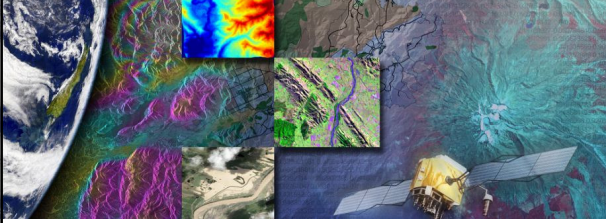


## Lecture 4 – What are the Characteristics of Remote Sensing Imagery?

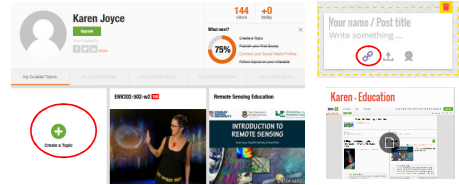


Dr Karen Joyce  
School of Environmental and Life Sciences  
Bldg Purple 12.3.09

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## Your Job – Your Turn to Scoopit

- Head to scoop.it (your account) and create a new topic about a remote sensing application of your choice
- Here's some options if you are unsure: burnt area mapping, coral reefs, mangroves, seagrasses, volcanoes, earthquakes, water quality, mining, agriculture, disaster management...
- Curate a minimum of five scoops with an 'insight'
- Post your scoops to <http://padlet.com/wall/env202502-scoop> (use your name and topic in the header)



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## Imaging Sensor Dimensions



- What controls the type of information you can extract from an image or a photograph taken from an aircraft or satellite ?
- Resolution = interaction of sensor dimensions and ground features

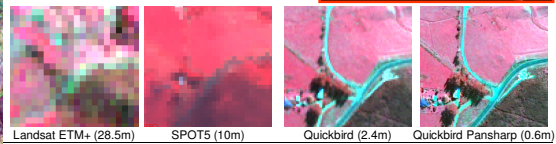
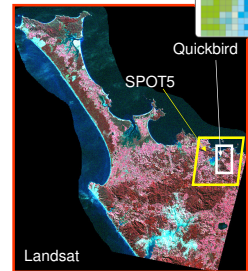
Image Information	Controlling Dimension
Size of objects and features	
Colour of objects and features	
Contrast between objects and features	
Time of day, year, tidal cycle, growth cycle	

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Source: S.Phinn 4

## Spatial Dimensions

- Primary spatial dimensions:
  - FOV = Field of view
  - GRE = Ground resolution element
  - Pixel = Picture Element
- Swath width = width of image
- Measurement of Spatial Resolution = size of objects able to be detected
- Spatial resolution generally defined as pixel size



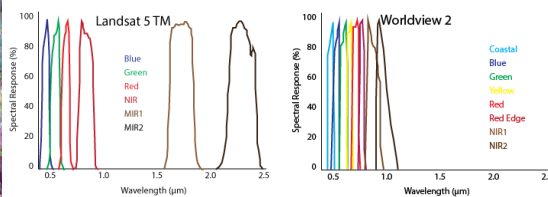
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## Spectral Dimensions



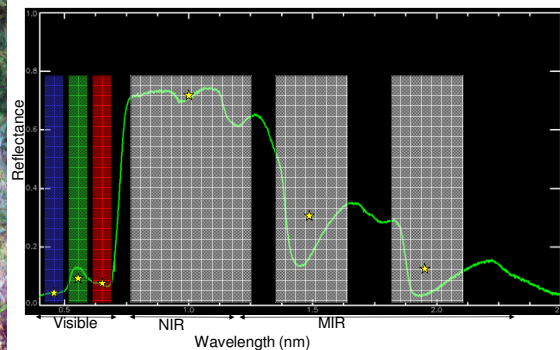
- The number of different types of reflected or emitted EMR measured by the sensor, as described by spectral band-width (FWHM) and location in the spectrum.
- Multi-spectral sensors record reflected and emitted EMR in a number (< 10) pre-determined bandwidths (450nm – 12 000nm)
- Hyper-spectral sensors record reflected or emitted EMR in > 10 – 300 narrow bandwidths



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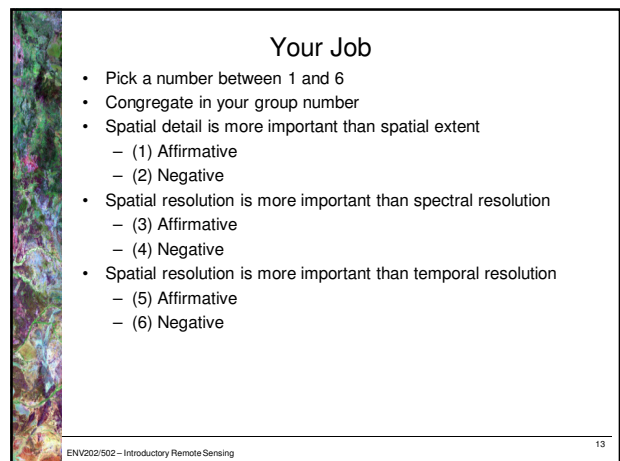
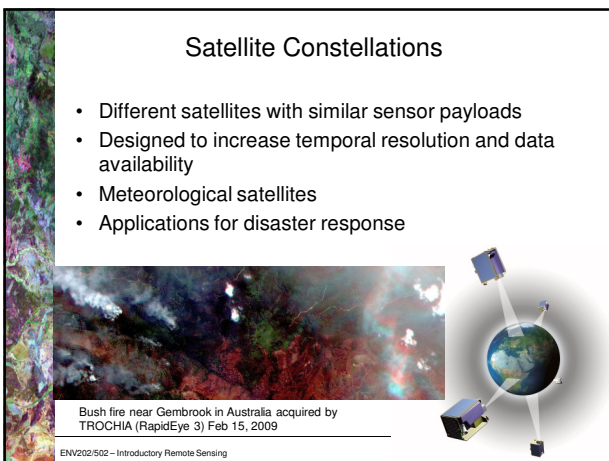
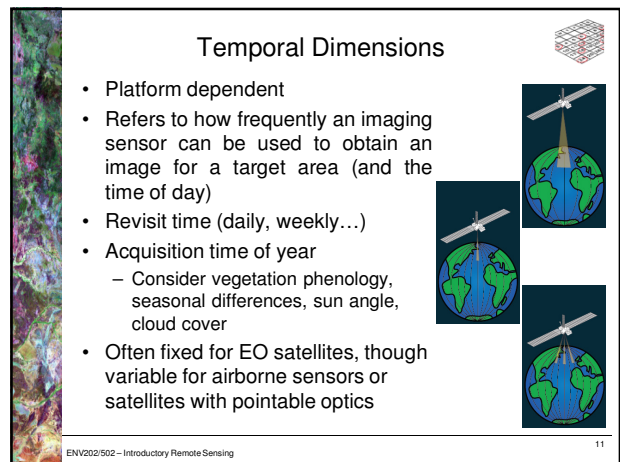
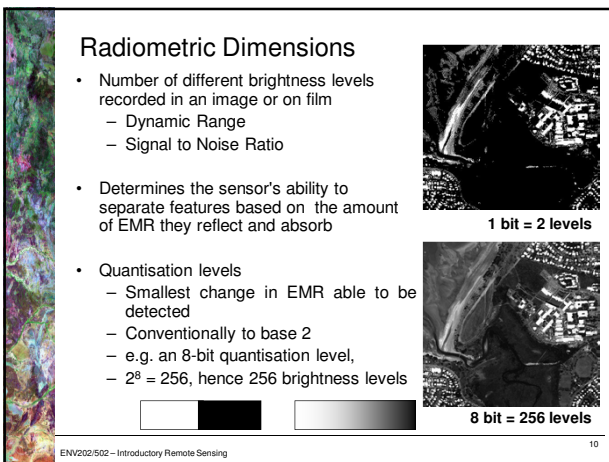
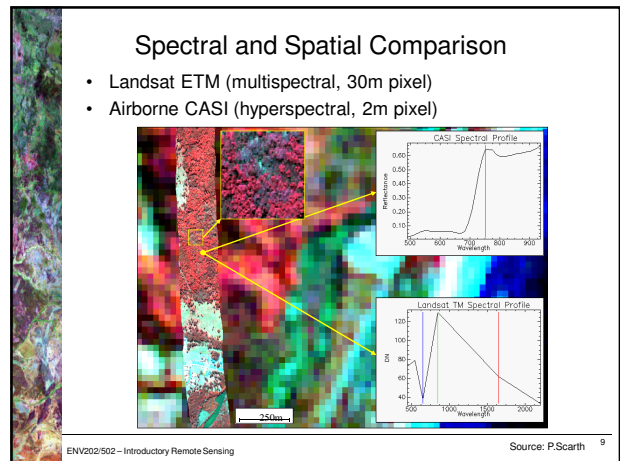
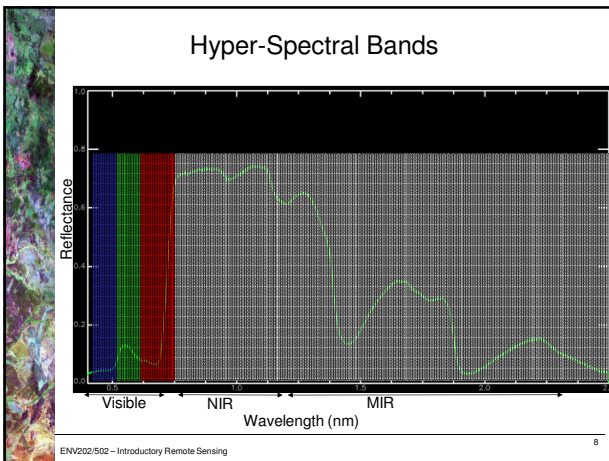
Source: S.Phinn 6

## Multi-Spectral Bands



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## Debate Format

- State your position in the debate
- Define any terms
- Give specific examples that support your case
- Summarise your argument
- Restate your position in the debate

### Rules:

- 3 mins for affirmative
- 4 mins for negative
- 1 min final rebuttal for affirmative
- All members must contribute
- All non-involved students to note one positive, and one 'room for improvement' comment

## Student Choice – Application Limitations

