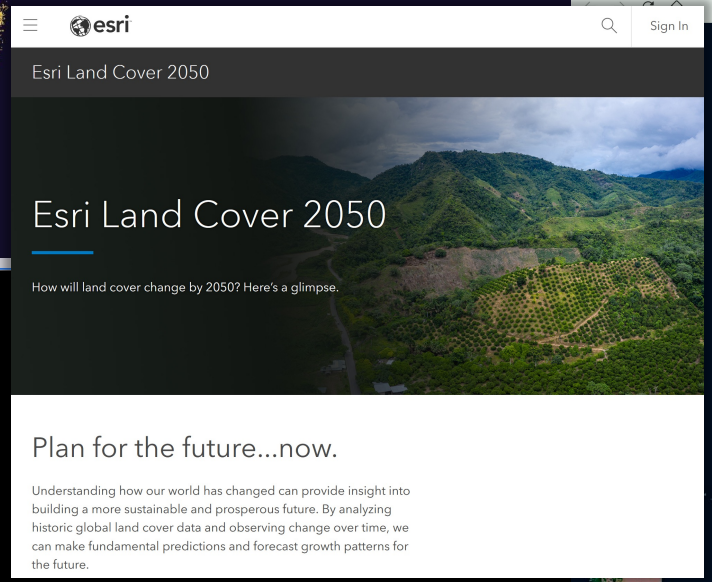
Landsat 8/9 Imagery

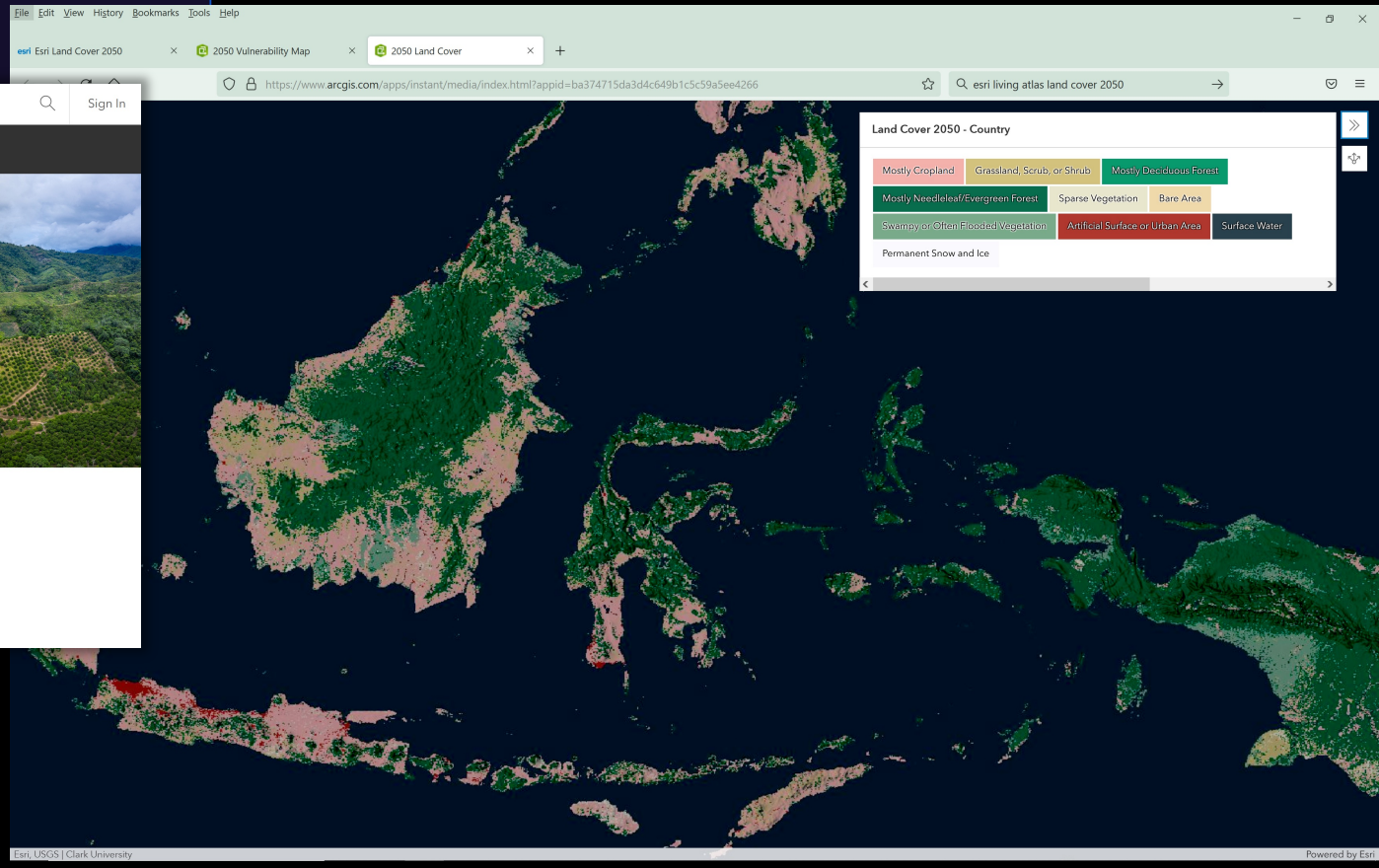
www.aquaculture.earth

GORDON AND BETTY MOORE FOUNDATION

Land Cover 2050







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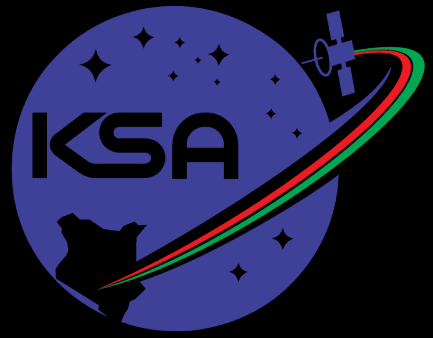
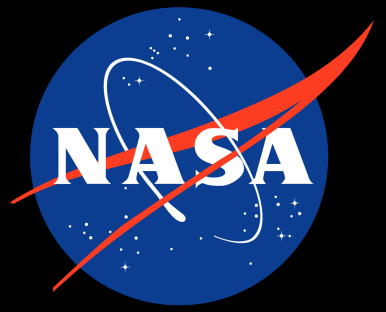
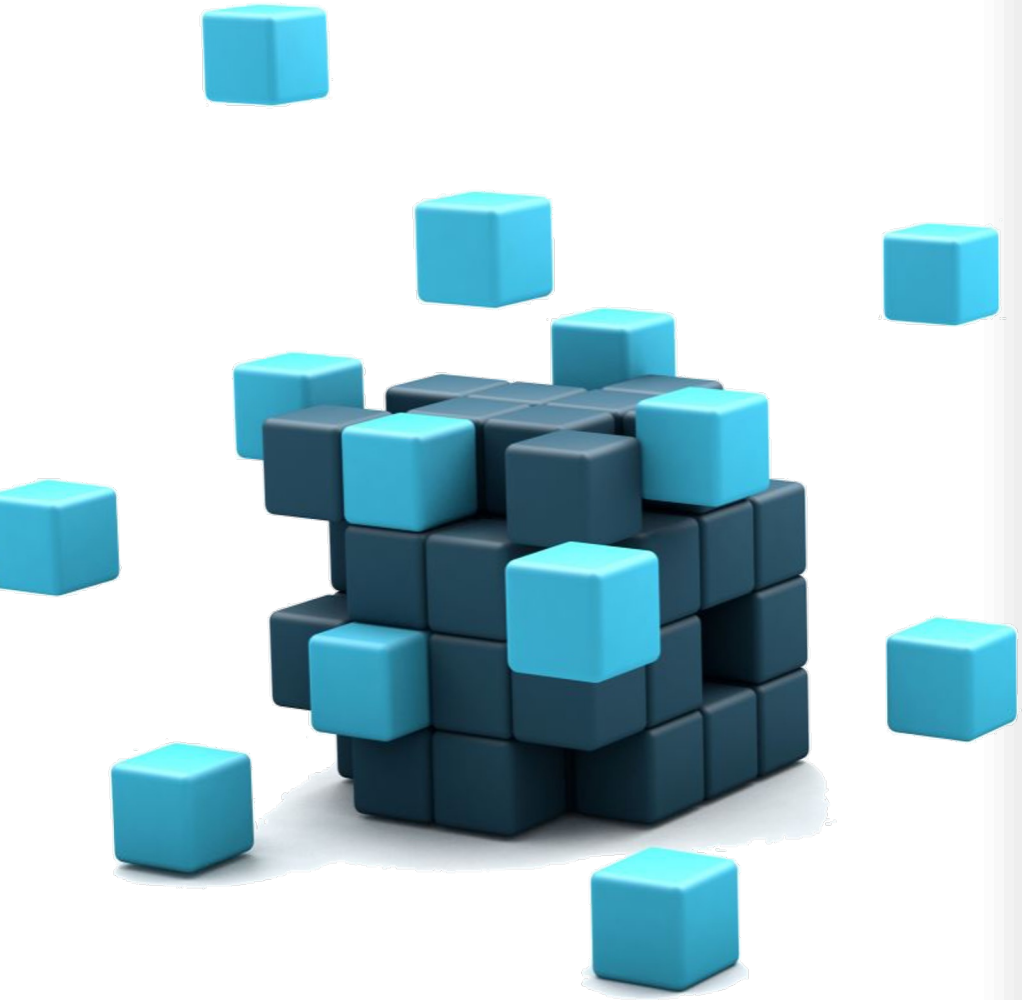
Existing Industry and Non-Profit Partnerships





Clark CGA Convenings



Educational Blocks

- Domain Knowledge
- Data Literacy
- Reproducibility and Documentation
- Data Visualization
- AI
- Understanding Uncertainty
- Foundational Programming
- Computing and Cloud
- Software Agnostic

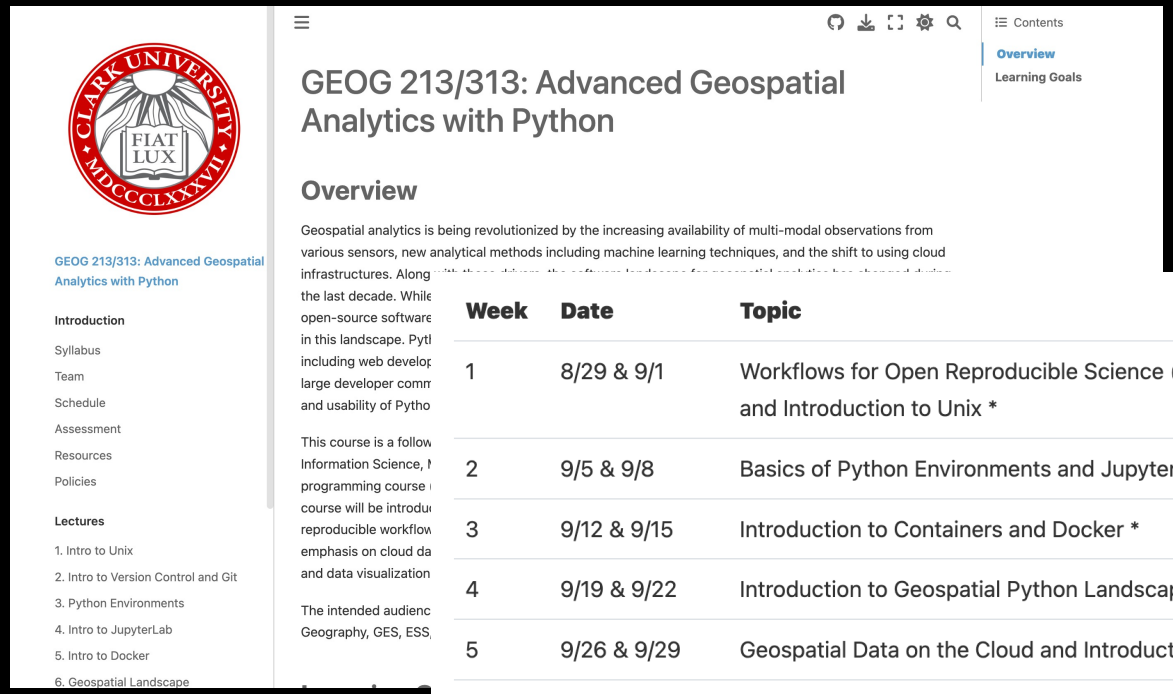
MSGIS Degree at Clark University

- Mastering the core concepts in GIS and remote sensing
- Developing high-tech expertise that leads directly to a career
- Applying GIS tools to real-life problems
- Coding and developing software applications for GIS
- Integrating and synthesizing diverse information sources

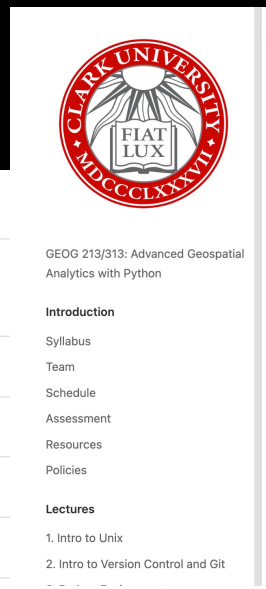
Mechanisms

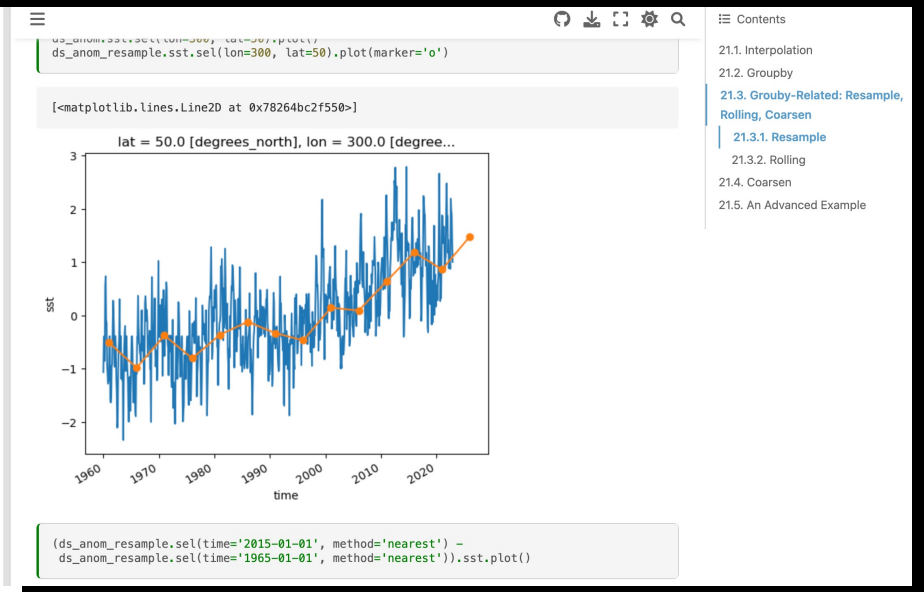
- Open Source
- Multi-disciplinary Groups (peer-learning)
- Internships
- Partnerships
- Increasing Diversity
- Online Courses and Lectures

Course: Advanced Geospatial Analytics with Python



Week	Date	Topic
1	8/29 & 9/1	Workflows for Open Reproducible Science (including Git) and Introduction to Unix *
2	9/5 & 9/8	Basics of Python Environments and JupyterLab
3	9/12 & 9/15	Introduction to Containers and Docker *
4	9/19 & 9/22	Introduction to Geospatial Python Landscape and STAC
5	9/26 & 9/29	Geospatial Data on the Cloud and Introduction to Dask
6	10/3 & 10/6	Introduction to Dask DataFrame and CRS *
7	10/13	Working with Vector Data in Python
8	10/17 & 10/20	Scaling Vector Data Analytics and Working with Raster Data in Python *
9	10/24 & 10/27	Scaling Raster Data Analytics
10	10/31 & 11/3	Working with Multi-Dimensional Arrays in Python *
11	11/7 & 11/10	Geospatial Data Visualization and Mapping
12	11/14 & 11/17	Microsoft Planetary Computer Demo *





hamedalemo.github.io/advanced-geo-python

Thank You!

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