Band 4

Band 5
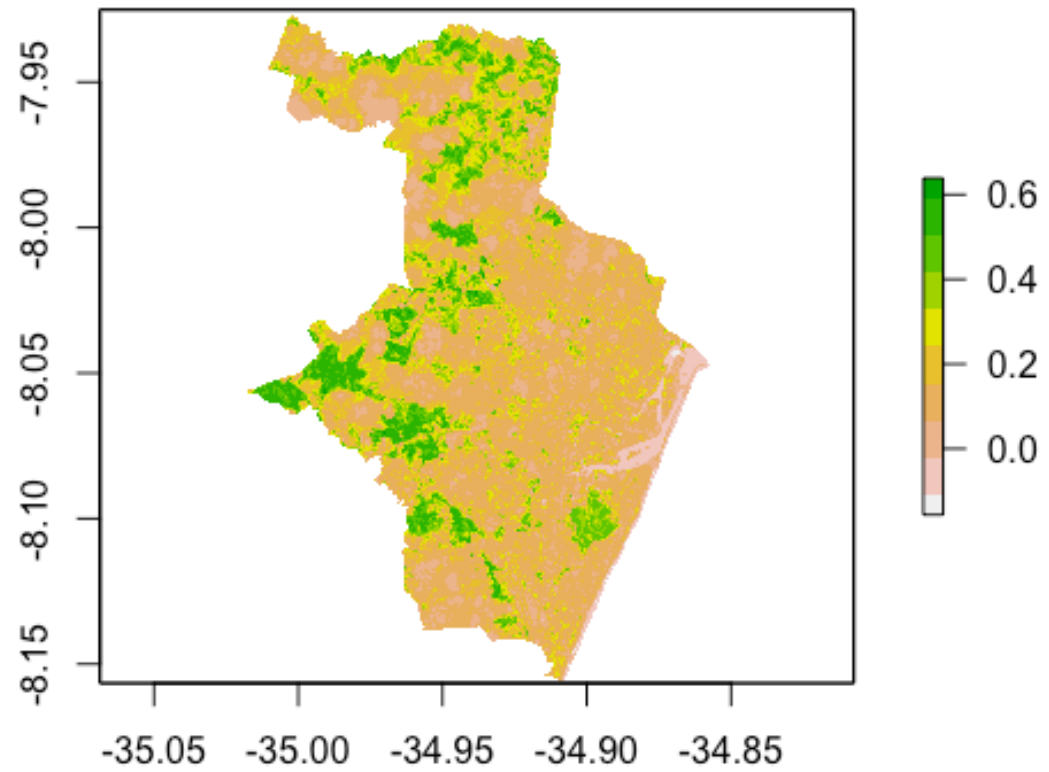
Example on GIS

GIS → A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data. The key word to this technology is Geography – this means that some portion of the data is spatial.

Normalised Difference Vegetation Index

Vegetation = (B5 − B4) / (B5 + B4)

Result

Advantages Of Remote Sensing

- Provide a regional view (large areas)
- Provide repetitive looks at the same area
- Remote sensing see over a broader portion of the spectrum than the human eye
- Sensors can focus in a very specific bandwidth in an image or number of bandwidths simultaneously
- Provide georeferenced and digital data
- Some remote sensing operates in all seasons, at night and at bad weather.

Application

- Prediction Model
  - Images are available at regular short time intervals and can be used for the prediction
    - Example: Many disasters and hazards may affect large areas.

Remote Sensing of Natural Hazards

Satellite remote sensing:

is the ideal tool for disaster management, since it offers information over large areas, and at short time intervals.

Disaster Risk Reduction (DRR):
- For DRR we require spatial information

Emergency Response

https://eventsget.com/

Example

- Earthquake hazards
- Volcanic hazards
- Landslide hazards
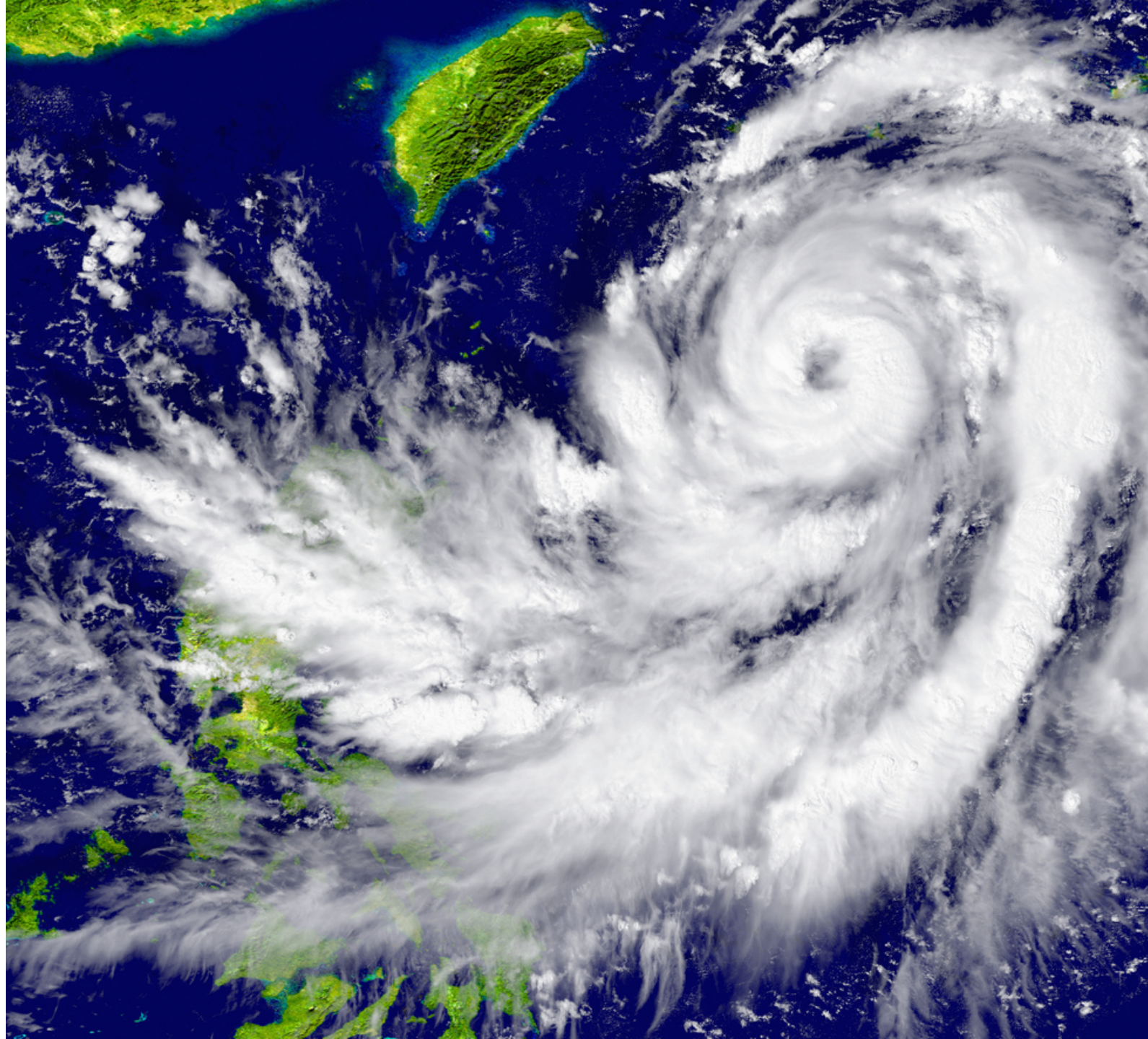- Coastal inundation
- Cyclones
- Droughts
- Floods

Does Remote Sensing Prevents the Occurrence of Hazards?

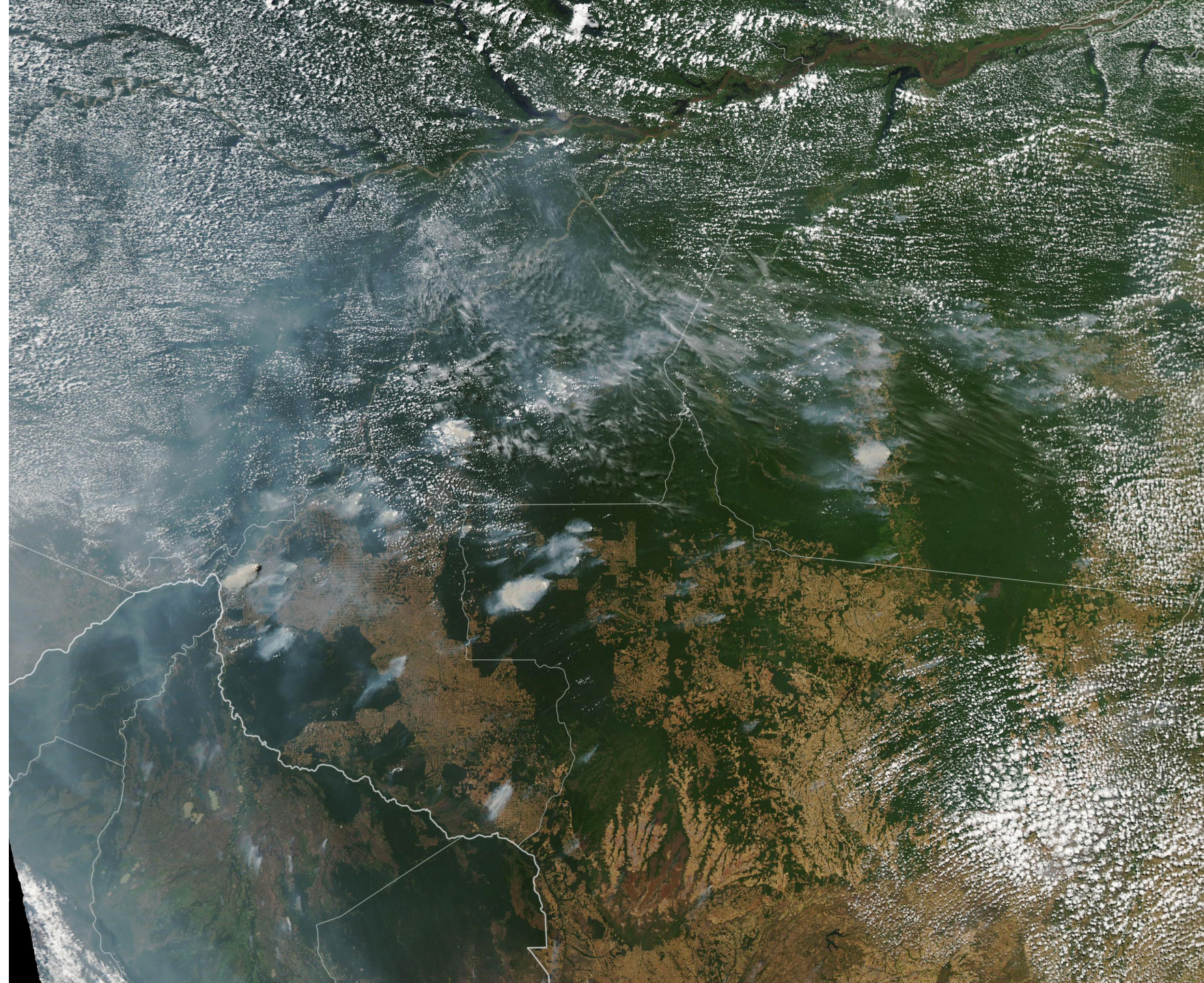*A tropical cyclone seen from a satellite in South-East Asia*

The Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite captured this images of several fires burning in the states of Rondônia, Amazonas, Pará, and Mato Grosso on August 11 and August 13, 2019.

26 July 2018 - Wildfires in Greece

Conclusion

- Remote sensing is a summary term for the instrumentation, techniques, and methods to observe the Earth's surface at a distance and to interpret the images or numerical values obtained to acquire meaningful information concerning the nature or state of the observed features.

- Satellite imagery can be a valuable data source used in order to support rescue operations and damage estimation

- One of the most important applications of remote sensing can be found in the case of natural disasters.

- Remote sensing can also be used to predict catastrophic events and to determine hazardous areas.

Thank you ..

Comments...

Questions...

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- Oštir, K., Veljanovski, T., Podobnikar, T. and Stančič, Z., 2003. Application of satellite remote sensing in natural hazard management: the Mount Mangart landslide case study. *International Journal of Remote Sensing, 24*(20), pp.3983-4002.