## Vegetation Indices

Rajitha Athukorala



# What's next

#### What is a Vegetation Index

**Soil Reflectance** 

01

02

03

04

**Different Vegetation Indices** 

**Vegetation Index calculation** 

### What is a Vegetation Index?

Some mathematical combination or transformation of spectral bands that accentuates the spectral properties of green plants so that they appear distinct from other image features.

### A good vegetation index should

Distinguish between soil and vegetation

Indicate the amount of vegetation

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Reduce atmospheric and topographic effects if possible

### Soil Reflectance



DIFFERENCE between NIR reflectance and Red reflectance for soil is much less than for live vegetation

### Difference Vegetation Index (DVI)

### DVI = NIR - Red

- Probably the simplest vegetation index.
- Sensitive to the amount of vegetation Distinguishes between soil and vegetation.
- Does NOT deal with the difference between reflectance and radiance caused by the atmosphere or shadows.

### Ratio-based Vegetation Indices (RVI)

### SR = NIR/Red

- Simplest ratio-based index is called the Simple Ratio (SR) or Ratio Vegetation Index (RVI).
- High for vegetation
- Low for soil, ice, water, etc.
- Indicates amount of vegetation
- Reduces the effects of atmosphere and topography

### Normalized Difference Vegetation Index (NDVI)

## NDVI = (NIR - Red)(NIR + Red)

- Ranges from -1 to 1High for vegetation
- Indicates amount of vegetation, distinguishes veg from soil, minimizes topographic effects
- A good index

### Calculating Vegetation Indices in ArcMap



### Open ArcMap in your computers





# Open ArcMap in your computers

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## Raster calculator for NDVI

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### Comparison



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RVI

NDVI

NDVI is often the index of choice and generally performs well.

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### Thank you