

# Receiving and Decoding Signal of NOAA Satellite using RTL-SDR

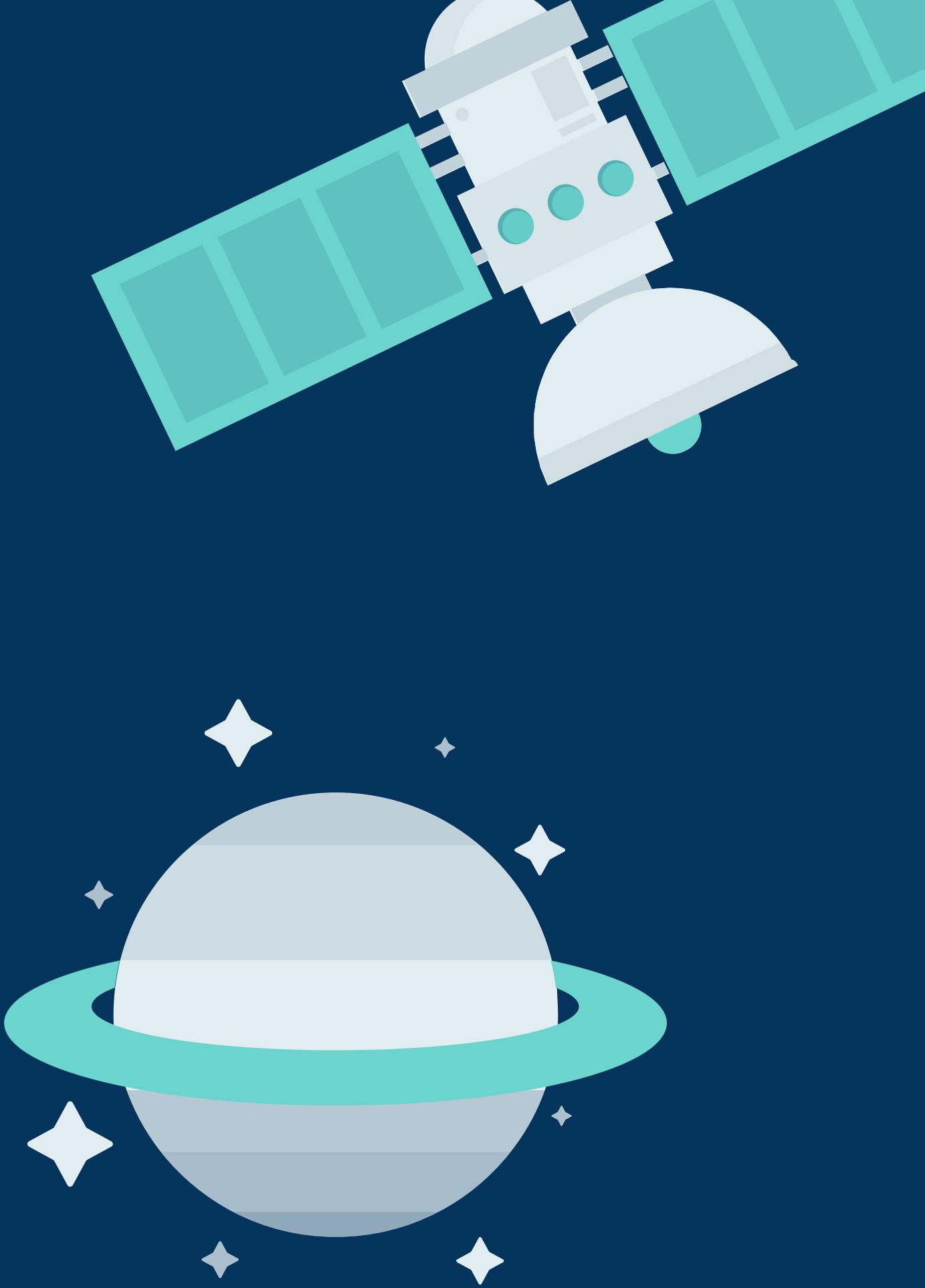


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## About

- National Oceanic and Atmospheric Administration
- Predict our changing environment.
- A polar orbit satellite.
- Altitude of 833 km at an orbital period of 101.5 minutes.
- Provide critical weather data to forecasters and scientists.
- Data used for many purposes like weather forecasting.
- Research into the Earth's atmosphere and oceans





# How can we track NOAA satellite?

## Equipments:

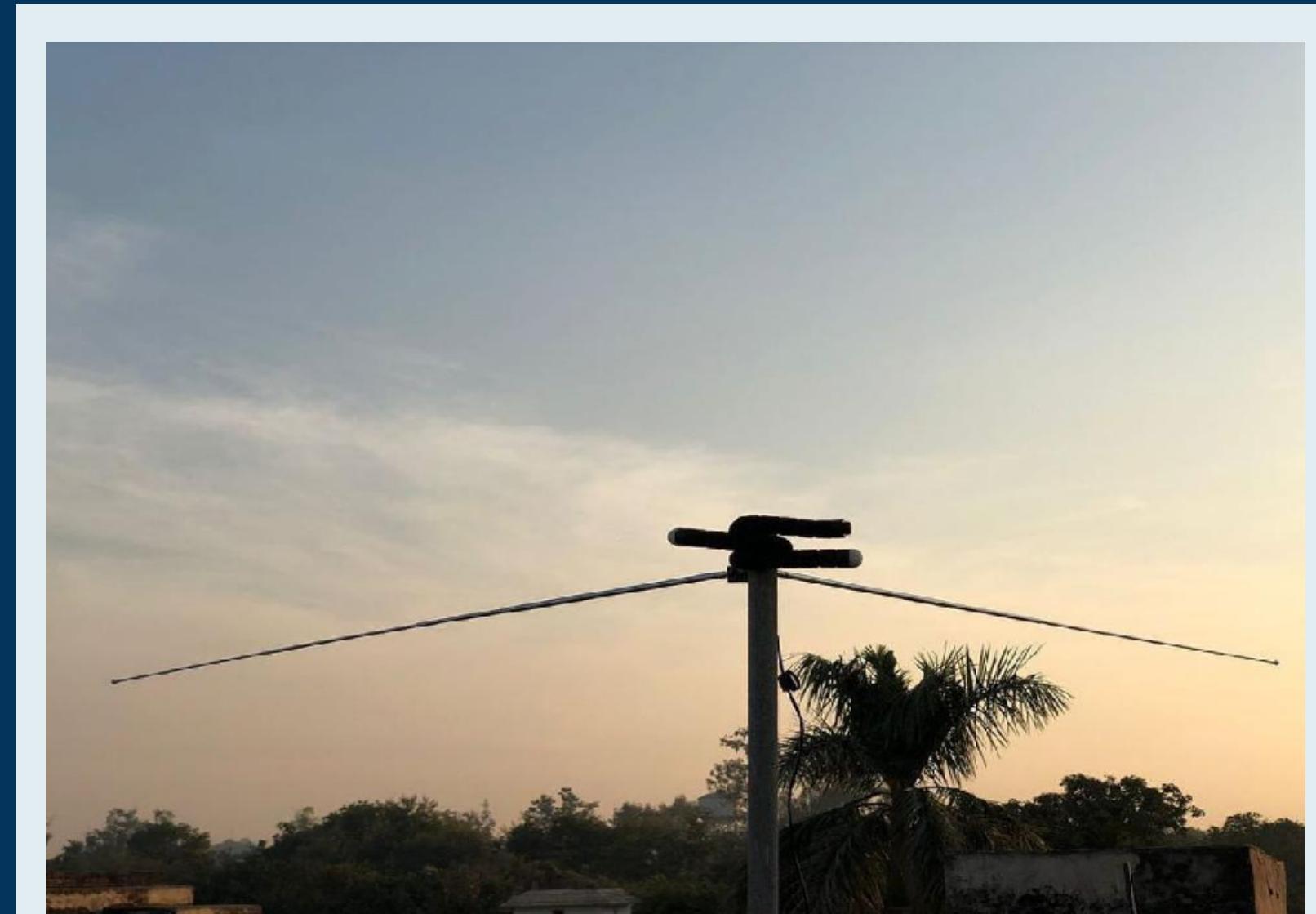
- SDR# OR CUBIC SDR
- WXTOIMG
- G-PREDICT

## Softwares:

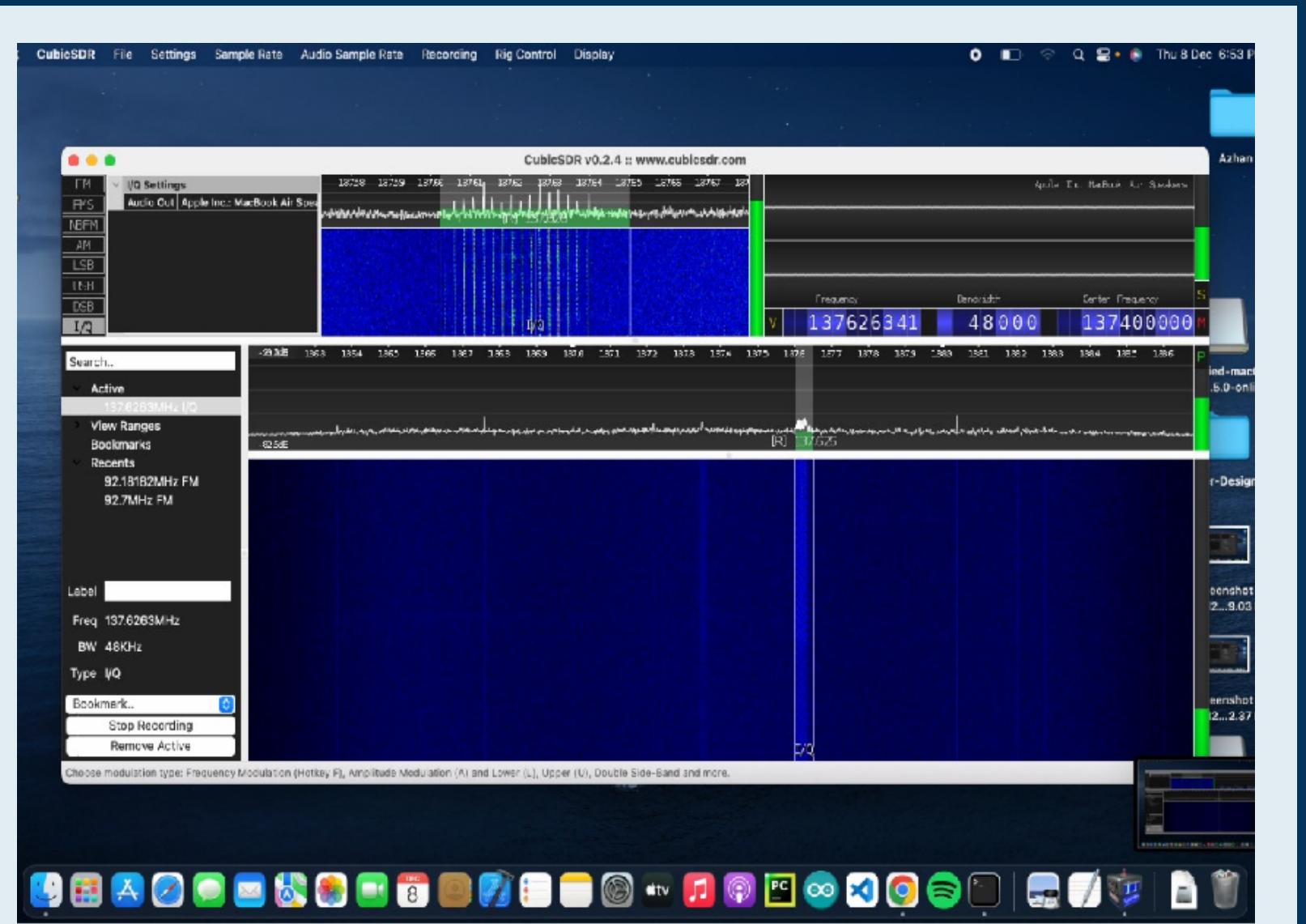
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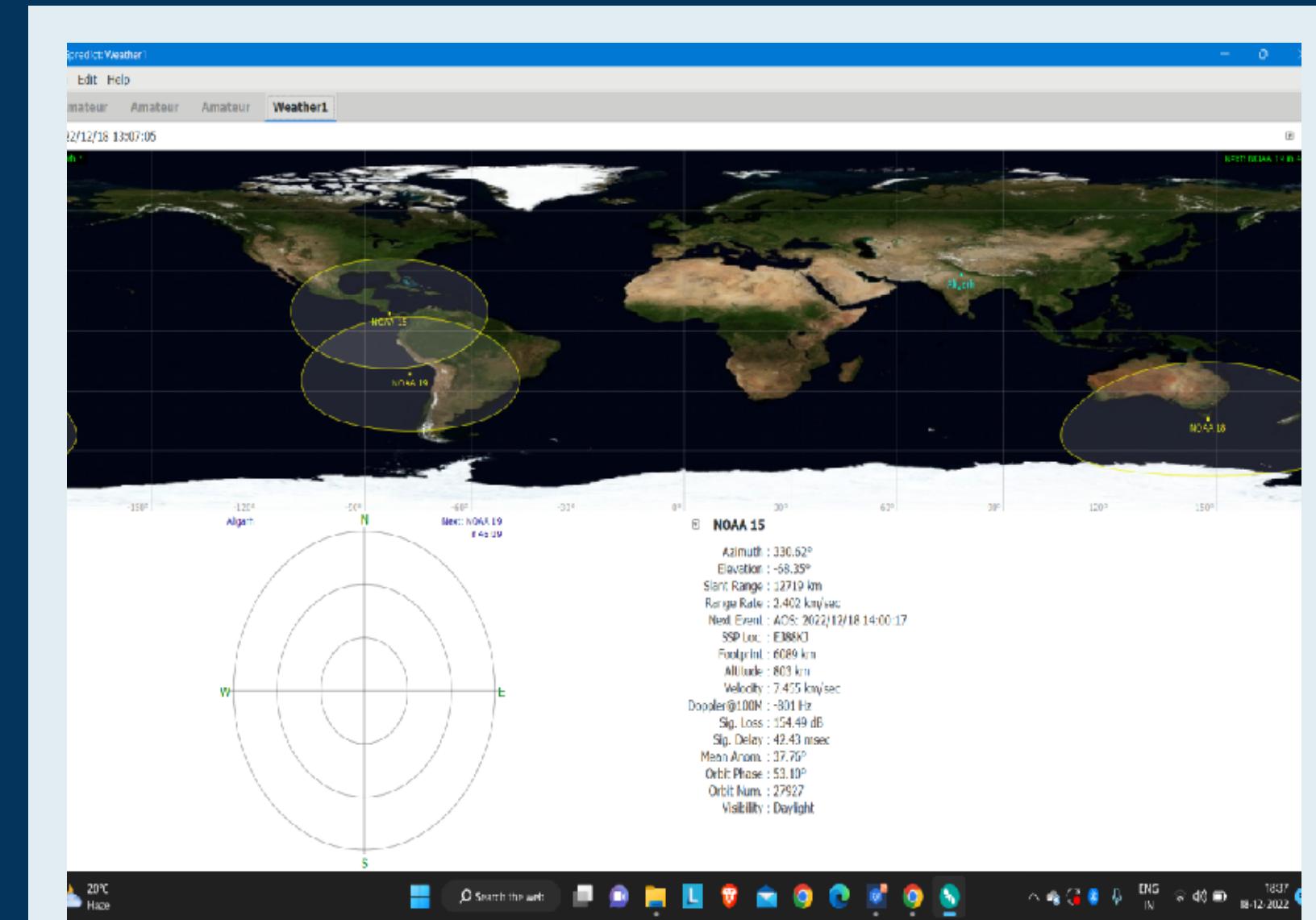
**RTL-SDR**



**V DIPOLE ANTENNA**



# CUBIC-SDR

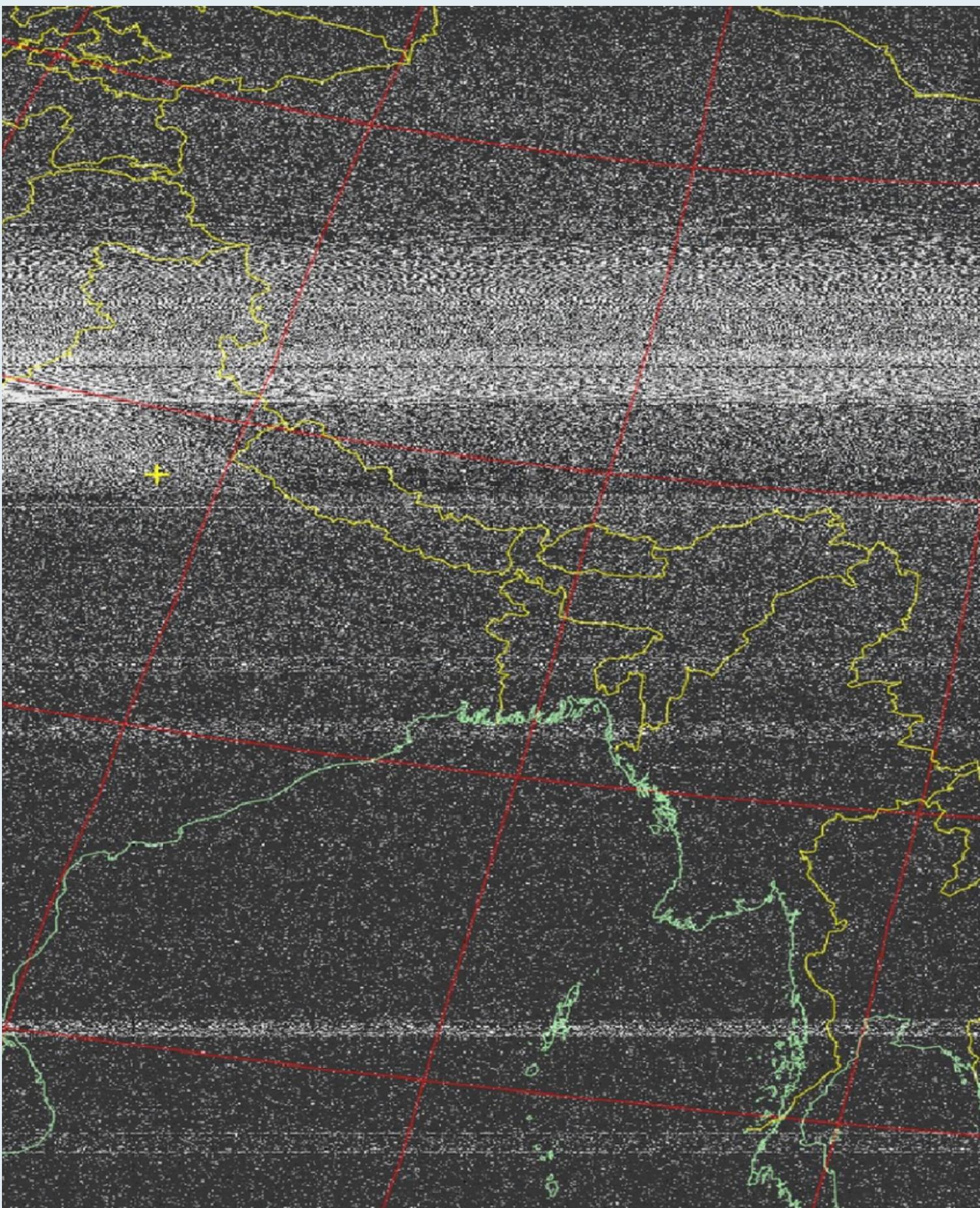


# G-PREDICT

# STEPS TO TRACK NOAA 15 SATELLITE USING RTL-SDR:

- Connect RTL-SDR dongle to the laptop and launch the SDR software.
- Tune the RTL-SDR dongle to the NOAA 15 satellite frequency (137.0MHz).
- Open WXtoImg software and set it to record audio from your SDR software.
- Look up the current NOAA pass schedule for your location on the G-Predict.
- When the satellite is overhead, we should be able to receive its signal with the RTL-SDR and antenna.
- Start recording the satellite's audio signal using WXtoImg.
- Once the pass is complete, stop the recording and use WXtoImg to decode the audio signal and create an image of the received data.





# Decoded Image

# PYTHON LIBRARIES FOR CLEAR IMAGE



## OpenCV

Noise reduction  
Image segmentation



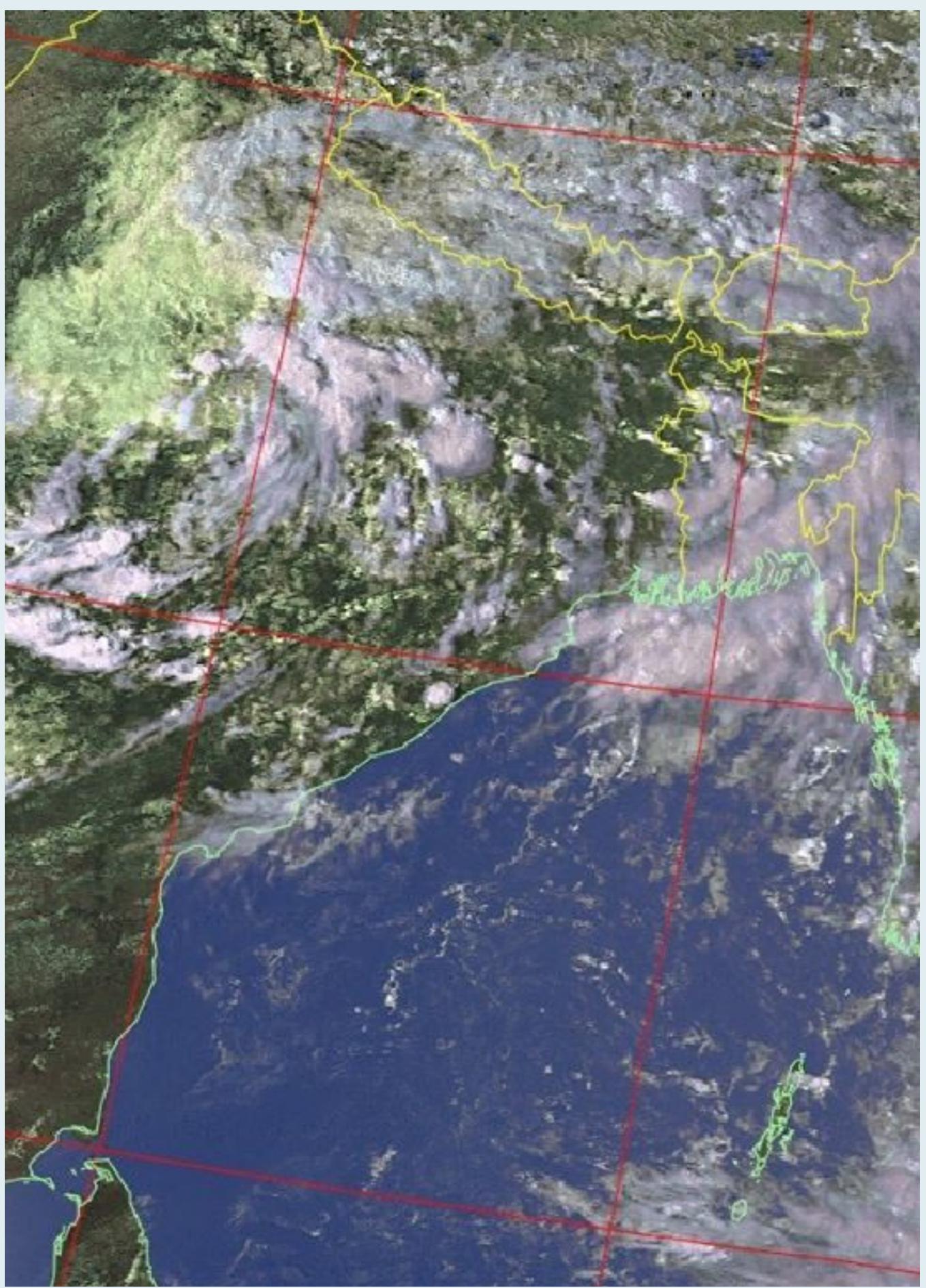
## NumPy

Smoothing, Filtering  
Data manipulation.



## SciKit

Feature extraction Image  
restoration.



**Cleared Image**

# Conclusion



WEATHER AND CLIMATE DATA

SATELLITE TECHNOLOGY

ENVIRONMENTAL MONITORING

CAREER OPPORTUNITIES



Thankyou