



Random Aerospace Projects(Part 1)

Sai Wai Phyo, West Coast
Rocketry

Hi!

- Year 2 Singapore Polytechnic
- Does Rocketry Project(s)!
- Discord Name: Random Aerospace Nerd



HuH?

Singapore is small, but space-related projects are still possible to a certain extent

Projects

- Pulling Images from Weather Satellites
(Part 1)
- Small Hybrid Rocket Motor
(Part 2)

Weather Satellites!

Introduction to NOAA

- A series of weather satellites that are in a 98.7-degree SSO.

Satellites

NOAA-15

NOAA-18

NOAA-19



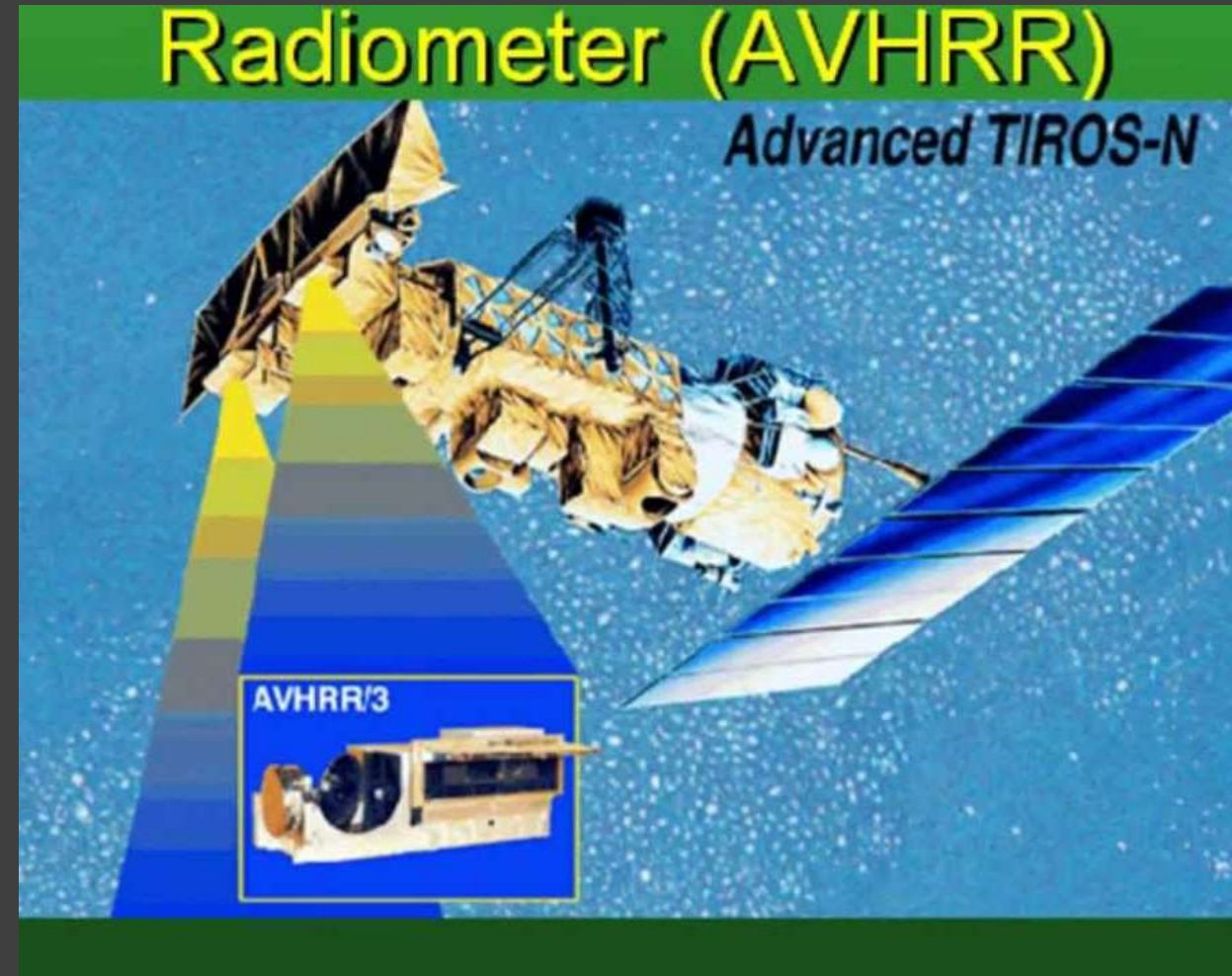
What Data?

The Advanced Very High-Resolution Radiometer (AVHRR)

Broad-band, four or five channel (depending on the model) scanner, sensing in the:

- visible,
- near-infrared
- thermal infrared

portions of the electromagnetic spectrum



How to get the data?

- Using a Software Defined Radio
- Noelc Sawbird Low Noise Amplifier (Optional)



Hardware

- Buy the RTLSDR kit from Amazon
- Camera Tripod







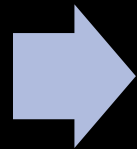
Software Setup

NOAA:

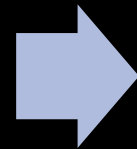
- SDRSharp
- Gpredict
- Wxtolmg



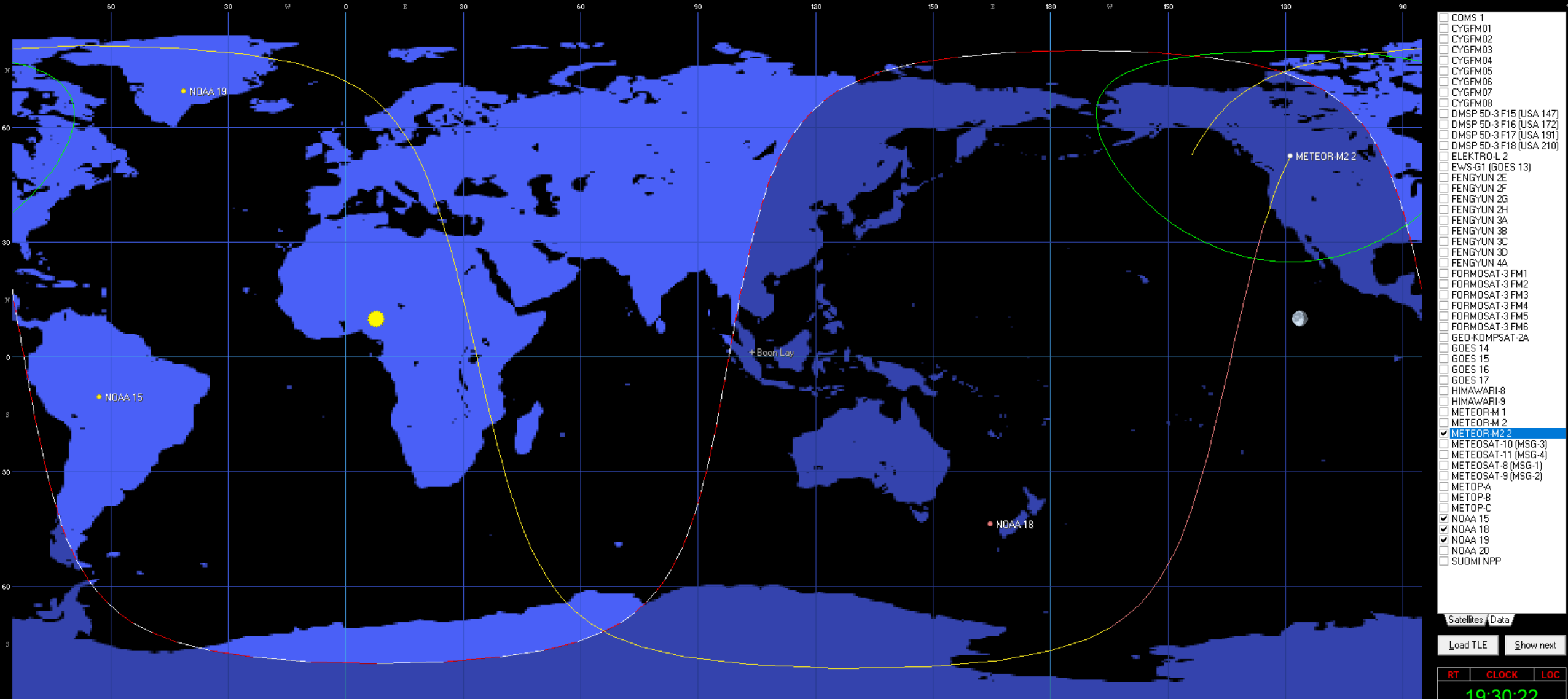
Gpredict/Orbitron



SDRsharp



Wxtoimg



- ☐ COMS 1
- ☐ CYGFM01
- ☐ CYGFM02
- ☐ CYGFM03
- ☐ CYGFM04
- ☐ CYGFM05
- ☐ CYGFM06
- ☐ CYGFM07
- ☐ CYGFM08
- ☐ DMSP 5D-3 F15 (USA 147)
- ☐ DMSP 5D-3 F16 (USA 172)
- ☐ DMSP 5D-3 F17 (USA 191)
- ☐ DMSP 5D-3 F18 (USA 210)
- ☐ ELEKTRO-L 2
- ☐ EWS-G1 (GOES 13)
- ☐ FENGYUN 2E
- ☐ FENGYUN 2F
- ☐ FENGYUN 2G
- ☐ FENGYUN 2H
- ☐ FENGYUN 3A
- ☐ FENGYUN 3B
- ☐ FENGYUN 3C
- ☐ FENGYUN 3D
- ☐ FENGYUN 4A
- ☐ FORMOSAT-3 FM1
- ☐ FORMOSAT-3 FM2
- ☐ FORMOSAT-3 FM3
- ☐ FORMOSAT-3 FM4
- ☐ FORMOSAT-3 FM5
- ☐ FORMOSAT-3 FM6
- ☐ GEO-KOMPSAT-2A
- ☐ GOES 14
- ☐ GOES 15
- ☐ GOES 16
- ☐ GOES 17
- ☐ HIMAWARI-8
- ☐ HIMAWARI-9
- ☐ METEOR-M 1
- ☐ METEOR-M 2
- ☒ METEOR-M2 2
- ☐ METEOSAT-10 (MSG-3)
- ☐ METEOSAT-11 (MSG-4)
- ☐ METEOSAT-8 (MSG-1)
- ☐ METEOSAT-9 (MSG-2)
- ☐ METOP-A
- ☐ METOP-B
- ☐ METOP-C
- ☒ NOAA 15
- ☒ NOAA 18
- ☒ NOAA 19
- ☐ NOAA 20
- ☐ SUOMI NPP

Satellites / Data

Load TLE Show next

RT CLOCK LOC
19:30:22
2021-08-27



Mode
☒ Real time
☐ Simulation

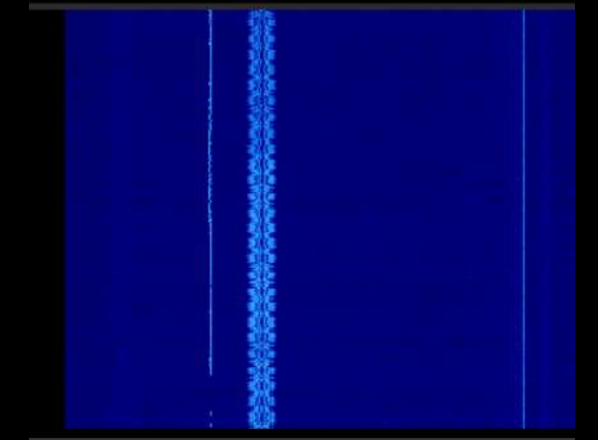
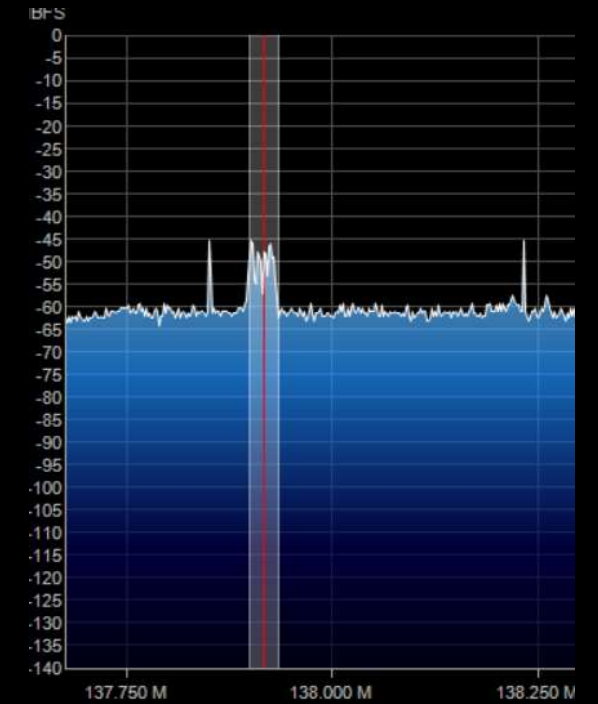
Time
☒ Local
☐ UTC

2021-08-27 19:30:22
5 minutes
<<< < > >>>

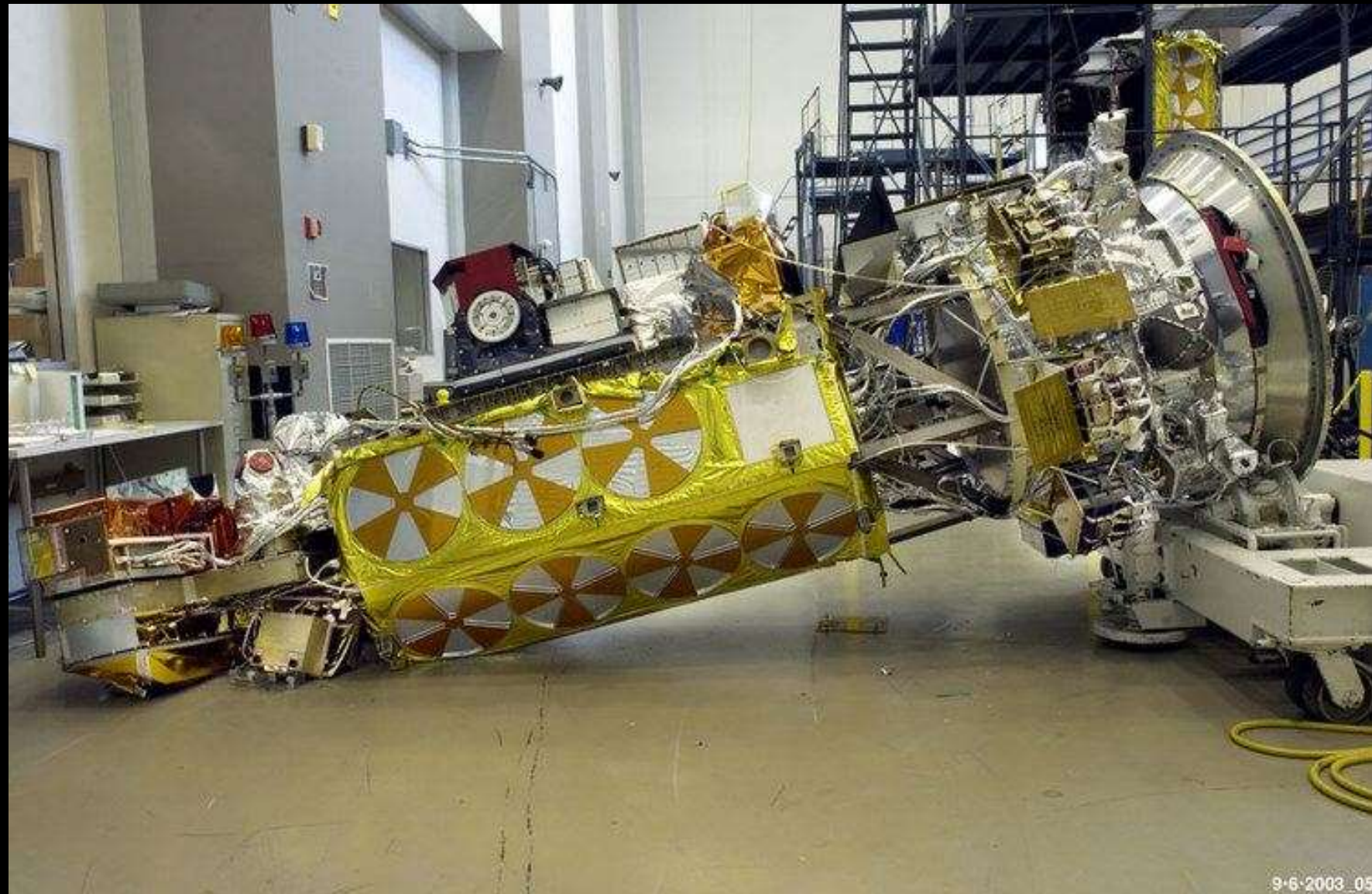
38.9952° W, 69.6429° N [HP09mp]

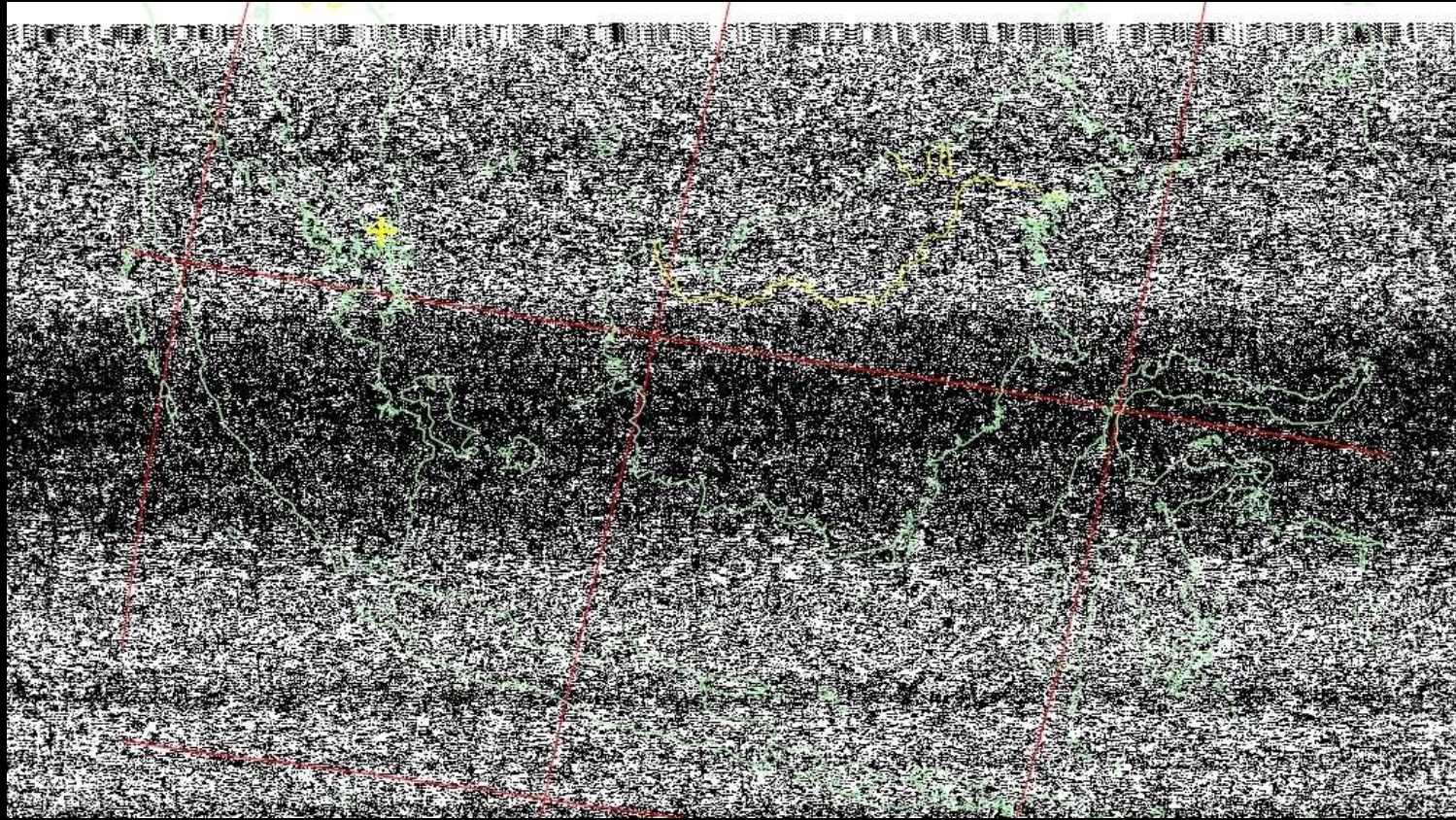
Main Visualisation Location Sat/Orbit info Prediction setup Prediction Rotor/Radio About ?



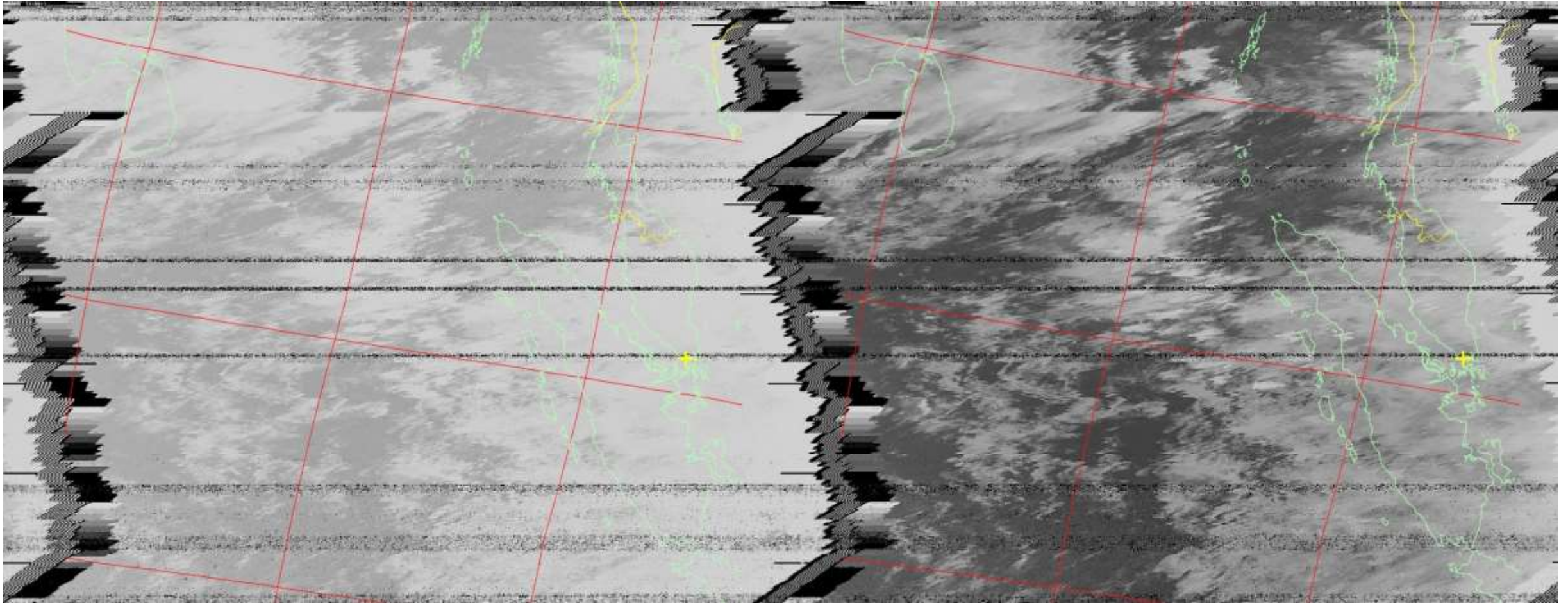


How does it sound like?

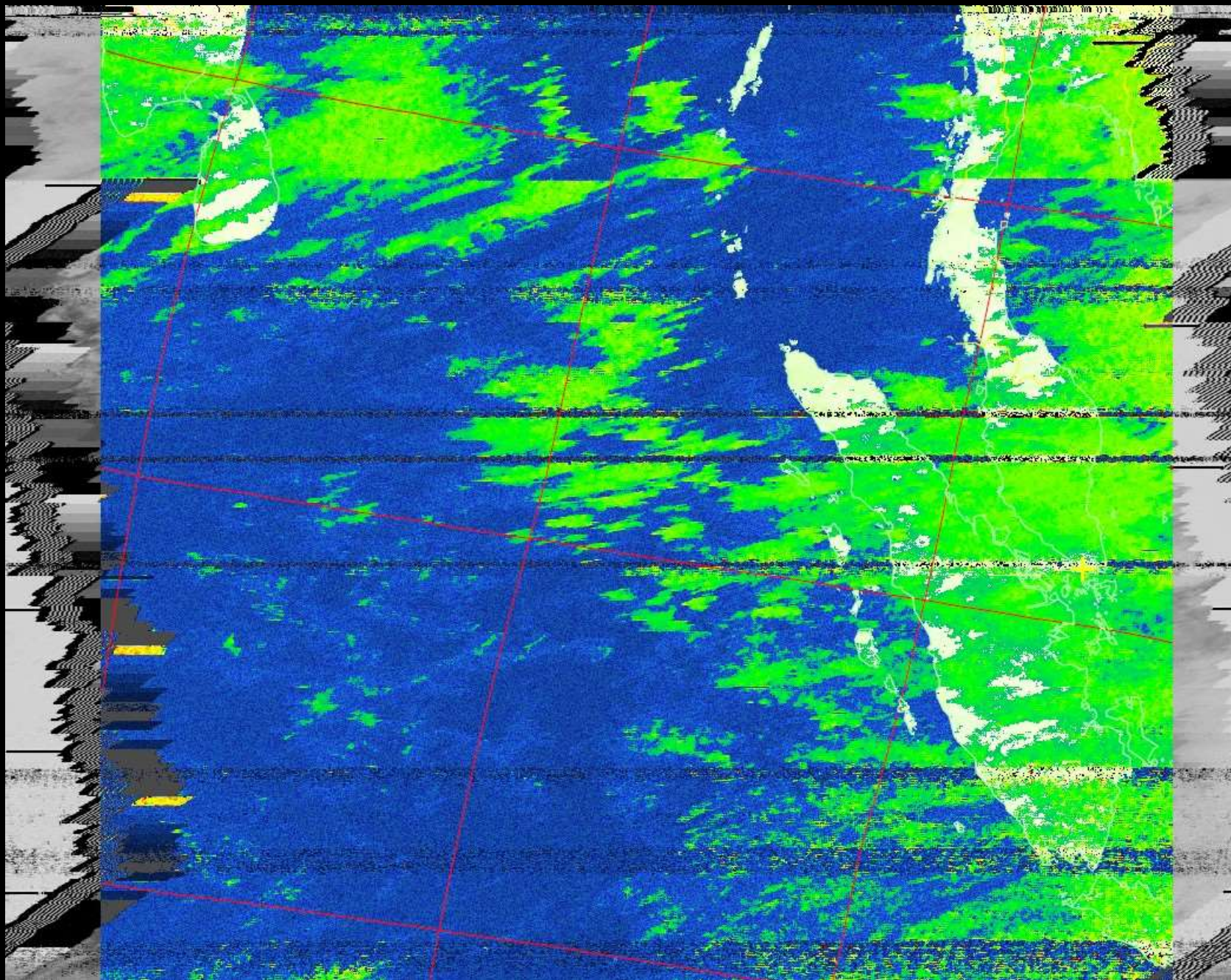


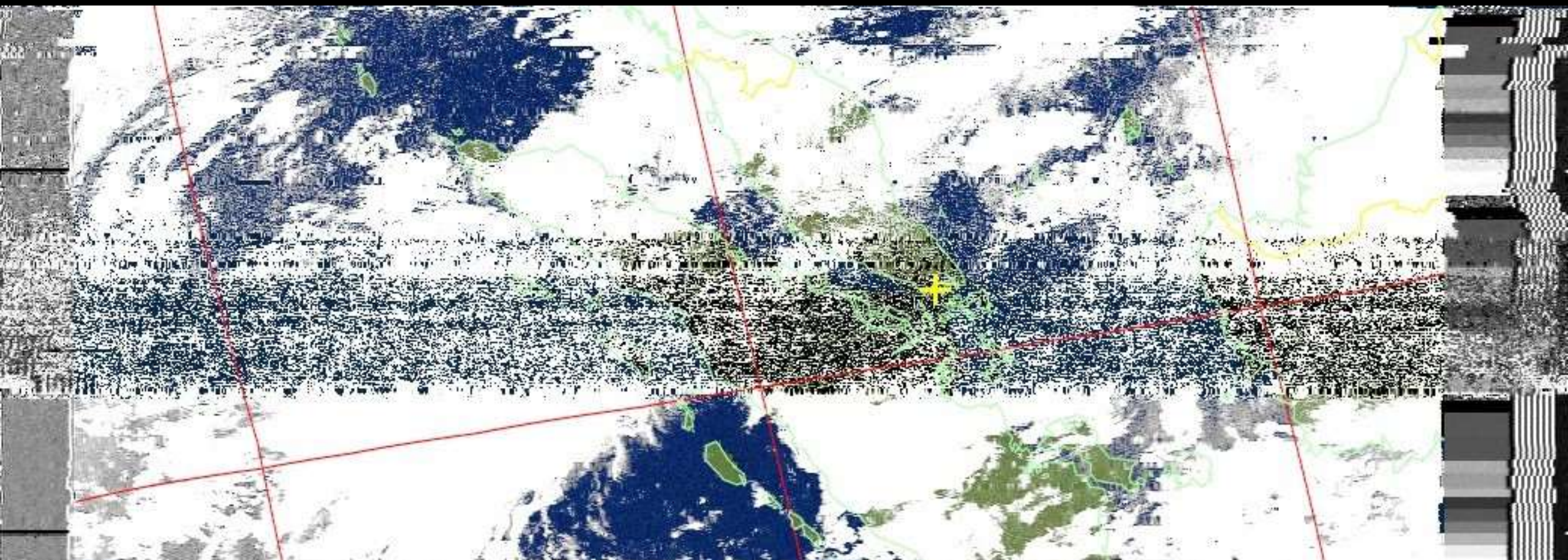


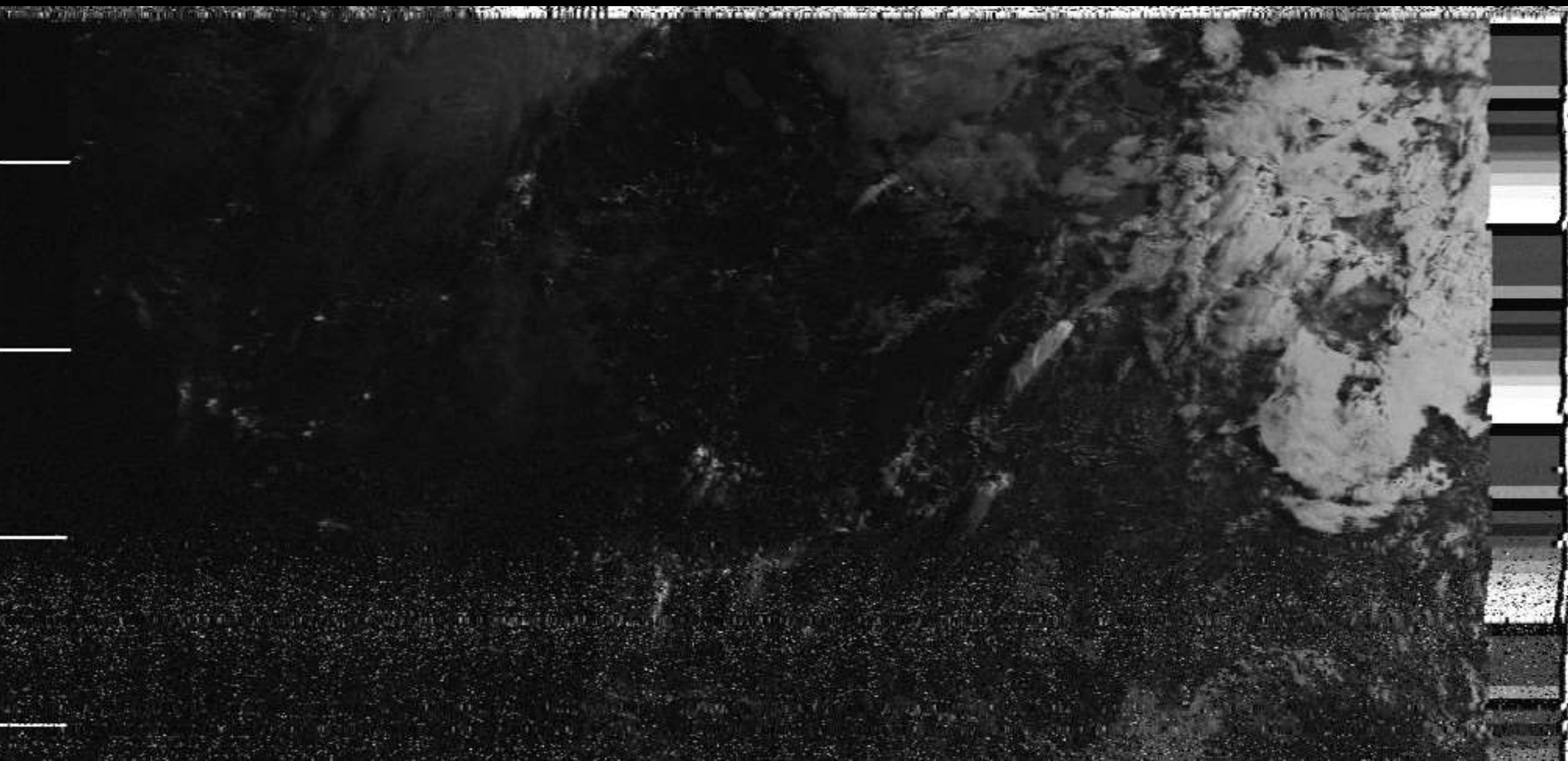
Images

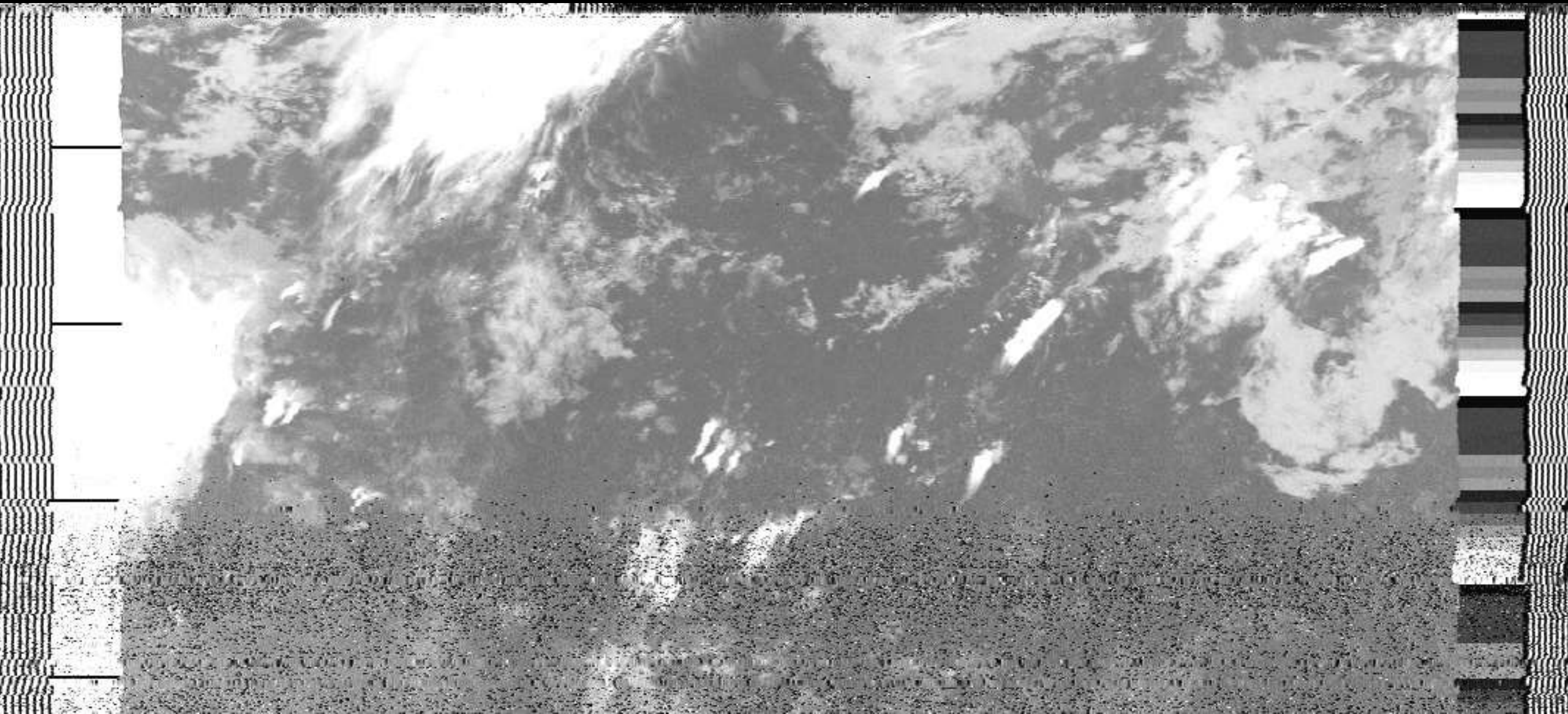


Still trying

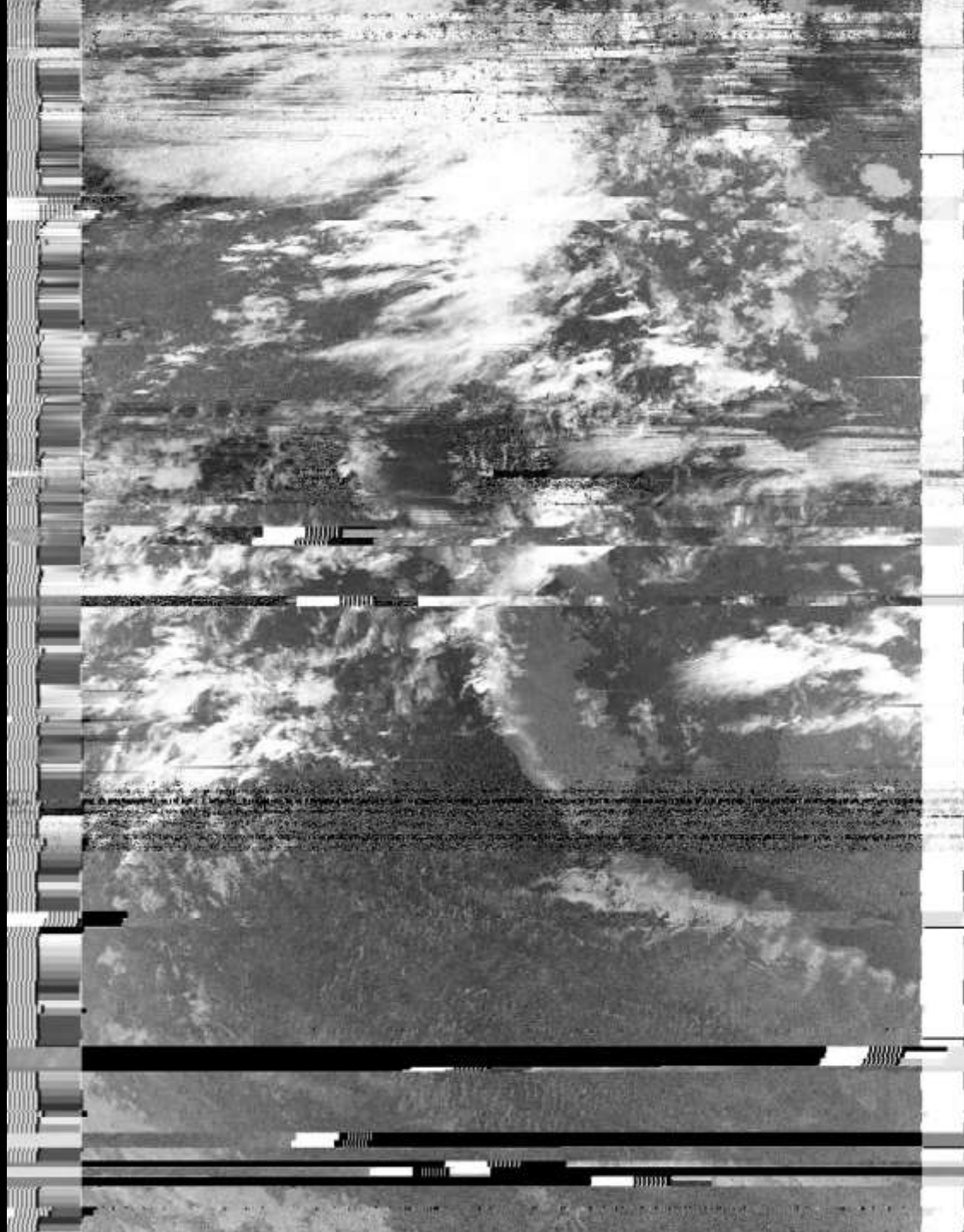


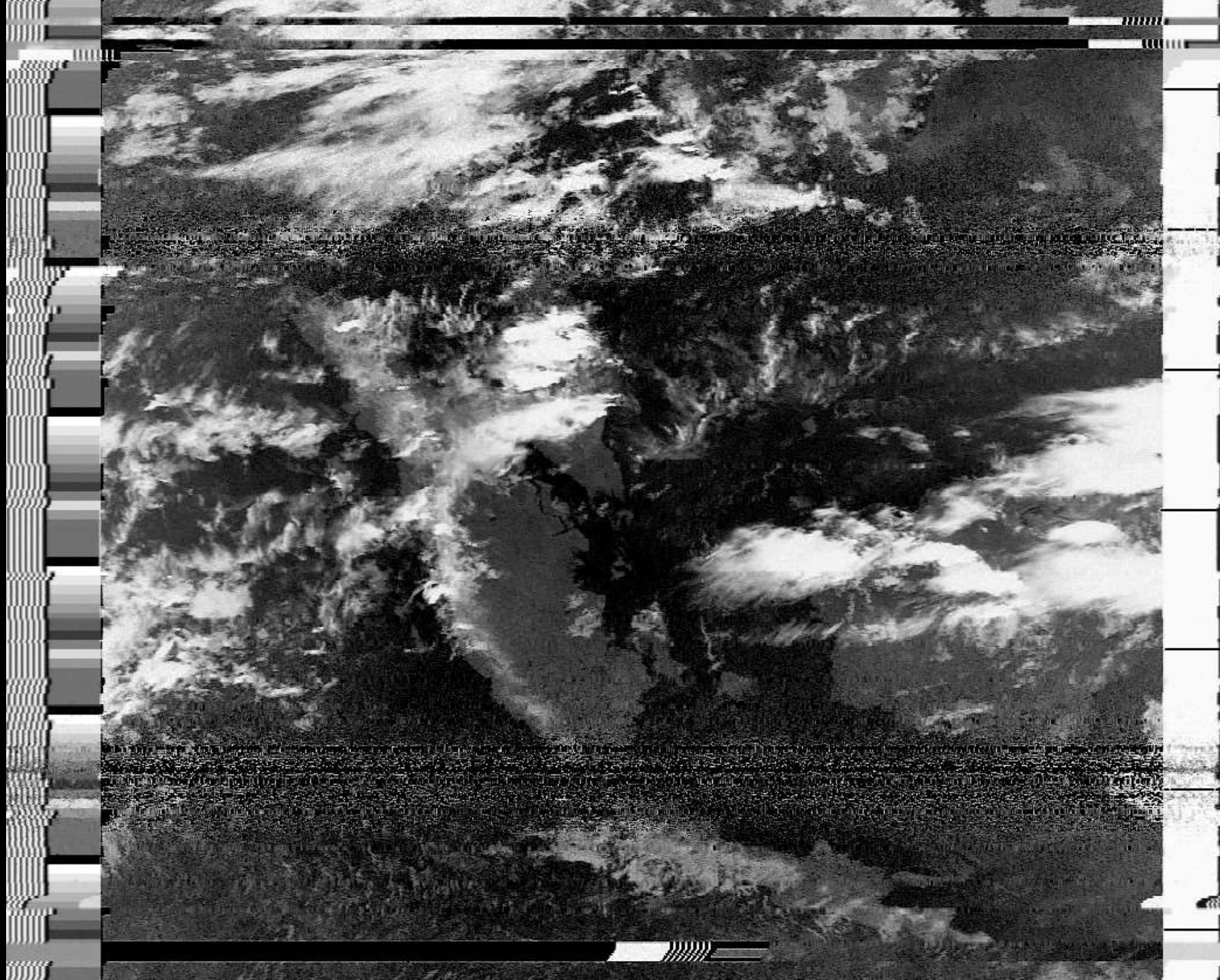




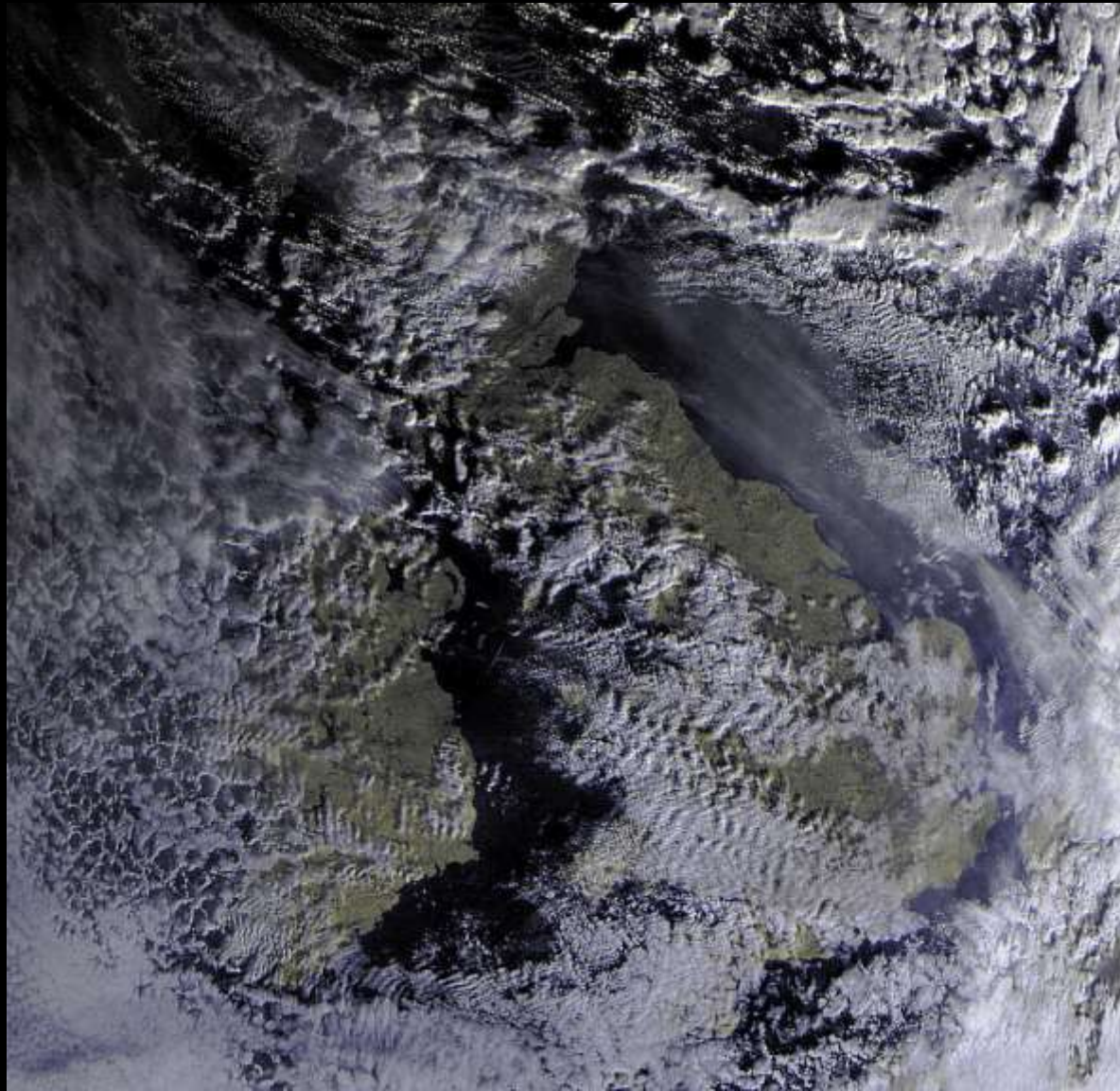








Next? METEOR



Sources

- RTL SDR kit:

- https://www.aliexpress.com/item/32936334224.html?pdp_ext_f=%7B%22sku_id%22:%2266232024592%22,%22ship_from%22:%22%22%7D&gps-id=pcStoreJustForYou&scm=1007.23125.137358.0&scm_id=1007.23125.137358.0&scm-url=1007.23125.137358.0&pvid=69cb0058-0b6c-4184-8a5b-3601b0762e2e&spm=a2g0o.store_pc_home.smartJustForYou_828478957.0

- Software Setup:

- <https://www.youtube.com/watch?v=bYpTsersKX8&t=319s>

- 3D printed Bracket:

- <https://www.thingiverse.com/thing:4391048>