

POSSIBILITIES OF REMOTE SENSING FOR SPATIAL DISTRIBUTED MODELS

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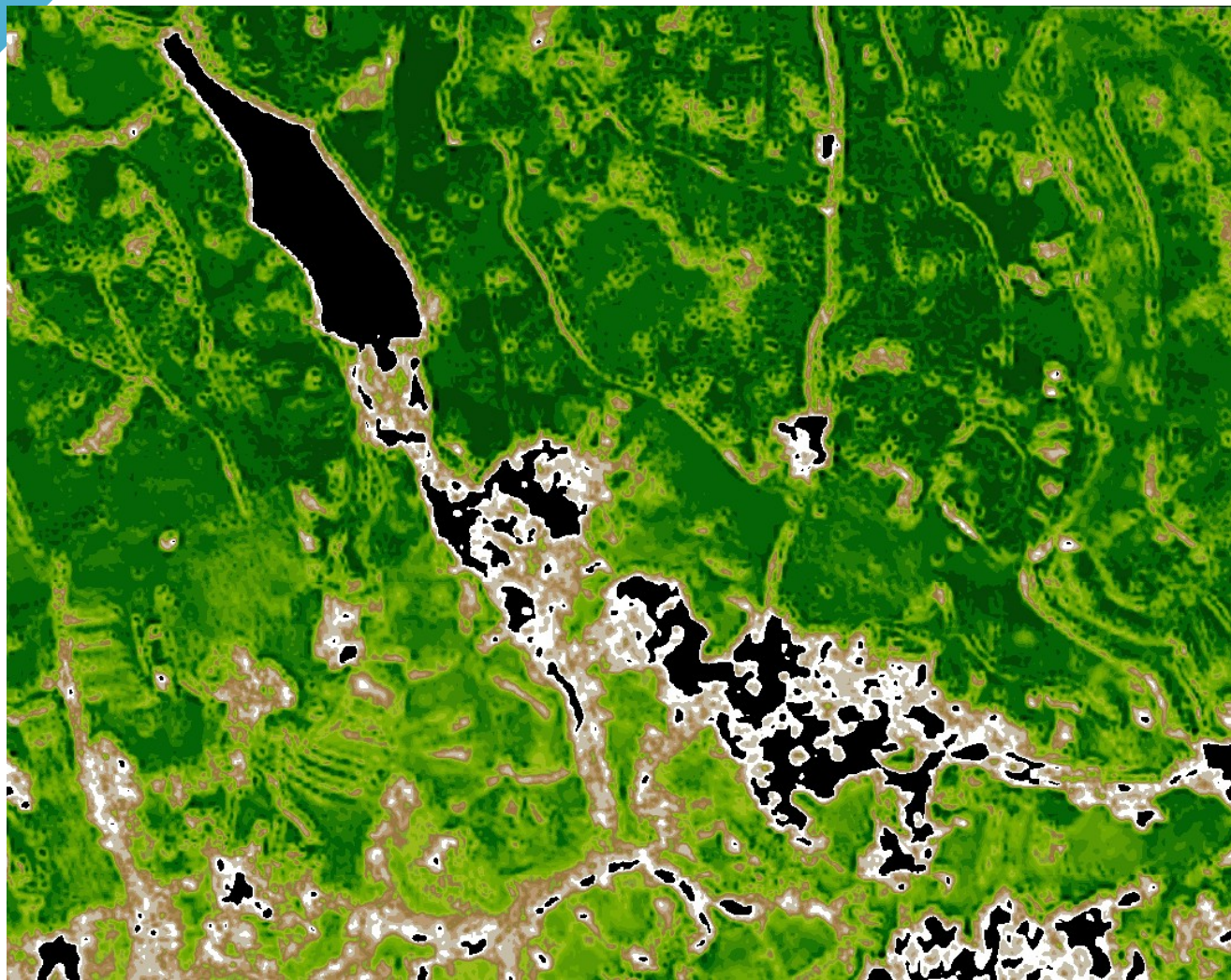
A decorative graphic consisting of several parallel white lines of varying thicknesses, slanted diagonally from the bottom-left towards the top-right, located in the lower right quadrant of the slide.

- Sentinel 2 L1C + L3A
- Landsat 8
- Landsat 7

AVAILABLE SATELLITES

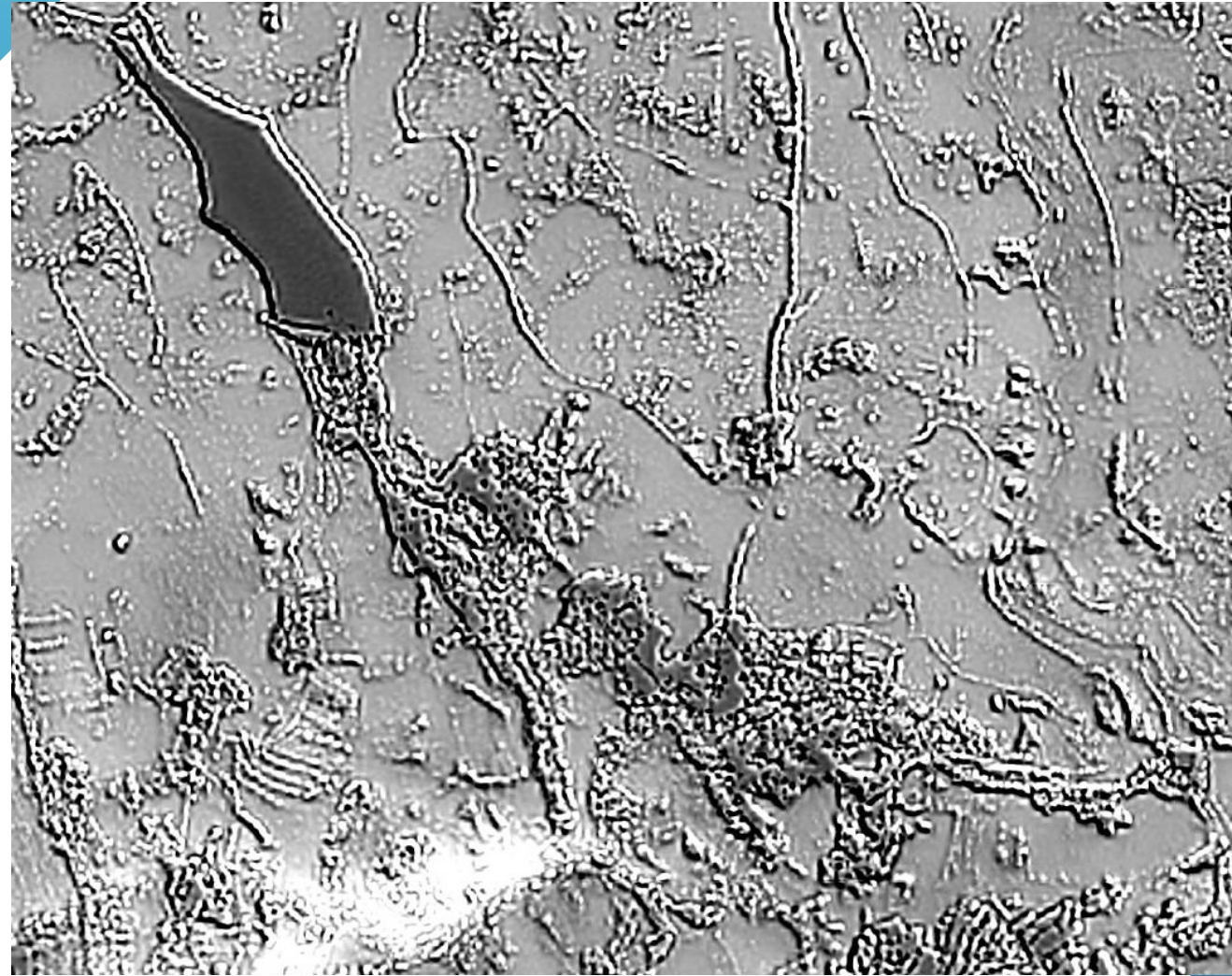
An aerial satellite image showing a dense forest with a winding road and a river. The text is overlaid on the left side of the image.

22. MARCH 2019 -
LANDSAT 8



NDVI

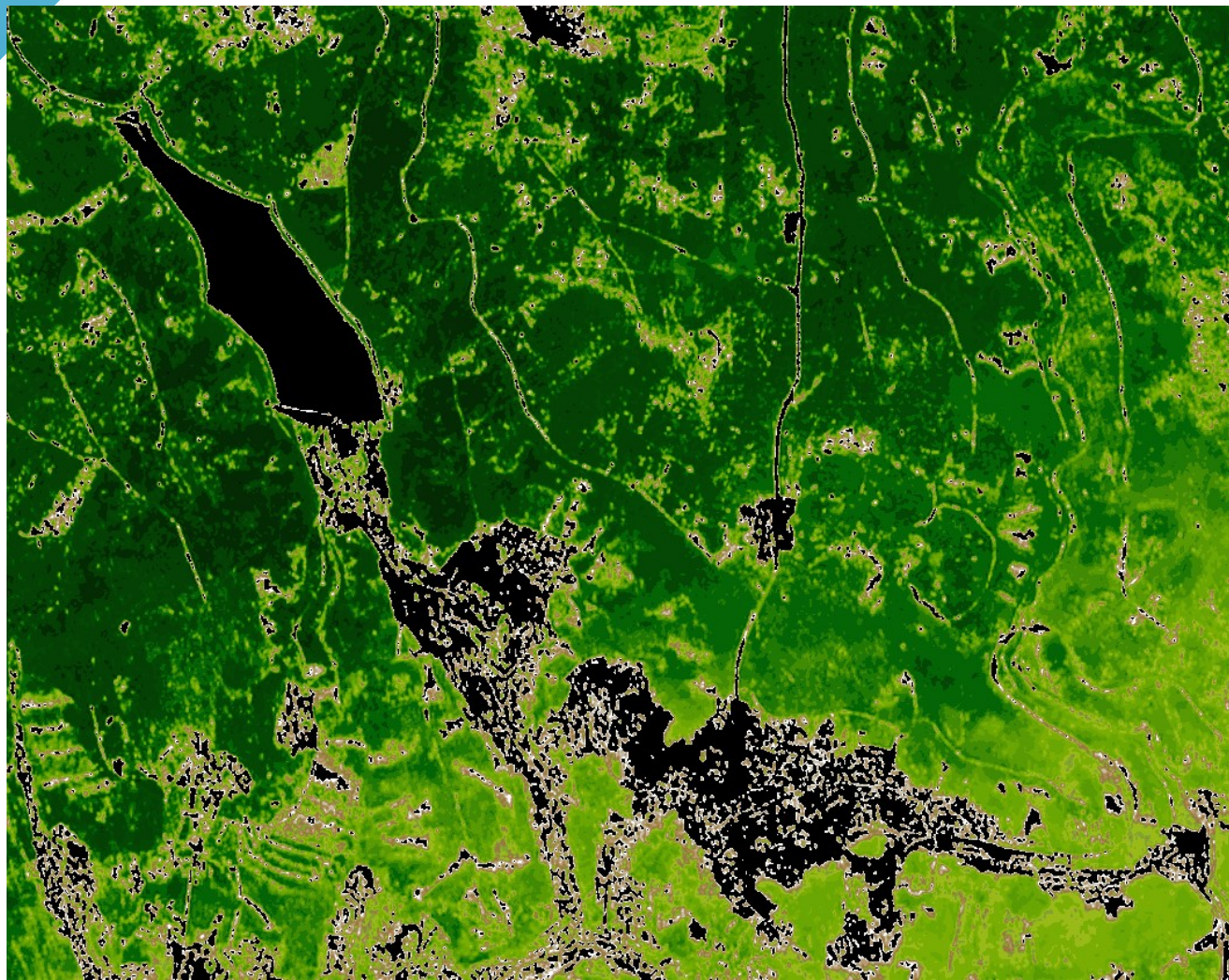
$$(B5 - B4)/(B5 + B4)$$



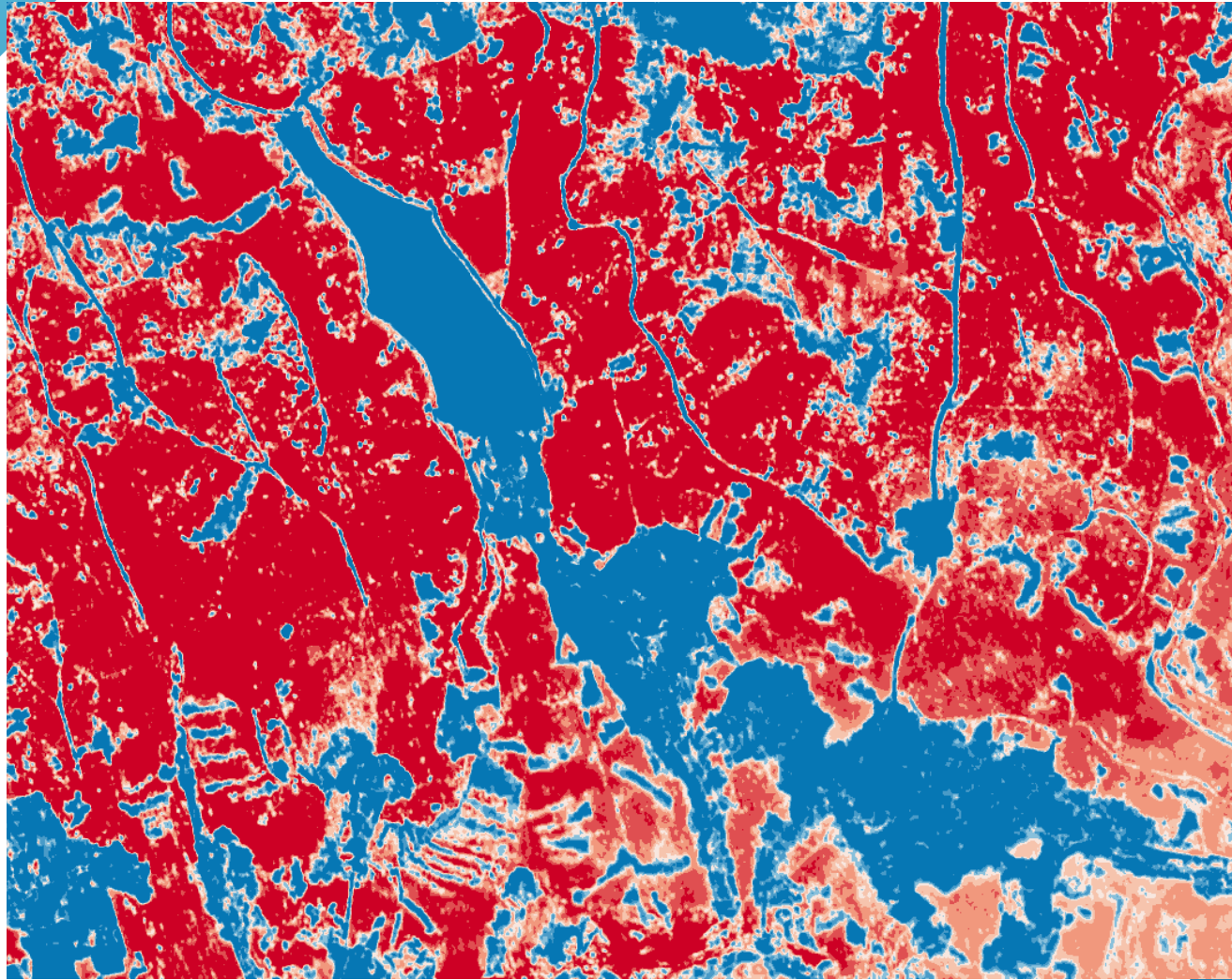
THERMAL INFRARED B10

An aerial photograph of a forested area. A river flows through the center-left of the image, and a road runs parallel to it. The forest is dense and green, with some cleared areas and roads visible. The text is overlaid on the left side of the image.

**17. MARCH 2019 –
SENTINEL 2**



NDVI
 $(B8A - B04) / (B8A + B04)$



NDSI
(B03-B11) /
(B03+B11)



NEAR INFRARED B08

- Landsat 8
 - RGB, NIR, IR 30 m
 - Panchromatic 15 m
- Sentinel 2
 - RGB, NIR 10 m
 - SWIR, red edge 20 m
 - Aerosols 60 m

SPATIAL RESOLUTION

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- Landsat 8
 - 16 days
 - 8 days after Landsat 7
- Sentinel 2
 - 5 (10) days

REVISIT FREQUENCY

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- EOS – LandViewer
- Planet
- Sinergise - Sentinel Hub, EO Browser

- USGS – EarthExplorer
- Copernicus Open Acces Hub

ARCHIVES

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- Georeferenced tiff
- WMS
- WFS
- JPEG
- KMZ

- Raw data package

AVAILABILITY

+ Add new configuration

Digital elevation model

ID 78162549-971a-4da0-ad00-2c2986231ff8

WMS

WMTS Instance

WFS 12975332-9cb1-402e-8b91-40a89c1c1aba

WCS

Edit

Basic Analytical

Image download

Show logo

Image format: TIFF (32-bit float)

Image resolution: MEDIUM (305 x 150 px)

Coordinate system: Popular Web Mercator (EPSG:3857) (Projected resolution: 60 m/px)

Layers:

Visualized	Raw
<input type="checkbox"/> True color	<input type="checkbox"/> B01
<input type="checkbox"/> True color - pansharpended	<input type="checkbox"/> B02
<input type="checkbox"/> False color	<input type="checkbox"/> B03
<input type="checkbox"/> NDVI	<input type="checkbox"/> B04
<input checked="" type="checkbox"/> Thermal	<input type="checkbox"/> B05
	<input type="checkbox"/> B06
	<input type="checkbox"/> B07
	<input type="checkbox"/> B08
	<input type="checkbox"/> B09

Download

BAND COMBINATIONS

22 Mar 2019 38.20° 32.88%

DEFAULT CUSTOM

	Natural Color B04, B03, B02	<input type="button" value="ⓘ"/>
	Color Infrared (Vegetation) B08, B04, B03	<input type="button" value="ⓘ"/>
	NDVI (B8A-B04)/(B8A+B04)	<input type="button" value="ⓘ"/>
	SAVI 1.5*(B8A-B04)/(B8A+B04+0.5)	<input type="button" value="ⓘ"/>
	ARVI (B08-(B04-1*(B02-B04)))/(B08+(B04-1*(B02-B04)))	<input type="button" value="ⓘ"/>
	EVI 2.5*((B8A-B04)/((B8A+6*B04-7.5*B02)+1))	<input type="button" value="ⓘ"/>
	GCI B08/B03-1	<input type="button" value="ⓘ"/>
	SIPI (B08-B02)/(B08-B04)	<input type="button" value="ⓘ"/>
	NBR (B8A-B12)/(B8A+B12)	<input type="button" value="ⓘ"/>
	Agriculture B11, B8A, B02	<input type="button" value="ⓘ"/>
	False Color (Urban) B12, B11, B04	<input type="button" value="ⓘ"/>
	Land/Water B8A, B11, B04	<input type="button" value="ⓘ"/>
	Healthy Vegetation B8A, B11, B02	<input type="button" value="ⓘ"/>

- Snow
 - Coverage
 - Crawford et al., 2013; Dozier, 1989
 - Melting rate
 - Hall et al., 2015
- Aquatic environment
 - Reservoir water quality
 - Kloiber et al., 2002
 - Chlorophyll, suspended organic matter, colored dissolved organic matter
 - Pahlevan et al., 2014

POSSIBILITIES

▯ Agriculture

▯ Crop growth

- ▯ Sakamoto et al., 2011; Zeng et al., 2016; Gao et al., 2017; Crawford et al., 2013; Dozier, 1989
- ▯ Unsatisfactory, data fusion - Gao et al., 2015
- ▯ Harmonical modelling – Roy et al., 2018

▯ Stability of forest environment, species distribution

- ▯ Frantz et al., 2017; Griffiths et al., 2013; White et al., 2014

▯ LAI

- ▯ Sellers, 1989; Clevers et al., 1996

POSSIBILITIES

- Albedo and surface temperature
 - MODIS and VIIRS data - Shuai et al., 2011
 - Landsat-8 band 10 (10.60–11.19 μm)
 - radiance and emisivity - Cook et al., 2014; Hulley and Hook, 2009
 - Surface resistance- Boegh et al., 2002
- Evapotranspiration
 - Mauser et al., 1998
 - Willardson, 2014; Anderson et al., 2011; Kalma et al., 2008; Allen et al., 2007
- LULC
 - Field block identification - Graesser et al., 2017

POSSIBILITIES

- Vegetation SVAT Model
- MIKE SHE
- MIKE SHE/Daisy

USED MODELS

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- Raw data are readily available
- Large archives available
- Need of data treatment

IN SUMMARY

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THANK YOU

Questions

