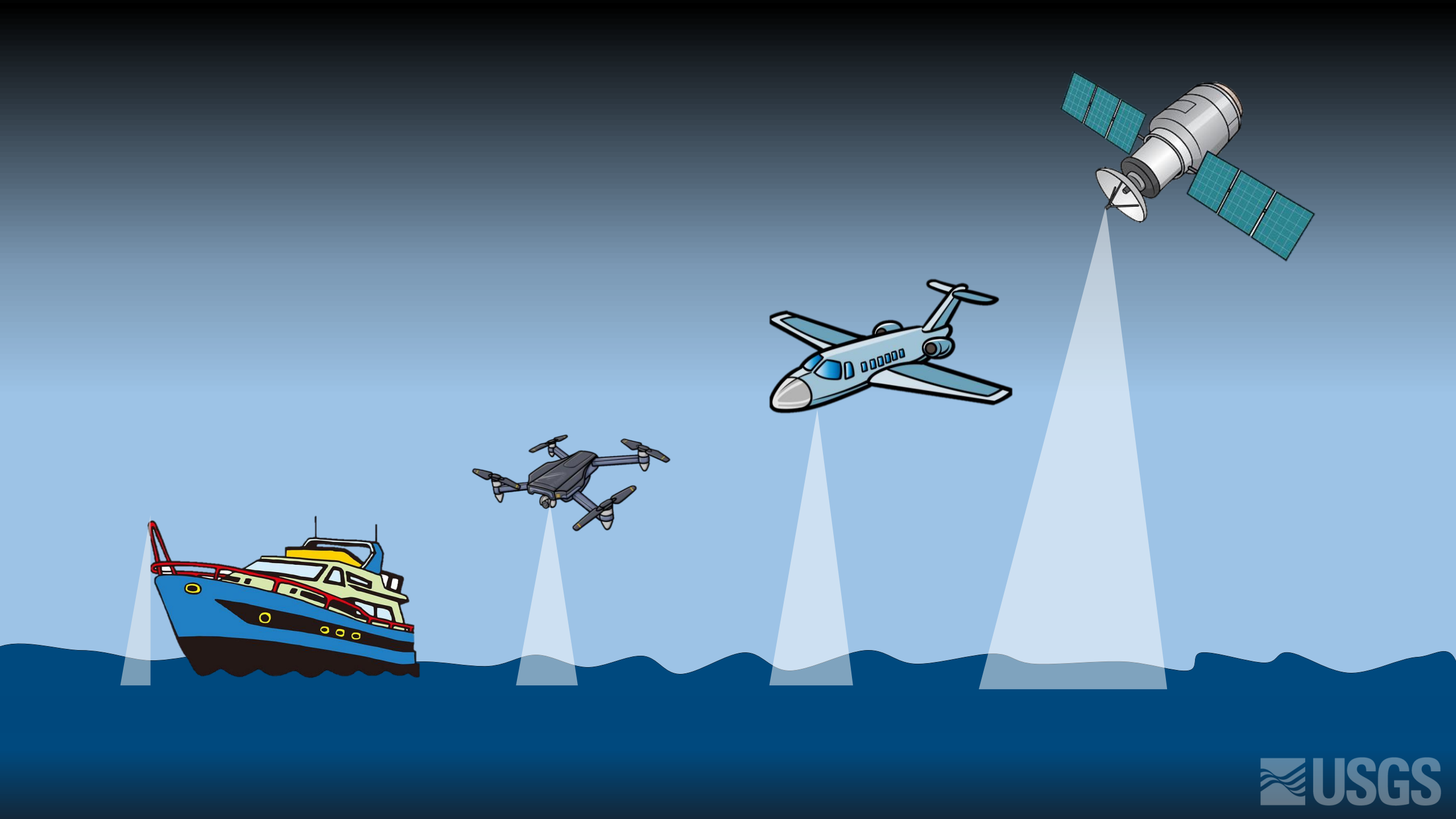


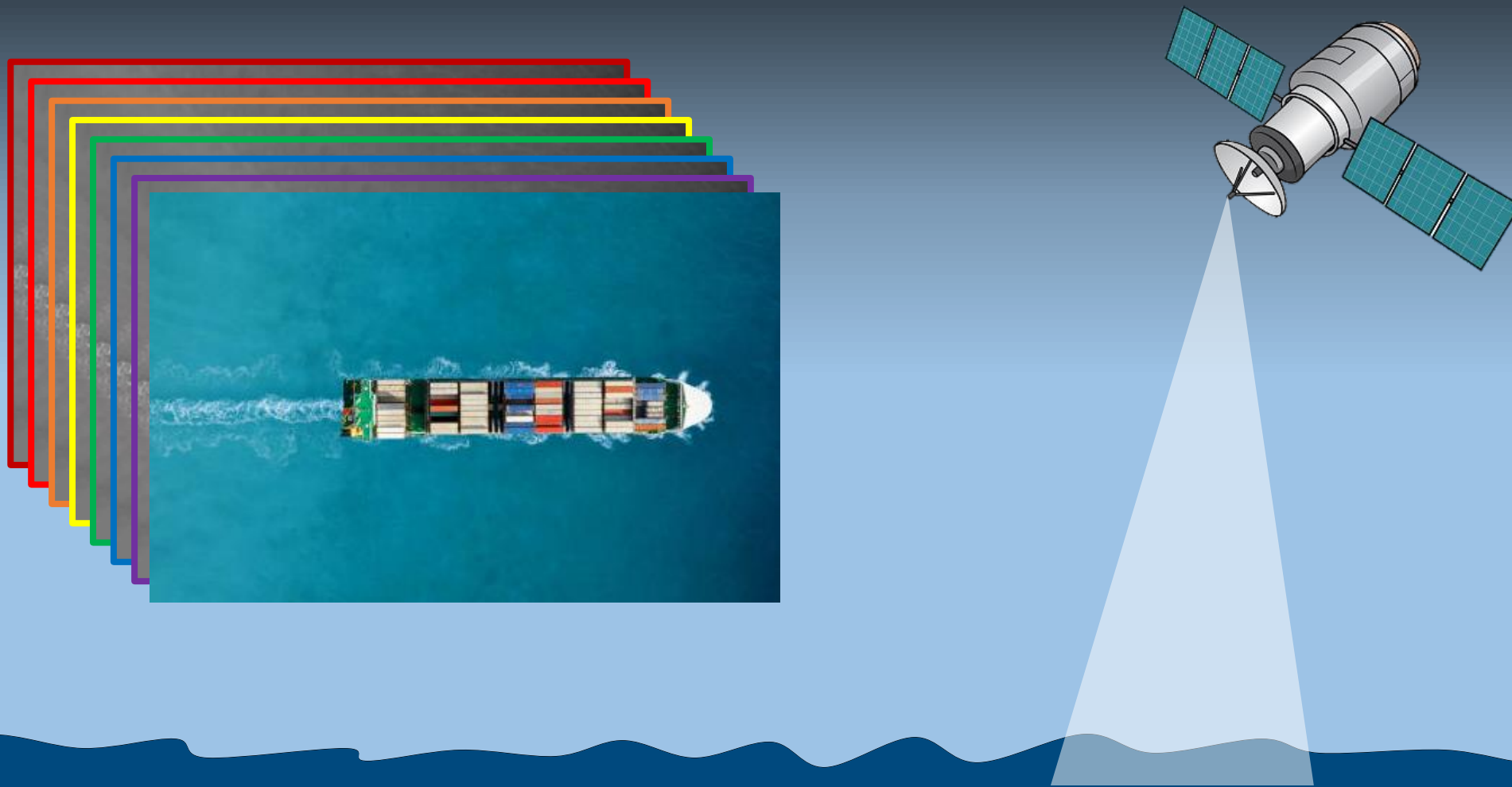
Video 2:

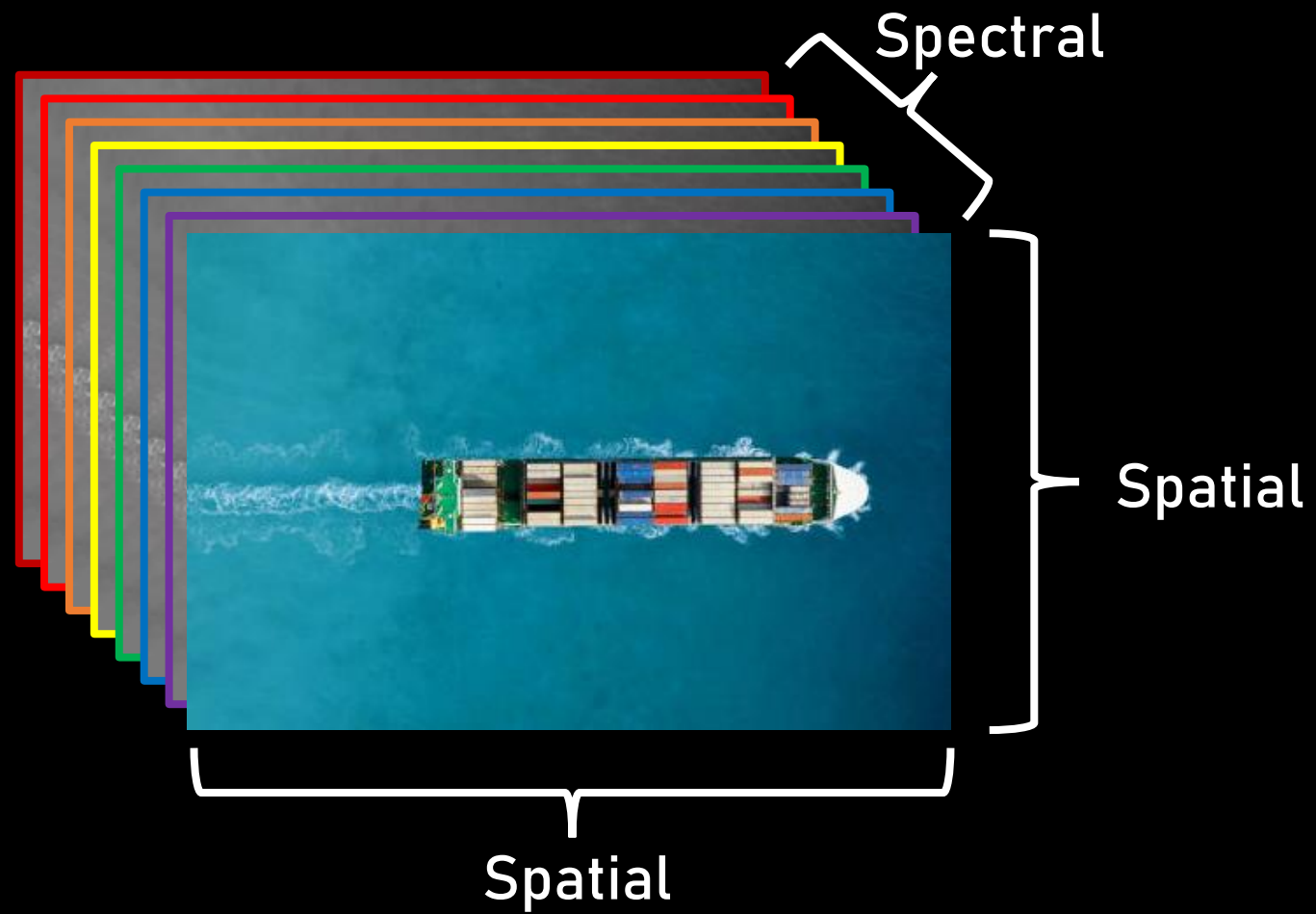
Aquatic Remote Sensing Data

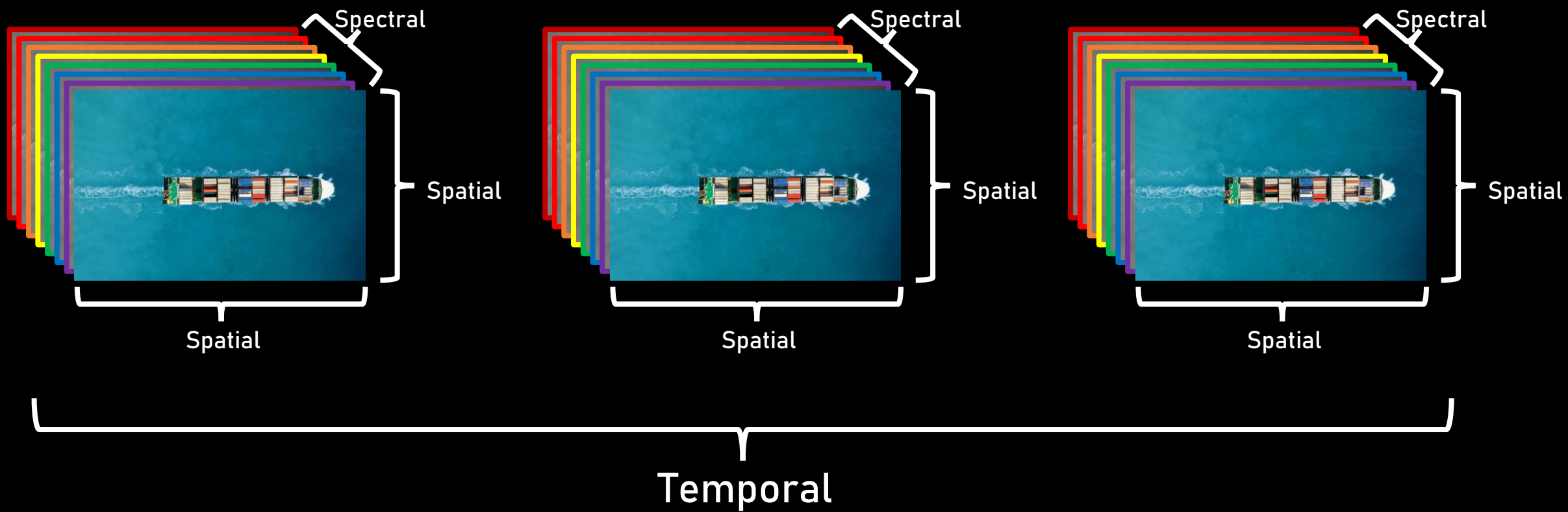
Video Objective:

- Orient you to remote sensing data
- Describe resolution types









Types of Resolution

1. Spatial Resolution

- How large a pixel is

2. Temporal Resolution

- How often a sensor gets images

3. Spectral Resolution

- The number of discrete bands a sensor measures

4. Radiometric Resolution

- The sensitivity of a sensor to different amounts of light

Spatial Resolution

*The size of the pixels in an image,
“Ground Sampling Distance” (GSD).*

Spatial Resolution

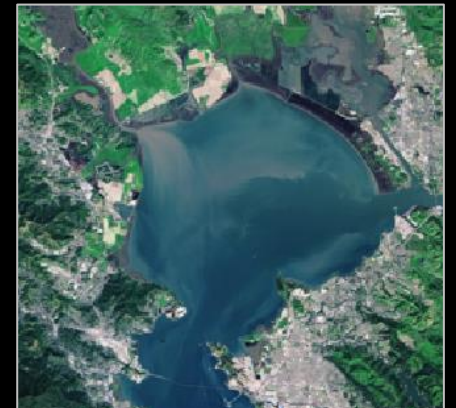
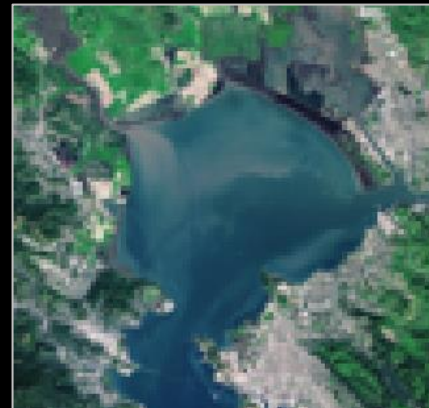
*The size of the pixels in an image,
"Ground Sampling Distance" (GSD).*

Low resolution

Large pixel size
Long GSD

High resolution

Small pixel size
Short GSD



Temporal Resolution

How frequently data is collected.

“Revisit”, “Repeat Time”

Temporal Resolution

How frequently data is collected.

“Revisit”, “Repeat Time”

Low resolution
Low frequency images
Long revisit
Long repeat time



Day 0



Day 14

High resolution
High frequency images
Rapid revisit
Short repeat time



Day 0



Day 2



Day 4



Day 6



Day 8



Day 10



Day 12



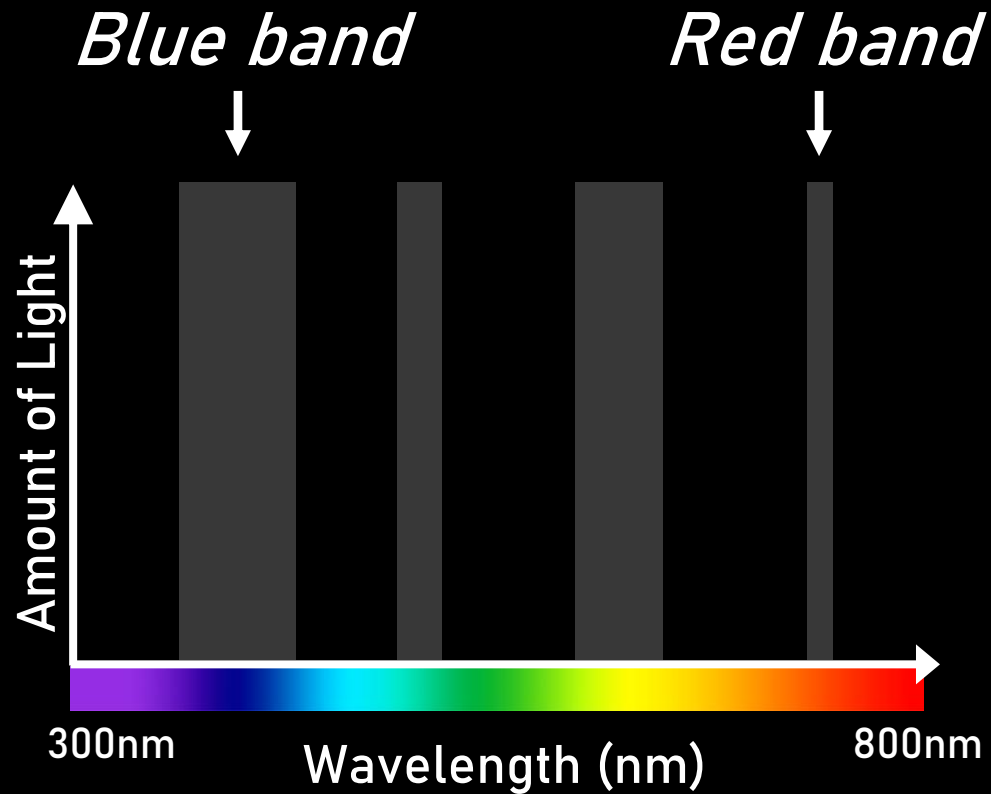
Day 14

Spectral Resolution

How many bands (colors) a sensor images.

Spectral Resolution

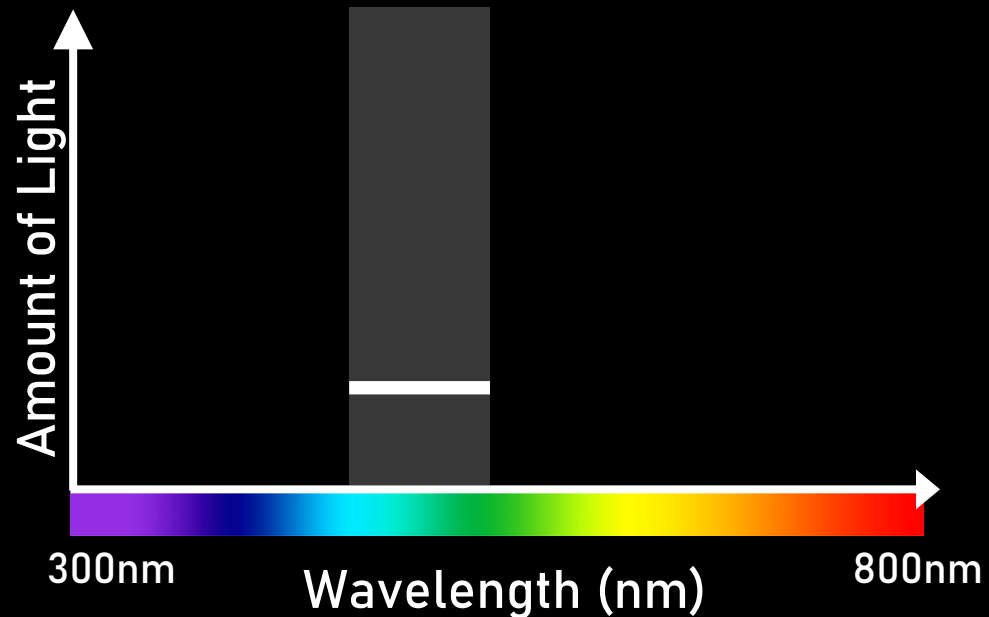
How many bands (colors) a sensor images.



Spectral Resolution

How many bands (colors) a sensor images.

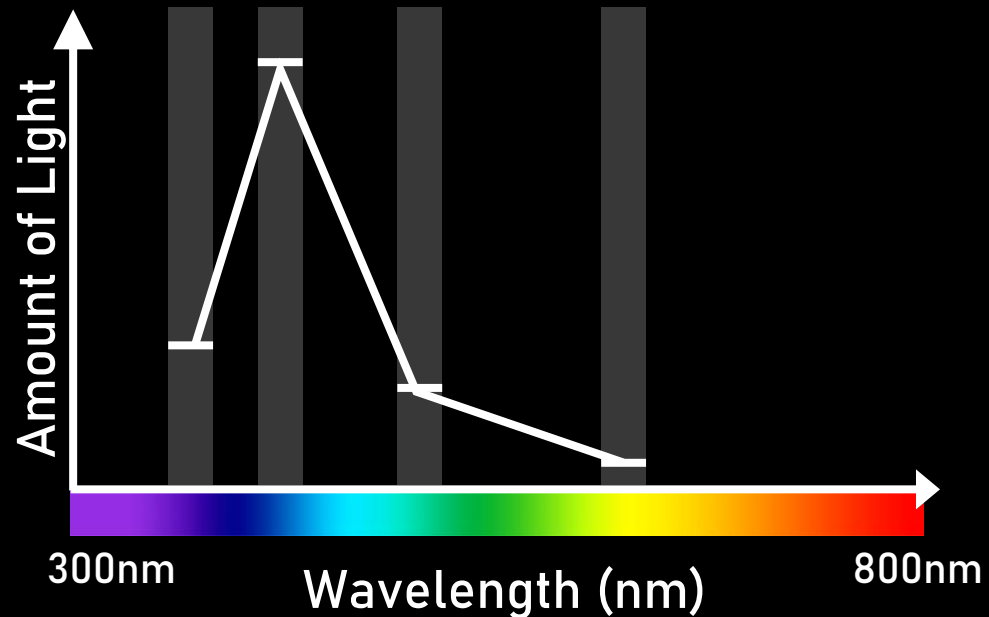
Single-band



Spectral Resolution

How many bands (colors) a sensor images.

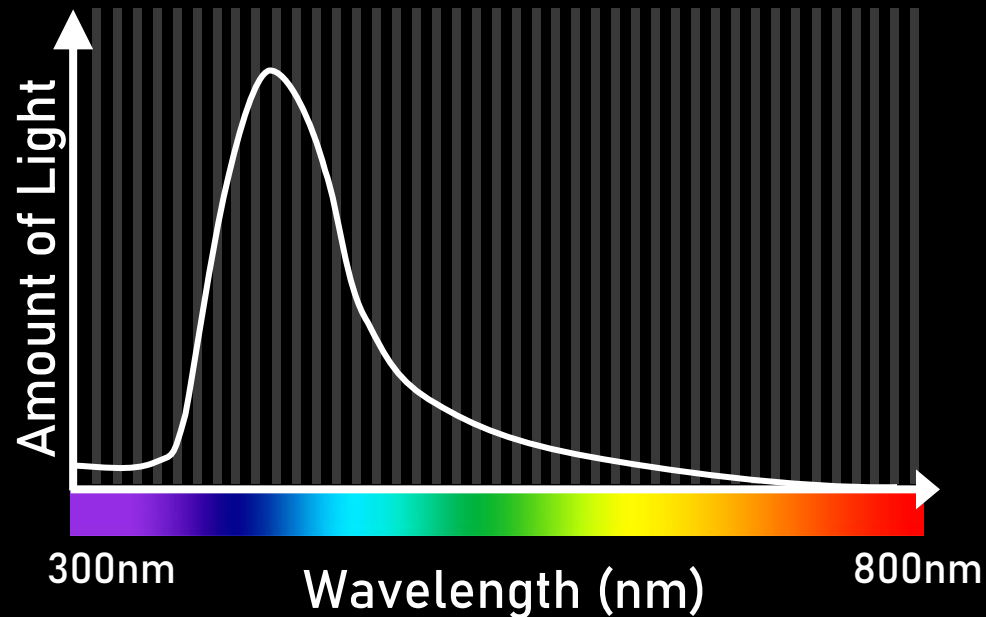
Multispectral



Spectral Resolution

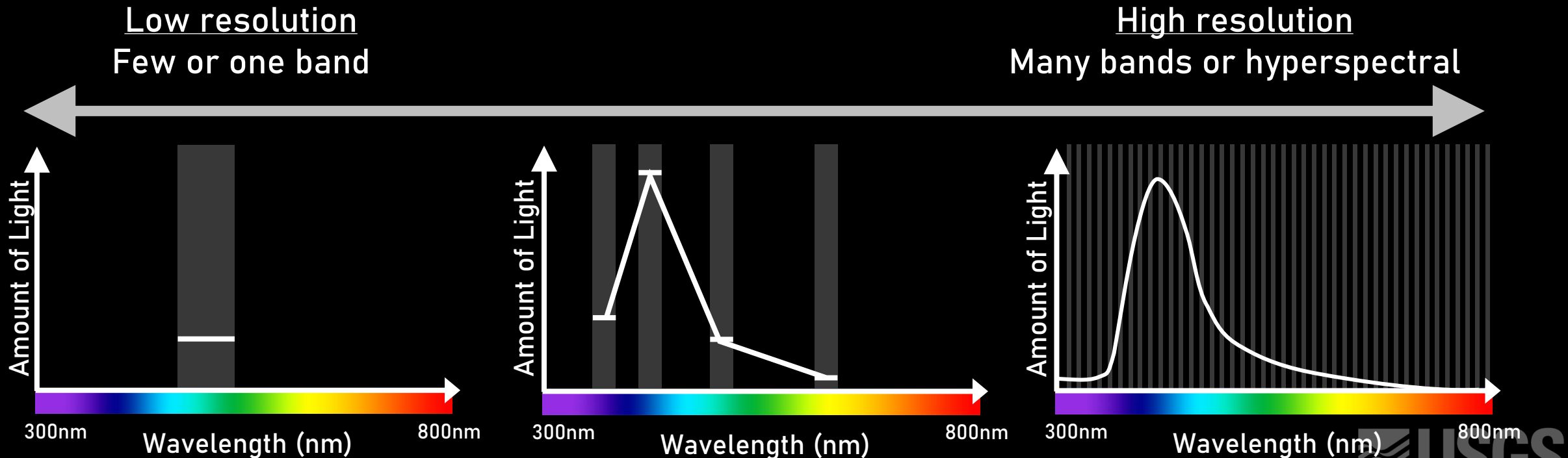
How many bands (colors) a sensor images.

Hyperspectral



Spectral Resolution

How many bands (colors) a sensor images.



Radiometric Resolution

A sensor's sensitivity to different light levels.

Radiometric Resolution

A sensor's sensitivity to different light levels, i.e. how many "shades" a sensor can see per band

Low Radiometric Resolution

High
light

Low
light



High Radiometric Resolution

High
light

Low
light



Radiometric Resolution

Data storage, "bits"

Low resolution

Few shades

Low number of bits *4 bits = 16 shades*

High resolution

Many shades

16 bits = 65,536 shades High number of bits



"Sentinel-2 is a multispectral sensor with 10m GSD in bands 2-4, a 5-day revisit, and 16 bit storage."

- Medium spectral resolution
- 10m spatial resolution in 3 bands
- Gets an image every 5 days
- Has high radiometric resolution



