National Aeronautics and
Space Administration

ARSET

Applied Remote Sensing Training

http://arset.gsfc.nasa.gov

@NASAARSET

Conservation Campus: #WCC 9634
From Earth Observations to Earth Action: satellite applications for biodiversity conservation

Welcome to the Campus

CONSERVATION INTERNATIONAL

Campus Information

Sunday, 4 September 2016, 14:30 – 19:00

All accompanying documents, presentations, and exercises can be viewed and downloaded from the IUCN Campus web space

http://portals.iucn.org/congress/session/9634

Also available through the ARSET website

bit.ly\ARSETWCC16

Agenda

14:30 -14:45: Who We Are and Why Remote Sensing?

14:45 -15:30: Introduction to Remote Sensing

15:30 -16:40: Remote Sensing for Conservation and Biodiversity

16:45 -18:00: Remote Sensing Tools and Data Exploration Exercises

18:00 -19:00: Feedback and Wrap-up

This Campus Will Be

- an introduction to the many applications of remote sensing for biodiversity conservation and land management
- applicable to a broad audience that is interested in learning the basic concepts of remote sensing and how to apply them directly to conservation goals
  - *no prior experience is needed*
- an interactive event with hands-on, step-by-step exercises based on readily available web tools
- receptive to your feedback as end-users in order to address your decision support activities
- ***Pono****:* to be in complete harmony and alignment with our shared custodial relationship with the Earth, a righteous stewardship

NASA Applied Remote Sensing Training Program (ARSET) Trainers

Cindy Schmidt, cynthia.l.schmidt@nasa.gov
Brock Blevins, brockbl1@umbc.edu

Conservation International Trainers

Jenny Hewson, jhewson@conservation.org
Karyn Tabor, ktabor@conservation.org

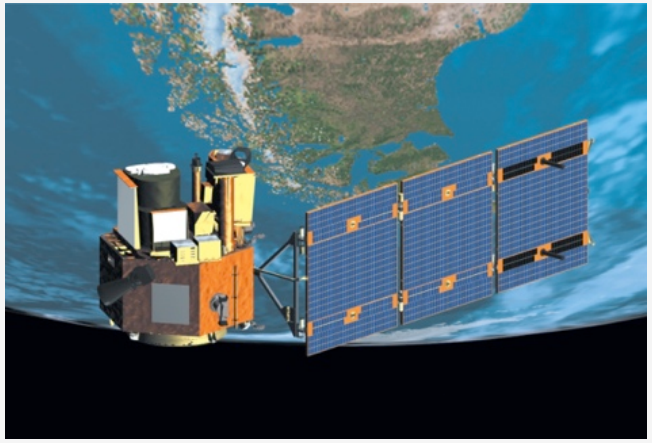
Special Guest Speakers

Tanya Birch, Google Earth Outreach, tanyak@google.com
Lilian Pintea, Jane Goodall Institute

How Practitioners Use Remote Sensing for Conservation

Observations to Applications

Satellite Measurements → Satellite Products → Environmental Applications

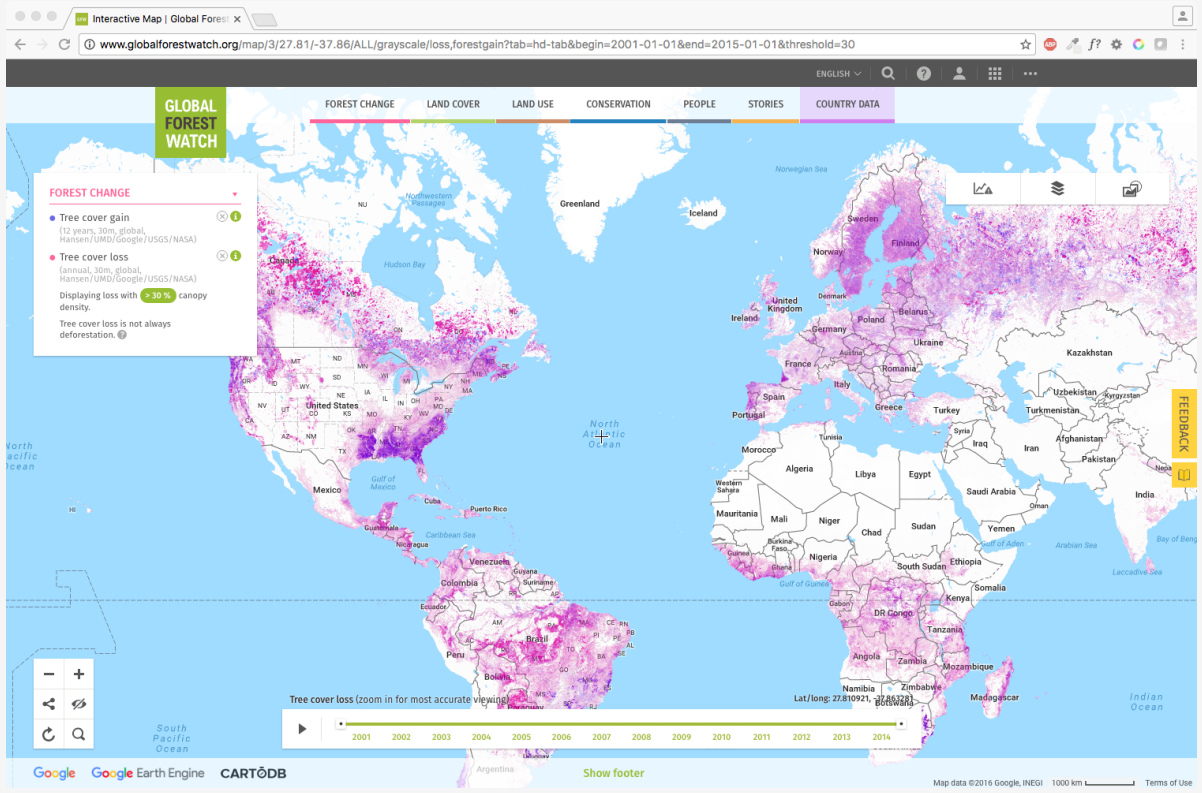


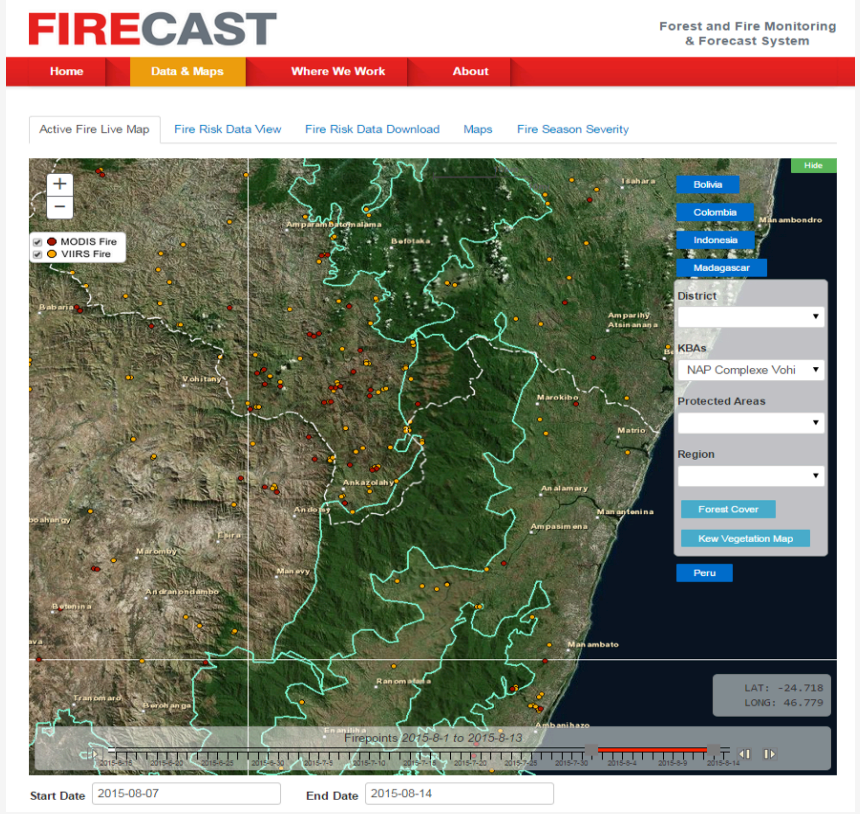
Satellite images, remote sensing and modeling data, along with other sources of data, are used directly or in statistical or physical modeling tools for a variety of applications

*Image Credits: Left: NASA; Center: NASA; Right: (top) UNDP/George Ntonya, (bottom) UNDP/Arjan van de Merwe

Examples of Data Applications

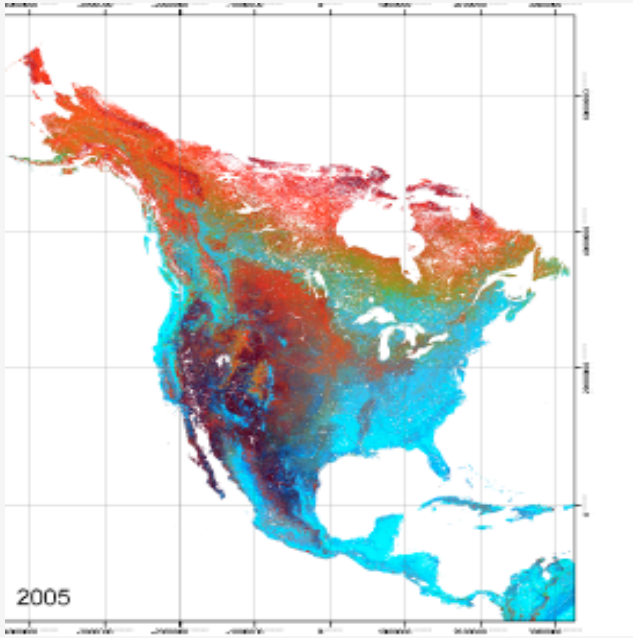
Monitoring deforestation, Reducing Emissions from Deforestation and forest Degradation (REDD+)





Examples of Data Applications

Natural Capital accounting
Species distribution modeling
Climate adaptation
Climate mitigation
Land degradation



* Coops et al., (2009)

Dynamic Habitat Index

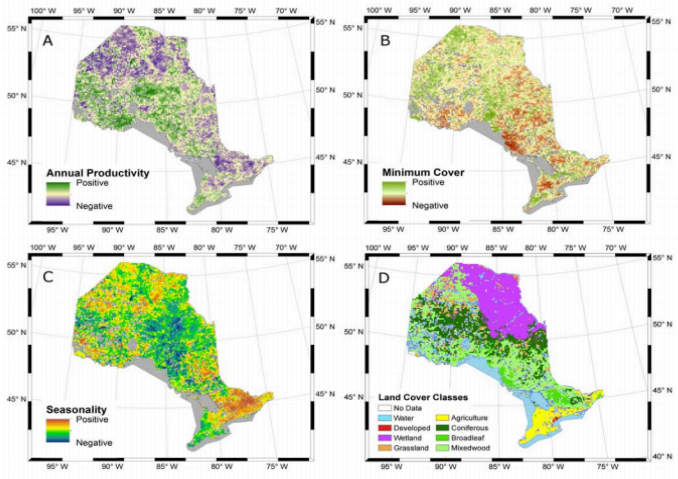
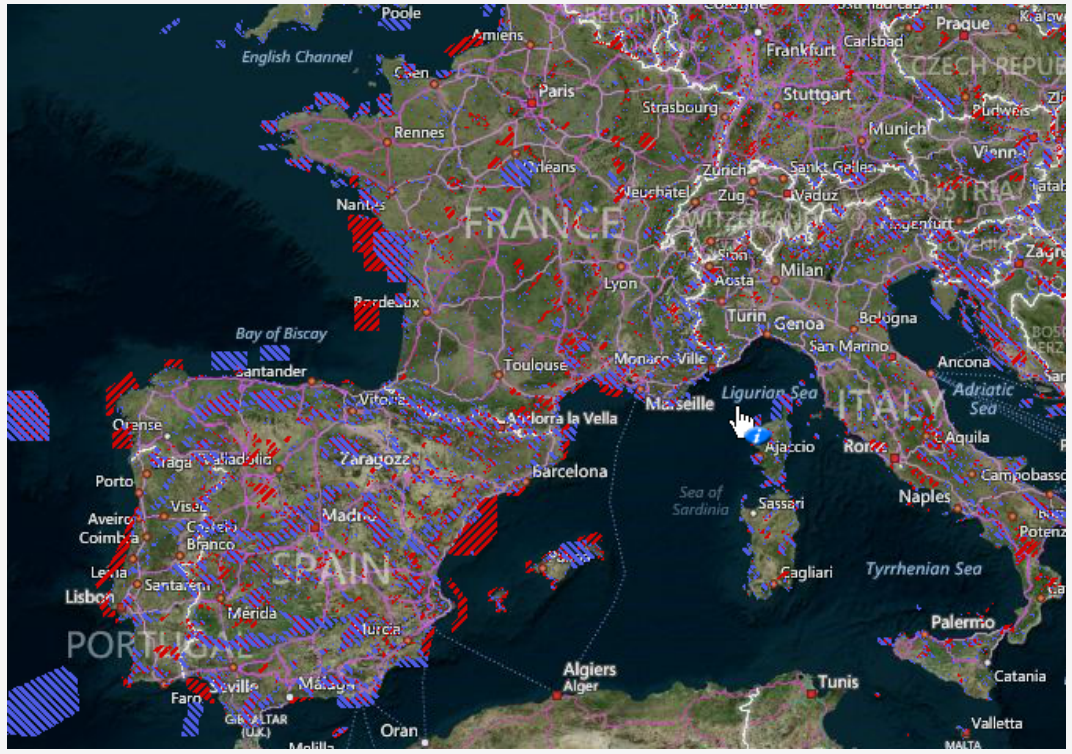


Figure 2. Ontario overall observed Theil-Sen's trend recorded over the 2003-08 period for each of the individual component of the dynamic habitat index (DHI): (A) annual productivity, (B) vegetative cover, (C) seasonality. Also shown is the EOSD land cover classification resampled to a 10 km x 10 km grid (D).

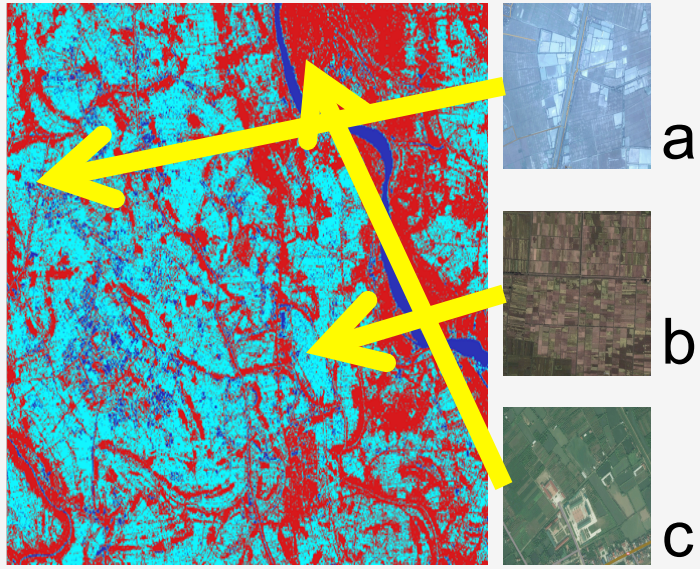
* Michaud et al, (2012)

Examples of Data Applications

Ecosystem service assessments
Forecasting food security
Land cover/use characterization



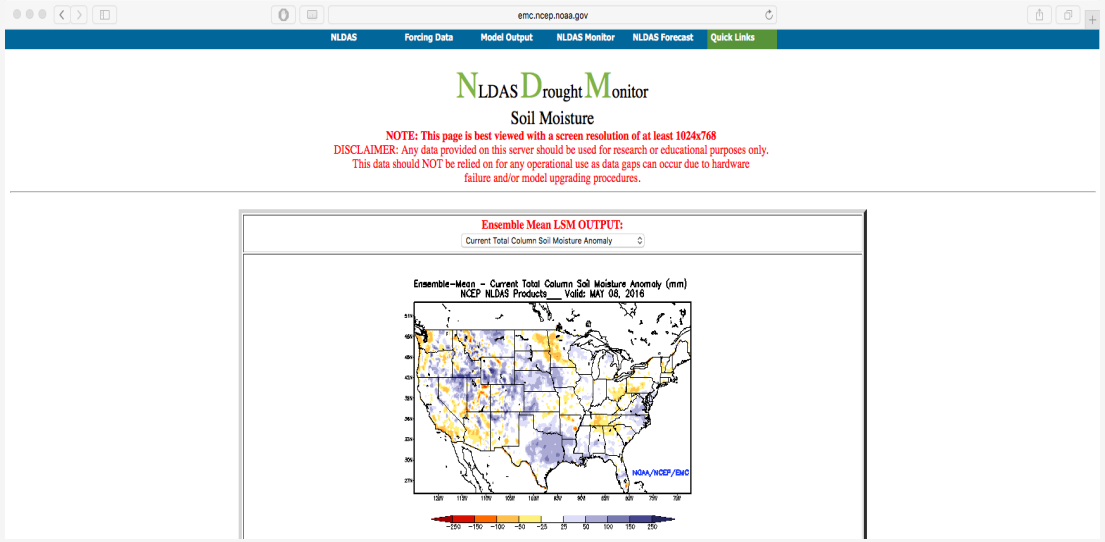
Natura, European Environment Agency (EEA)



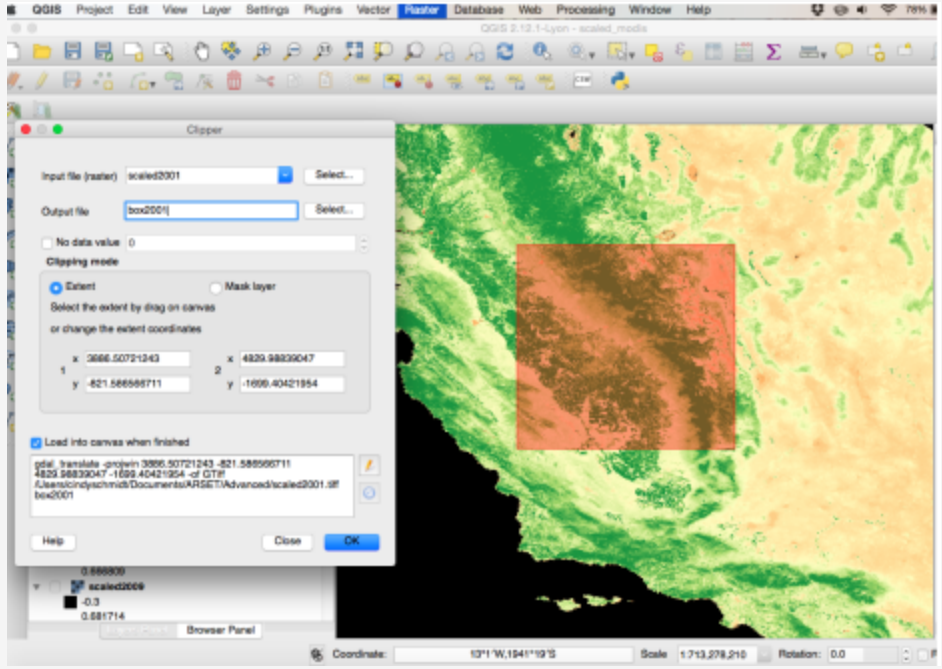
a) Water bodies and flooded rice paddies (5-7 x)
b) Agriculture (3-4x)
c) Urban, natural vegetation, and plantations (1-2 x)

Examples of Data Applications

Drought and vegetation health monitoring



The North American Land Data Assimilation System uses satellite observations and model output to create land-surface model datasets

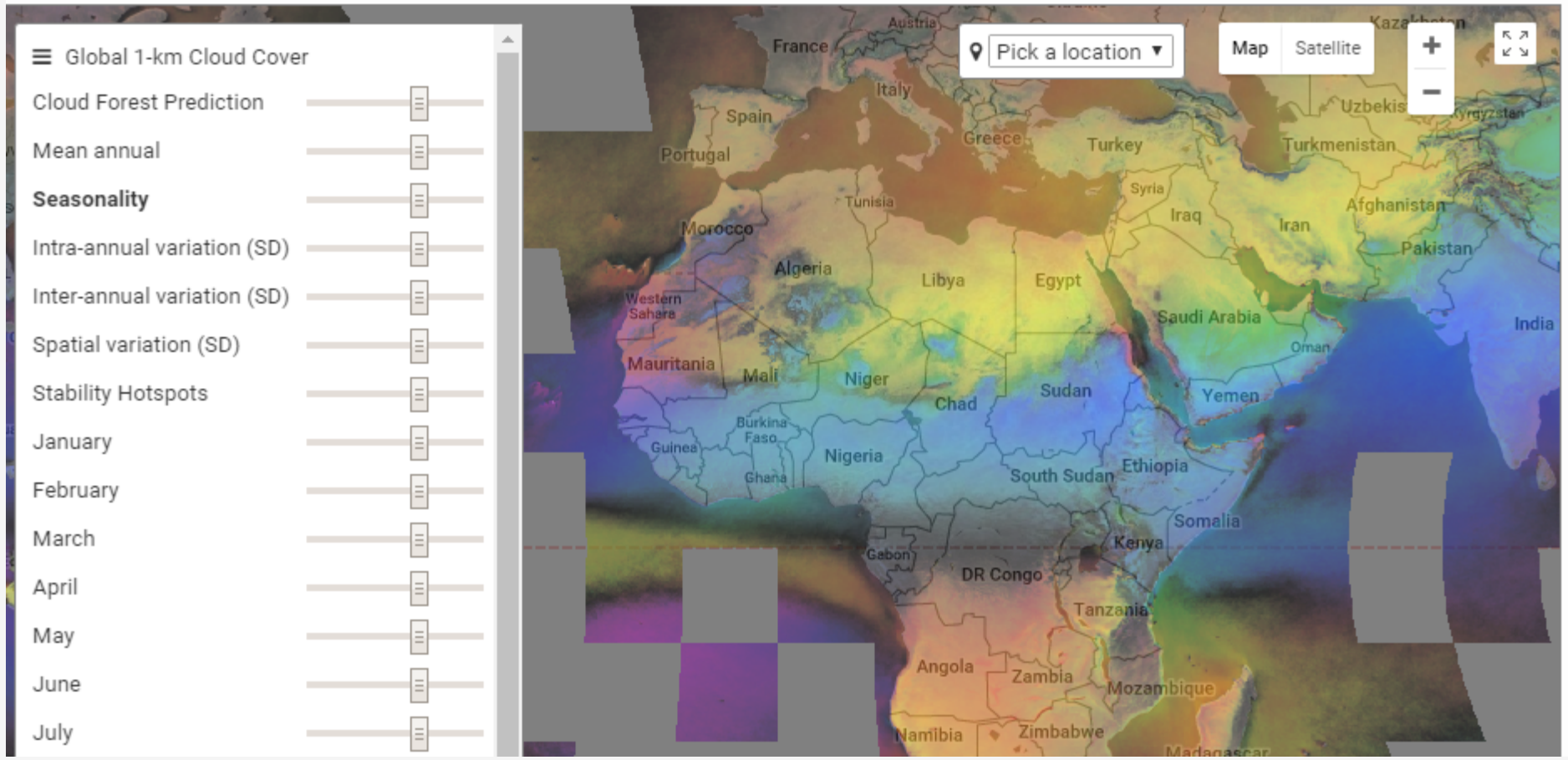


NDVI anomalies as an indicator of drought or declining vegetation health

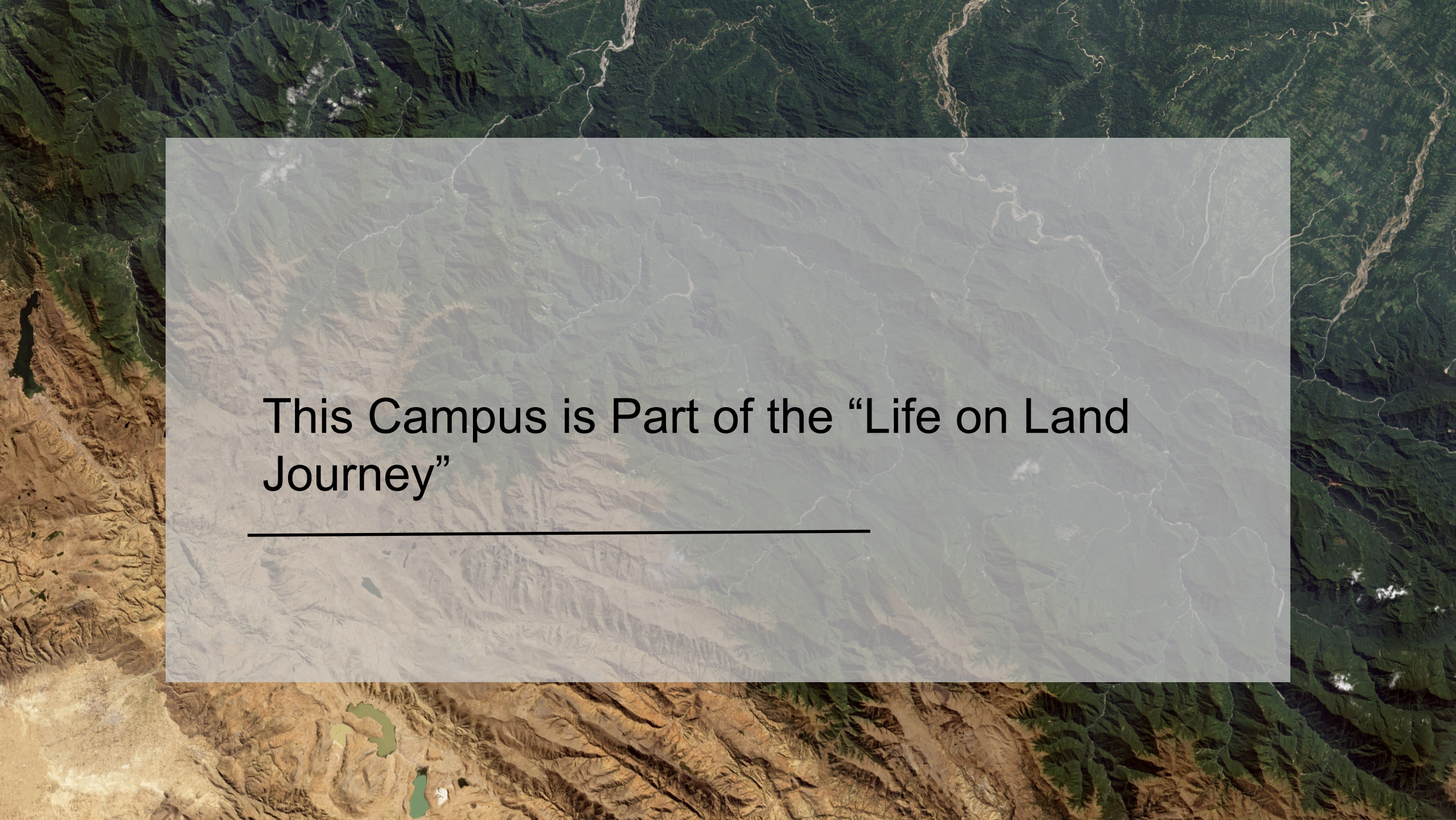
www.emc.ncep.noaa.gov/mmb/nldas/drought/

Examples of Data Applications

Assessing status and trends in biodiversity, ecosystems, and climate



http://www.earthenv.org/cloud


This Campus is Part of the “Life on Land Journey”

Life on Land Journey

- This journey will report on different perspectives on land and how they relate
- It will forge partnerships for a more coordinated approach to achieving Land Degradation Neutrality