

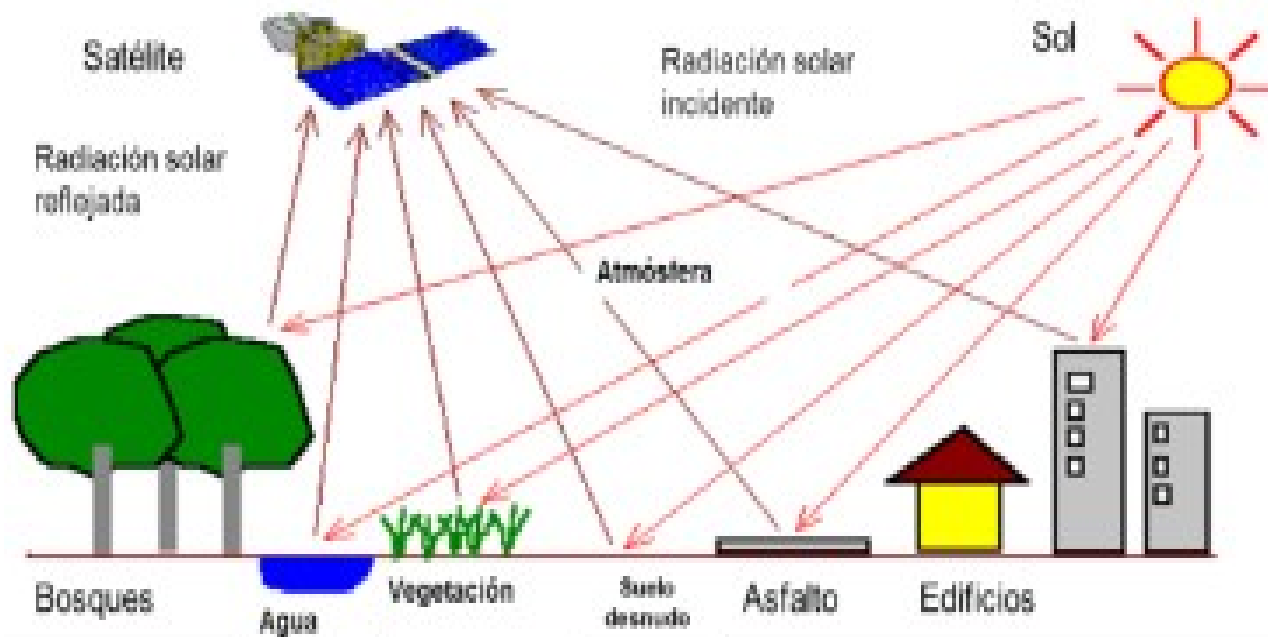


# FOSS4G + STATE OF THE MAP ARGENTINA 2017

[foss4g-ar.org](http://foss4g-ar.org) [/foss4gsotm.arg2017](https://www.facebook.com/foss4gsotm.arg2017) [@foss4gAR](https://twitter.com/foss4gAR) [@foss4gar](https://www.linkedin.com/company/foss4gar)

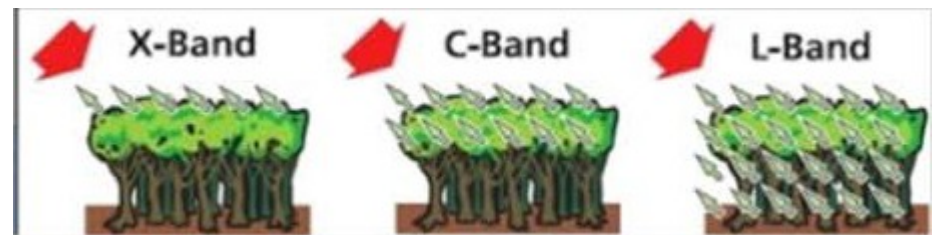
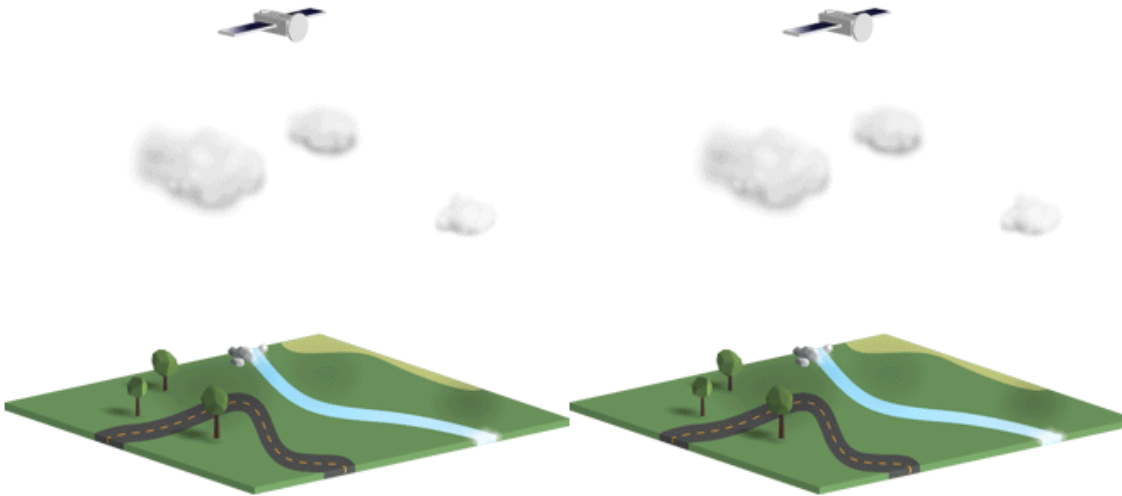
## Uso de Imágenes Satelitales con Software Libre

# Sensores Remotos



# Sistemas Pasivos vs Activos

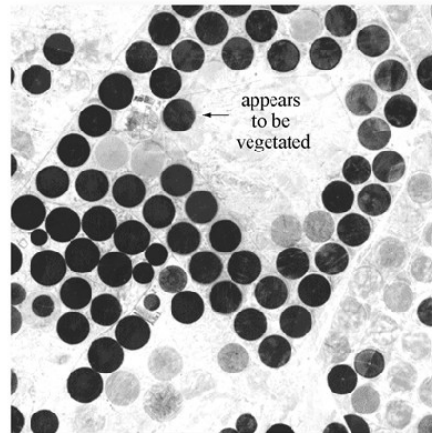
- **Pasivos:** Registran la radiancia reflejada o emitida por la superficie terrestre. Ejemplos: Landsat, Aster, MODIS
- **Activos:** Generan ellos mismos la radiación que miden tras ser reflejada. Pueden operar en la noche - pueden penetrar nubes LIDAR, RADAR



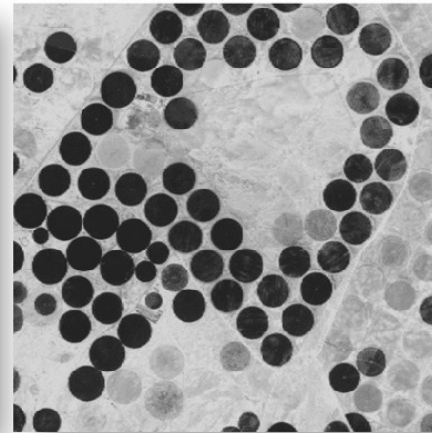
# Características de las Imágenes

# Color

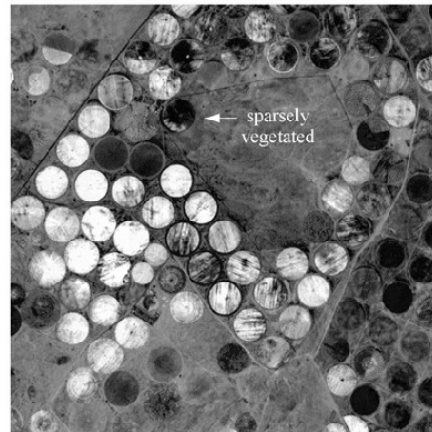
Remote Sensing Can Provide Knowledge by Measuring Energy Characteristics  
in Spectral Regions Beyond Our Human Visual Perception



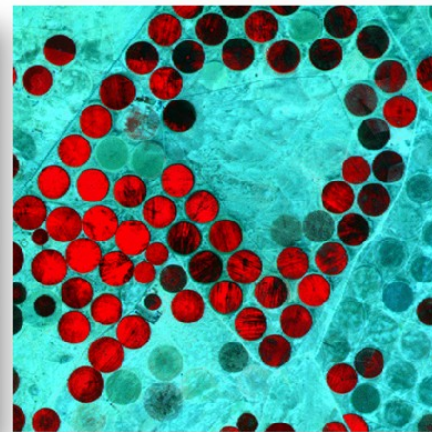
a. Green reflectance of an agricultural area in Saudi Arabia.



b. Red reflectance.



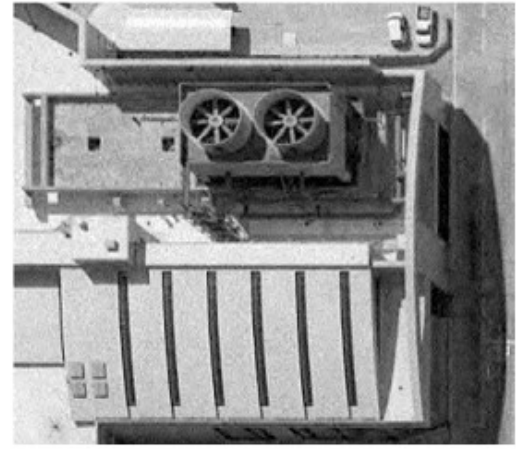
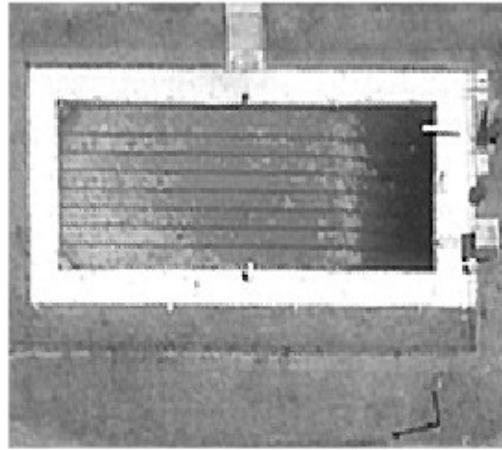
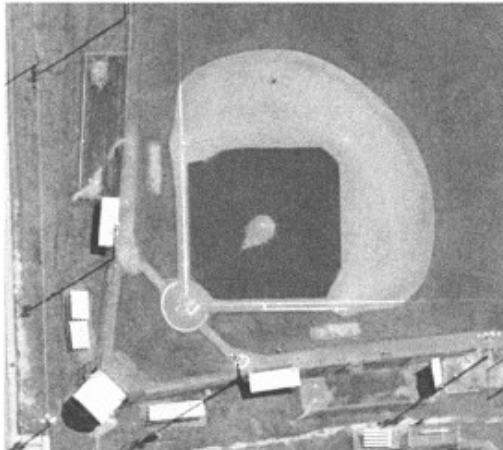
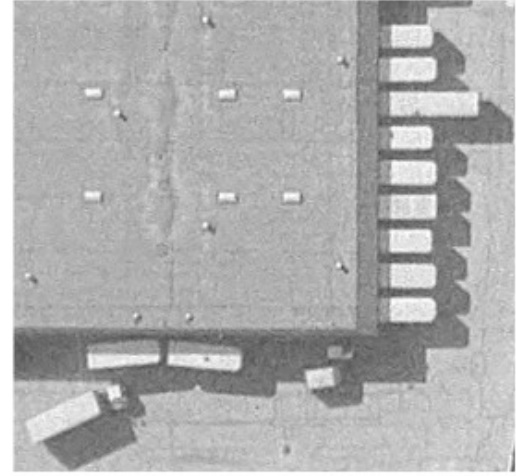
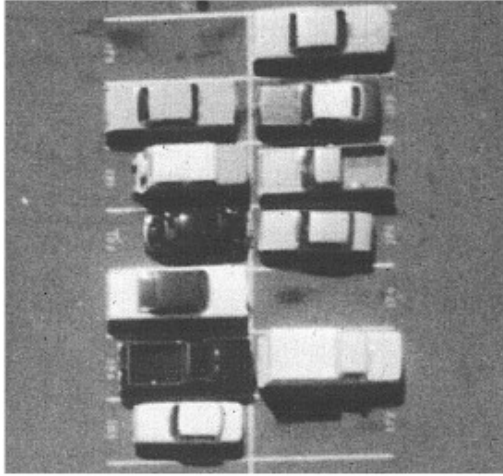
c. Near-infrared reflectance.



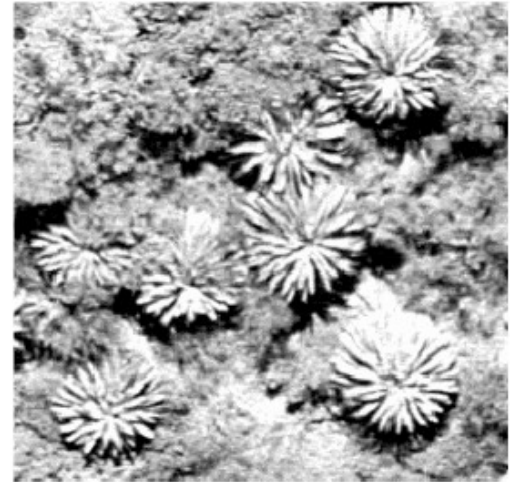
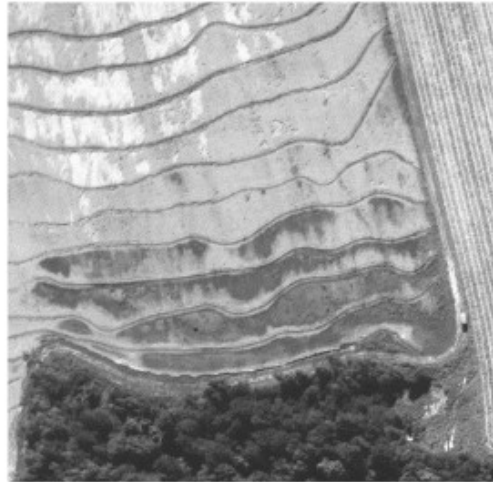
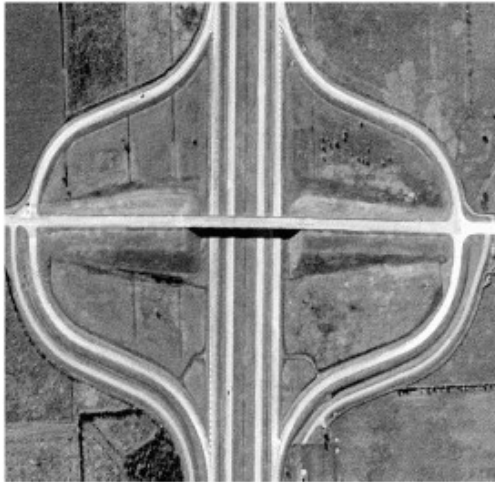
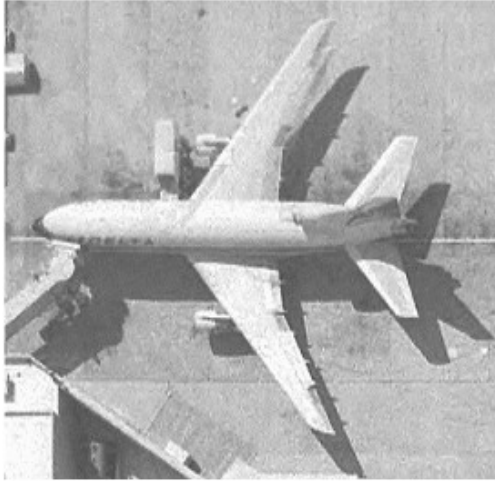
d. Color composite (RGB = near-infrared, red, green).



# Tamaño

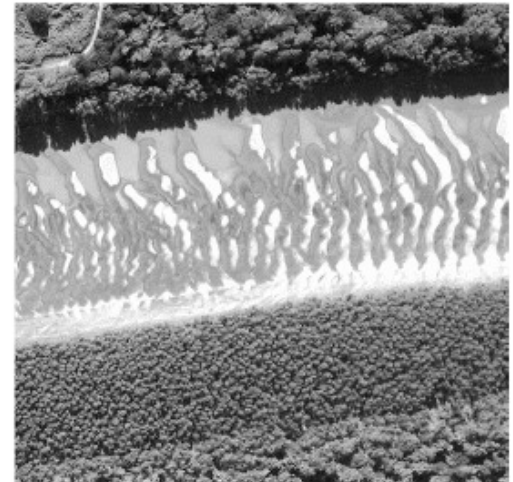
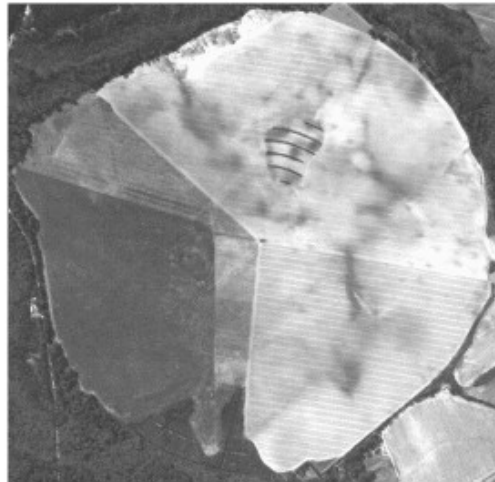
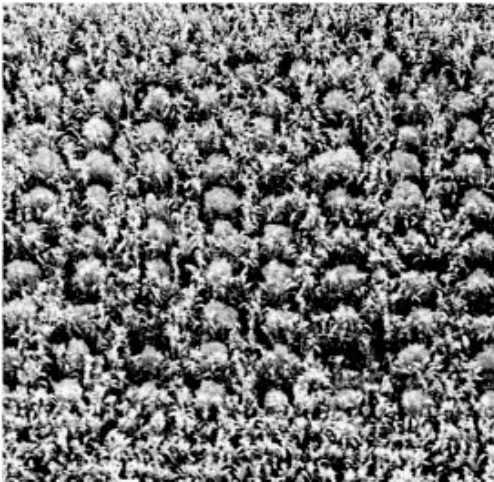
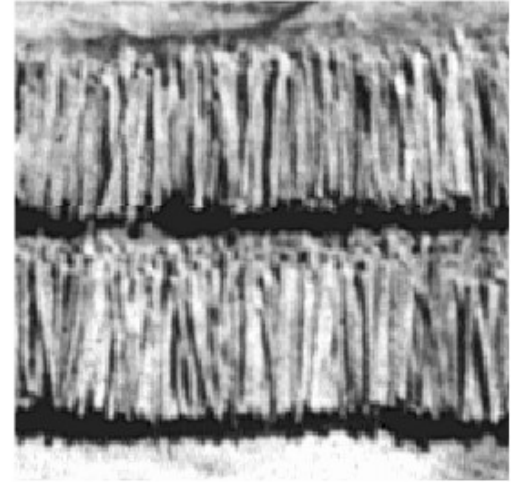
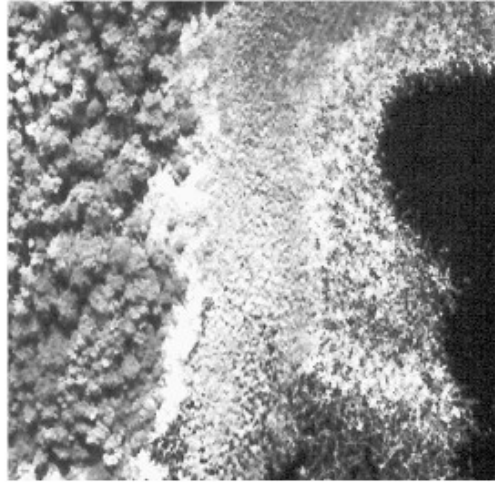


# Forma



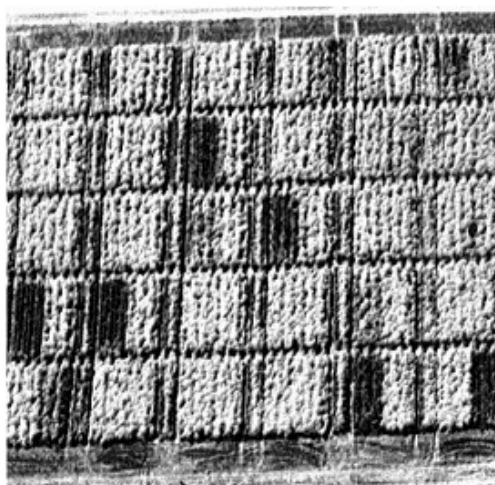
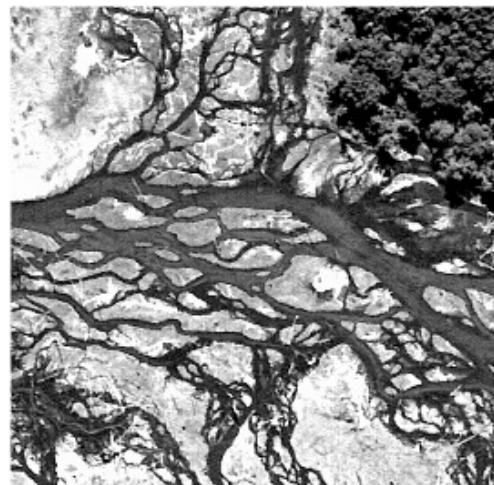
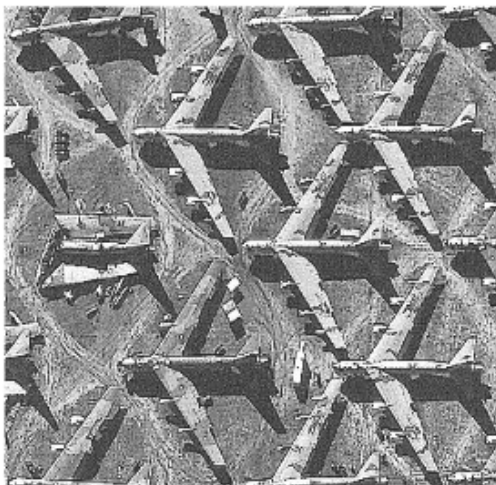


# Textura

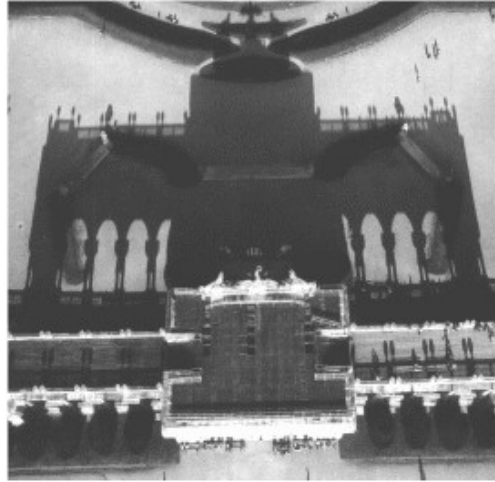
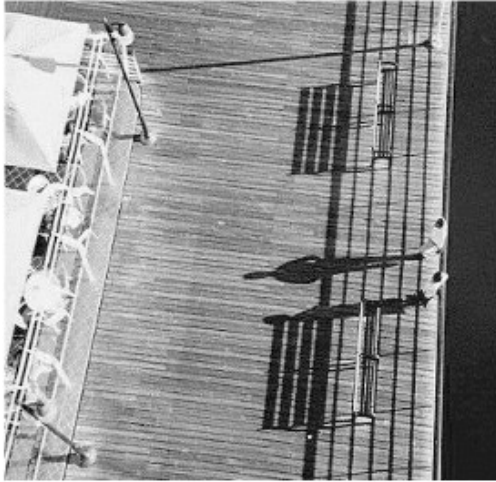




# Patrón

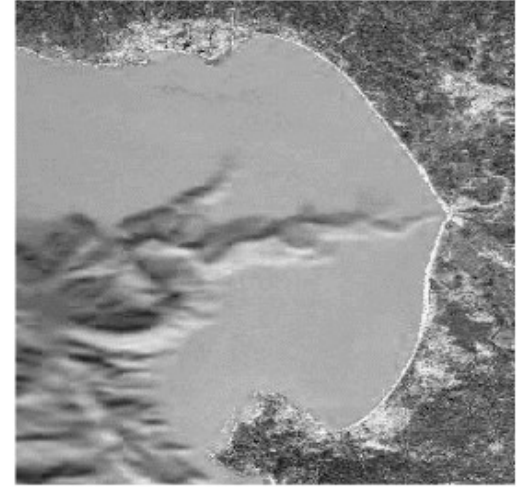
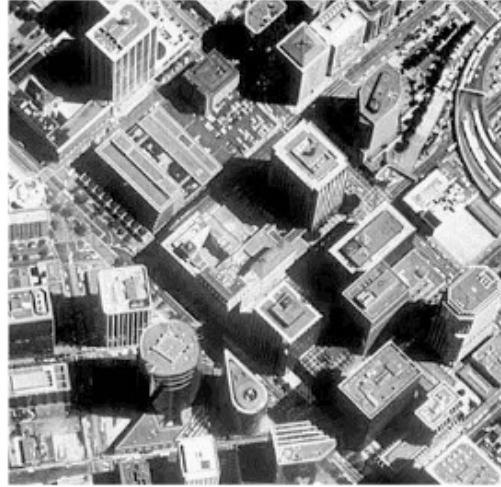


# Sombra





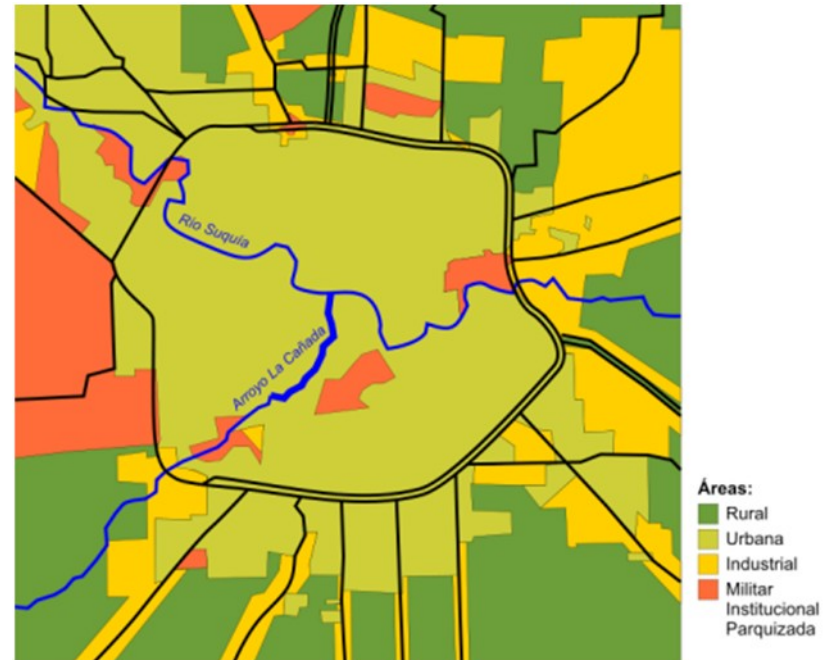
# Profundidad y ubicación



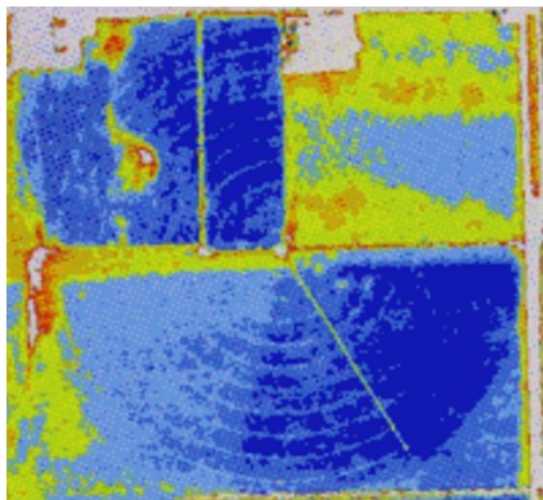
# Cuáles son los usos y aplicaciones de las Imagenes Satelitales ?



## Climatología



## Uso del suelo



Agricultura de  
precisión



Calidad del agua



Inventarios  
forestales





Urbanismo

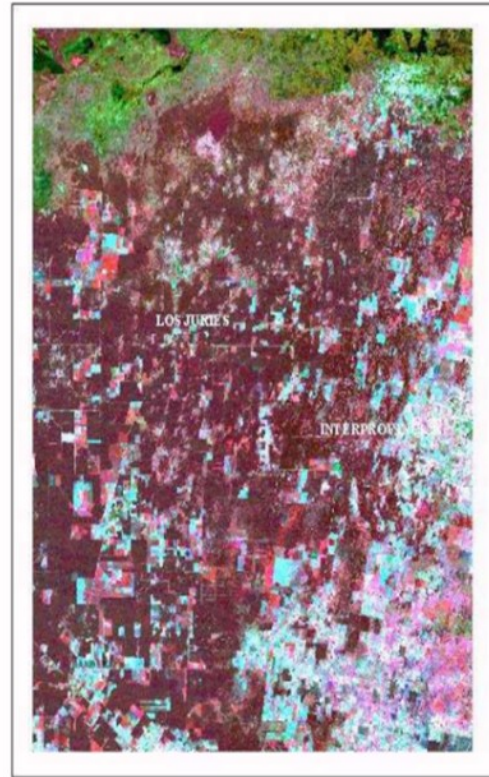
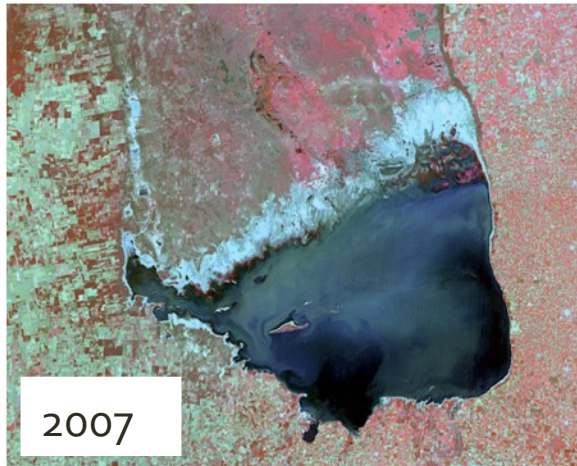
Catastro





Minería





ENERO DE 1986



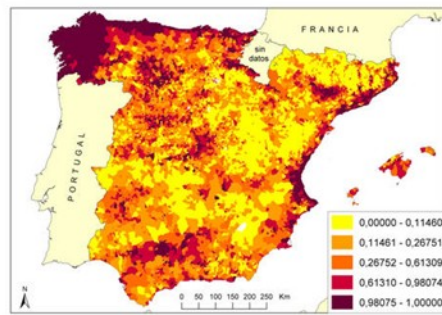
MARZO DE 1997

Marron - monte  
Celeste - rastrojos  
Rojo - cultivos

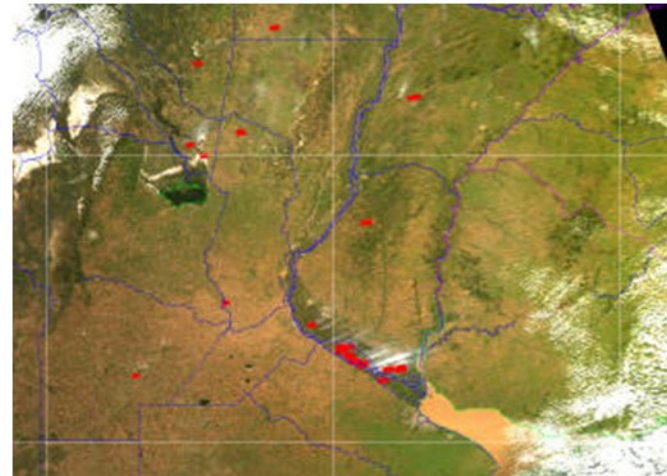
## Análisis multitemporales

Alerta  
temprana

Peligrosidad de  
incendios

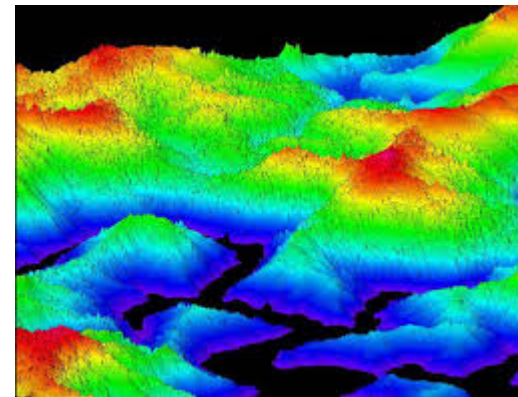
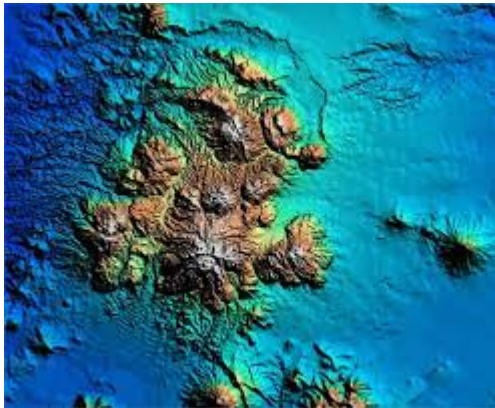
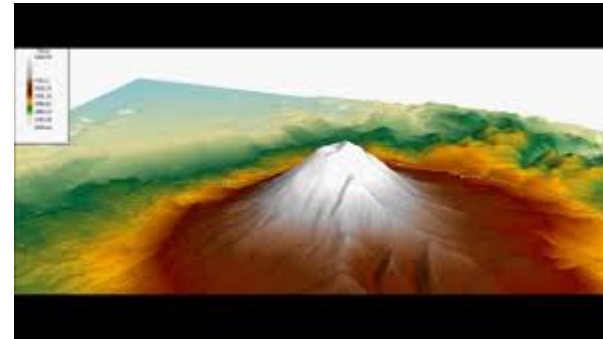
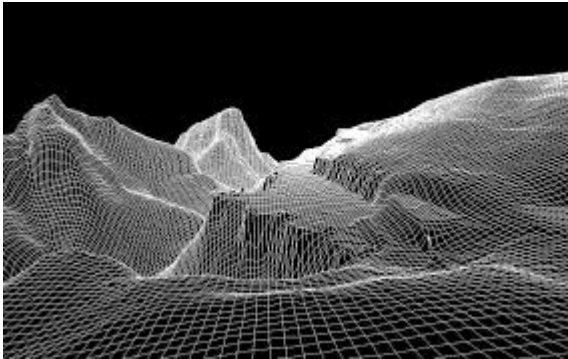


Monitoreo de catástrofes





## Modelos digitales de elevación del terreno (DEM)



# Imágenes Disponibles

- Agua (MODIS)
- Terra (MODIS)
- VIRS (NPP)
- Sentinel 2A 2B
- Sentinel 3
- LandSat 5 7 8
- Sentinel 1A 1B
- Aster
- Carmen
- GOES
- NOAA
- SAOCOM



# Software

- QGIS + GRASS
- SNAP (ESA)
- ORFEO (OBT)
- R + GDAL
- PostgreSQL + Postgis Raster
- Python + GDAL +

# Gracias !!!

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aanthieni@eliteconsulting.com.ar