FALL 2018

TEXAS
The University of Texas at Austin

APPLIED ENGINEERING DATA ANALYSIS, OPTIMIZATION AND VISUALIZATION

GIS in R, 2

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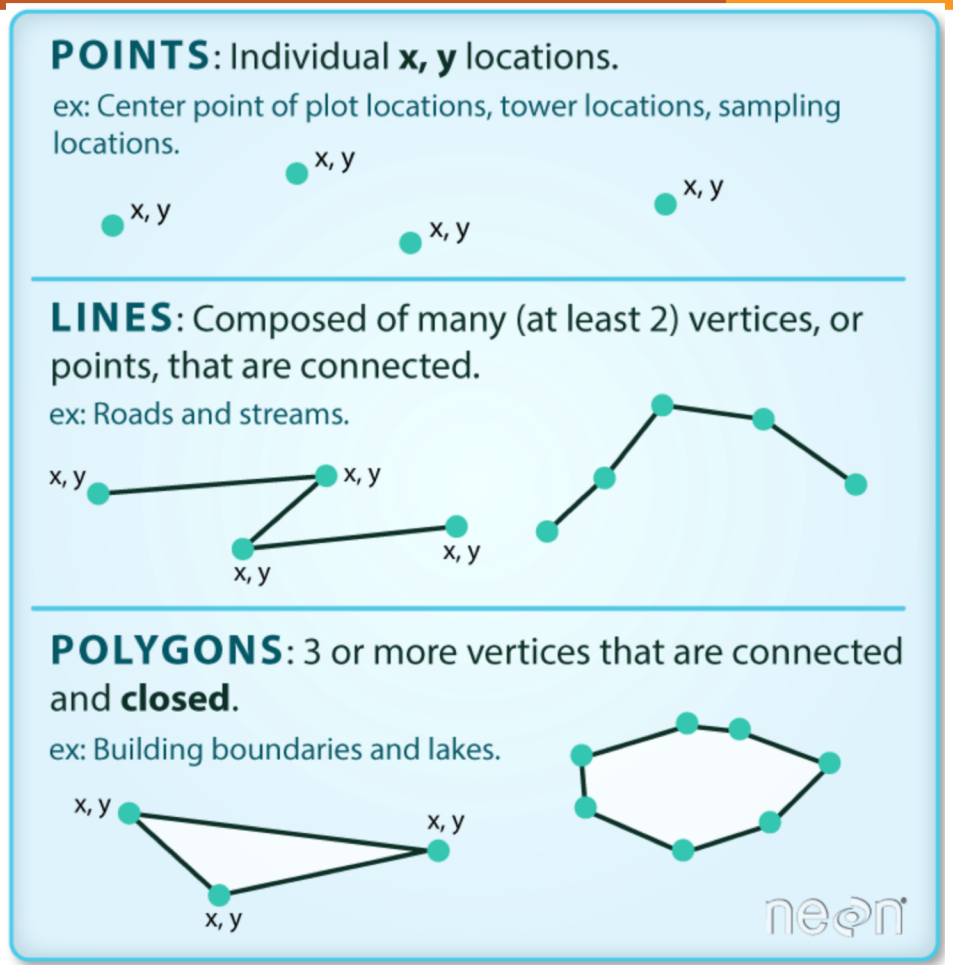
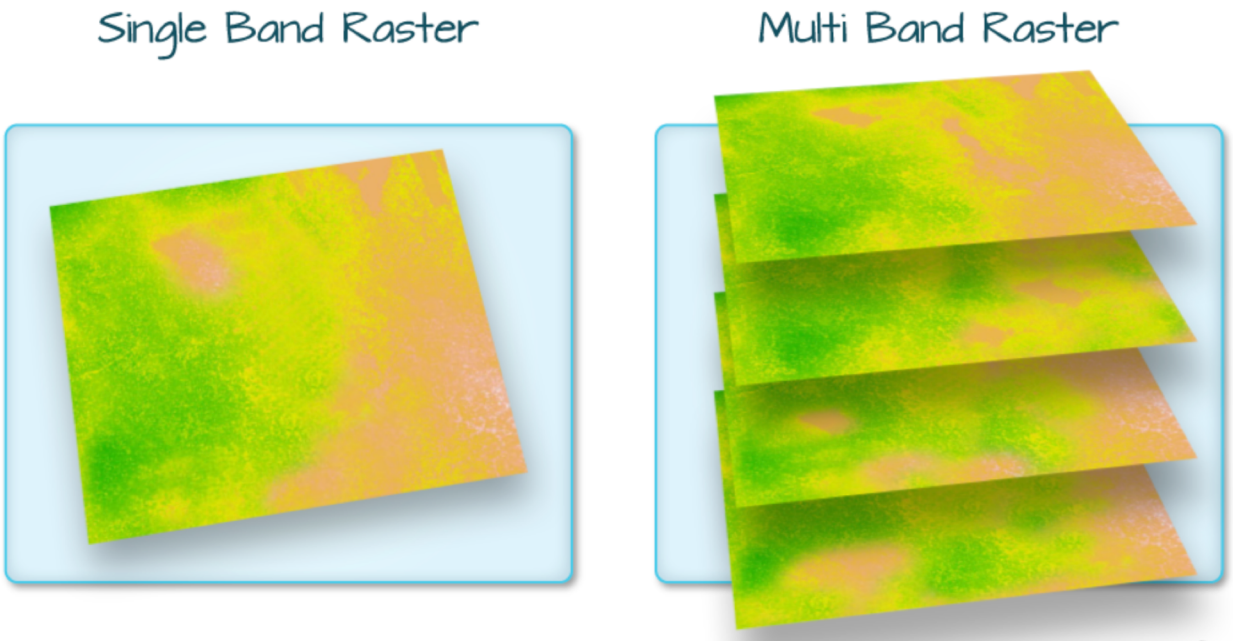
There are two basic ways to store GIS data

- Vector format
  - Points, lines, polygons
  - Cities, roads, counties
- Raster format
  - Images
  - Elevation over an area

Vector data

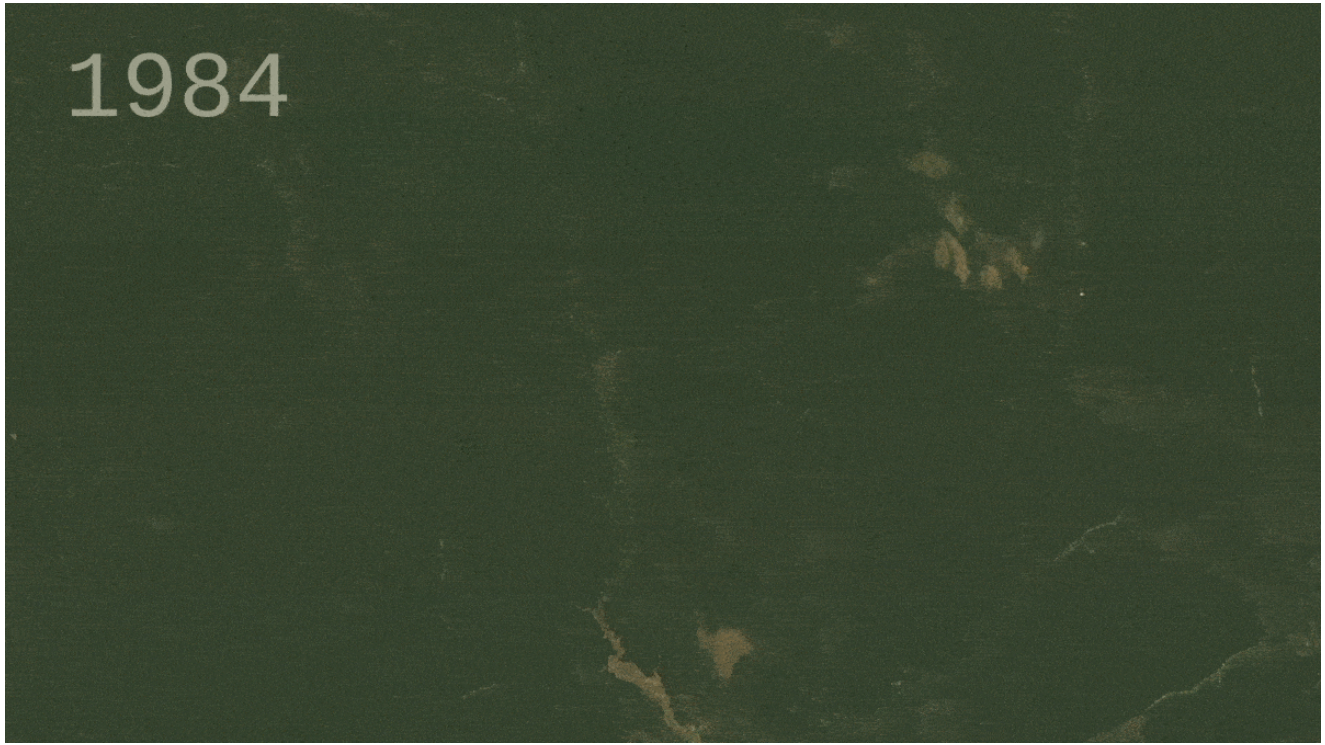

POINTS: Individual x, y locations.
ex: Center point of plot locations, tower locations, sampling locations.
x, y
x, y
x, y
x, y
LINES: Composed of many (at least 2) vertices, or points, that are connected.
ex: Roads and streams.
x, y
x, y
x, y
x, y
POLYGONS: 3 or more vertices that are connected and closed.
ex: Building boundaries and lakes.
x, y
x, y
x, y
neon

Today we will work with raster data

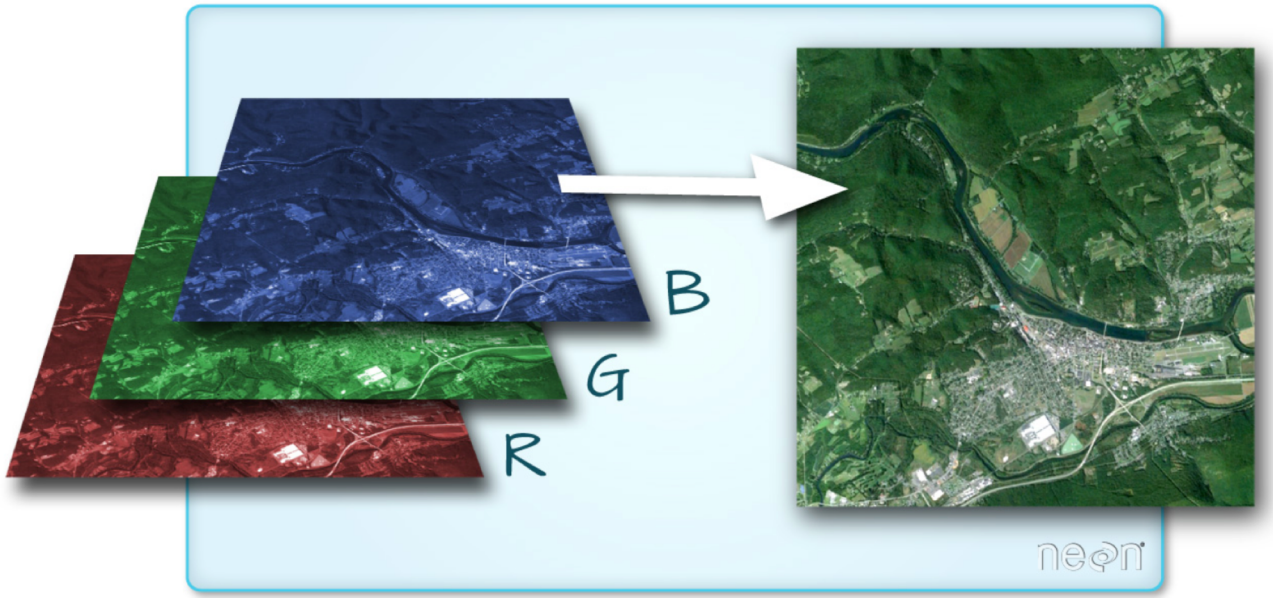


*https://nceas.github.io/oss-lessons/spatial-data-gis-law/3-mon-intro-gis-in-r.html

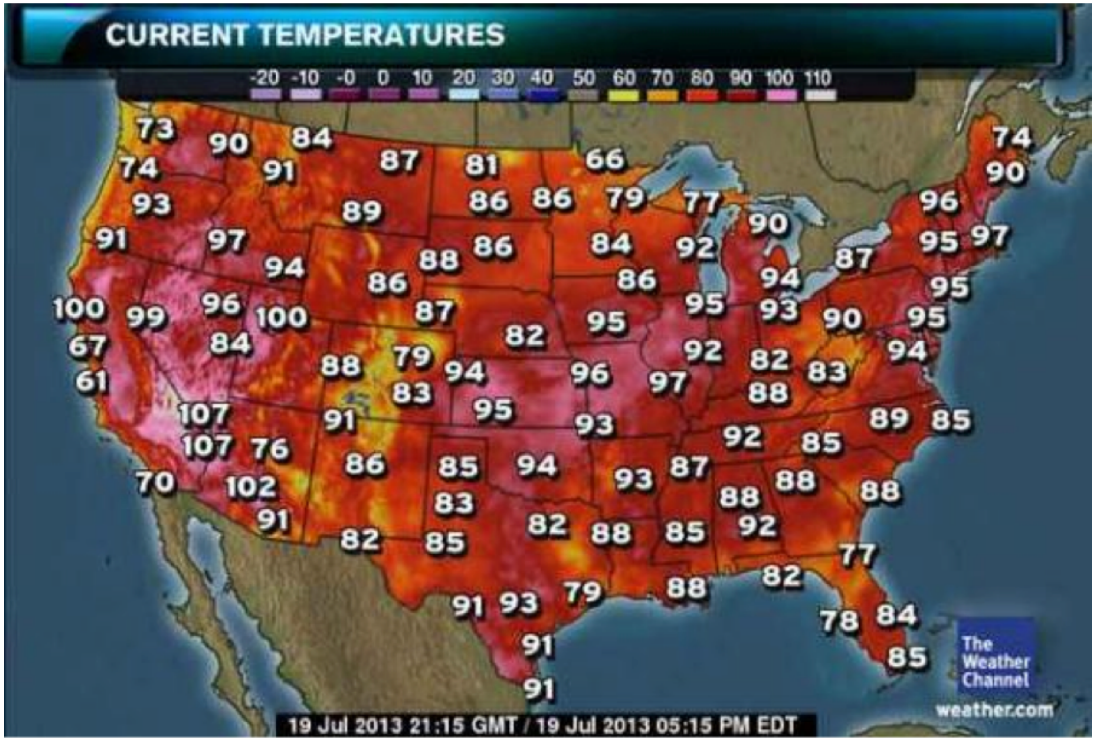
Deforestation, by color



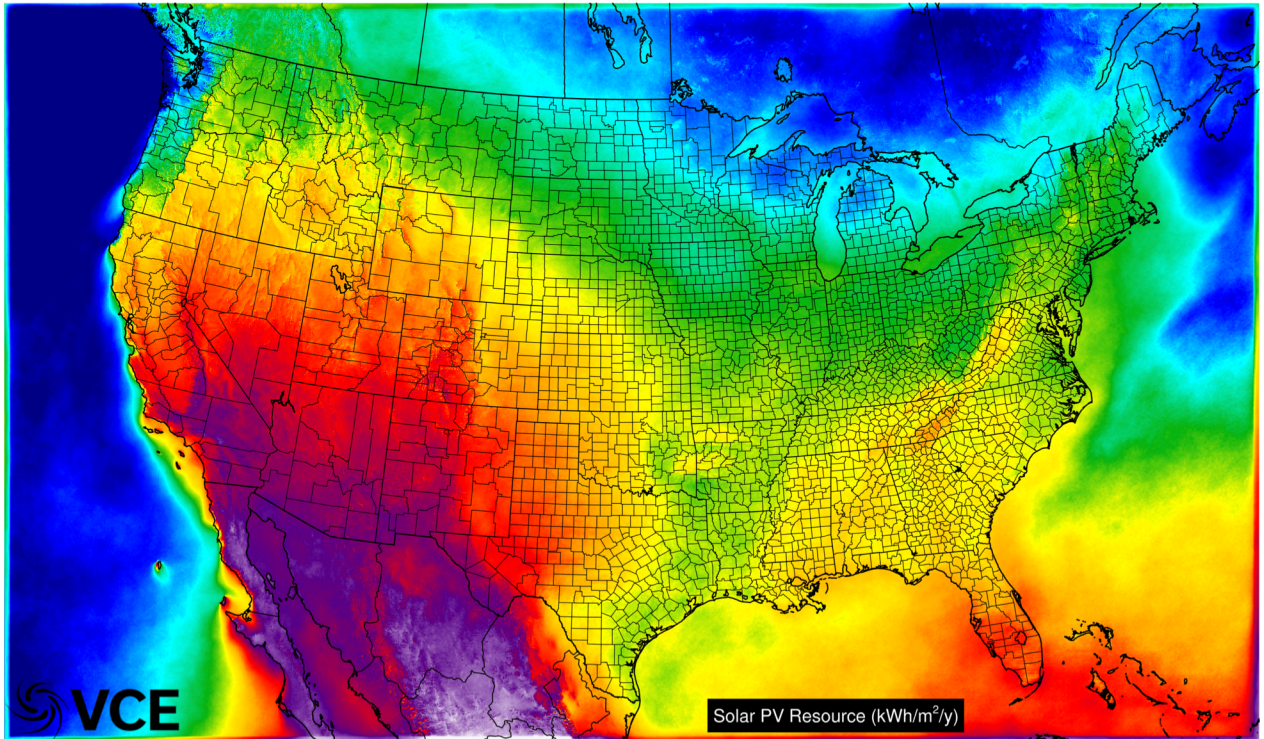
Rasters can use color to hold data



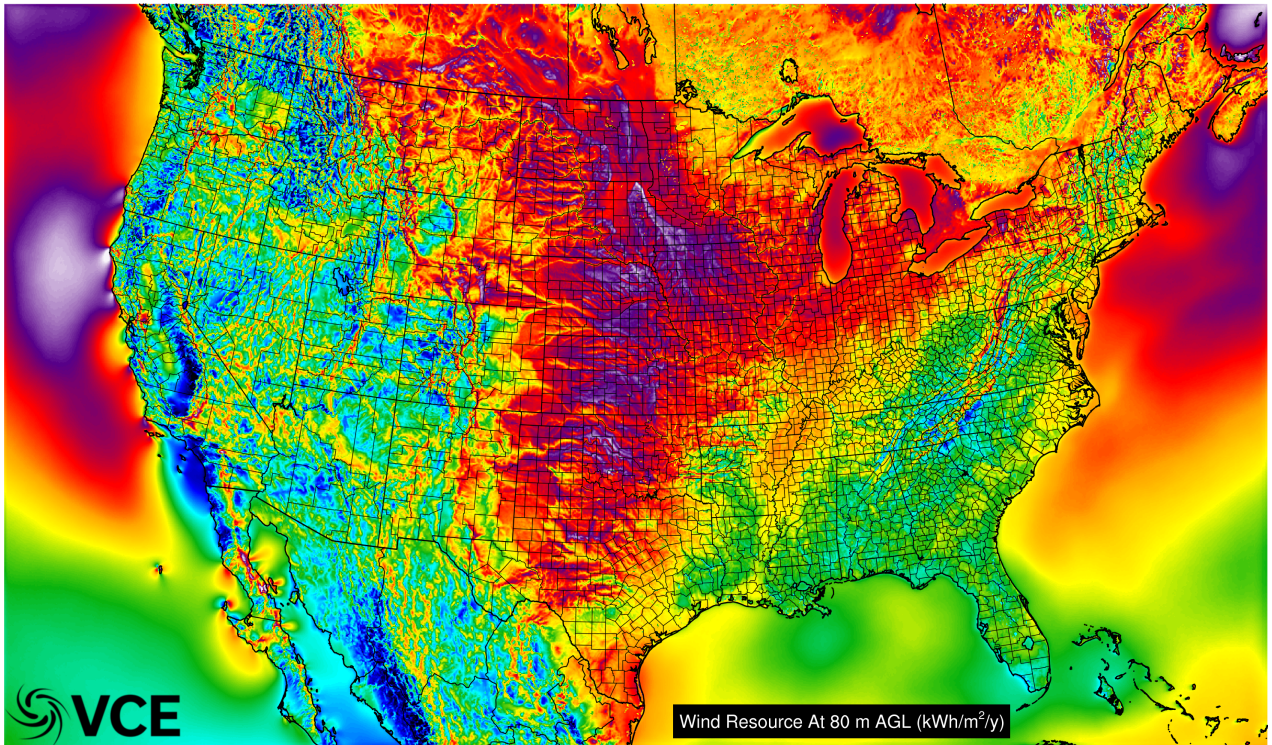
A familiar raster image



Solar PV resource raster



Wind power resource



Data available from NREL

- https://www.nrel.gov/gis/data.html

We will start with some elevation data

- USGS

https://viewer.nationalmap.gov/launch/