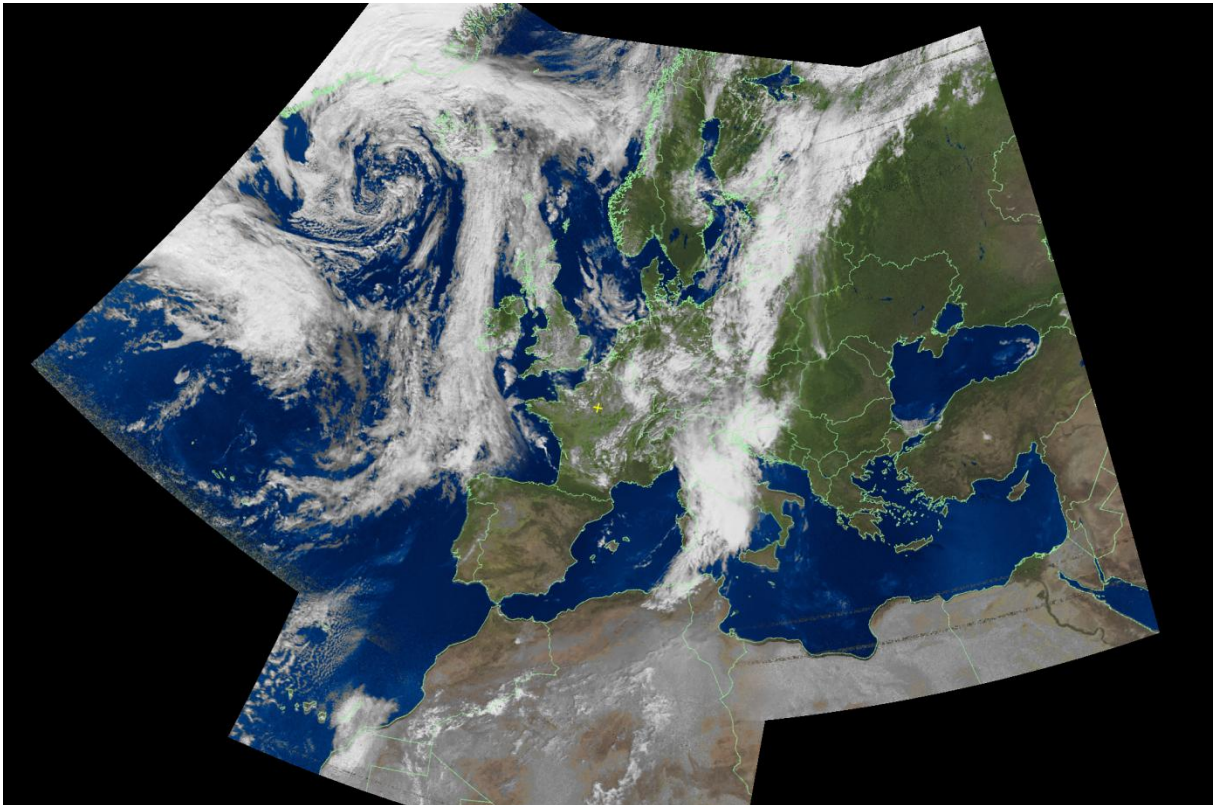


# ***CONTACT2020***

## ***GLOBAL GROUND STATION COMPETITION***

**COMPETITION CATEGORIES:**

**CAT 1 : NOAA/METEOR**



**F4IKX - Pascal MARTIN - JN18FJ**

## Preamble

Thank you for this great initiative which allows me to participate in this competition in the category CAT1: NOAA / METEOR.

I am sure that many of us will participate, sending you images from all over the world.

---

My name is MARTIN

My first name is Pascal

My satellite reception station is located in FRANCE in JN18FJ in the town of ONCY sur ECOLE, 60 km south of the capital PARIS.

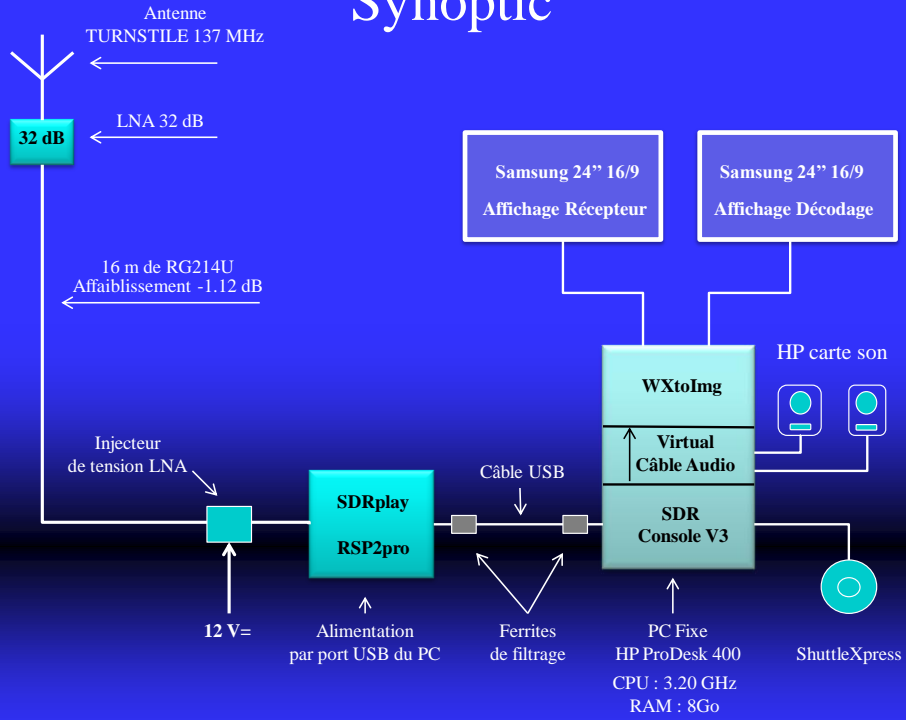
My amateur radio callsign is F4IKX.

My email address is: F4IKX@free.fr

---

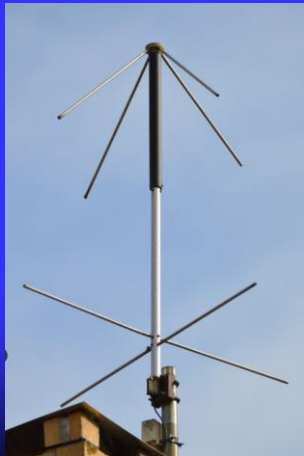


# Synoptic



Pascal F4IKX

## 137 MHz antenna



- Frequency range 135 - 152 MHz
- Right circular polarization
- Impédance: 50Ω
- Standing wave ratio <2: 1
- Cable tail connection
- Total height: 1300 mm
- Diameter 1065 mm
- Weight: 2 kg
- Mast diameter max: 50 mm
- Réf. WIMO 18350

Omnidirectional TURNSTILE antenna composed of two half-wave dipoles offset by 90 ° with respect to each other forming a cross.

Pascal F4IKX

## The antenna preamplifier



Located as close as possible to the antenna..

It is self-powered by its coaxial cable.

Announced gain 32 dB between 136 and 138 MHz

It has been in place on the mast of my TURNSTILE antenna for over 20 years

Pascal  
F4IKX

## Le Rx SDR RSP2pro



1 kHz to 2 GHz reception range

Up to 10 MHz of screen bandwidth - 12-bit sampling

Software-adjustable LNA preamplifier - Software-switchable antenna connectors

Antenne A : 1.5 MHz à 2 GHz – 40 dB adjustable gain

Antenne B : 1.5 MHz à 2 GHz – 40 dB adjustable gain - 4.7 Vdc output (Bias-T)

Antenne High Z : 1 kHz à 30 MHz – 18 dB adjustable gain

Pascal  
F4IKX

## PCs and Screens



- Pc HP ProDesk 400 G2 MT
- Processeur : Intel Pentium
- CPU : G3250 – 3.20 GHz
- Ram : 8 Go
- Disque dur 450 Go
- Win 7 Pro SP1



- SAMSUNG Flat Screens
- S24E450
- LCD 24" (61 cm)
- Format 1920x1080 wide 16:9

Pascal  
F4IKX

## VFO SDR dial



Allows you to control by USB the frequency change of SDR software and to find the classic operation of a VFO on SDR radio equipment.

It includes 5 programmable buttons (by software), a central rubber jog wheel and a rotary wheel in the center with a recess to turn it with the index finger.

Pascal  
F4IKX

# Software configuration

- **WXtrack** – Orbit Predictor  
Satellite pass prediction software, graphical display and more.
- **SDR Console V3.0**  
Full control of the Rx SDRPlay RSP2.
- **WxToImg V2.10.11**  
Management of decoding of APT frames, display and post-processing of images.
- **VB – Audio Virtual Câble**  
Virtually connects the sound output of the Rx SDR to the microphone input of the PC
- **DS Clock 2.6.3**  
Synchronizes the PC clock with an atomic time server.

Pascal  
F4IKX

# My two images for the competition.

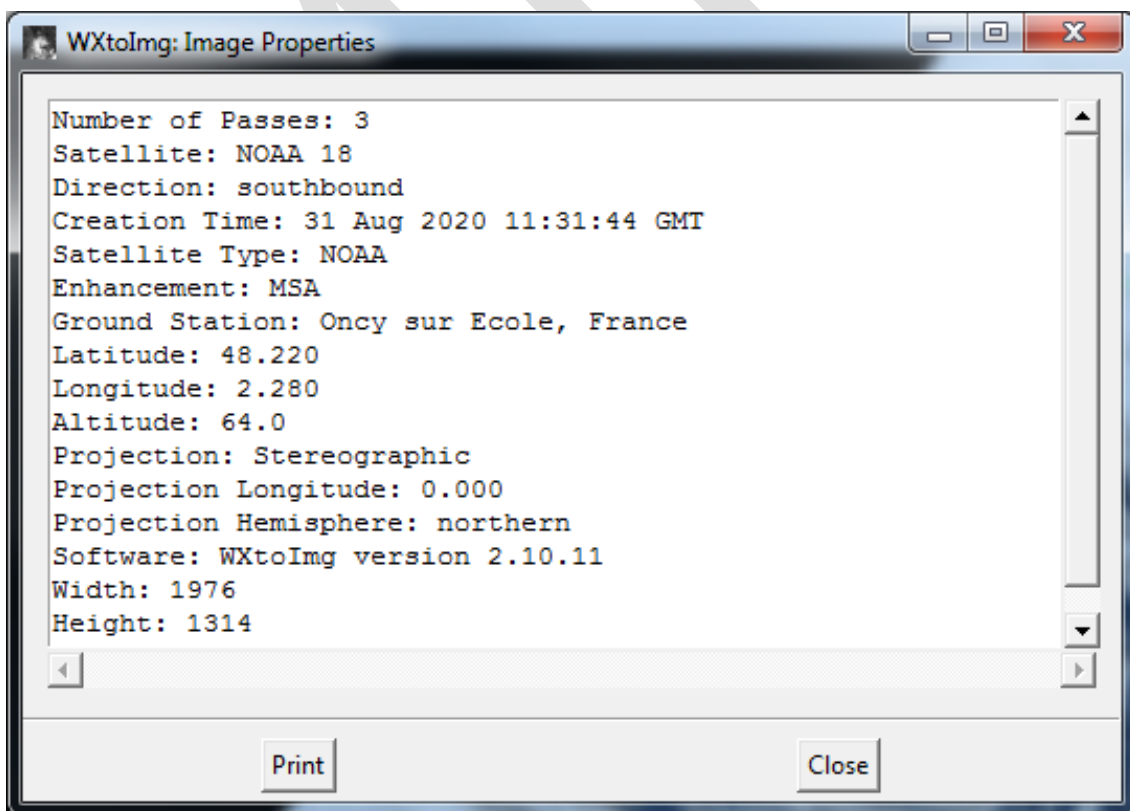
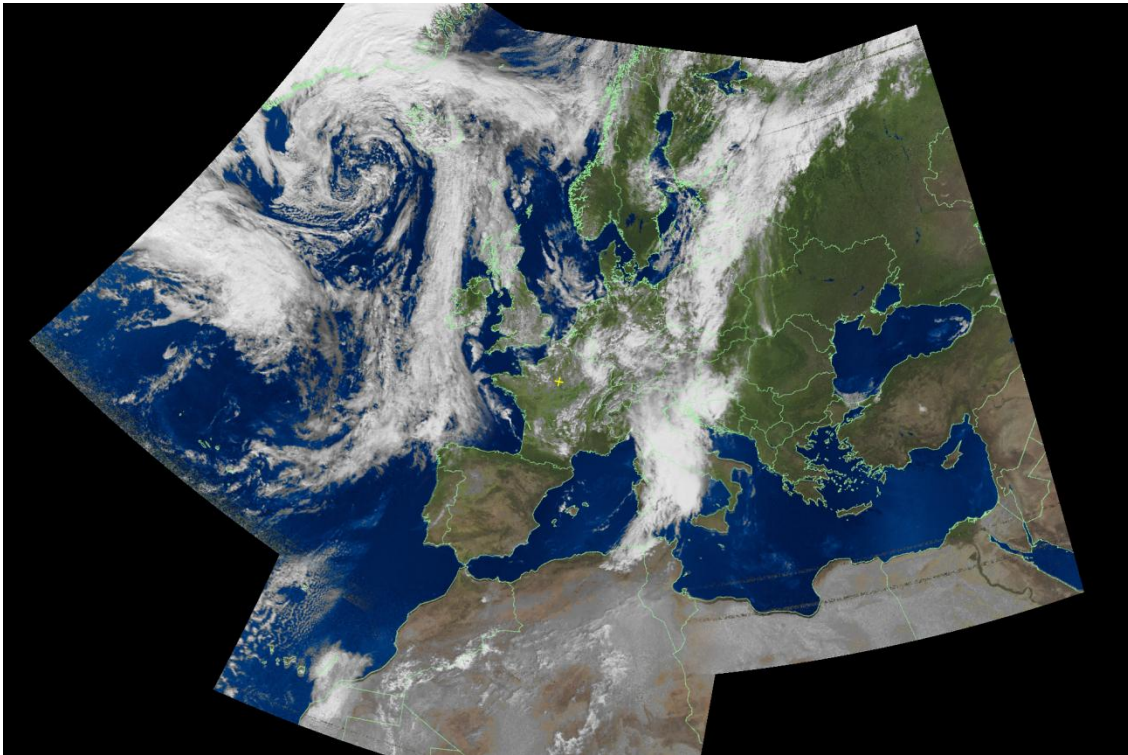
The first is a composite image of three successive passes of the NOAA18 satellite.

The second image is that of a descending node passage of NOAA18.

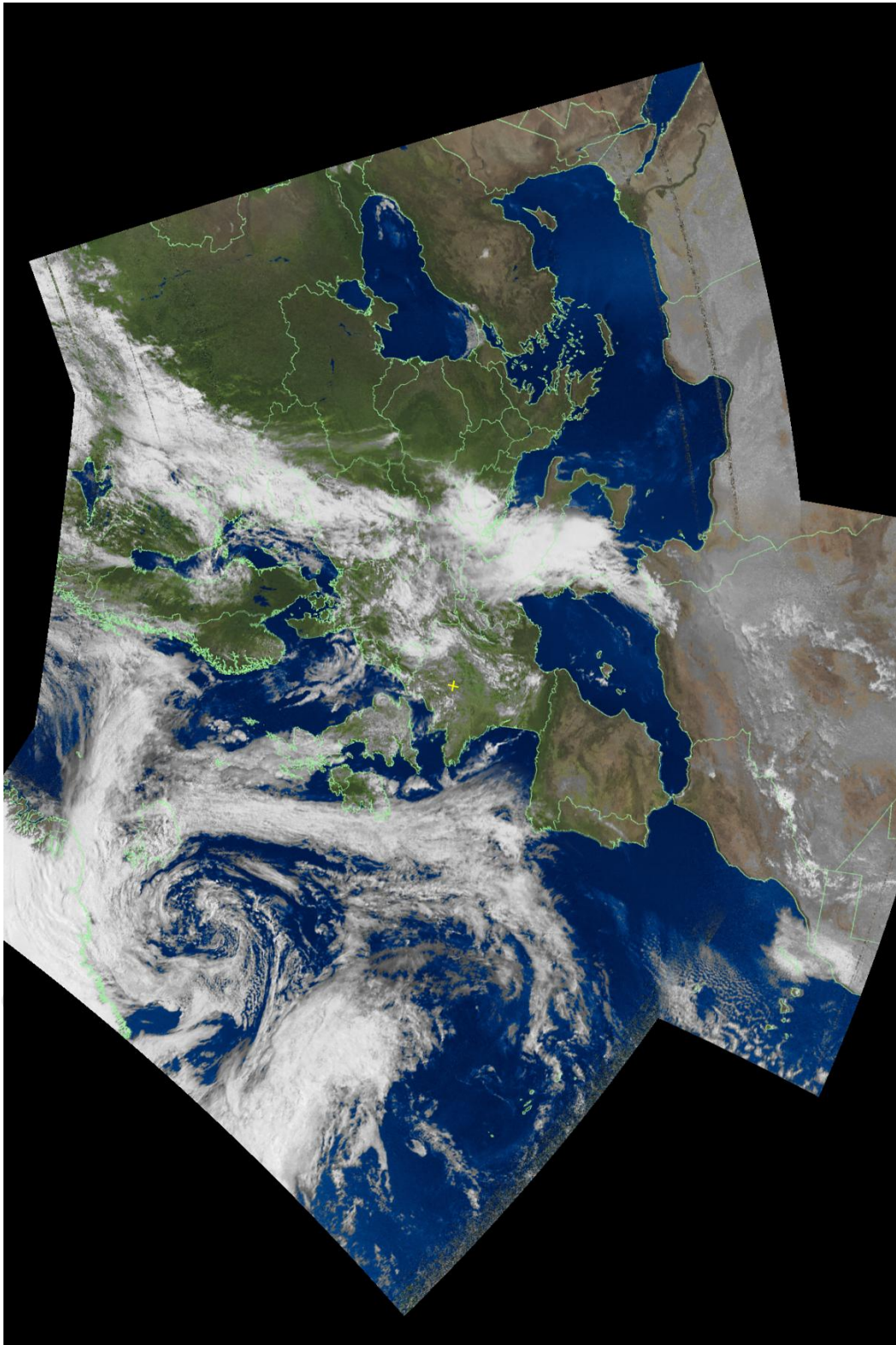
With its two images, you will find attached the following files:

- The image in .png format
- The RAW image .png file
- the Audio files .wave file
- the WXtoImg Image Properties detail

## First image in composite format







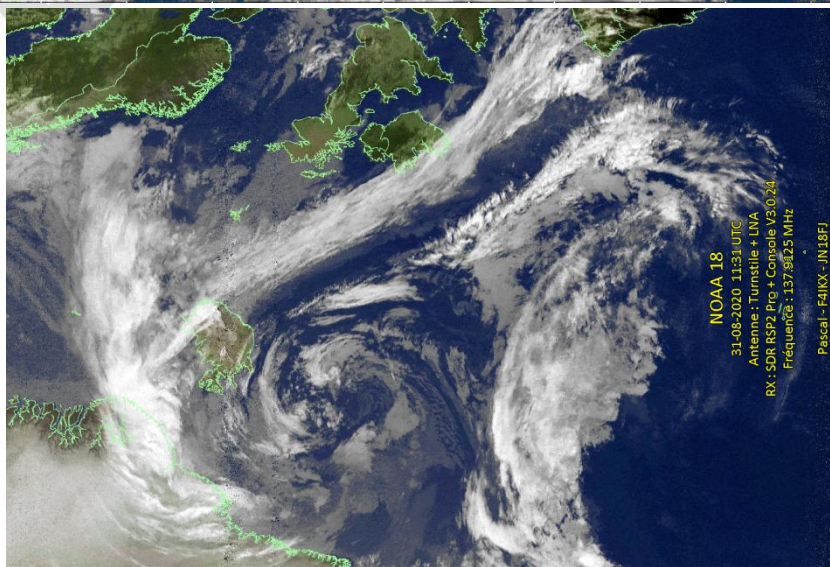
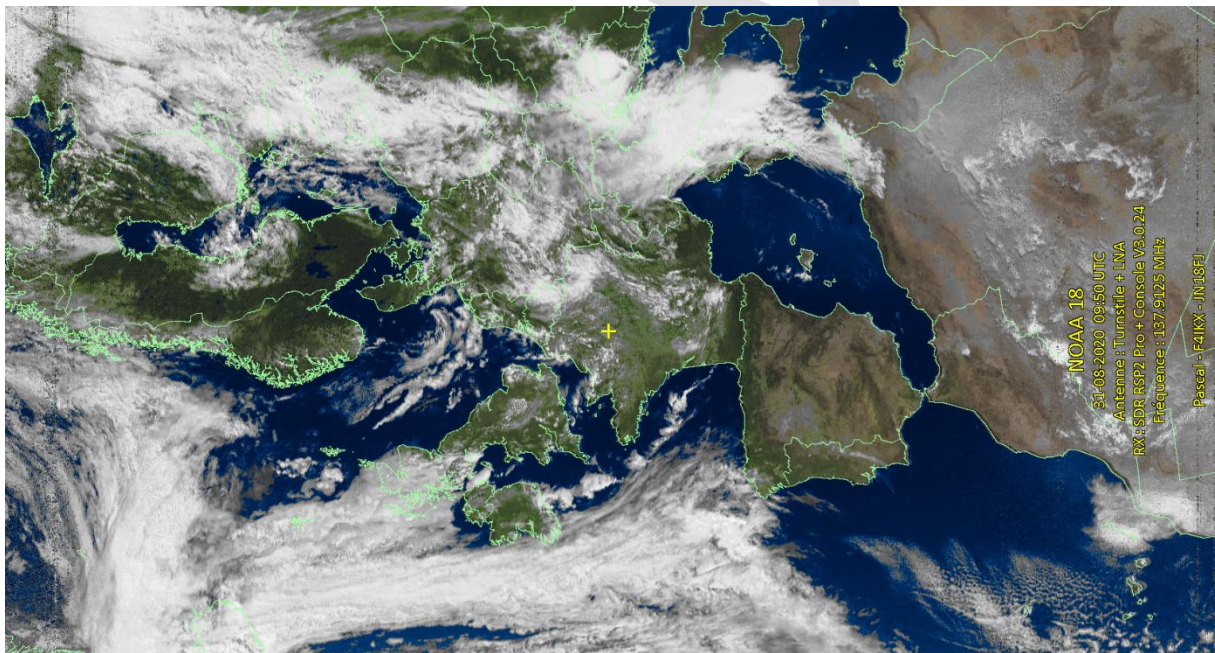
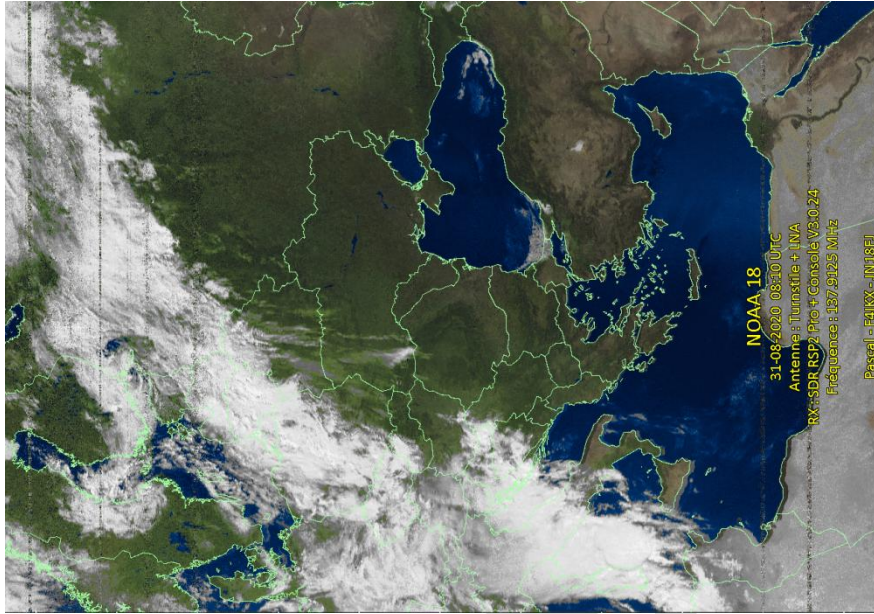
Composite NOAA18 31/08/2020

NOAA18 31/08/2020 à 0810 UTC

NOAA18 31/08/2020 à 0950 UTC

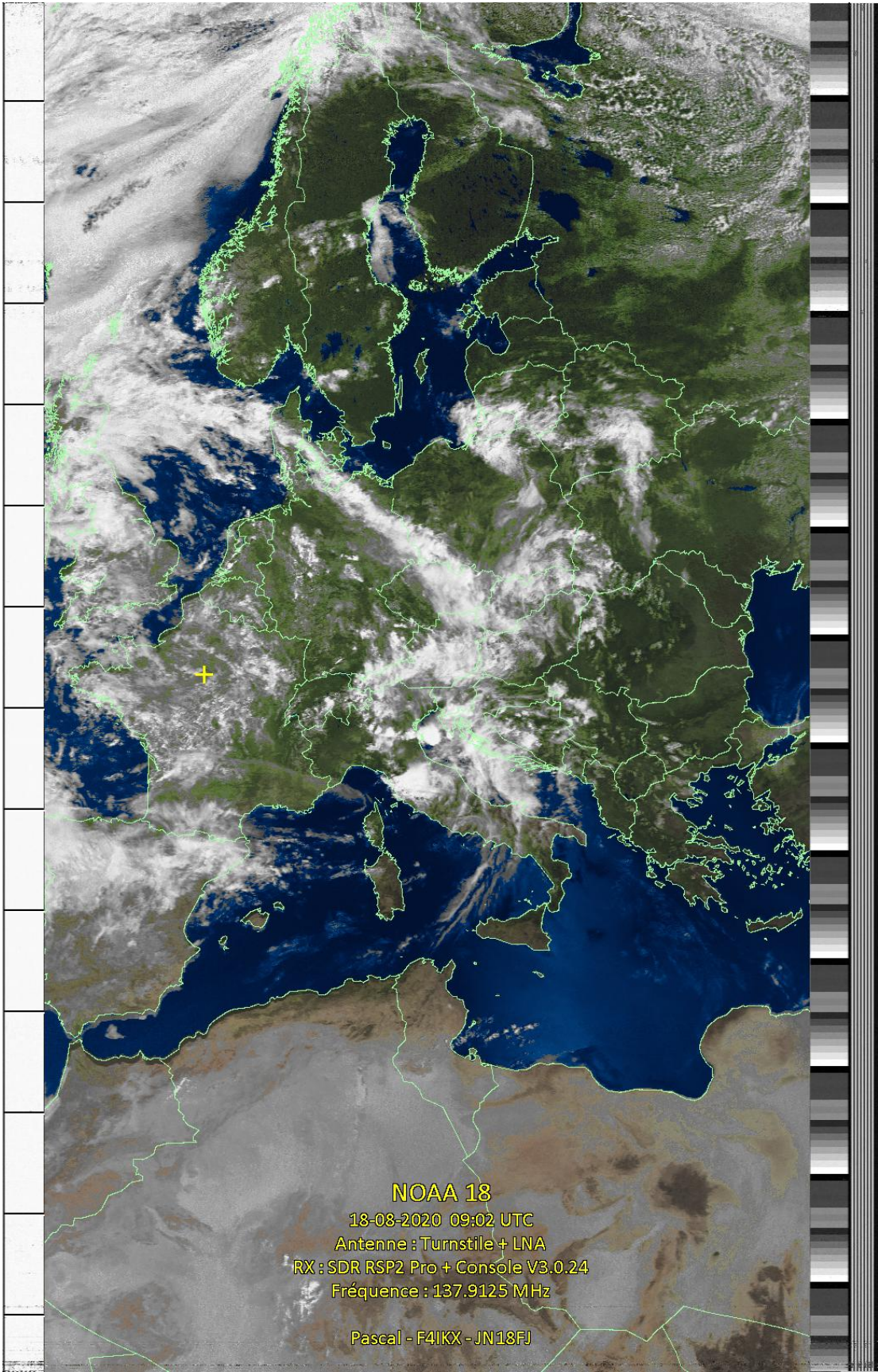
NOAA18 31/08/2020 à 1131 UTC

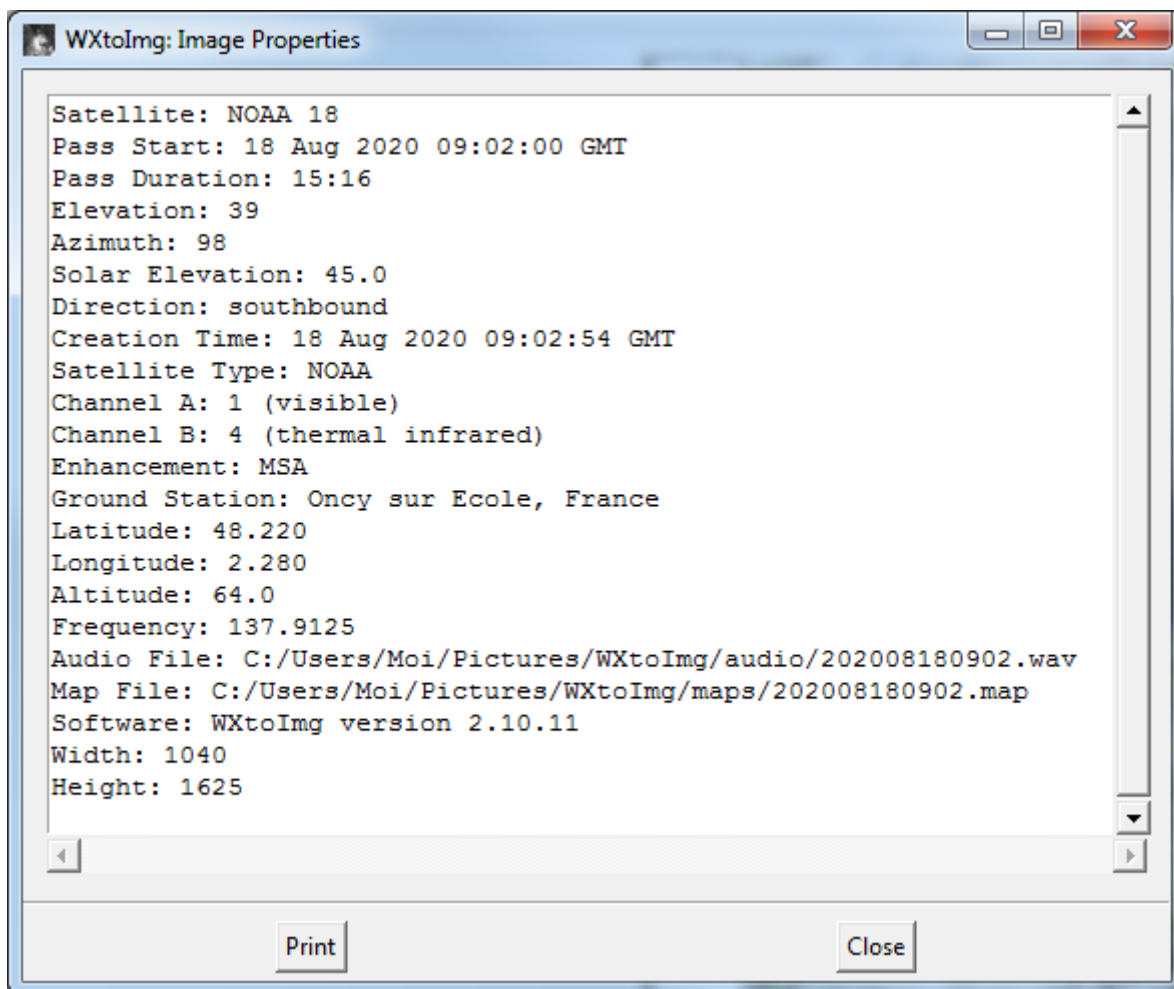






Second image in normal format



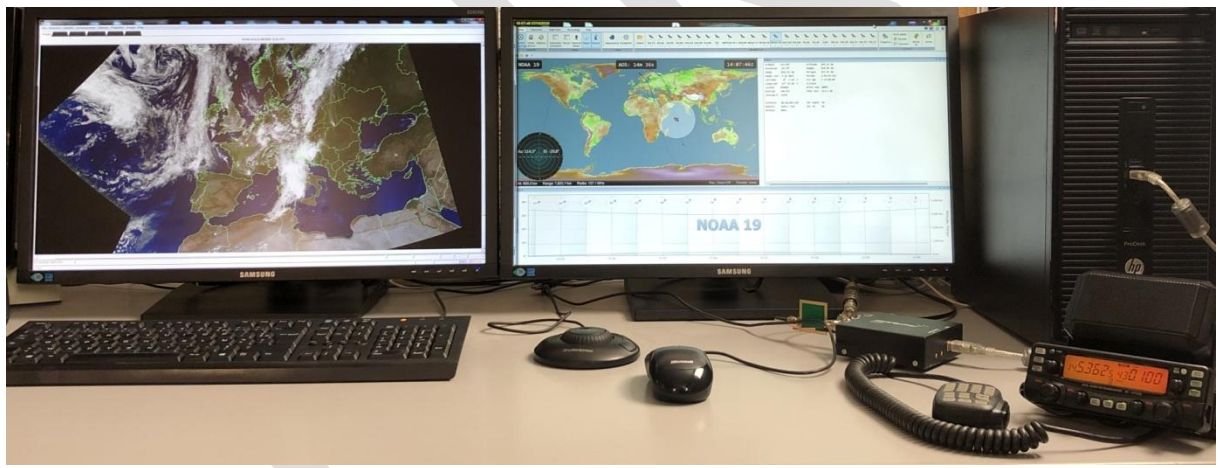
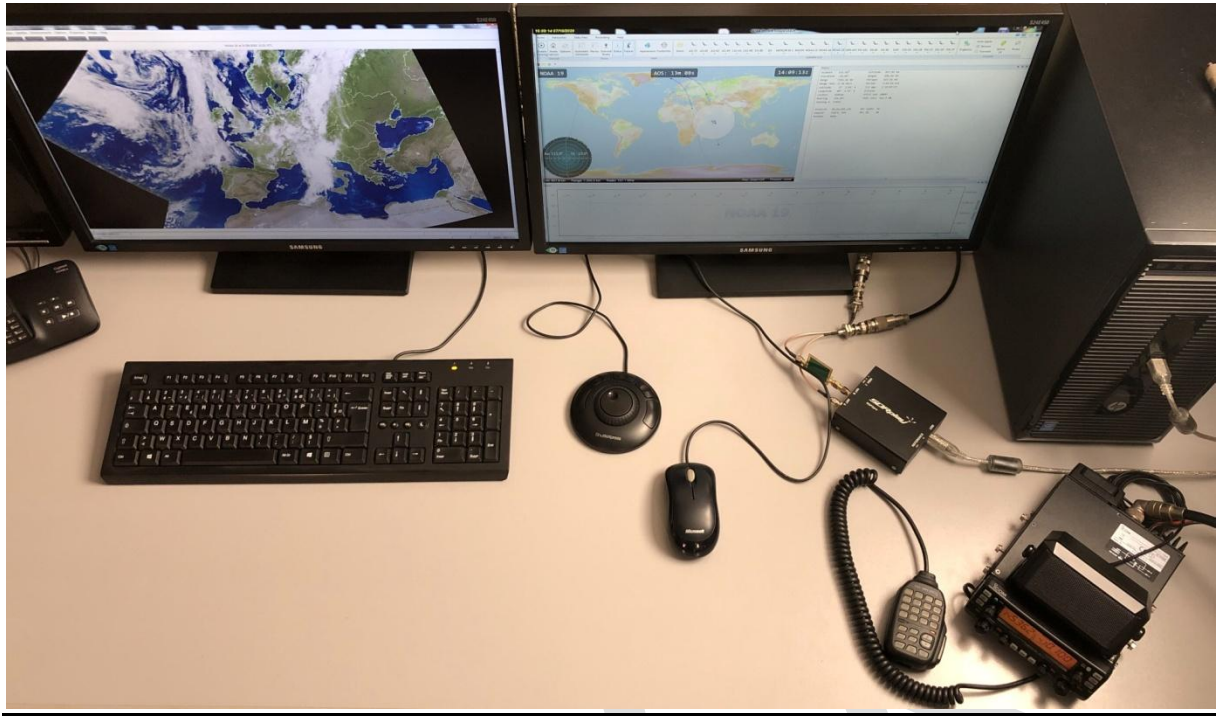


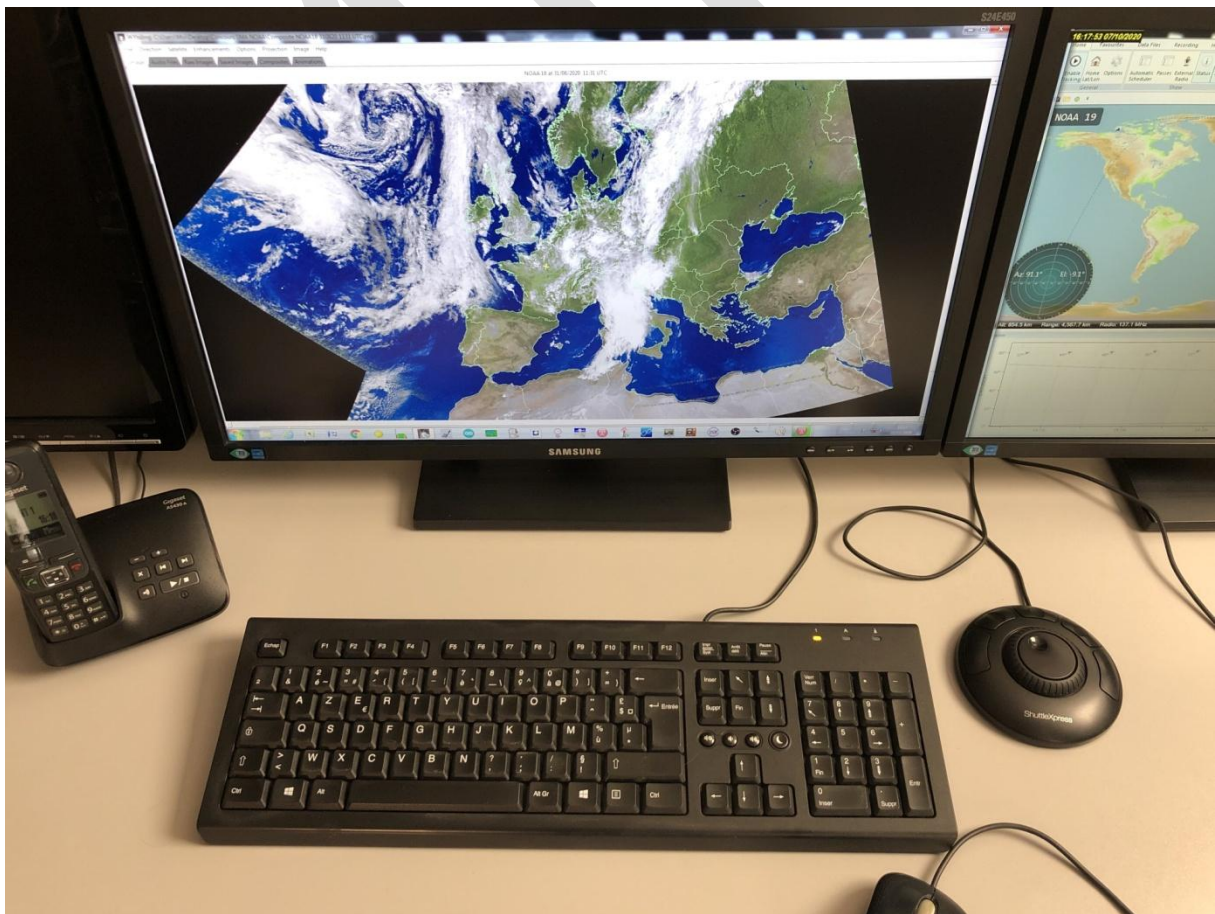
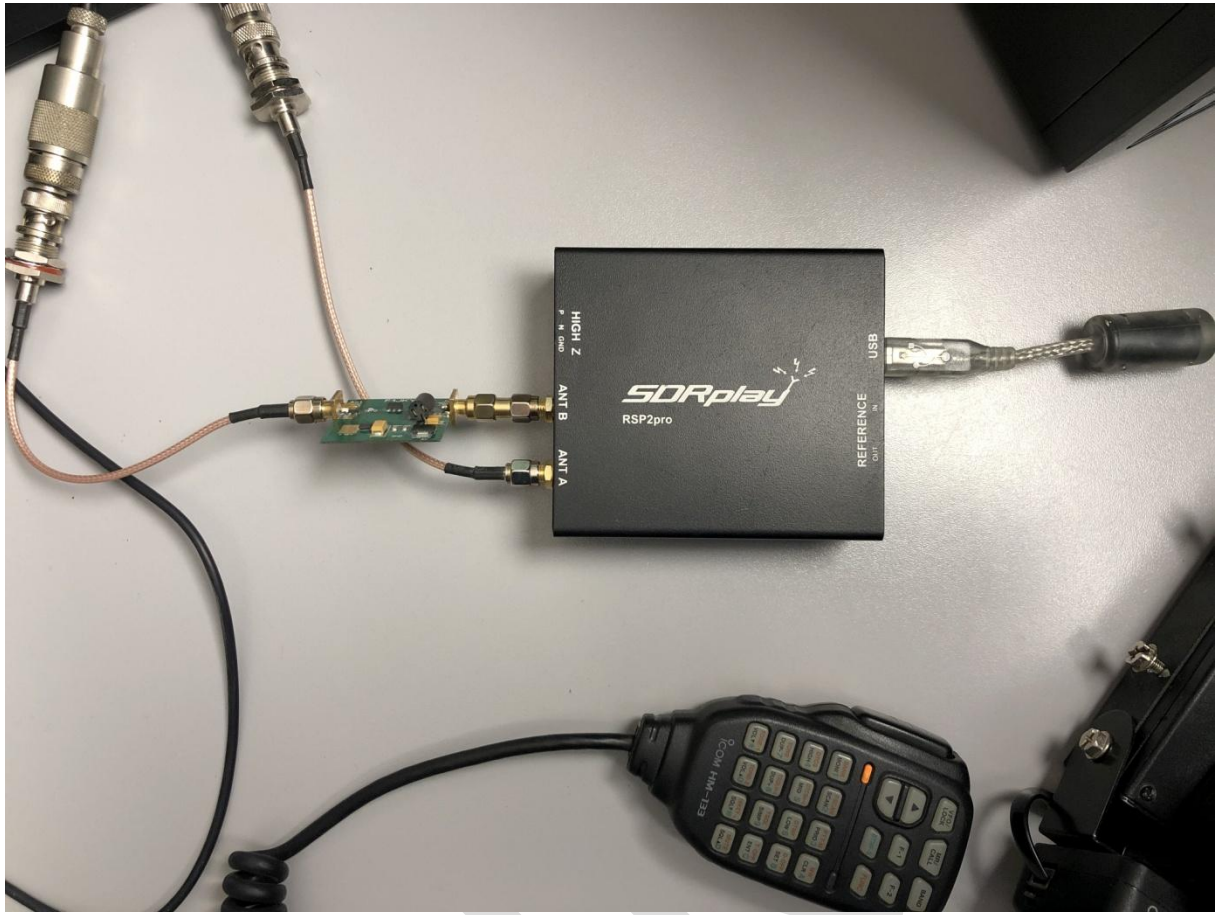
Some pictures  
from my station.



L'antenne TURNSTILE 137 MHz et son LNA







**In conclusion:**

Here is my material presentation is finished.

You have in your possession the various files to analyze my images.

The most important thing in this competition is not to win, but to participate.

But may the best win naturally.



Pascal MARTIN

F4IKX - JN18FJ

F4IKX@free.fr

F4IKX



# Ground Station (Team MIT-SAT)

CATEGORY: Weather Satellite images (NOAA/METEOR) (CAT I)

- Team members:
  - 1) Ankit Sharma
  - 2) Richal Abhang
  - 3) Soham Aserkar
- On 27<sup>th</sup> of May, 2020, after many trials and researches, we successfully did our 1<sup>st</sup> Satellite Data Receiving (NOAA Weather Satellite) (Night time pass – IR Reception)

Reception are as follows –

Satellite pass,

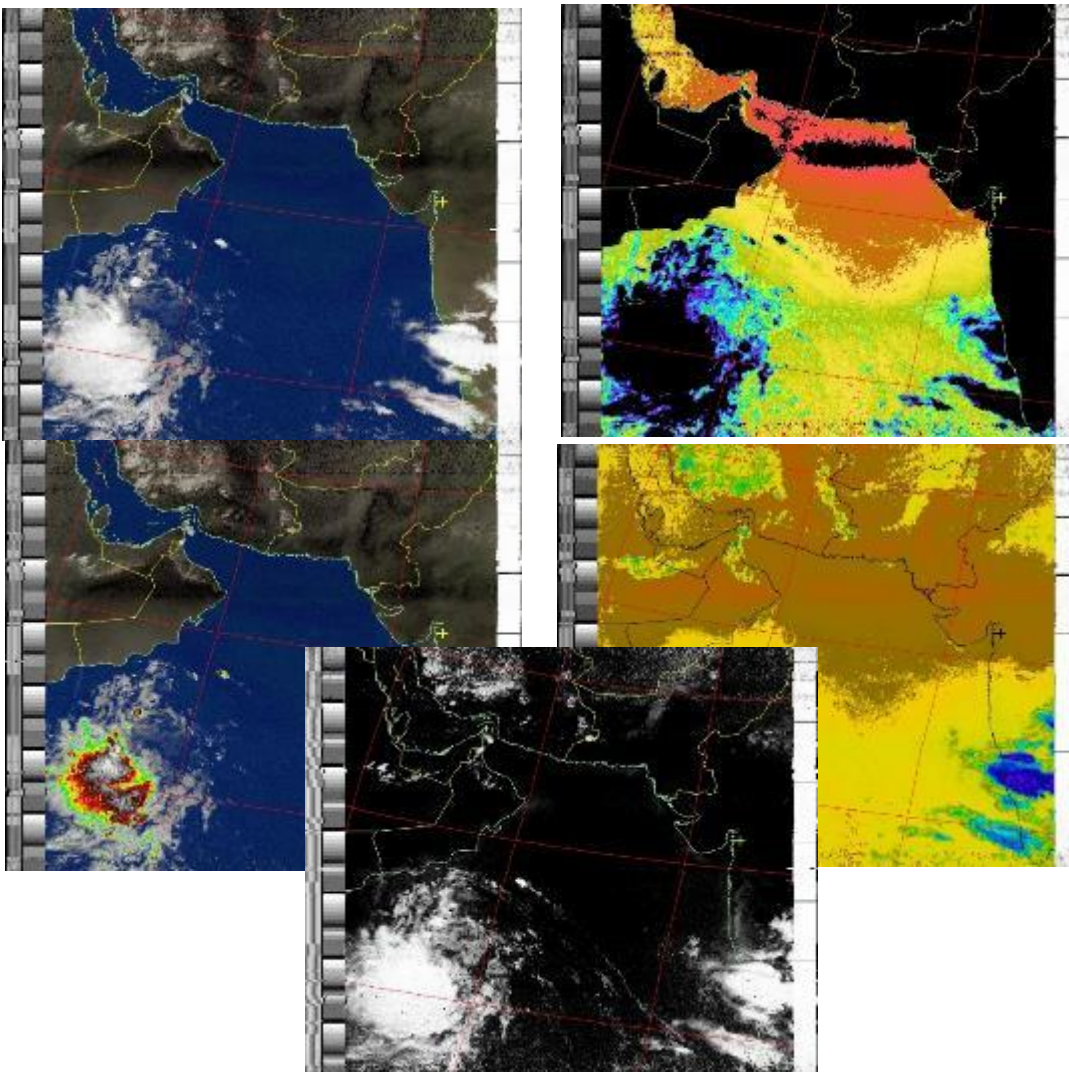
27-05-20

Time 20:08-20:20,

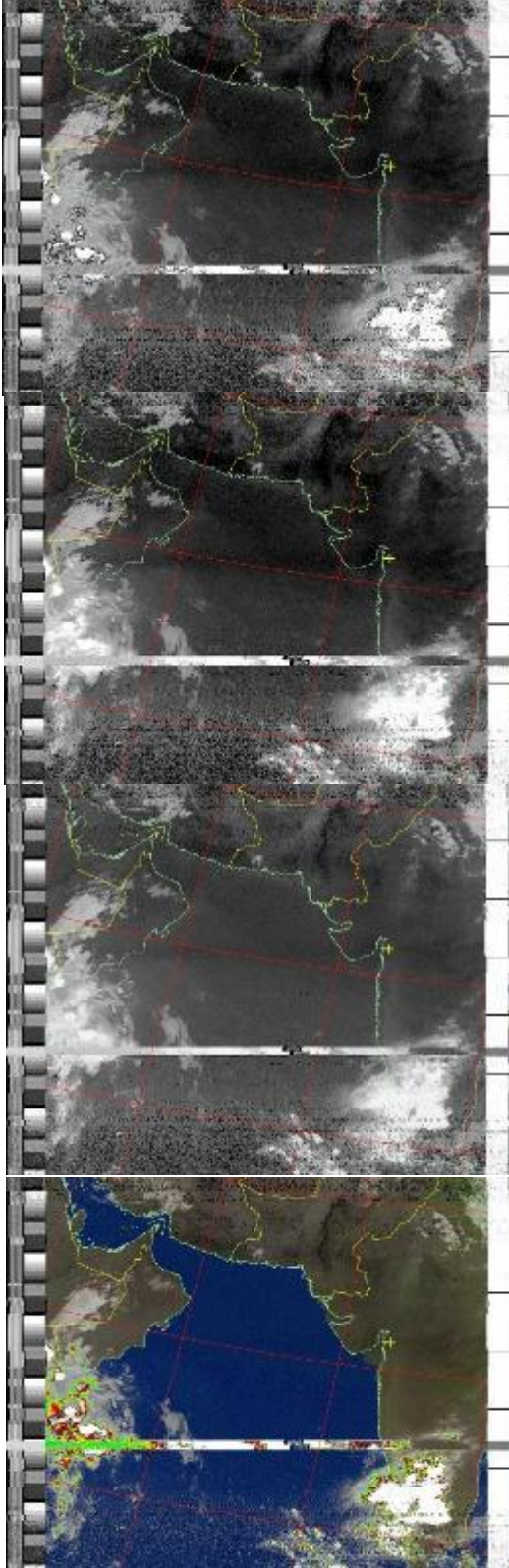
Location – Bharuch, Gujarat

Ground Station Operator/Data Analyst – Ankit Sharma

NOAA 15 satellite reception. It's a weather data.



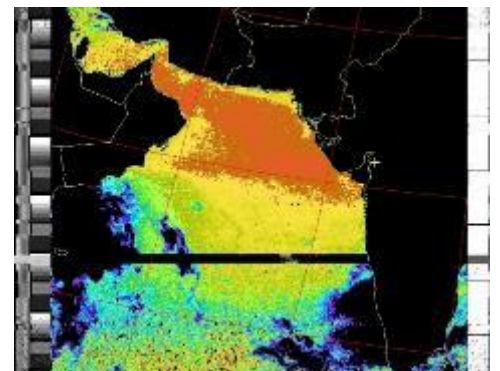
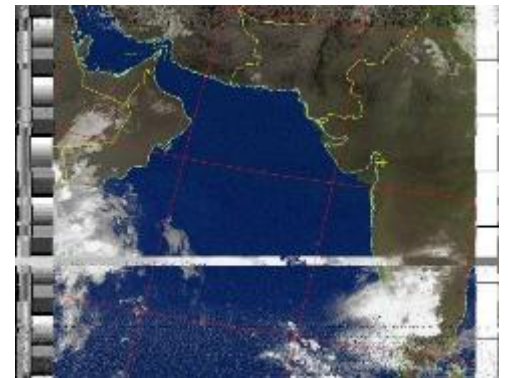
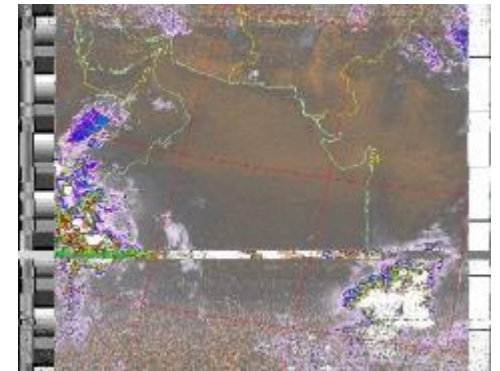
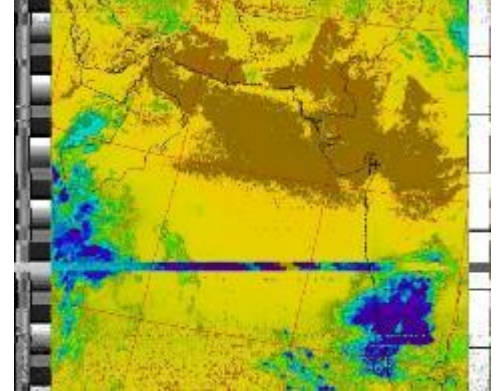
- NOAA 18 Night time Pass (28-05-2020)



- Weather Verified –  
Heavy Rain/Thunder Storm  
Situation in Karnataka/ Kerala.

Location – Bharuch

Ground Station Operator/Data  
Analyst – Ankit Sharma





- We tied Receiving Meteor-M2 Satellite but Failed miserably (Later We found that the Satellite has Lost its Orientation)

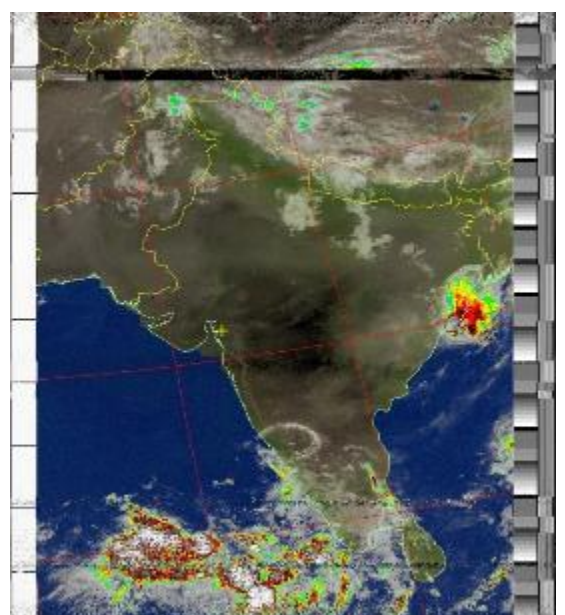
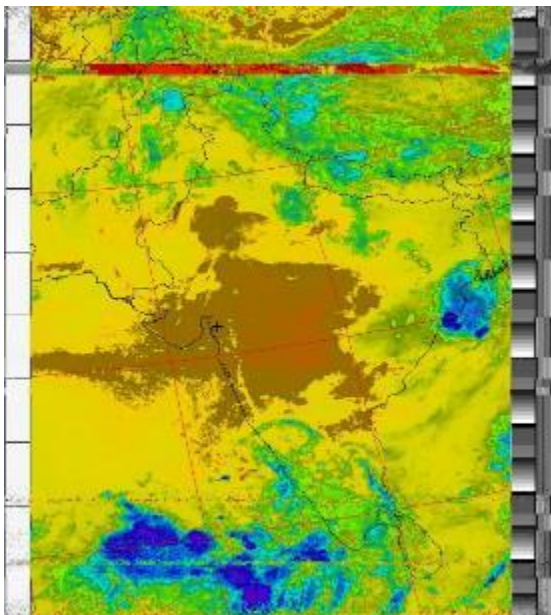
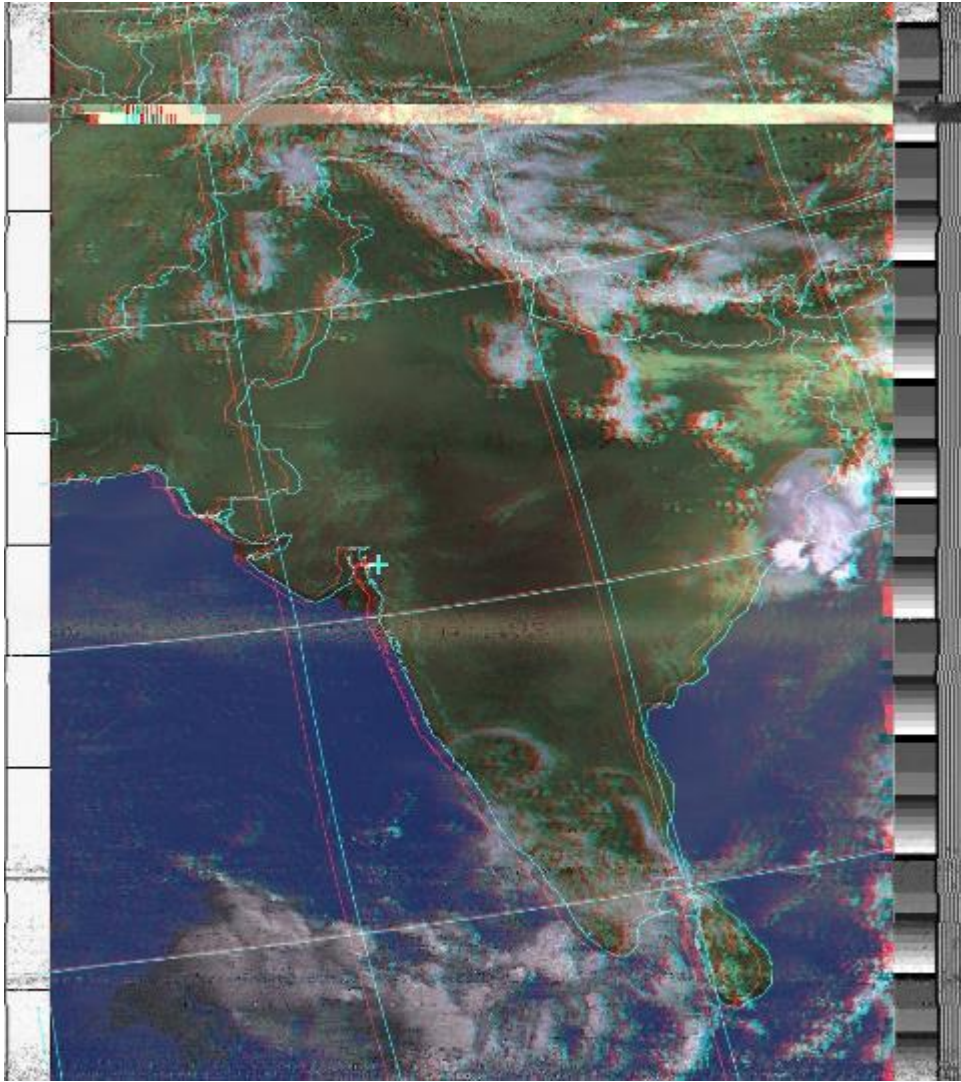
On 29-05-2020, we got our 1<sup>st</sup> glimpse of Amphan Storm.

NOAA 15 Night Pass,

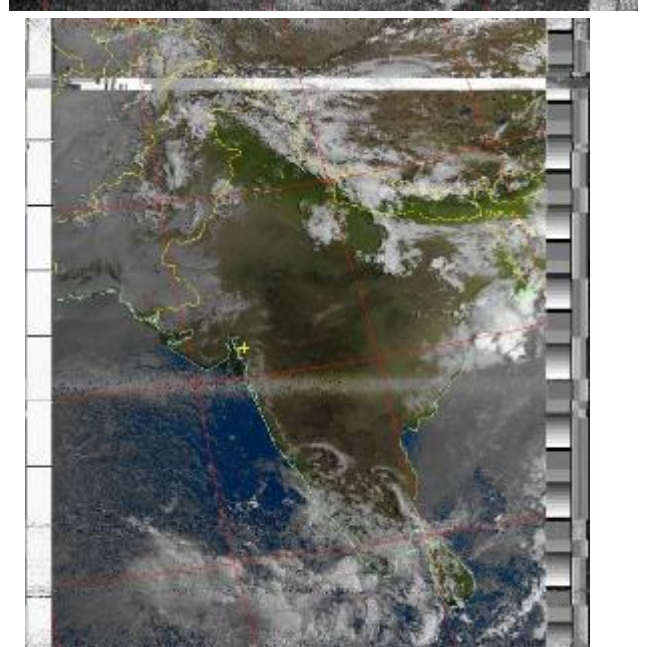
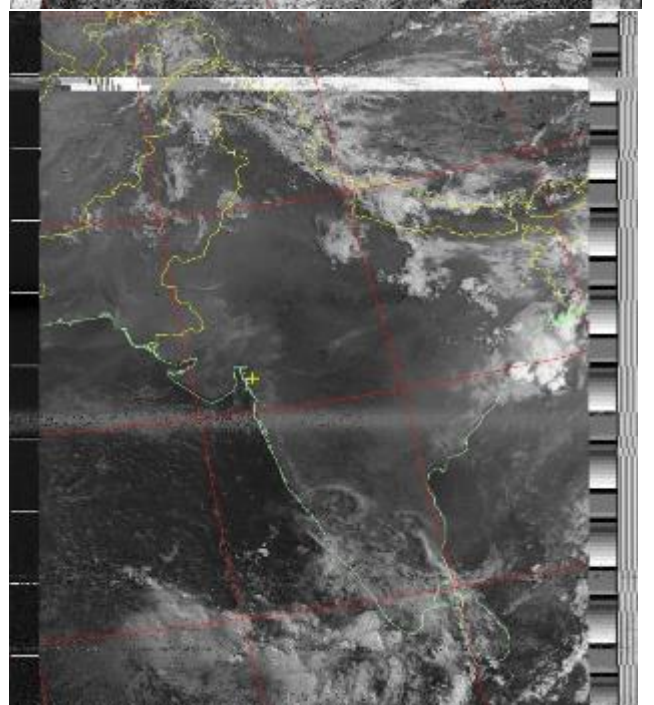
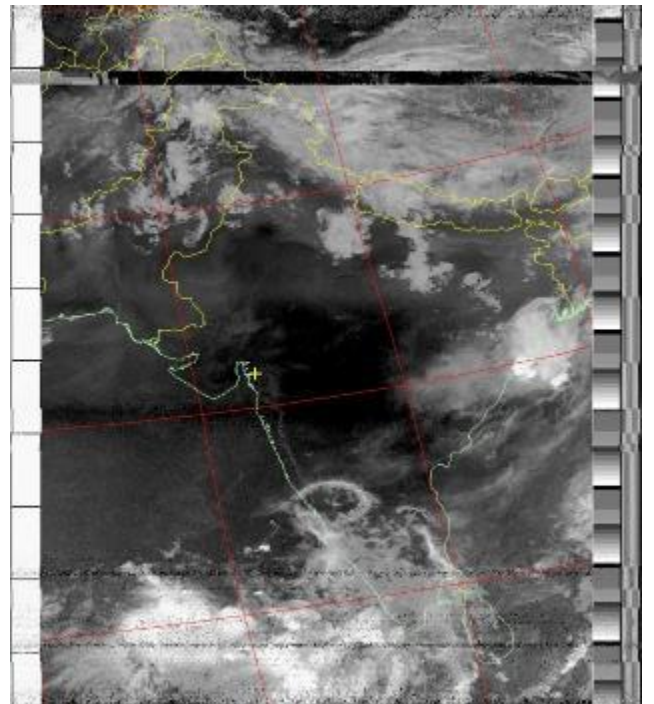
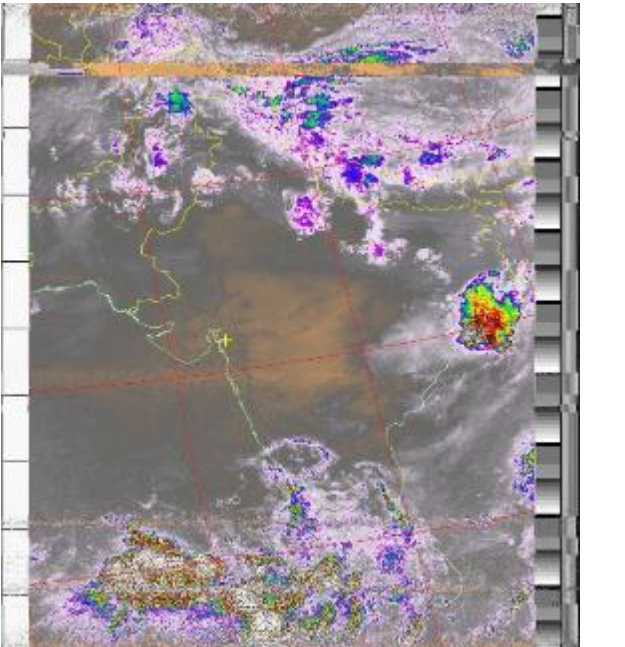
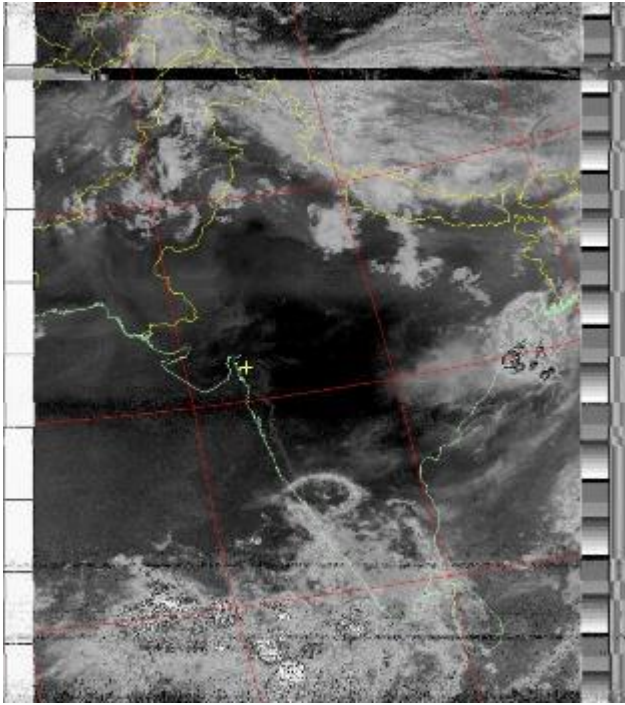
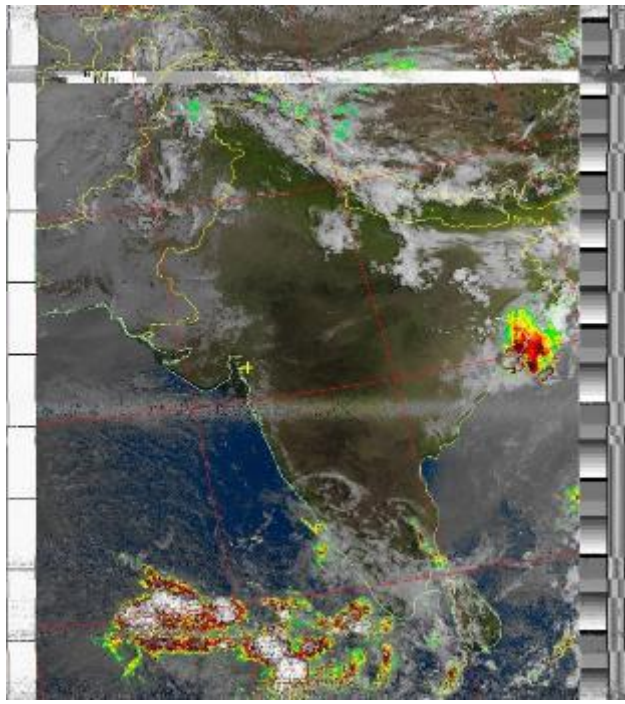
Location - Bharuch, Gujarat

Ground Station Operator/Data Analyst – Ankit Sharma

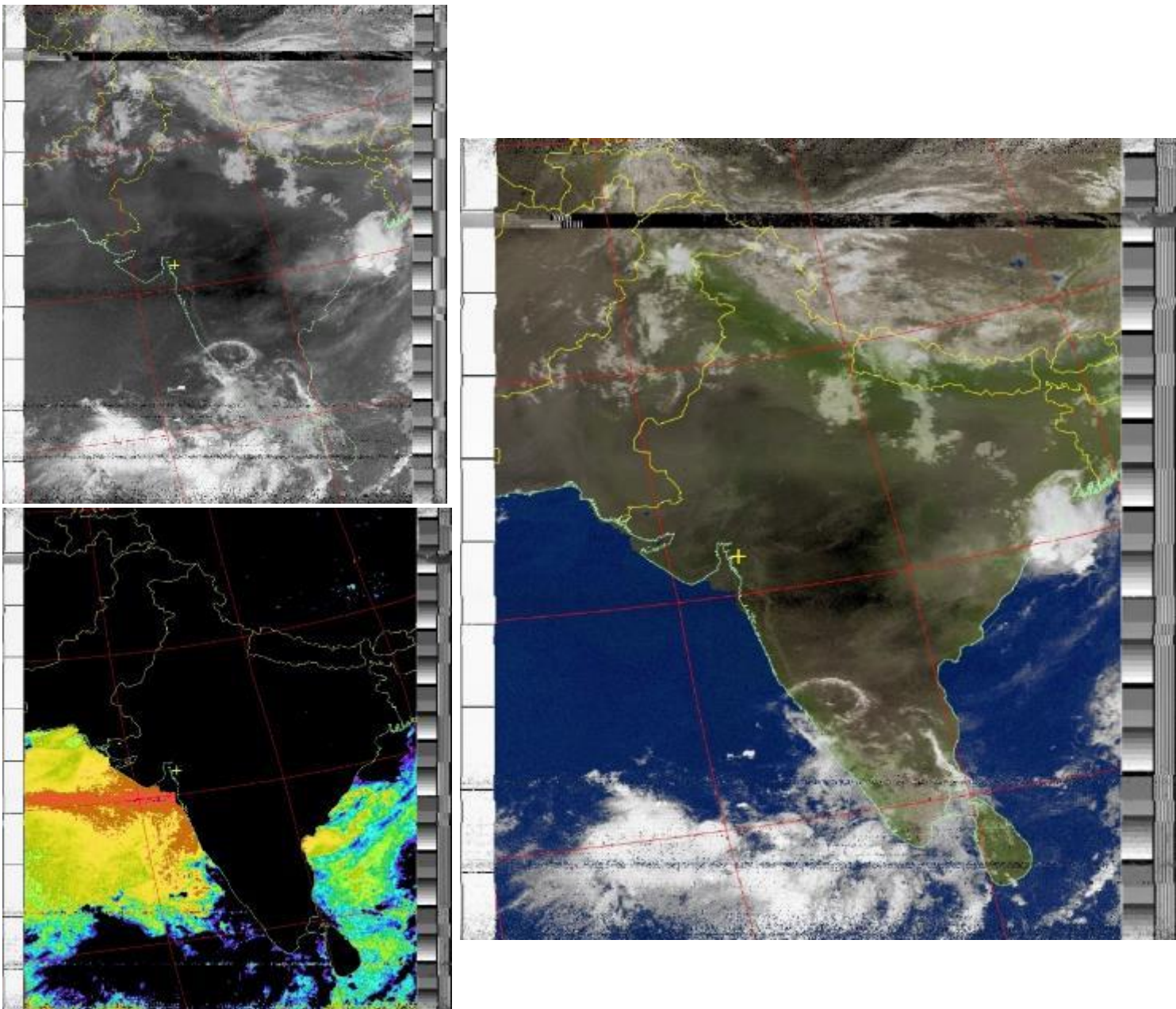
This is a 3D Image (need Anaglyph Glasses) – (Please ask Ground Station Team For further Assistance)











After this we started Moving on to our main Targets – Cube Sats

In the Midst of all these came the Cyclone – Nisarga , Impact was on Mumbai-Pune – Guj.  
Weather Data was an Essential so On 1<sup>st</sup> of June, 2020, We started Tracking it on High Resolution.

We were able to Map one of the most rarest Event of weather on Earth, Birth of a Cycle & this one was going to impact us in 3 days.

Since Our Ground Station cannot be Operather under Storm due to lightening landing on Antenna and other Dangers,  
Ground Station was taken Offline immediately after 1<sup>st</sup> reading of Storm Nisarga or Birth of Cyclone Nisarga.

Ground Sation Remained offline for 13 days later due to heavy rain and thunder.

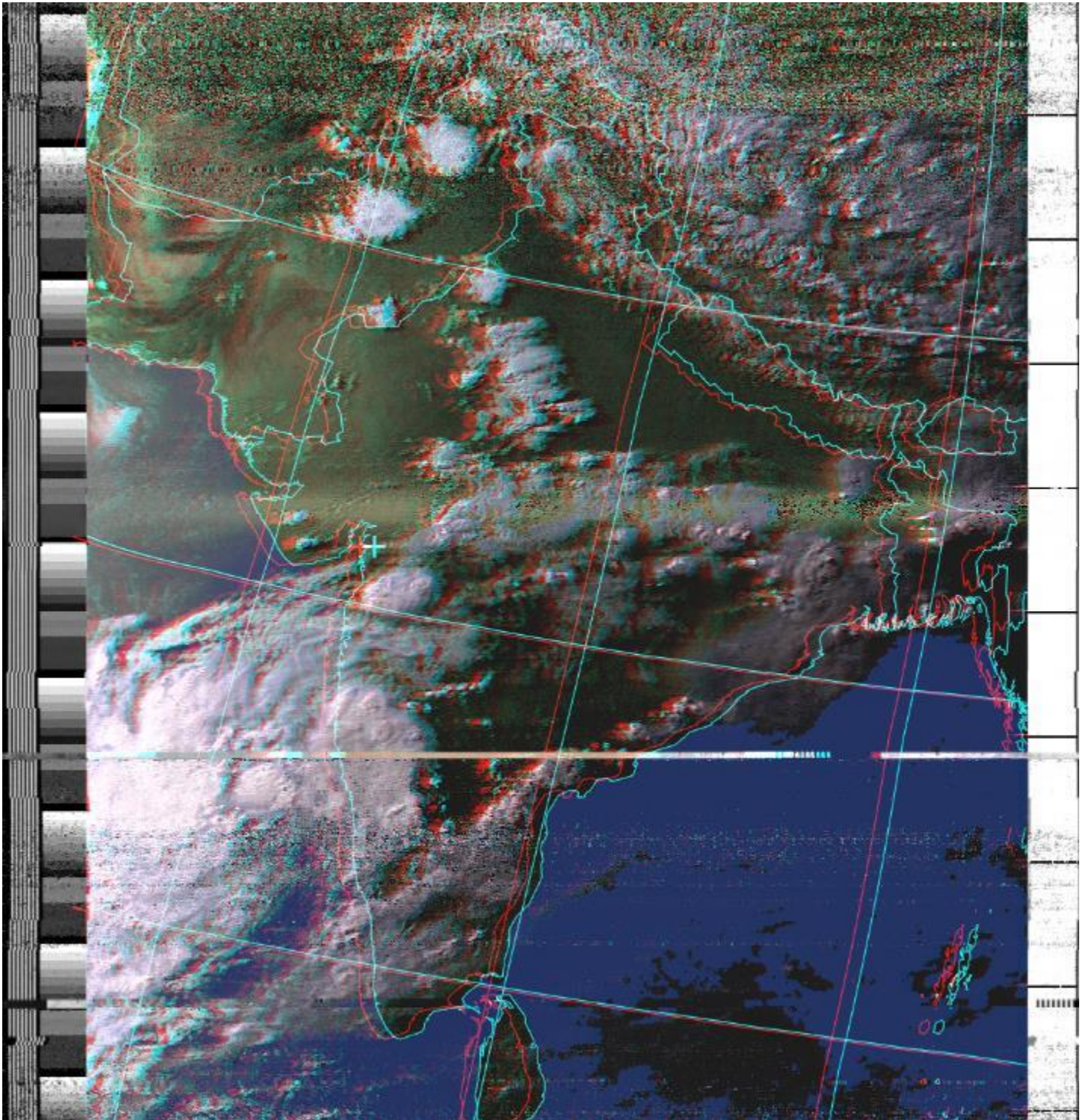


NOAA-19 Day Pass, 01-06-2020,

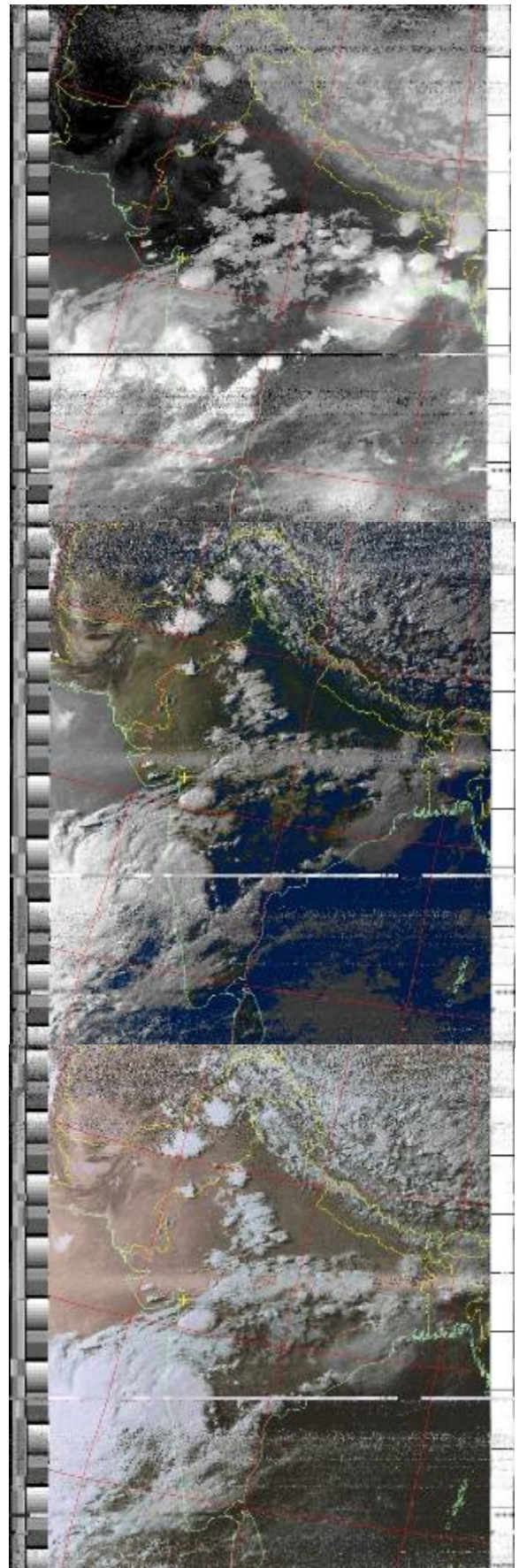
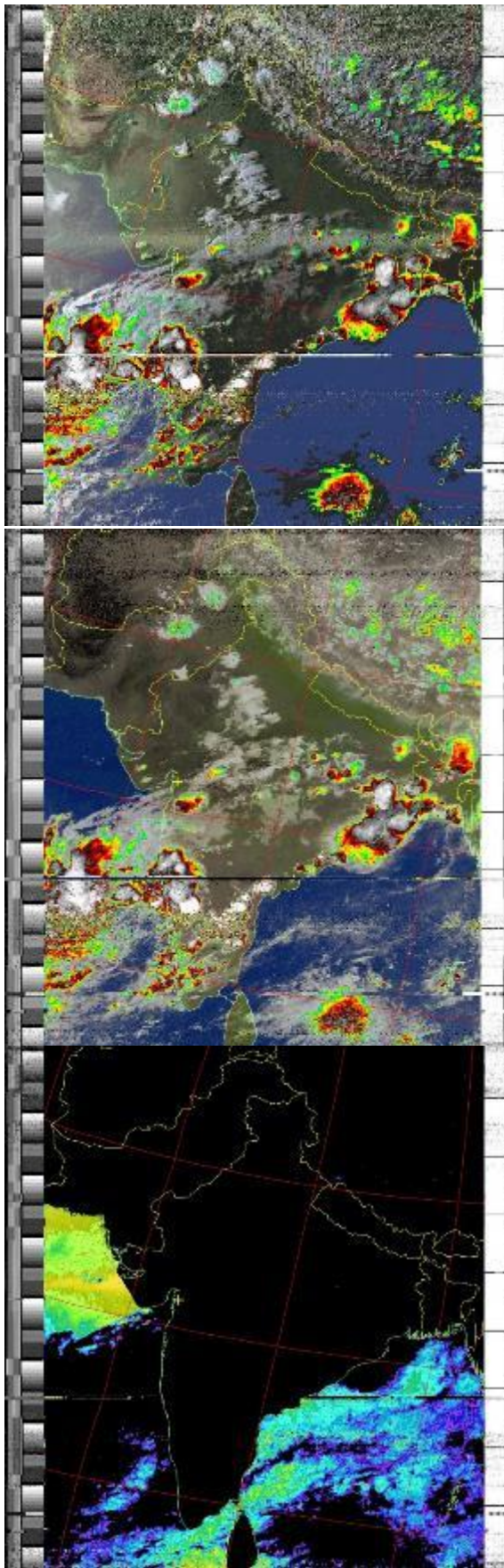
Location – Bharuch,

Ground Station Operator/Data Analyst – Ankit Sharma

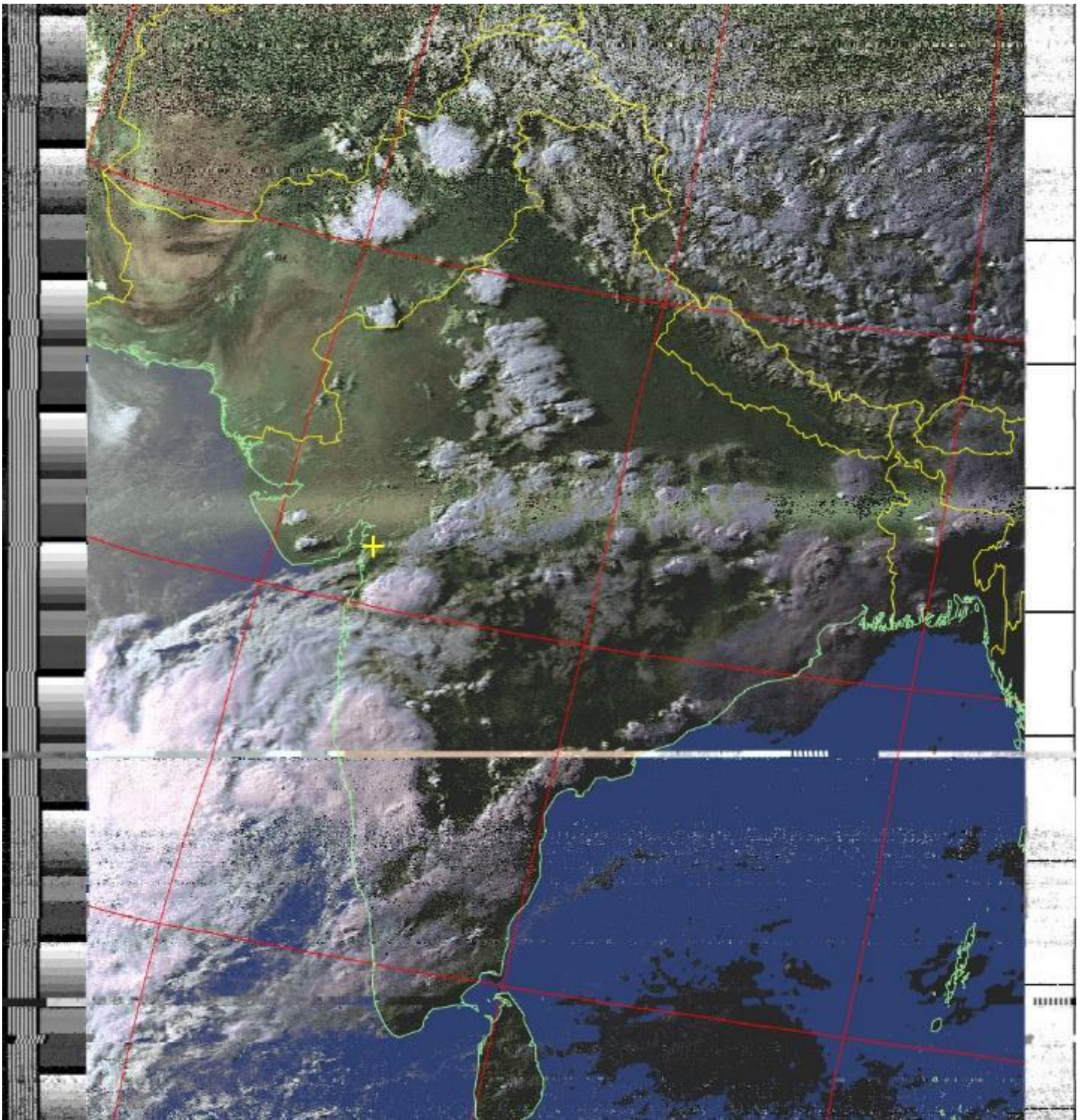
This is a 3D Image (need Anaglyph Glasses) – (Please ask Ground Station Team For further Assistance)



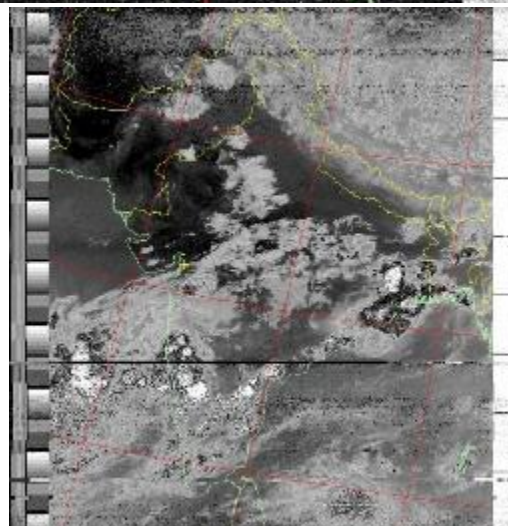
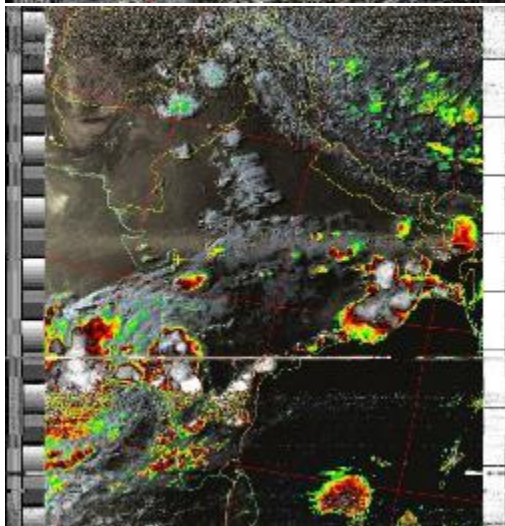
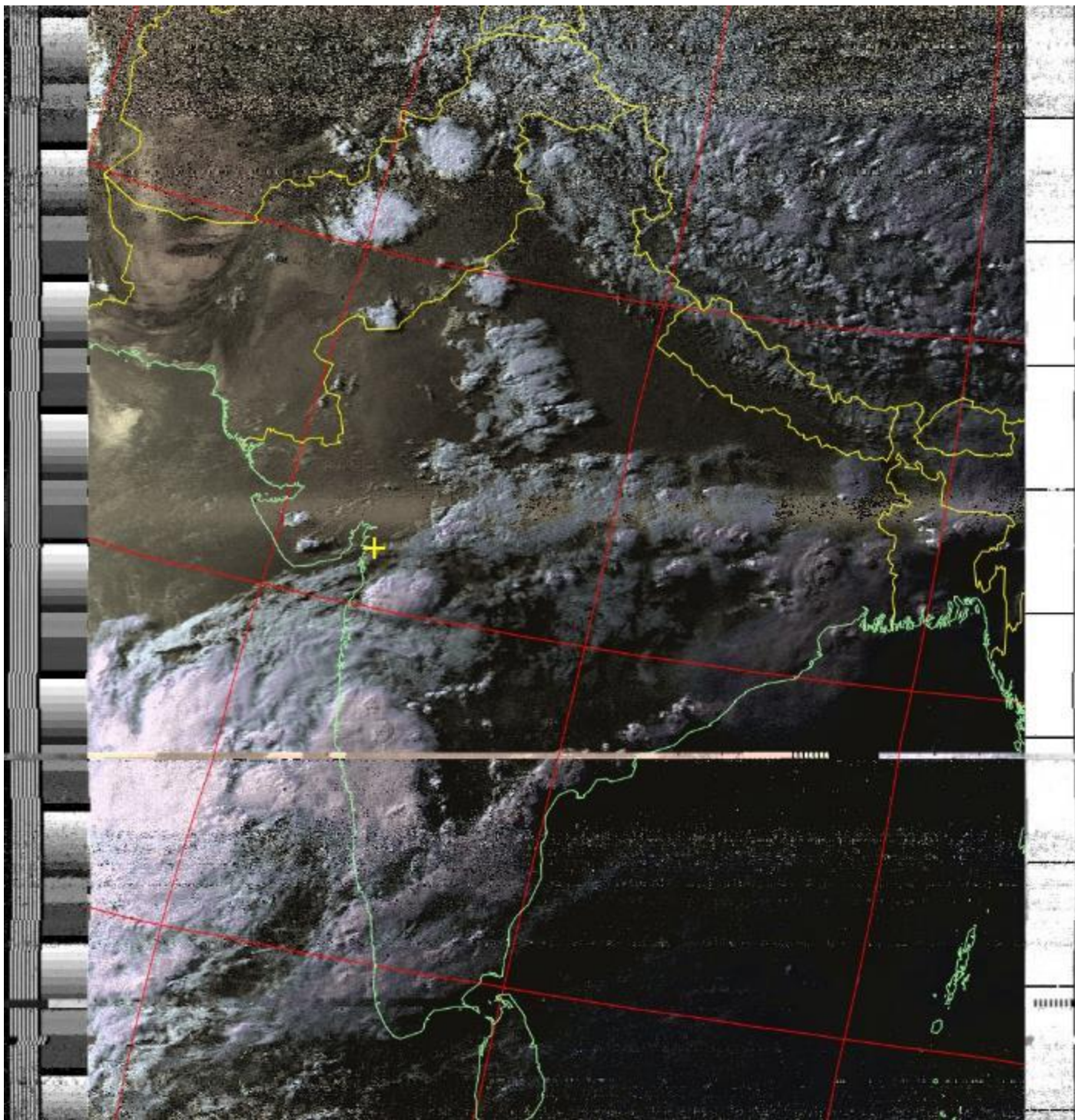






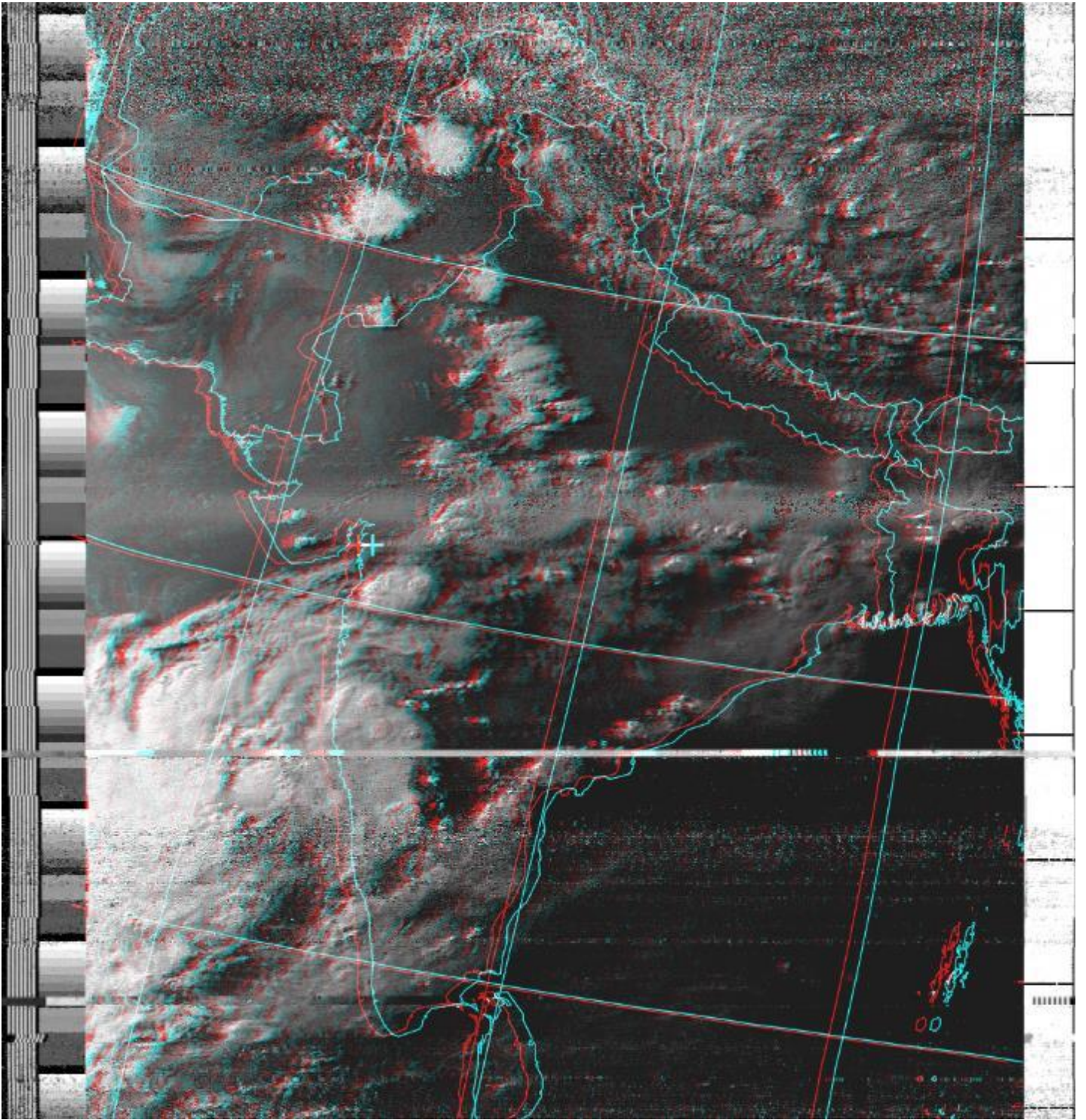




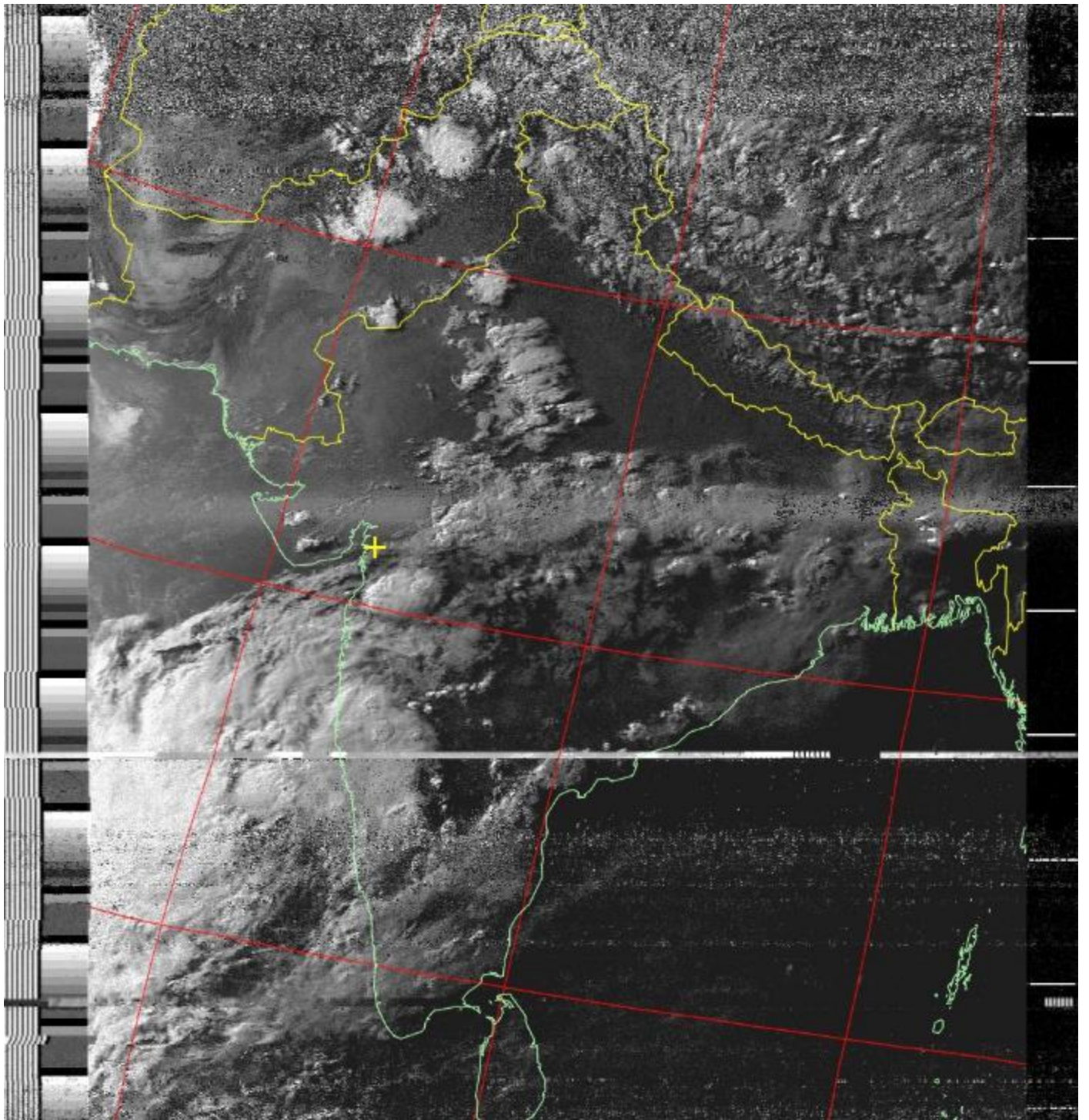




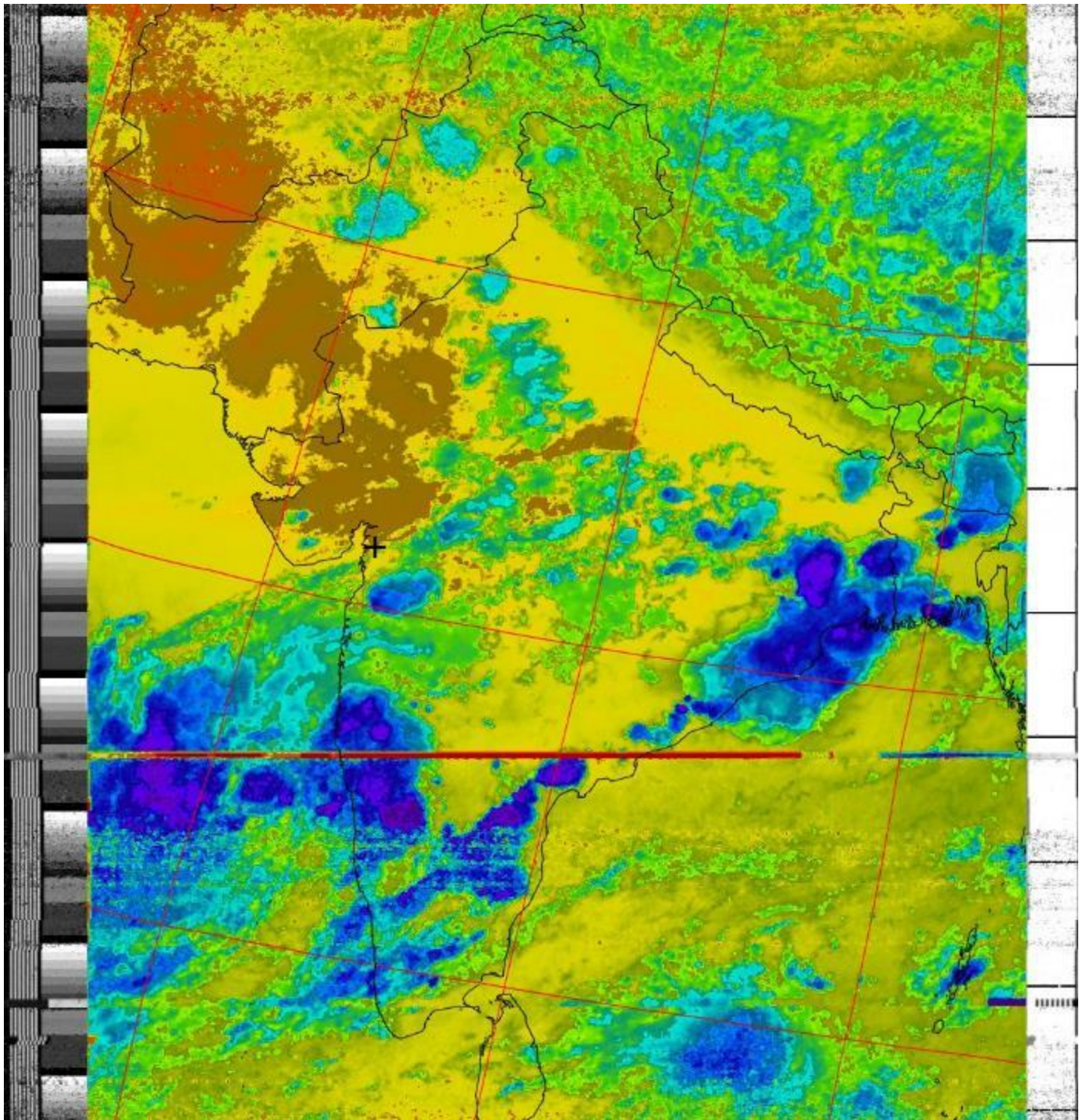
This is a 3D Image (need Anaglyph Glasses) – (Please ask Ground Station Team For further Assistance)



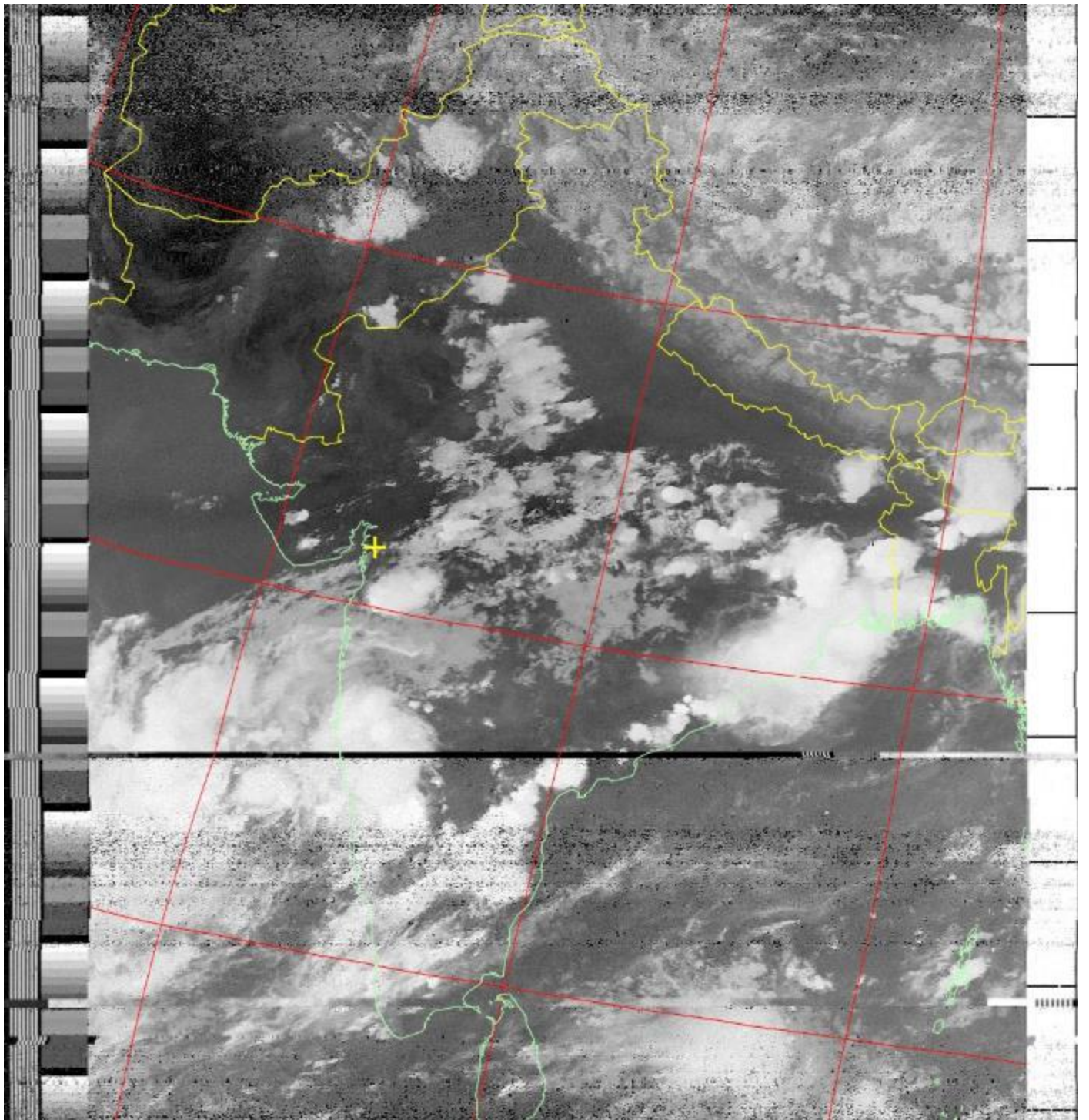




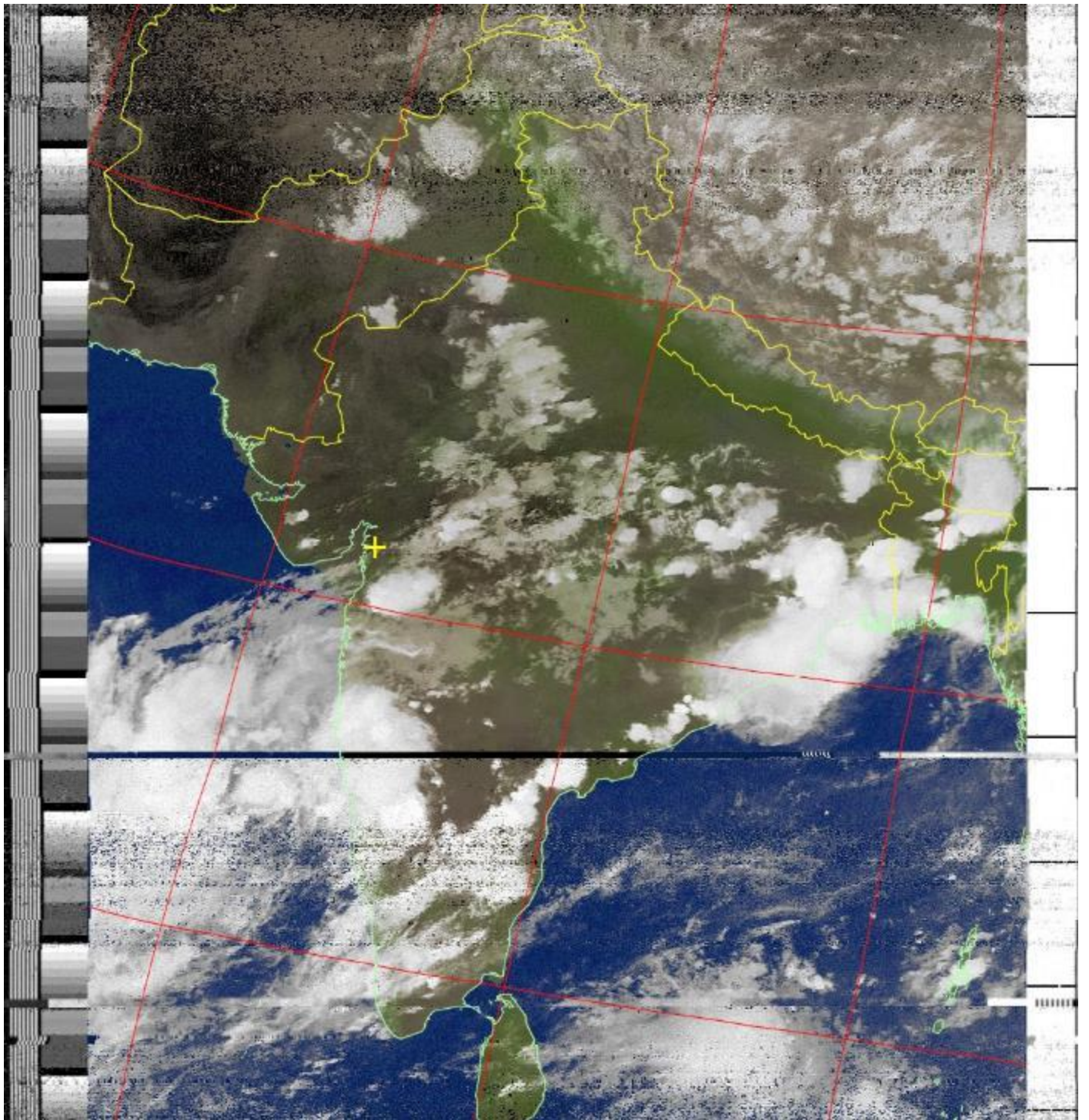




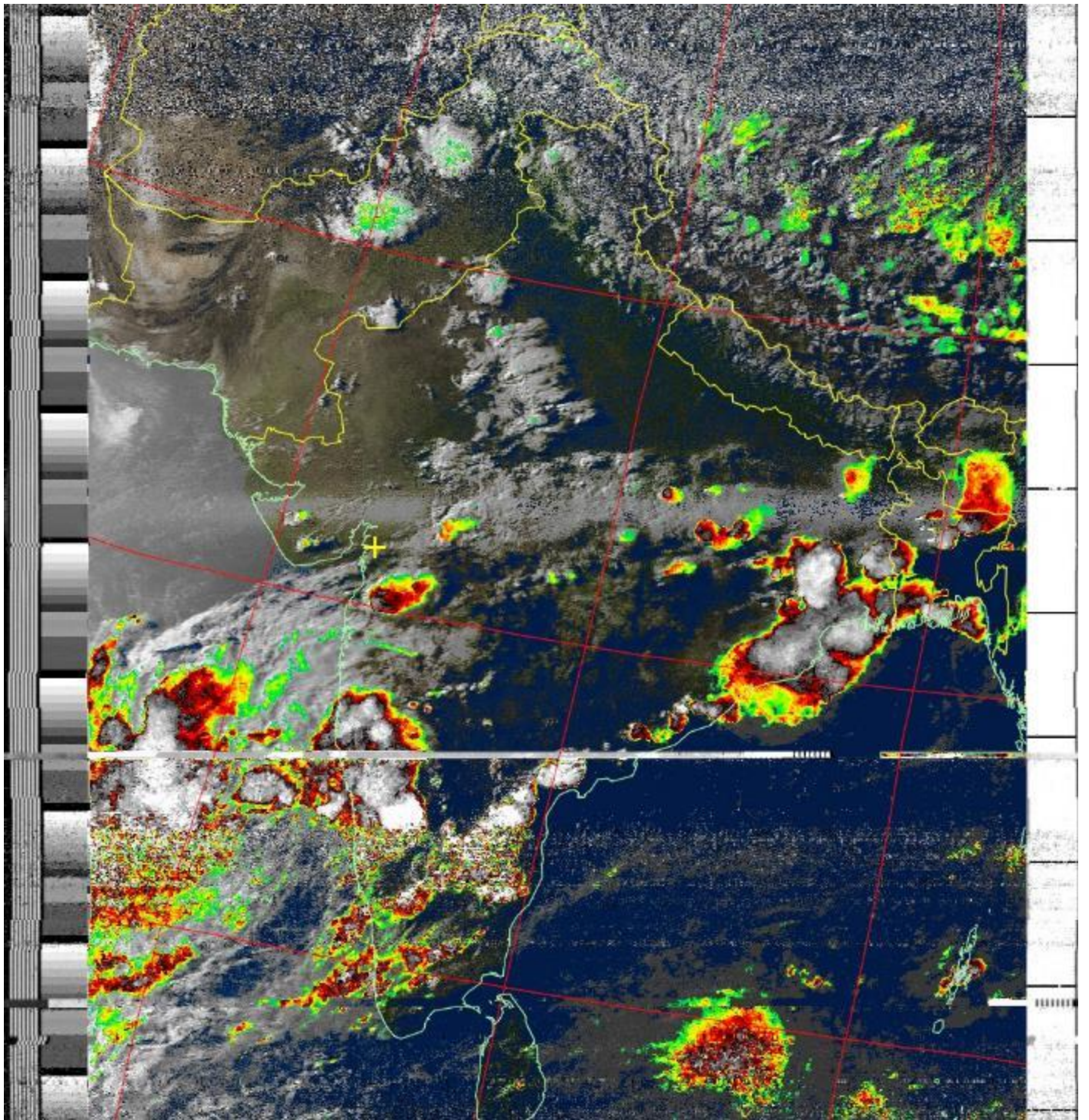






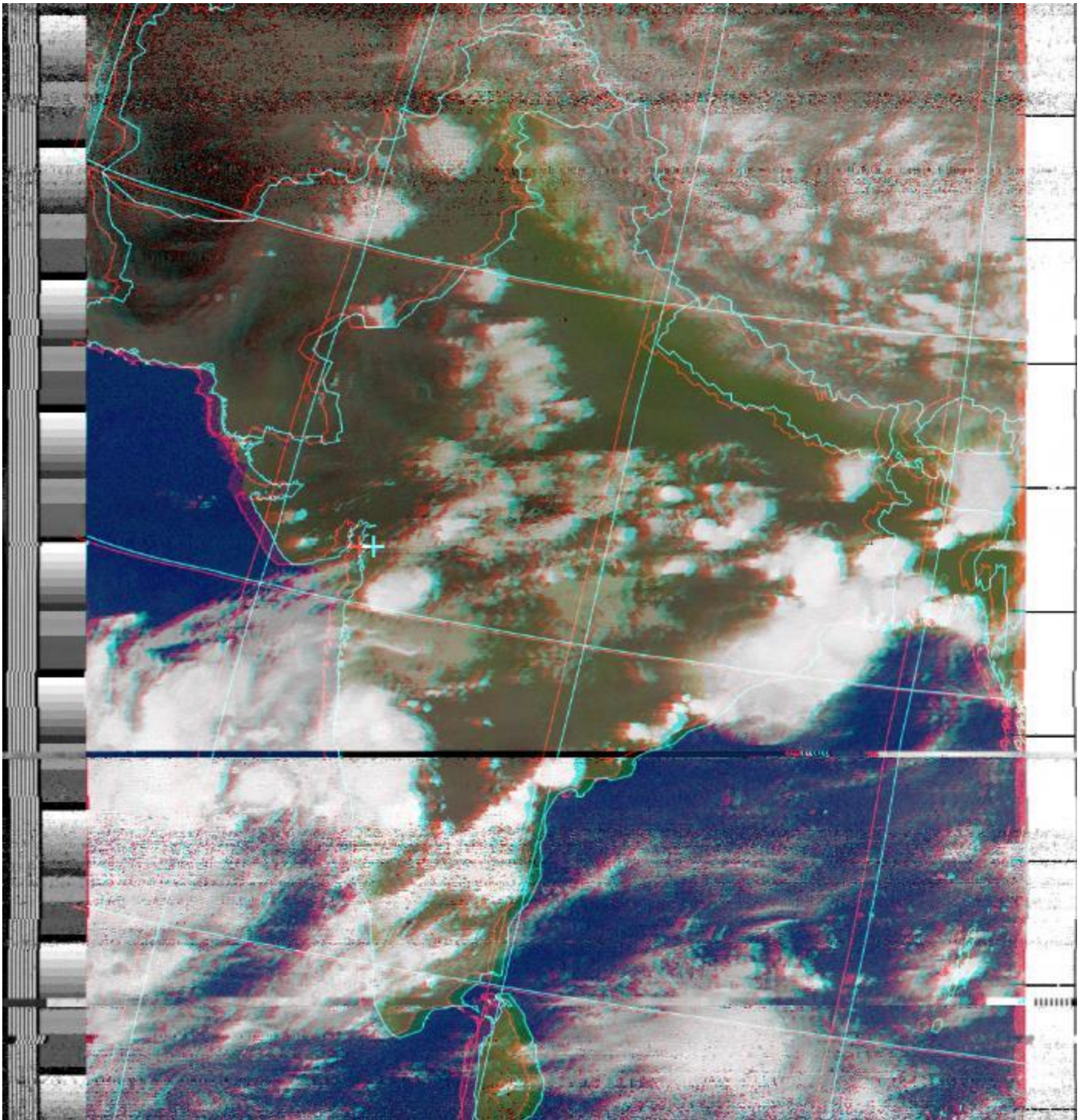






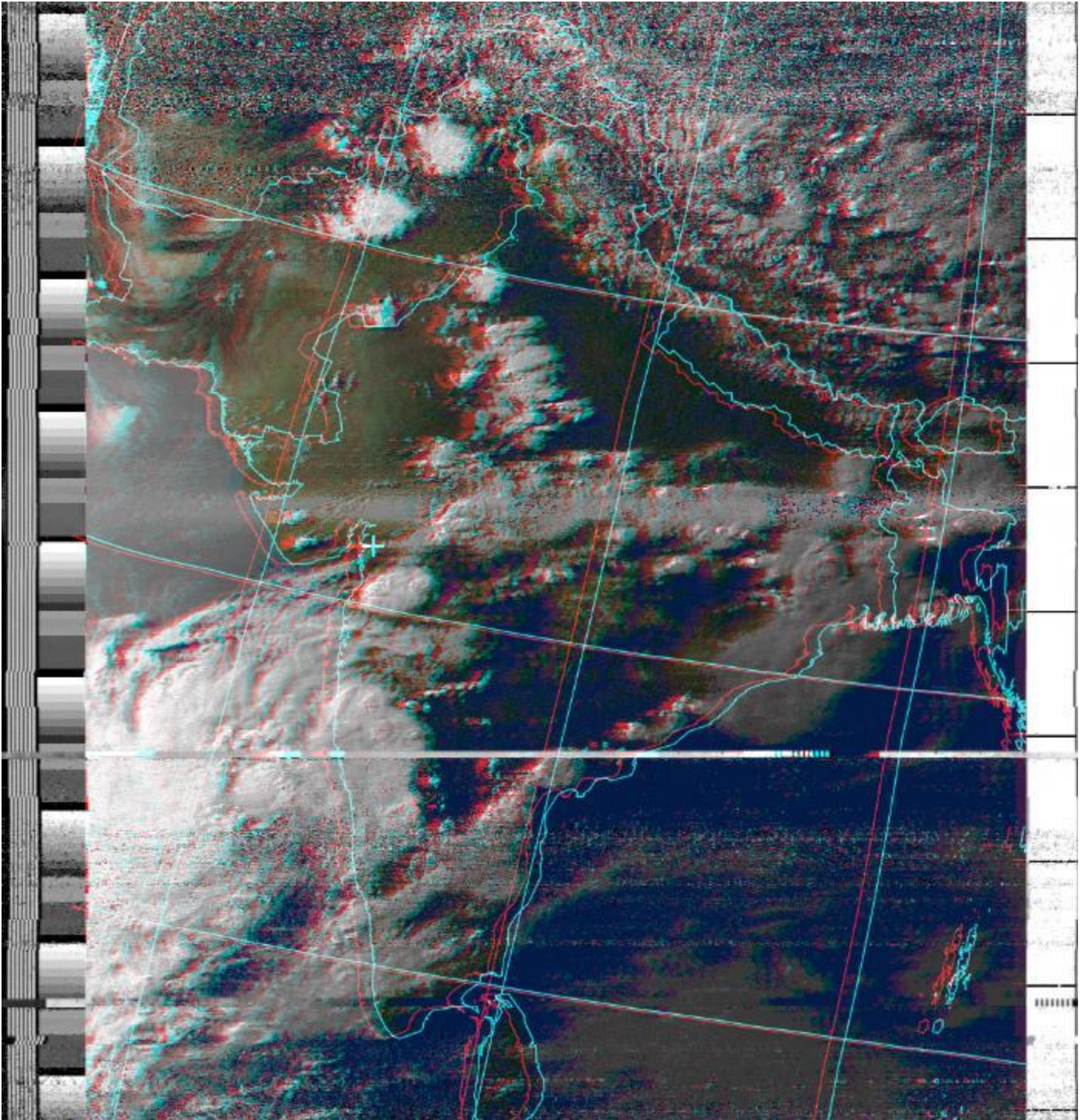


This is a 3D Image (need Anaglyph Glasses) – (Please ask Ground Station Team For further Assistance)





This is a 3D Image (need Anaglyph Glasses) – (Please ask Ground Station Team For further Assistance)









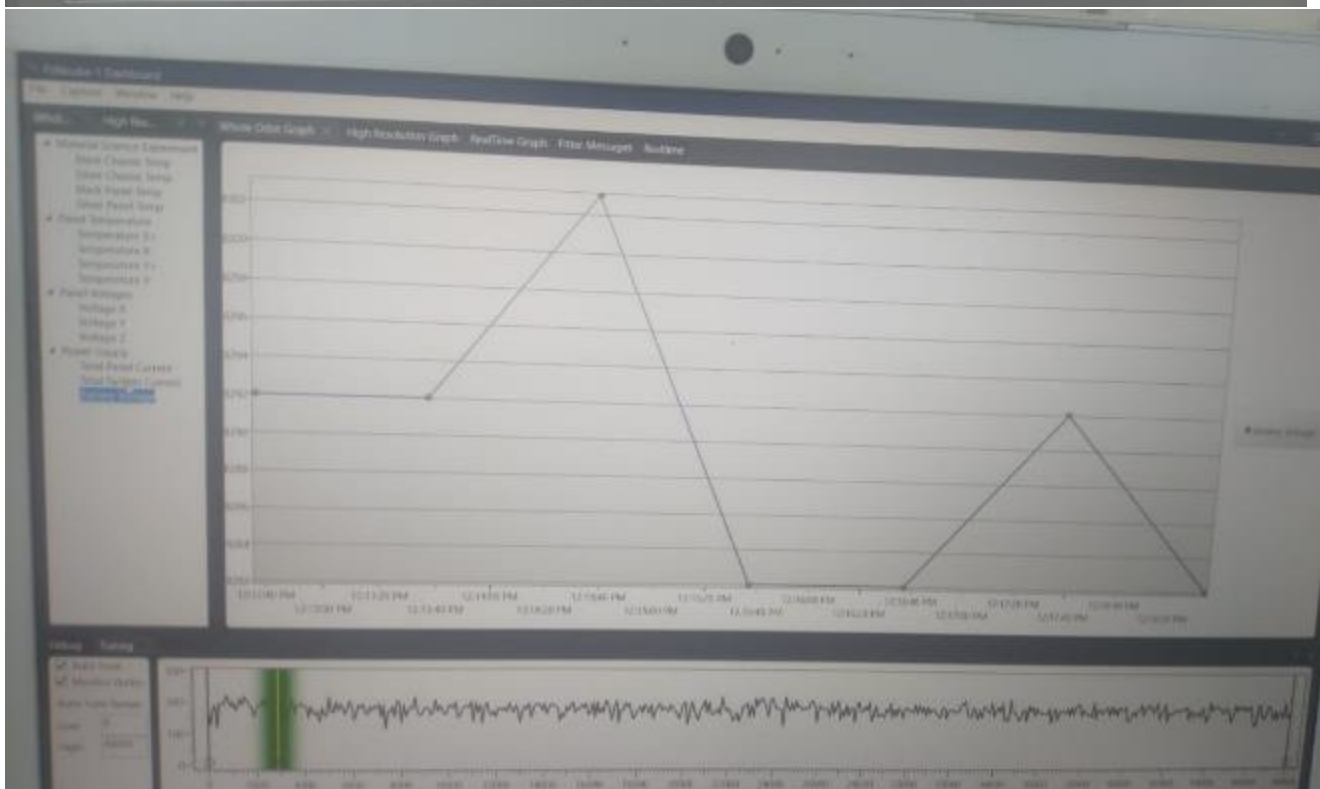
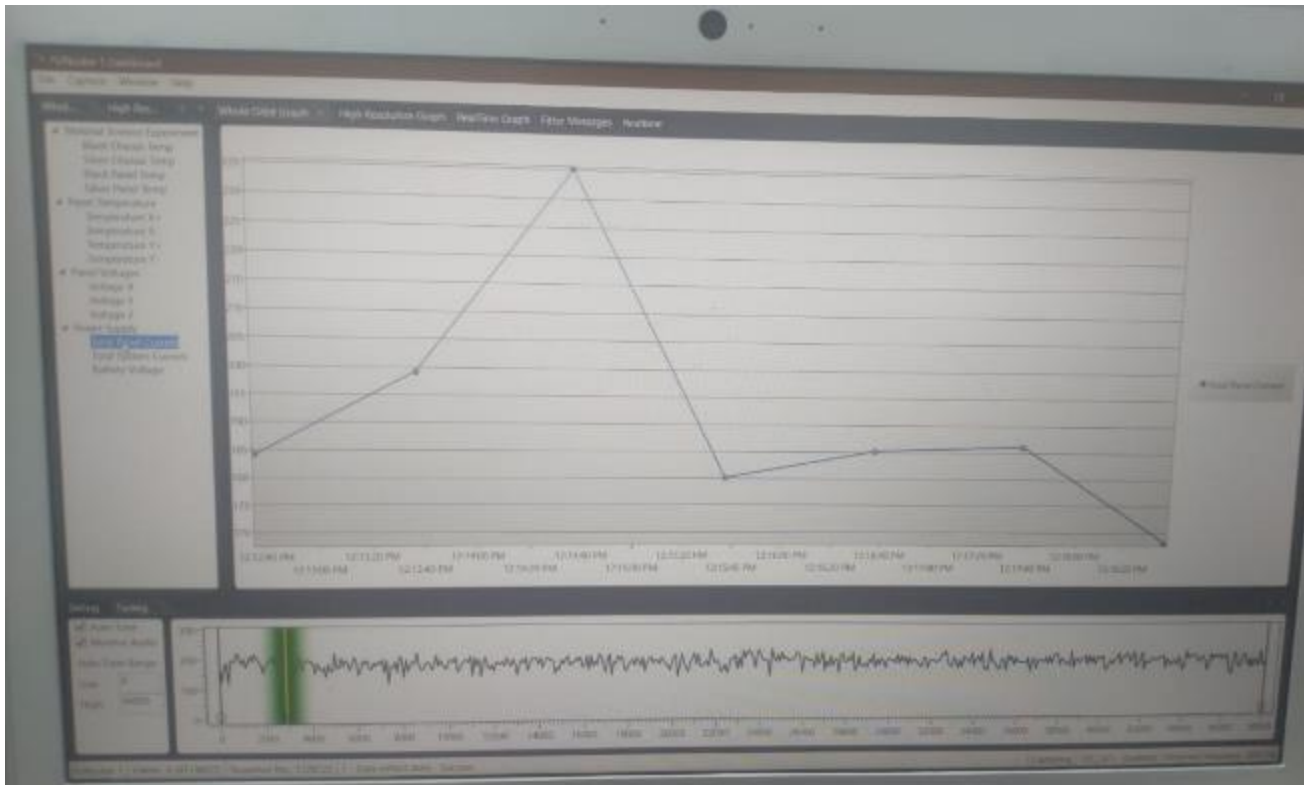
WhatsApp Audio  
2020-06-14 at 10.52.4

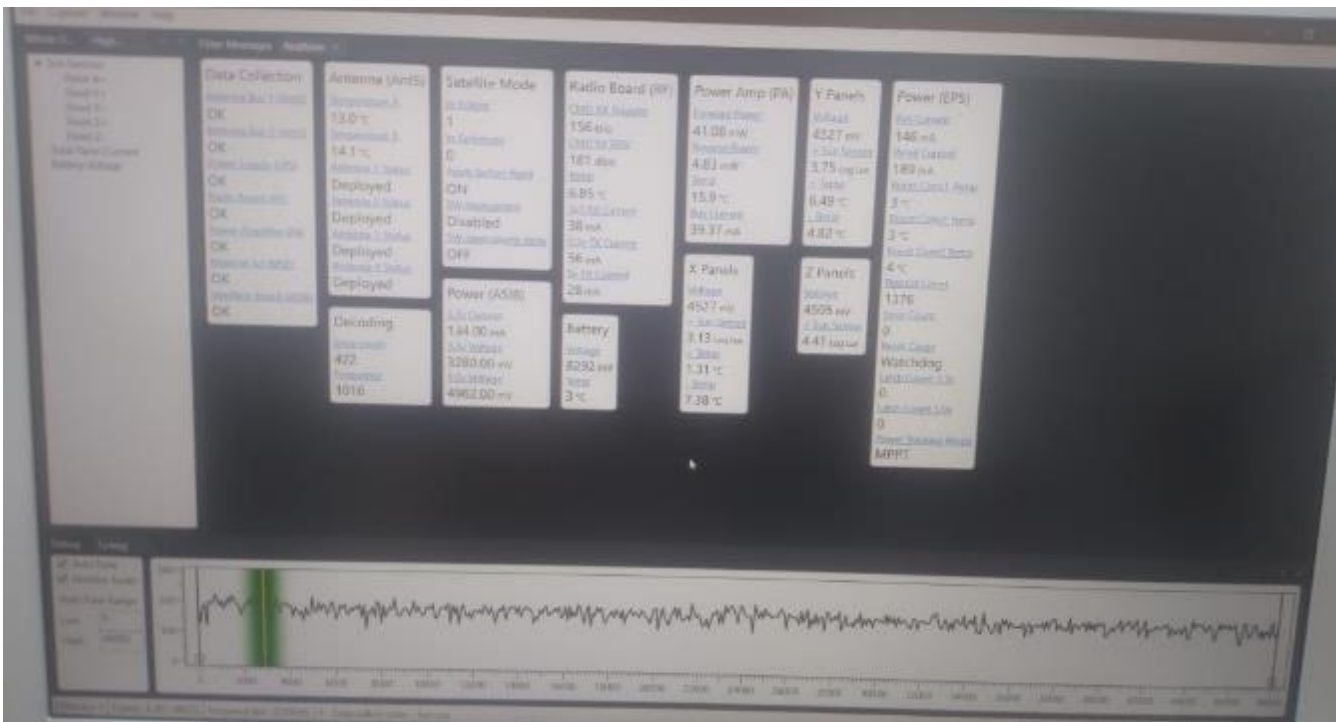
15/06/2020

FunCube-1 (Sunset Pass)

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,





Airplane ADS-B Signals were also Decoded.

**VT-BDQ** **800B05**

**Blue Dart Aviation** **BDA102**

**India** **Civil**

**Boeing 757 28APCF** **B752**

Altitude:	Vertical Speed:	Speed:	Heading:	Distance:	Squawk:	Engines:	Species:
579 m	-4 m/sec	224.1 km/h	133.0°		2710	Twin jet	Landplane

**Wake Turbulence:**  
Medium

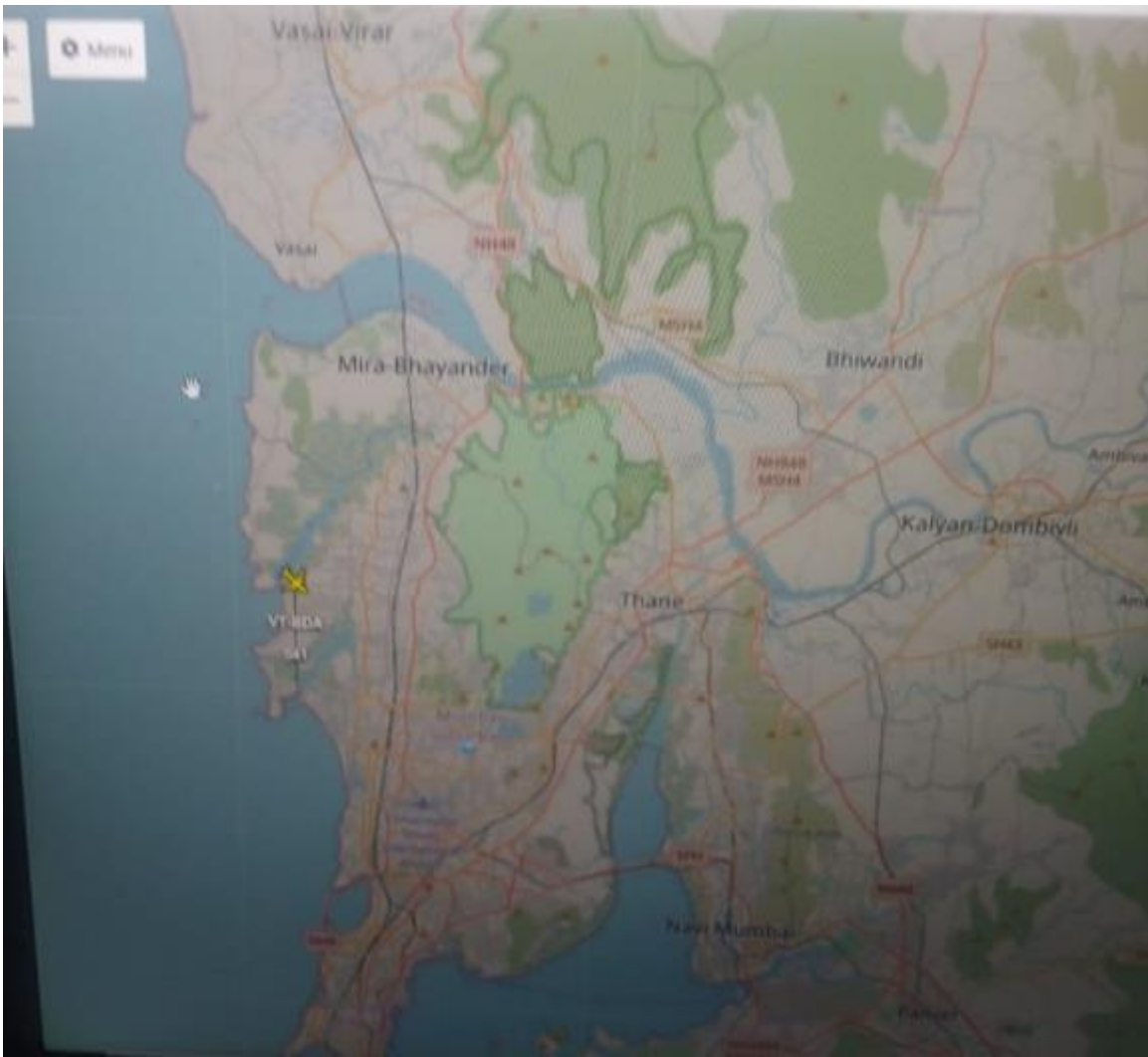
**Route:**  
Route not known

[www.airport-data.com](http://www.airport-data.com) :: [www.airliners.net](http://www.airliners.net) :: [www.airframes.org](http://www.airframes.org)  
Disable auto-select :: Submit route

Tracking 0 aircraft Pause :: List only visible

Silhouette	Flag	Reg.	ICAO	Callsign	Route	Altitude	Speed
------------	------	------	------	----------	-------	----------	-------





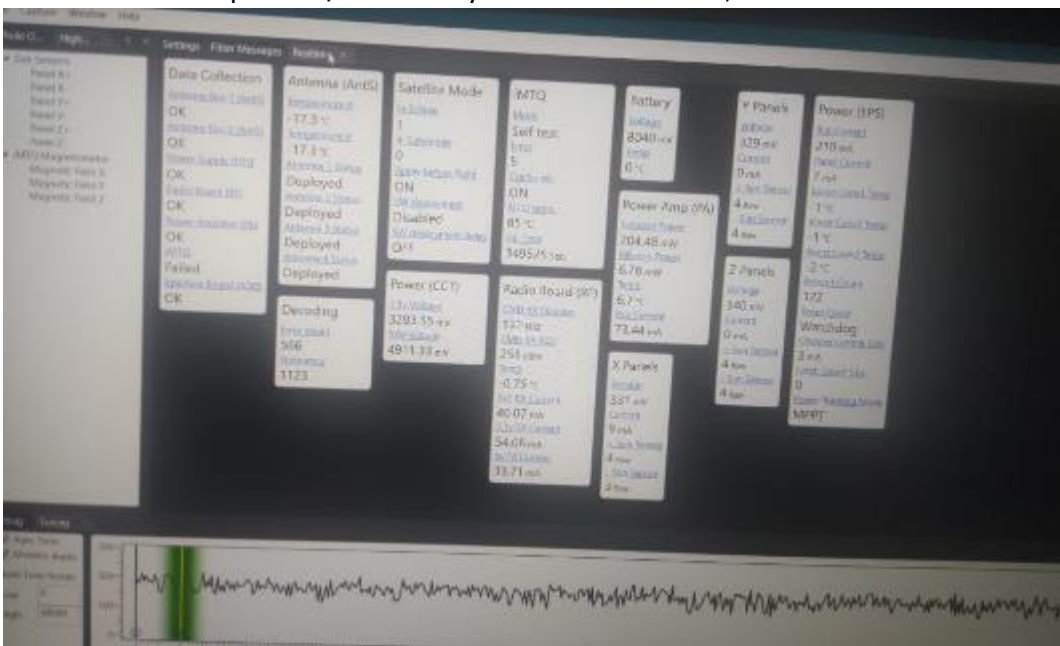
17/06/2020

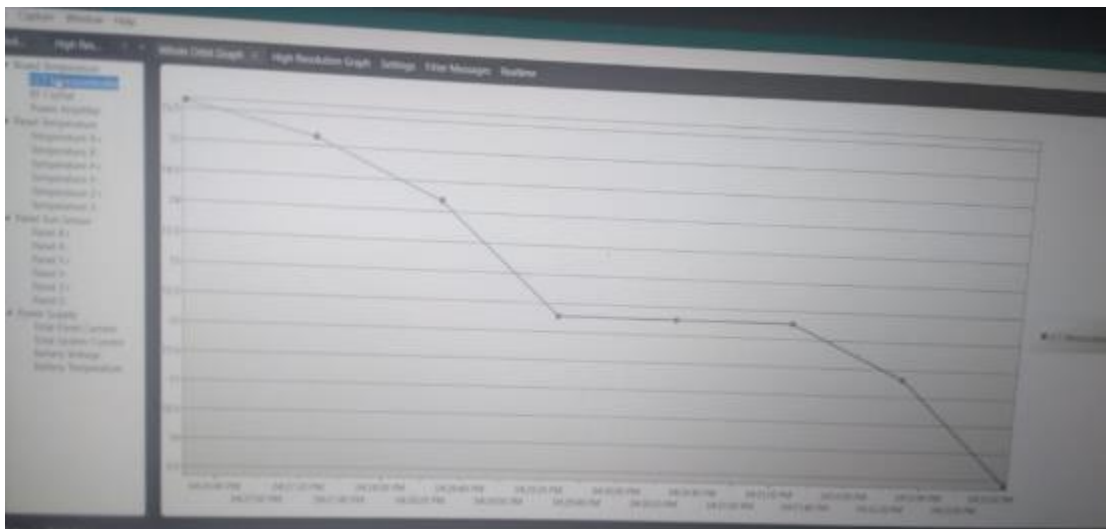
2 - CubeSat

Nayif-1, JY1SAT(Night Pass)

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,





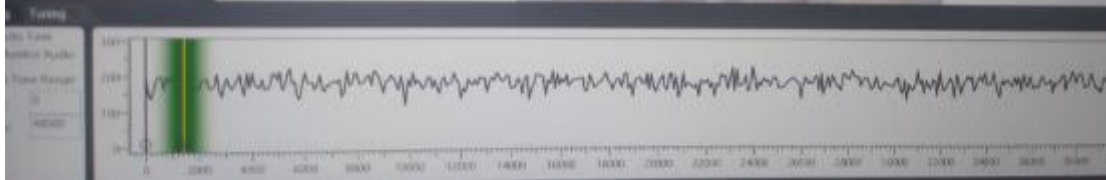
**Panel Sun Sensor**

- Panel 1: OK
- Panel 2: OK
- Panel 3: OK
- Panel 4: OK
- Panel 5: OK
- Panel 6: OK

**MTQ Magnetometer**

- MTQ 1: OK
- MTQ 2: OK
- MTQ 3: OK

2024-06-16 22:45:11 - 2024-06-16 22:45:44



<p><b>Panel Sun Sensor</b></p> <ul style="list-style-type: none"> <li>Panel 1: OK</li> <li>Panel 2: OK</li> <li>Panel 3: OK</li> <li>Panel 4: OK</li> <li>Panel 5: OK</li> <li>Panel 6: OK</li> </ul>	<p><b>Data Collection</b></p> <ul style="list-style-type: none"> <li>Antenna 1: OK</li> <li>Antenna 2: OK</li> <li>Antenna 3: OK</li> <li>Power Supply: Failed</li> <li>Radio: OK</li> <li>MTQ: OK</li> <li>MTQ 1: OK</li> <li>MTQ 2: OK</li> <li>MTQ 3: OK</li> </ul>	<p><b>Antenna (AntS)</b></p> <ul style="list-style-type: none"> <li>Temperature: 20.9 °C</li> <li>Antenna 1: Deployed</li> <li>Antenna 2: Deployed</li> <li>Antenna 3: Deployed</li> <li>Antenna 4: Deployed</li> <li>Decoding: 100% OK</li> </ul>	<p><b>Satellite Mode</b></p> <ul style="list-style-type: none"> <li>Mode: 0</li> <li>Submode: 0</li> <li>Mode Status: OK</li> <li>Antenna 1 Status: OK</li> <li>Antenna 2 Status: OK</li> <li>Antenna 3 Status: OK</li> <li>Antenna 4 Status: OK</li> <li>Decoding: 100% OK</li> </ul>	<p><b>MTQ</b></p> <ul style="list-style-type: none"> <li>Self test: OK</li> <li>Mode: 0</li> <li>Submode: 0</li> <li>Antenna 1: OK</li> <li>Antenna 2: OK</li> <li>Antenna 3: OK</li> <li>Antenna 4: OK</li> <li>Decoding: 100% OK</li> </ul>	<p><b>Battery</b></p> <ul style="list-style-type: none"> <li>Mode: OK</li> <li>Submode: OK</li> <li>Temperature: 1.2 °C</li> <li>Power Amp (PA): 45.48 mW</li> <li>Power (EPC): 0 mW</li> </ul>	<p><b>1 Panels</b></p> <ul style="list-style-type: none"> <li>Panel 1: OK</li> <li>Panel 2: OK</li> <li>Panel 3: OK</li> <li>Panel 4: OK</li> <li>Panel 5: OK</li> <li>Panel 6: OK</li> </ul>	<p><b>Power (EPC)</b></p> <ul style="list-style-type: none"> <li>Power: 0 mW</li> <li>Power: 0 mW</li> <li>Power: 0 mW</li> <li>Power: 0 mW</li> <li>Power: 0 mW</li> <li>Power: 0 mW</li> </ul>
---	--	--	--	---	---	---	--

2024-06-16 22:45:11 - 2024-06-16 22:45:44







On 26<sup>th</sup> of June, 2020, we Received 100 % transmission of the Cubesat NAYIF-1 and JY1SAT (Day Pass)

26/06/2020

Nayif-1, JY1SAT (Day Pass)

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,

6/26/2020 5:34:54 AM	890395	FM7	5 FCe3Ce FCe3Ce FCe3CeF11t9	2 d ./ + / 3	Ce FCe3Ce FCe3Ce FCe3Ce FCe3Ce FCe3CeF11t901DFt6EtC11c8Aq8Aq69c FCe3Ce FCe3Ce
6/26/2020 5:34:48 AM	890395	FM6			القصيدة هي "برقى روس الشرايف ما بنزل فالوظاه، حيث الطويل النايف لي فالنظرة حلاه، نايف وقدره نايف وكل العرب ترصاه"
6/26/2020 5:34:42 AM	890395	FM5			ولقد نقش على شعار مهمتي قصيدة للشاعرة الإماراتية عوشة بنت خليفة السويدي والتي أطلق عليها صاحب السمو الشيخ محمد بن راشد آل مكتوم لقب "فتاة العرب"
6/26/2020 5:34:36 AM	890395	FM4			أنا ثمرة استثمار صاحب السمو الشيخ محمد بن راشد آل مكتوم في مجموعة صغيرة من أبناء وبنات الإمارات قبل أكثر من عشرة سنوات. والآن أصبحت جامعات دولة الإمارات قادرة على بناء أقمار إصطناعية
6/26/2020 5:34:30 AM	890395	FM3			كما قام فريق إدارة المشروع من مركز محمد بن راشد للفضاء وهم إبراهيم الفاسمي، حصة المطروشي وفاطمة لوناة بالإشراف على مهمتي
6/26/2020 5:34:24 AM	890395	FM2			الفريق الذي عمل على تصميمي وبنائي هو: خليفة المهيري، عبدالله الشحي، فادية المعيني، مينا الشيراوي، أحمد الشاعر، حصة علي وشيما المبروكي
6/26/2020 5:34:18 AM	890395	FM1			لقد لعبت الفضاء! أنا نايف-1 أول قمر إصطناعي جامعي من دولة الإمارات ولقد عمل على بنائي فريق من طلبة الهندسة الإماراتيون من الجامعة الأمريكية في الشارقة
6/26/2020 5:32:54 AM	890394	FM7	5 FCe3Ce FCe3Ce FCe3CeF11t9	2 d ./ + / 3	Ce FCe3Ce FCe3Ce FCe3Ce FCe3Ce FCe3CeF11t901DFt6EtC11c8Aq8Aq69c FCe3Ce FCe3Ce
6/26/2020 5:32:48 AM	890394	FM6			القصيدة هي "برقى روس الشرايف ما بنزل فالوظاه، حيث الطويل النايف لي فالنظرة حلاه، نايف وقدره نايف وكل العرب ترصاه"
6/26/2020 5:32:42 AM	890394	FM5			ولقد نقش على شعار مهمتي قصيدة للشاعرة الإماراتية عوشة بنت خليفة السويدي والتي أطلق عليها صاحب السمو الشيخ محمد بن راشد آل مكتوم لقب "فتاة العرب"
6/26/2020 5:32:36 AM	890394	FM4			أنا ثمرة استثمار صاحب السمو الشيخ محمد بن راشد آل مكتوم في مجموعة صغيرة من أبناء وبنات الإمارات قبل أكثر من عشرة سنوات. والآن أصبحت جامعات دولة الإمارات قادرة على بناء أقمار إصطناعية
6/26/2020 5:32:30 AM	890394	FM3			كما قام فريق إدارة المشروع من مركز محمد بن راشد للفضاء وهم إبراهيم الفاسمي، حصة المطروشي وفاطمة لوناة بالإشراف على مهمتي
6/26/2020 5:30:48 AM	890393	FM6			القصيدة هي "برقى روس الشرايف ما بنزل فالوظاه، حيث الطويل النايف لي فالنظرة حلاه، نايف وقدره نايف وكل العرب ترصاه"
6/26/2020 5:30:42 AM	890393	FM5			ولقد نقش على شعار مهمتي قصيدة للشاعرة الإماراتية عوشة بنت خليفة السويدي والتي أطلق عليها صاحب السمو الشيخ محمد بن راشد آل مكتوم لقب "فتاة العرب"
6/26/2020 5:30:36 AM	890393	FM4			أنا ثمرة استثمار صاحب السمو الشيخ محمد بن راشد آل مكتوم في مجموعة صغيرة من أبناء وبنات الإمارات قبل أكثر من عشرة سنوات. والآن أصبحت جامعات دولة الإمارات قادرة على بناء أقمار إصطناعية
6/26/2020 5:30:24 AM	890393	FM2			الفريق الذي عمل على تصميمي وبنائي هو: خليفة المهيري، عبدالله الشحي، فادية المعيني، مينا الشيراوي، أحمد الشاعر، حصة علي وشيما المبروكي
6/26/2020 5:30:18 AM	890393	FM1			لقد لعبت الفضاء! أنا نايف-1 أول قمر إصطناعي جامعي من دولة الإمارات ولقد عمل على بنائي فريق من طلبة الهندسة الإماراتيون من الجامعة الأمريكية في الشارقة
6/26/2020 5:28:54 AM	890392	FM7	5 FCe3Ce FCe3Ce FCe3CeF11t9	2 d ./ + / 3	Ce FCe3Ce FCe3Ce FCe3Ce FCe3Ce FCe3CeF11t901DFt6EtC11c8Aq8Aq69c FCe3Ce FCe3Ce
6/26/2020 5:28:49 AM	890392	FM6			القصيدة هي "برقى روس الشرايف ما بنزل فالوظاه، حيث الطويل النايف لي فالنظرة حلاه، نايف وقدره نايف وكل العرب ترصاه"
6/26/2020 5:28:42 AM	890392	FM5			ولقد نقش على شعار مهمتي قصيدة للشاعرة الإماراتية عوشة بنت خليفة السويدي والتي أطلق عليها صاحب السمو الشيخ محمد بن راشد آل مكتوم لقب "فتاة العرب"

Translated as

The poem, she dung with a paper, the sherrifs. What with a hostel . The gossio where the long Naif ( naif can be a name or the literal meaning is lofty or eminent) to me . The look his solution naif and appreciate it naif and every arab to please him

I samrah astatamr sahab titled al shaikh mahamad bin rashid al maktum in small appeal from children and daughters of emirates before two more years.

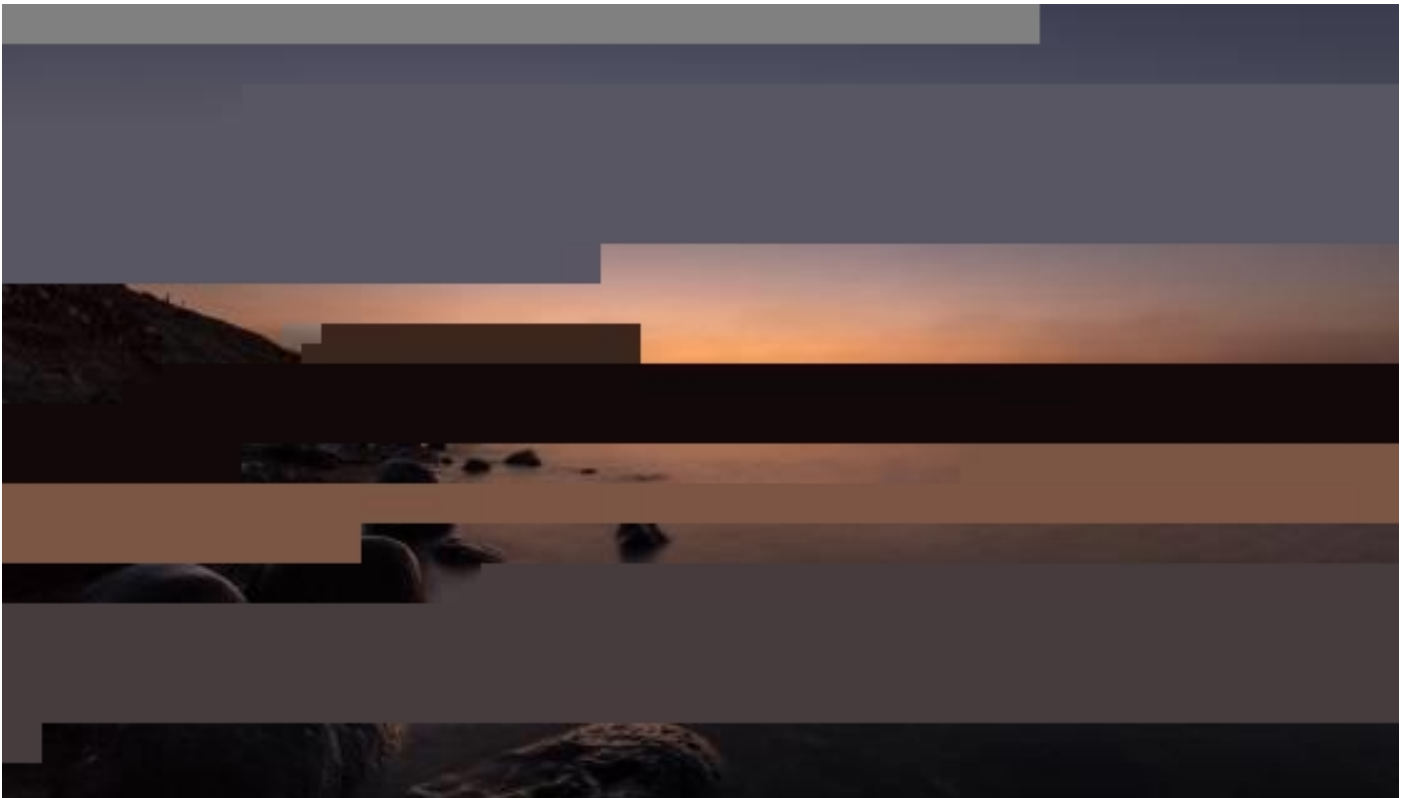
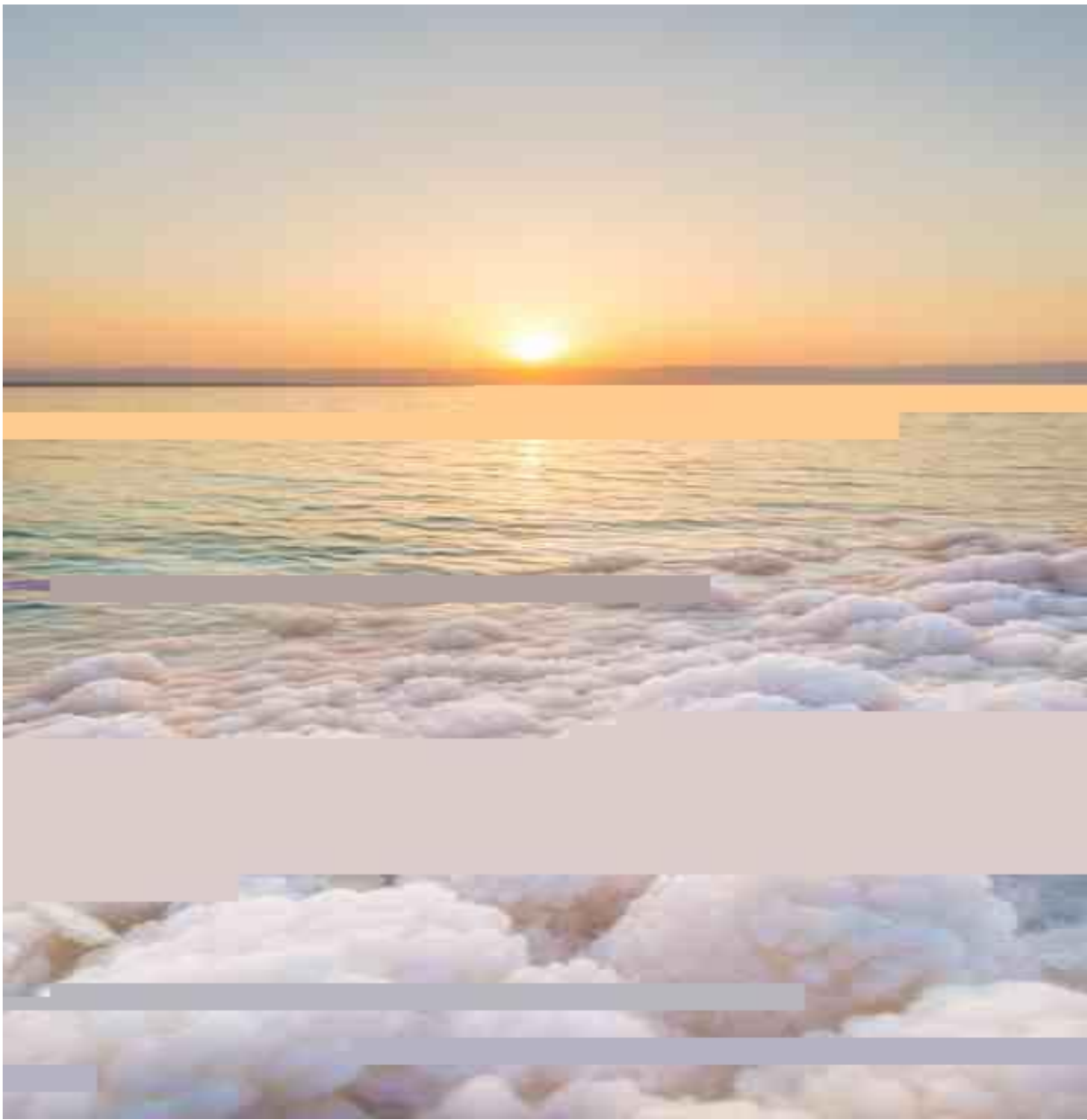
I became able to caress the universities of dawla of emirates..

The poem is "Barak Rus Al Sharif, what we have come down with, the gossip, where the long, fine is mine, the view is beautiful.

This is engraved on the slogan of the mission of a poem by the Emirati poet Awcheh bint Khalifa Al Suwaidi, which His Highness Sheikh Mohammed bin Rashid Al Maktoum called "the girl of the Arabs"

I am the result of the investment of His Highness Sheikh Mohammed bin Rashid Al Maktoum in a small group of sons and daughters of the Emirates more than ten years ago. Now, UAE universities are able to build satellites





Then We moved on to ORBCOMM

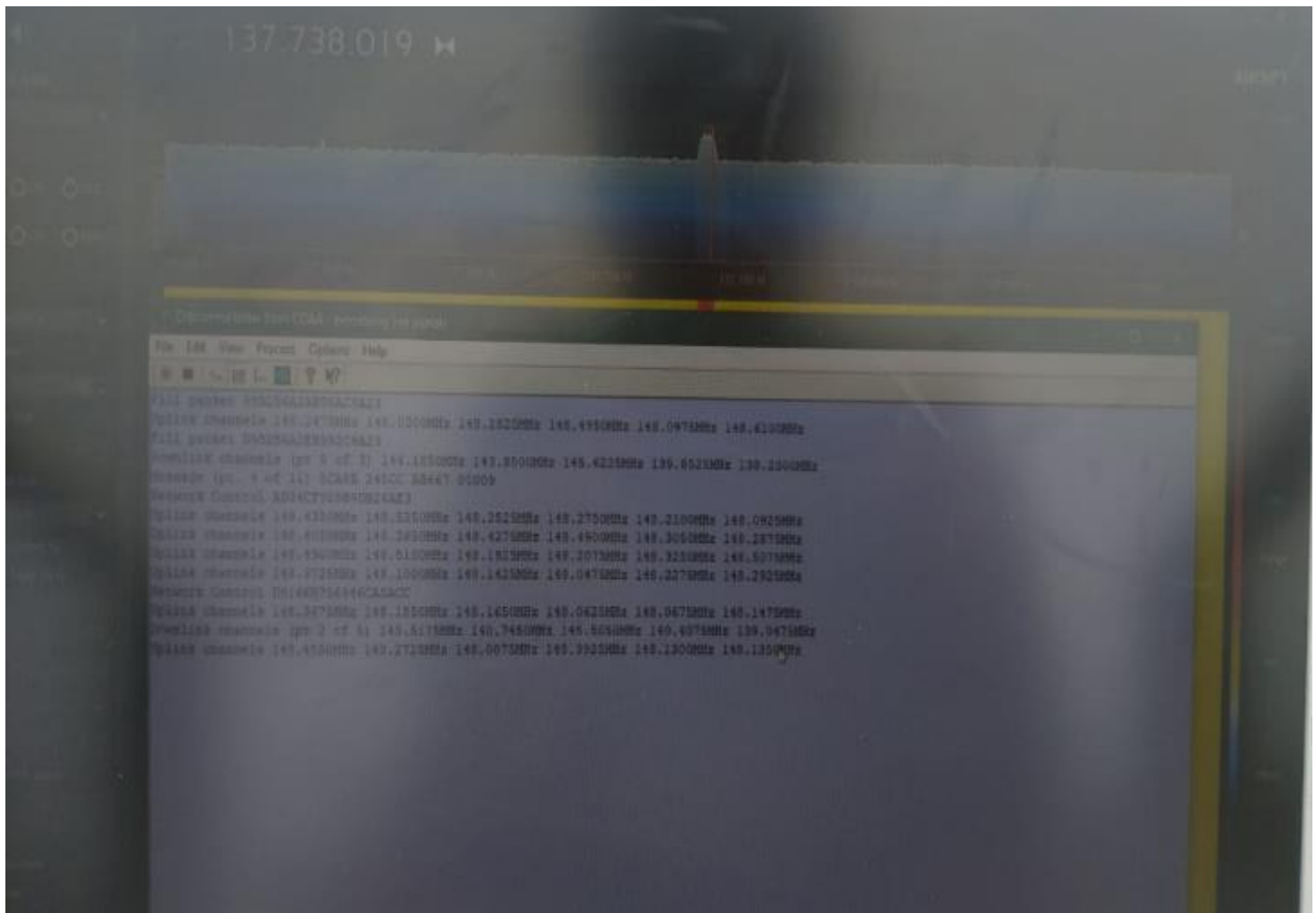
They are a group of ~30 Satellites.

29/06/2020

ORBCOMM(Day Pass)

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,



Then we moved on one of the most amazing Satellite – MeteorM2

The have camera onboard which send live images from space.

They are a Weather Satellite.

With This We started our Section – **My eyes in Space**



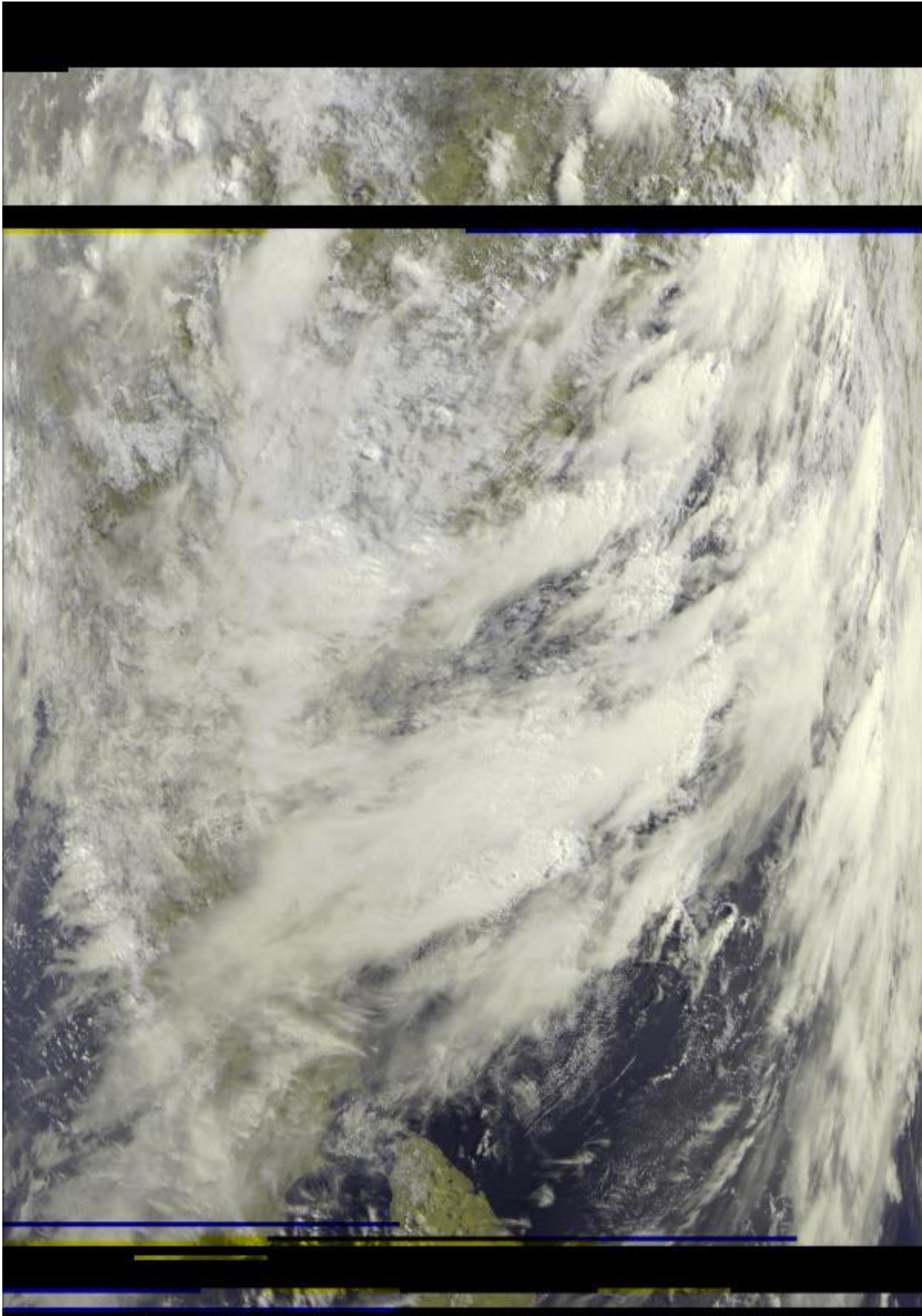
05/07/2020

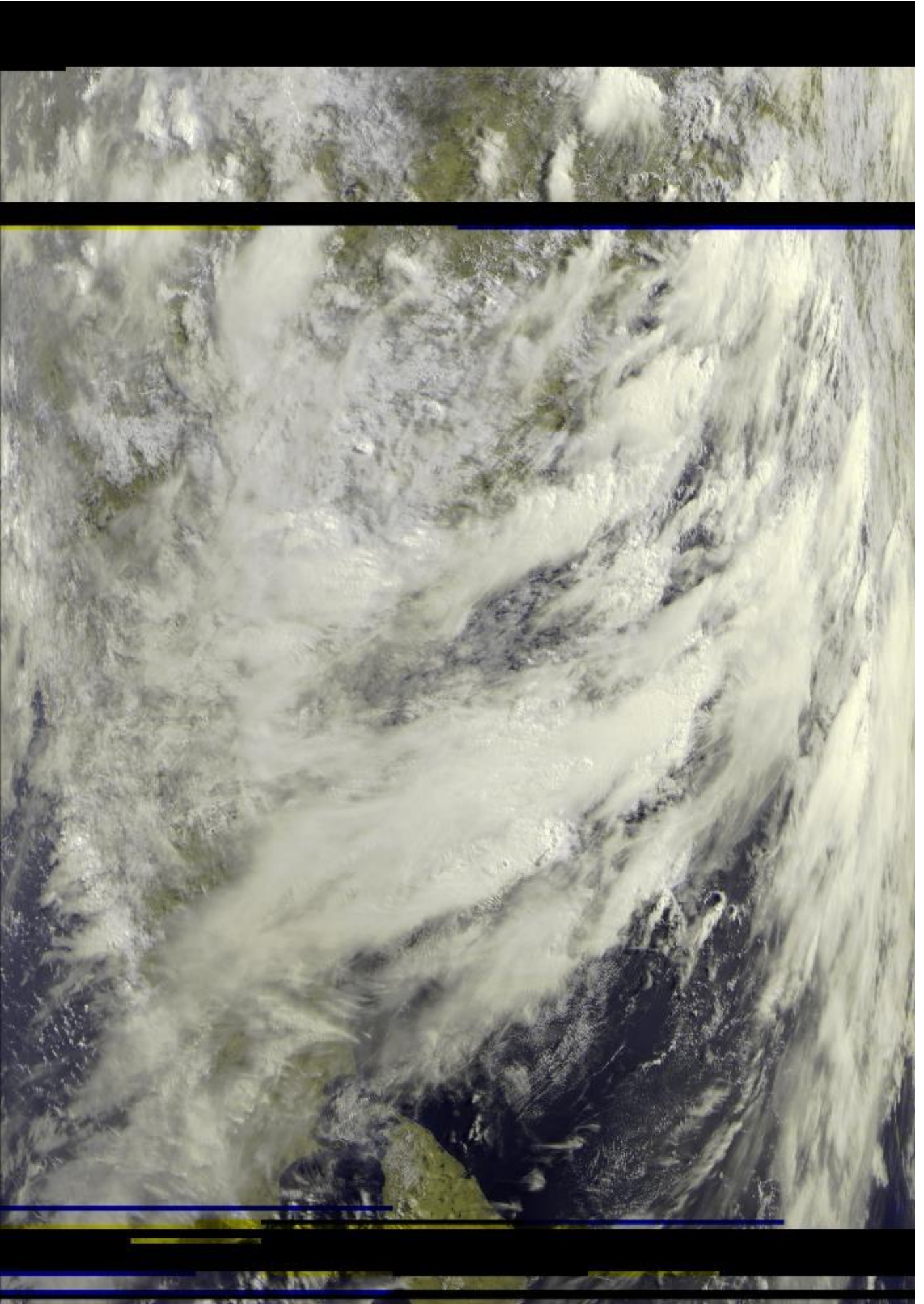
Meteor M2(Day Pass) – Only Transmits in Day

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,

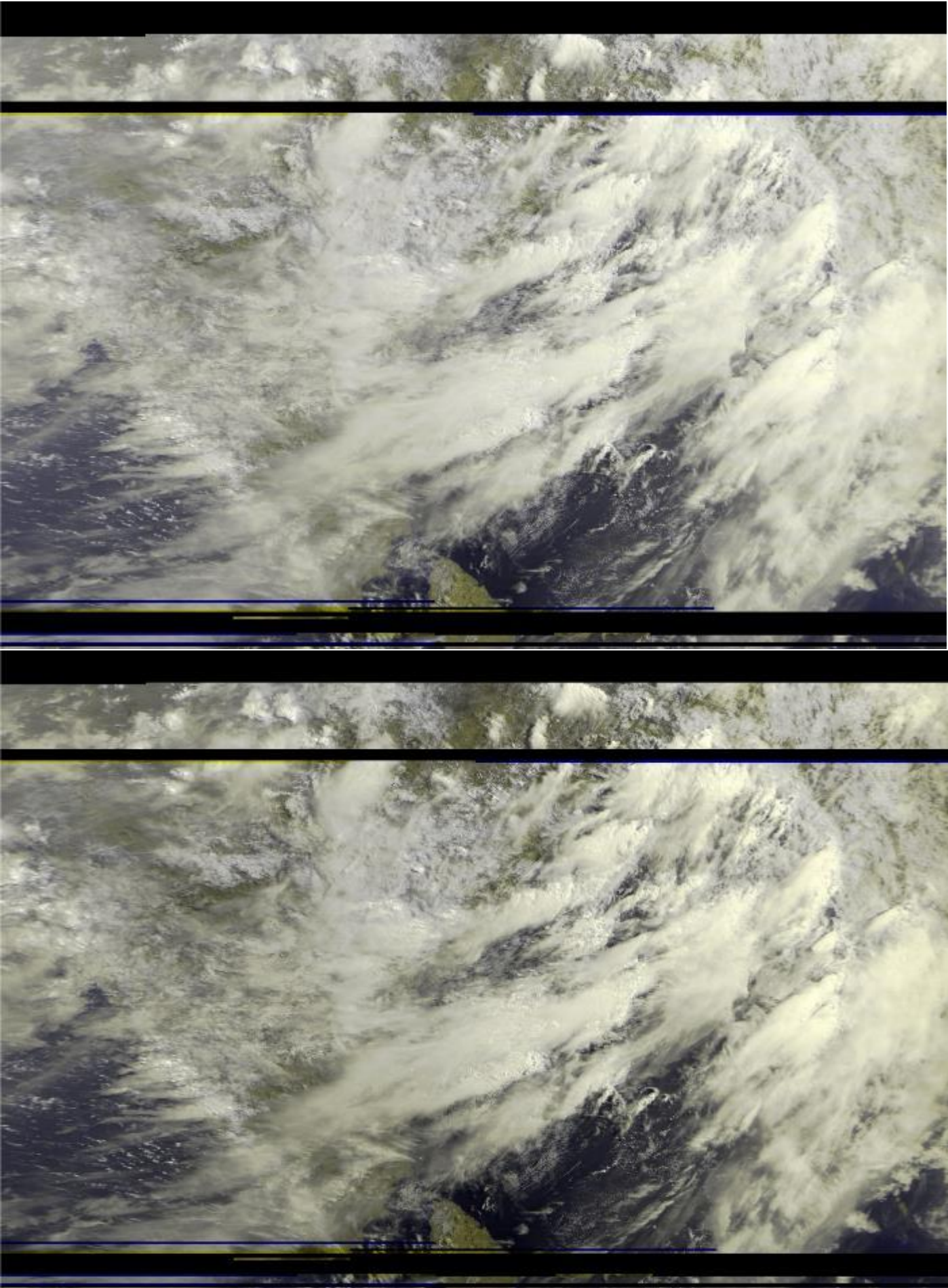
Image With Curvature Effect



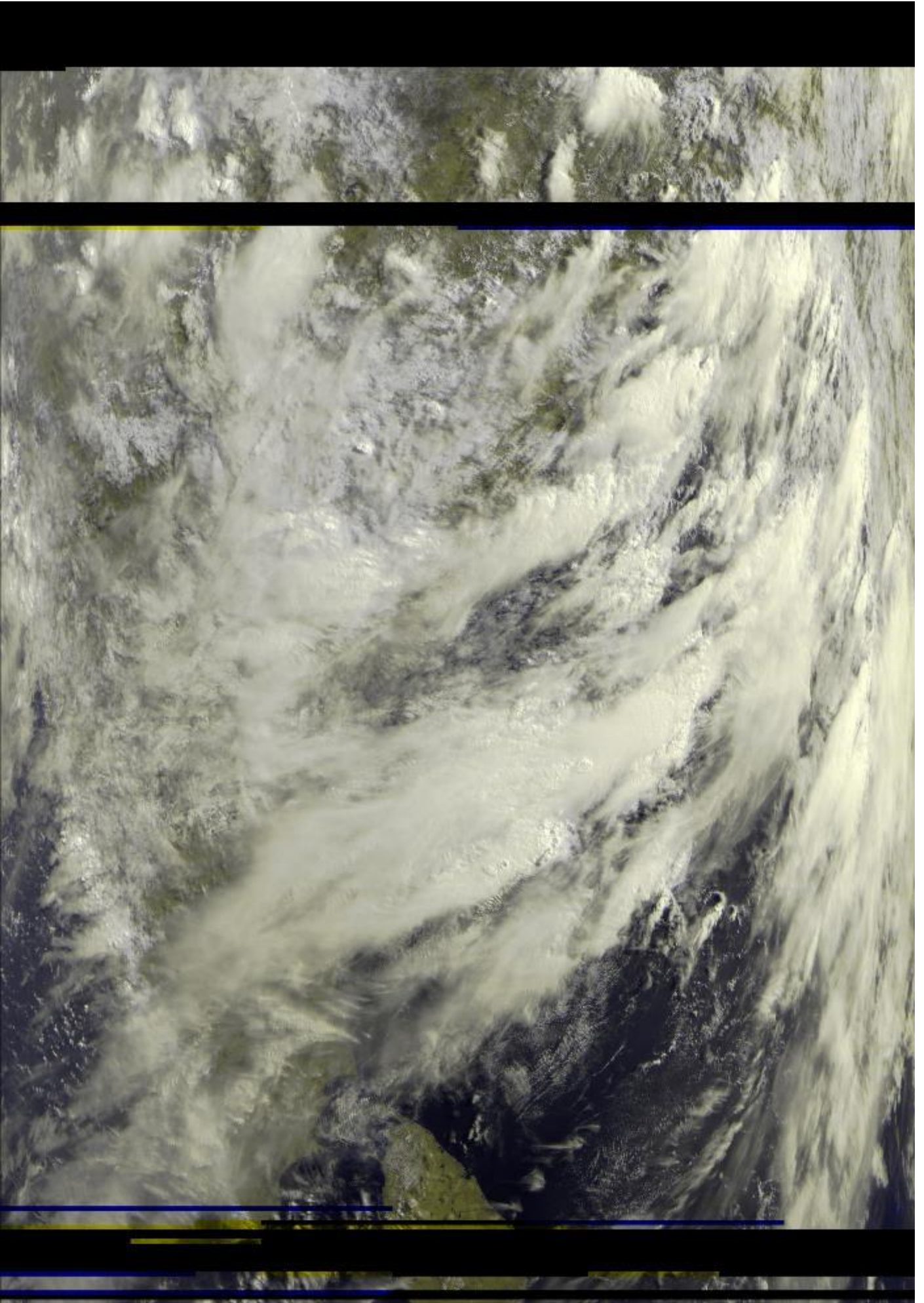




Corrected Image – No curvature Effect









On same Day we Received a Rare Sight of twilight (The Line that Separates Light and Dark part of earth.

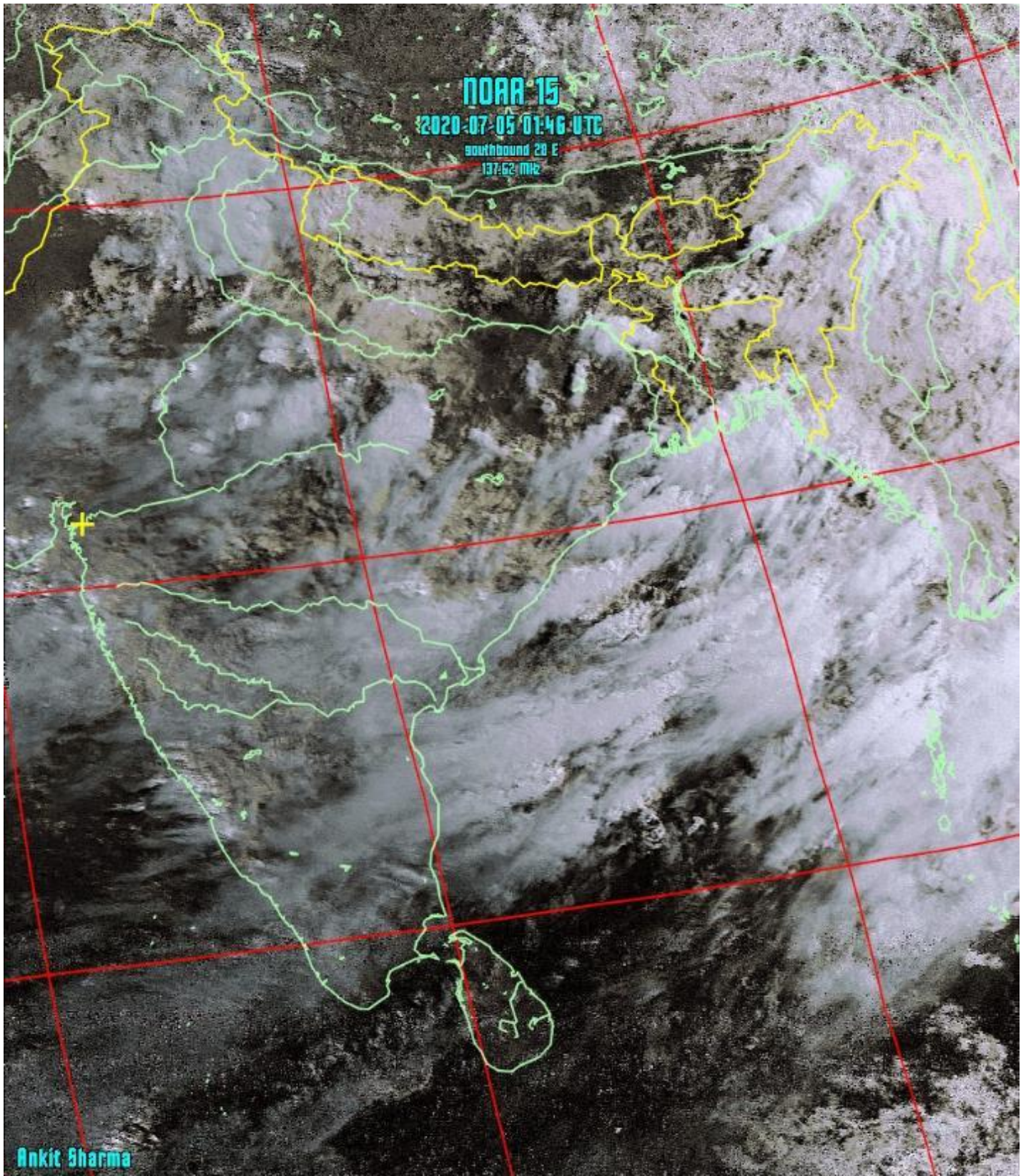
NOAA-15 & NOAA – 19

05/07/2020

Location – Bharuch,

Ground Station Operator/Data Analyser – Ankit Sharma,

Some Images are in 3D ,



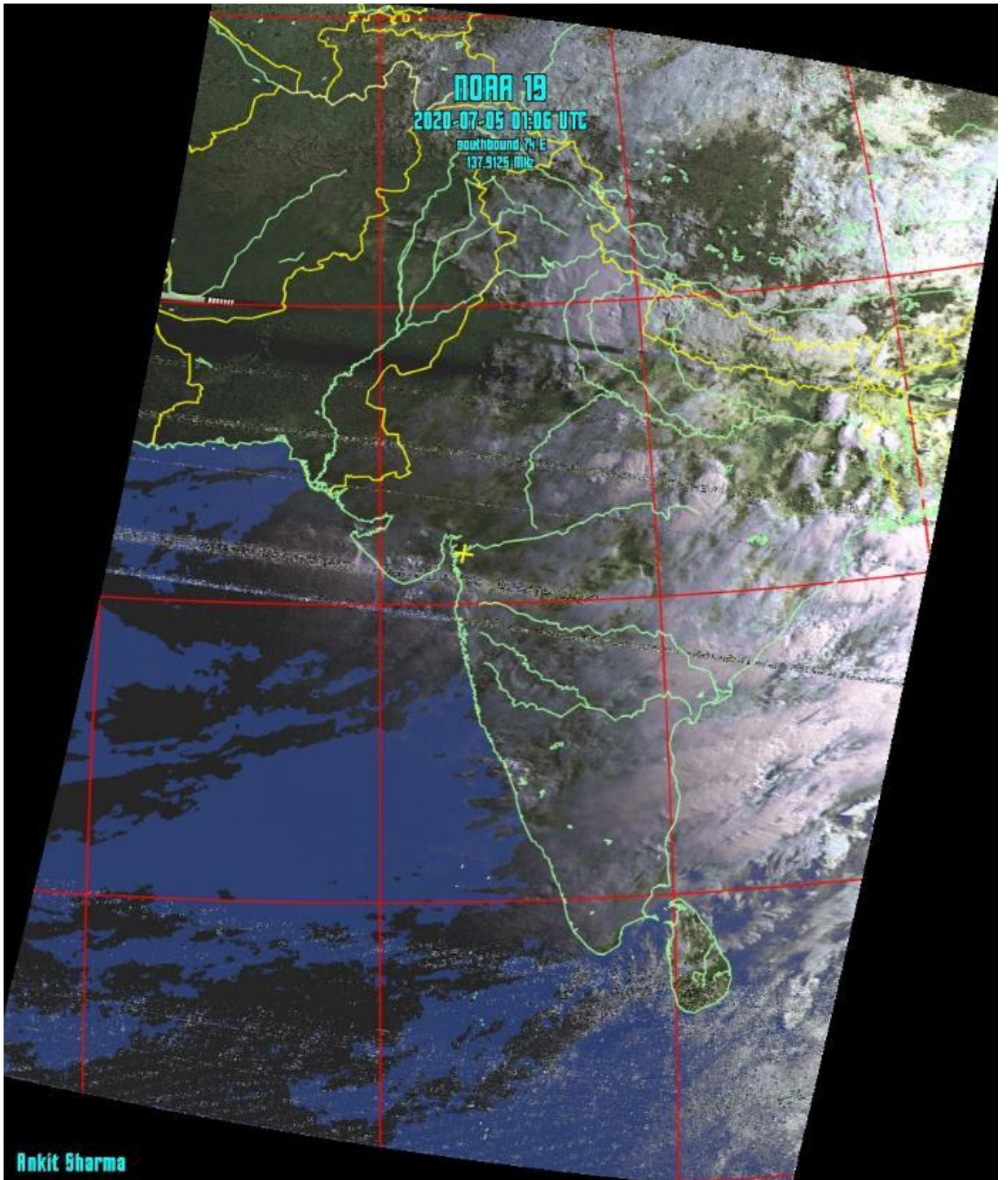


**NOAA 19**

**2020-07-05 01:06 UTC**

Southbound, 74° E  
137.9125 Mile

**Ankit Sharma**

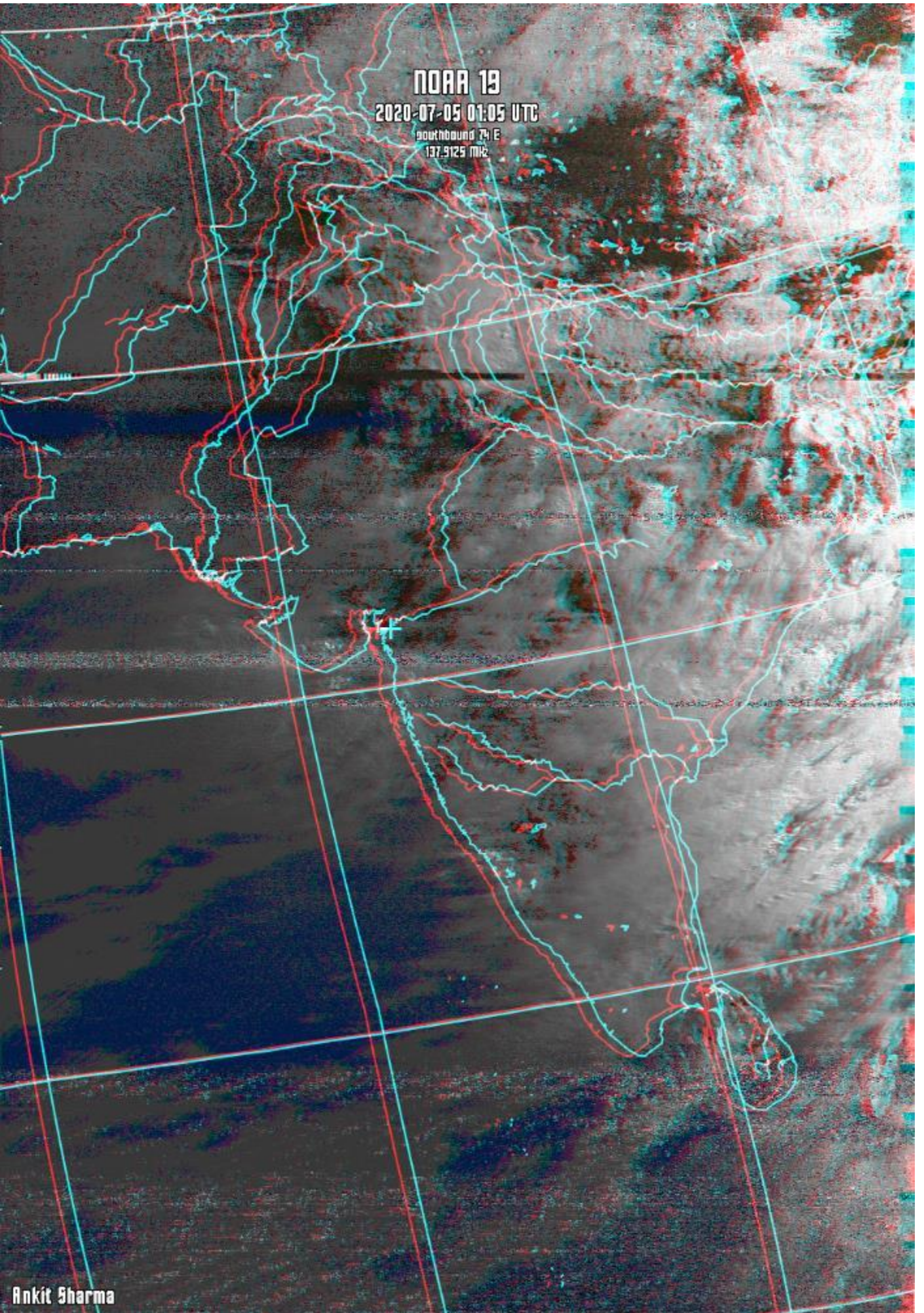




NOAA 19

2020-07-05 01:05 UTC

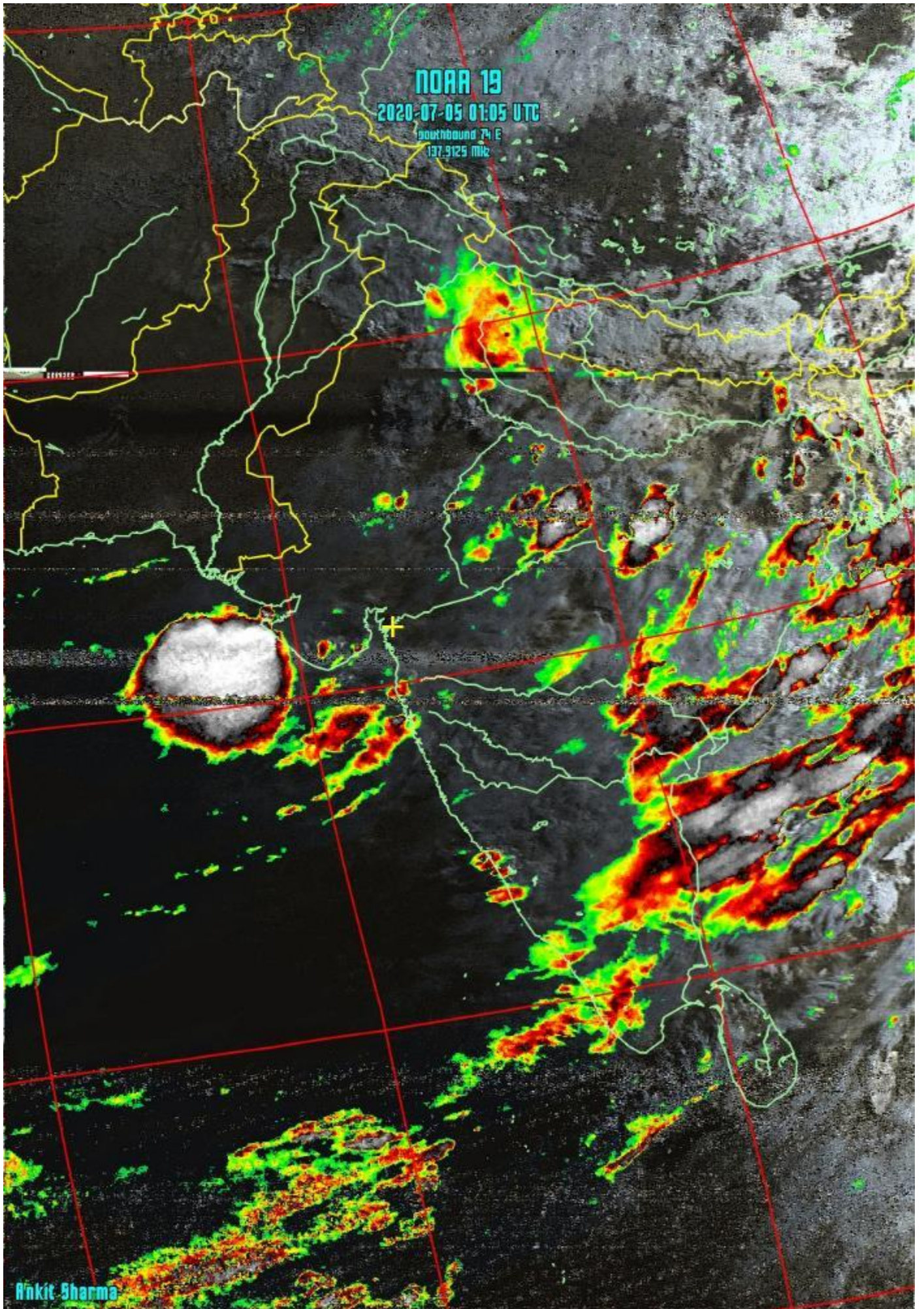
Southbound 74 E  
137.9125 MHz



Ankit Sharma

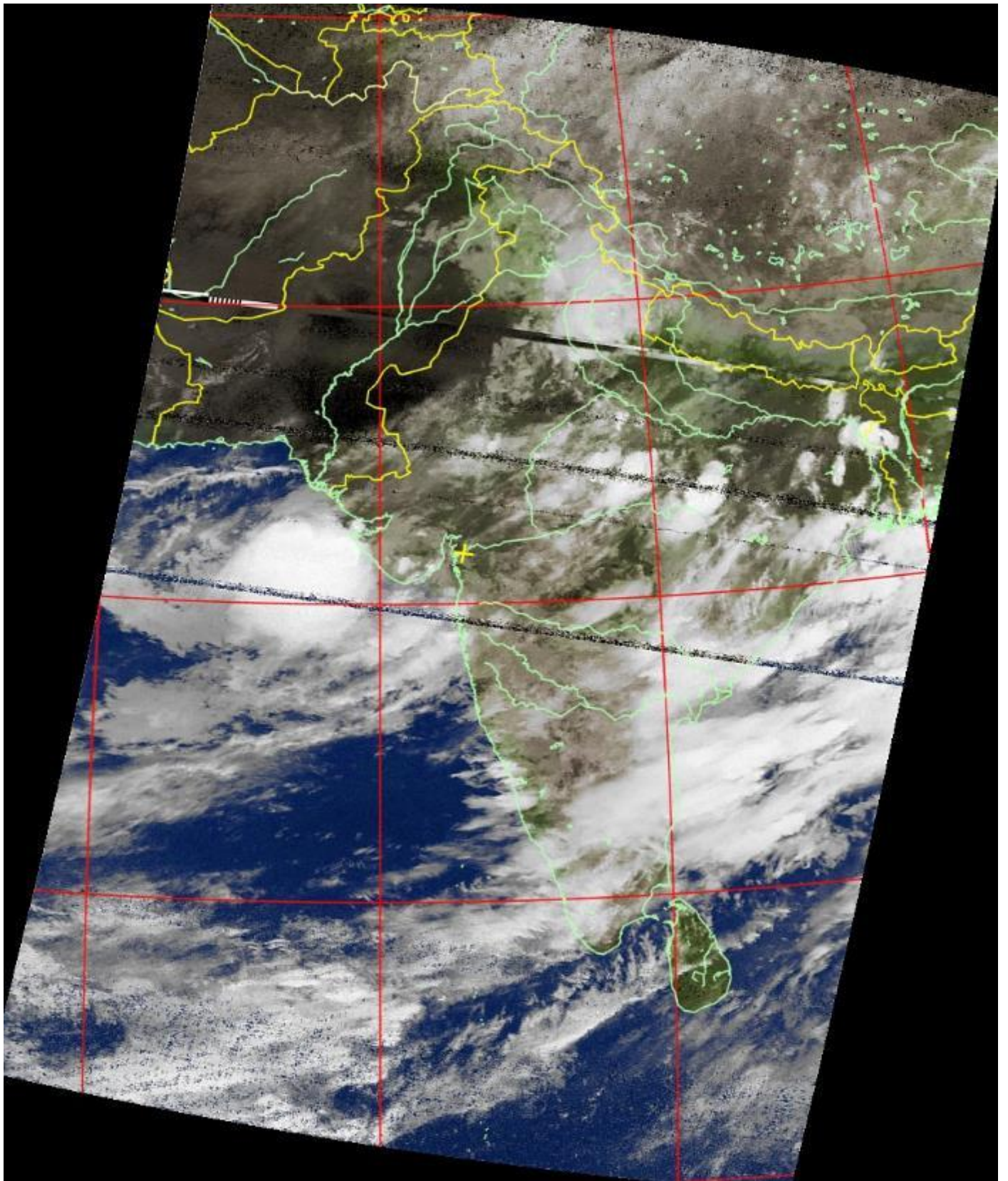


**NOAA 19**  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



Ankit Sharma



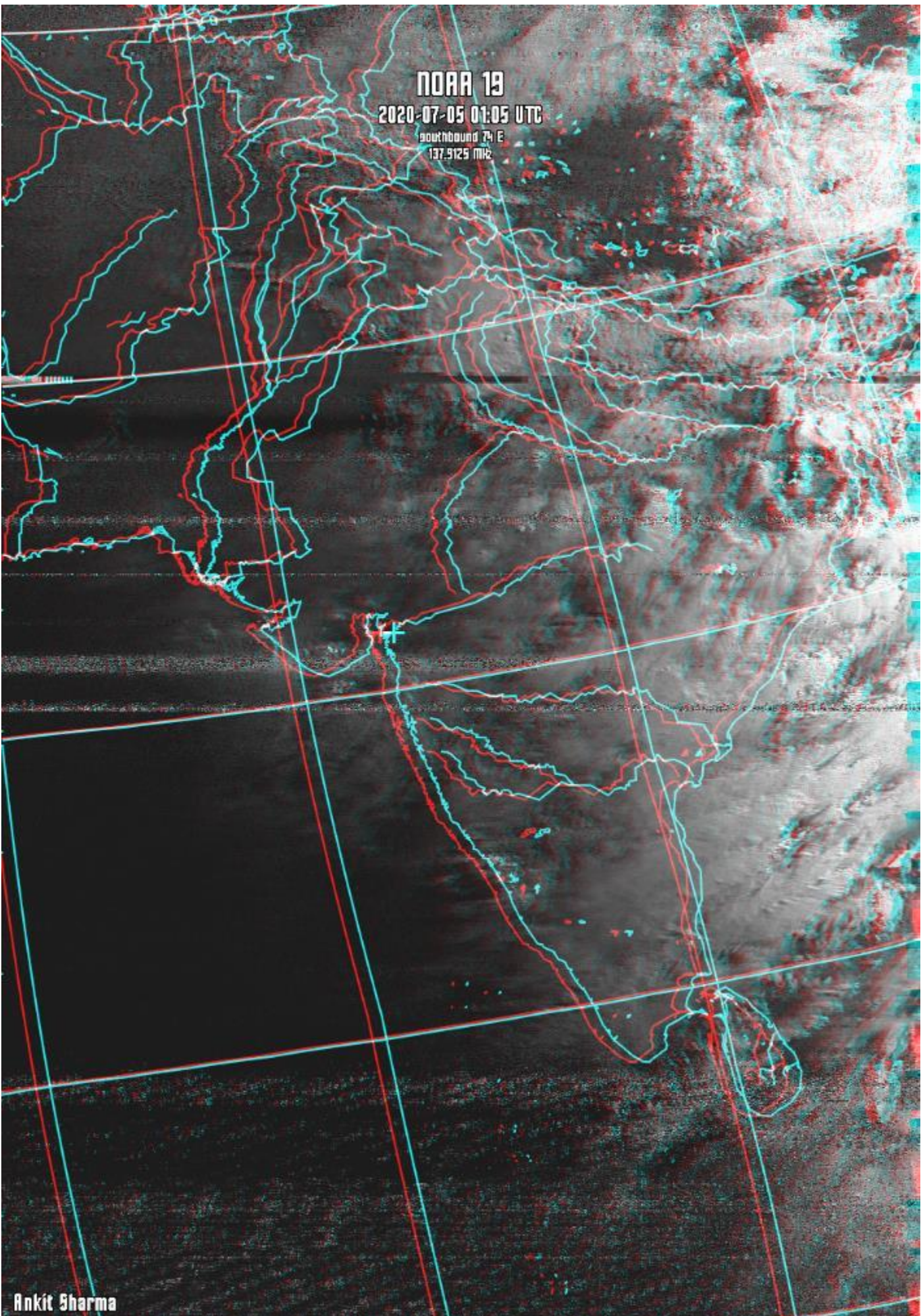




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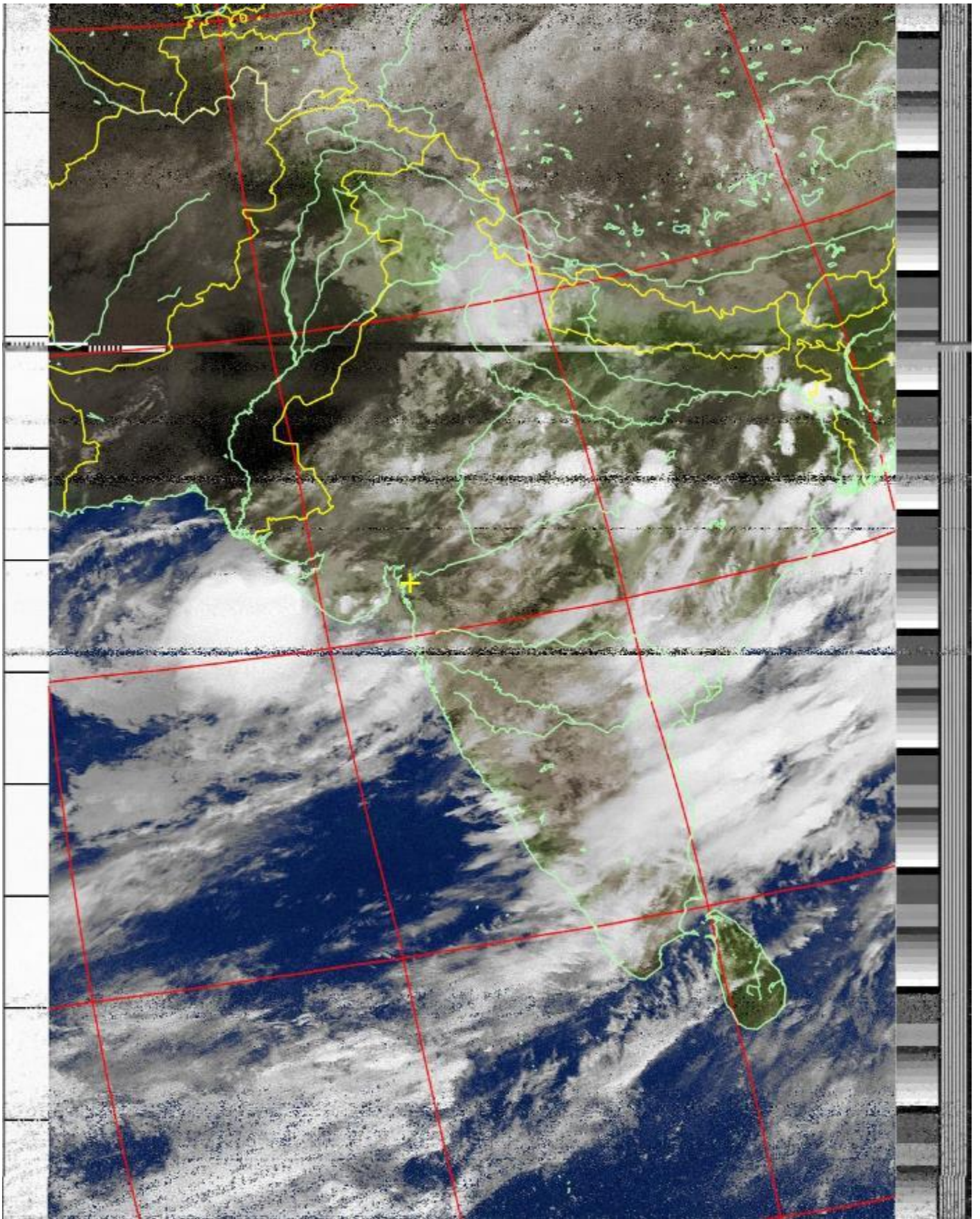
2020-07-05 01:05 UTC

Southbound 74 E  
137.9125 MHz



Ankit Sharma





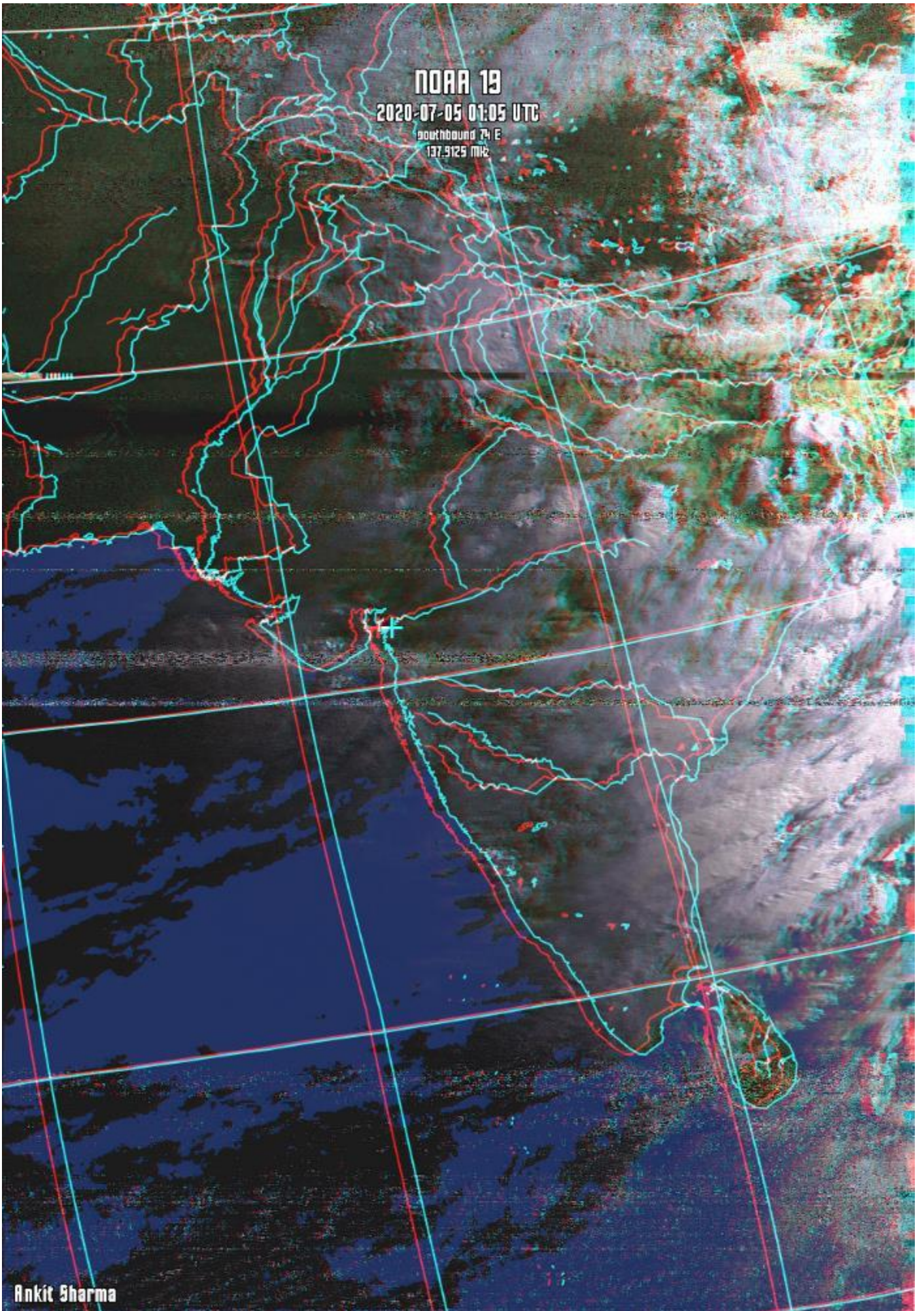


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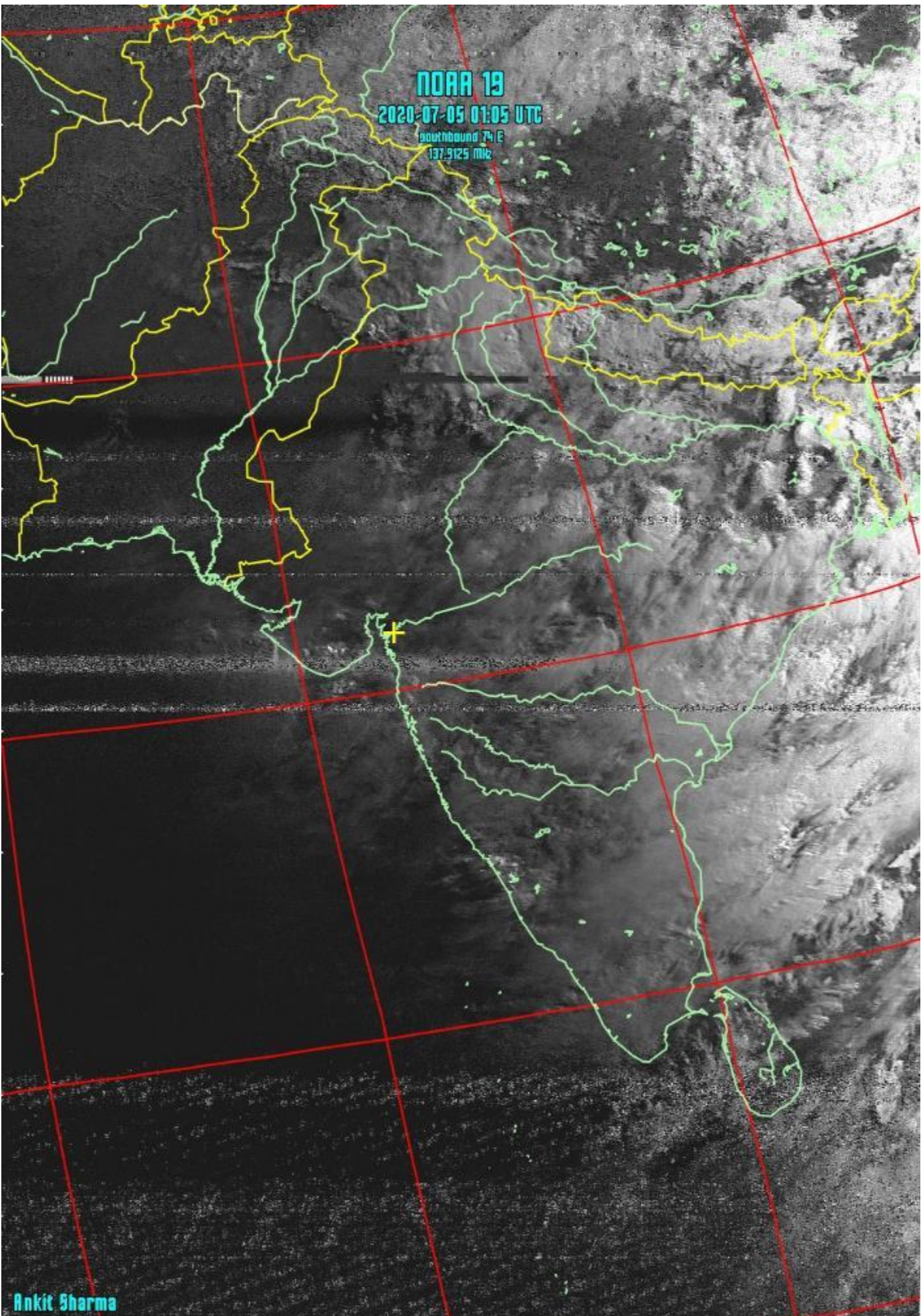
Southbound 74 E  
137.9125 MHz

Ankit Sharma





NOAA 19  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



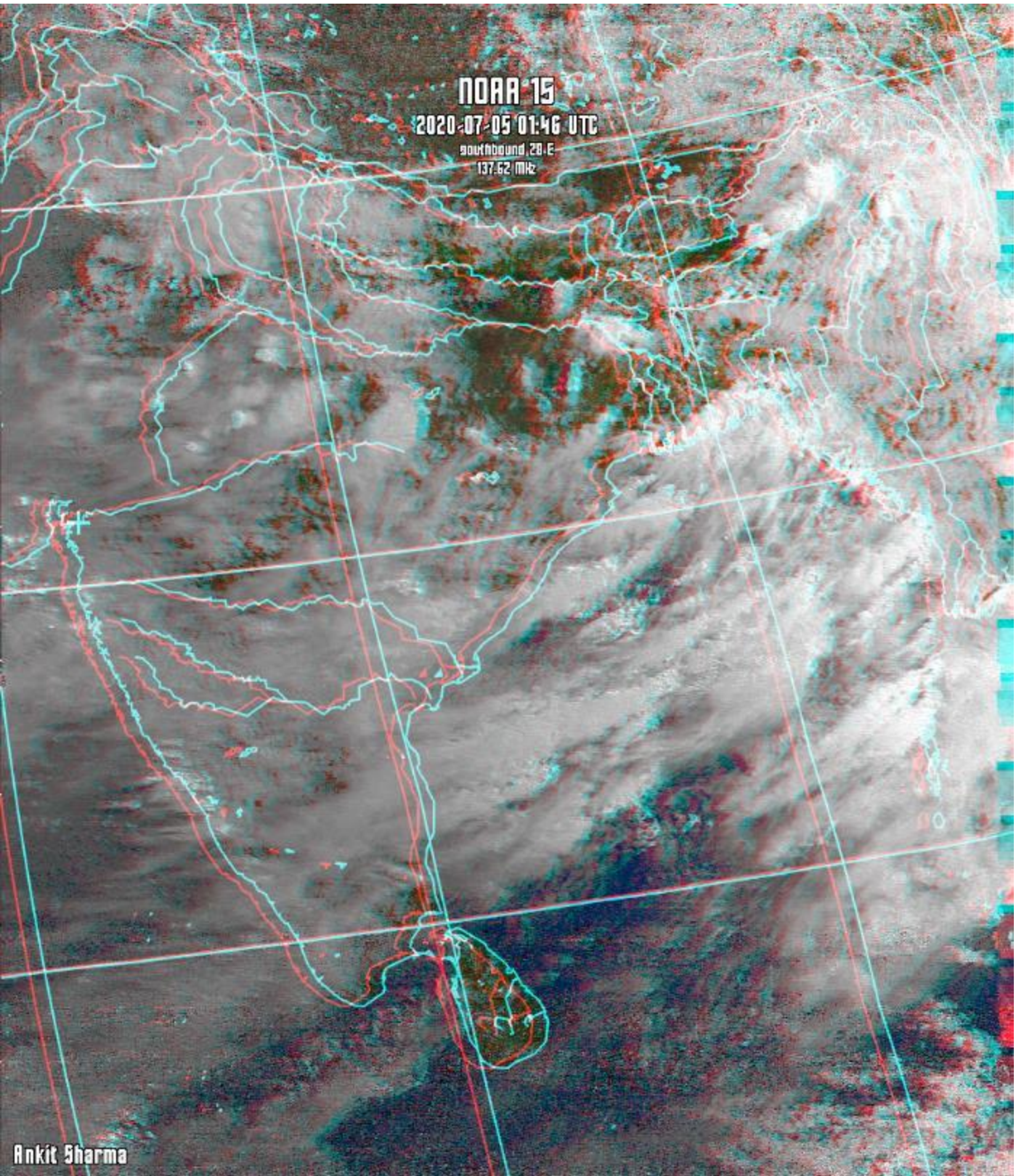
Ankit Sharma



NOAA 15

2020-07-05 01:46 UTC

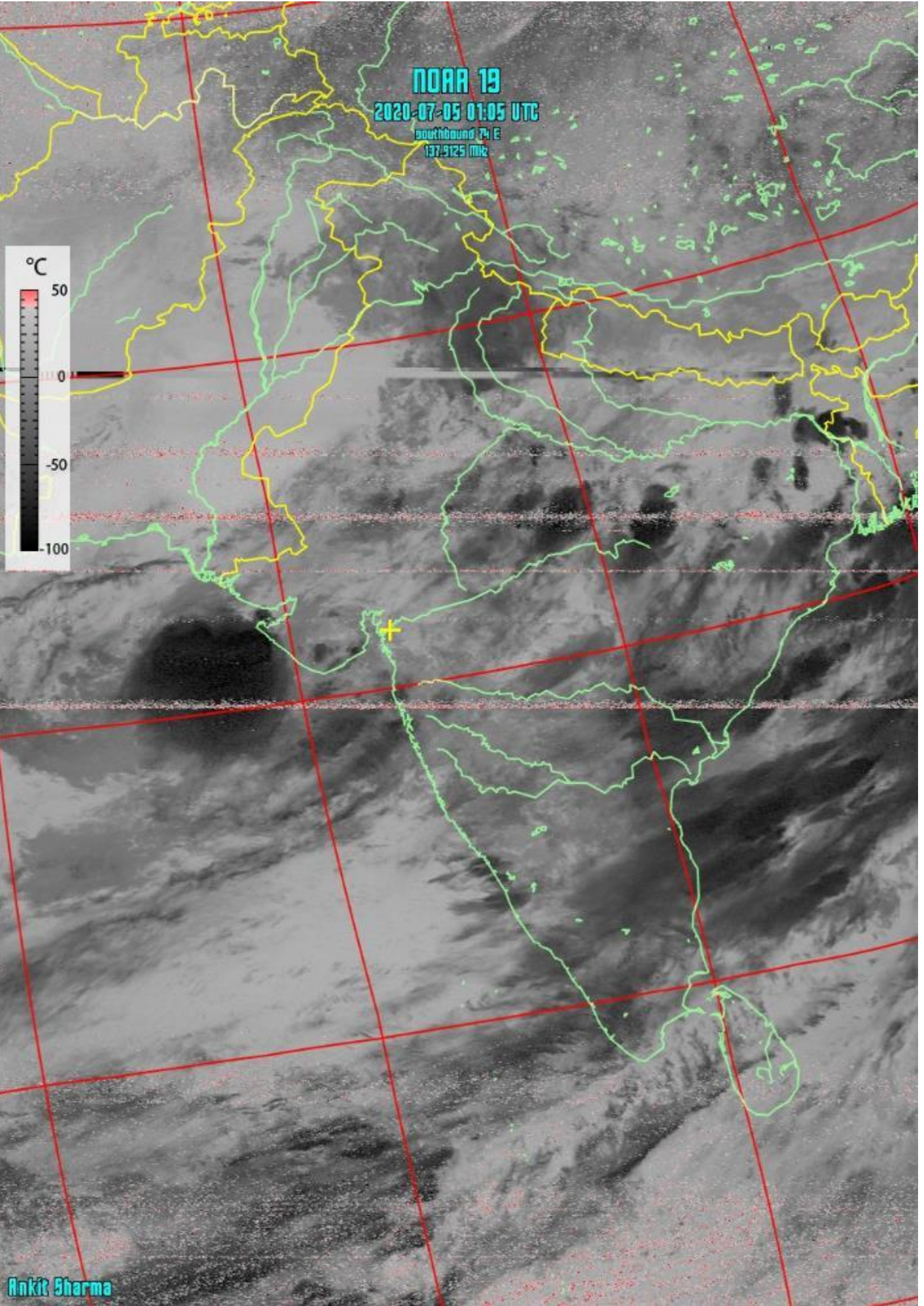
Southbound, 28. E  
137.62 MHz



Ankit Sharma



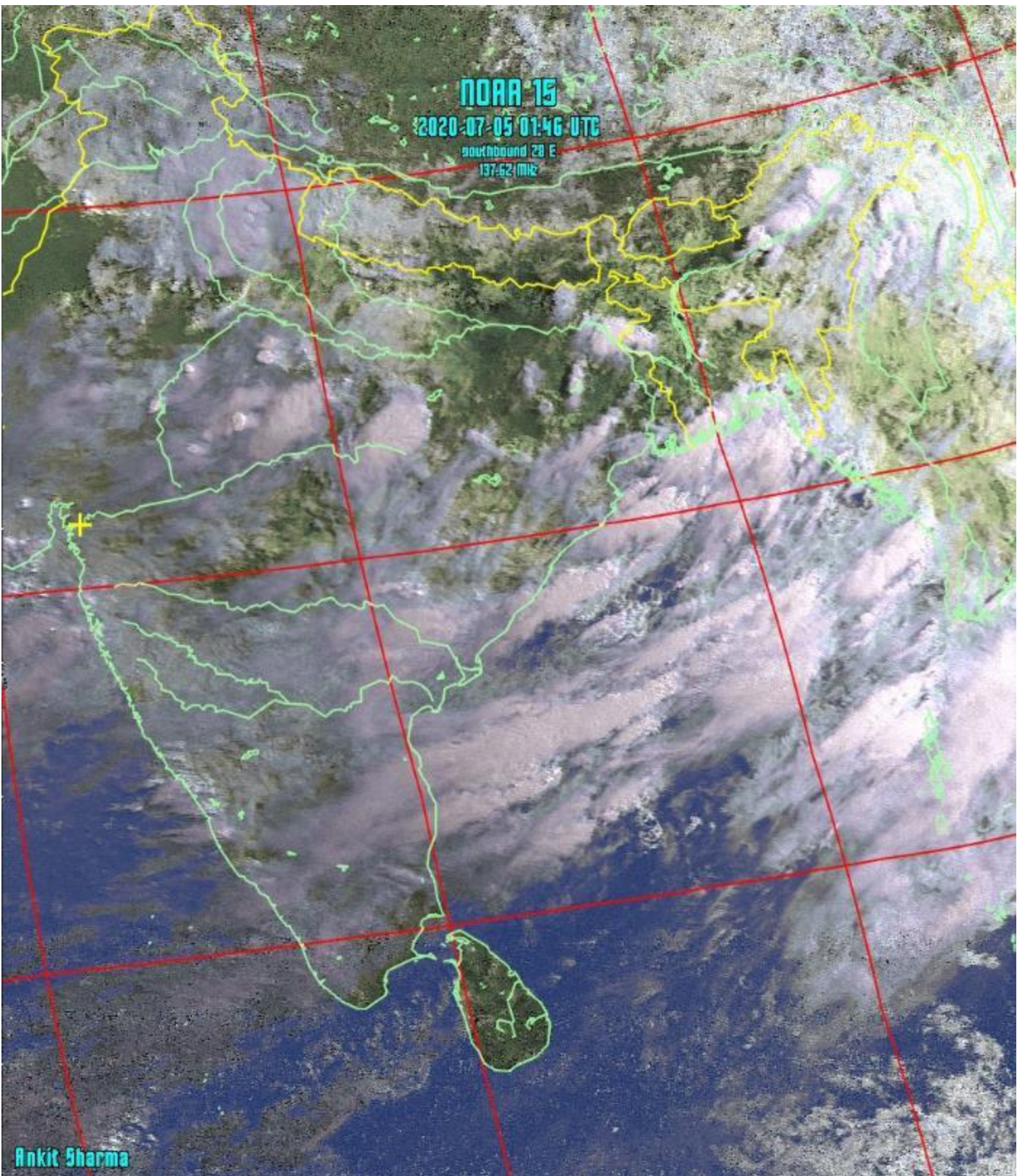
**NOAA 19**  
2020-07-05 01:05 UTC  
southbound 74 E  
137.9125 MHz



Ankit Sharma



NOAA 15  
2020-07-05 01:46 UTC  
Southbound 29 E  
137.62 MHz

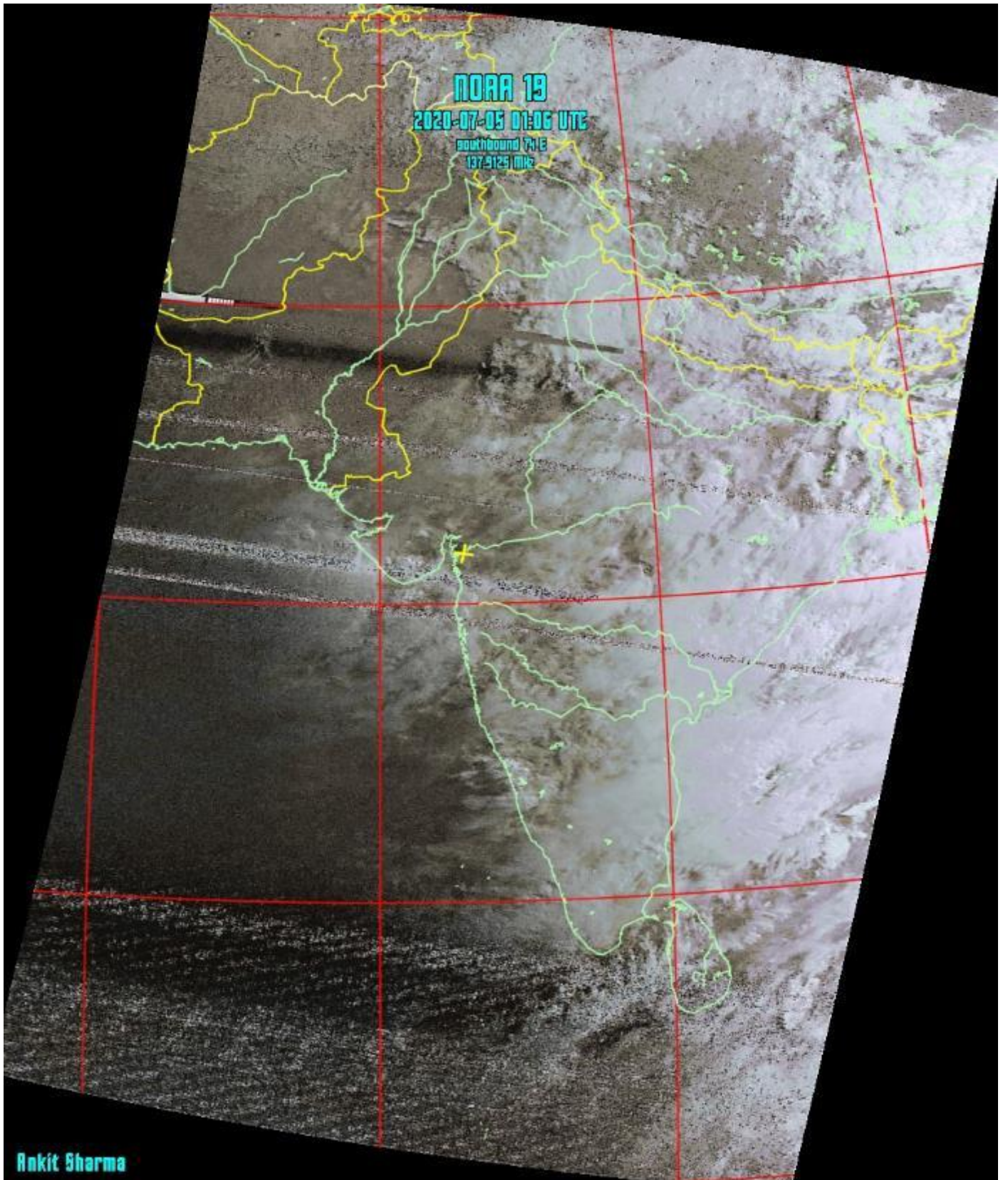


Ankit Sharma



**NOAA 19**  
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southbound 74 E  
137.9125 MHz

**Ankit Sharma**

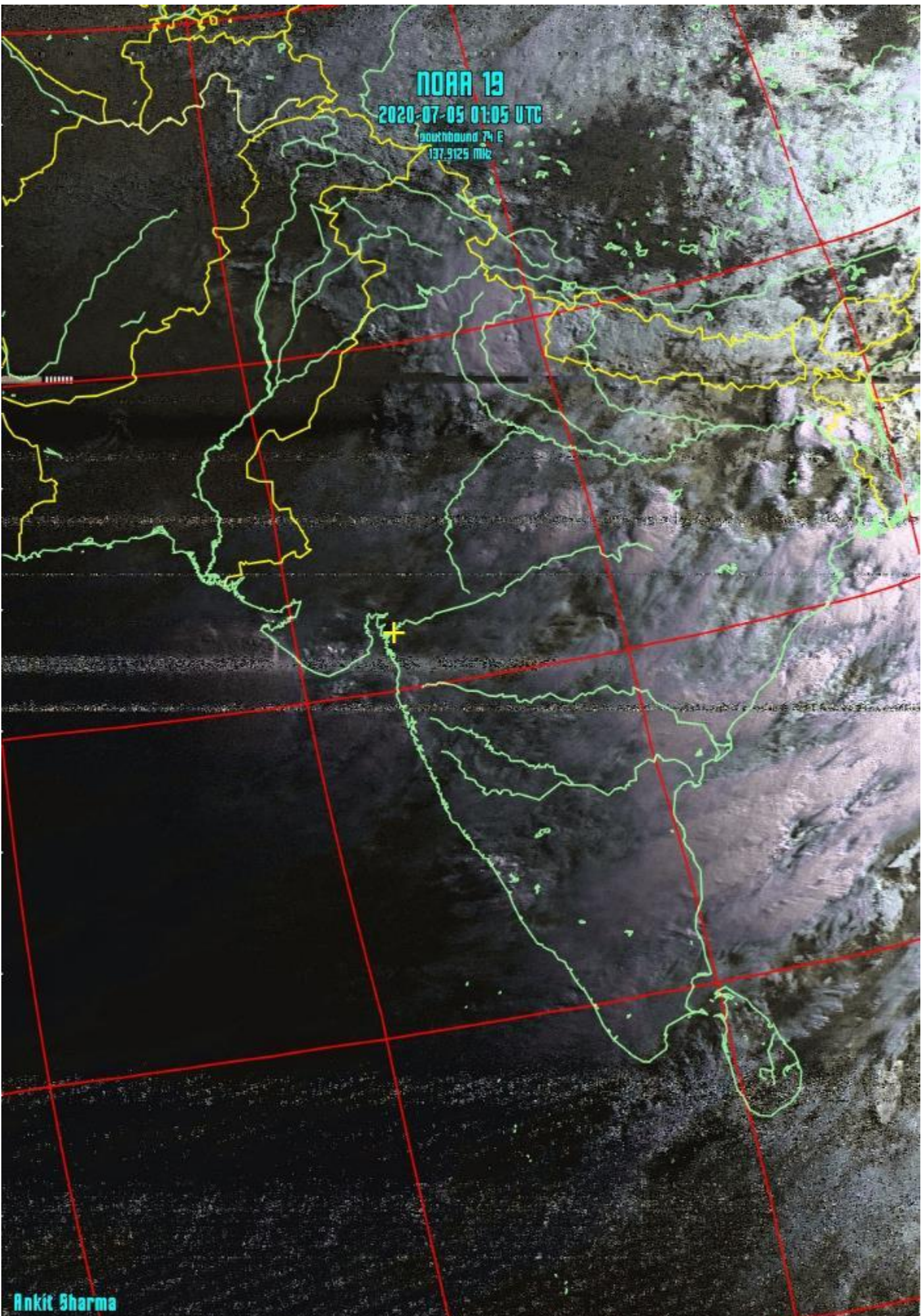




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2020-07-05 01:05 UTC

Southbound 74 E  
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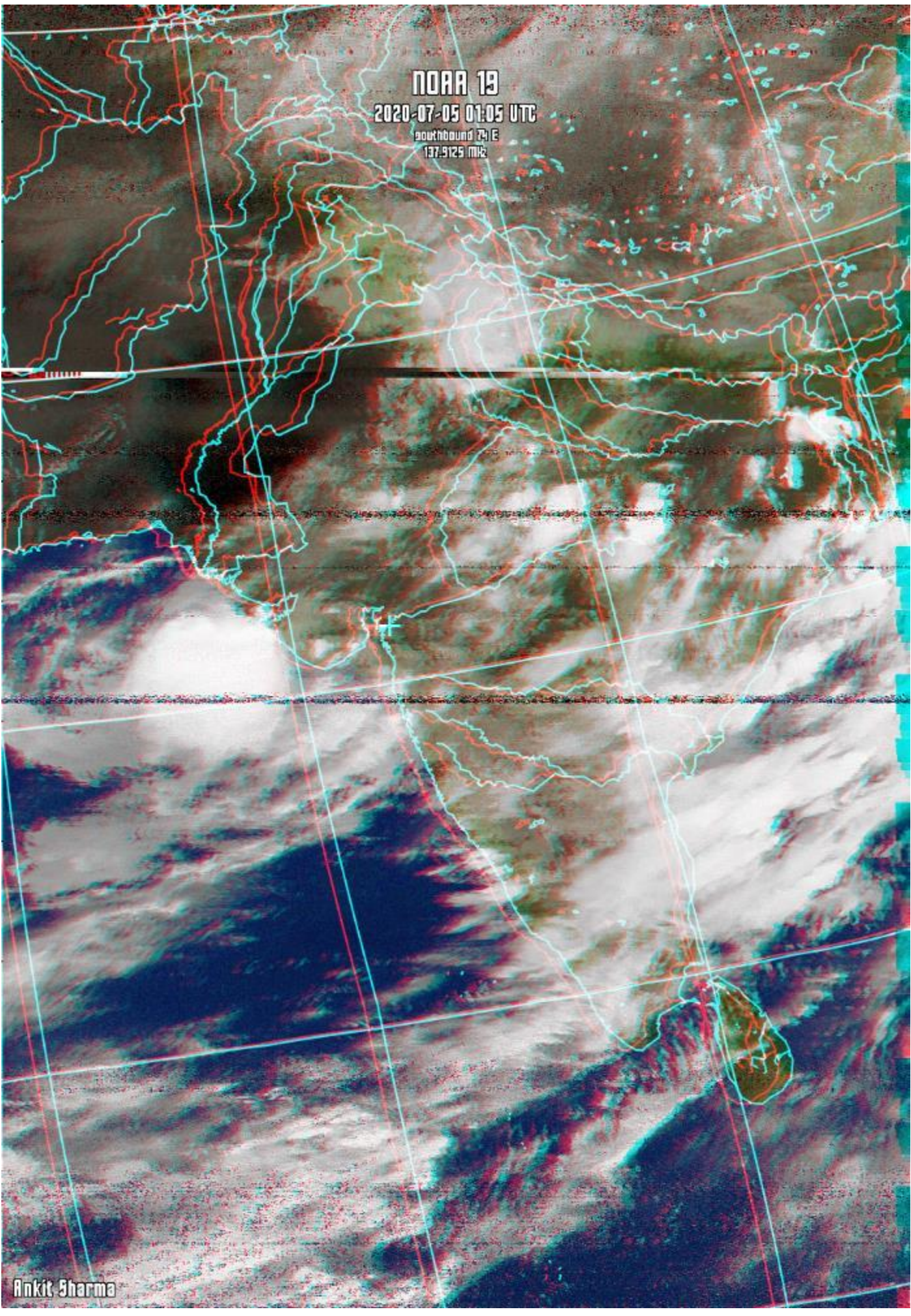
Ankit Sharma



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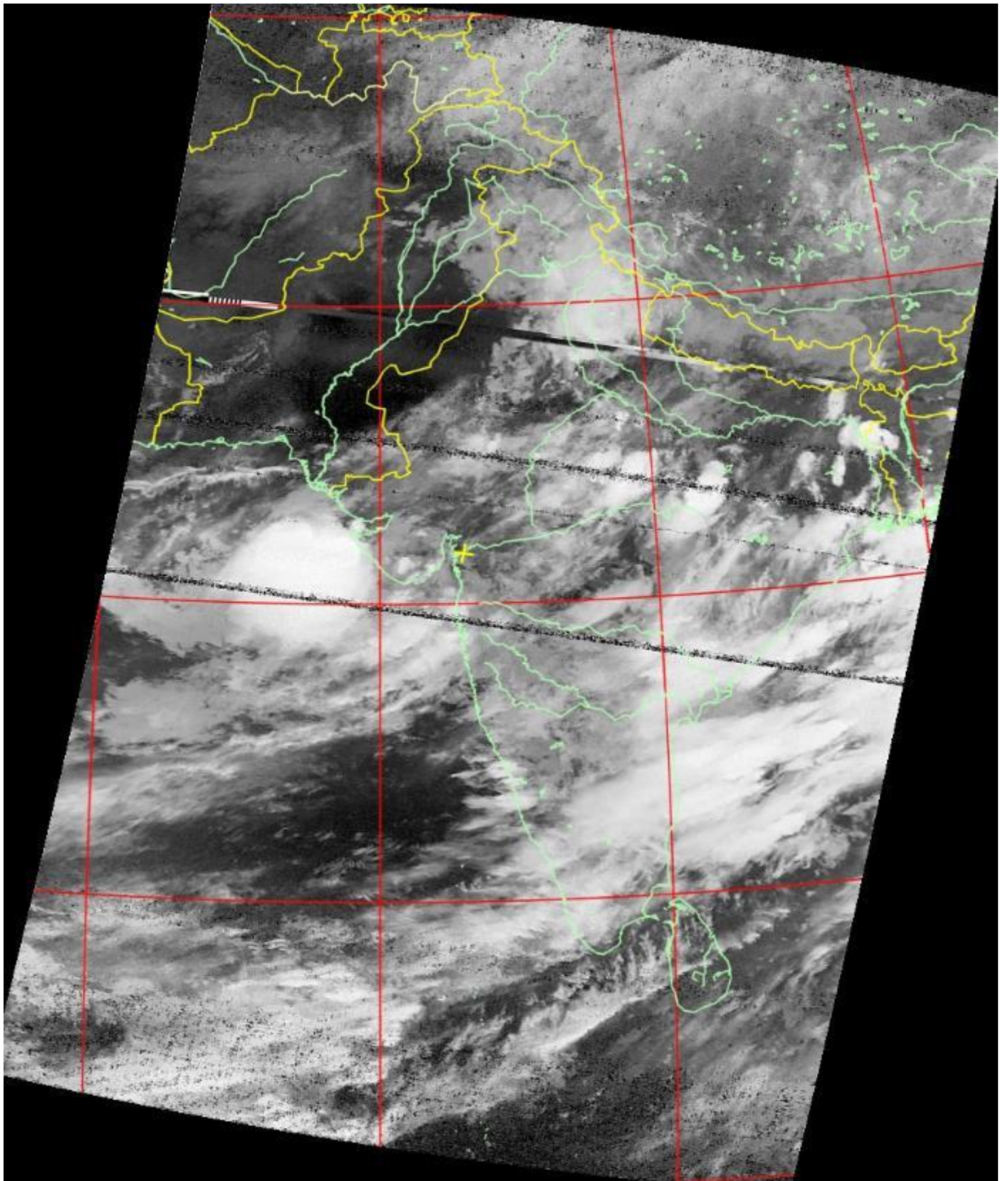
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Southbound 74 E  
137.9125 MHz



Ankit Sharma







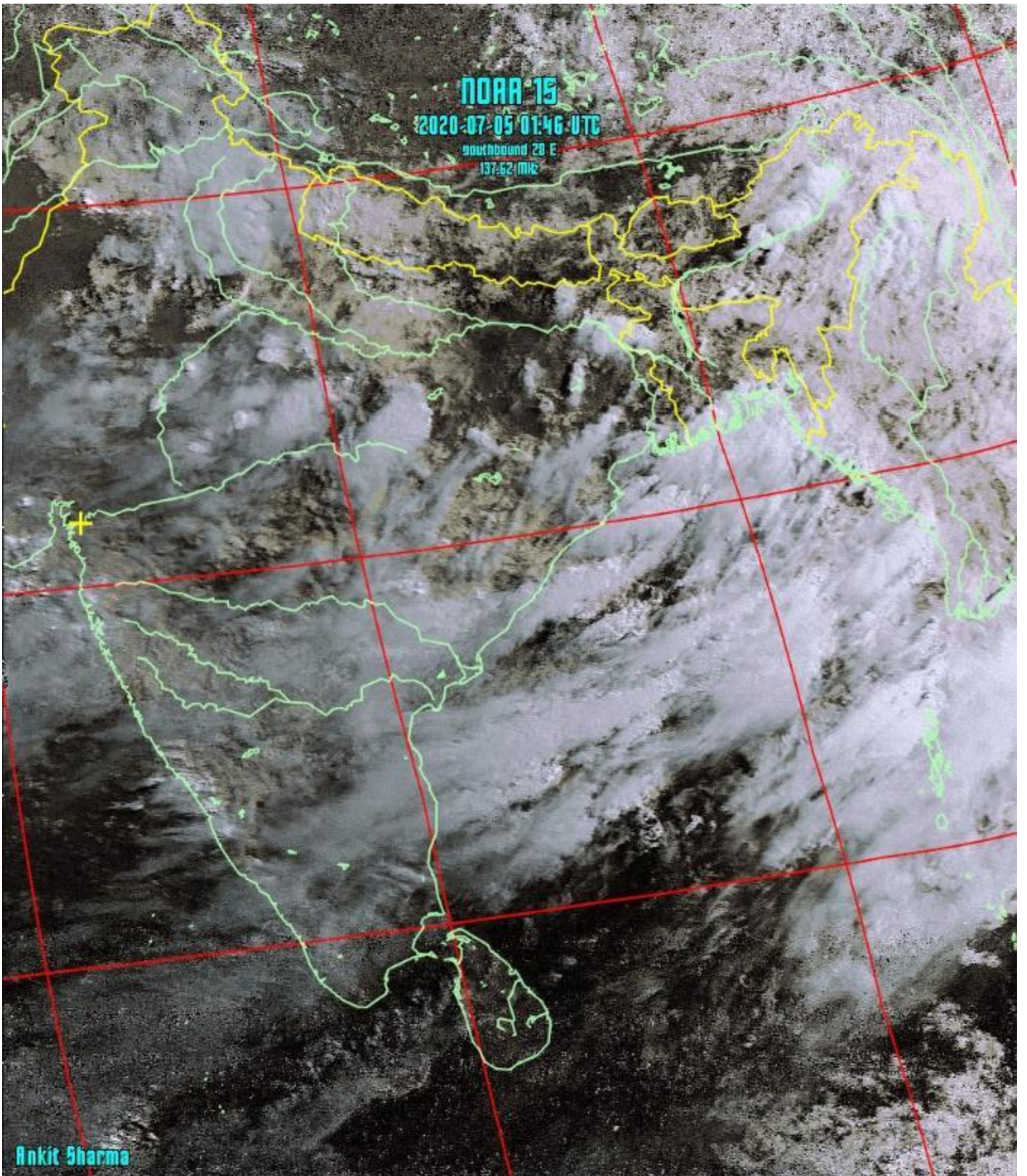
NOAA 15

2020-07-05 01:46 UTC

Southbound 28 E

137.62 MHz

Ankit Sharma

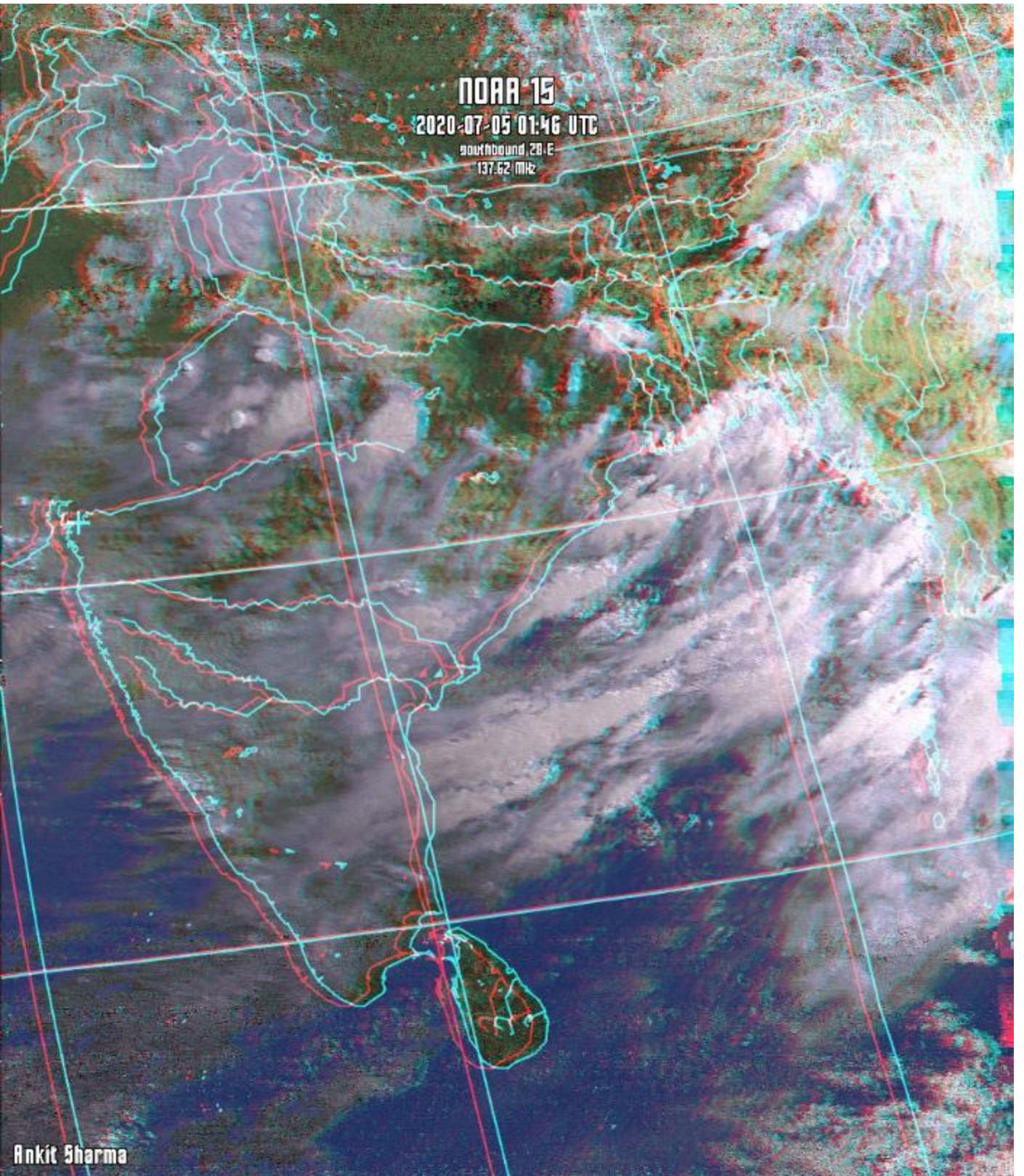




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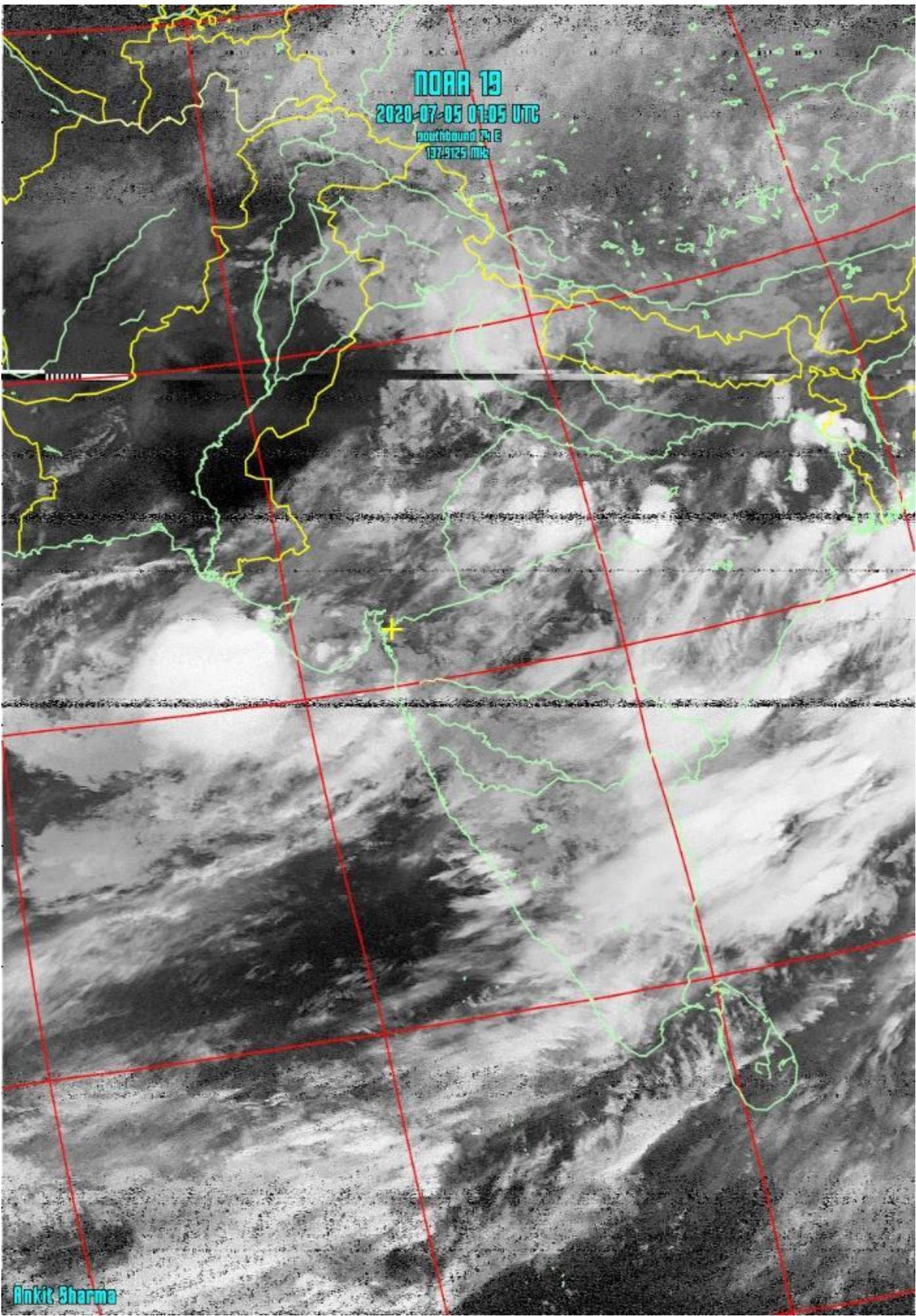
Southbound, 28. E  
137.62 MHz



Ankit Sharma



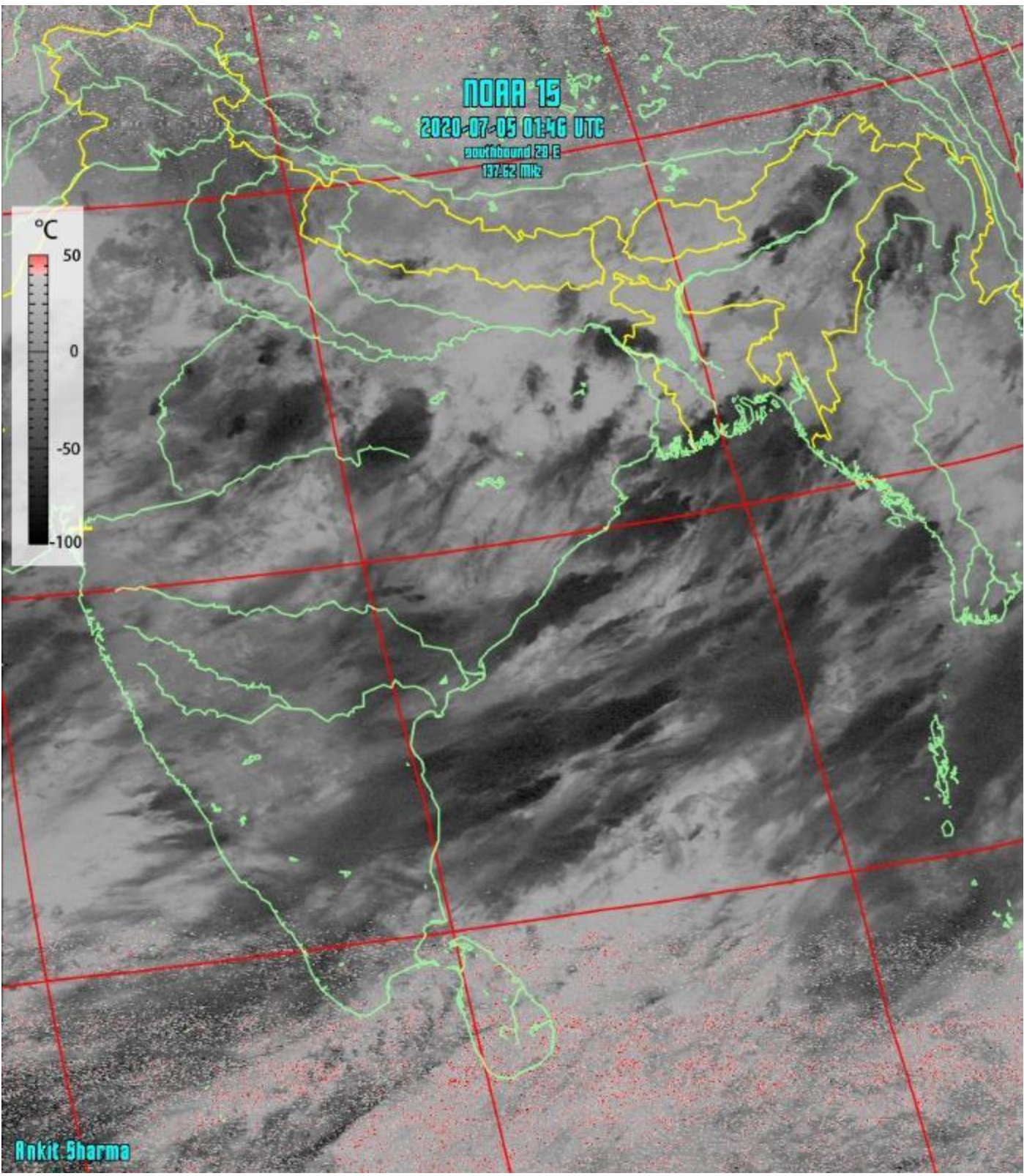
NOAA 19  
2020-07-05 01:05 UTC  
southbound 74 E  
137.9125 MHz



Ankit Sharma



NOAA 15  
2020-07-05 01:46 UTC  
southbound: 29 E  
137.62 MHz



Ankit Sharma



**NOAA 19**  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



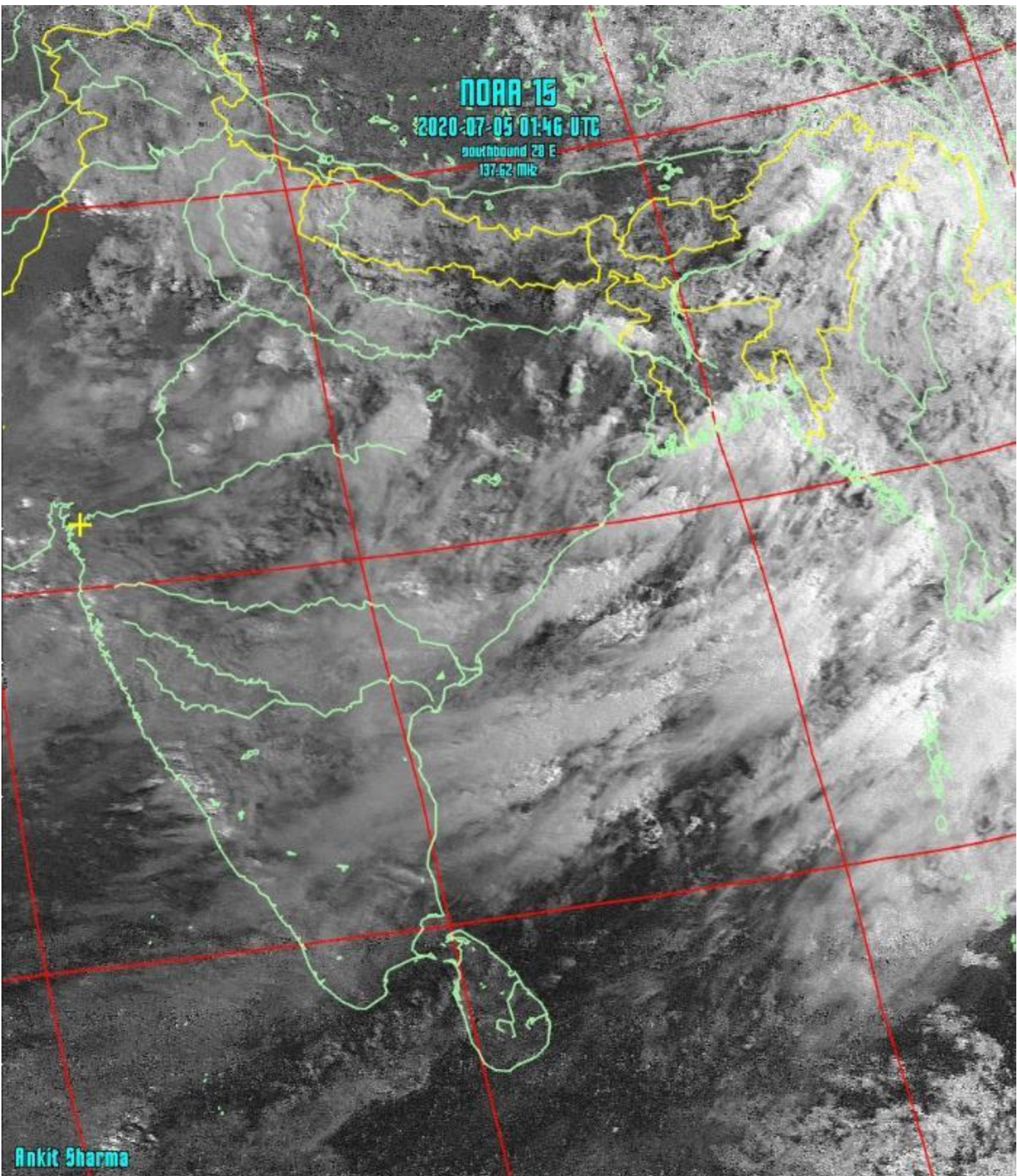


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2020-07-05 01:46 UTC

Southbound 29 E

137.62 MHz



Ankit Sharma

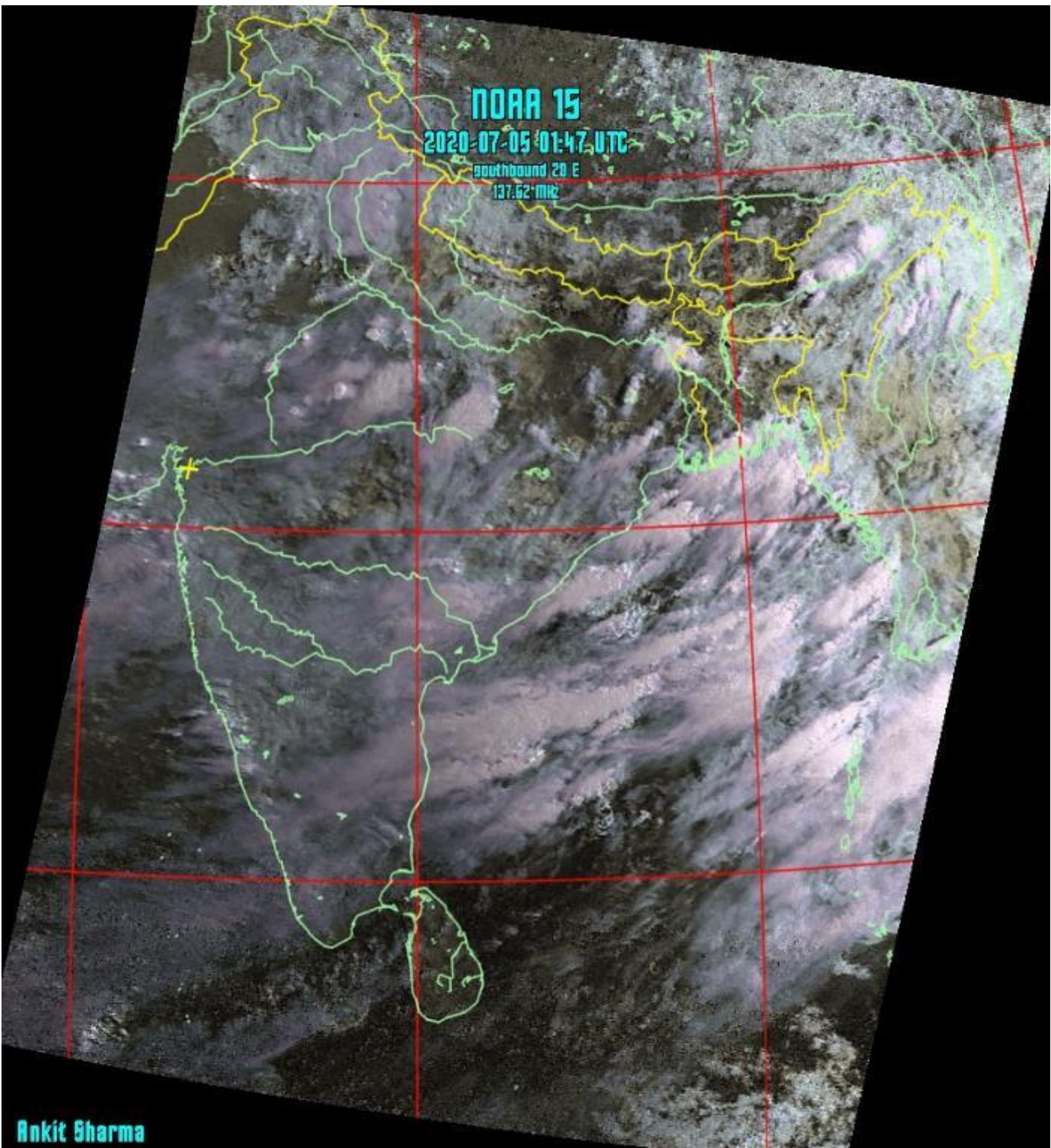


NOAA 15

2020-07-05 01:47 UTC

Southbound 20 E

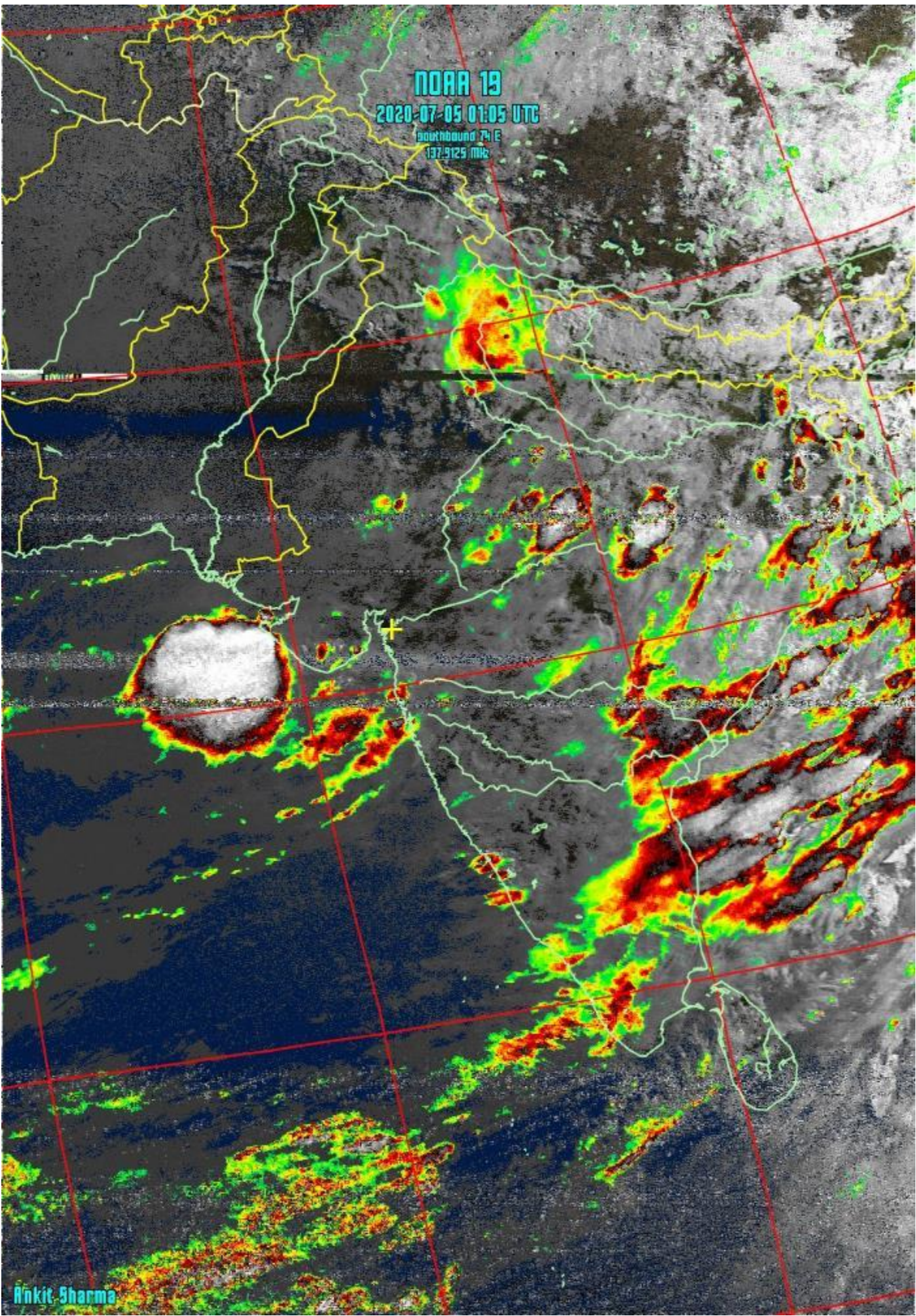
137.62 MHz



Ankit Sharma

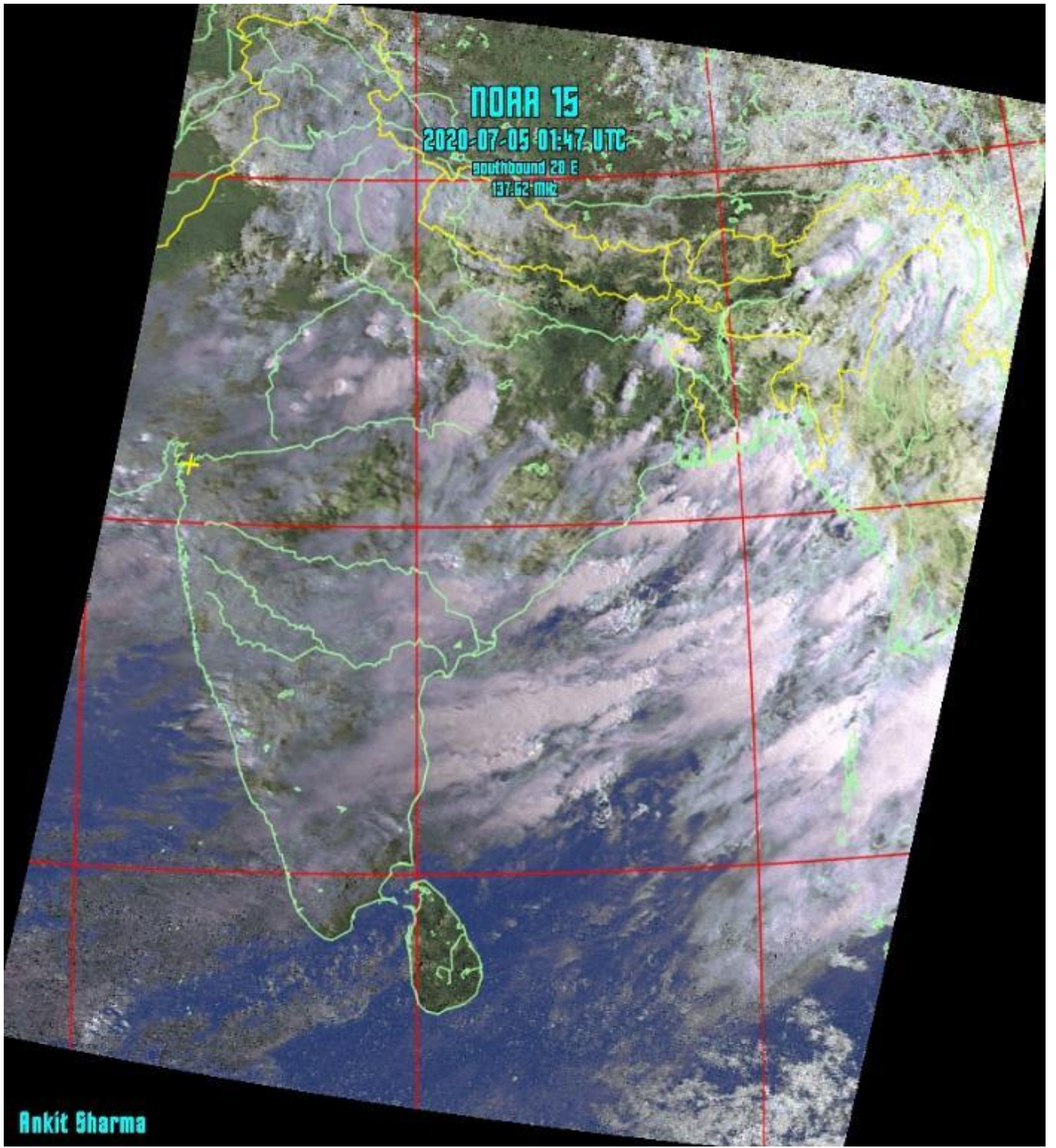


**NOAA 19**  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



Ankit Sharma

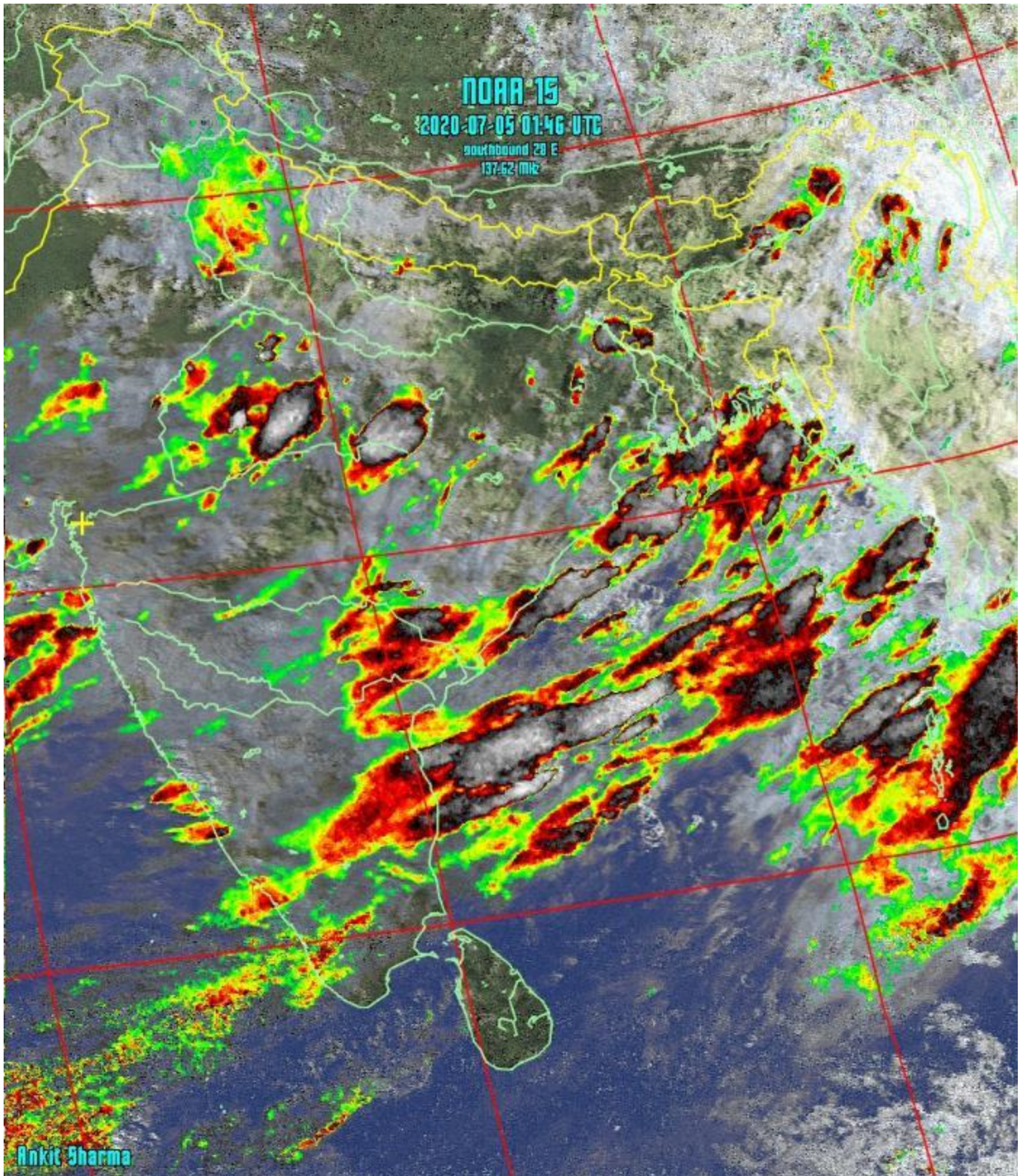




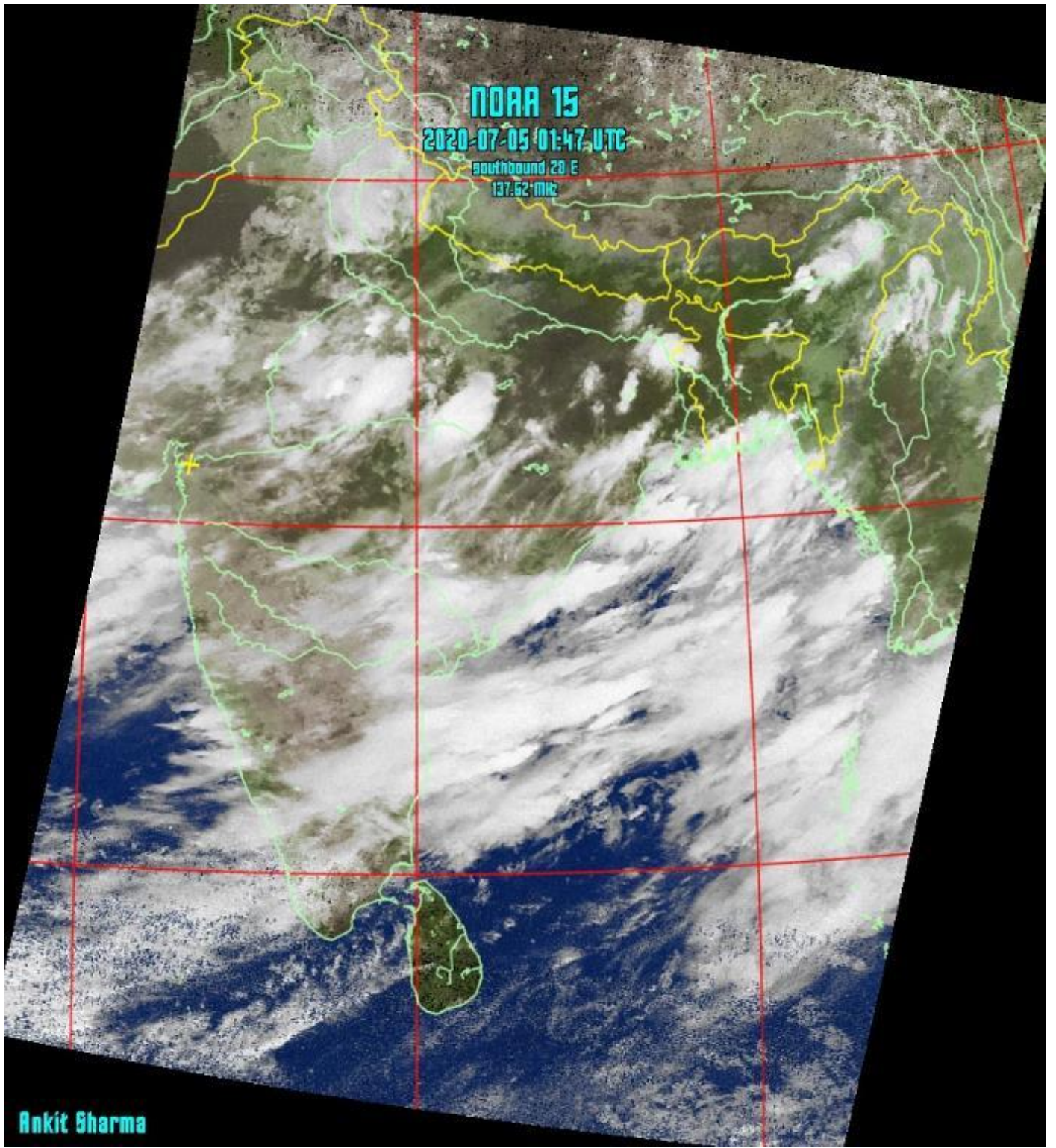


NOAA 15  
2020-07-05 01:46 UTC  
southbound 29 E  
137.62 MHz

Ankit Sharma







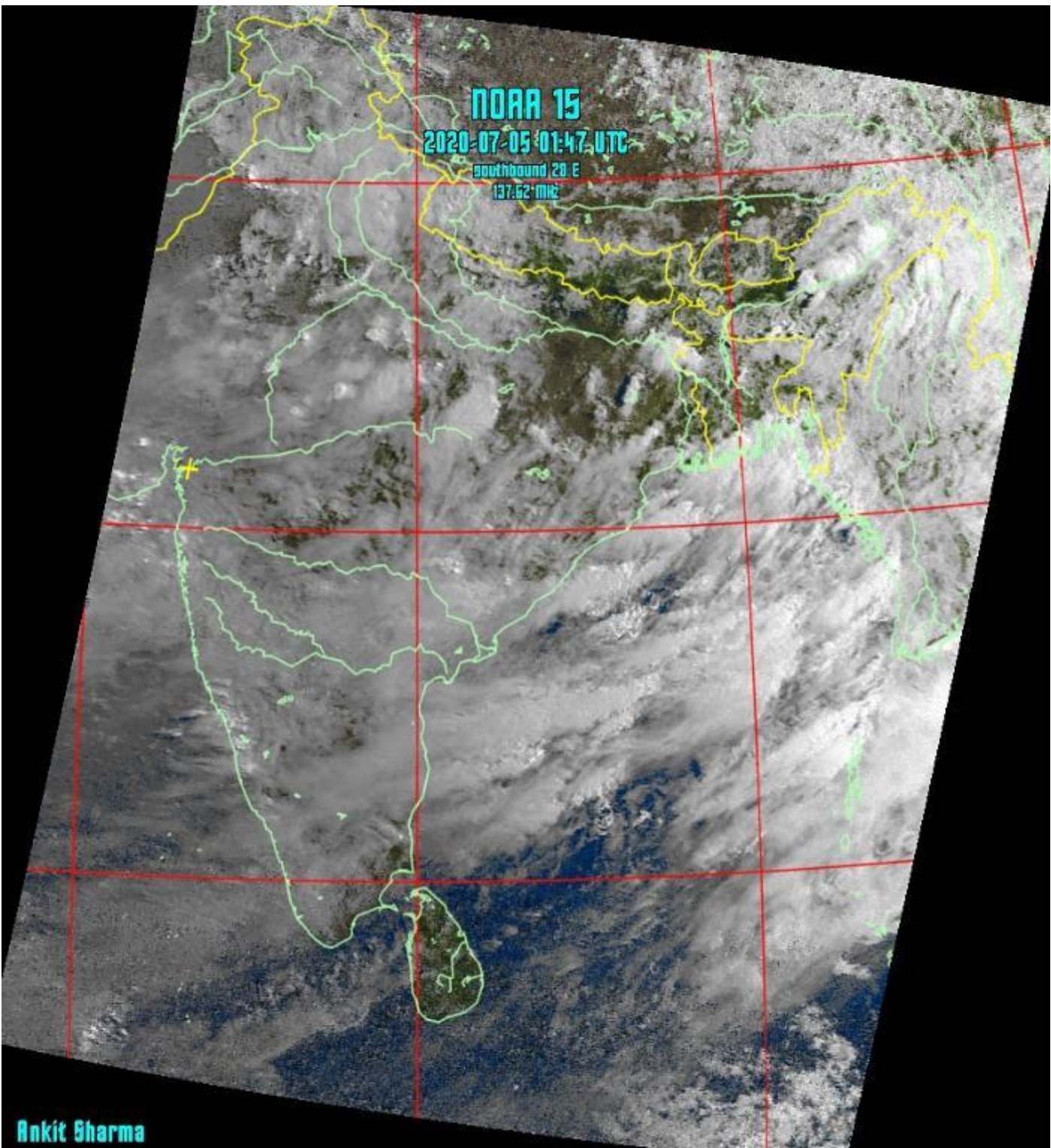


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2020-07-05 01:47 UTC

Southbound 20 E

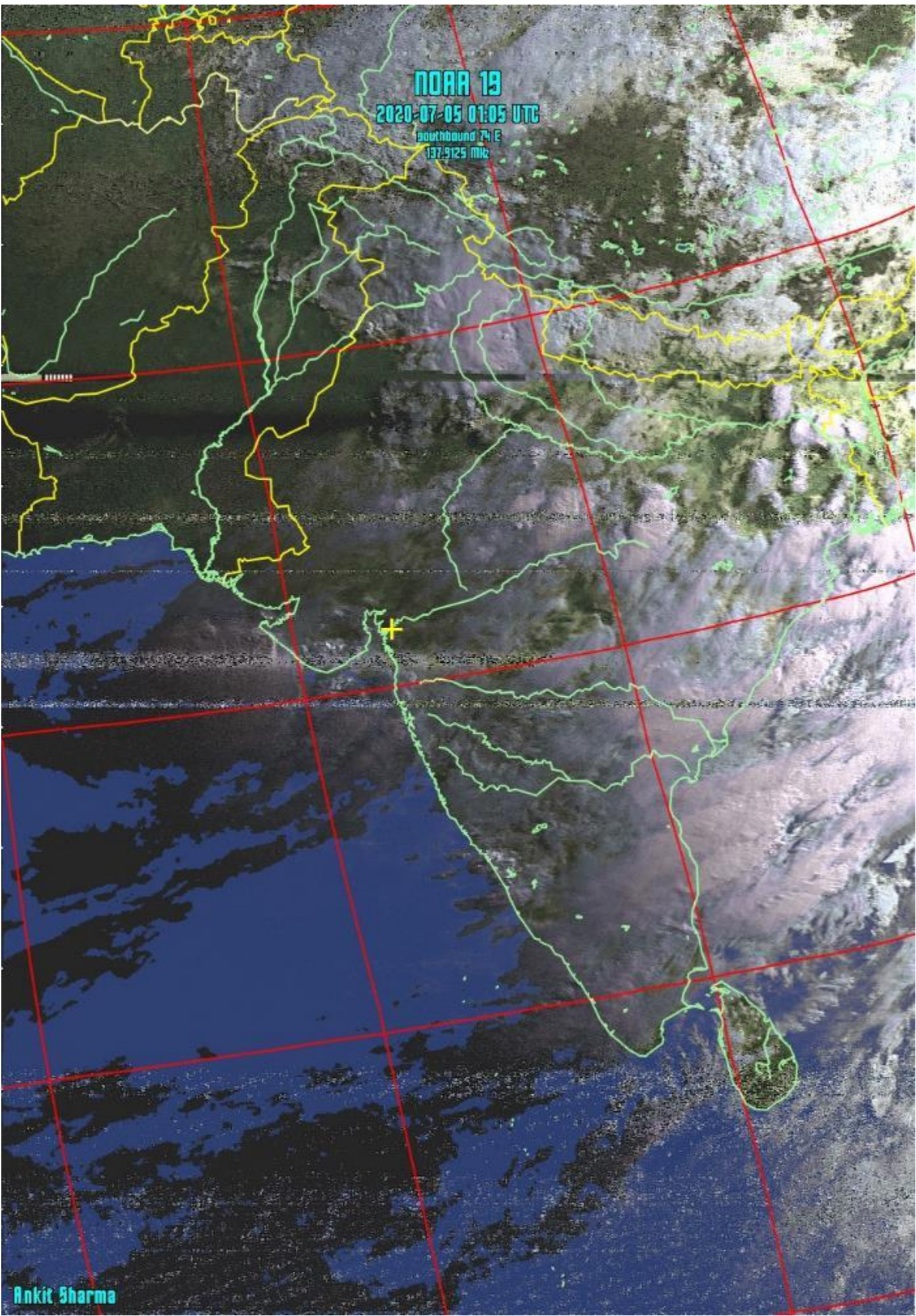
137.62 MHz



Ankit Sharma



**NOAA 19**  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



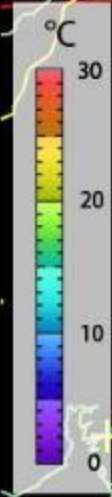


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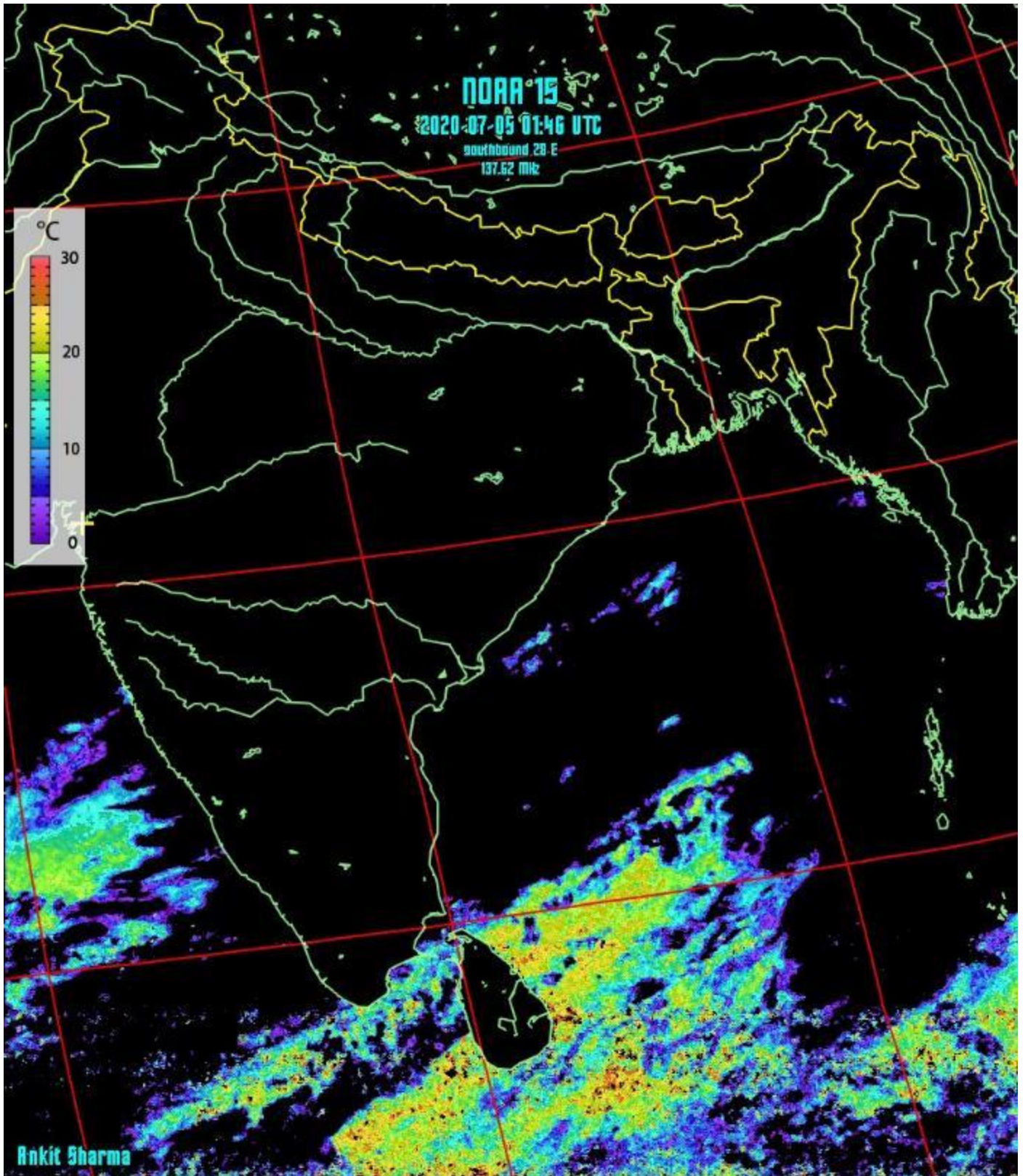
2020-07-05 01:46 UTC

Southbound 29 E

137.62 MHz



Ankit Sharma

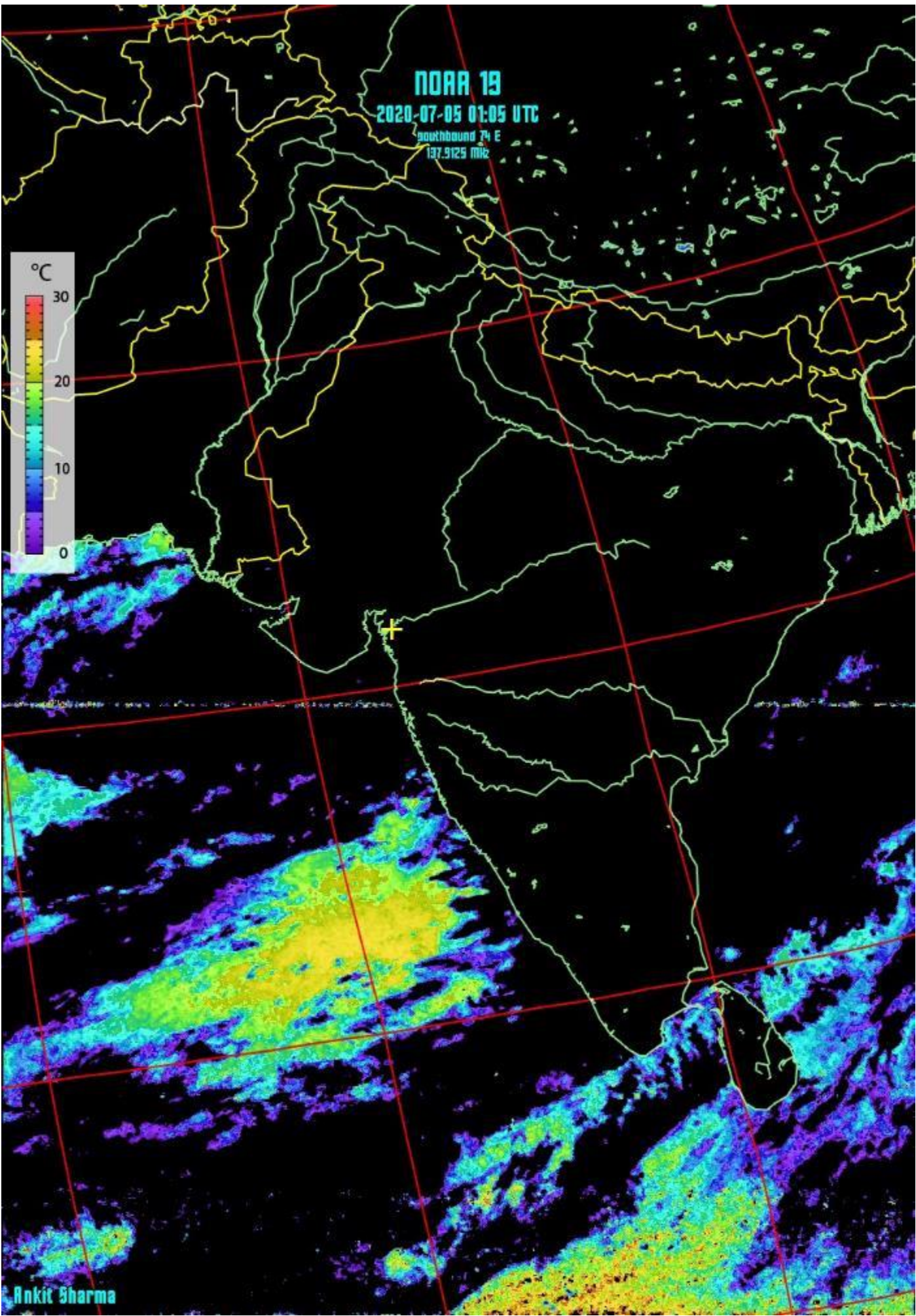
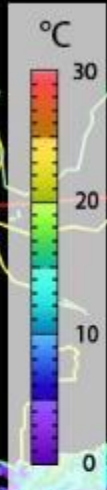




**NOAA 19**

**2020-07-05 01:05 UTC**

Southbound 74 E  
137.9125 MHz



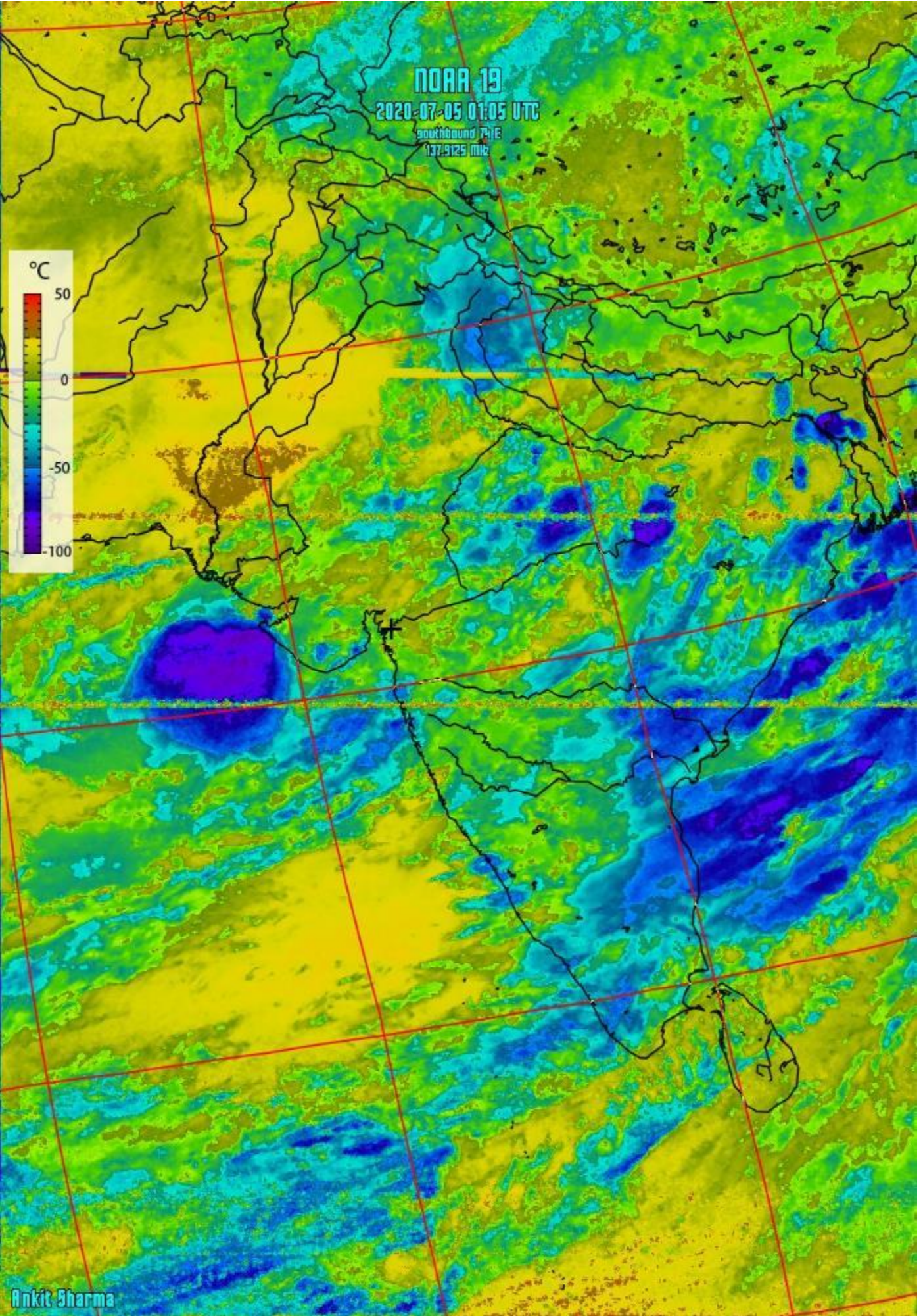
**Ankit Sharma**



NOAA 19

2020-07-05 01:05 UTC

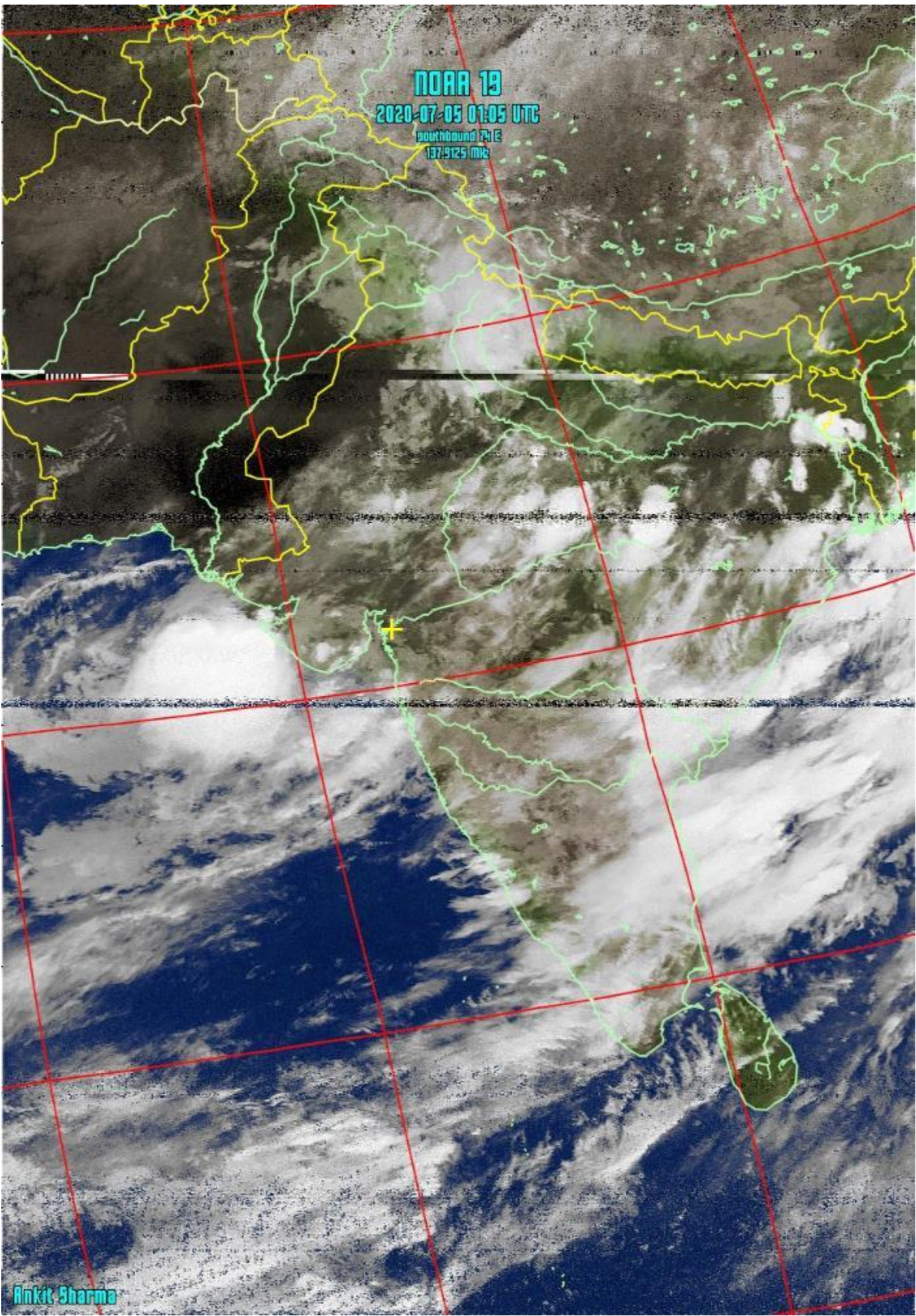
Southbound 741E  
137.9125 MHz



Ankit Sharma



NOAA 19  
2020-07-05 01:05 UTC  
southbound 74 E  
137.9125 MHz





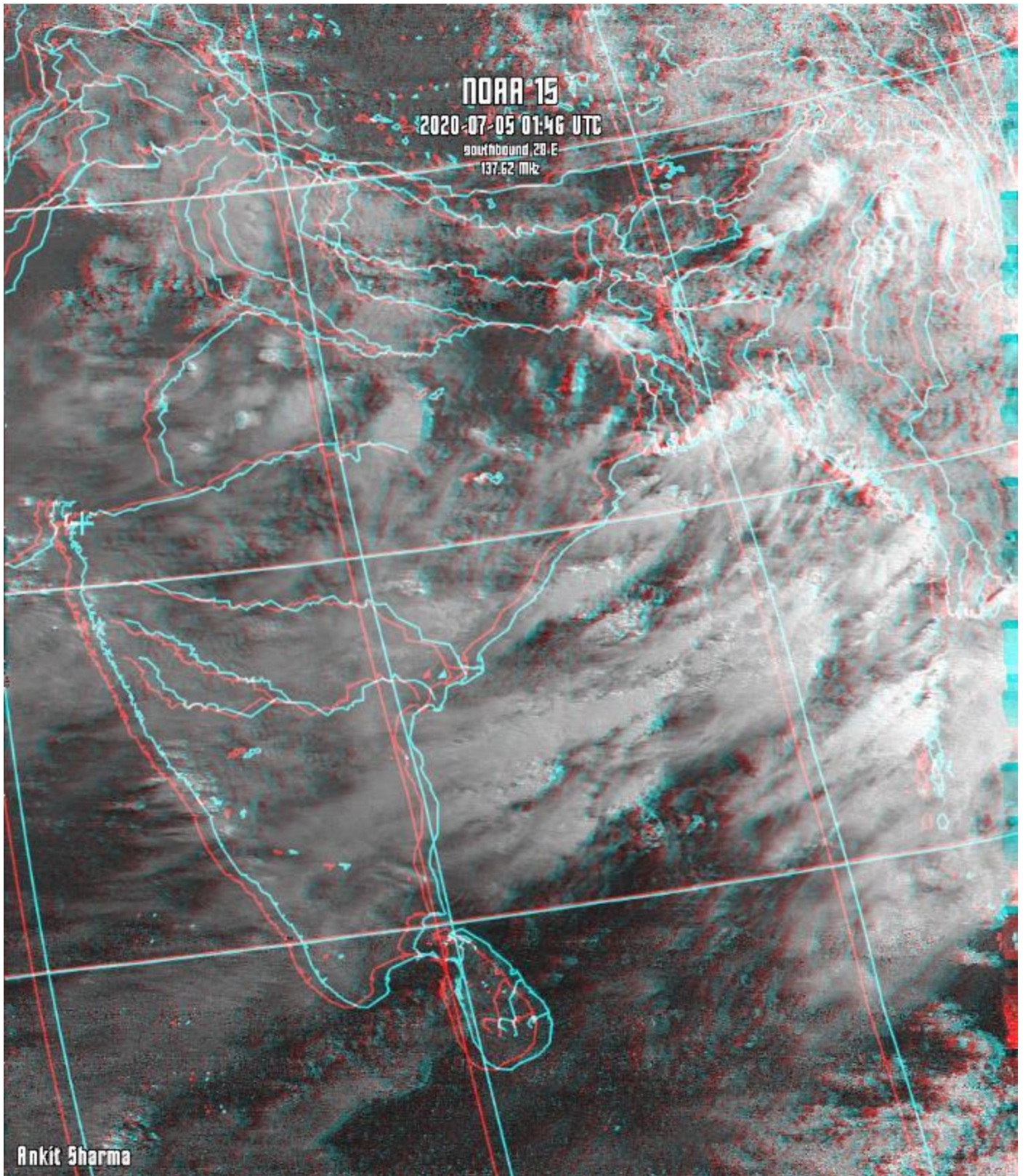
NOAA 15

2020-07-05 01:46 UTC

Southbound, 28. E

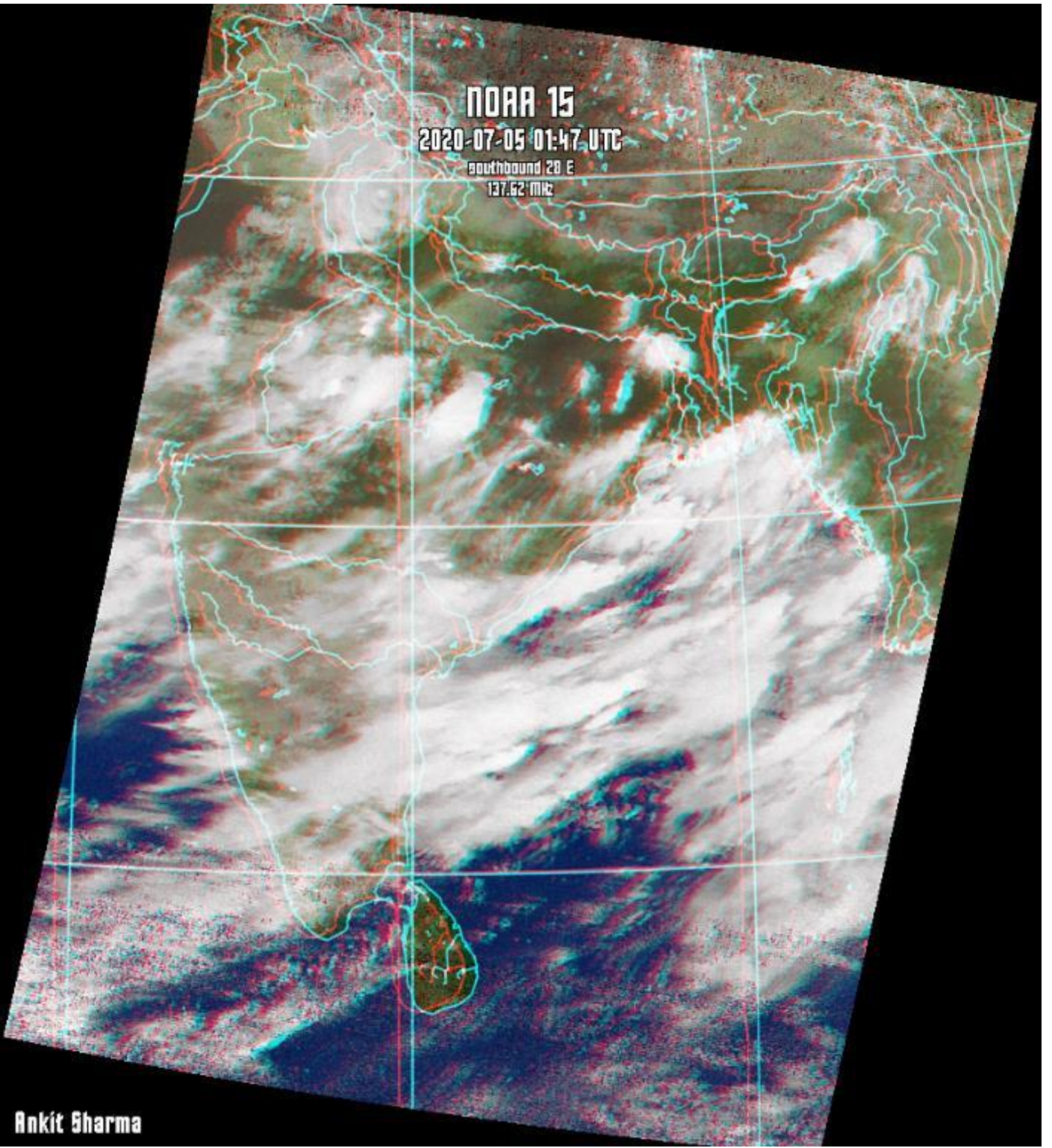
137.62 MHz

Ankit Sharma





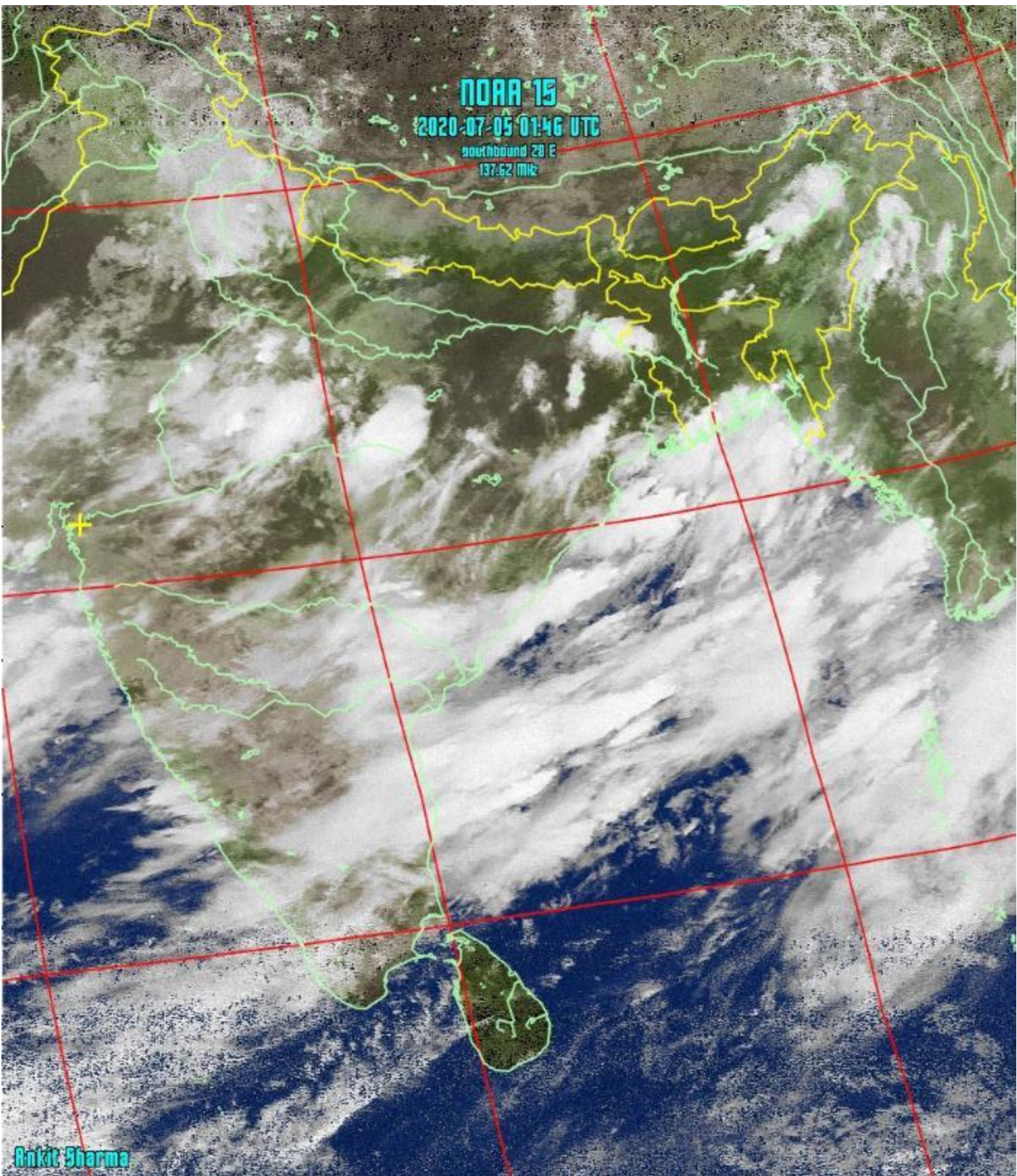
**NOAA 15**  
**2020-07-05 01:47 UTC**  
southbound 28 E  
137.62 MHz



**Ankit Sharma**



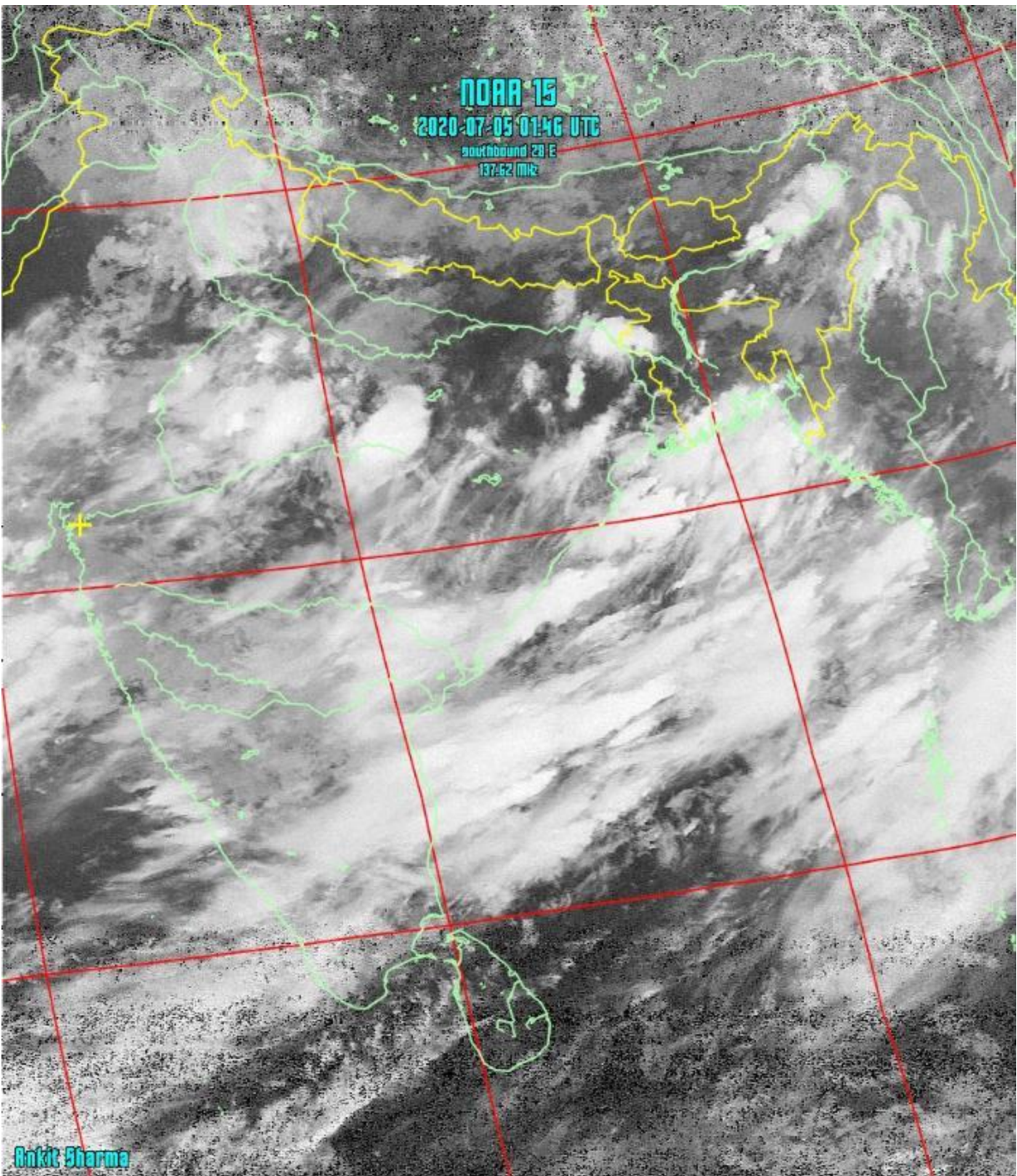
NOAA 15  
2020-07-05 01:46 UTC  
southbound 29 E  
137.62 MHz



Ankit Sharma



NOAA 15  
2020-07-05 01:46 UTC  
southbound 28 E  
137.62 MHz



Ankit Sharma



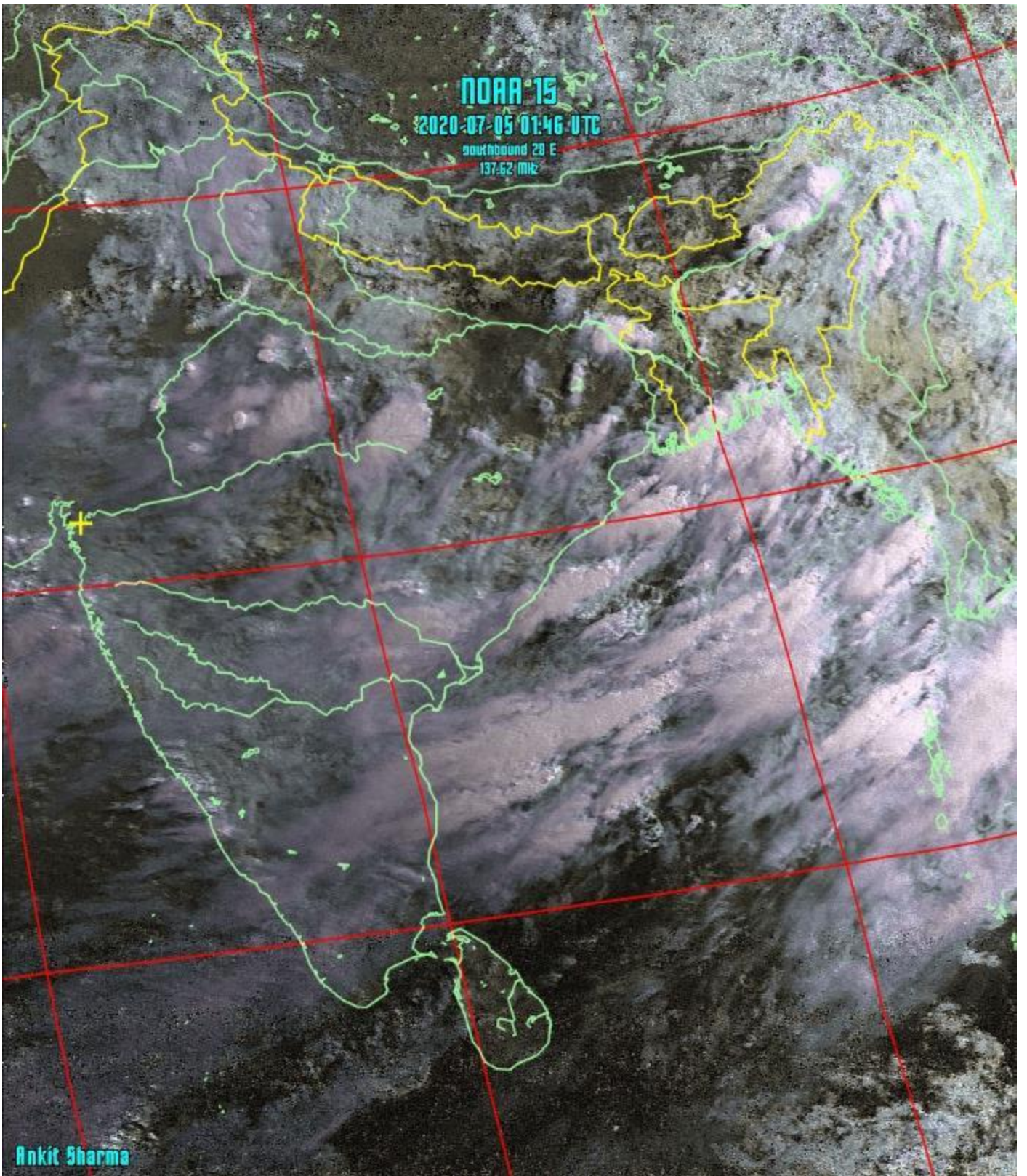
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Southbound 29 E

137.62 MHz

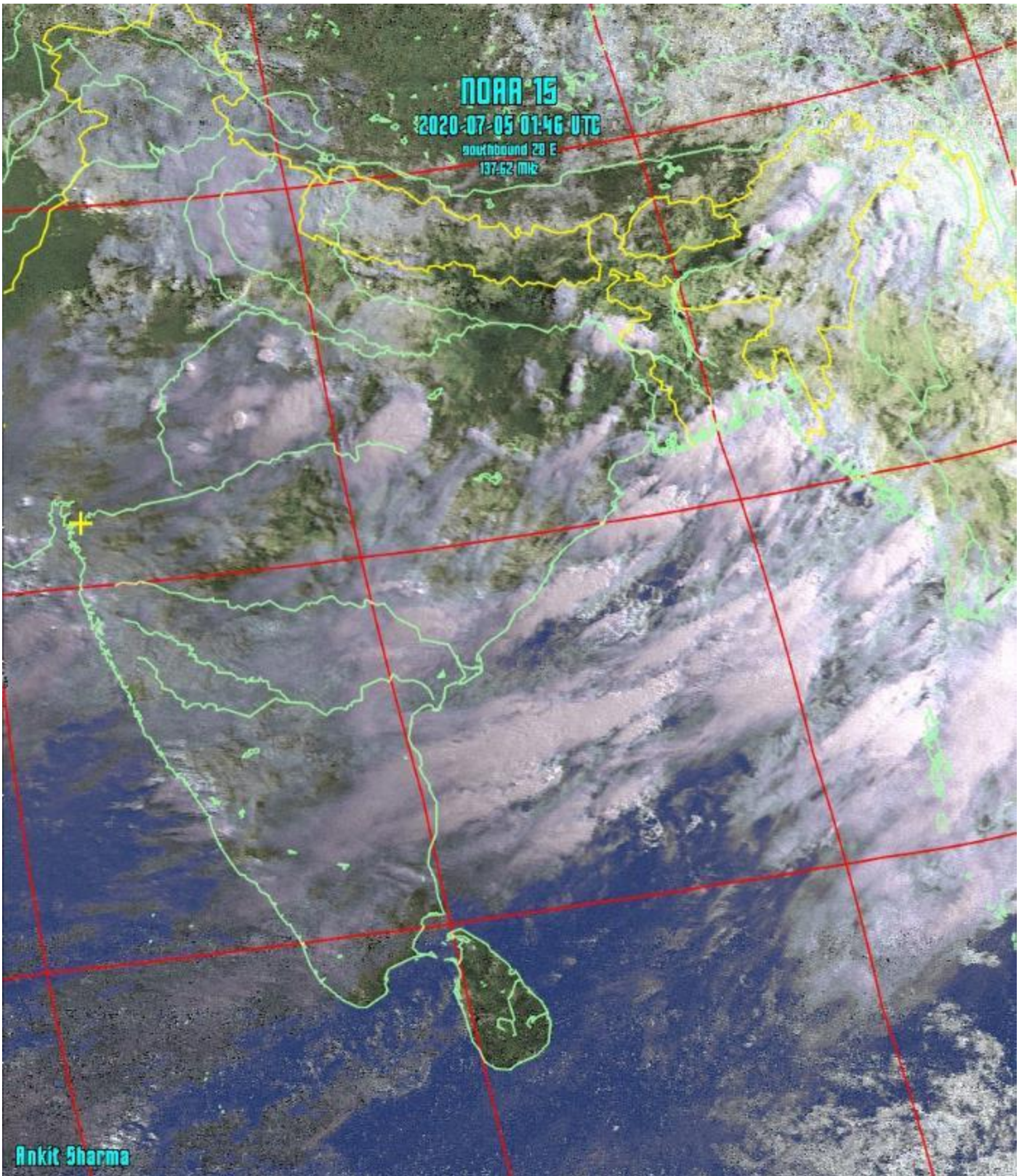
Ankit Sharma





NOAA 15  
2020-07-05 01:46 UTC  
southbound 29 E  
137.62 MHz

Ankit Sharma



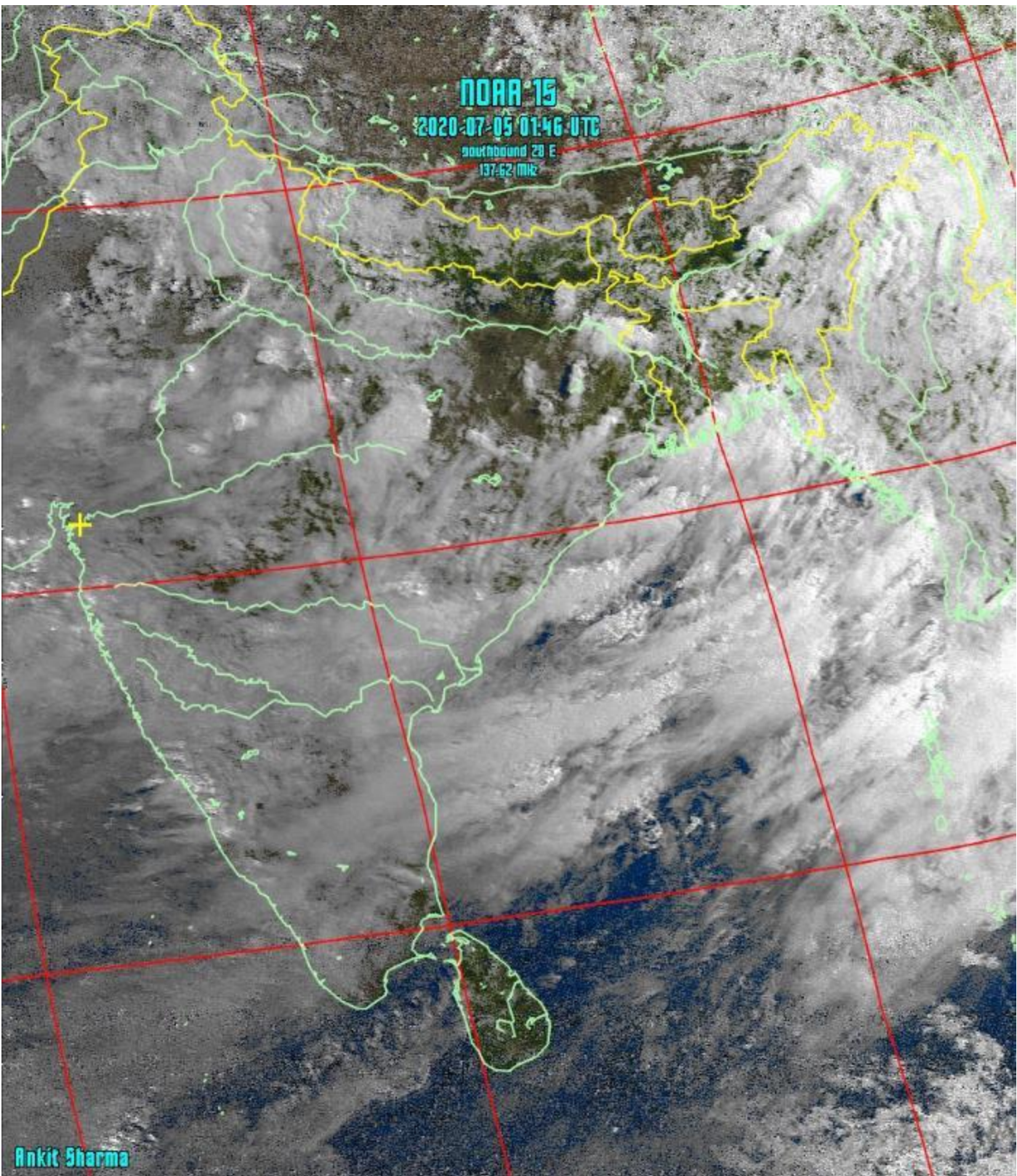


NOAA 15

2020-07-05 01:46 UTC

Southbound 20 E

137.62 MHz



Ankit Sharma



NOAA 15

2020-07-05 01:47 UTC

Southbound 20 E

137.62 MHz

Ankit Sharma



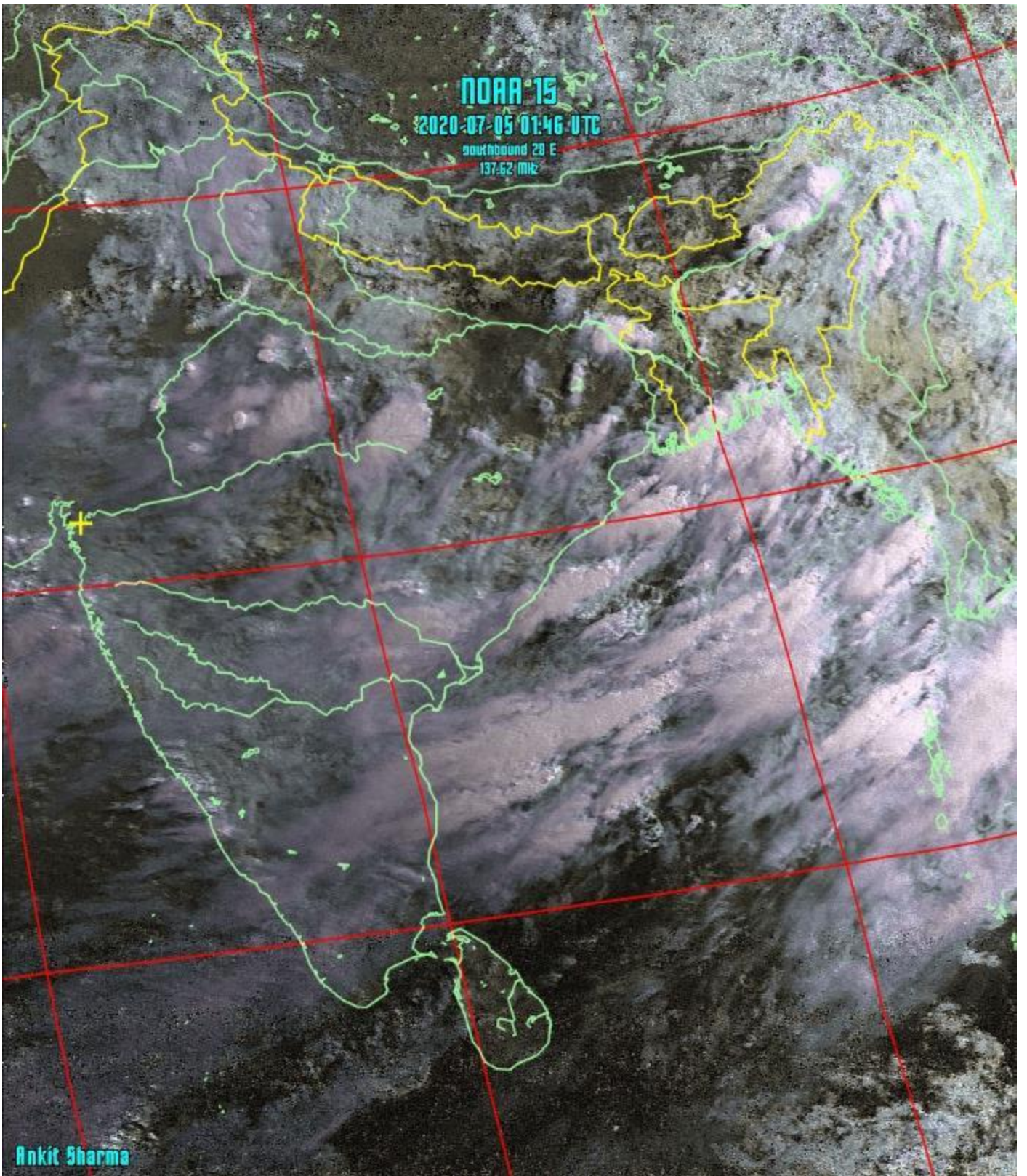
NOAA 15

2020-07-05 01:46 UTC

Southbound 29 E

137.62 MHz

Ankit Sharma



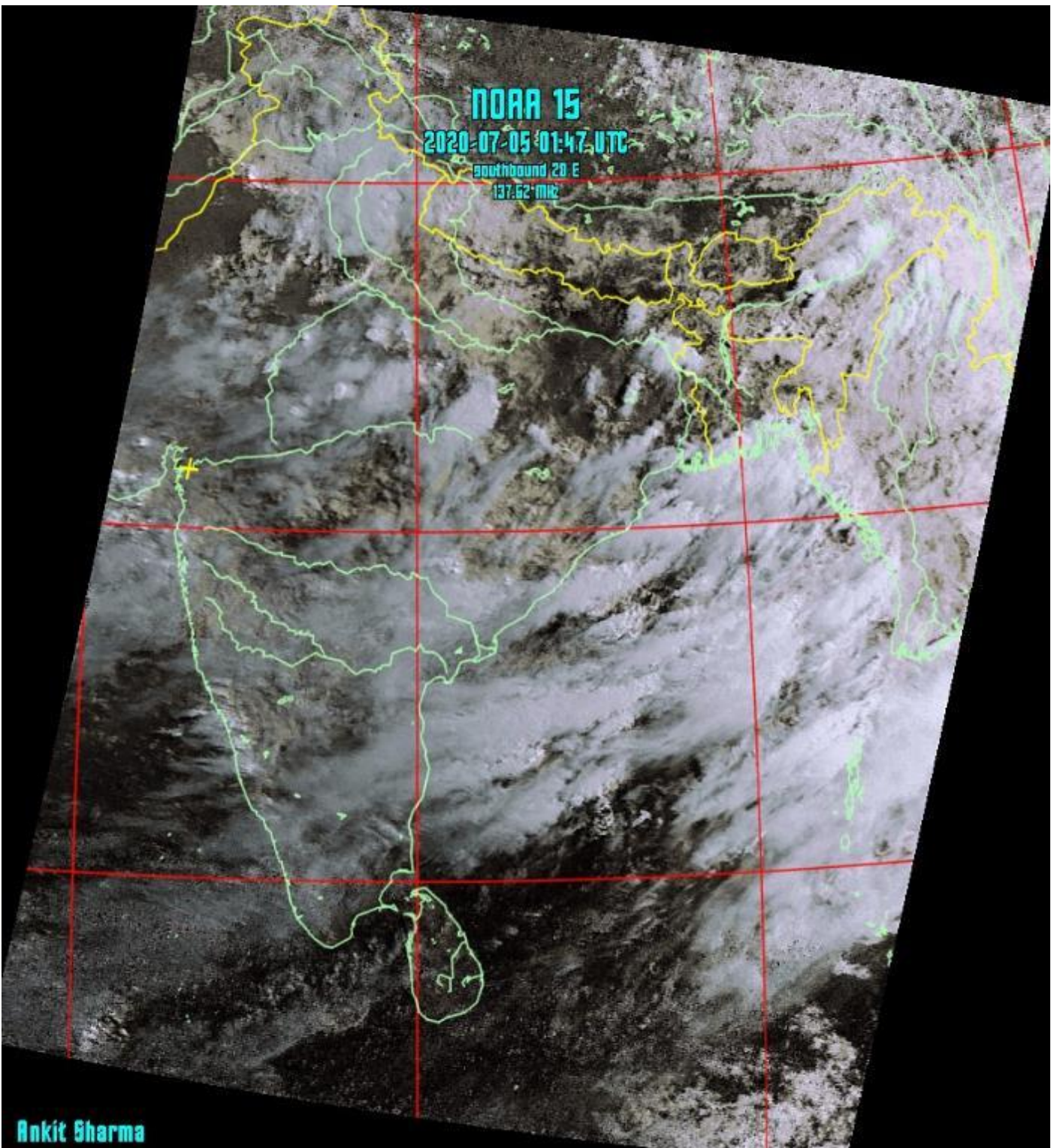


NOAA 15

2020-07-05 01:47 UTC

Southbound 20 E

137.62 MHz



Ankit Sharma

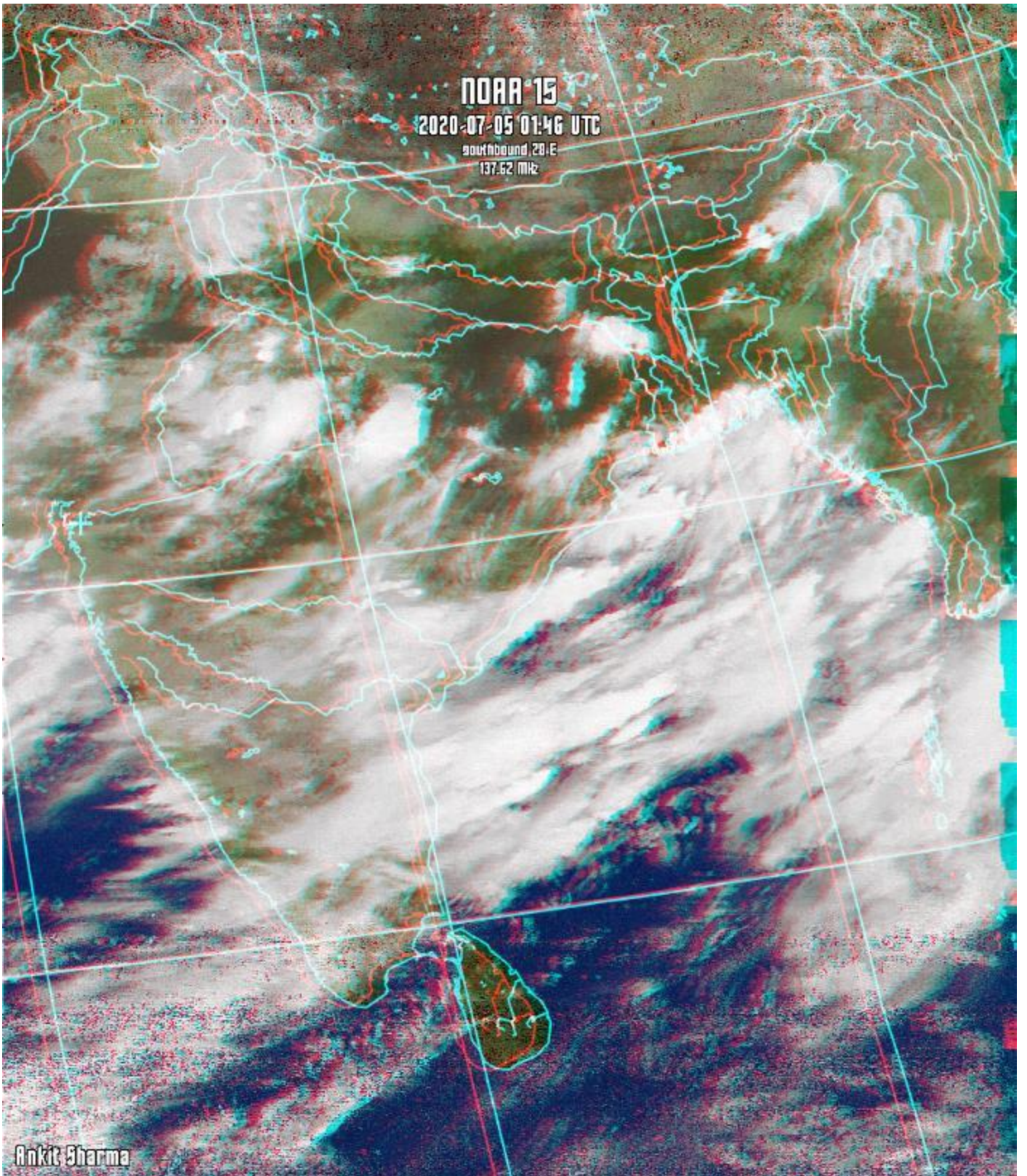


NOAA 15

2020-07-05 01:46 UTC

Southbound, 28.1 E  
137.62 MHz

Ankit Sharma





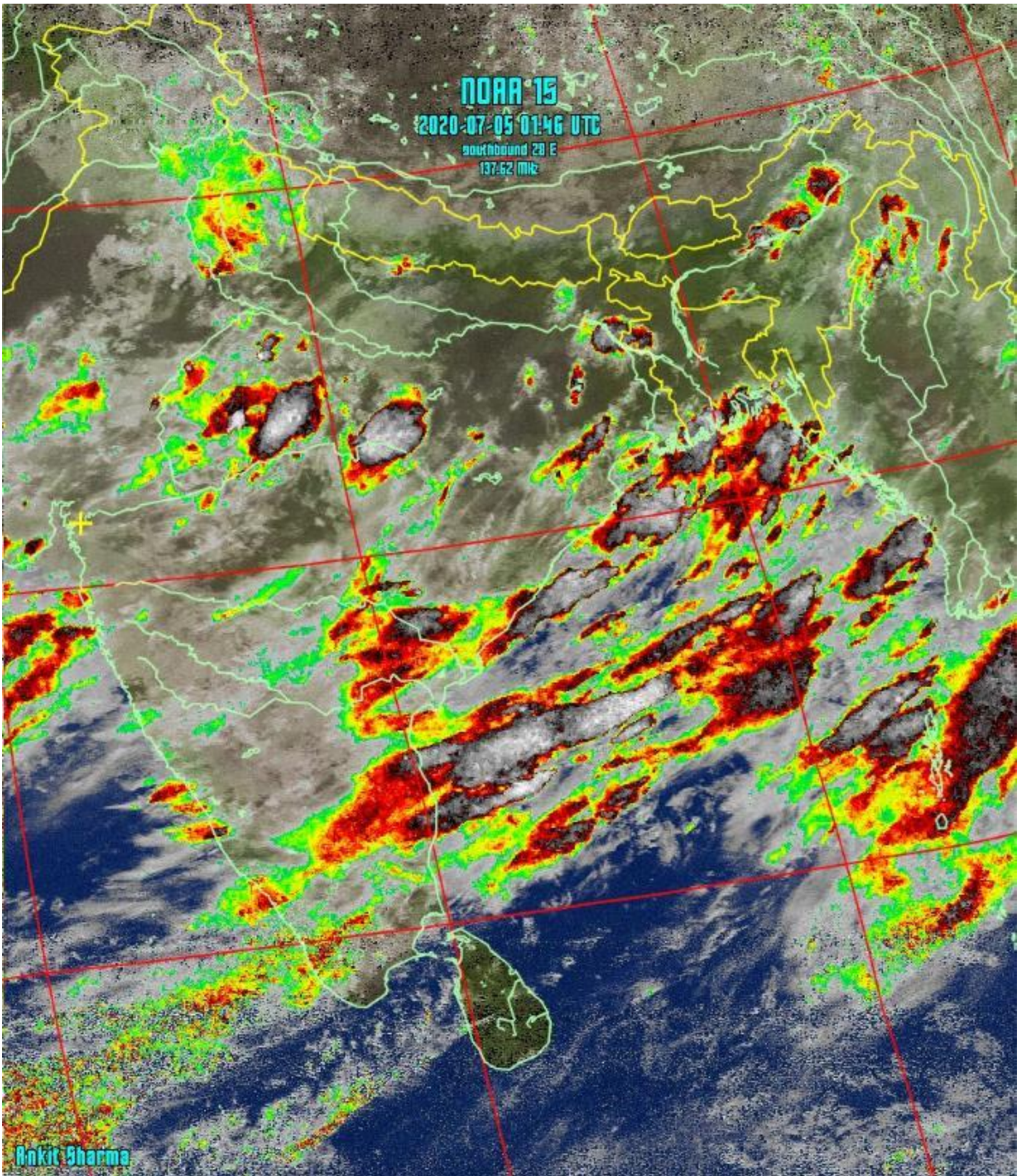
NOAA 15

2020-07-05 01:46 UTC

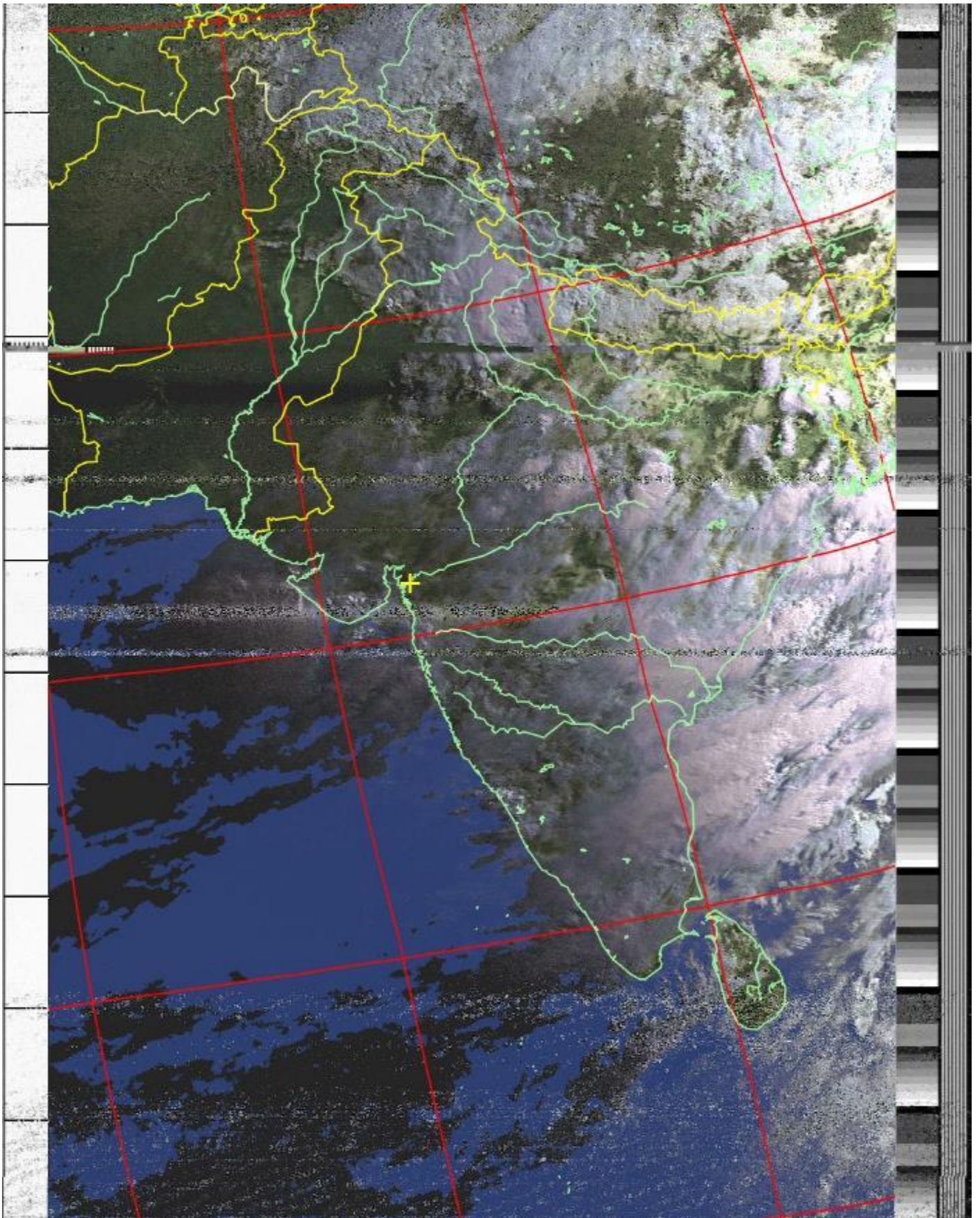
Southbound 29 E

137.62 MHz

Ankit Sharma

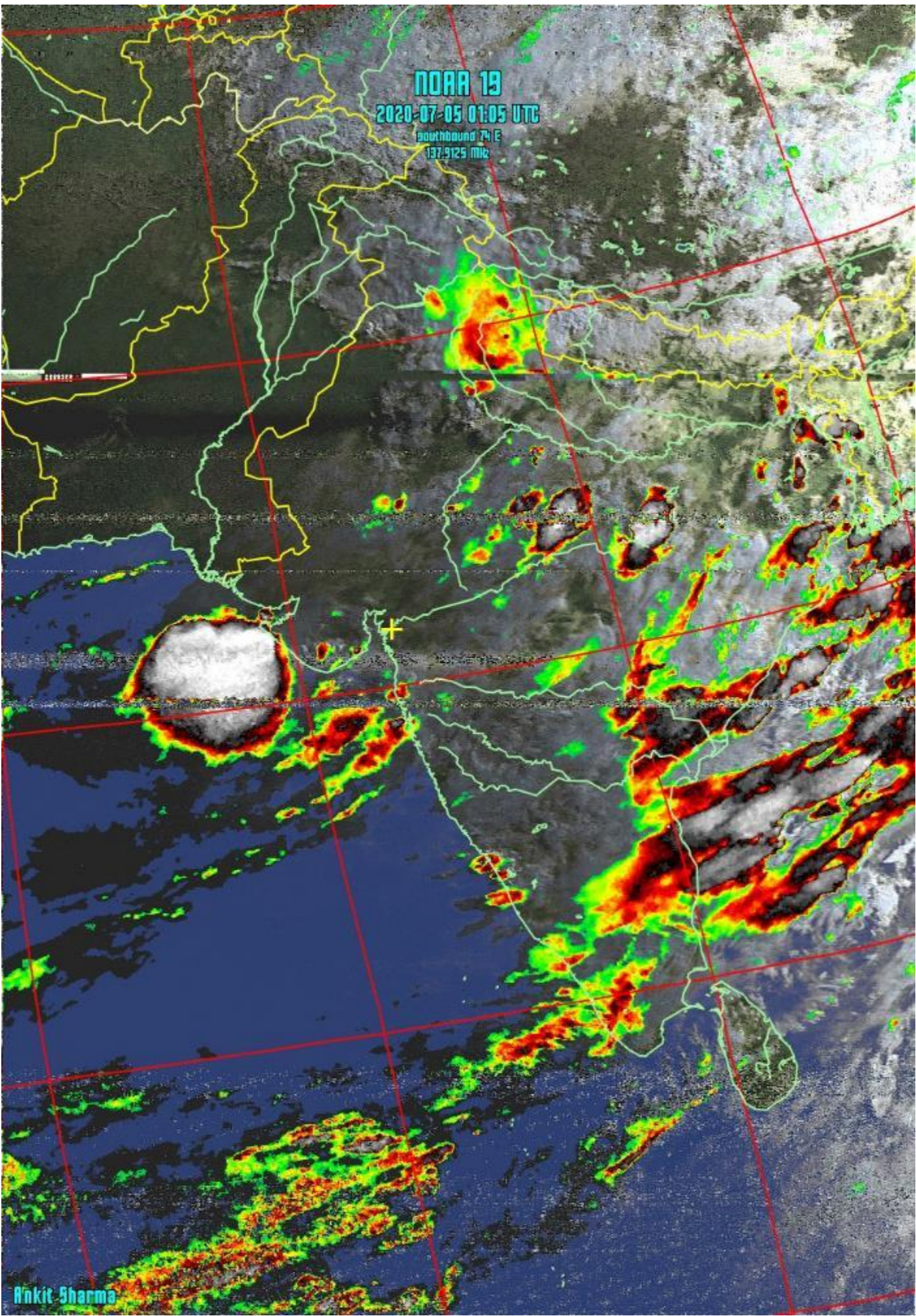








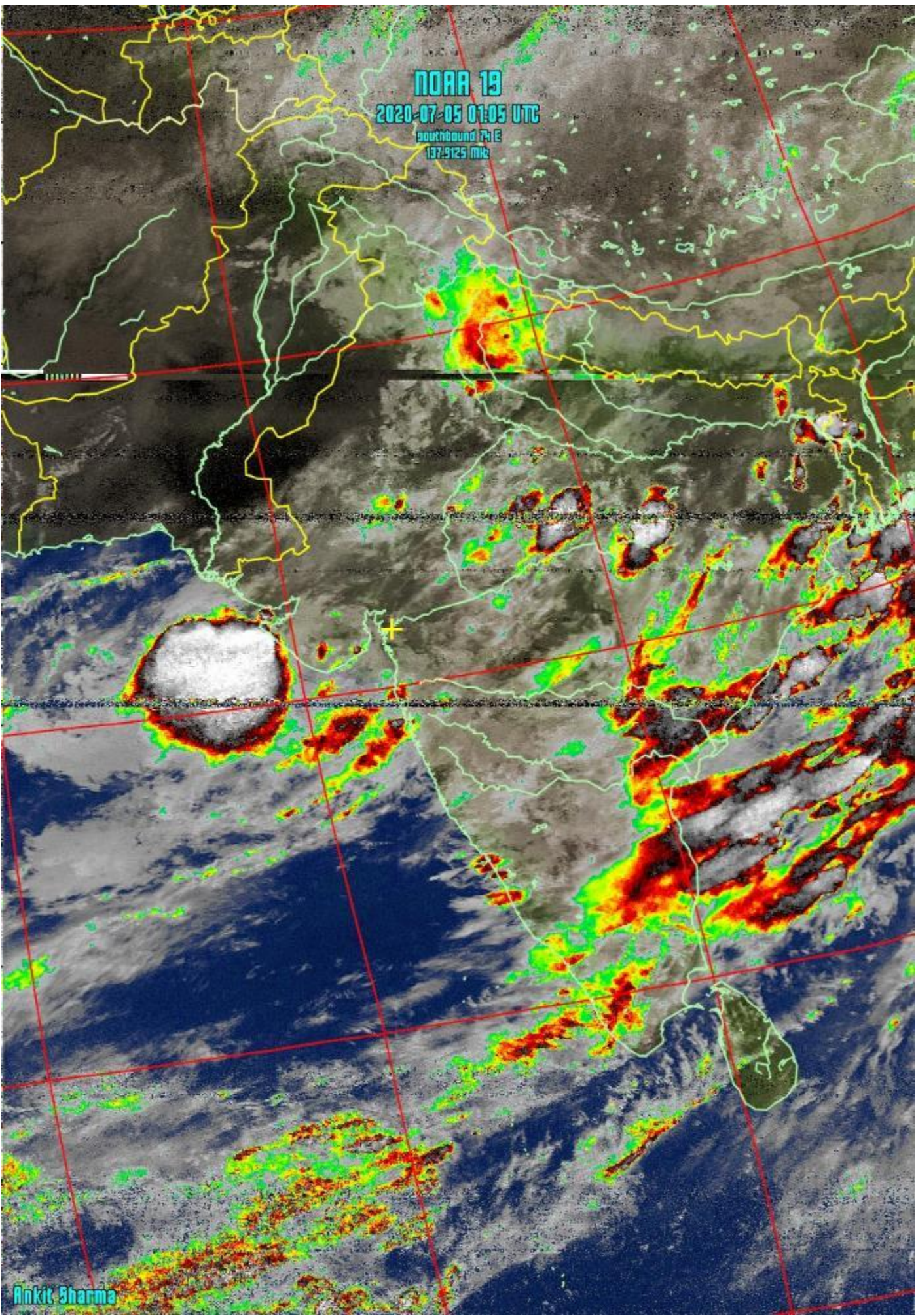
**NOAA 19**  
2020-07-05 01:05 UTC  
Southbound 74 E  
137.9125 MHz



Ankit Sharma



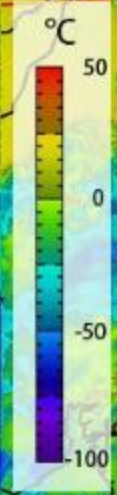
NOAA 19  
2020-07-05 01:05 UTC  
southbound 74 E  
137.9125 MHz



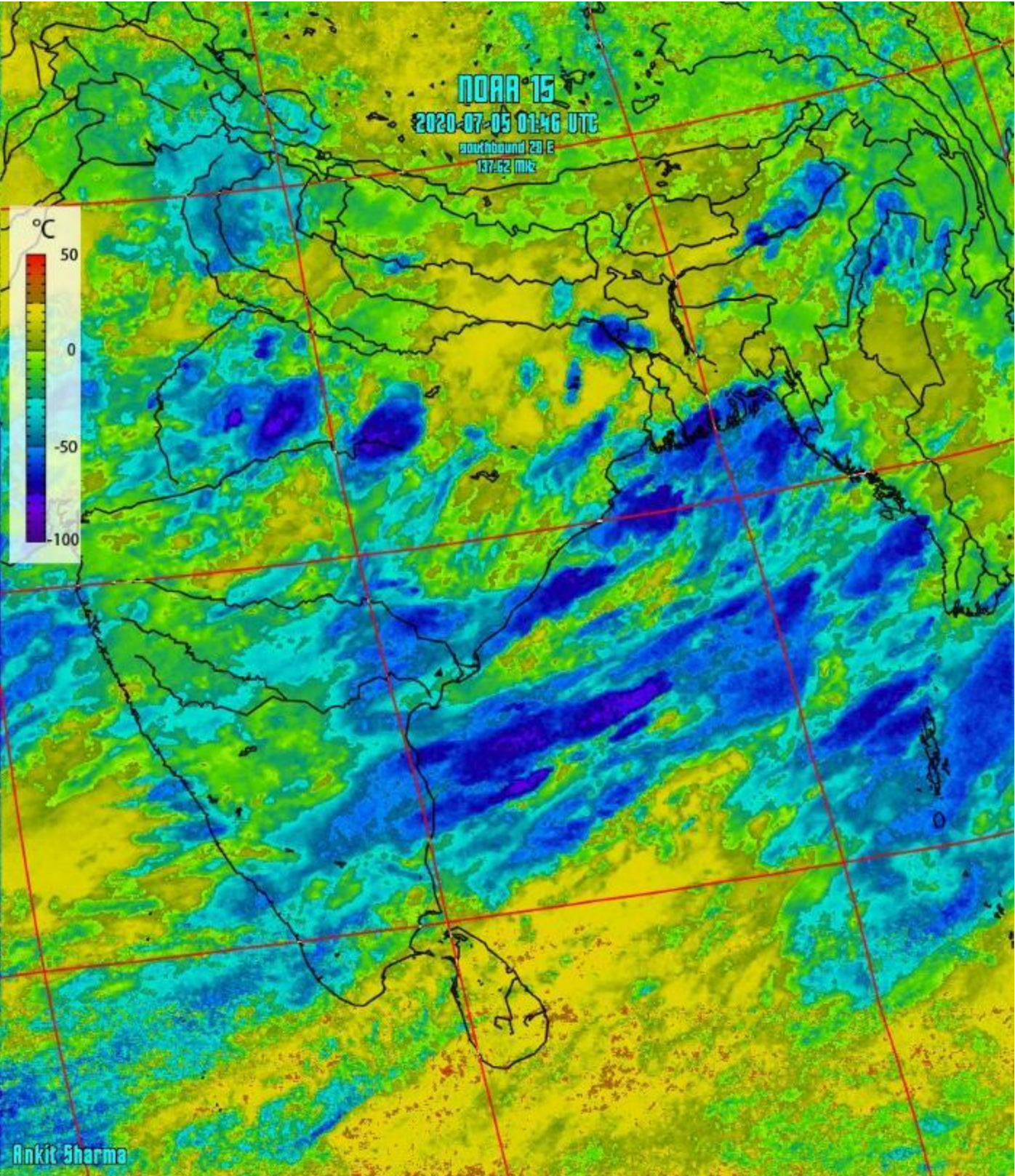
Ankit Sharma



NOAA 15  
2020-07-05 01:46 UTC  
southbound 29 E  
137.62 MHz



Ankit Sharma





07-05-2020

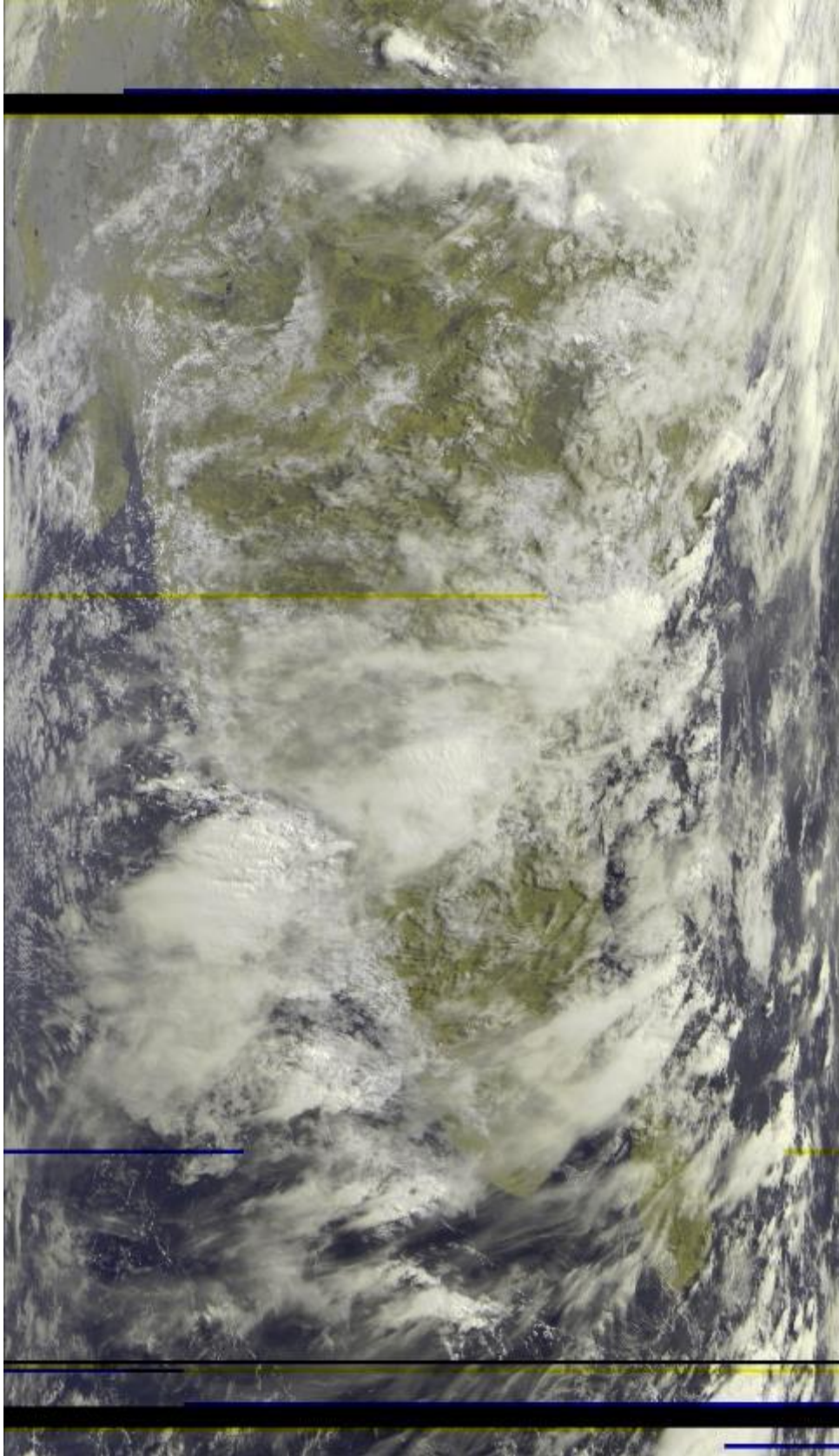
Meteor M2(Day Pass)

Location – Bharuch,

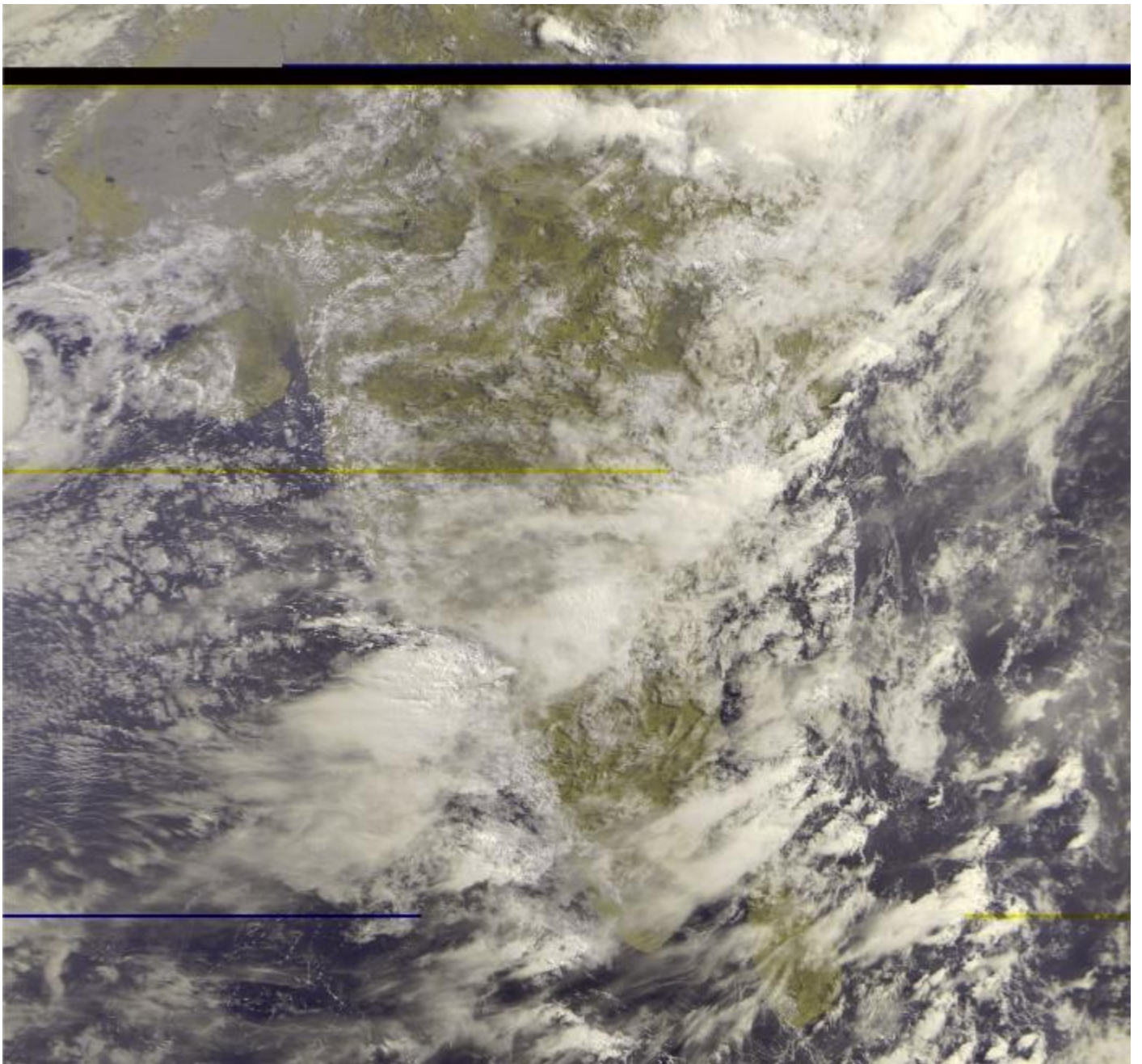
Ground Station Operator/Data Analyser – Ankit Sharma,

Our 2<sup>nd</sup> **Eye in Space** Pictures

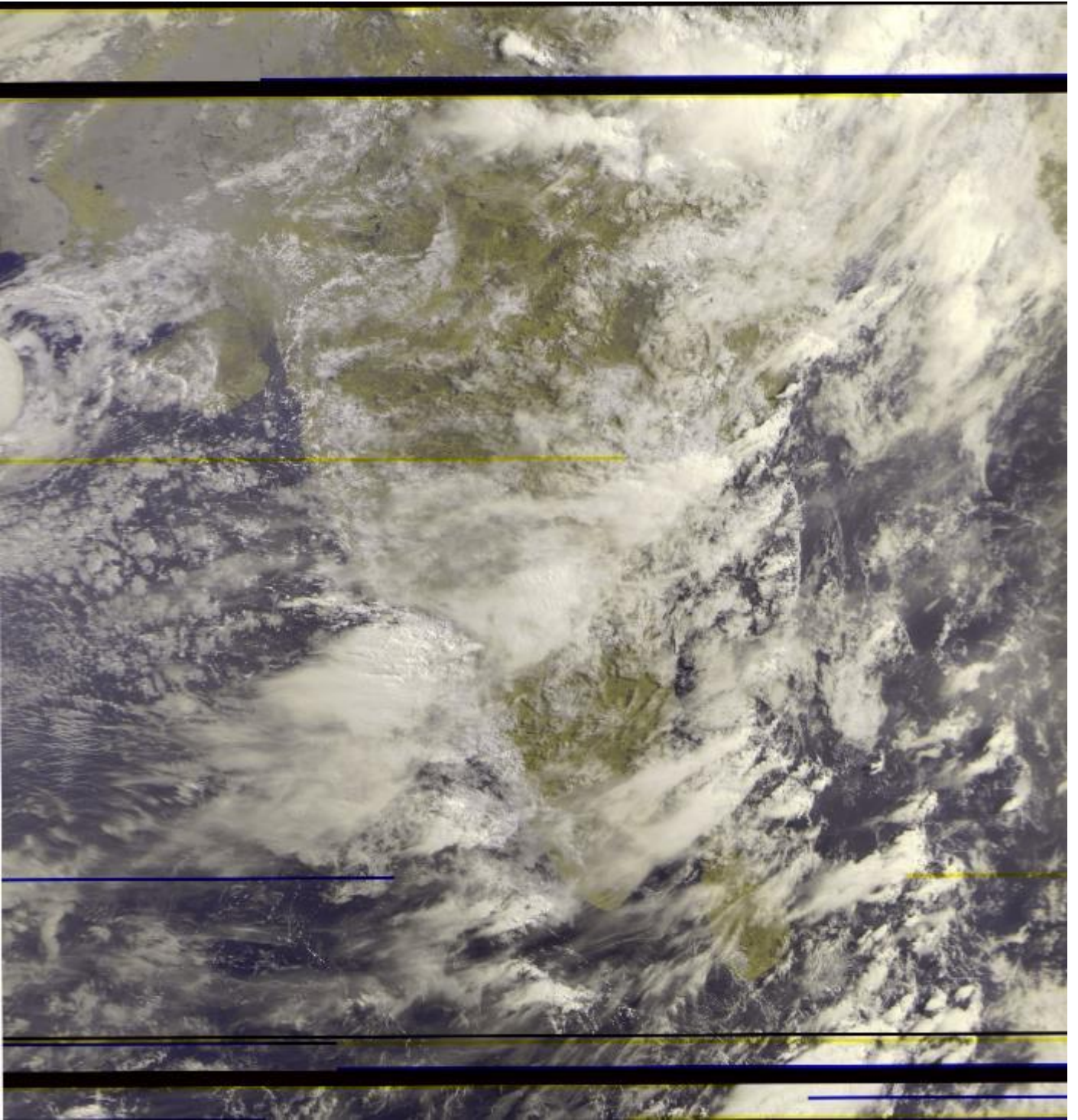
1<sup>st</sup> image is With Curvature , Others are Rectified



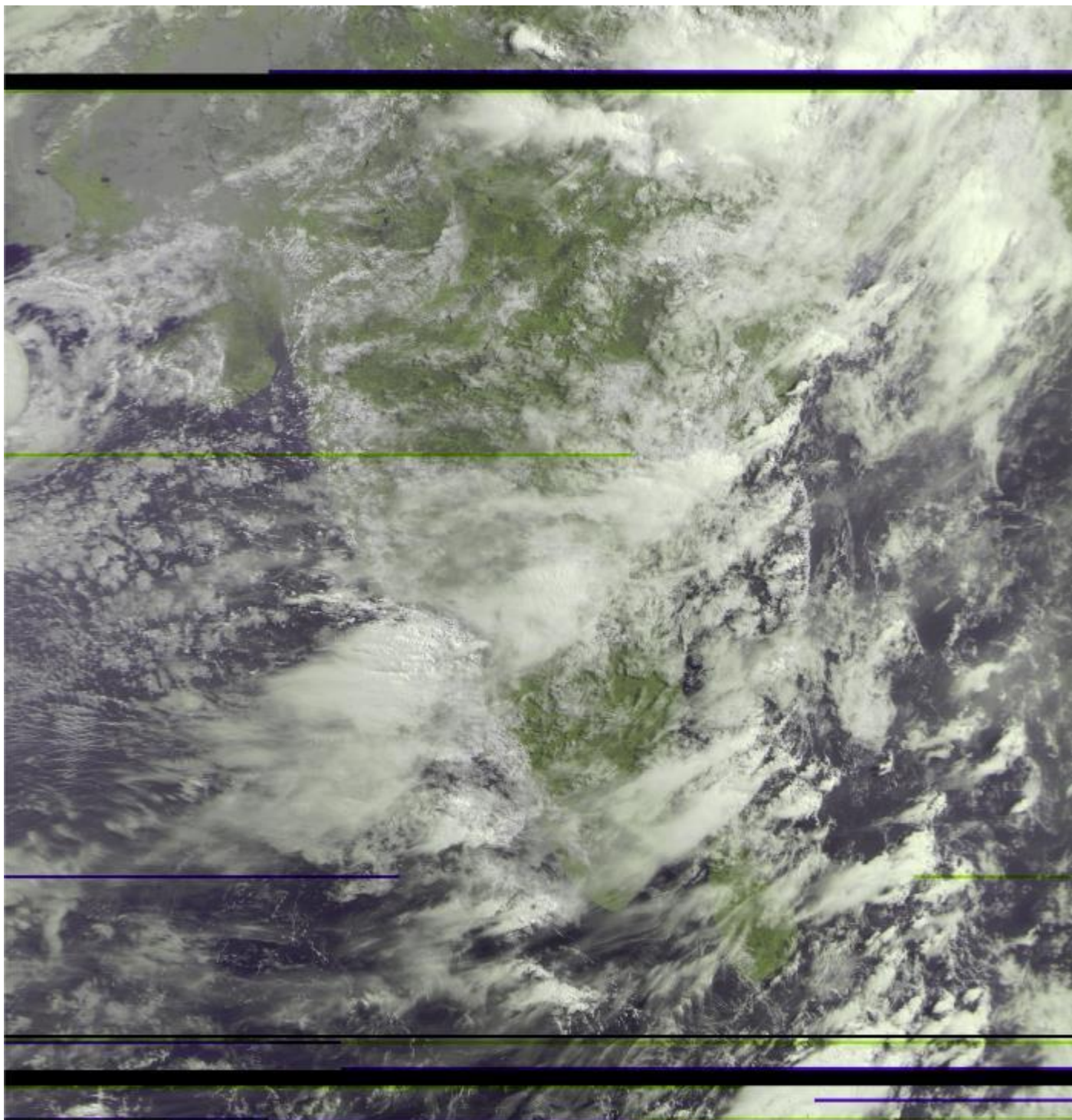




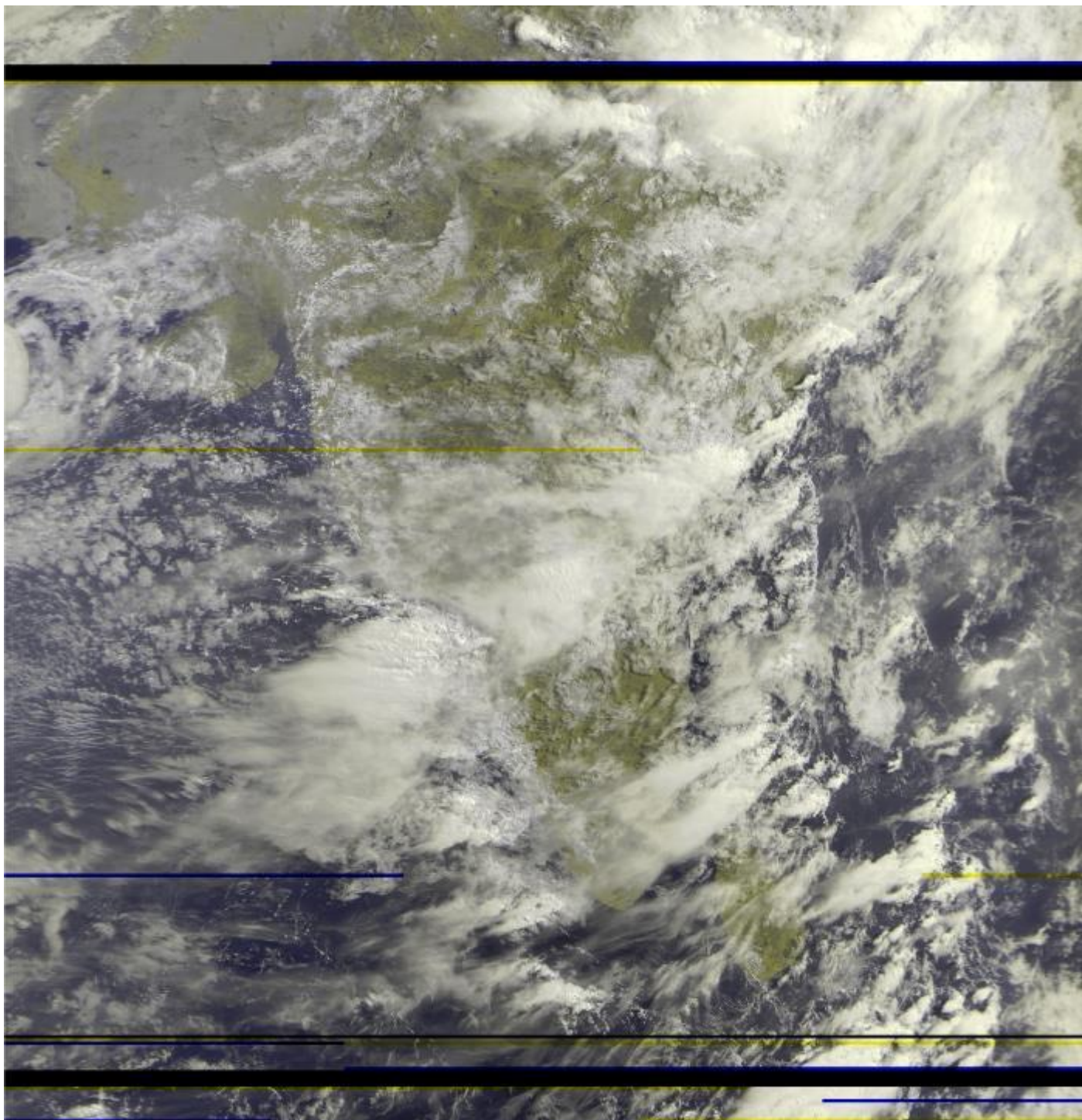




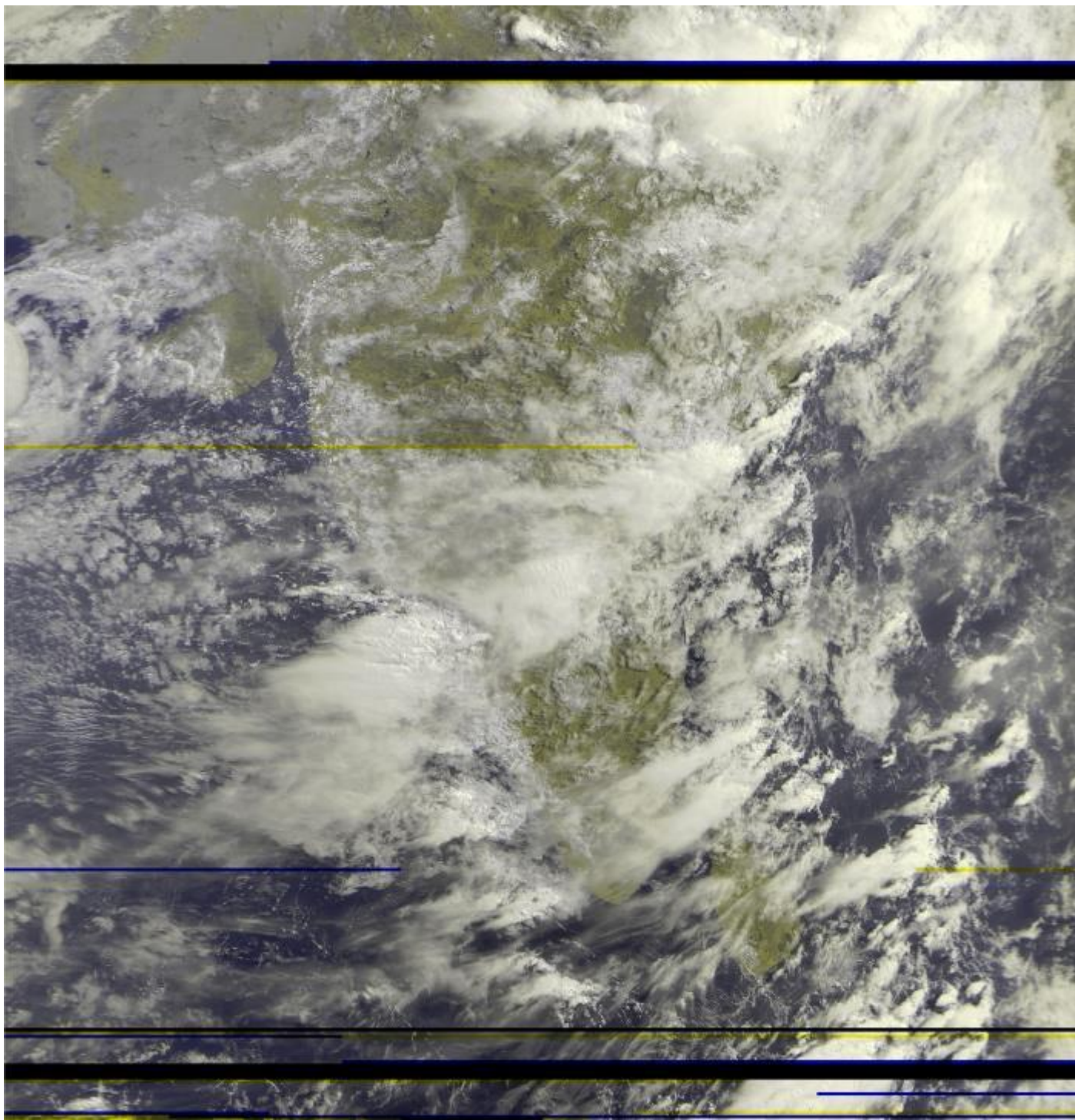




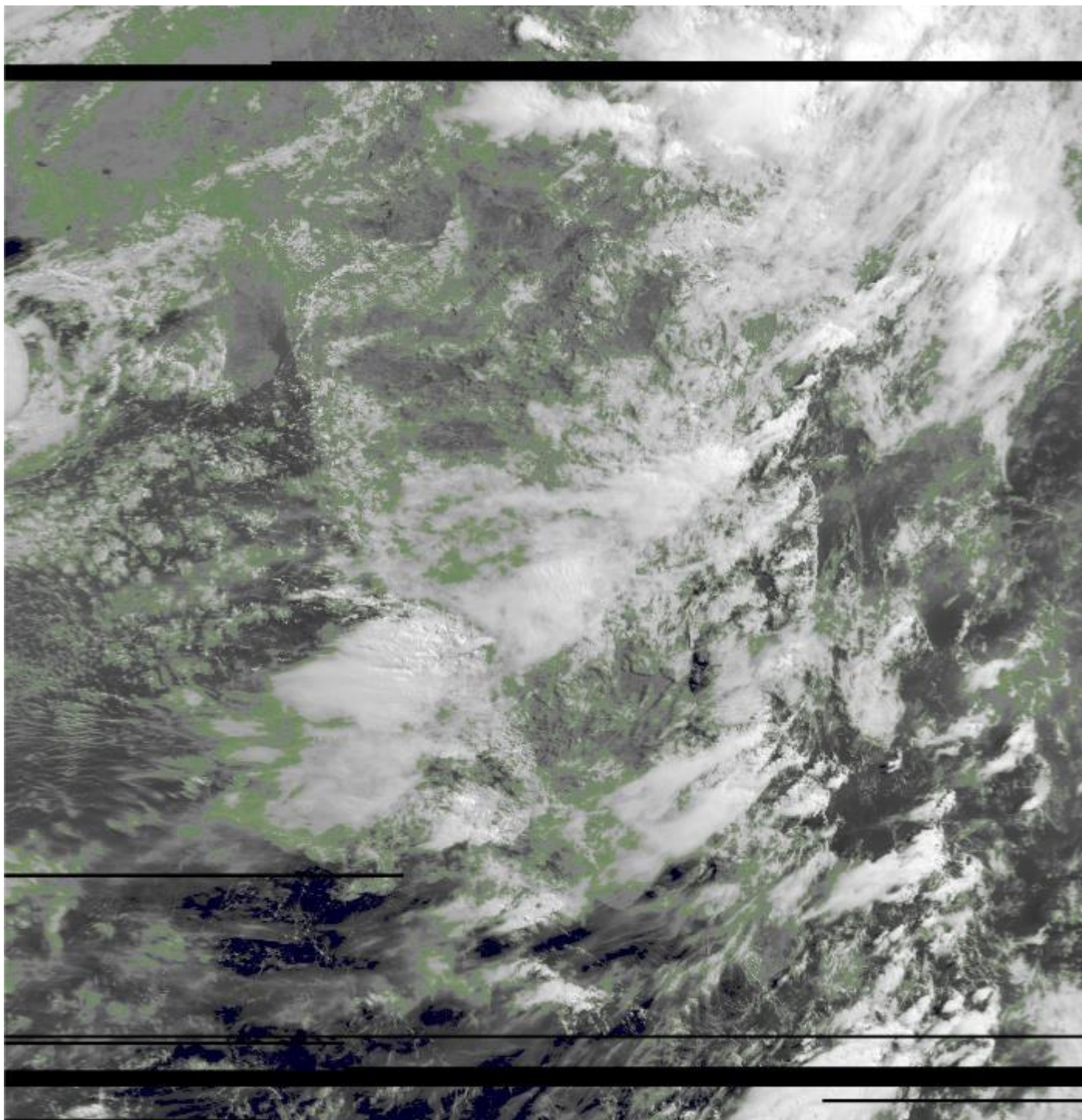






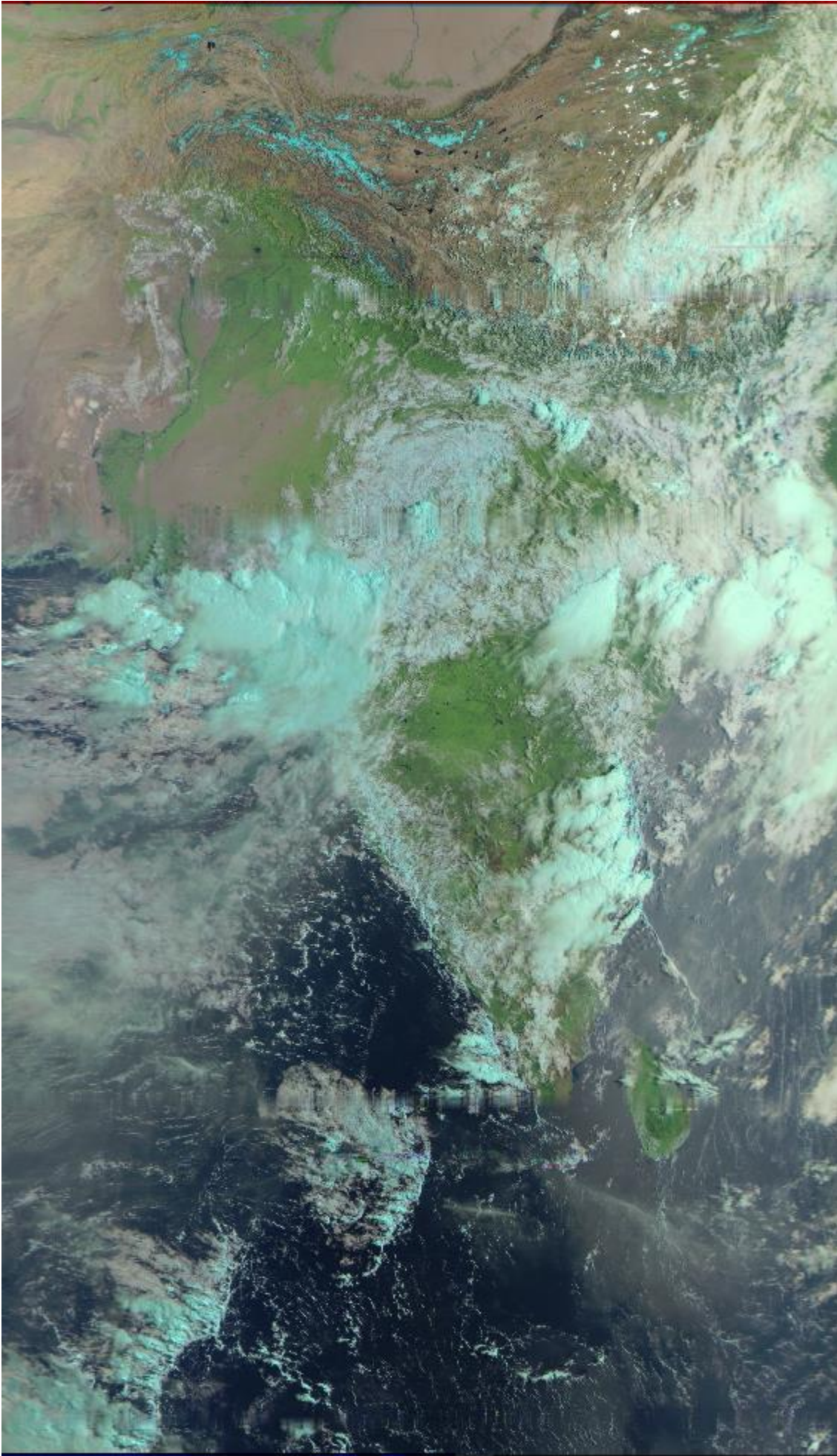




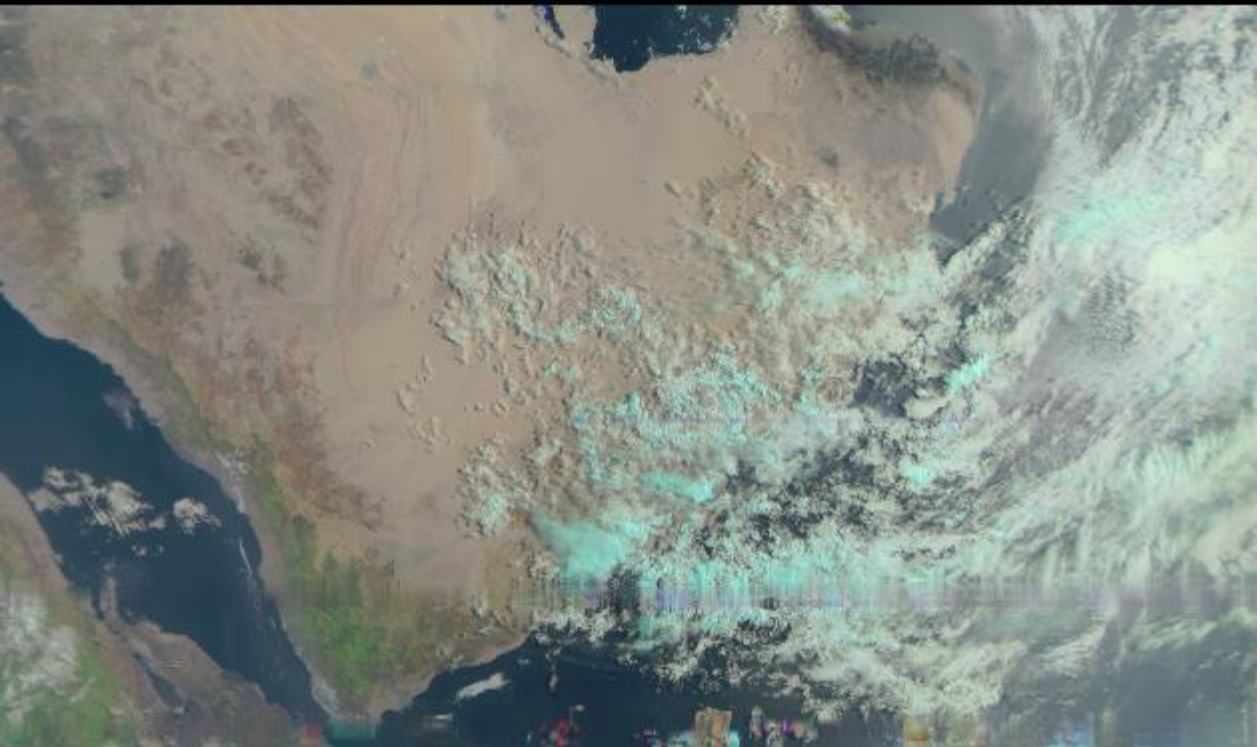
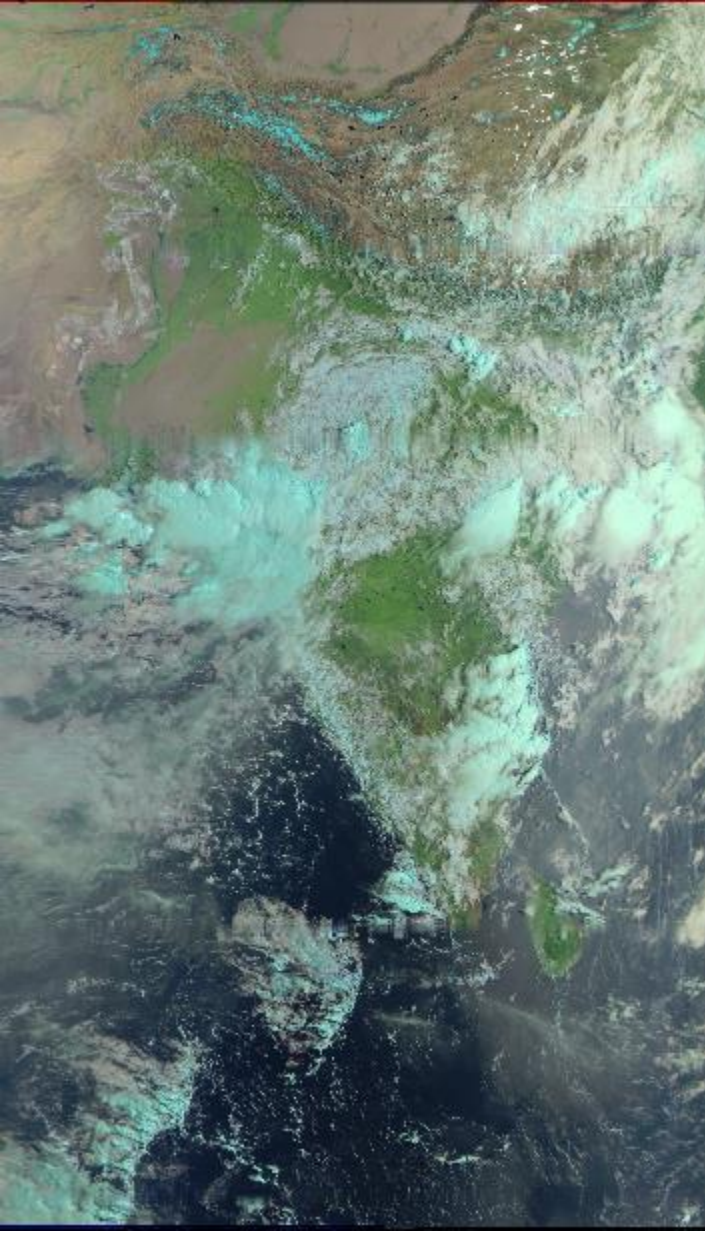




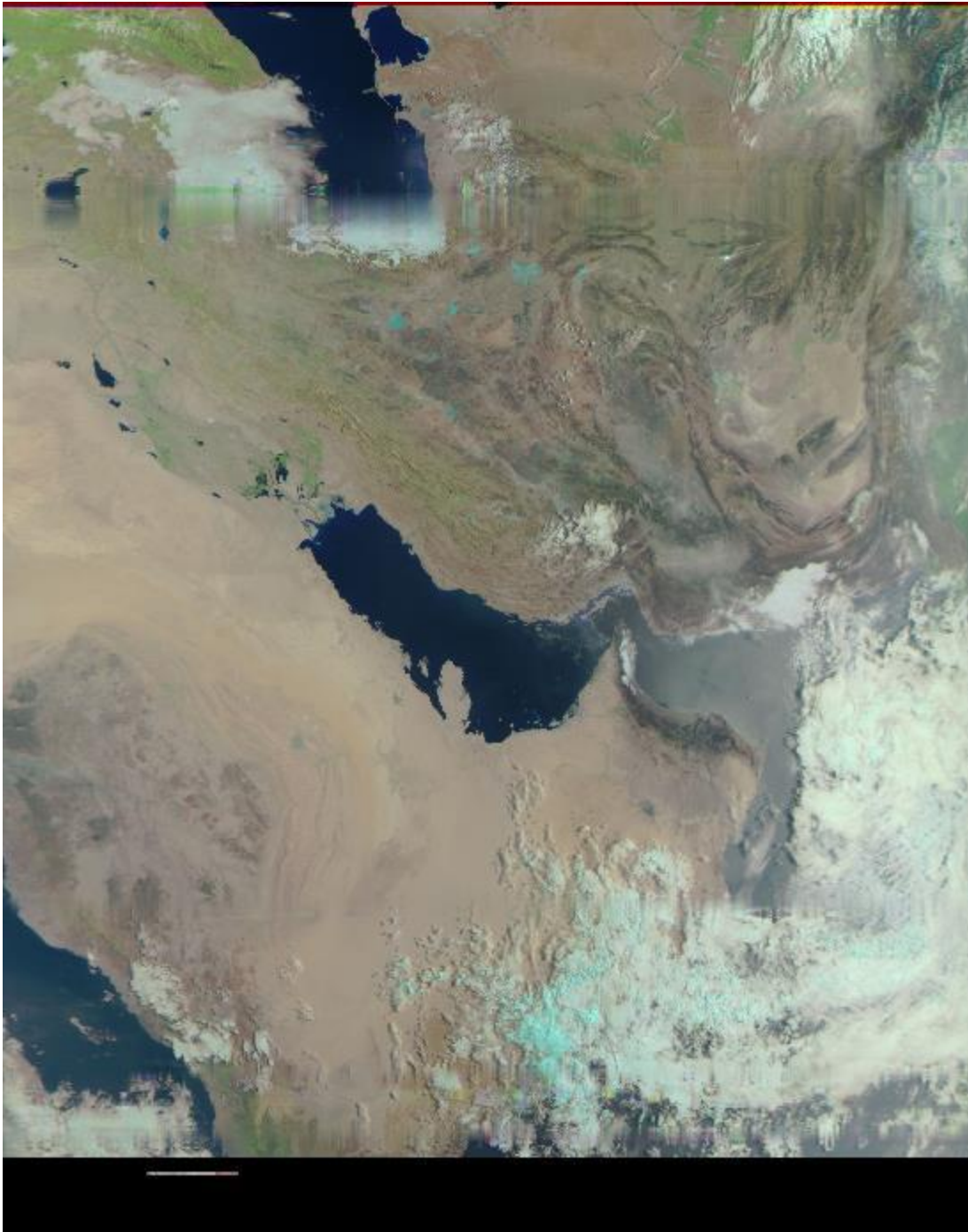
## Meteor Satellite Data:



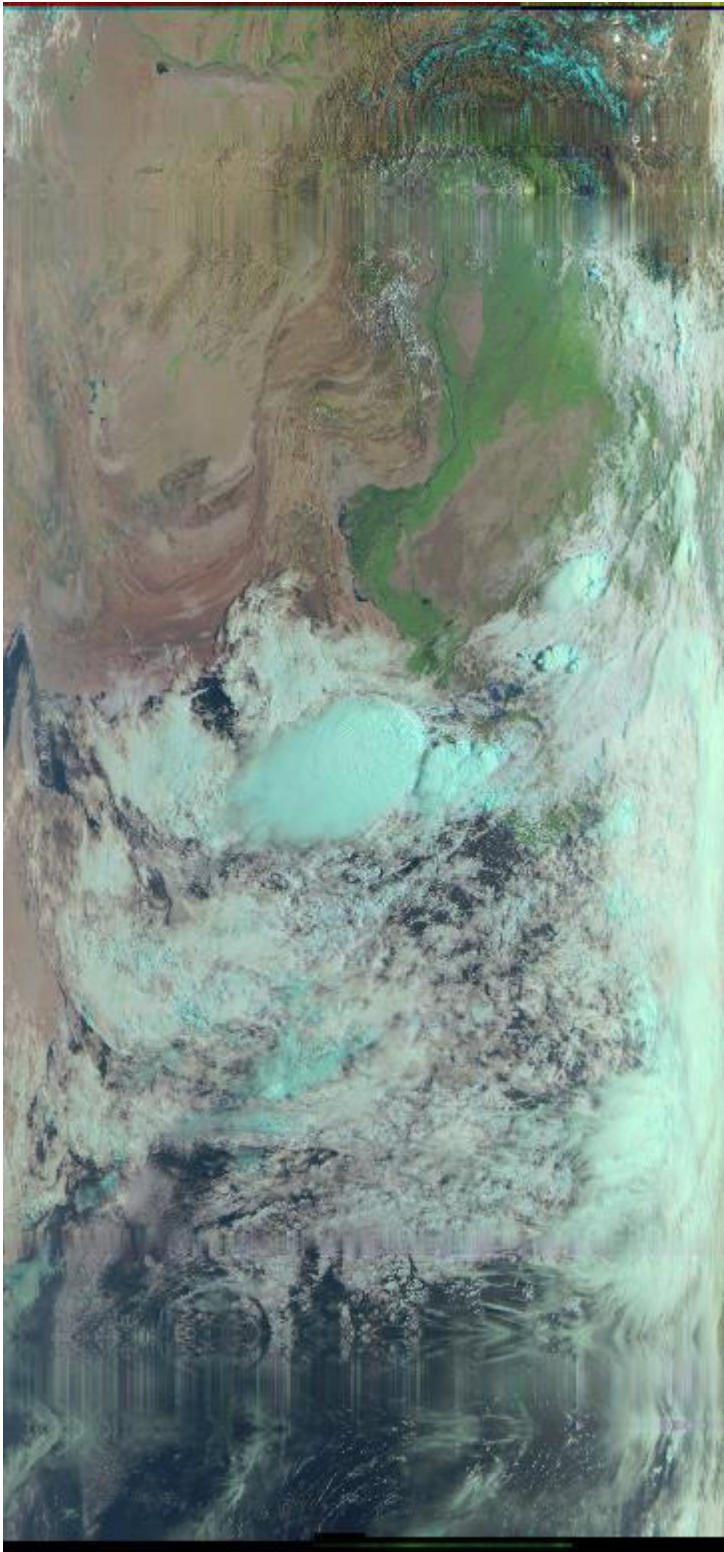




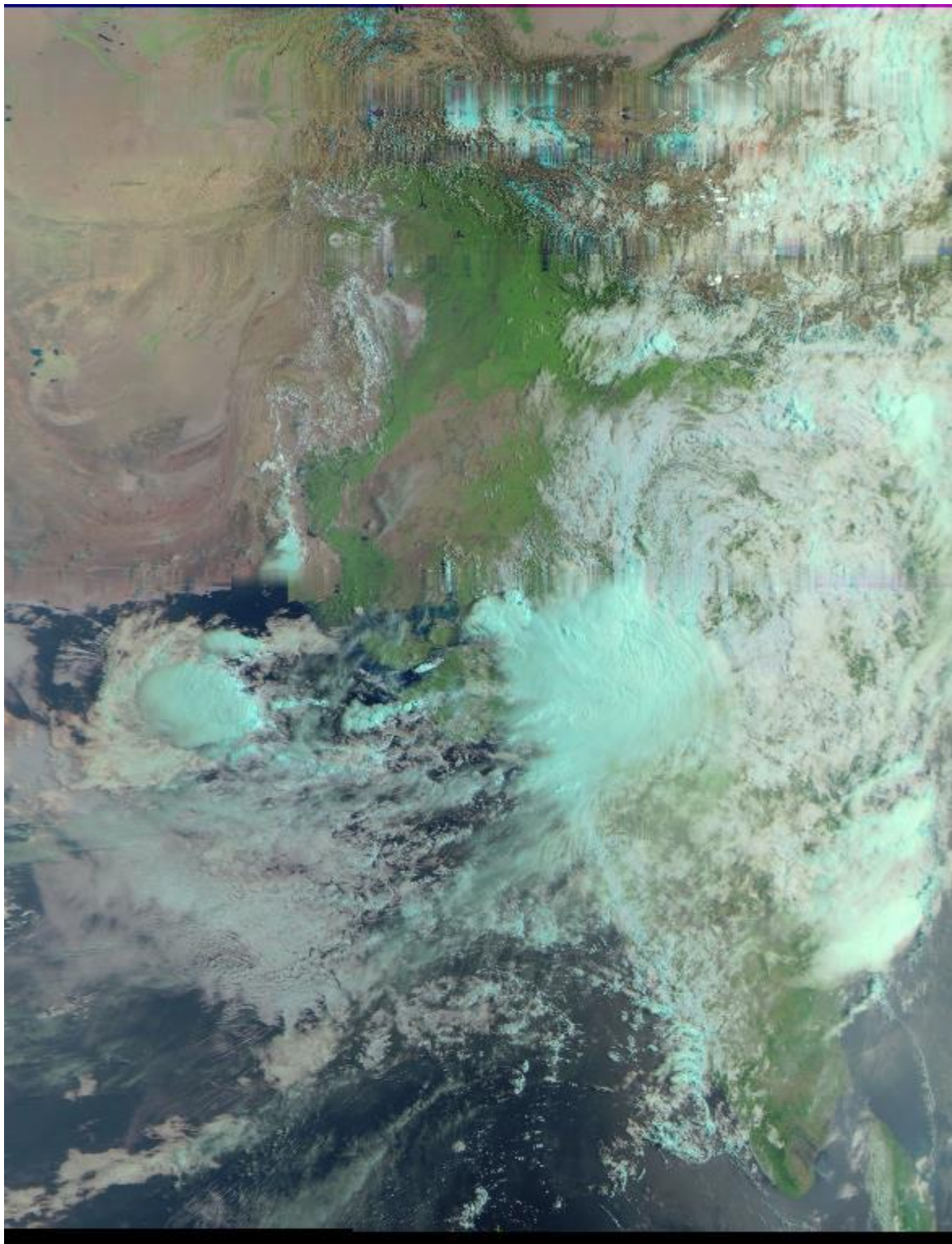














# Ground Station Summary

At present,

Our ground station has received data from 7 SAT successfully and even decoded and verified it.

The 6 sat are: -

1. NOAA -18,
2. NOAA -19,
3. NOAA- 15,
4. JY1SAT(JO-97),
5. NAYIF - 1(EO-88), (Arabic)
6. Fun Cube - 1(AO-73)
7. Meteor M2

We have received data in English as well as Arabic and even pictorially.

We have received undeciphered /unverified data from the following Satellite and we plan to verify/decode data from the following Sat :-

Number of Sat - 43

1. RADfxSat(Fox-1B)(AO-91)
2. Fox-1Cliff(AO-95)
3. Fox-1D (AO-92)
4. ISS - FM & SSTV data
5. BEESAT - 4
6. BEESAT - 3
7. BEESAT - 2
8. Triton - 1
9. ORBCOMM (group of ~35 sat)

Total Sat Received - 50.

We have reached 50 number of satellites in receiving.

And 7 satellite which we have verified data from.

Approximate cost of this Ground station is 10k INR.

Hence we can Say we have Established a Full Fledge Ground Station.



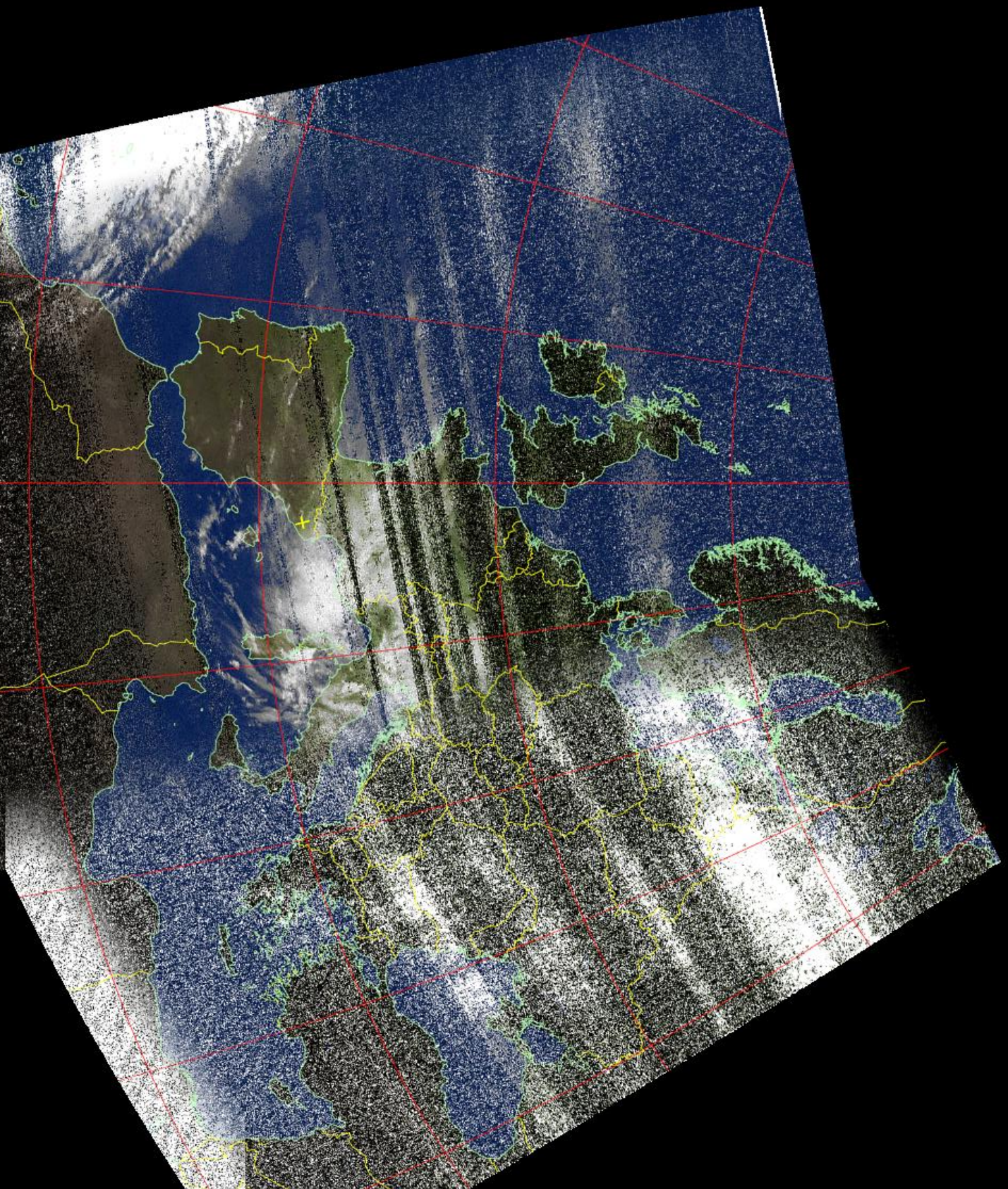
# **CONTACT2020**

## **GLOBAL GROUND STATION COMPETITION**

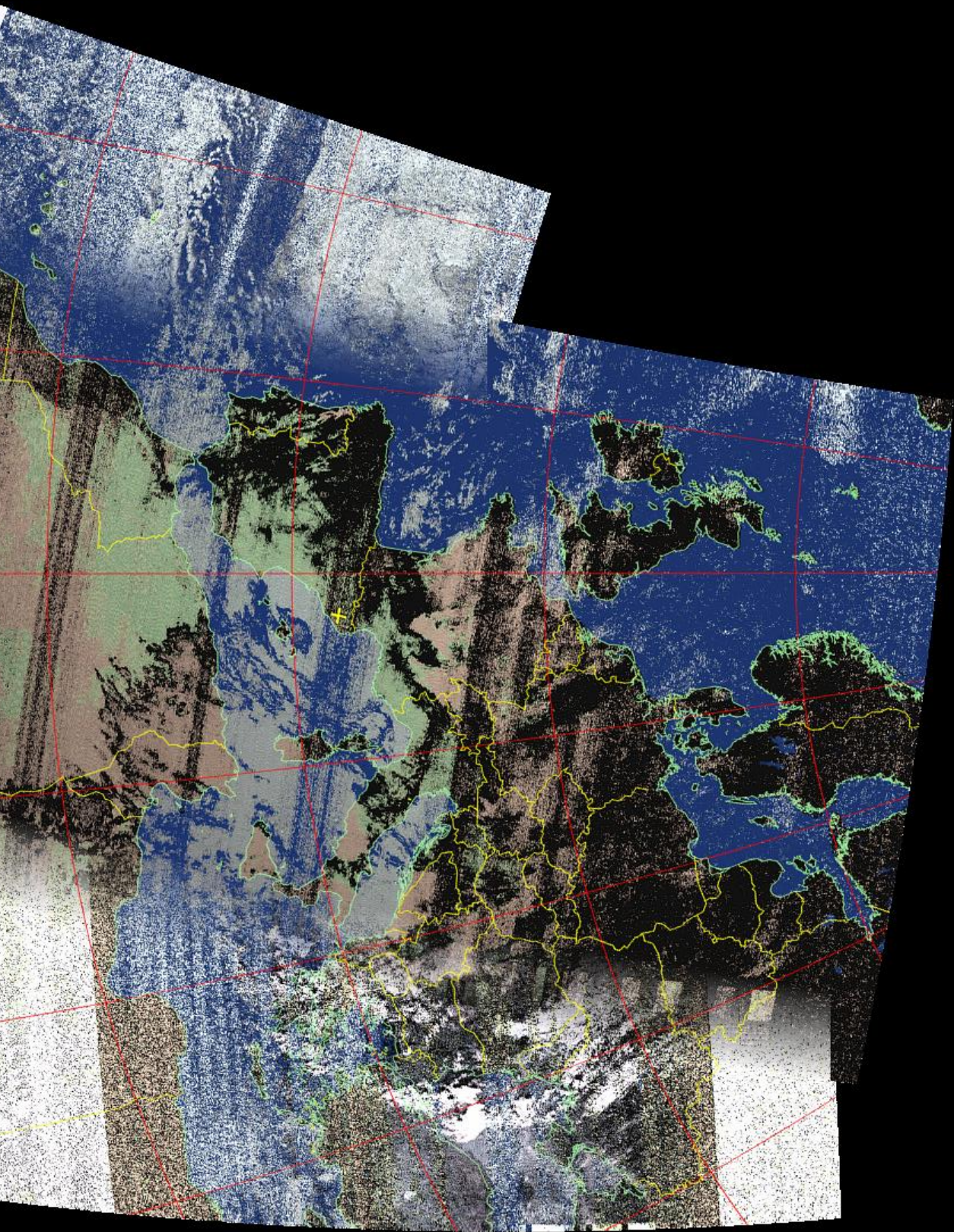
COMPETITION CATEGORIES: CAT 1 and CAT 2

DANIEL SORS RAURELL

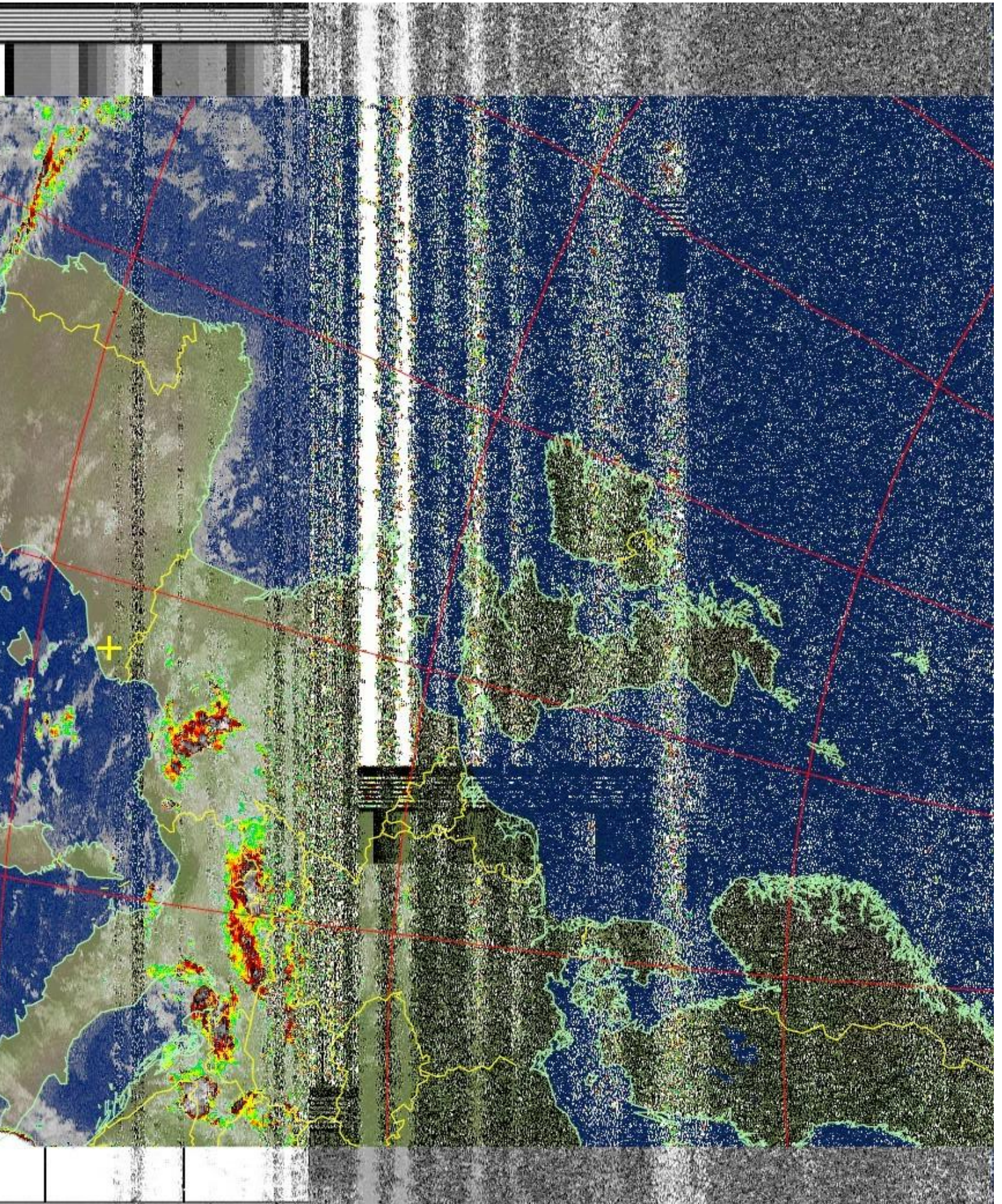




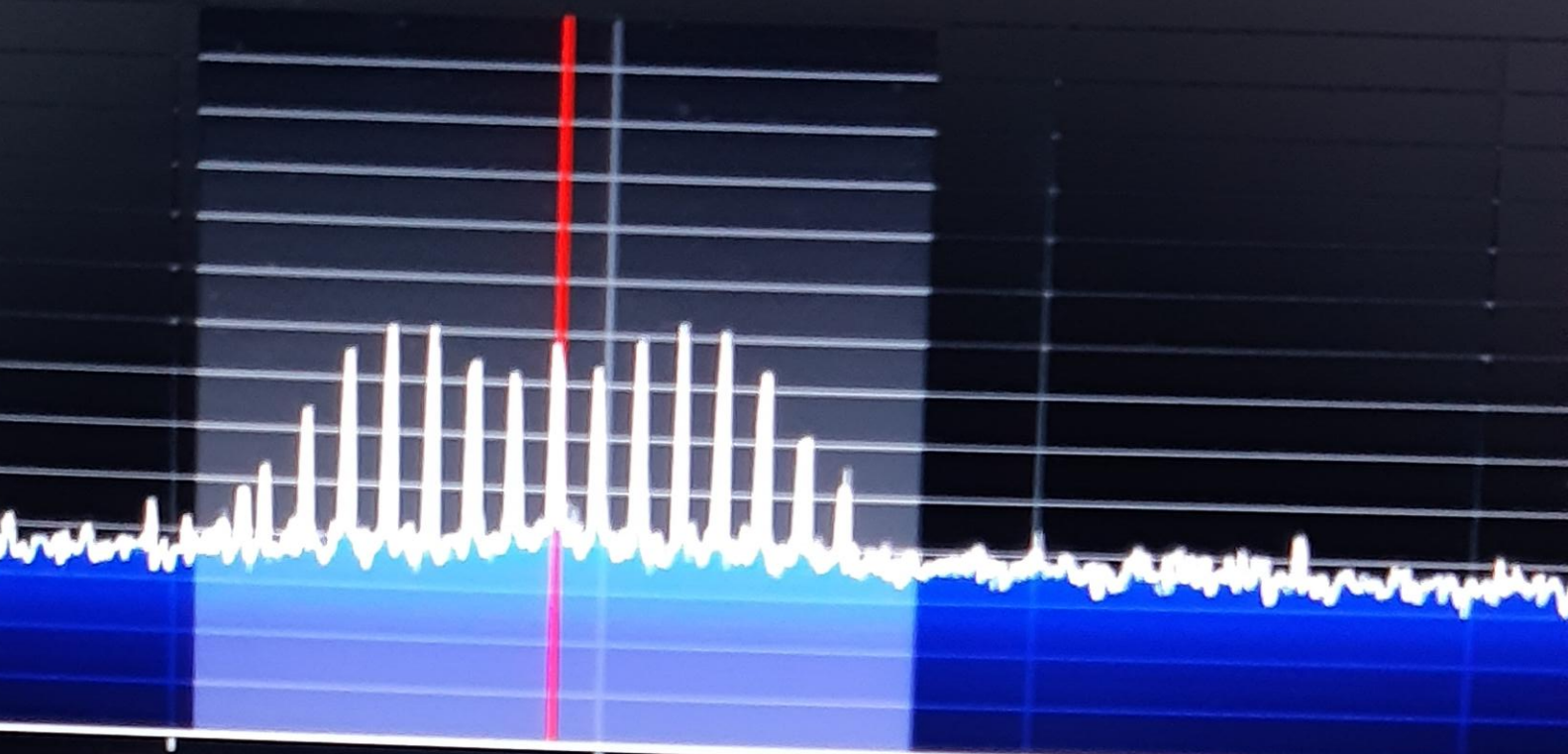










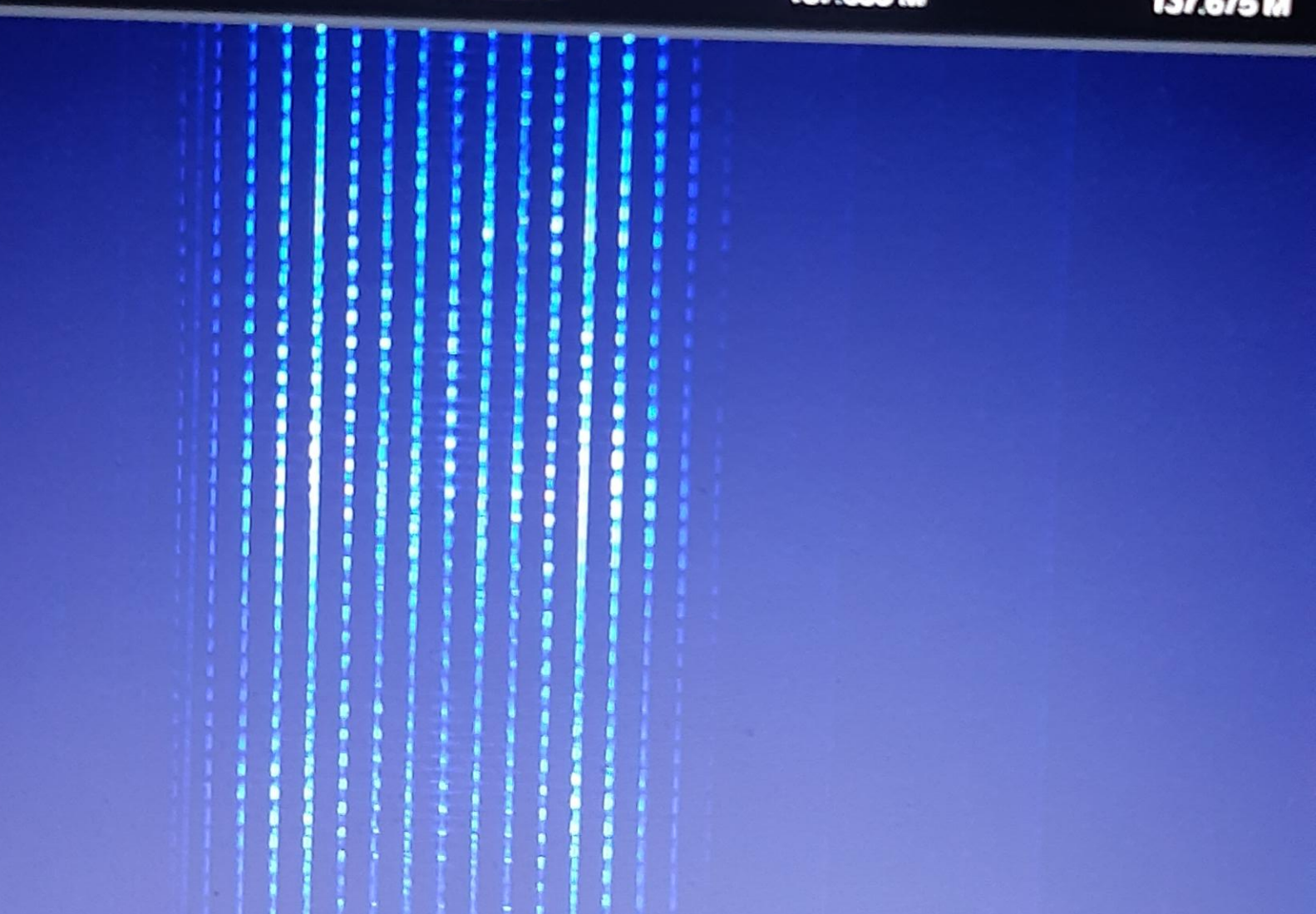


137.600 M

137.625 M

137.650 M

137.675 M





NOAA 18 (ch 3-4, northbound 83 W) at 2020-09-03 20:44 UTC



08 UTC

Elev: 21.7° Azi: 342.8° x: 930 y: 264

55°25'N 15°02'E

1819.8km @027°





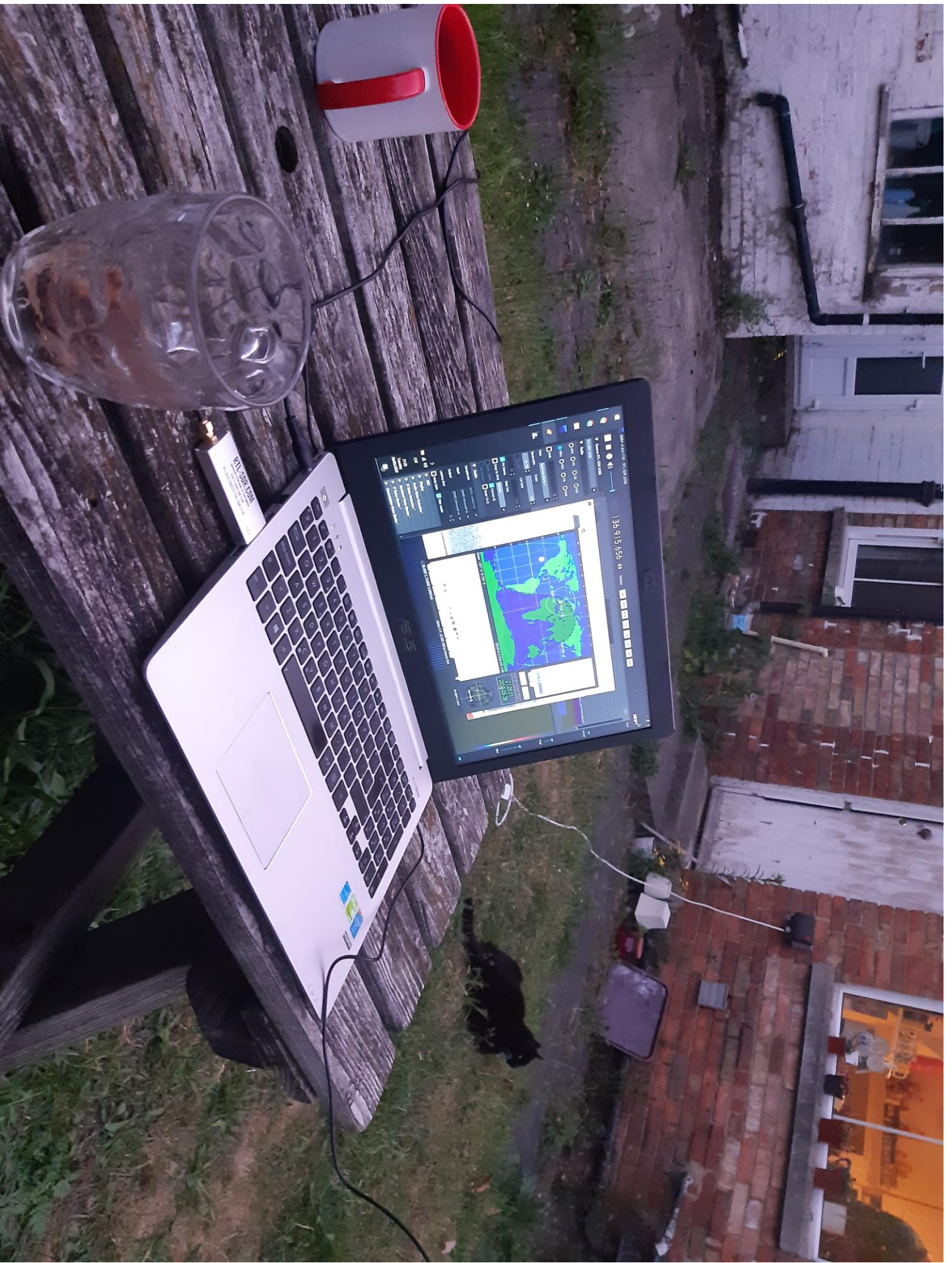














SDR# W1A01732 - RTL-SDR (USB)

Settings  Volume  Bandwidth  Detector

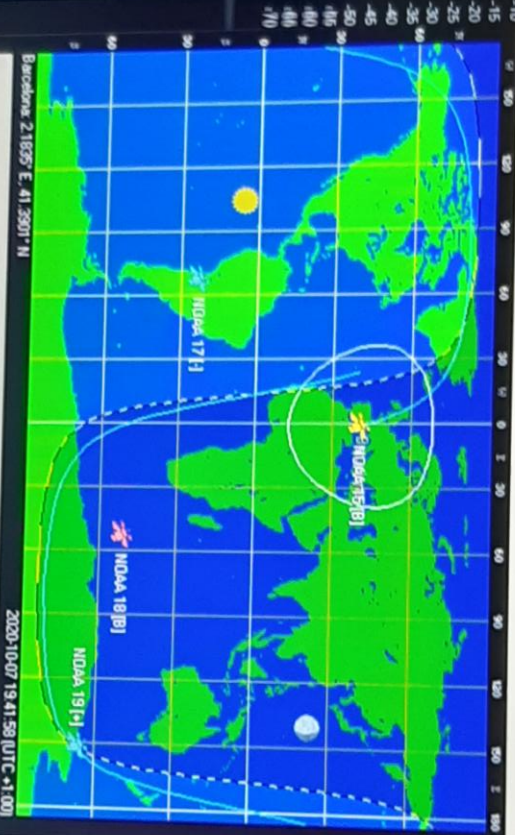
000.137.622.252

Detector: AM, NFM, WFM, DSB, USB, LSB, CW, RAW

Shortcuts Active WFM

Source: RTL-SDR (USB)  
 Filter: Spectrum-Herz 4  
 Bandwidth: 620  
 Gain: 50  
 Step Size: 1.000  
 Smp to Grid: 1024  
 Correct IQ:   
 Anti Aliasing:  Smp 1 M Q

Audio: ACX  
 Display: Audio Noise Reduction\*, IF Noise Reduction\*, Bandpass Noise Blanker\*, IF Noise Blanker\*, Demodulator Noise Blanker\*, Recoding\*, Zoom FFT\*, Band Plan\*, Frequency Manager\*, Signal Diagnostics\*, Audio Processor\*



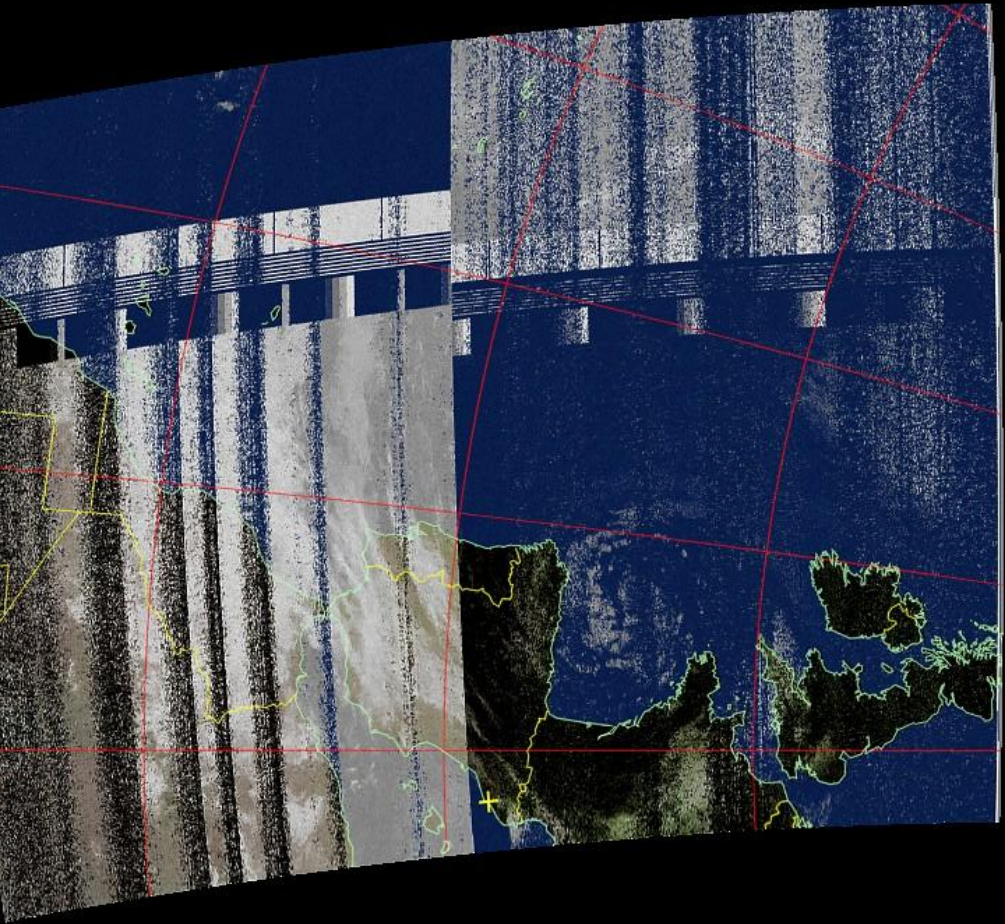
Mode: Real time / Simulation  
 Time: Logical / UTC  
 Main Visualization Location: (Satellite) Production relay: (Receiver)

- NOAA 1
- NOAA 2 (ITOS-01)
- NOAA 3
- NOAA 4
- NOAA 5
- NOAA 6 (P)
- NOAA 7
- NOAA 8
- NOAA 9 (P)
- NOAA 10
- NOAA 11
- NOAA 12
- NOAA 13
- NOAA 14
- NOAA 15 (B)
- NOAA 16
- NOAA 17
- NOAA 18 (B)
- NOAA 19 (A)
- NOAA 19 (B)
- NOAA 19 (C)

Load TLE Show read  
 RT: CLOCE LOC  
 19:41:58  
 2020-10-07







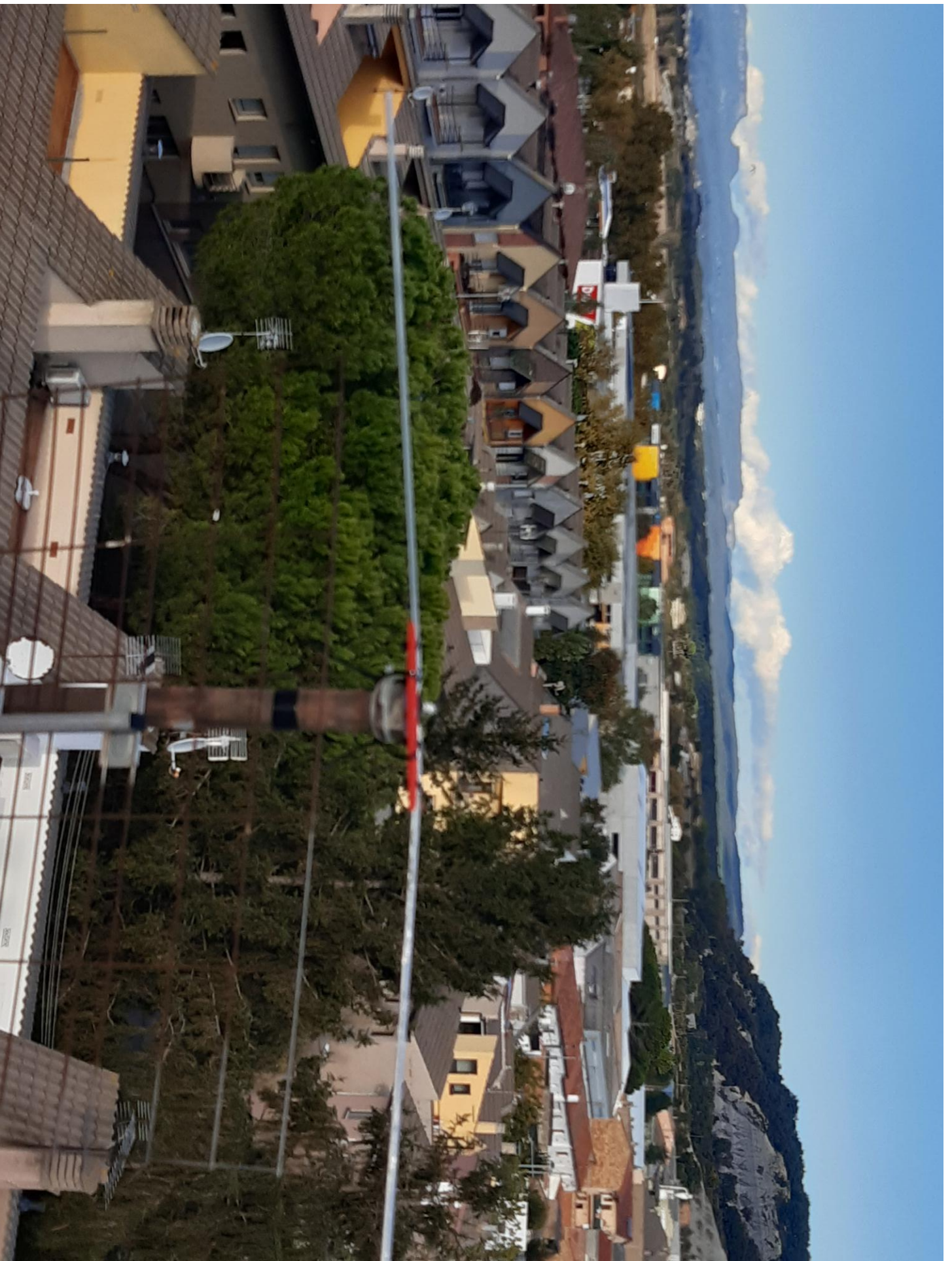


















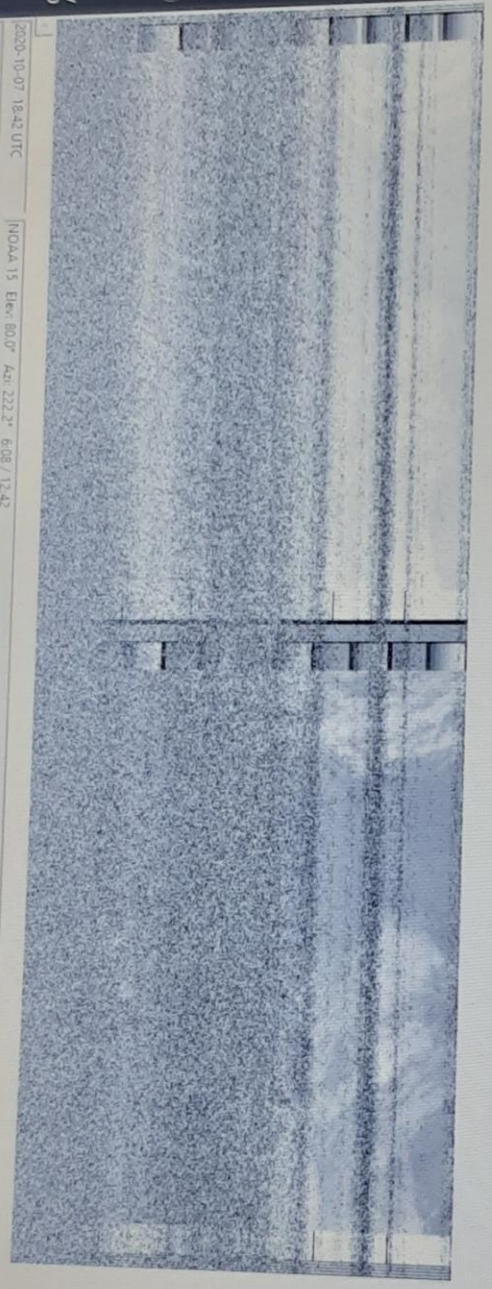






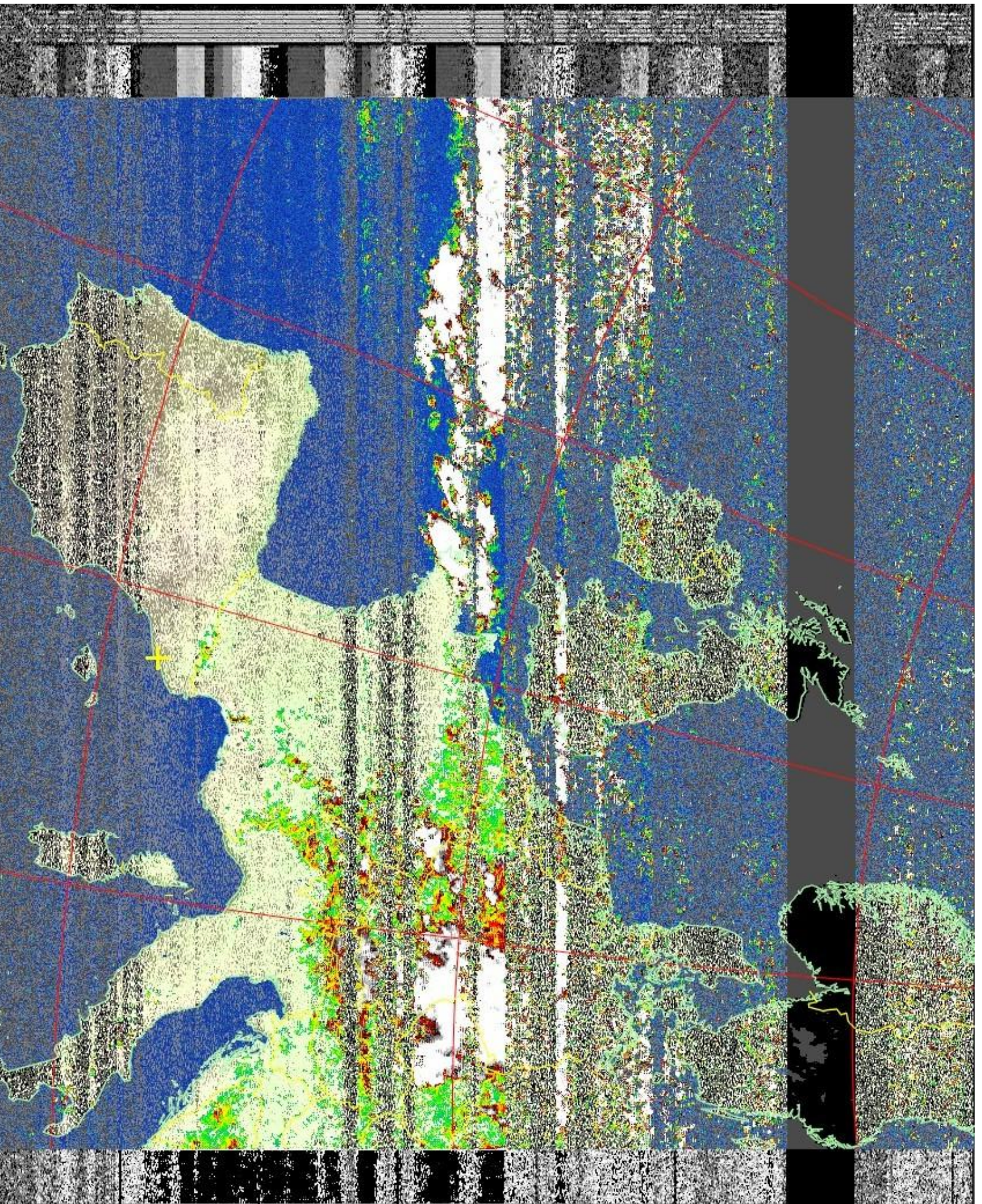


Recording NOAA 15 (unprocessed data shown)...

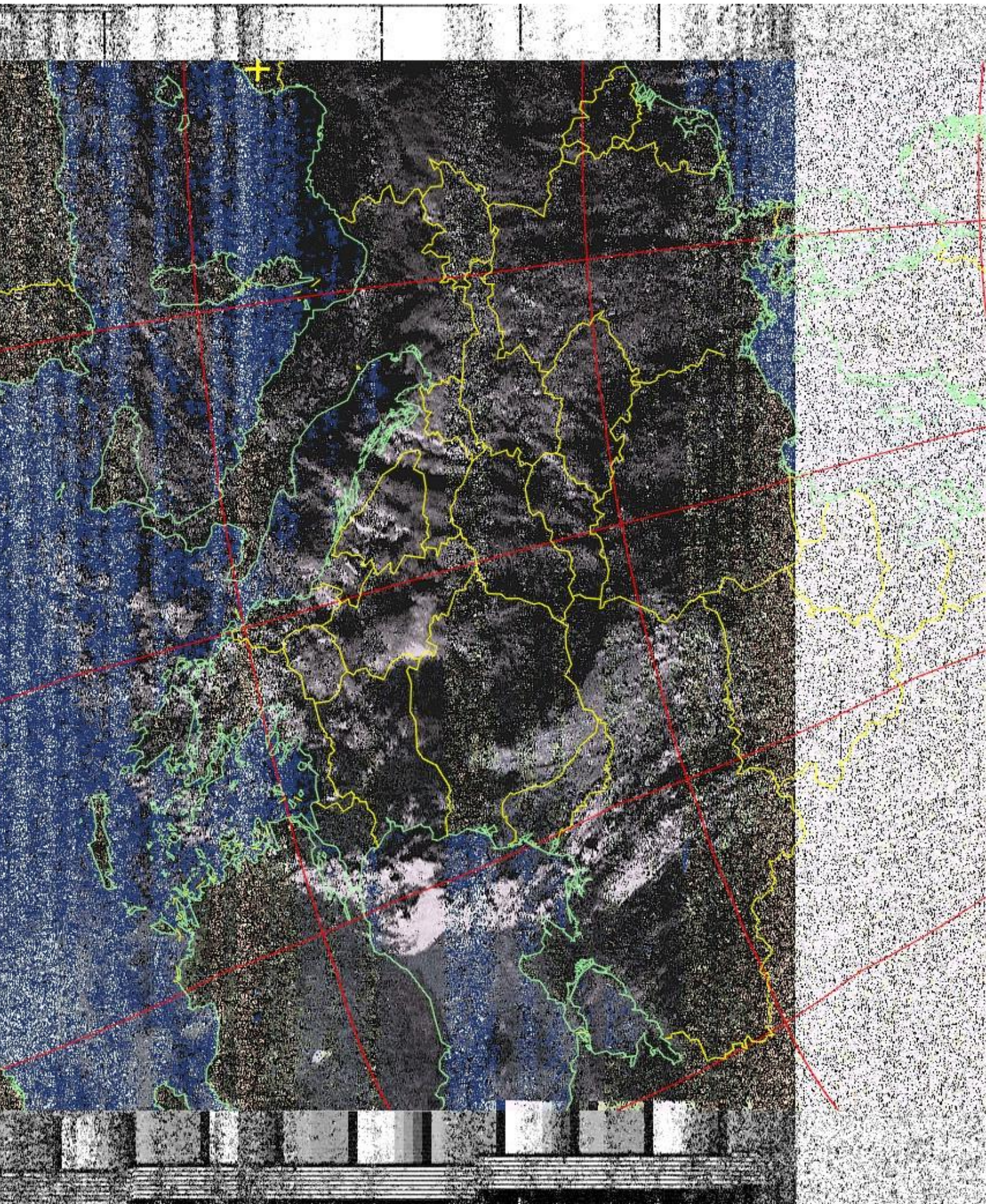


2020-10-07 18:42 UTC NOAA 15 Elev: 80.0° Az: 222.2° 6.08 / 12.42  
Recording NOAA 15 (northbound 82 W) on 137.6200 MHz from 18:35:57 UTC...

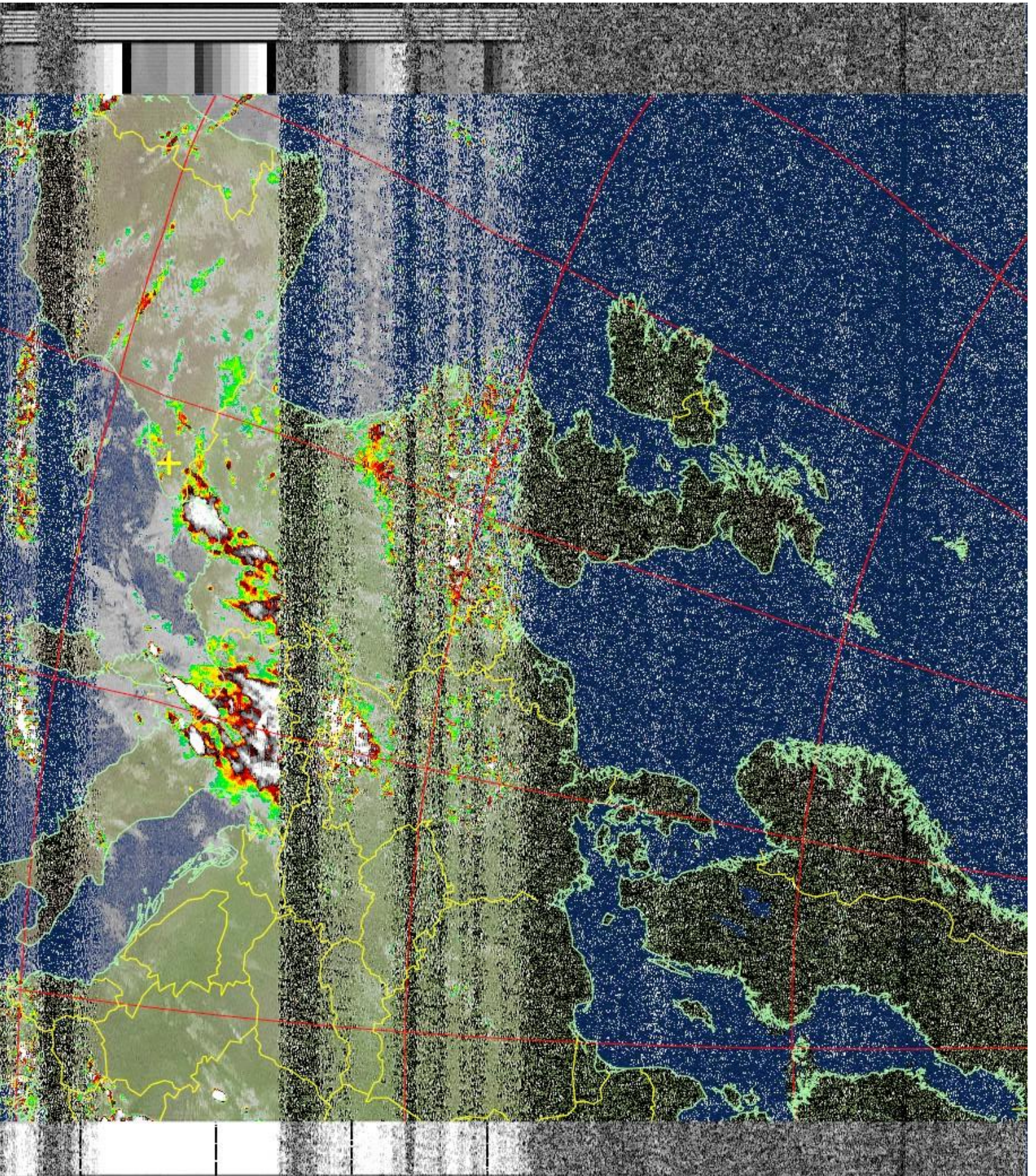




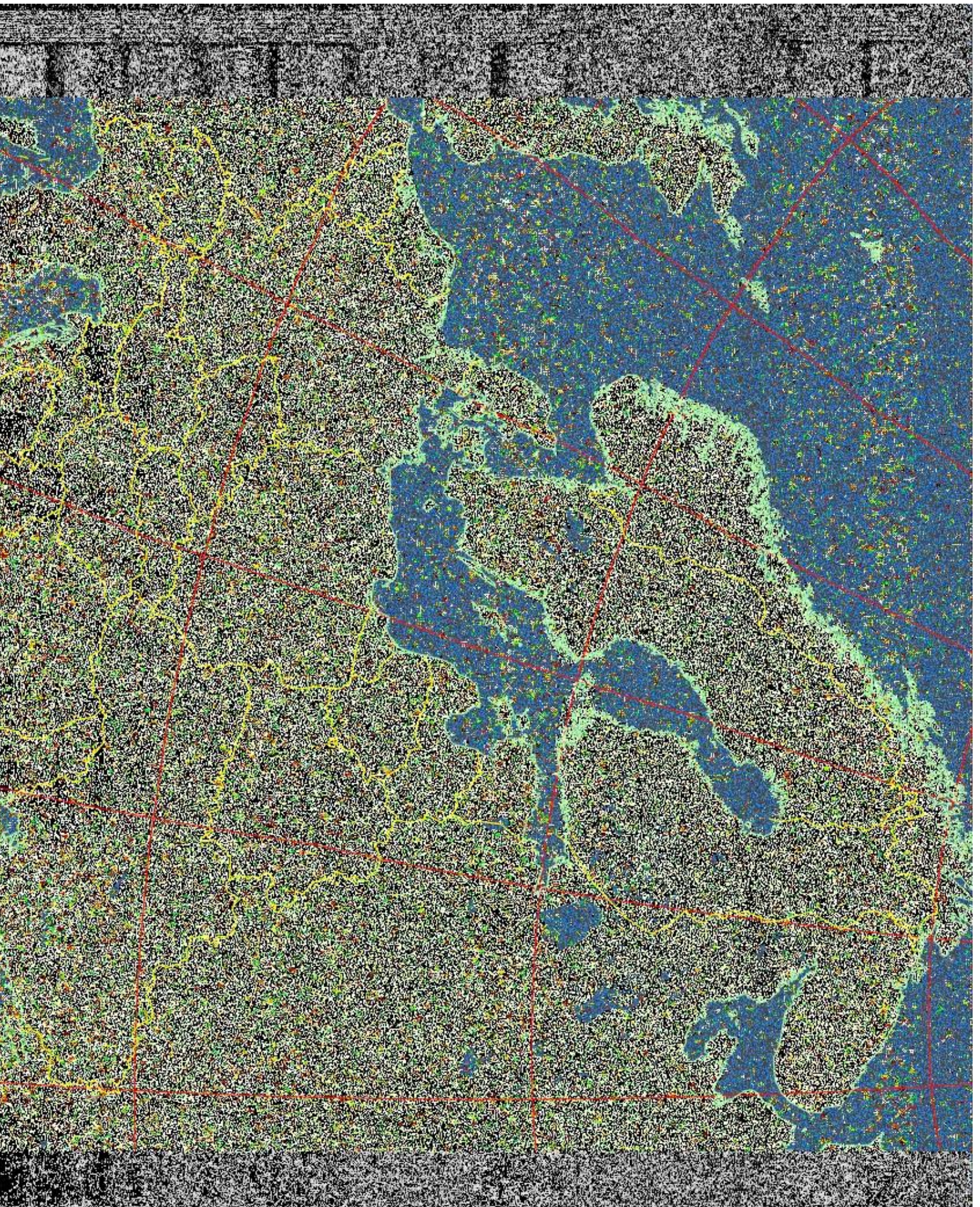




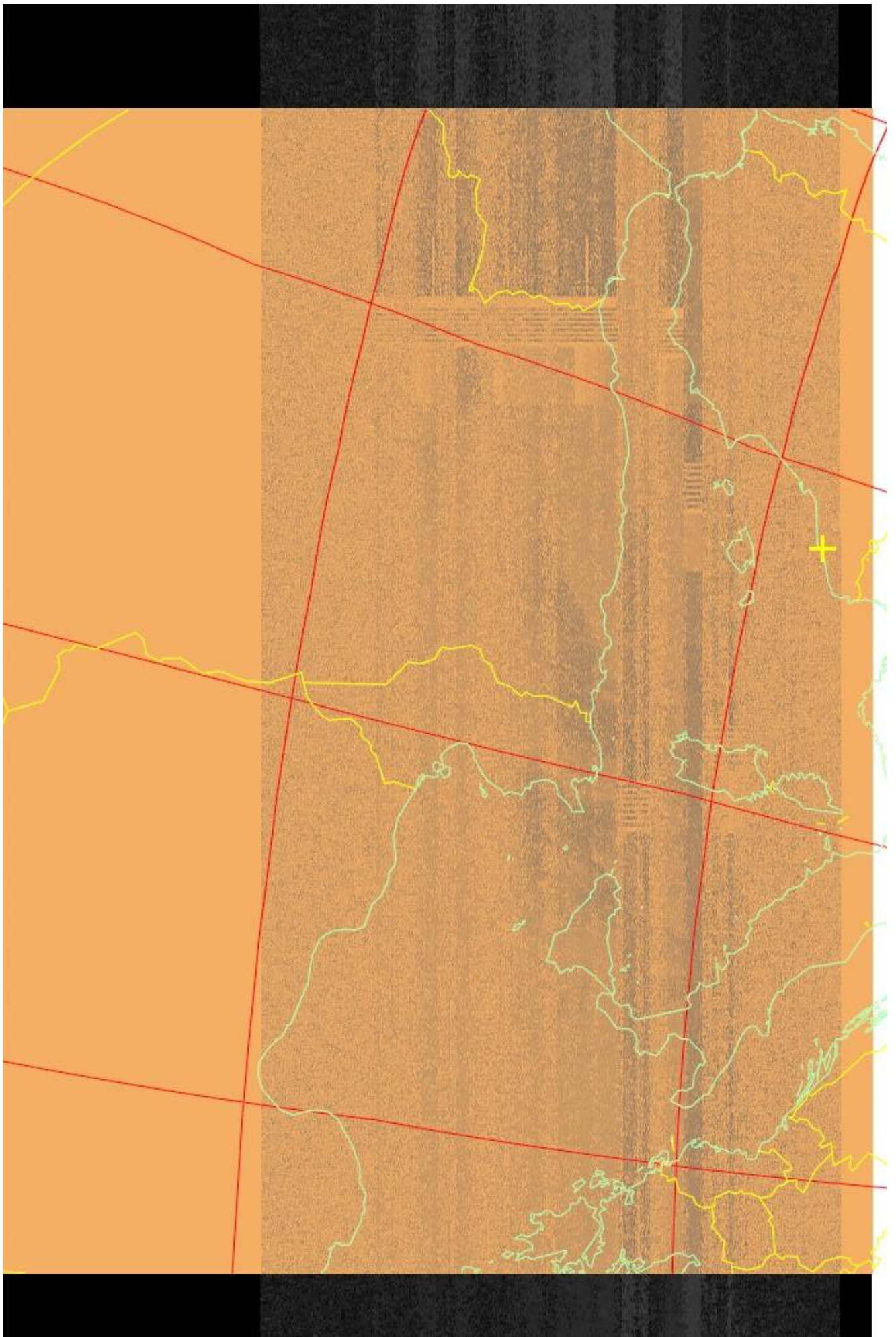




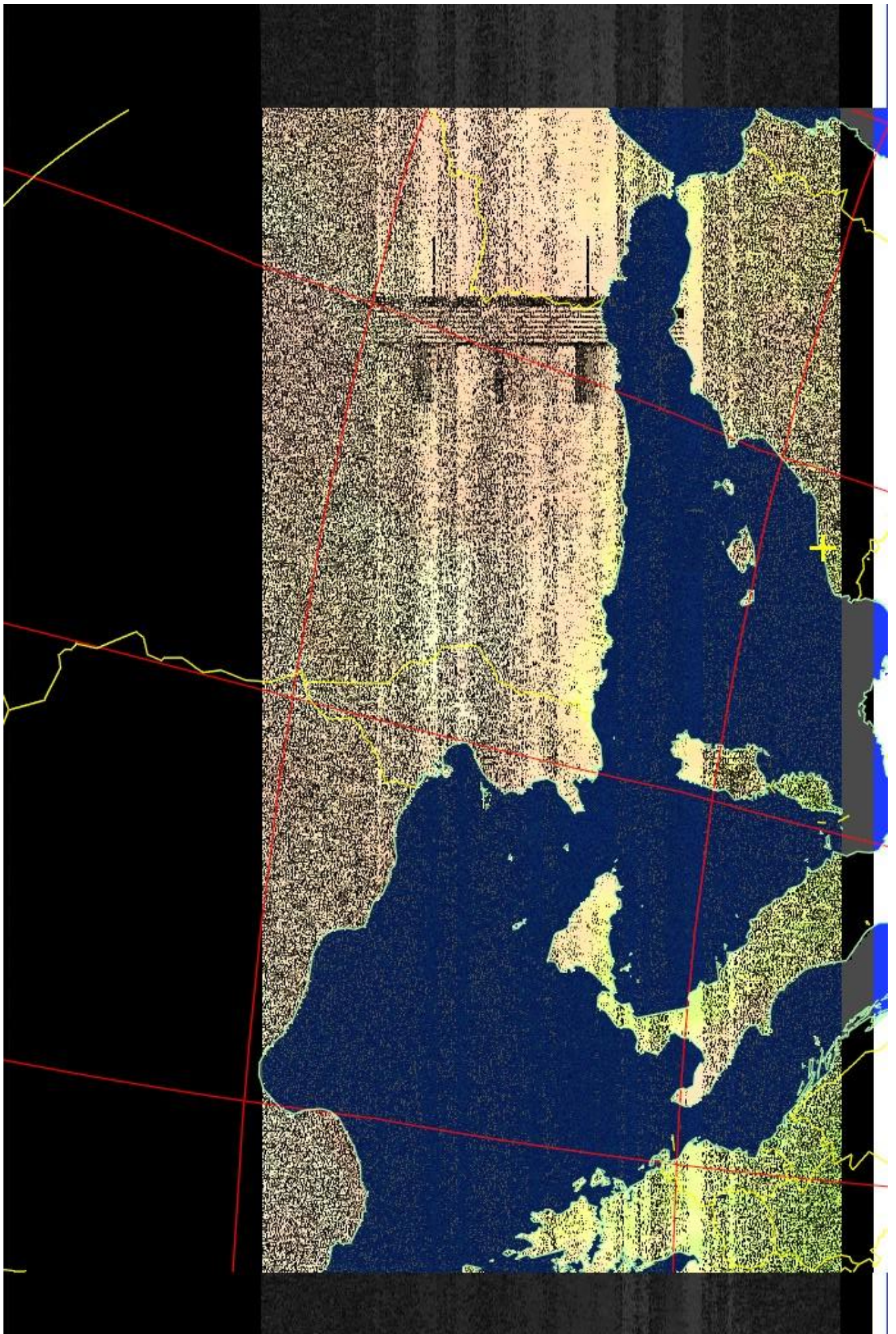




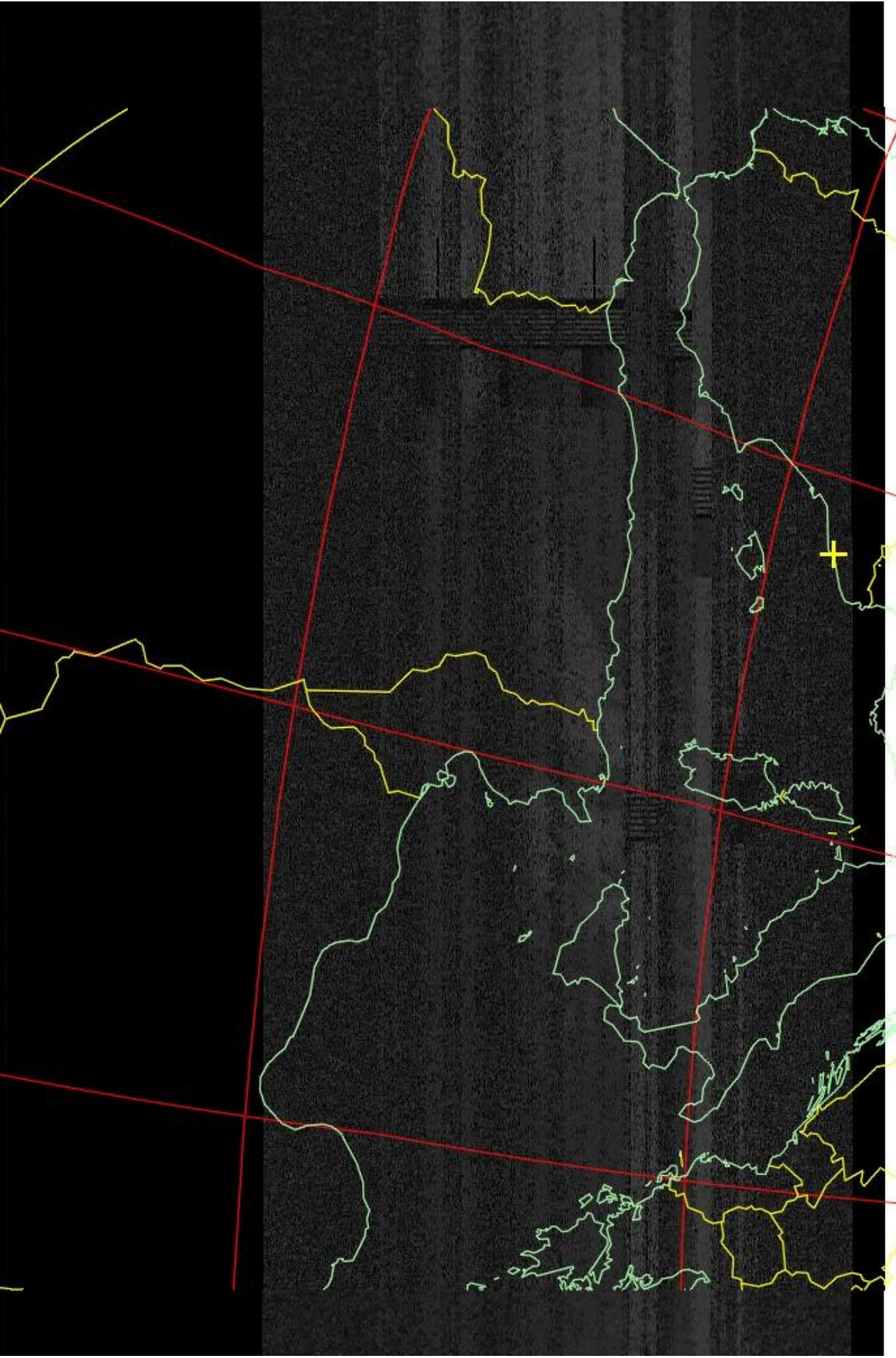




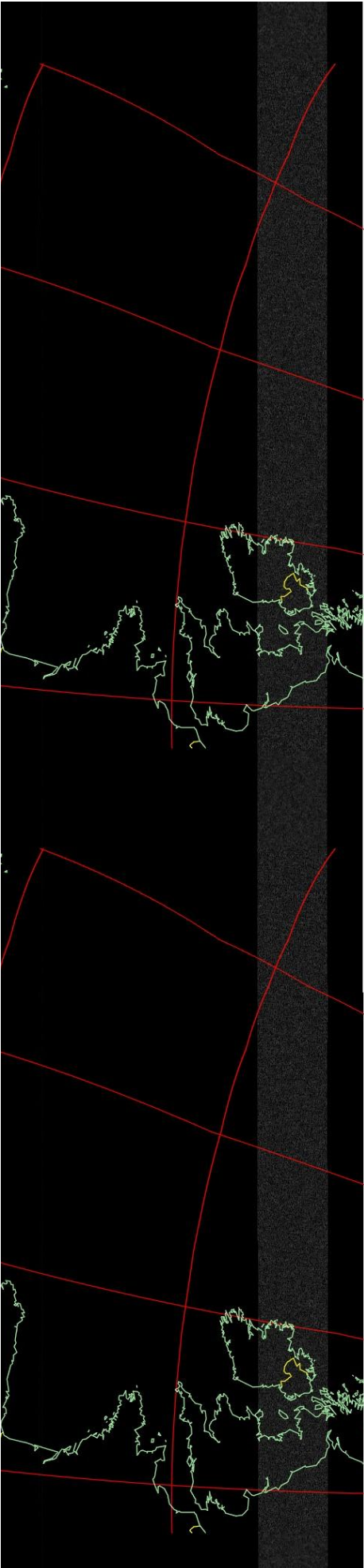




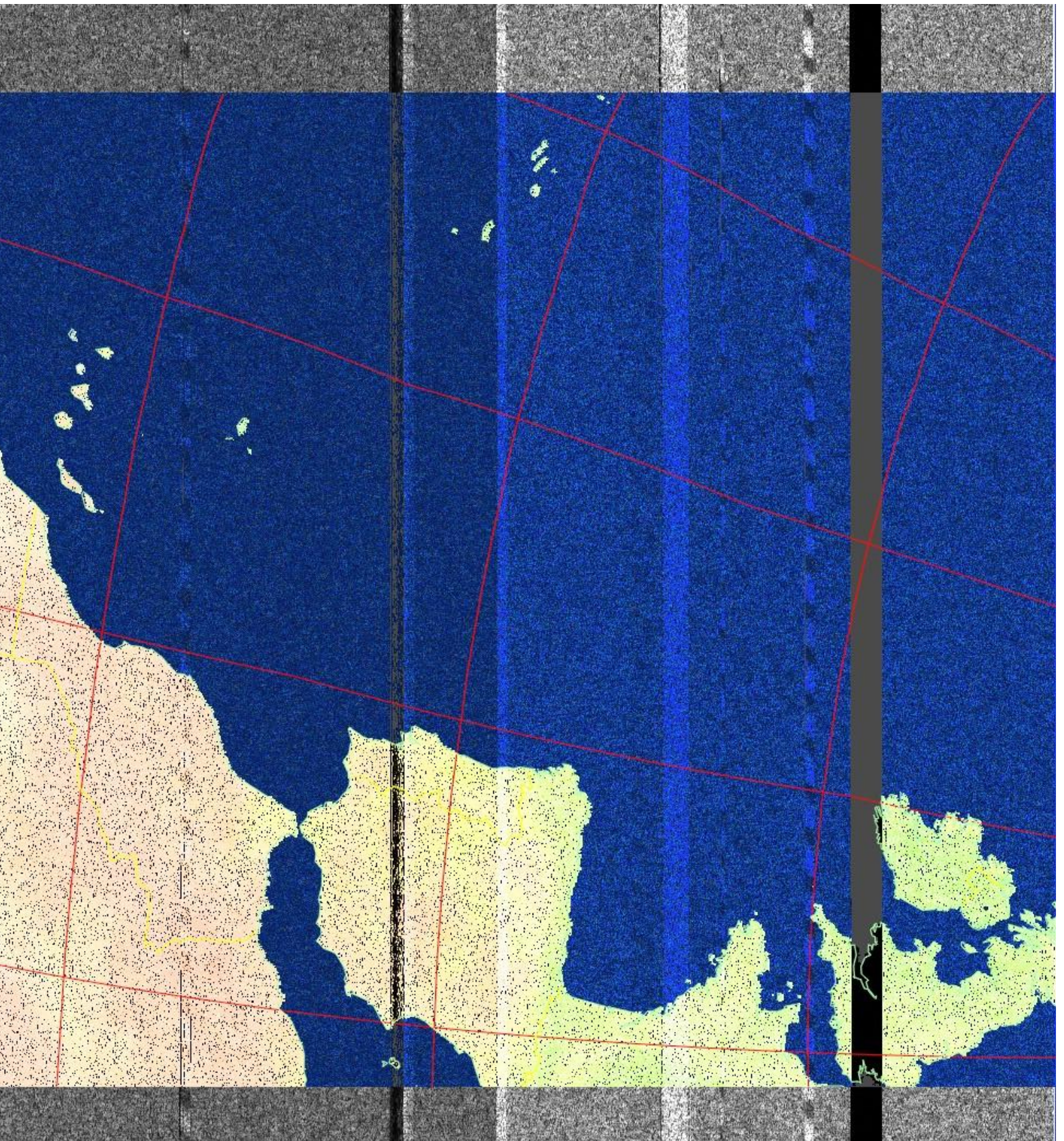




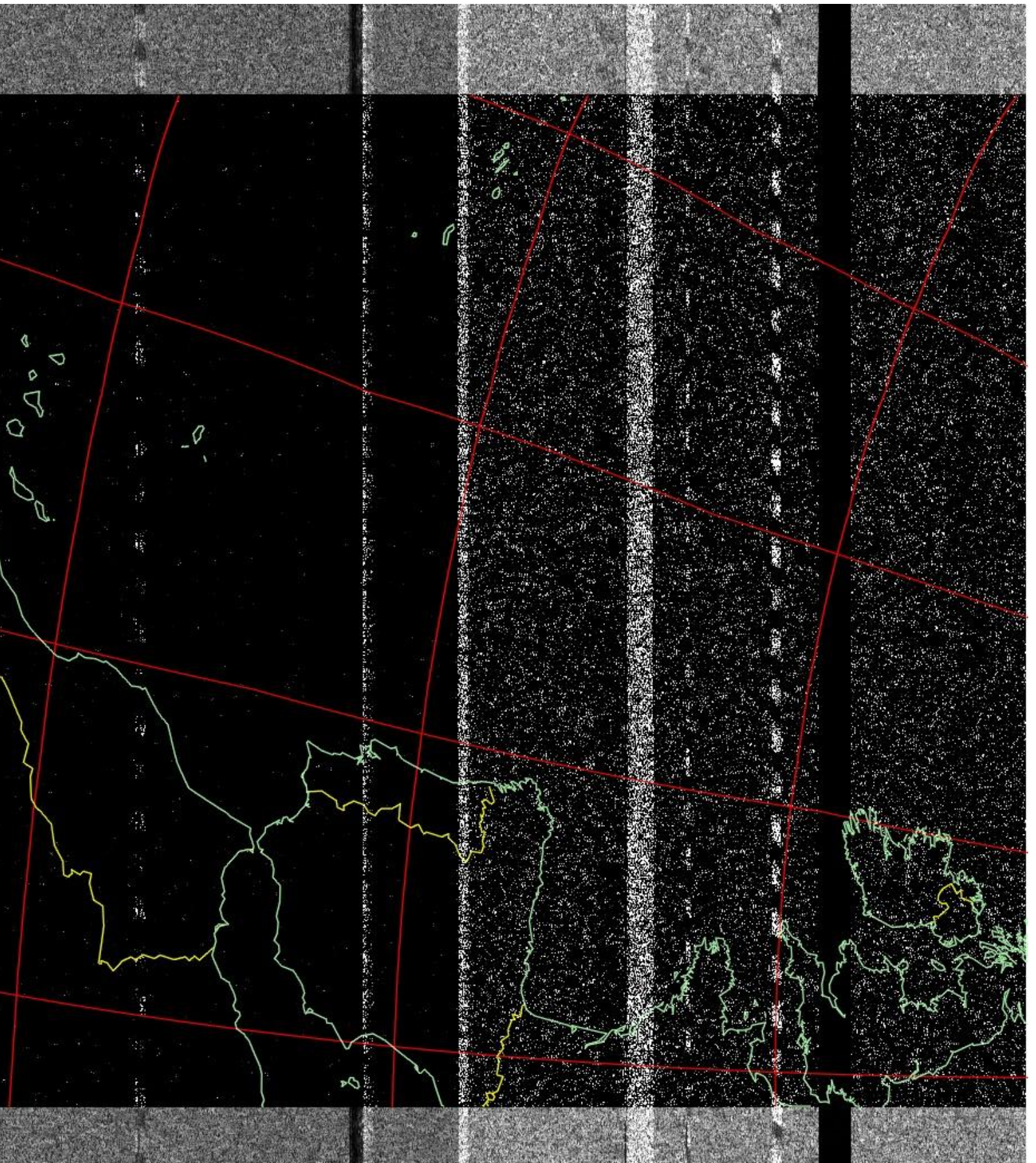




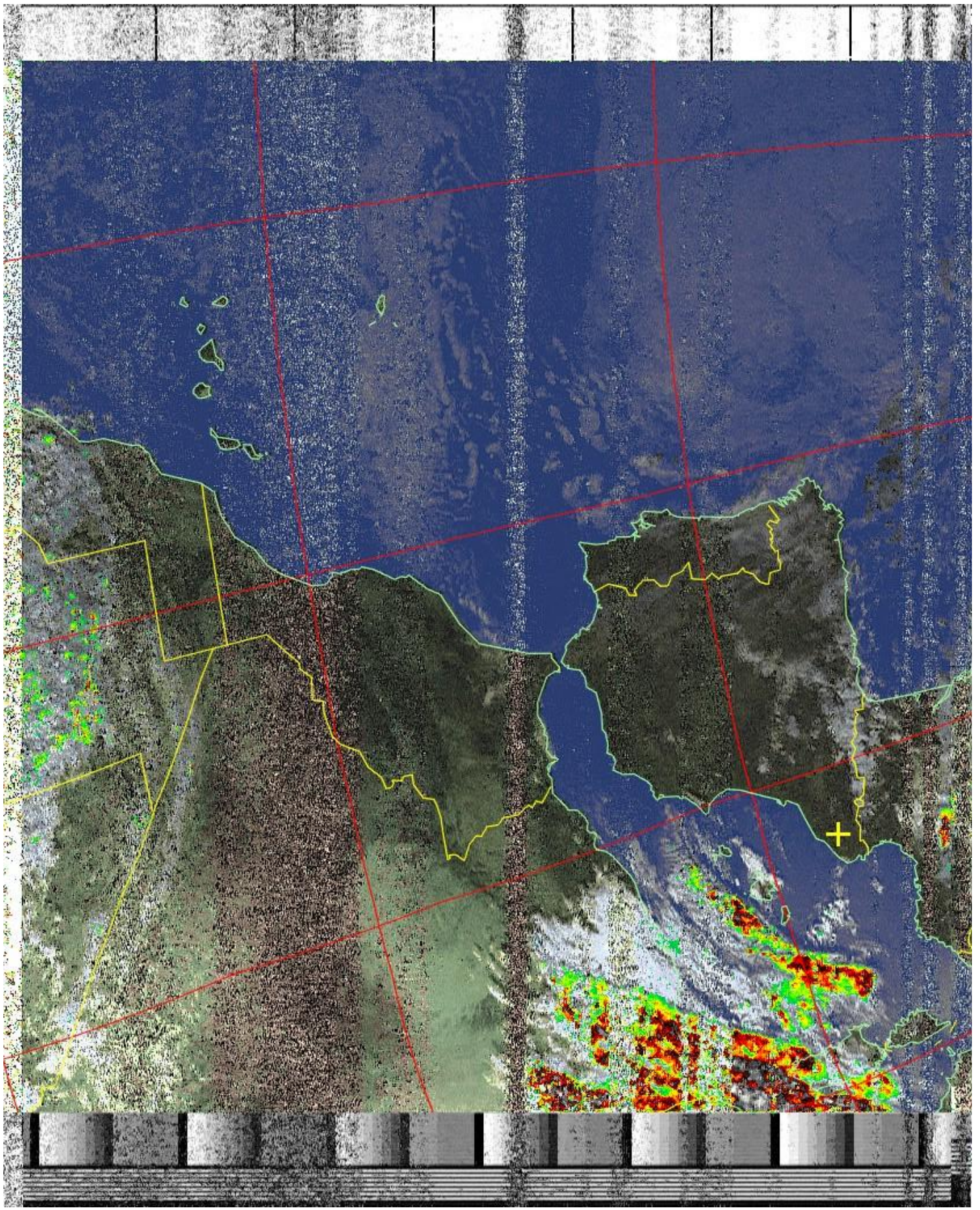




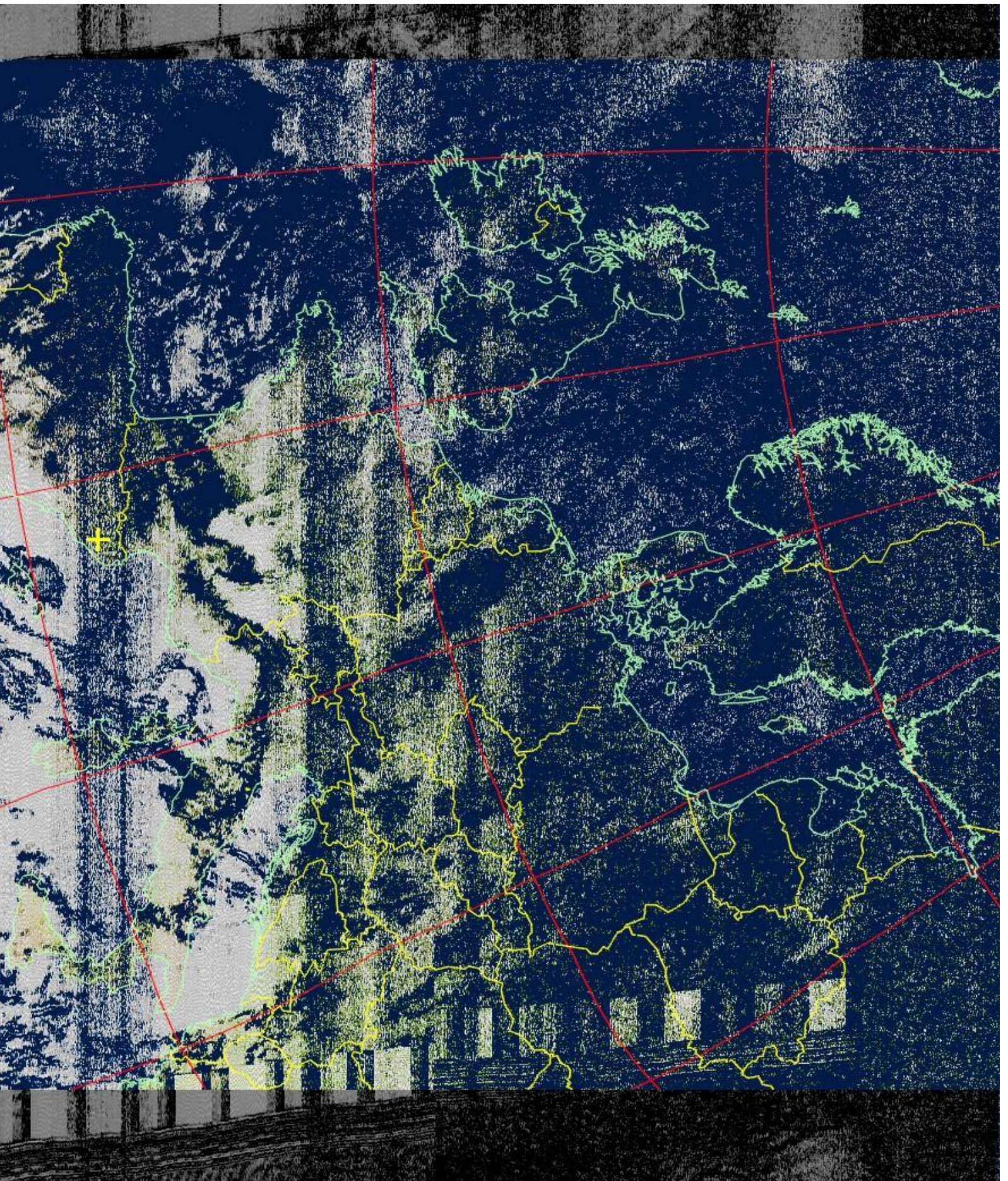




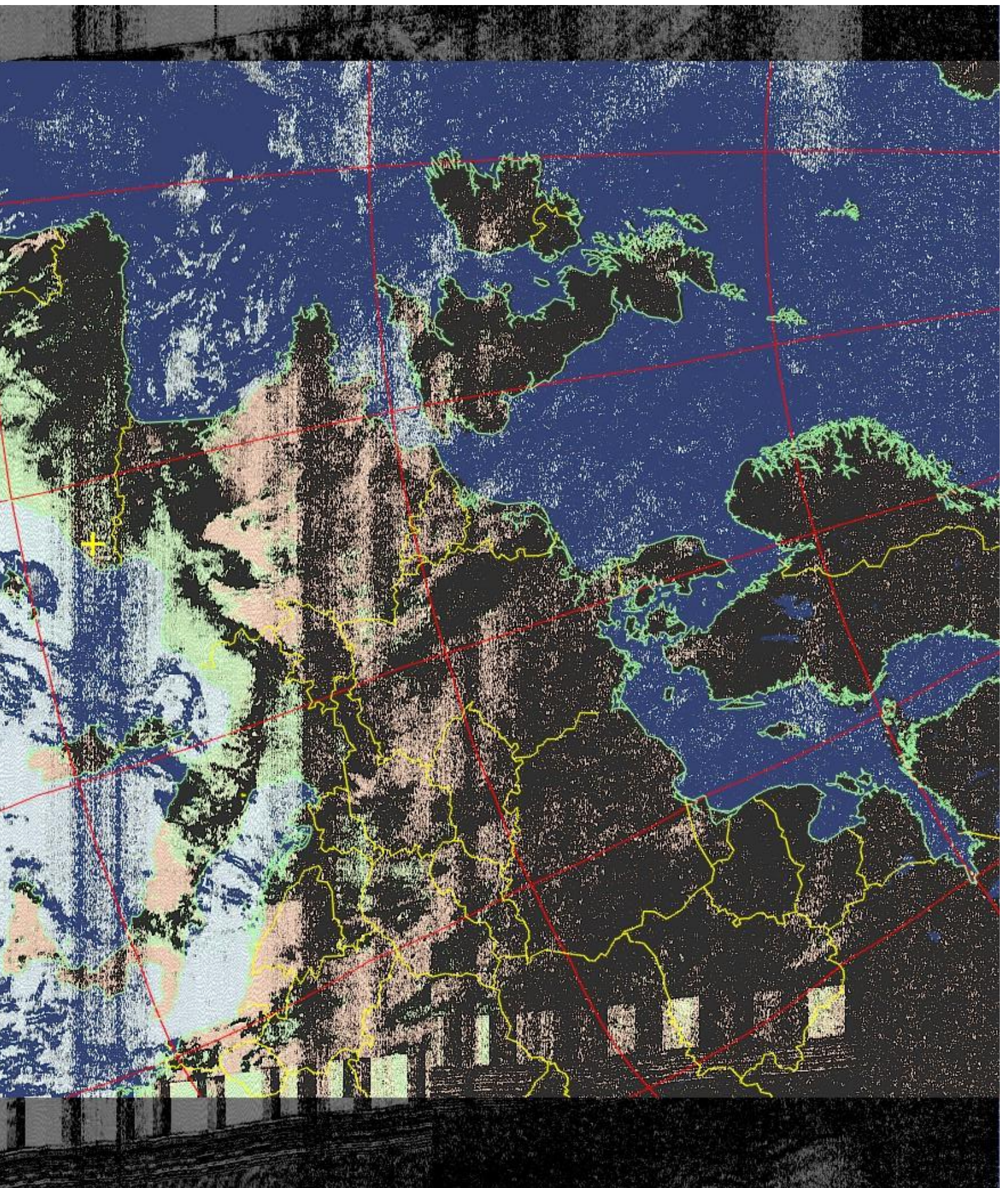




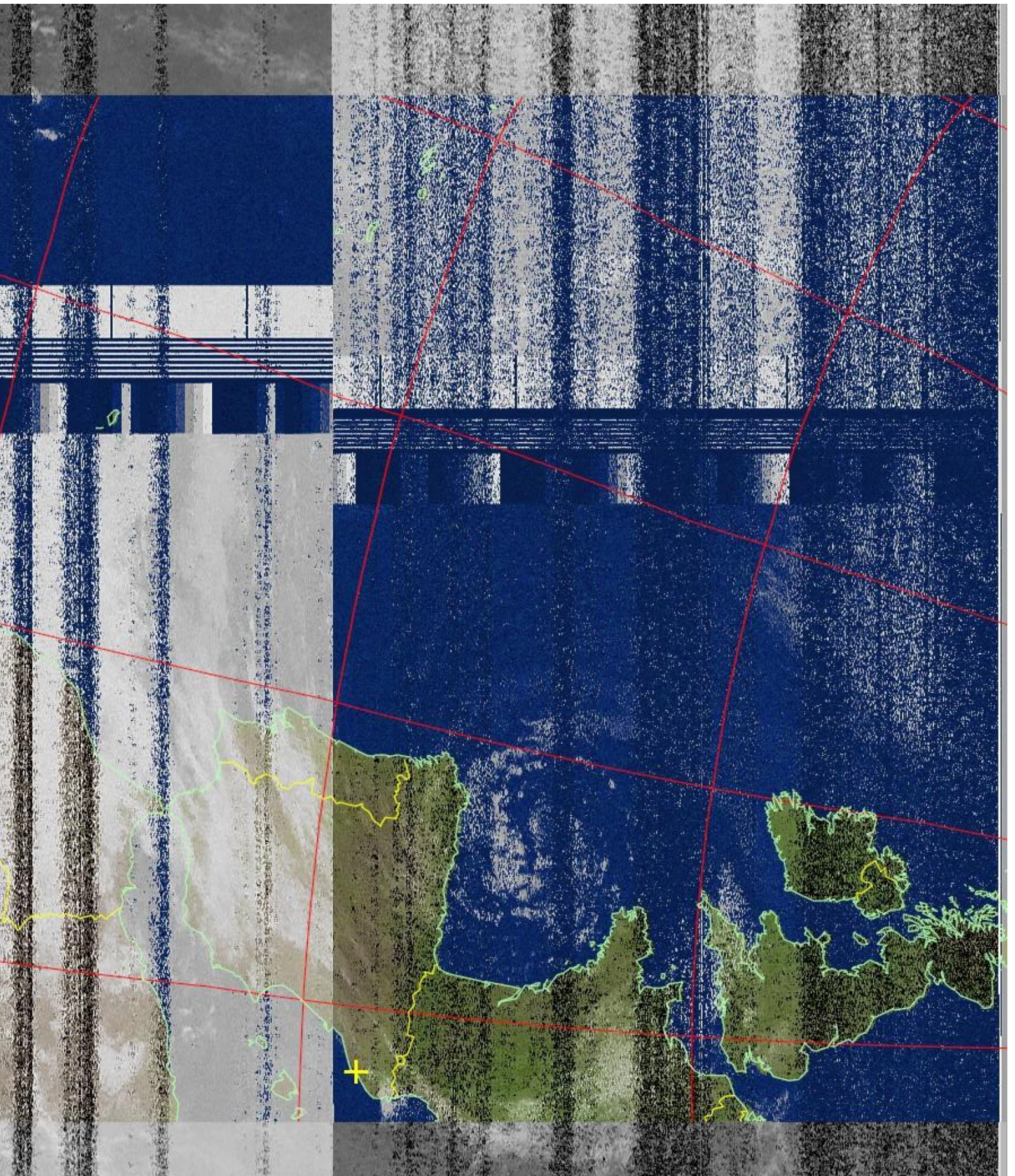




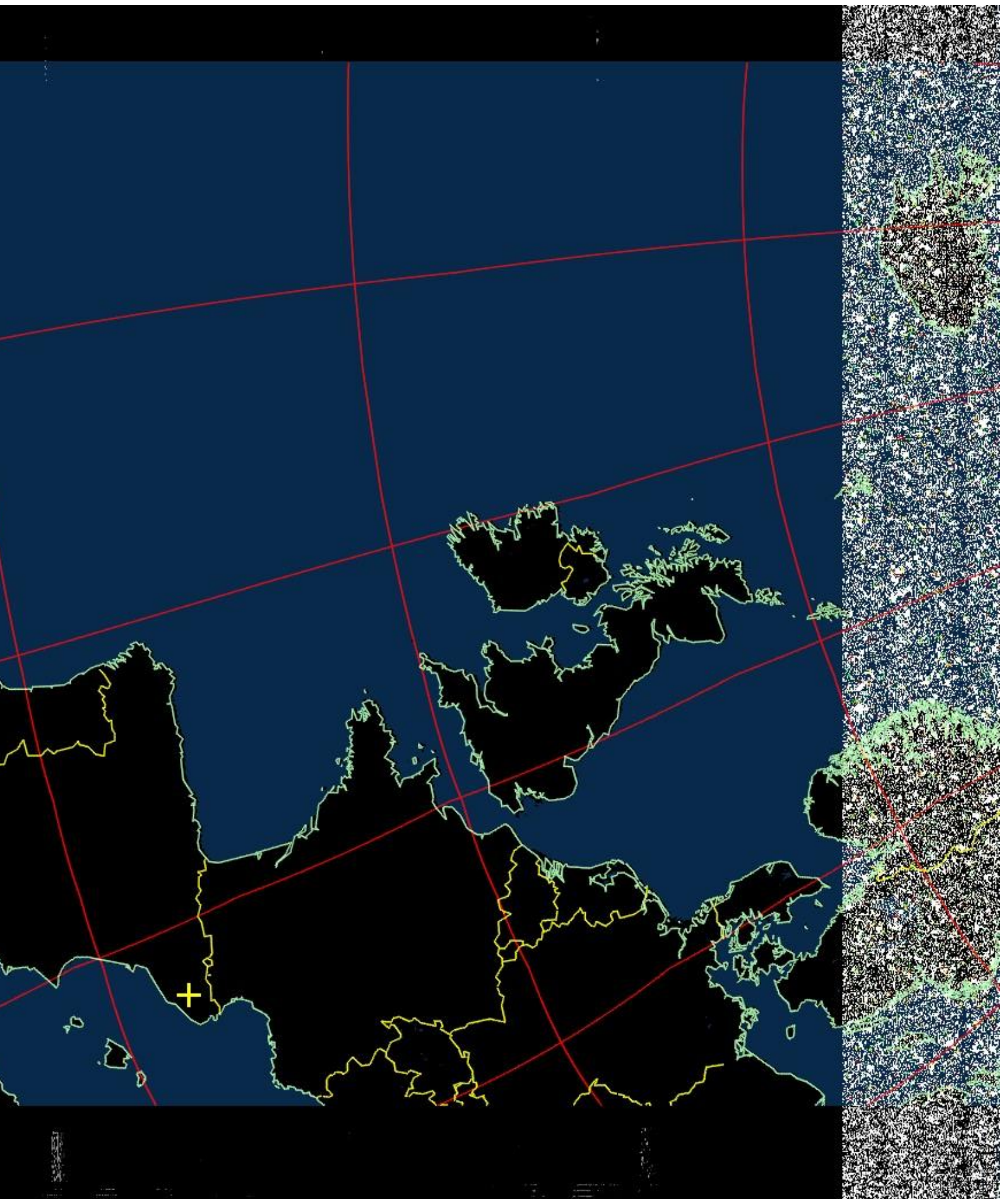




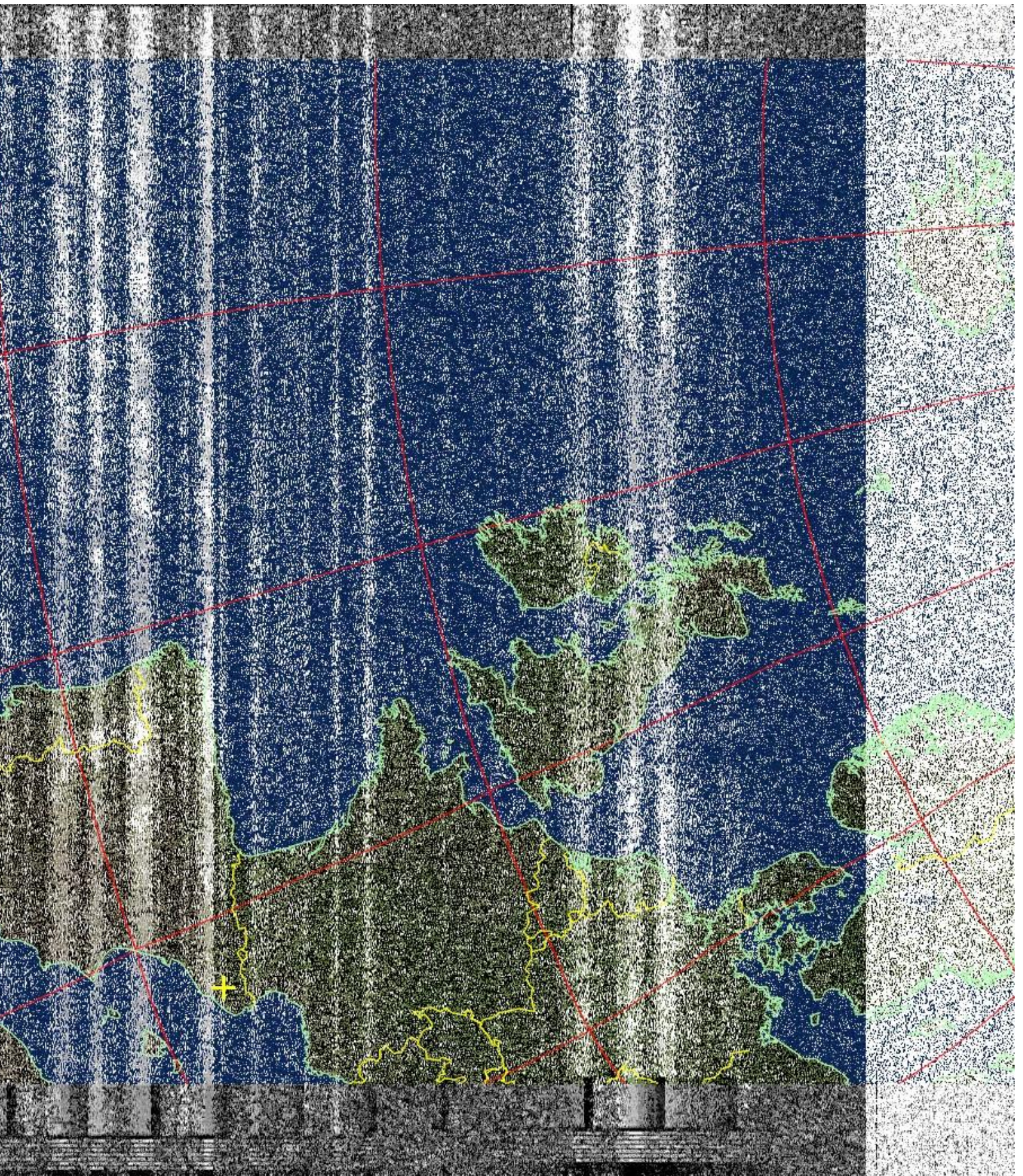




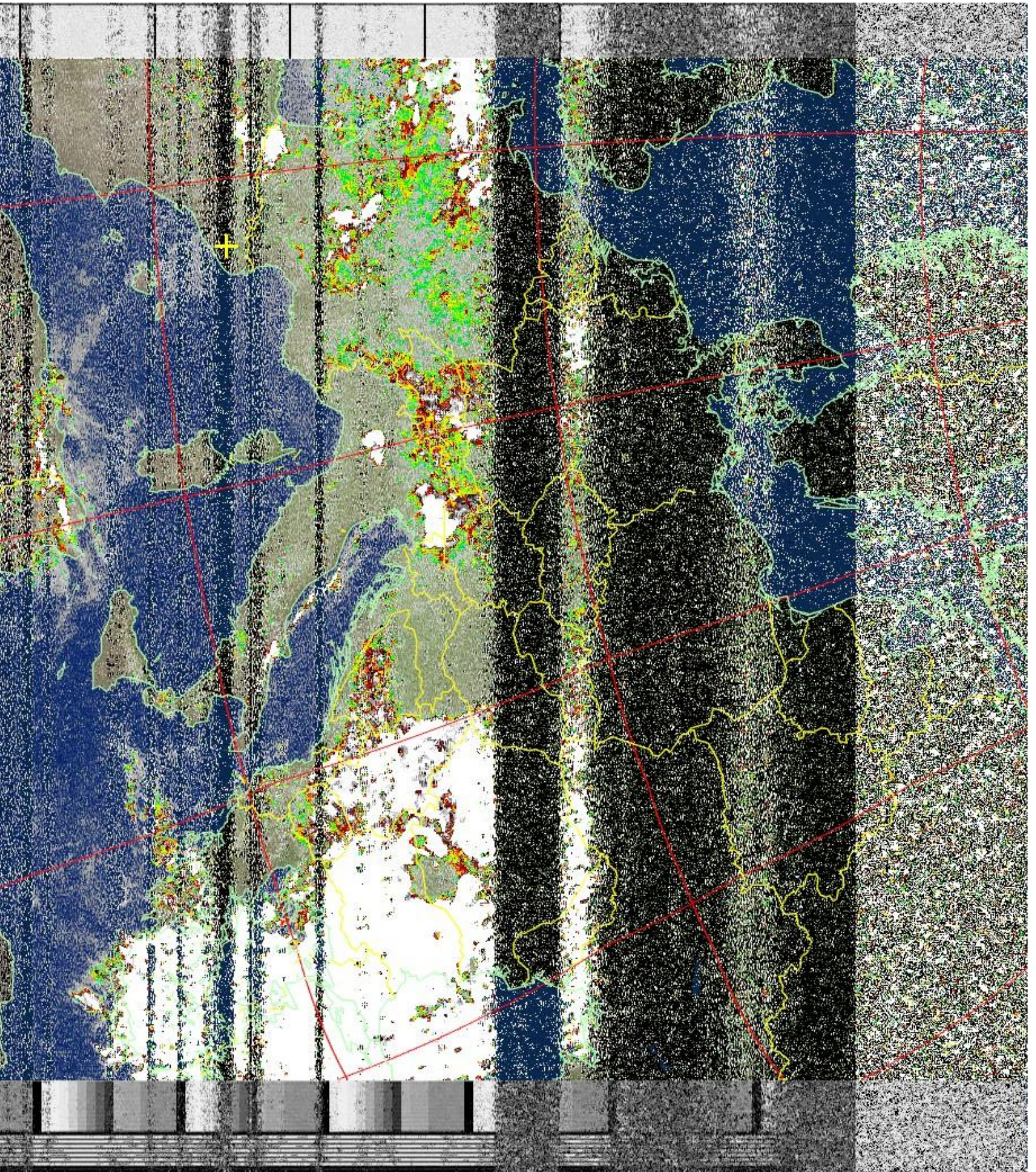




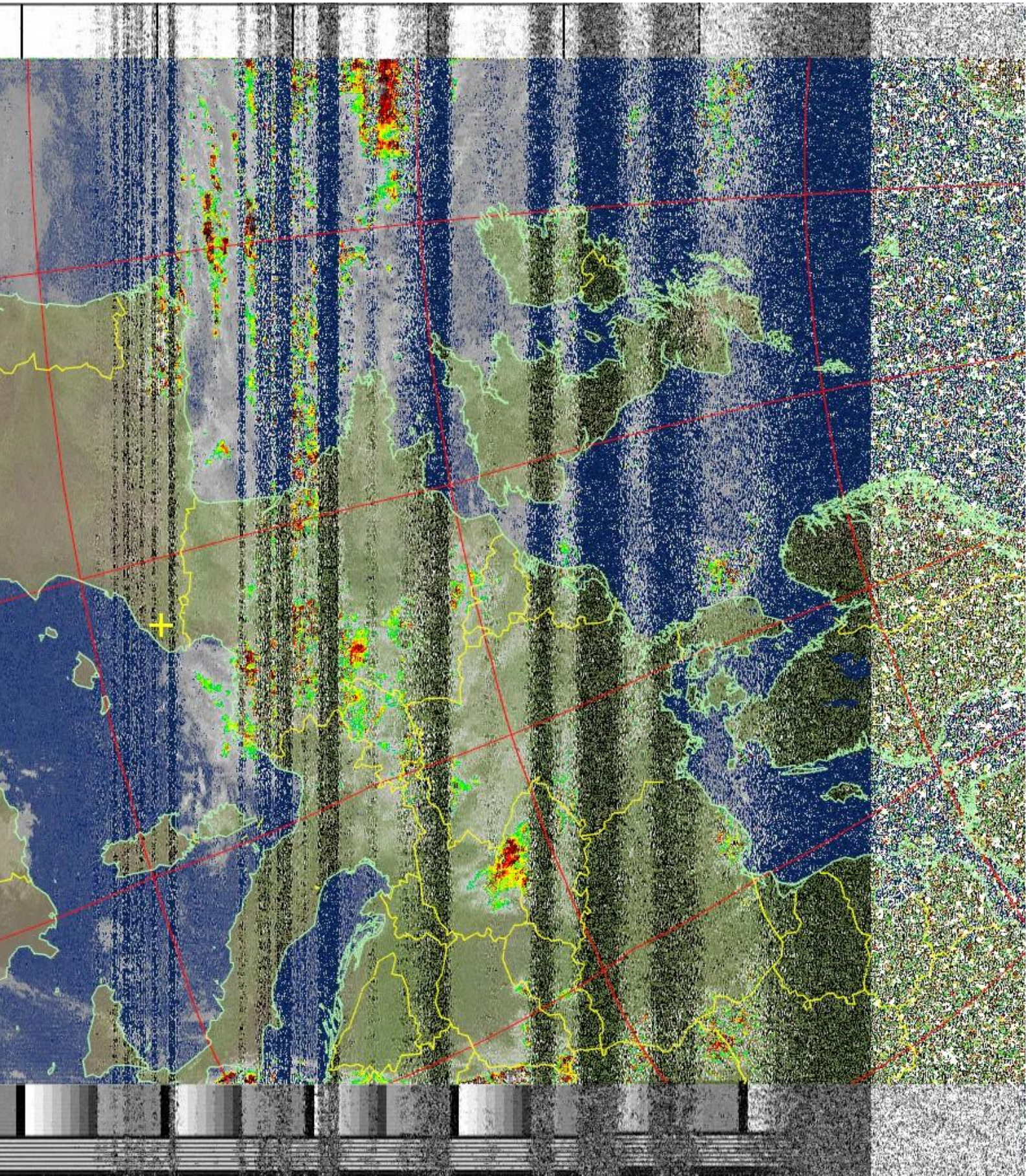




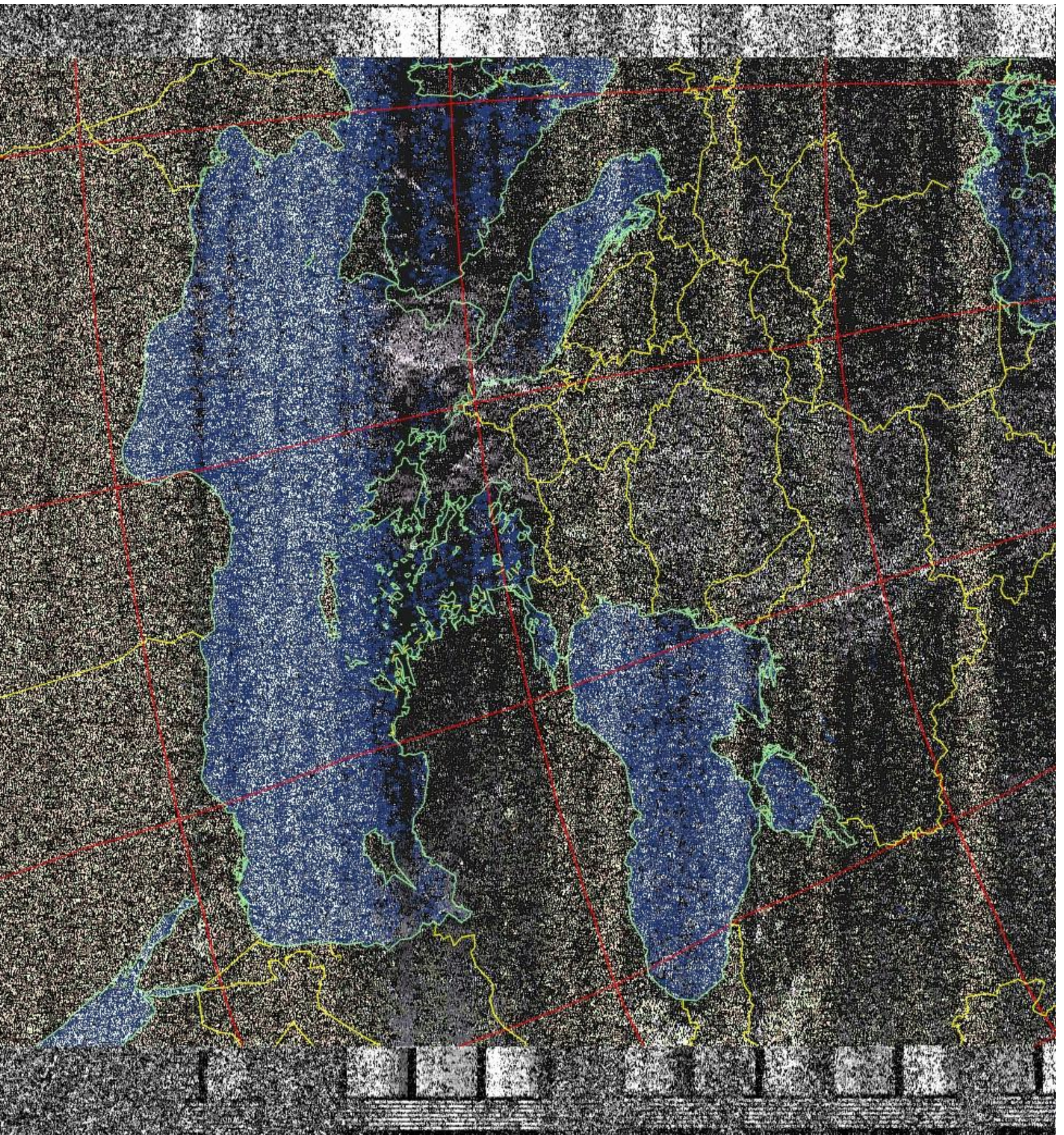




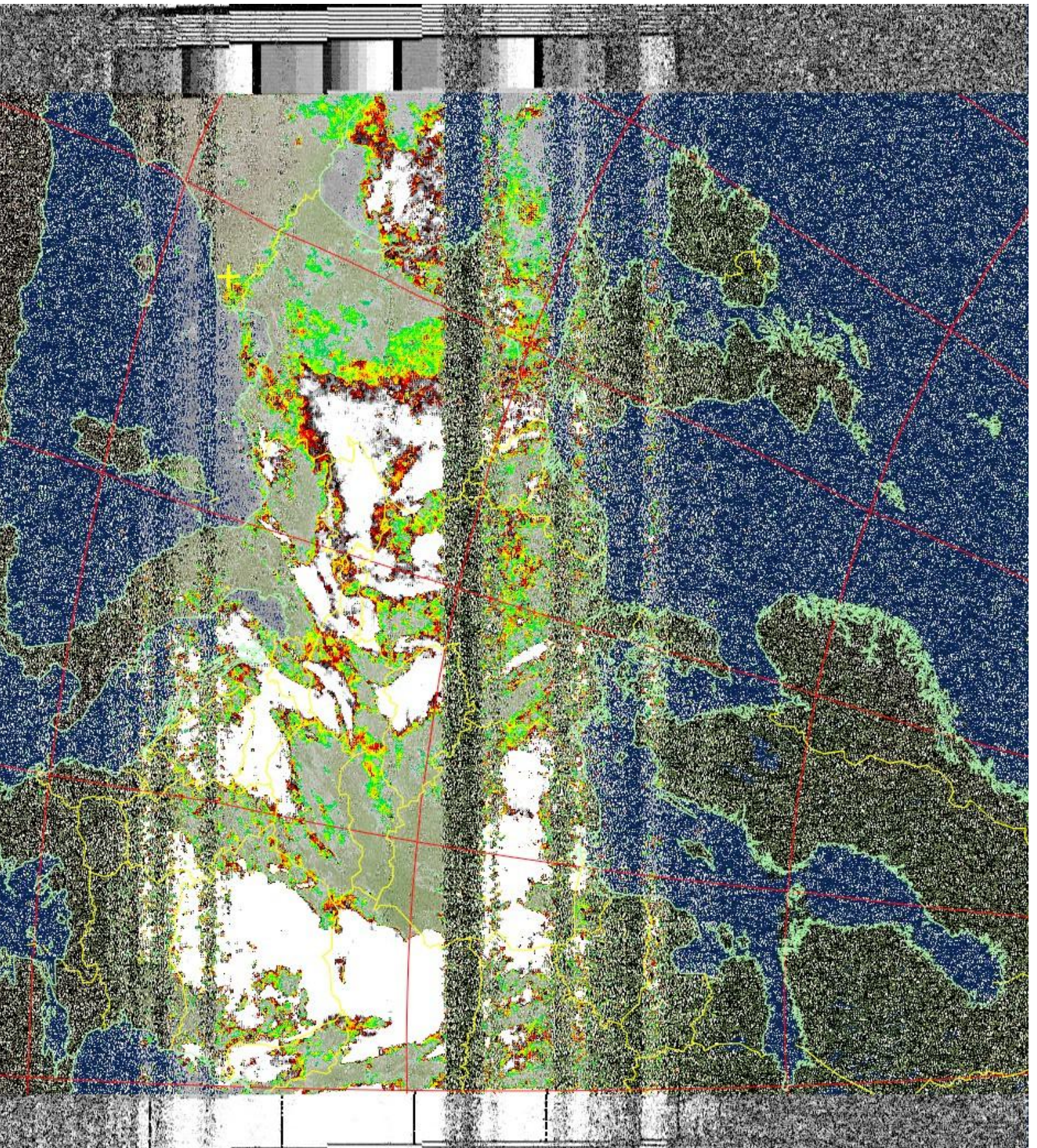




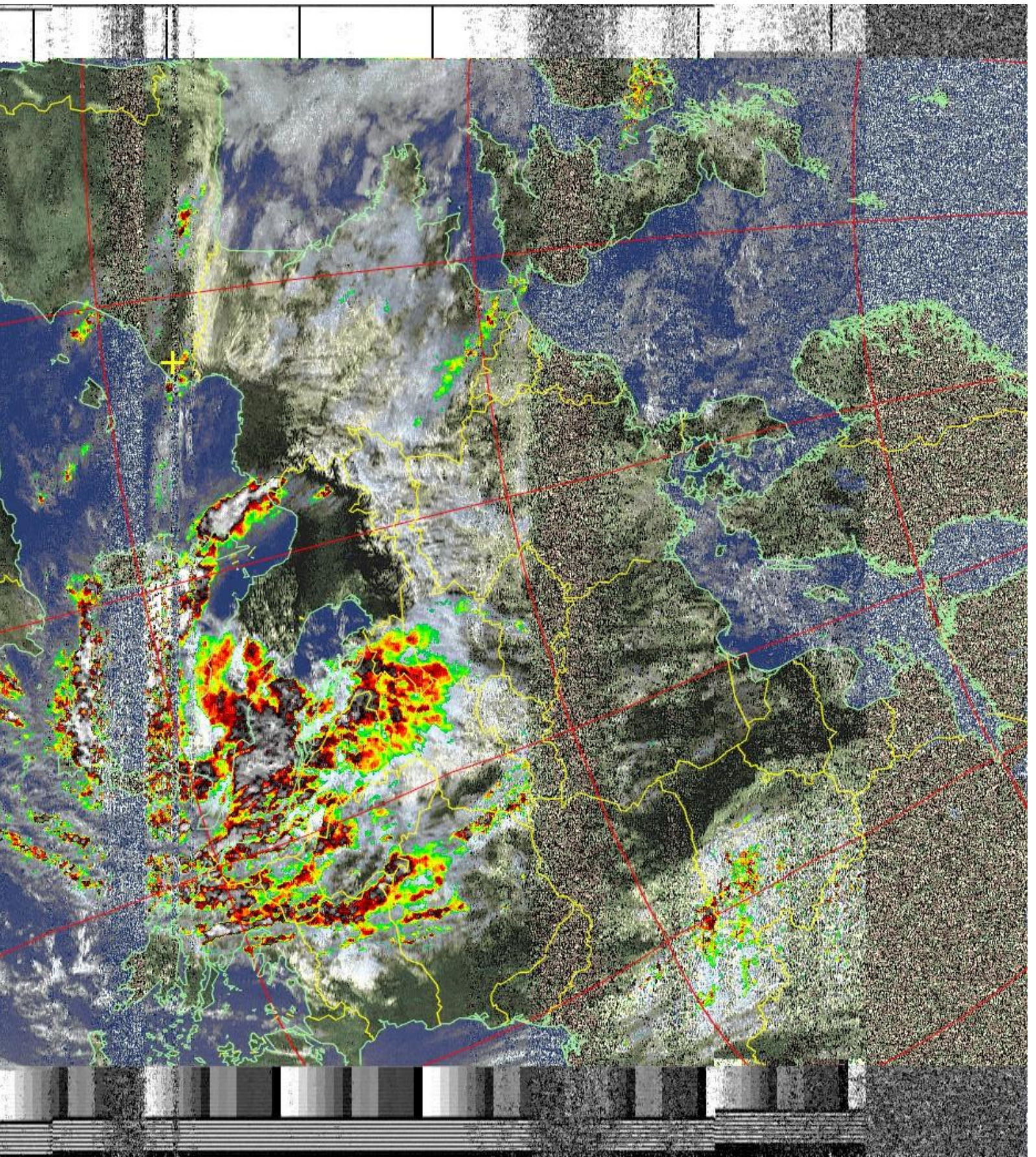




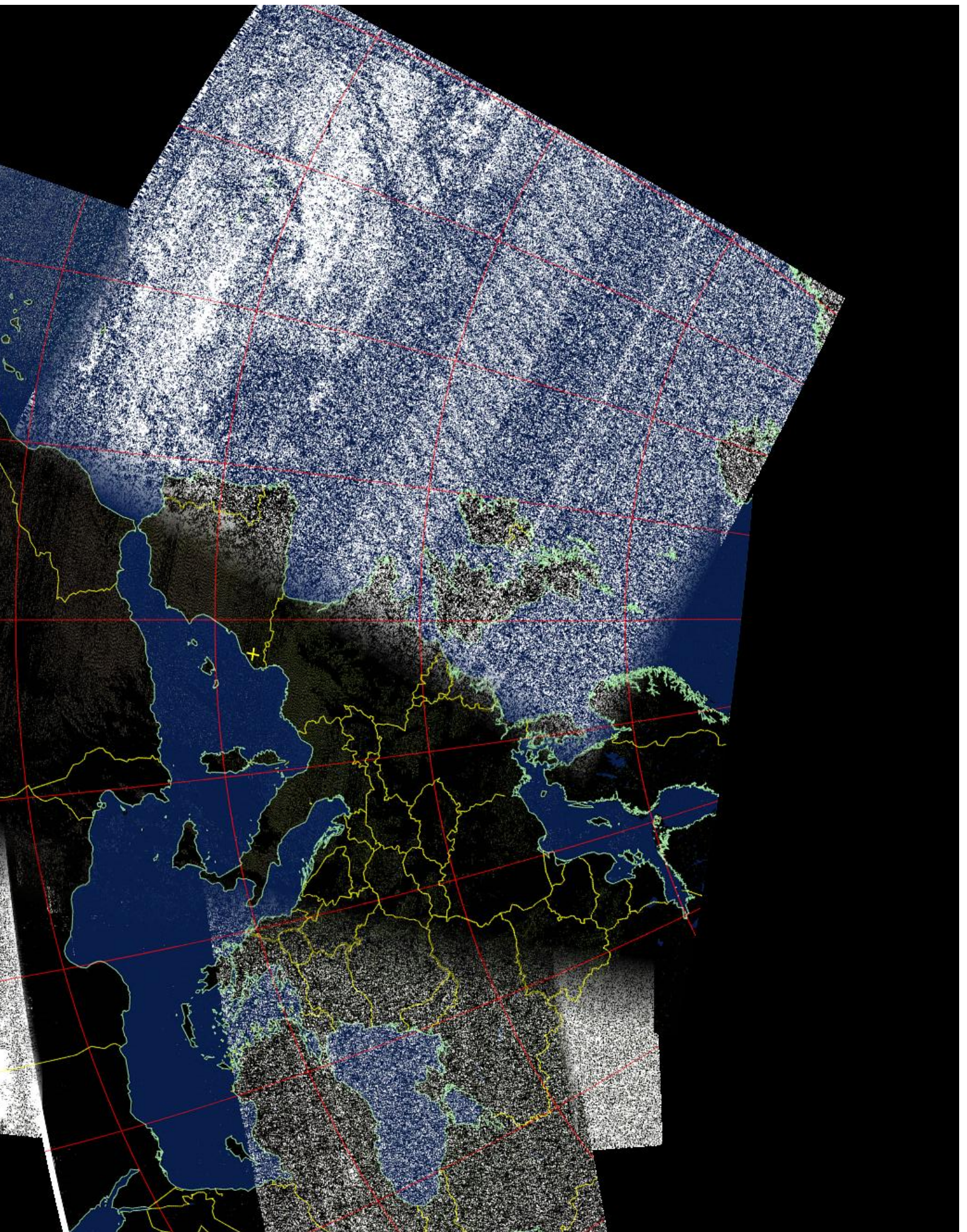




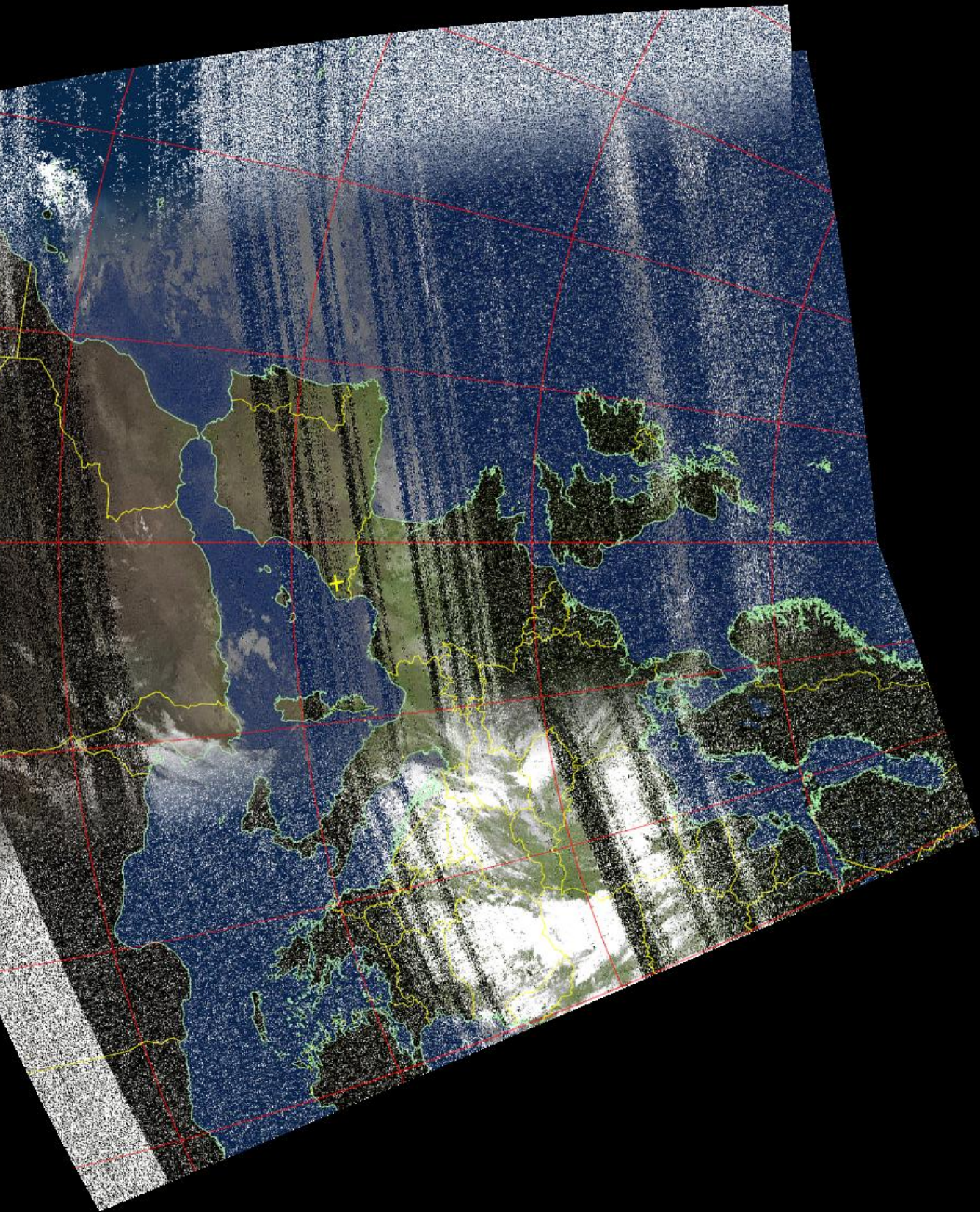




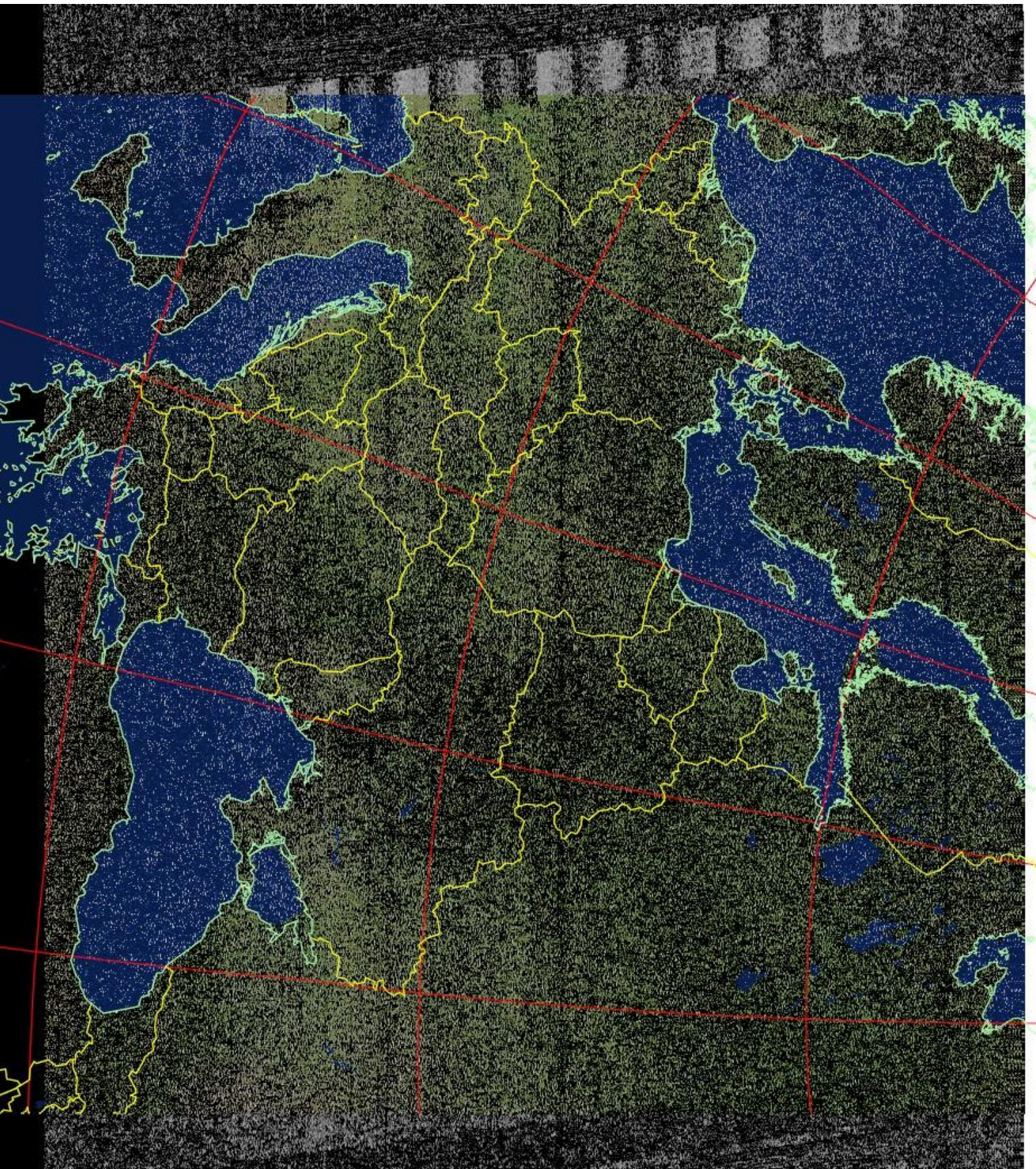




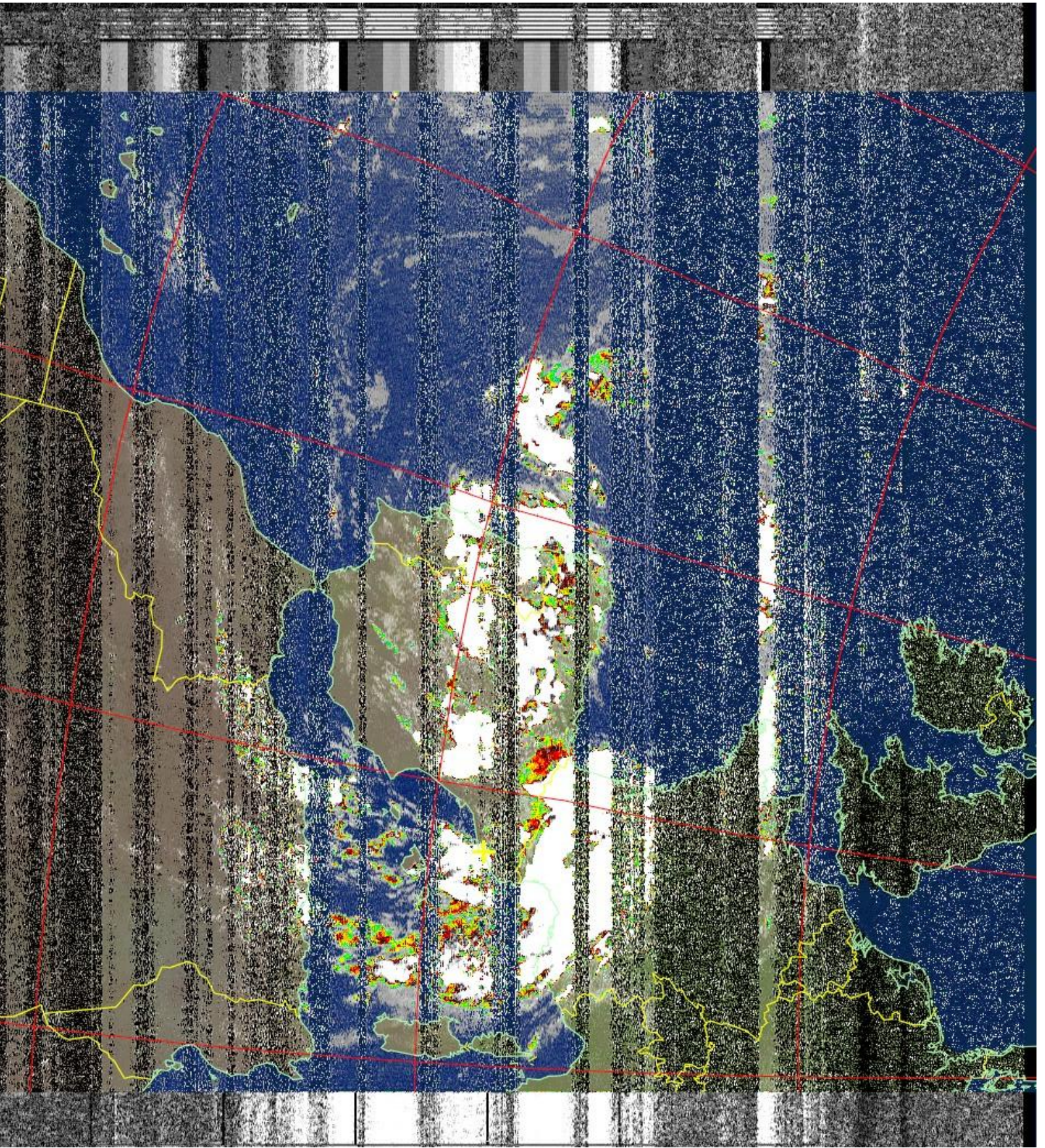




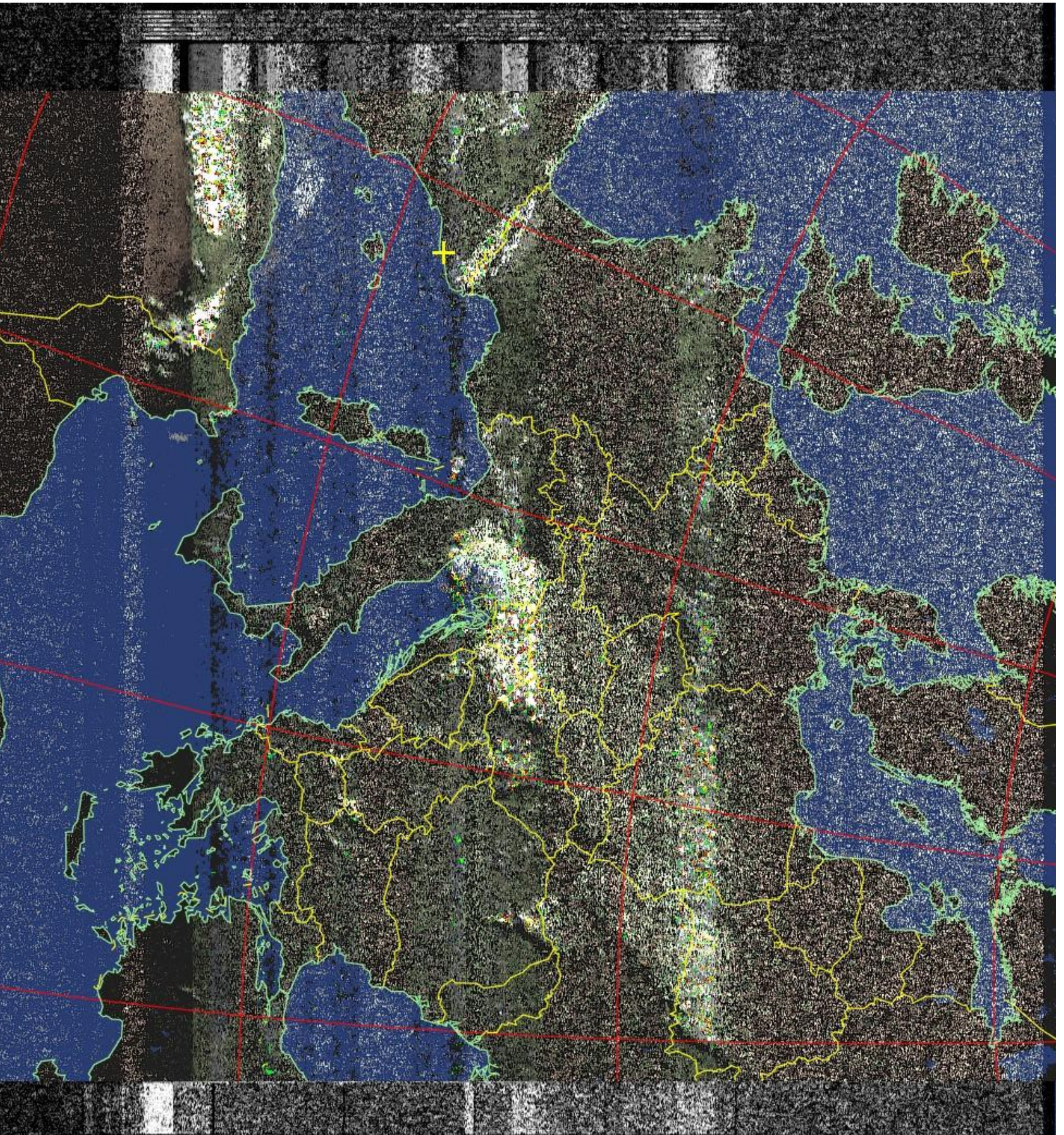




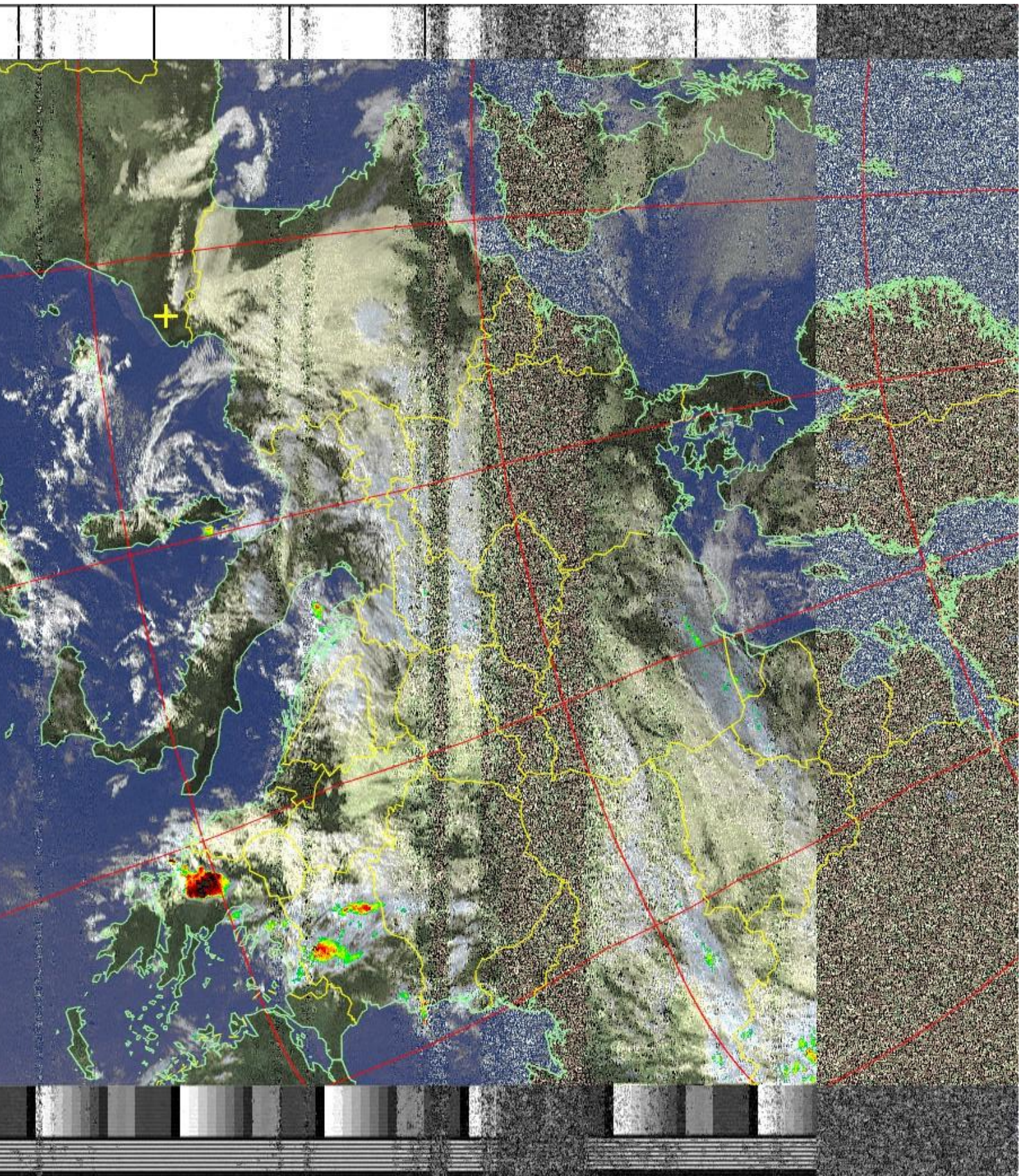




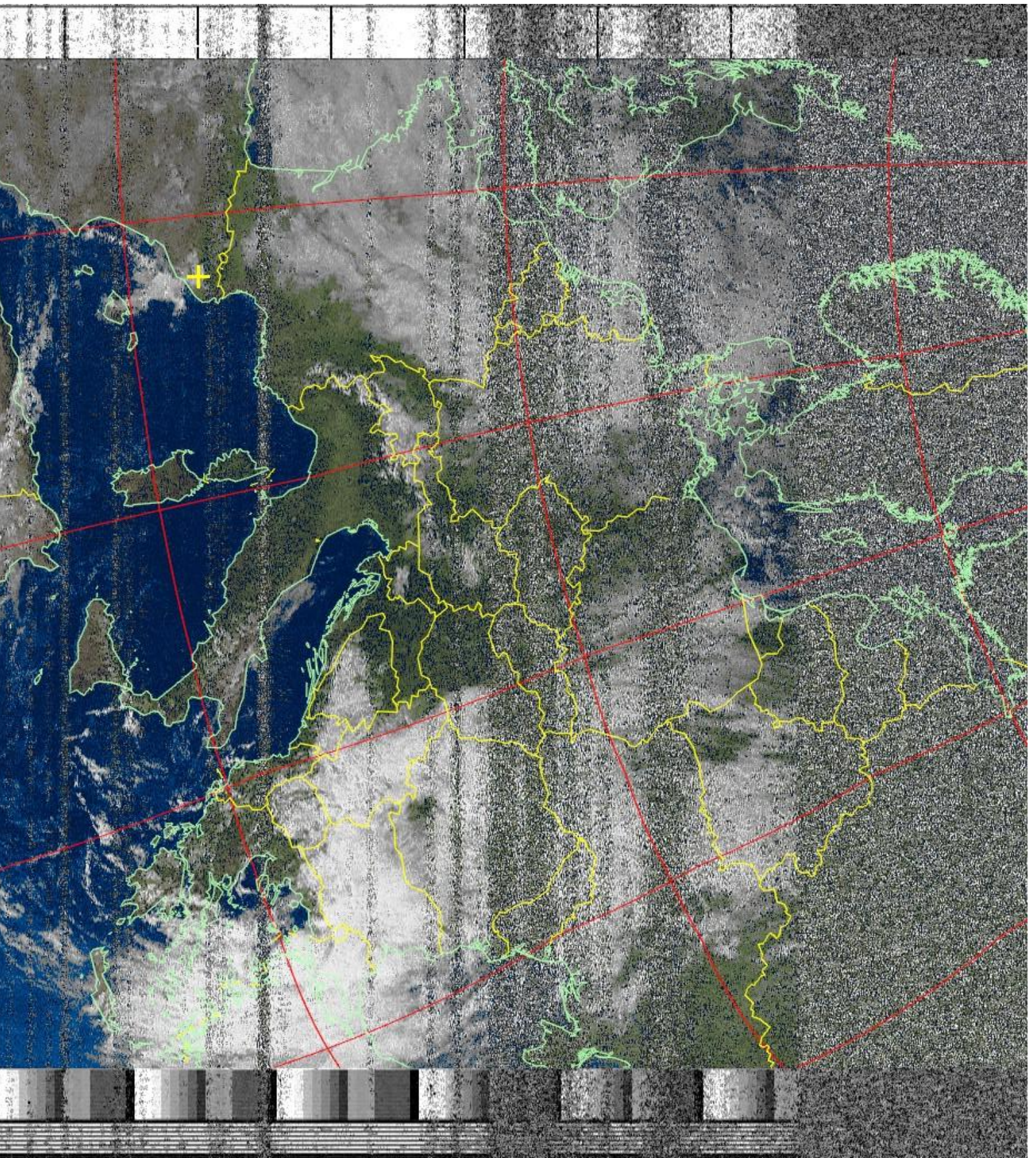




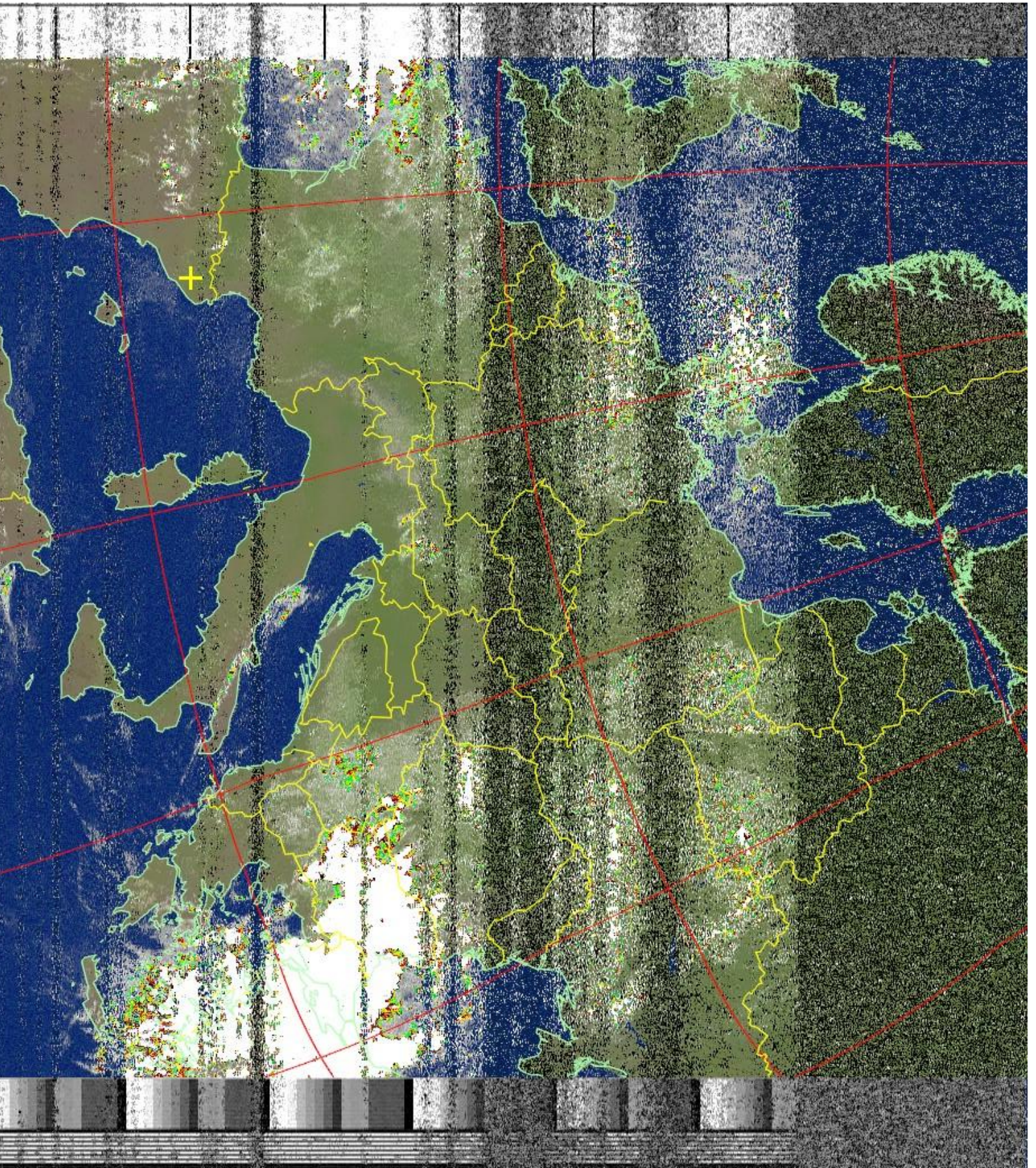




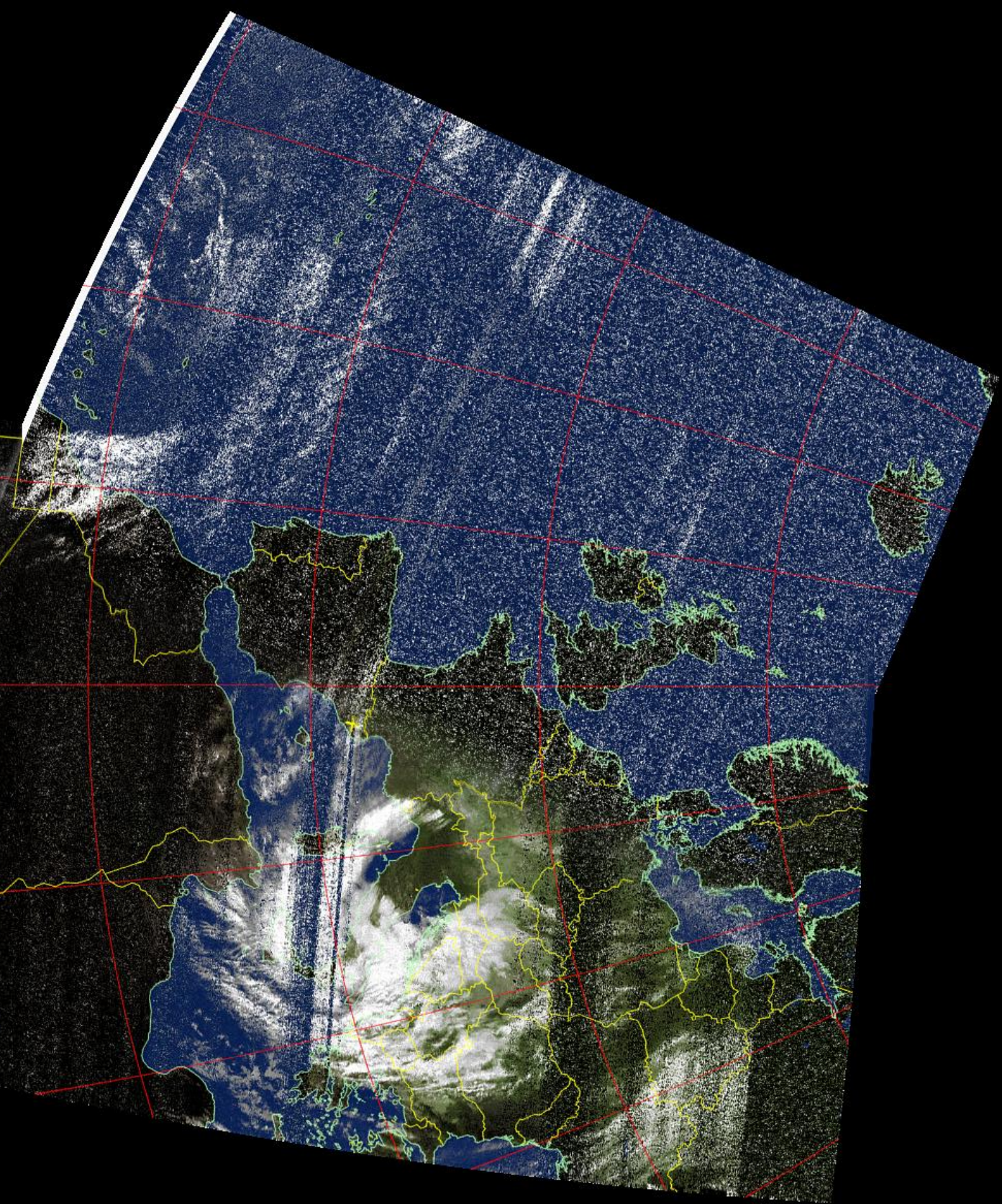














# **WCRC CONTACT 2020**

## **VMEG-SBST**

Team Name :

**VMEG-SBST**

Team members :

**SAI SOHITH AKANA**

**ANCHI RAHUL KUSHAL**

**Gnanadeep Gudapati**

Team Mentor :

**Dr. Sulakshana Chilukuri**  
**(Associate Professor)**

Location :

**Telangana, India**

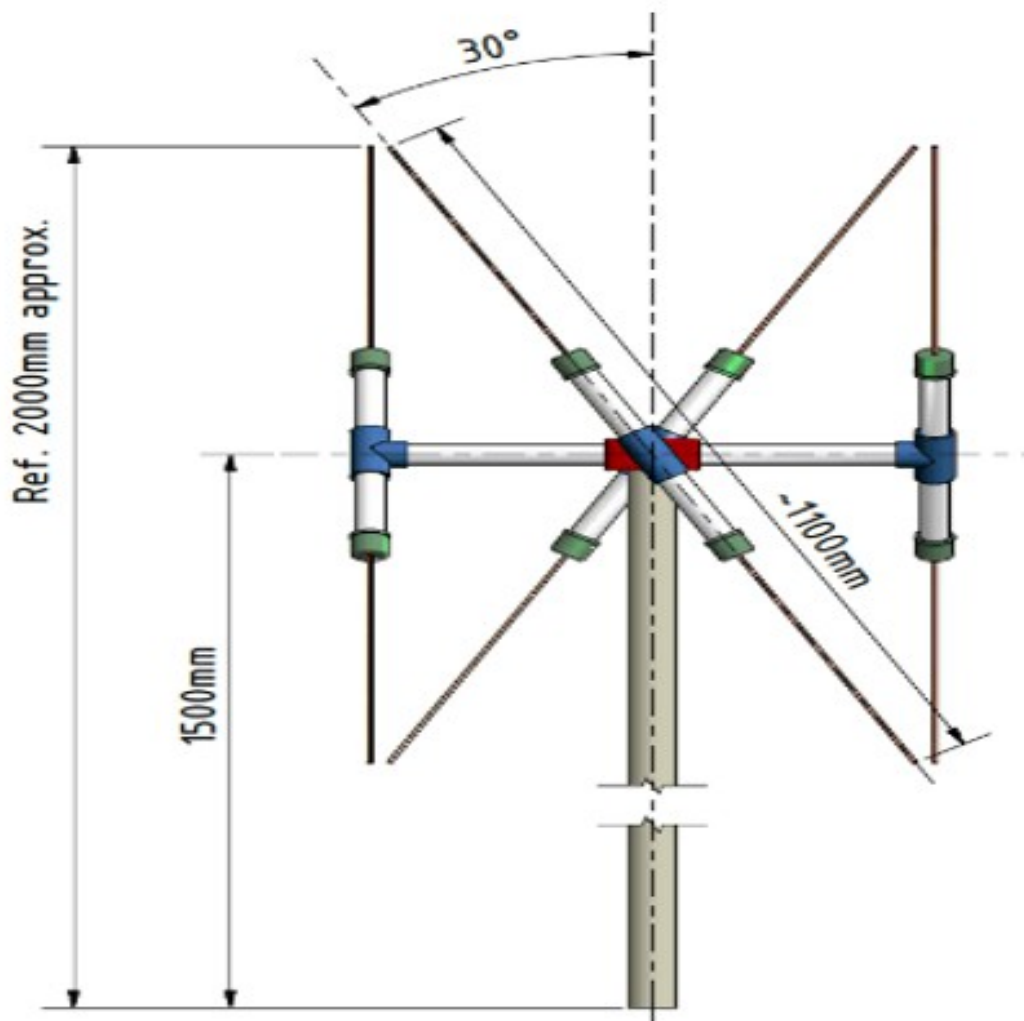
Category:

**Weather Satellite images**  
**(NOAA/METEOR) (CAT I)**

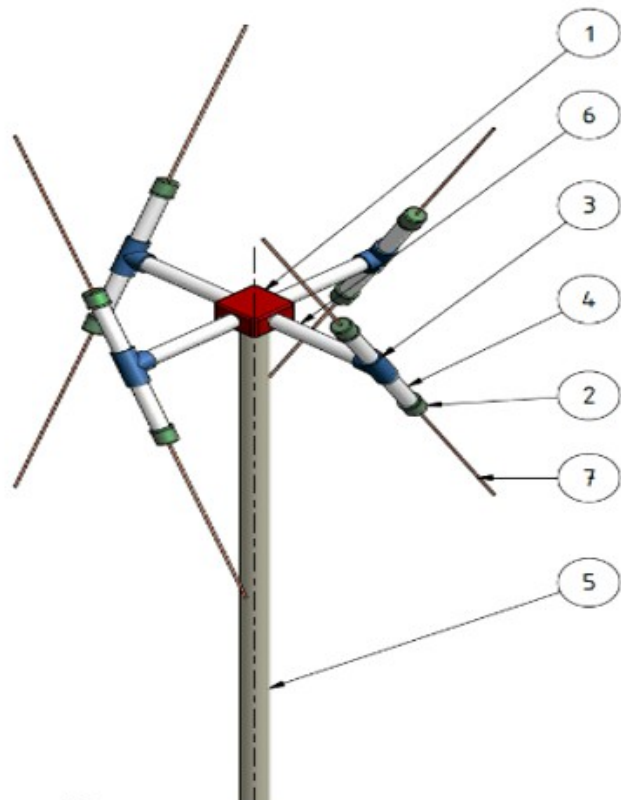


## Drawings of Installed Antenna:

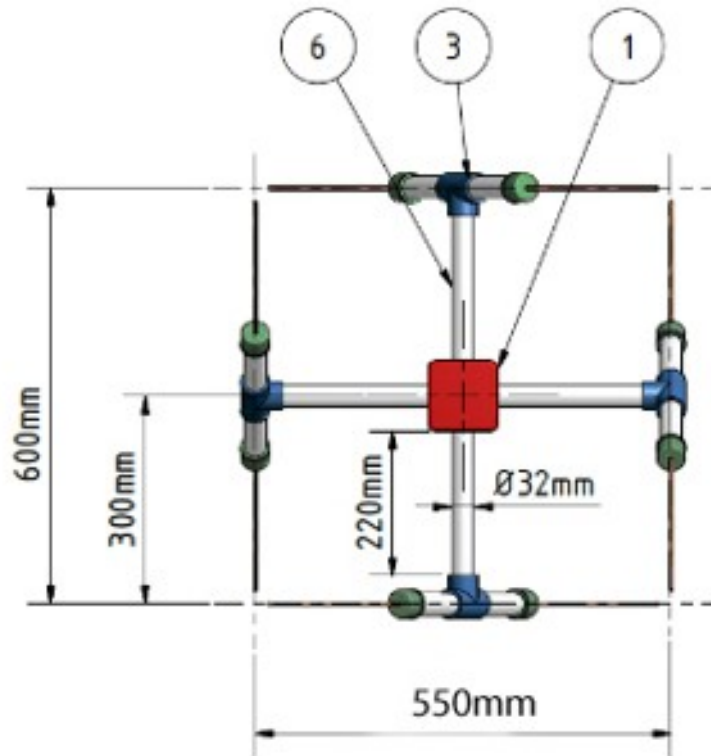
We have prepared a Double Cross Antenna and below are its dimensions(on a scale-mm)











PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	Part1	Plastic box with 5 holes
2	8	Part2	End cap PVC $\varnothing$ 32mm
3	4	Part3	Tee pipe PVC $\varnothing$ 32mm
4	8	Part4	PVC pipe $\varnothing$ 32mm x 140mm
5	1	Part5	PVC pipe $\varnothing$ 50mm x 1500mm
6	4	Part6	PVC pipe $\varnothing$ 32mm x 220mm
7	8	Part7	Metal rod $\varnothing$ 6mm x 510mm
8		Not shown	Antenna support structure
9		Not shown	Angle bracket



# **WCRC CONTACT 2020**

## **VMEG-SBST**

Photographs of installed base station:

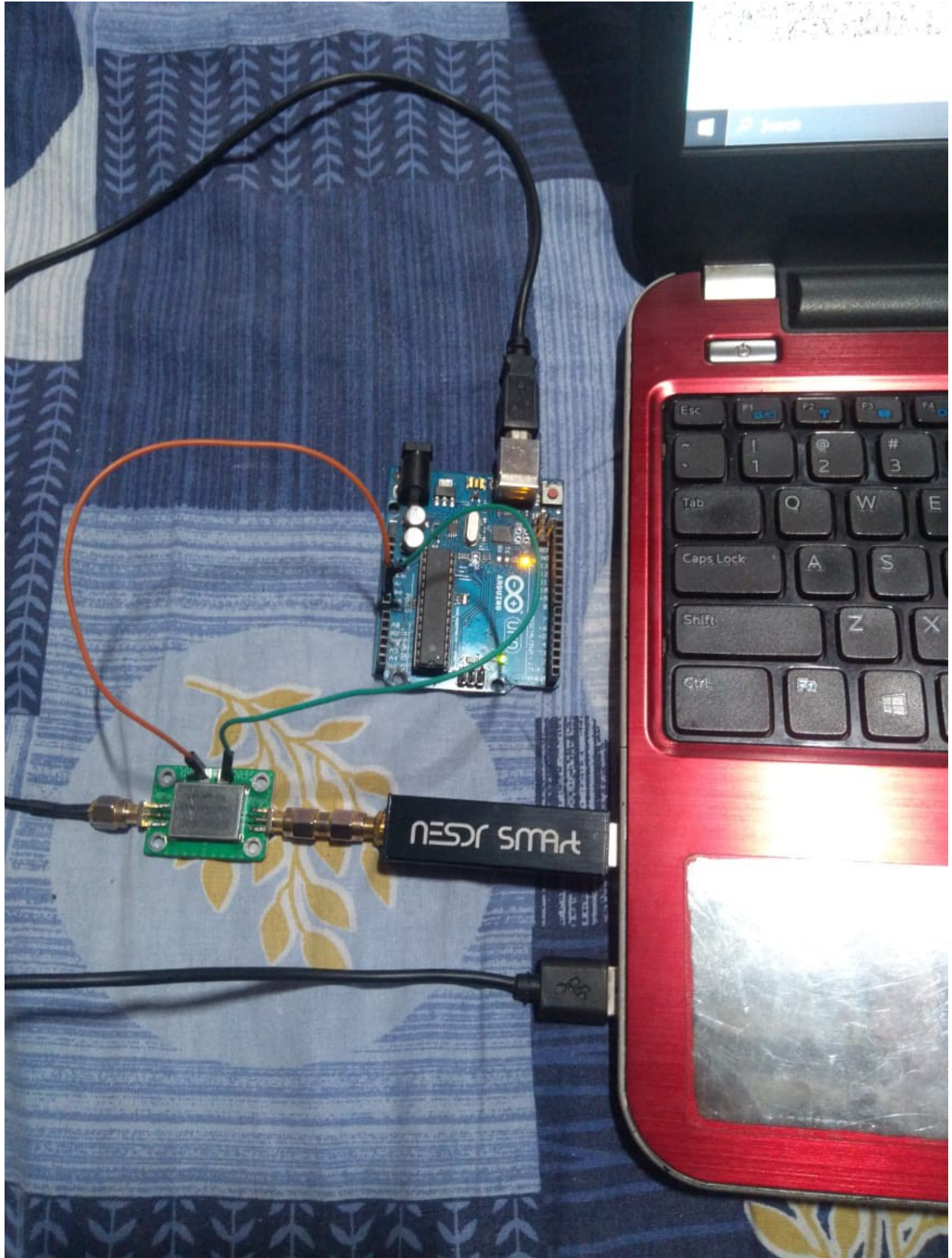




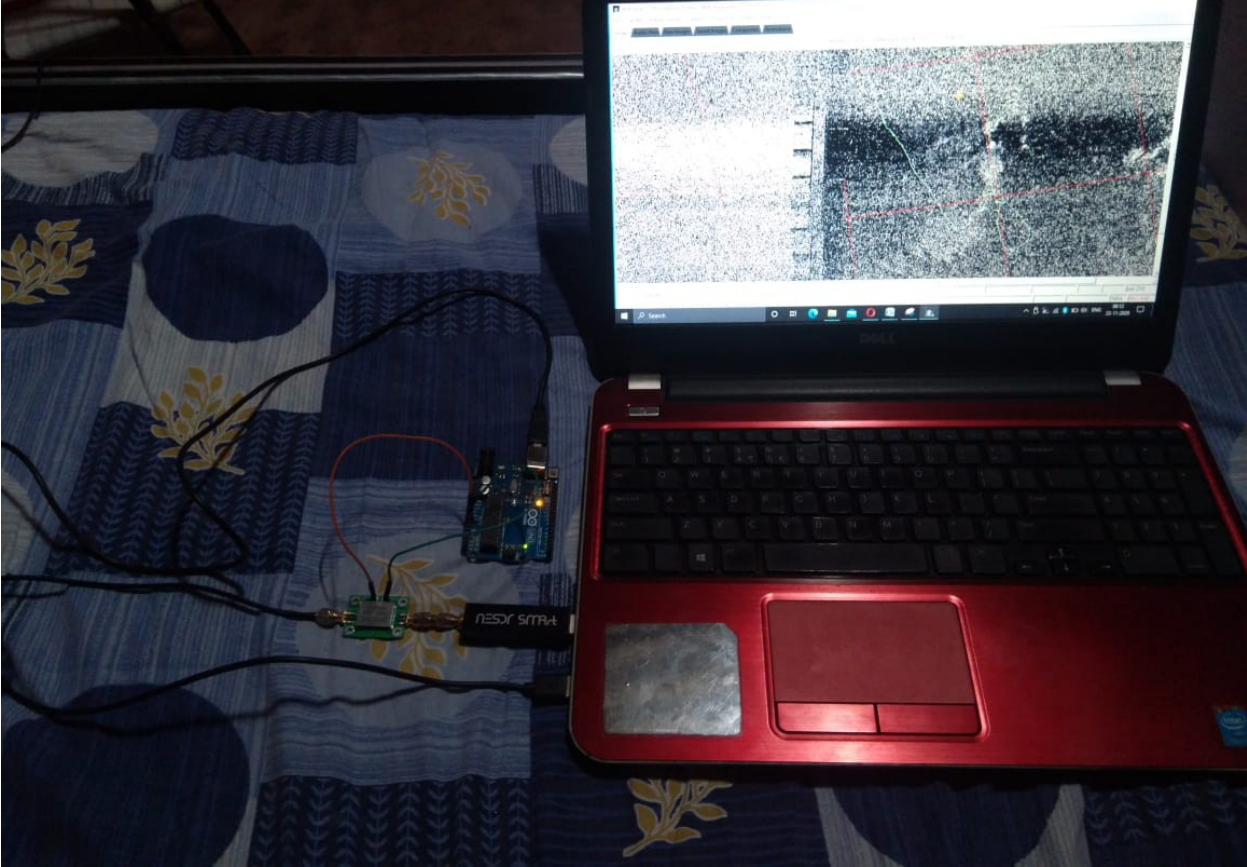














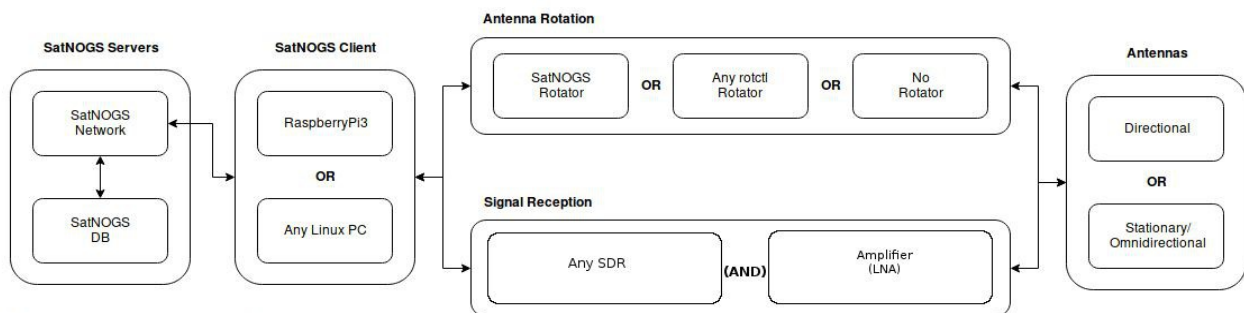
# WCRC CONTACT 2020

## VMEG-SBST

### Components Required to build the base-station:

#### Options for Ground Stations

A satellite ground station is made up from different parts. The following diagram can help you select your setup based on your needs and/or your existing setup.



Here are some links explaining the different options:

Platform	Controller	Rotator	Radio	Antenna
Raspberry Pi	SatNOGS Controller	SatNOGS Rotator	SDR	Yagi
Debian system	Rot2Prog	SPID Big RAS		Helical
Linux Desktop	Isf-g5500	Yaesu G5500		Vertical
Linux Fedora (old)	Arduino UNO CNC Shield based controller	No rotator		Cross-Yagi
	RAMPS 1.4 Board for SatNOGS Rotator			

Picture source : [wiki.satnogs.org](http://wiki.satnogs.org)

The above picture is a best example to build a base-station in multiple ways. It provides us with multiple options. (satnogs servers can be ignored).

The base-station that we have built is using bottom flow from above figure.

PC -> Software Defined Radio -> Low Noise Amplifier -> Stationary antenna



We have used Nooelec NESDR Smart V4 , a RTL2832U & R820T2-based software defined radio.

A SPF5189Z Low Noise Amplifier to boost received signals.

### Materials used to build basestation:

- 1) Software Defined Radio- Nooelec NESDR Smart V4
- 2) SPF5189Z Low Noise Amplifier
- 3) SMA male to SMA male connectors
- 4) Double Cross antenna -
  - a) 5mm(Ø) Aluminium rods
  - b) 2/3 inch and 3/4 inch pvc pipes
  - c) Antenna holder
  - d) T and X joints
- 5) RG-58 Co-Axial Cable
- 6) SMA female pins



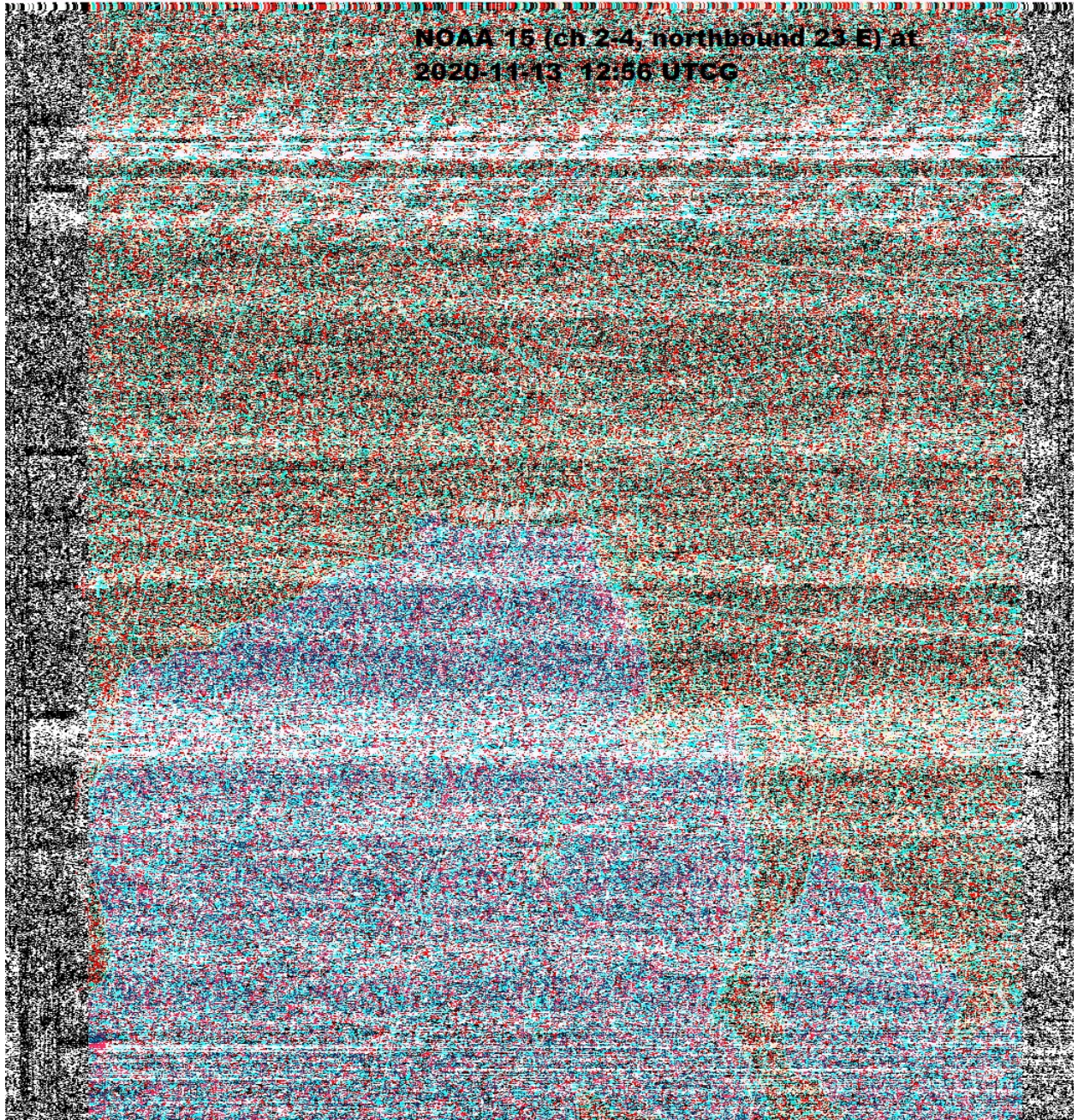




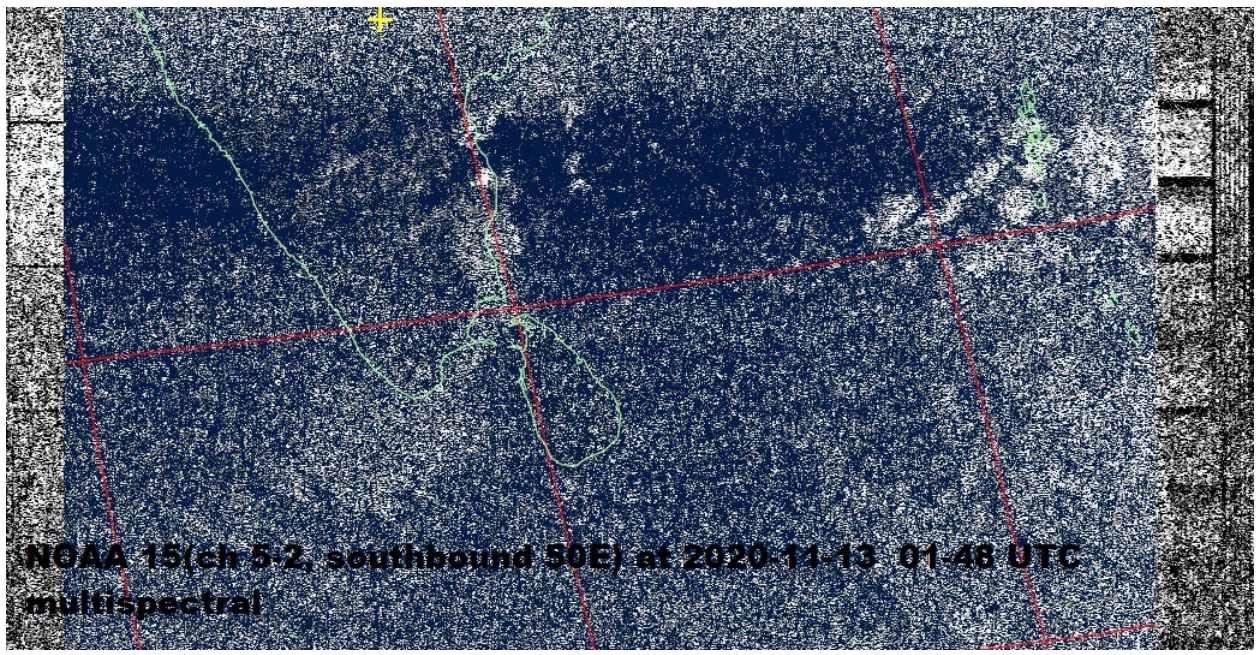
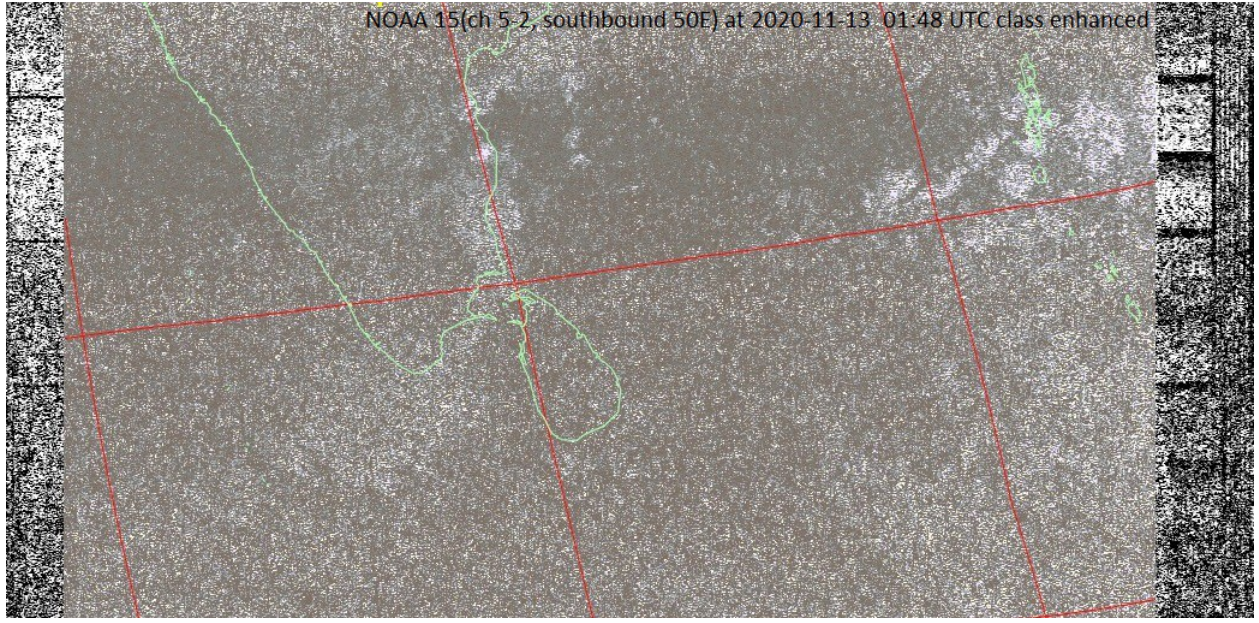




NOAA 15 (ch 2-4, northbound 23 E) at  
2020-11-13 12:56 UTCC

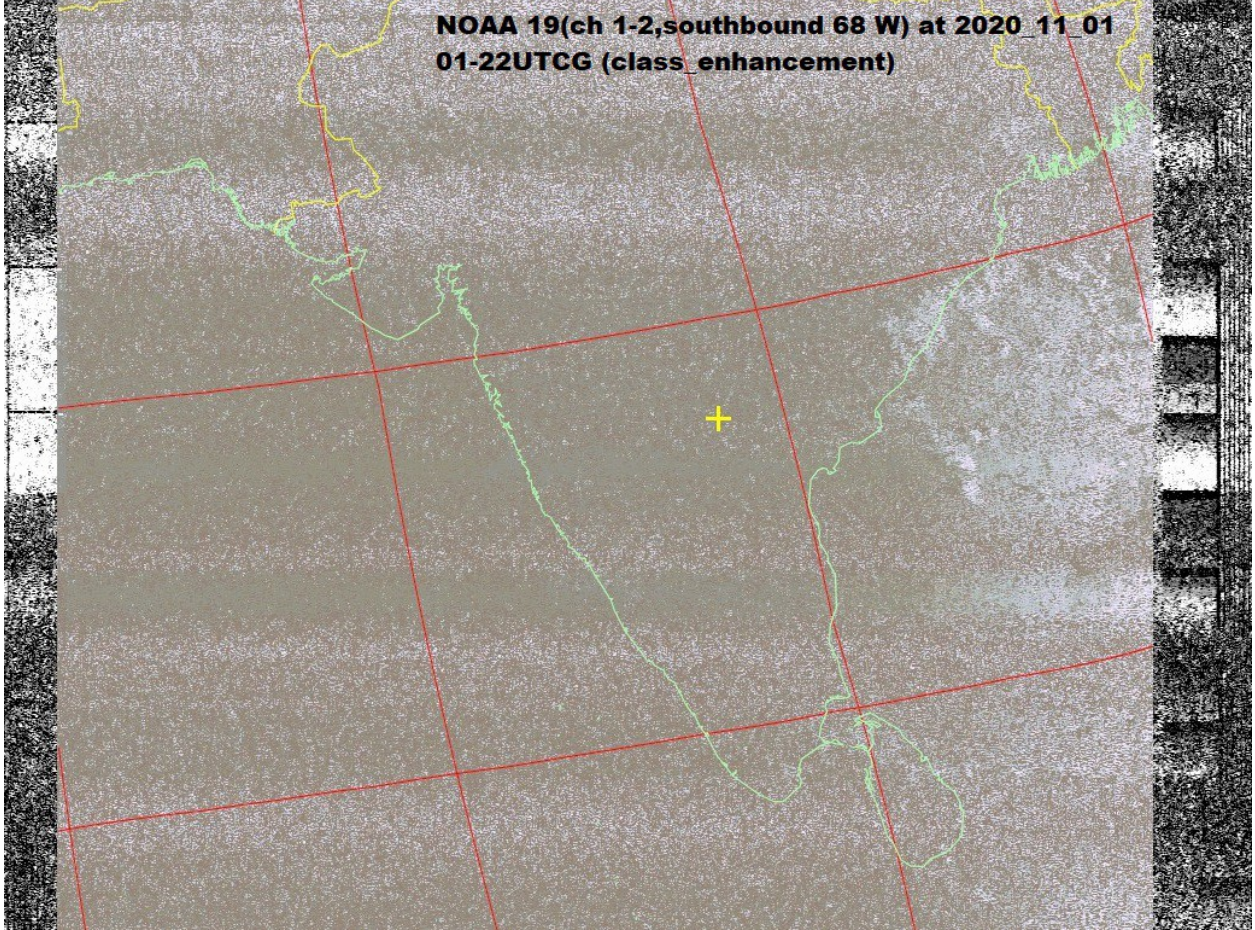




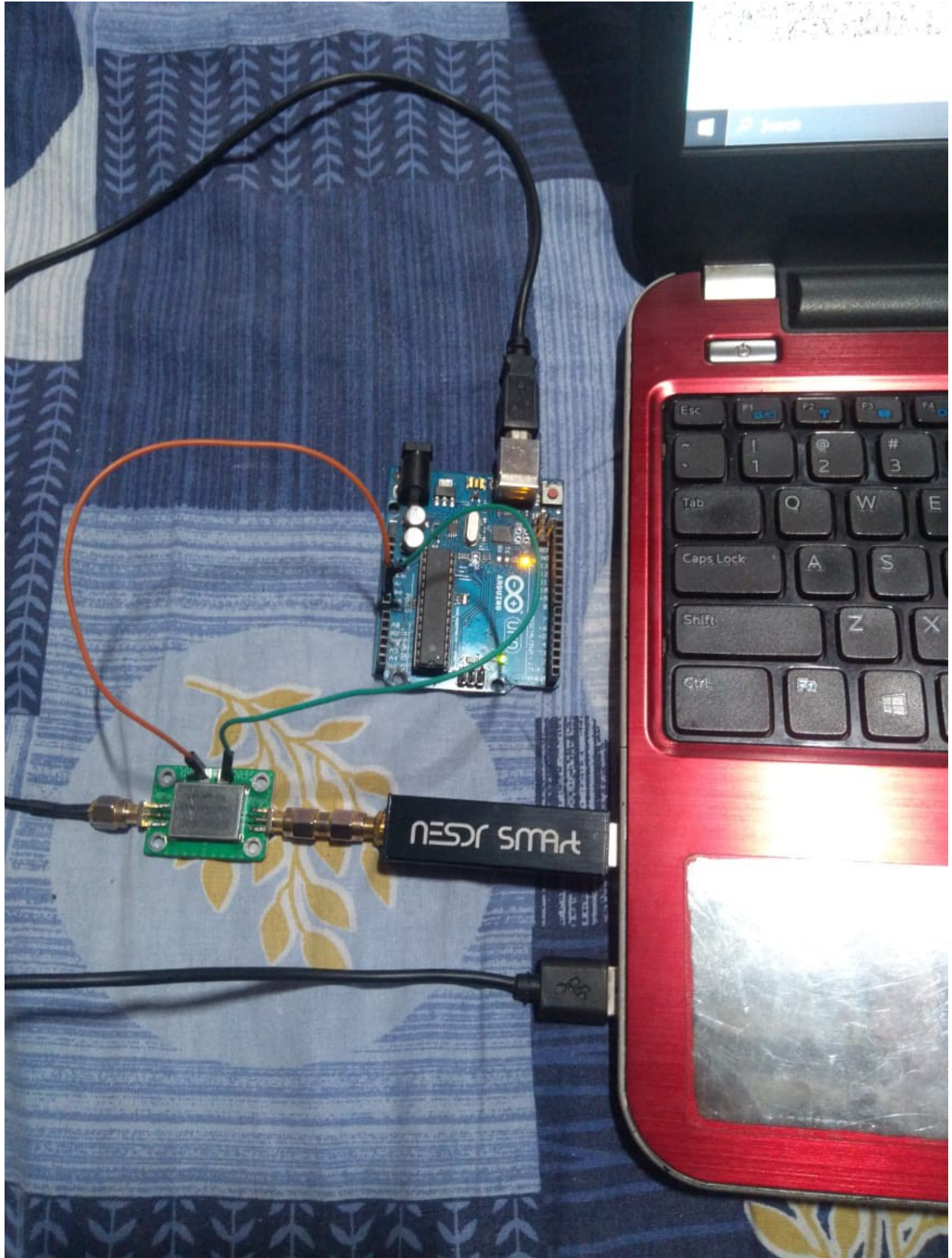




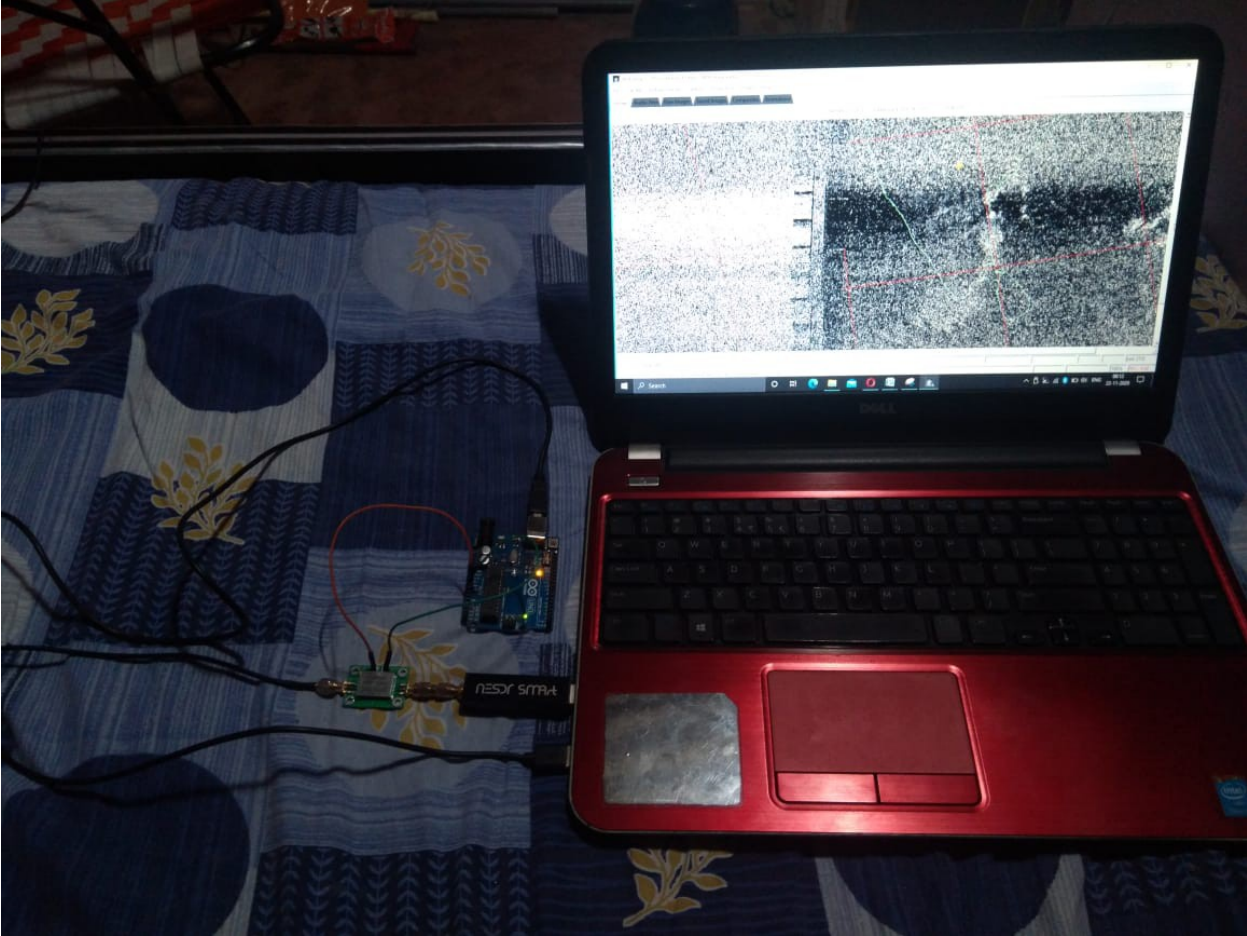
NOAA 19(ch 1-2,southbound 68 W) at 2020\_11\_01  
01-22UTCG (class\_enhancement)













# **WCRC's CONTACT2020 COMPETITION**

**Team name:**

**REVA-SAT-1**

**Team members:**

**AJITH KUMAR JOEL T,**

**CHANDAN MN,**

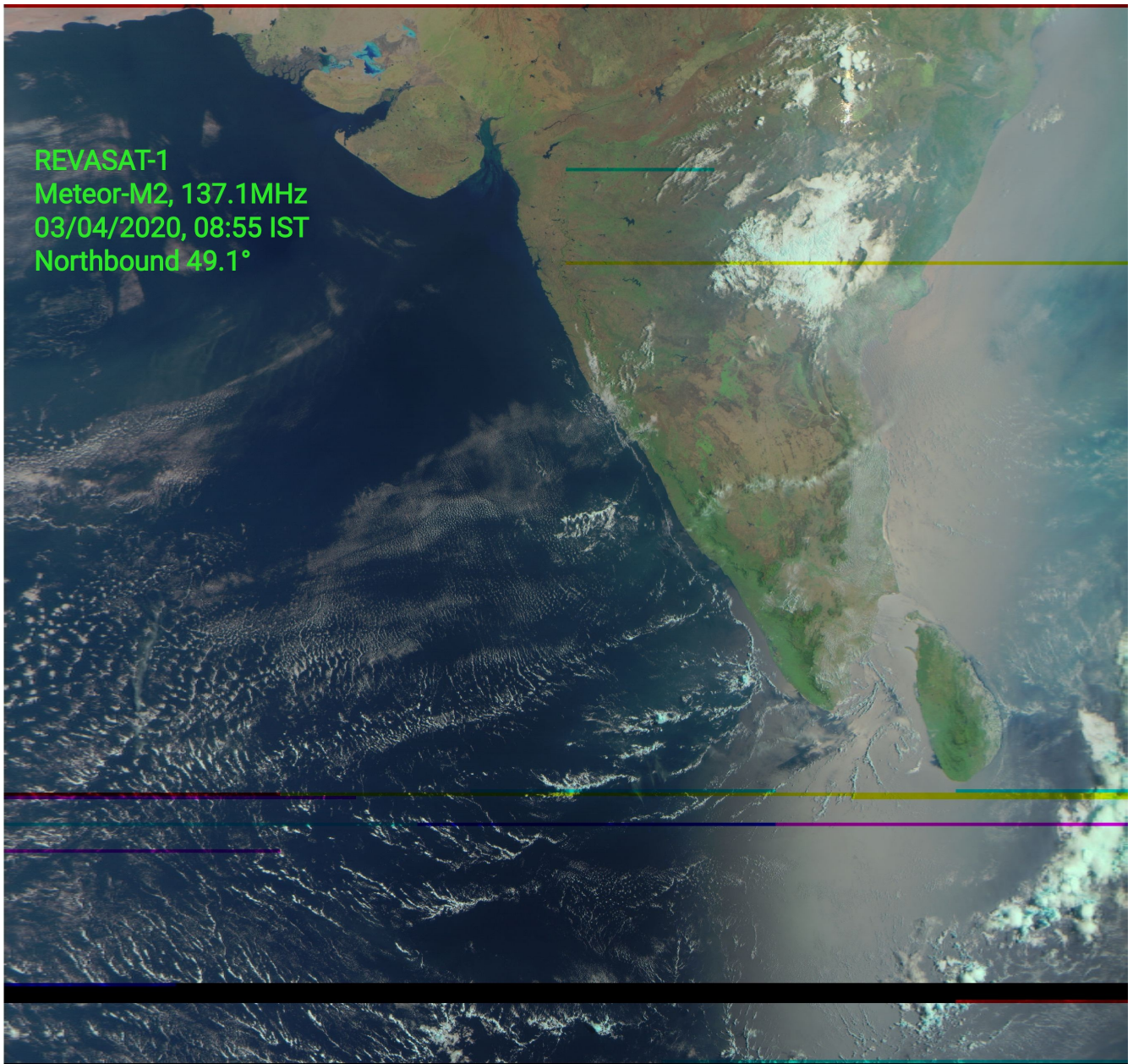
**CHARAN YADAV NP**

**Location:**

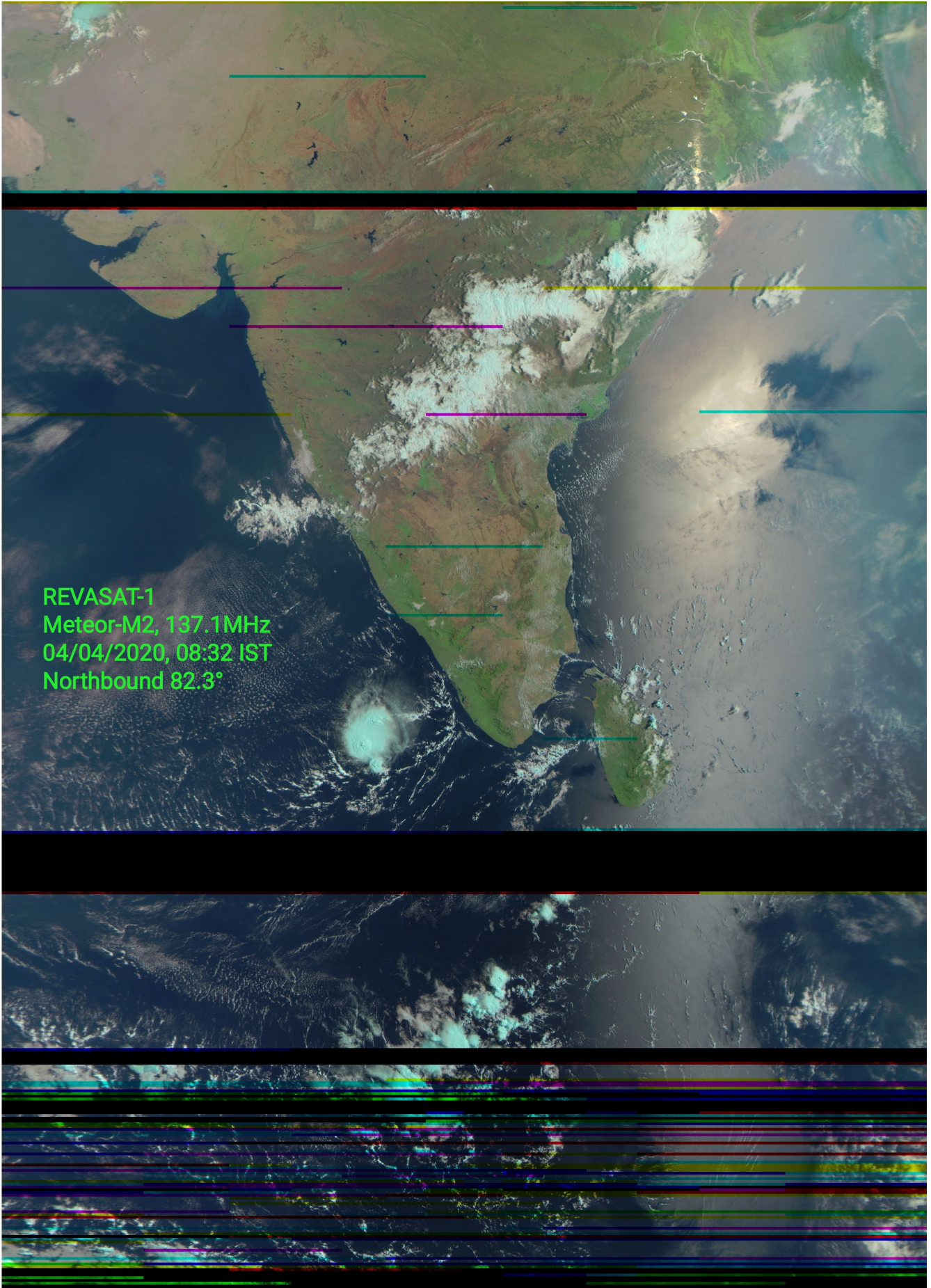
**INDIA**



# Meteor Images:

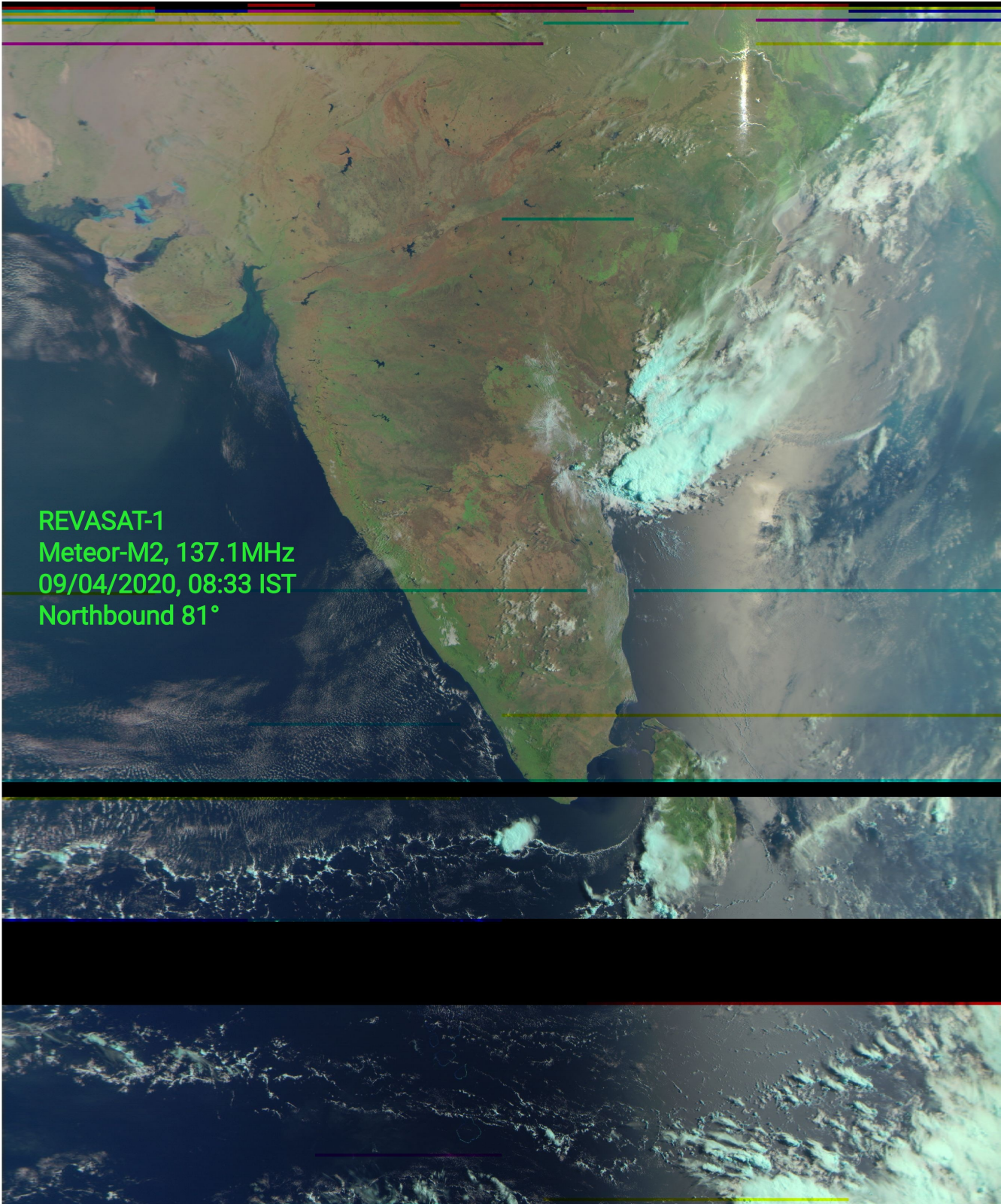






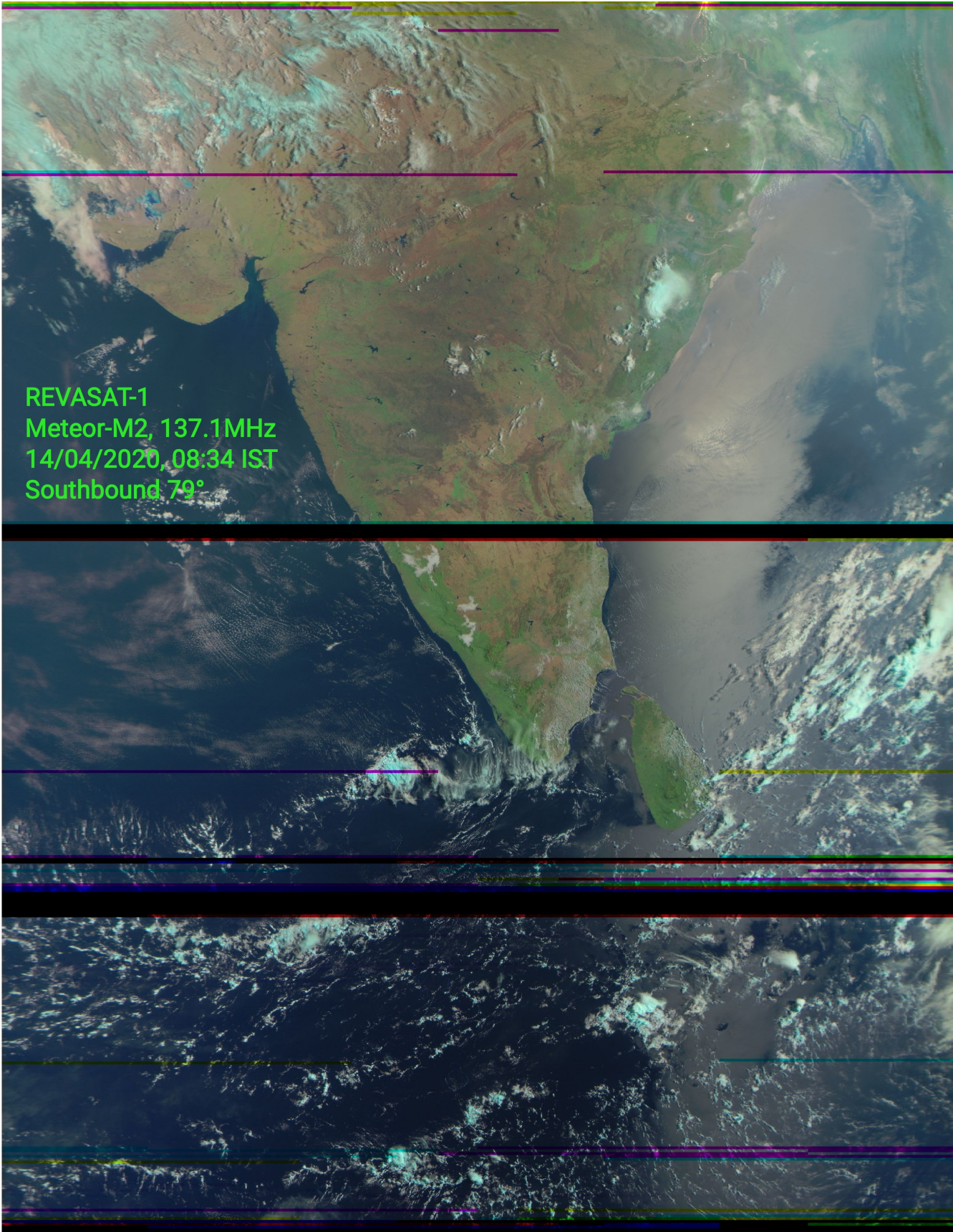
REVASAT-1  
Meteor-M2, 137.1MHz  
04/04/2020, 08:32 IST  
Northbound 82.3°



A satellite image of Earth showing the Indian subcontinent and surrounding regions. The image is oriented vertically, with the top of the frame showing the northern part of the continent and the bottom showing the southern part. The landmass is primarily brown and green, indicating a mix of arid and vegetated areas. The surrounding oceans are dark blue. A bright white cloud formation is visible on the right side of the image. The text is overlaid on the left side of the image.

REVASAT-1  
Meteor-M2, 137.1MHz  
09/04/2020, 08:33 IST  
Northbound 81°

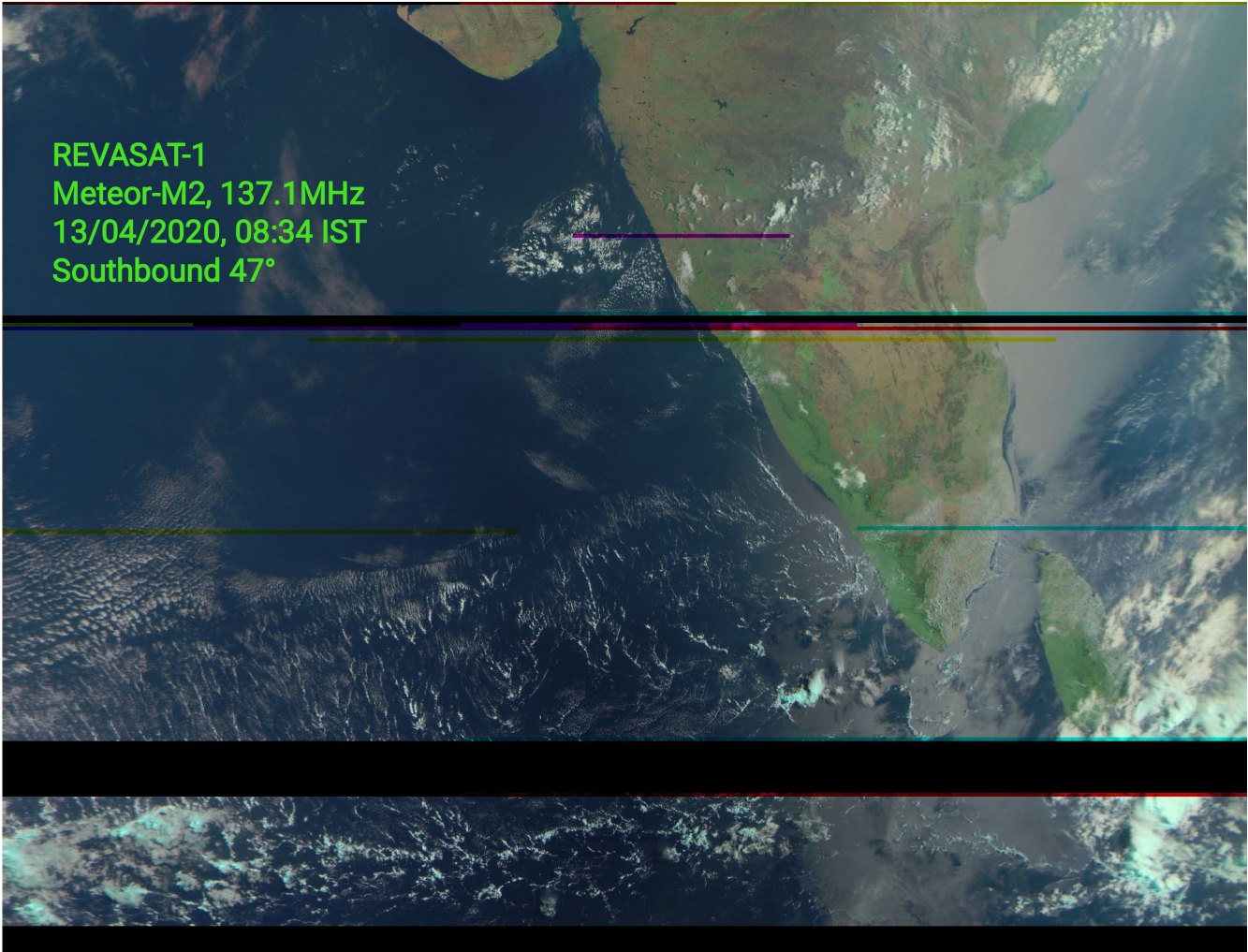




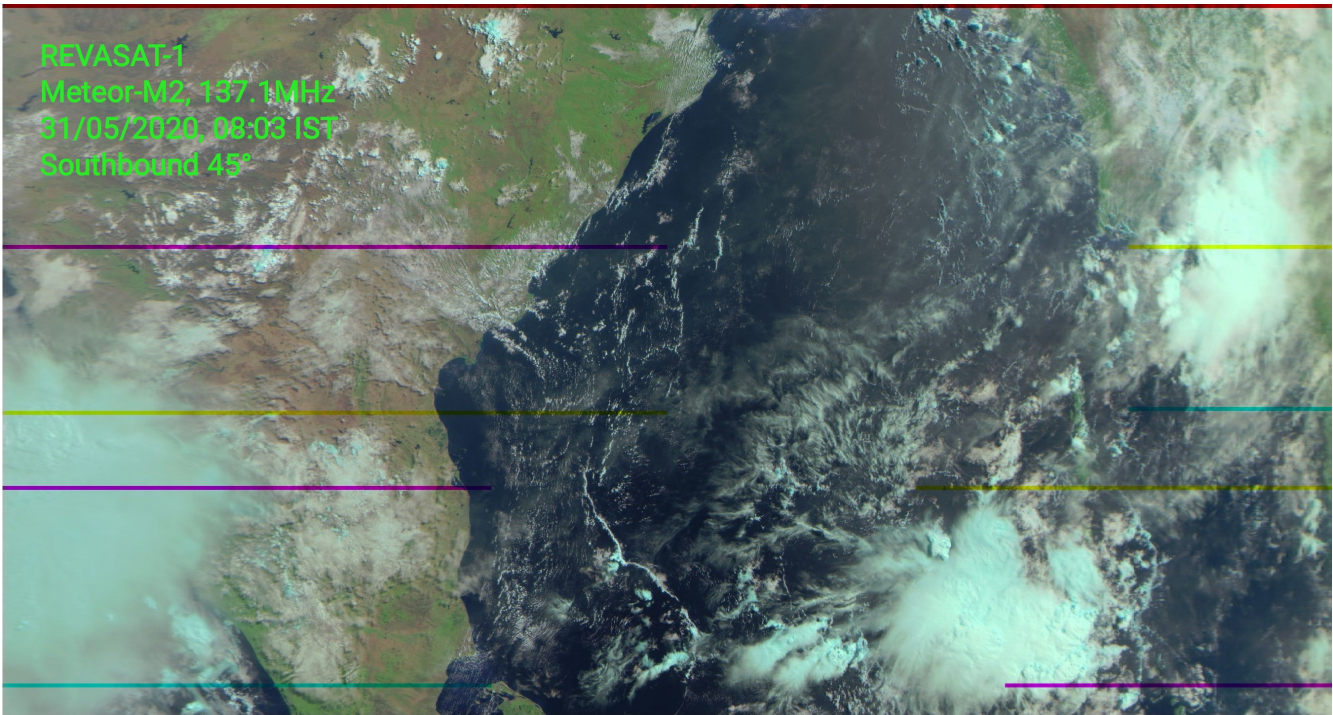
REVASAT-1  
Meteor-M2, 137.1MHz  
14/04/2020, 08:34 IST  
Southbound 79°



REVASAT-1  
Meteor-M2, 137.1MHz  
13/04/2020, 08:34 IST  
Southbound 47°

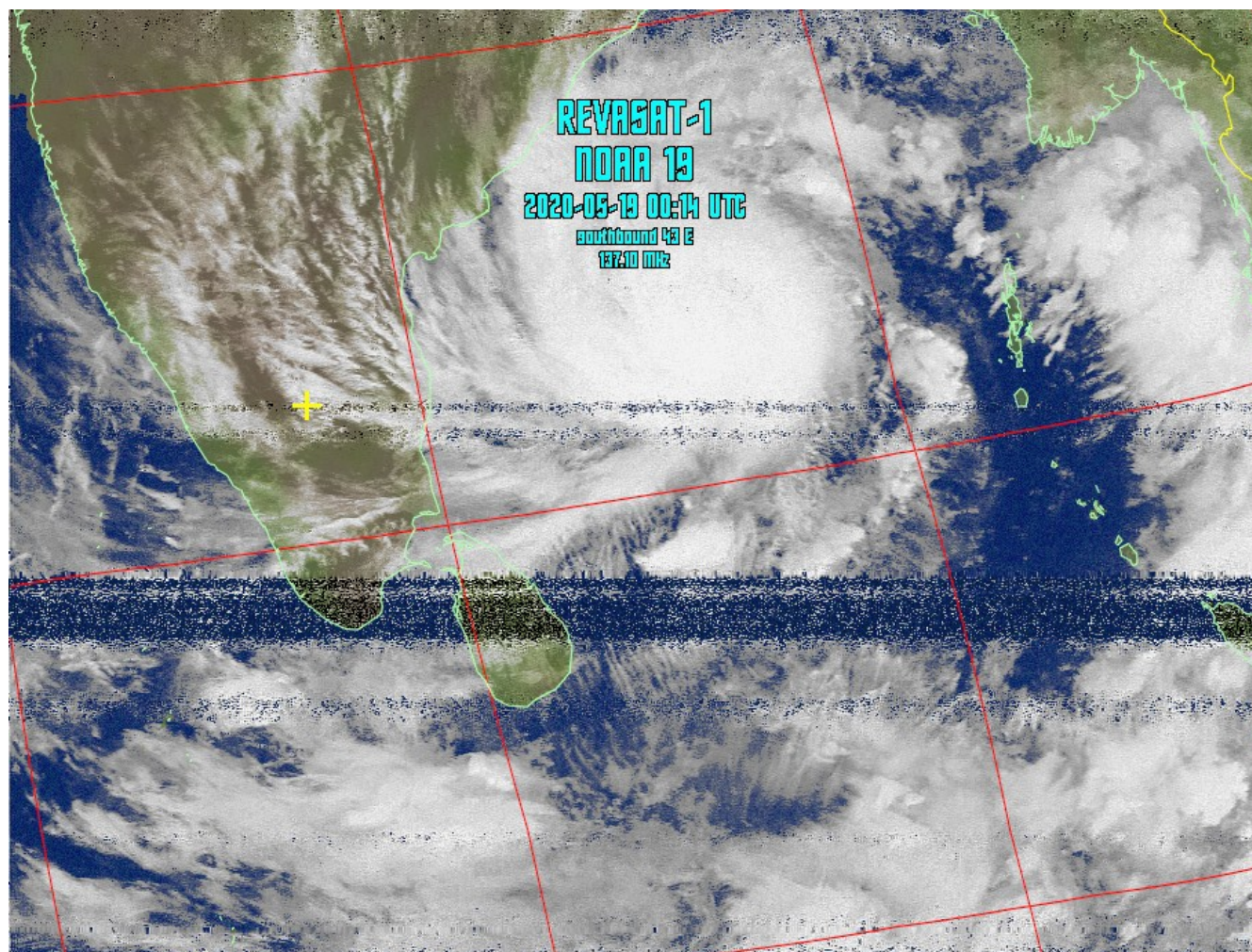


REVASAT-1  
Meteor-M2, 137.1MHz  
31/05/2020, 08:03 IST  
Southbound 45°



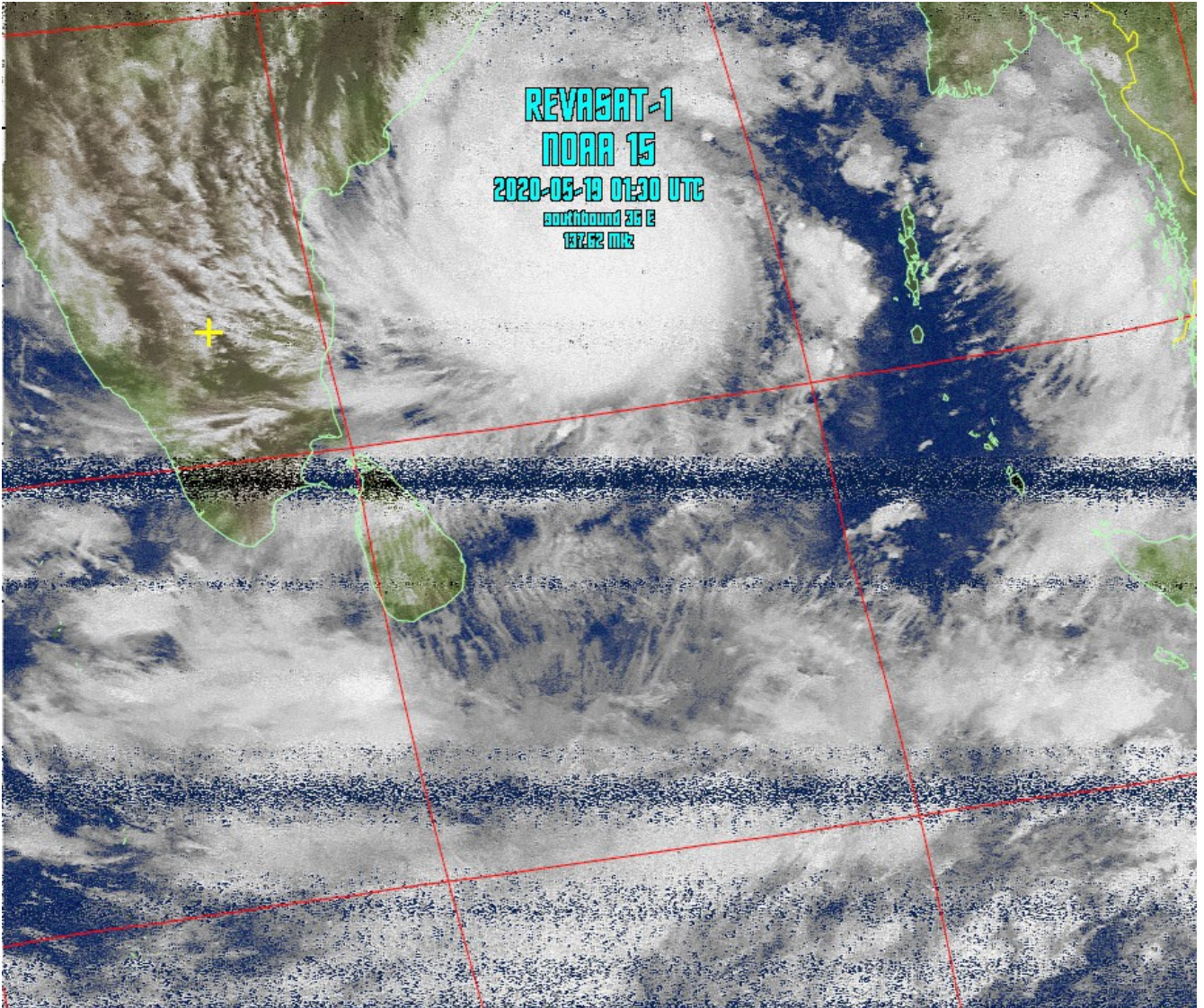


# NOAA Images:



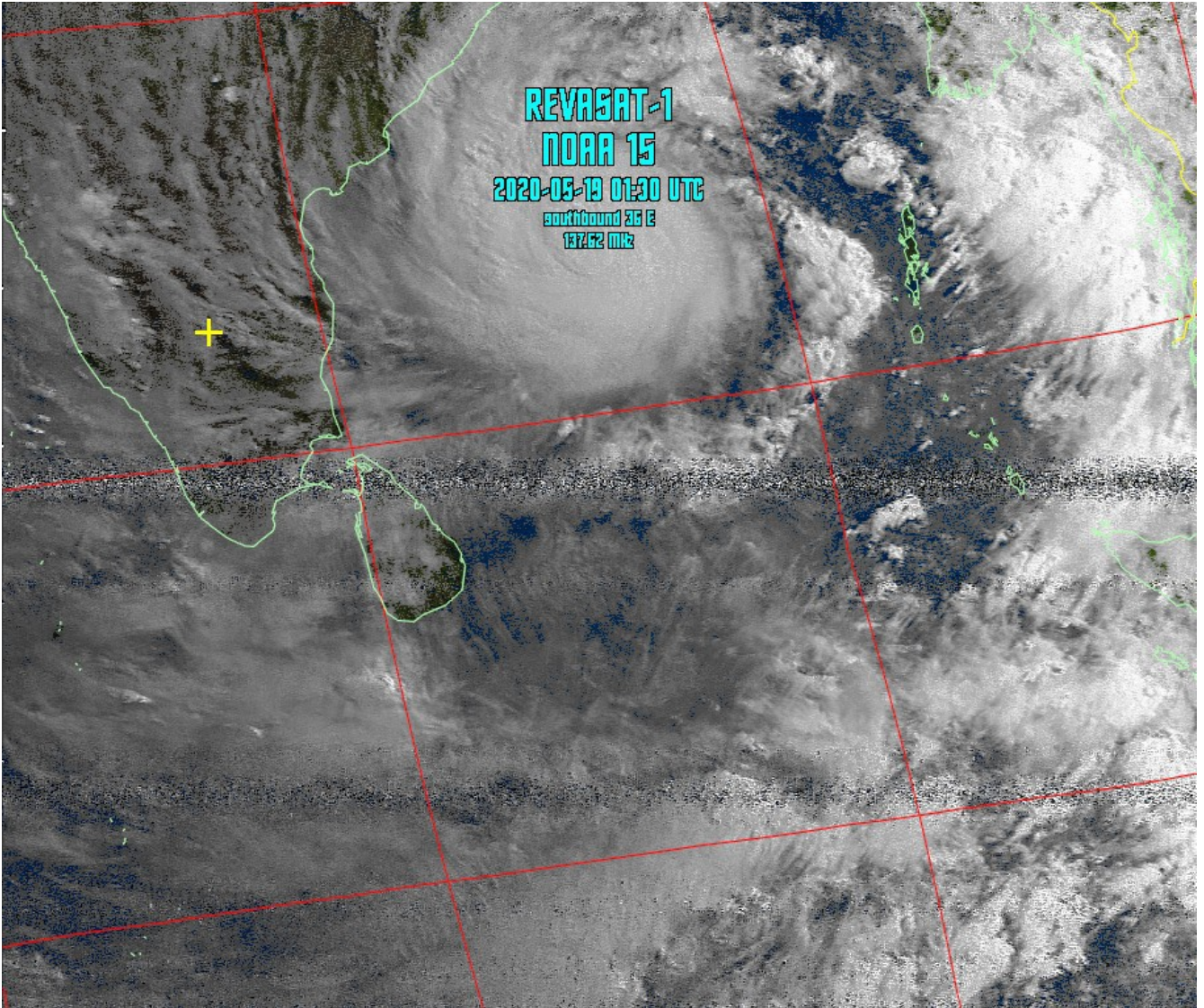


REVASAT-1  
NOAA 15  
2020-05-19 01:30 UTC  
southbound 36 E  
137.62 MHz



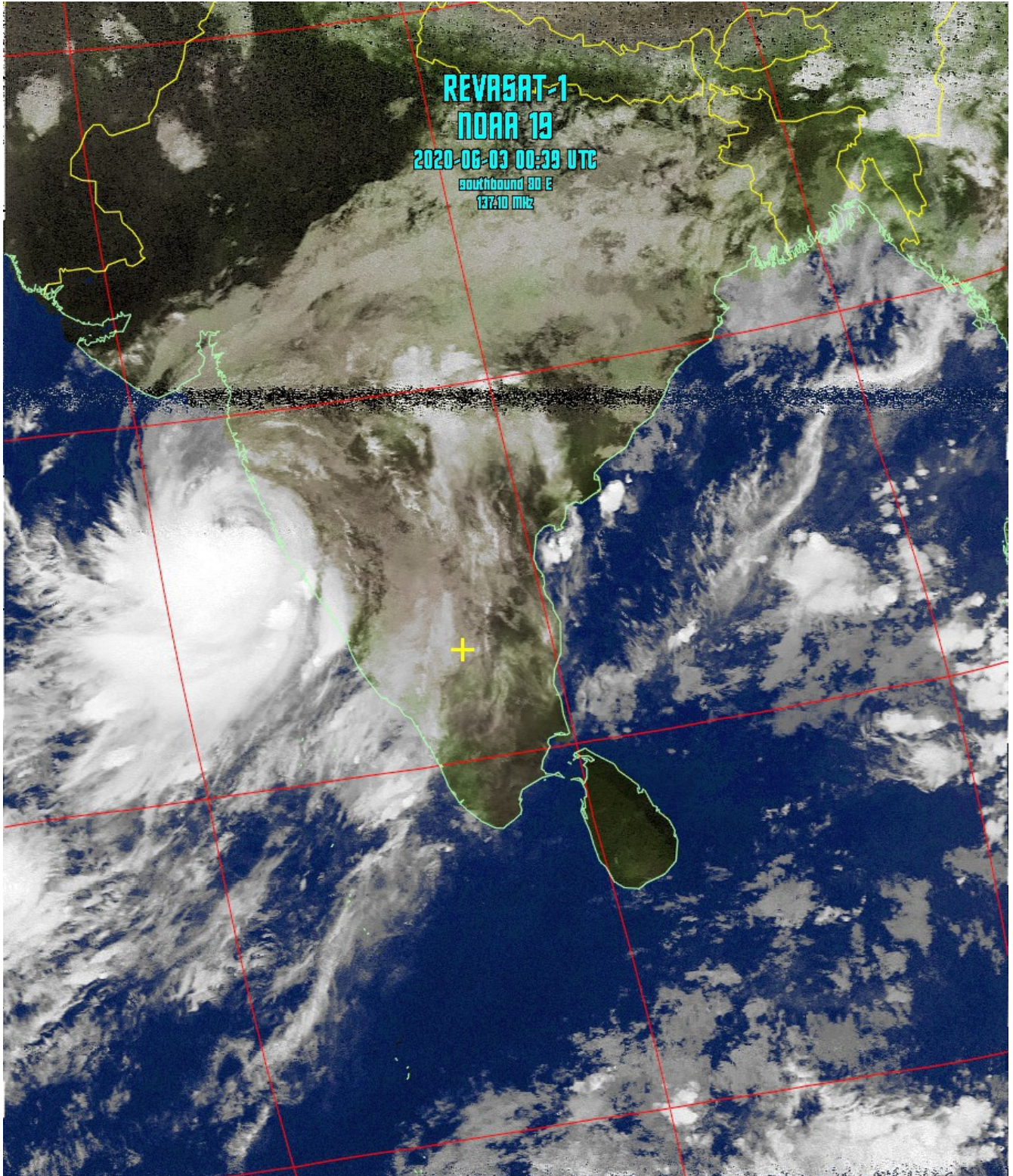


REVASAT-1  
NOAA 15  
2020-05-19 01:30 UTC  
southbound 36 E  
137.62 MHz



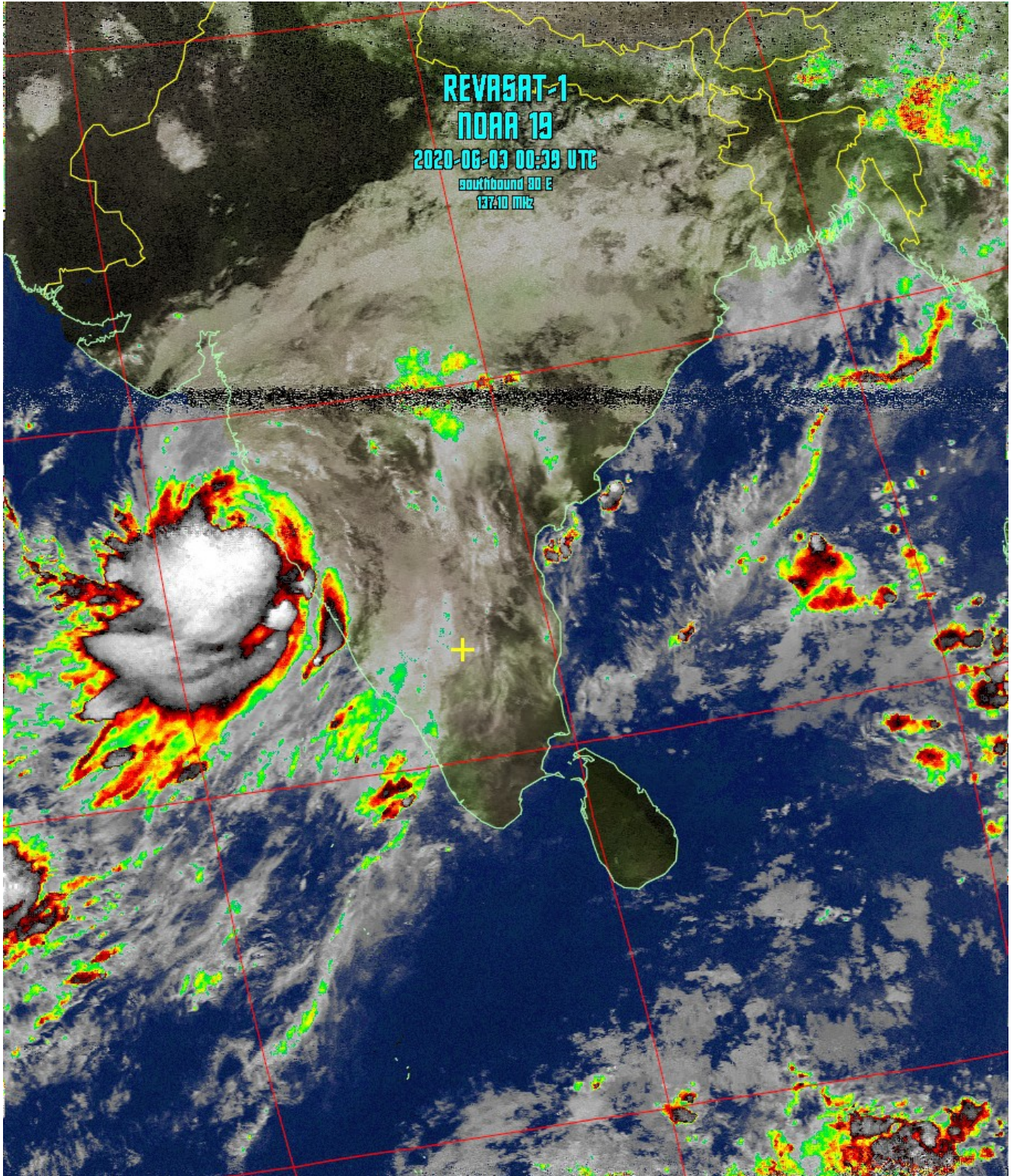


REVASAT-1  
NOAA 19  
2020-06-03 00:39 UTC  
southbound 90 E  
137.10 MHz



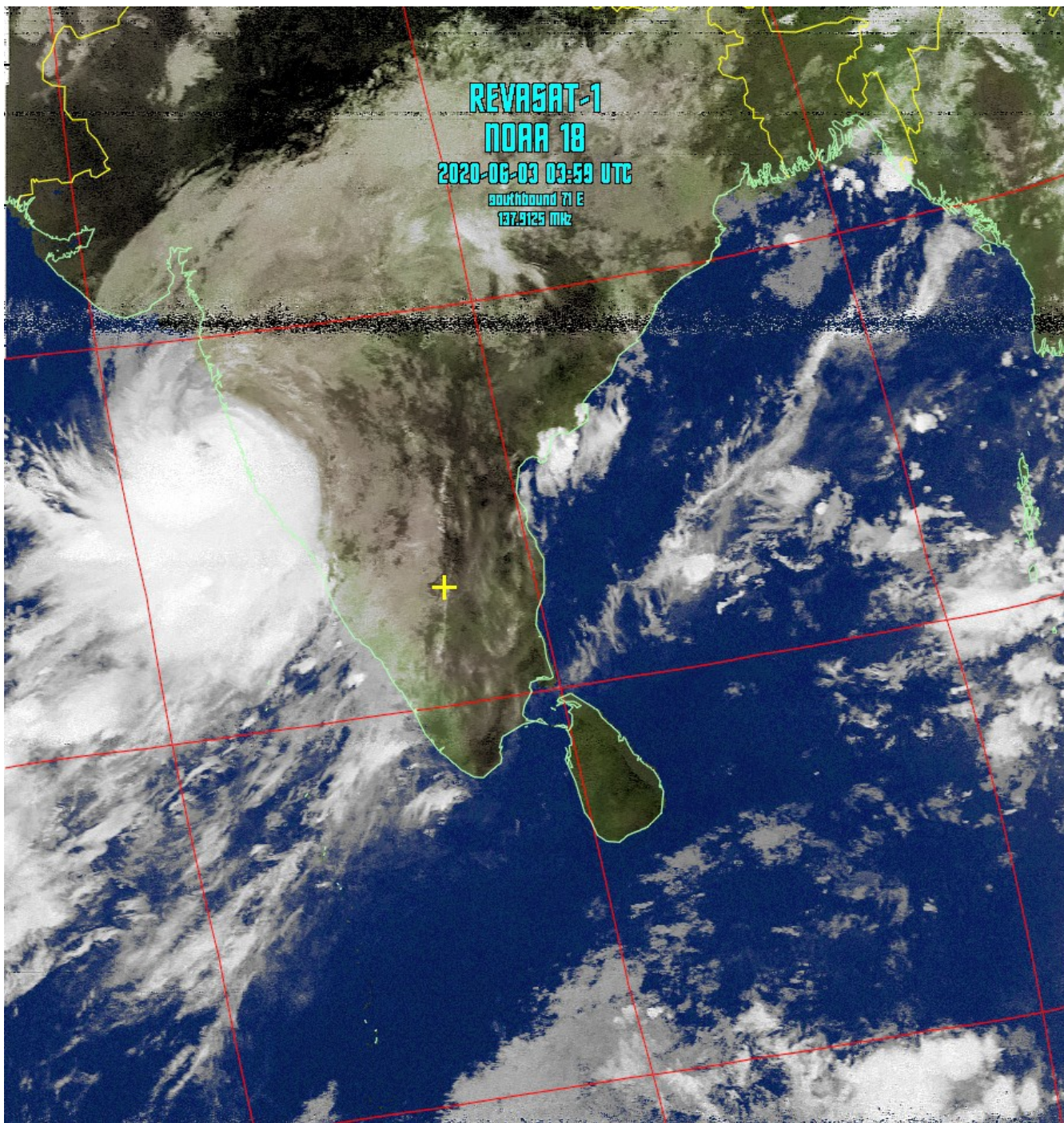


REVASAT-1  
NOAA 19  
2020-06-03 00:39 UTC  
southbound 30 E  
137.10 MHz



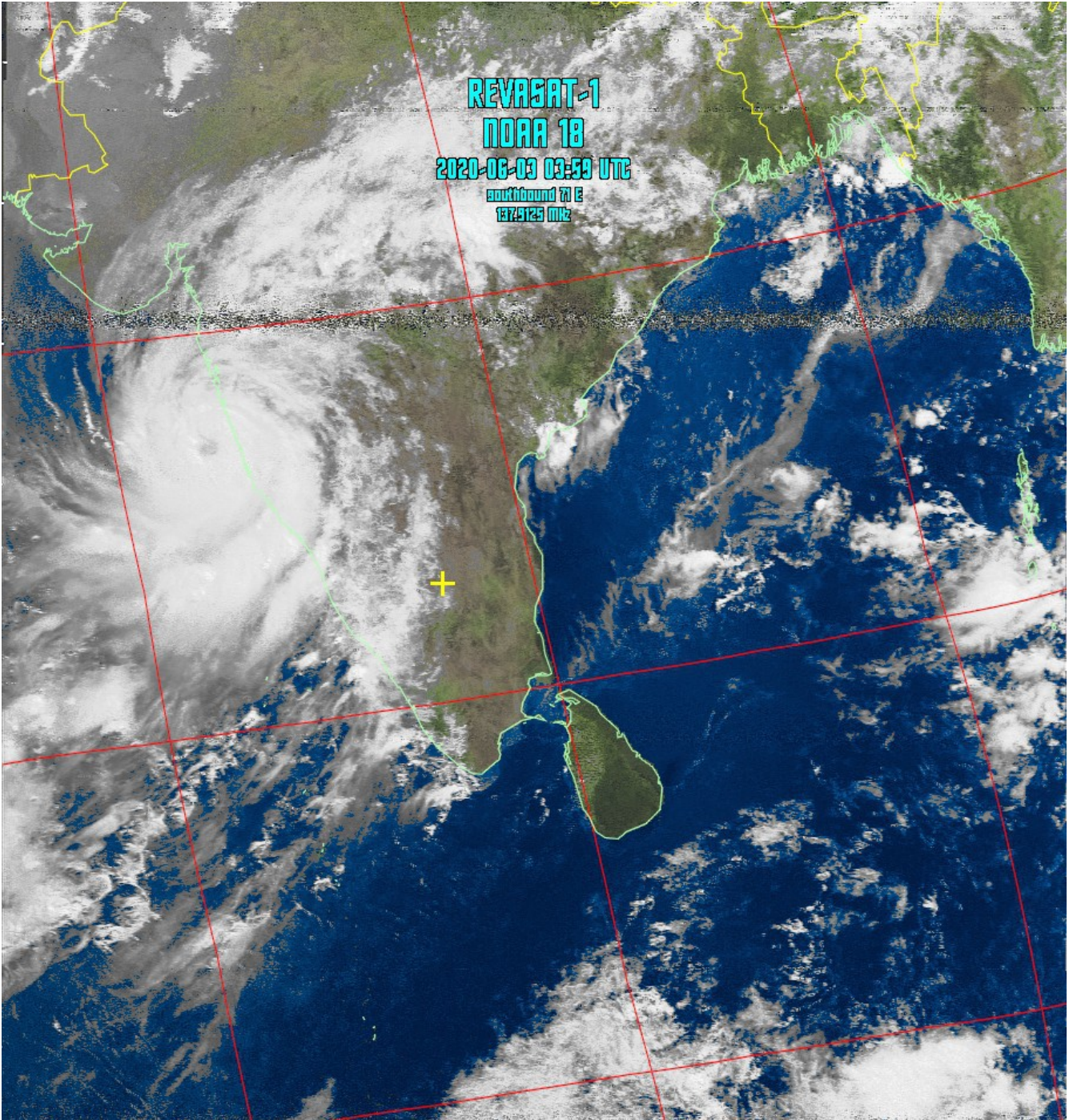


REVASAT-1  
NOAA 18  
2020-06-03 03:59 UTC  
southbound 71 E  
137.9125 MHz

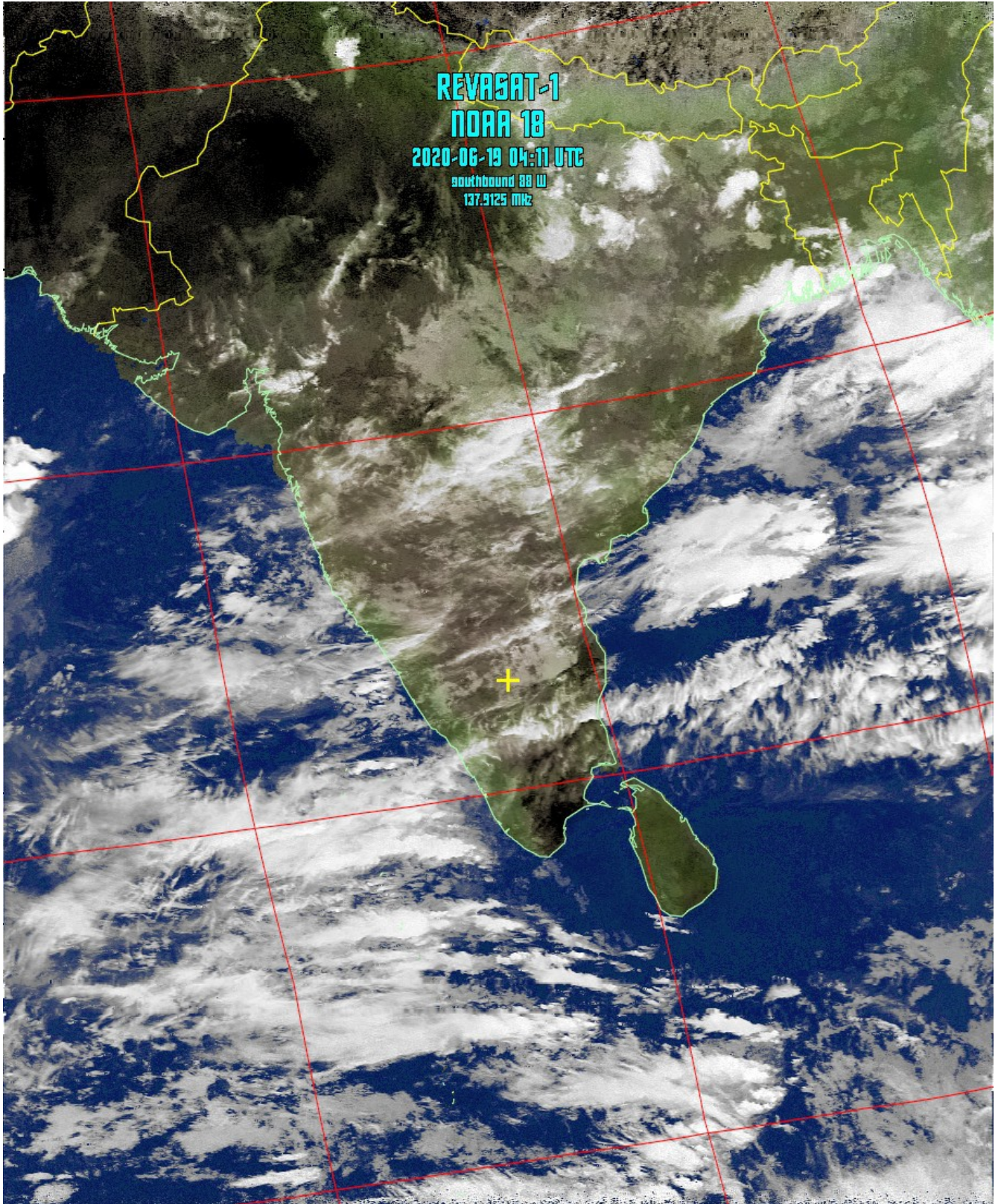




REVASAT-1  
NOAA 18  
2020-06-03 03:59 UTC  
southbound 71 E  
137.9125 MHz







REVASAT-1

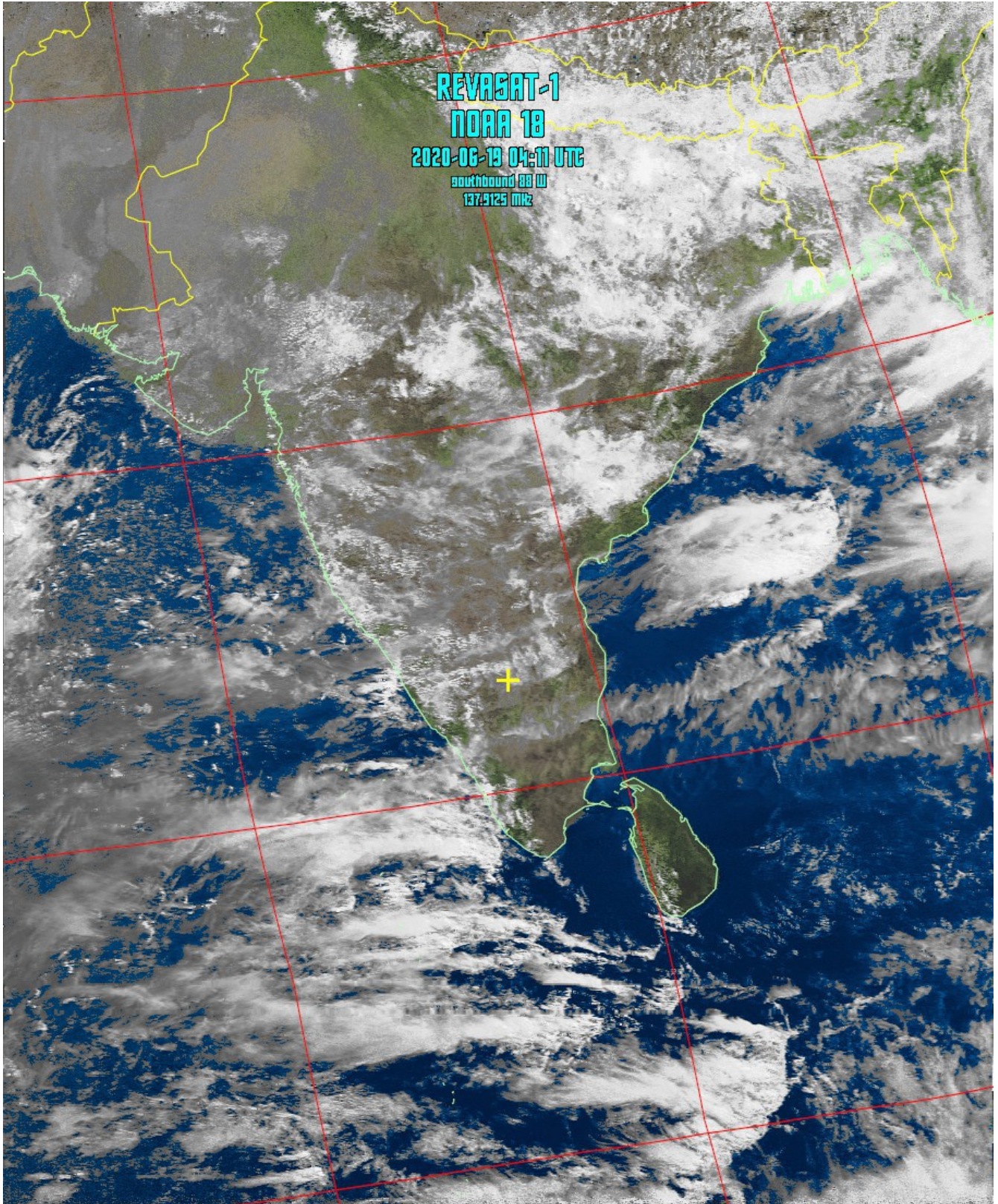
NOAA 18

2020-06-19 04:11 UTC

southbound 88 W  
137.9125 MHz

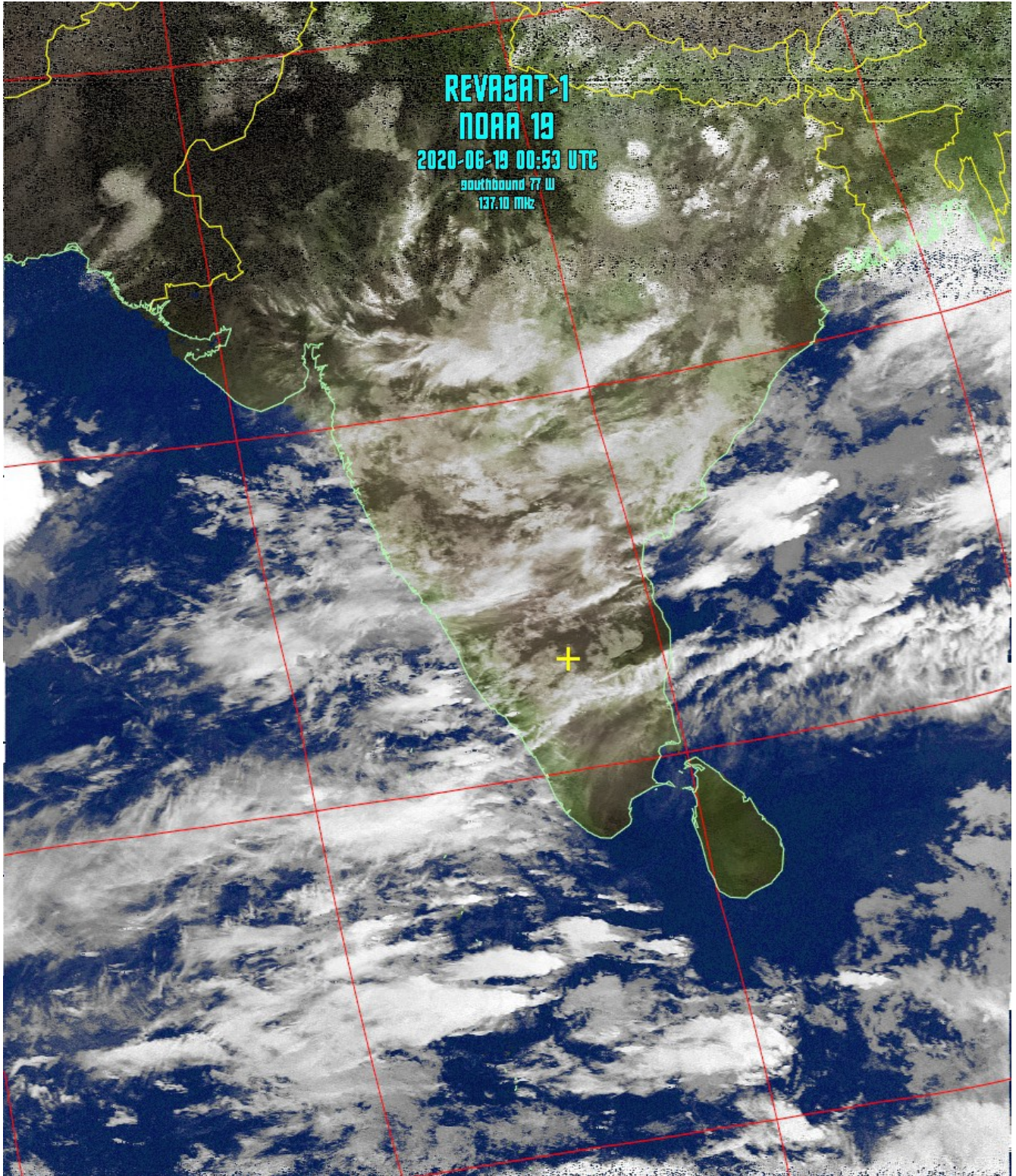


REVASAT-1  
NOAA 18  
2020-06-19 04:11 UTC  
southbound 88 W  
137.9125 MHz

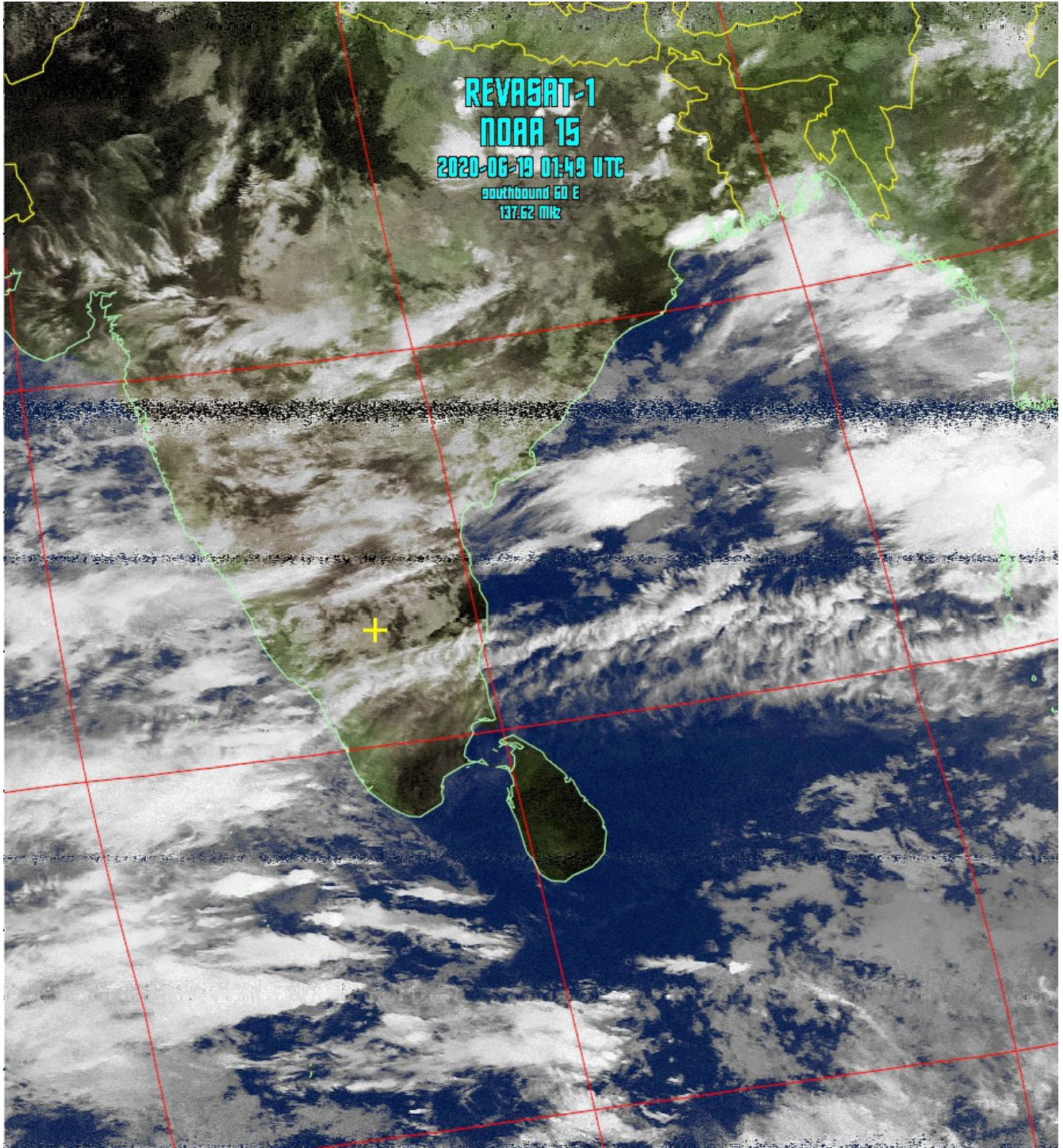




REVASAT-1  
NOAA 19  
2020-06-19 00:53 UTC  
southbound 77 W  
137.10 MHz



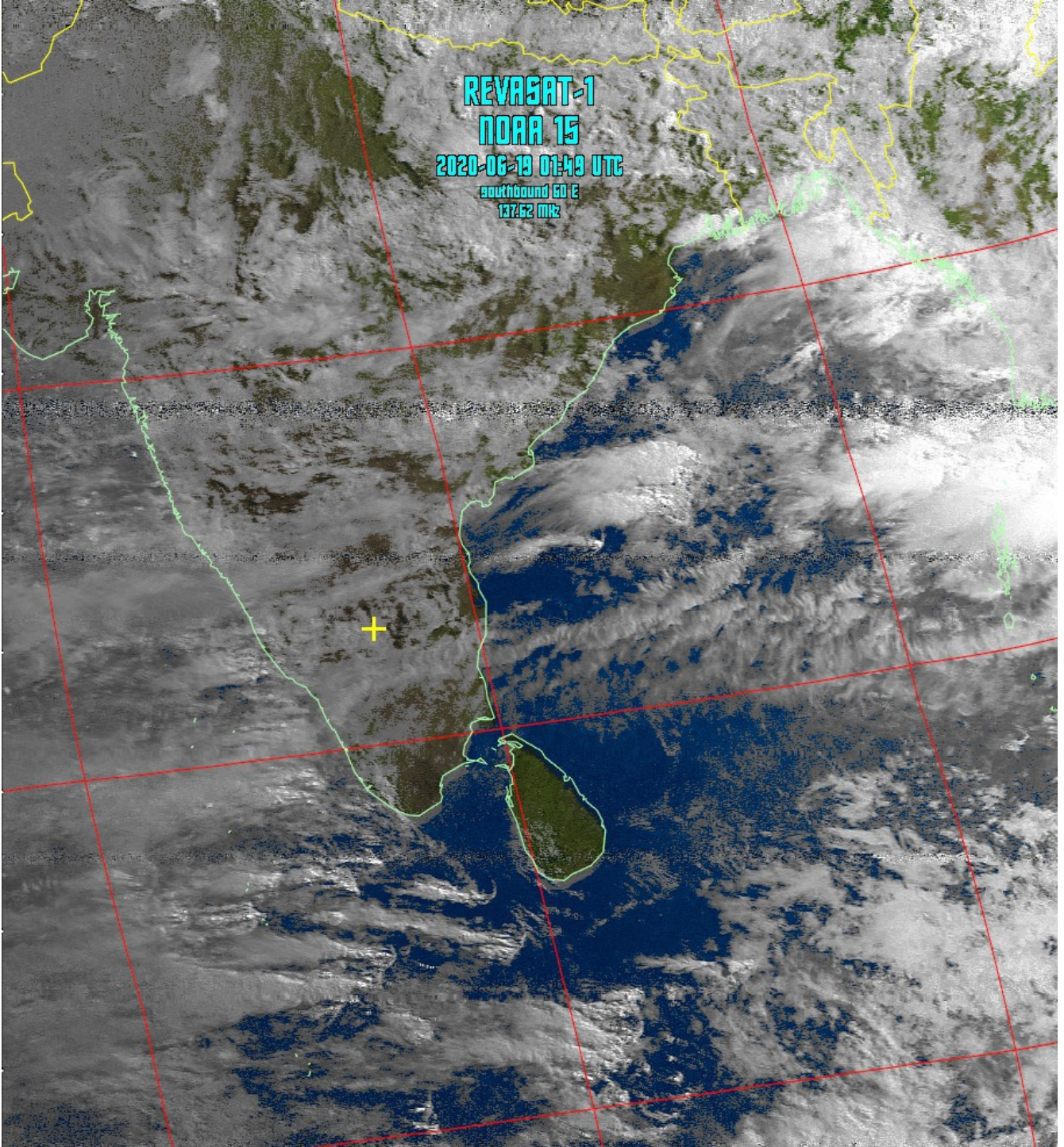




REVASAT-1  
NOAA 15  
2020-06-19 01:49 UTC  
southbound GO E  
137.62 MHz



REVASAT-1  
NOAA 15  
2020-06-19 01:49 UTC  
southbound GO E  
137.62 MHz





# **WCRC's CONTACT2020 COMPETITION**

**Team name:**

**REVA-SAT-2**

**Team members:**

**PAVAN KALYAN REDDY,**

**CHARAN M,**

**CHANDANA P R**

**Location:**

**INDIA**

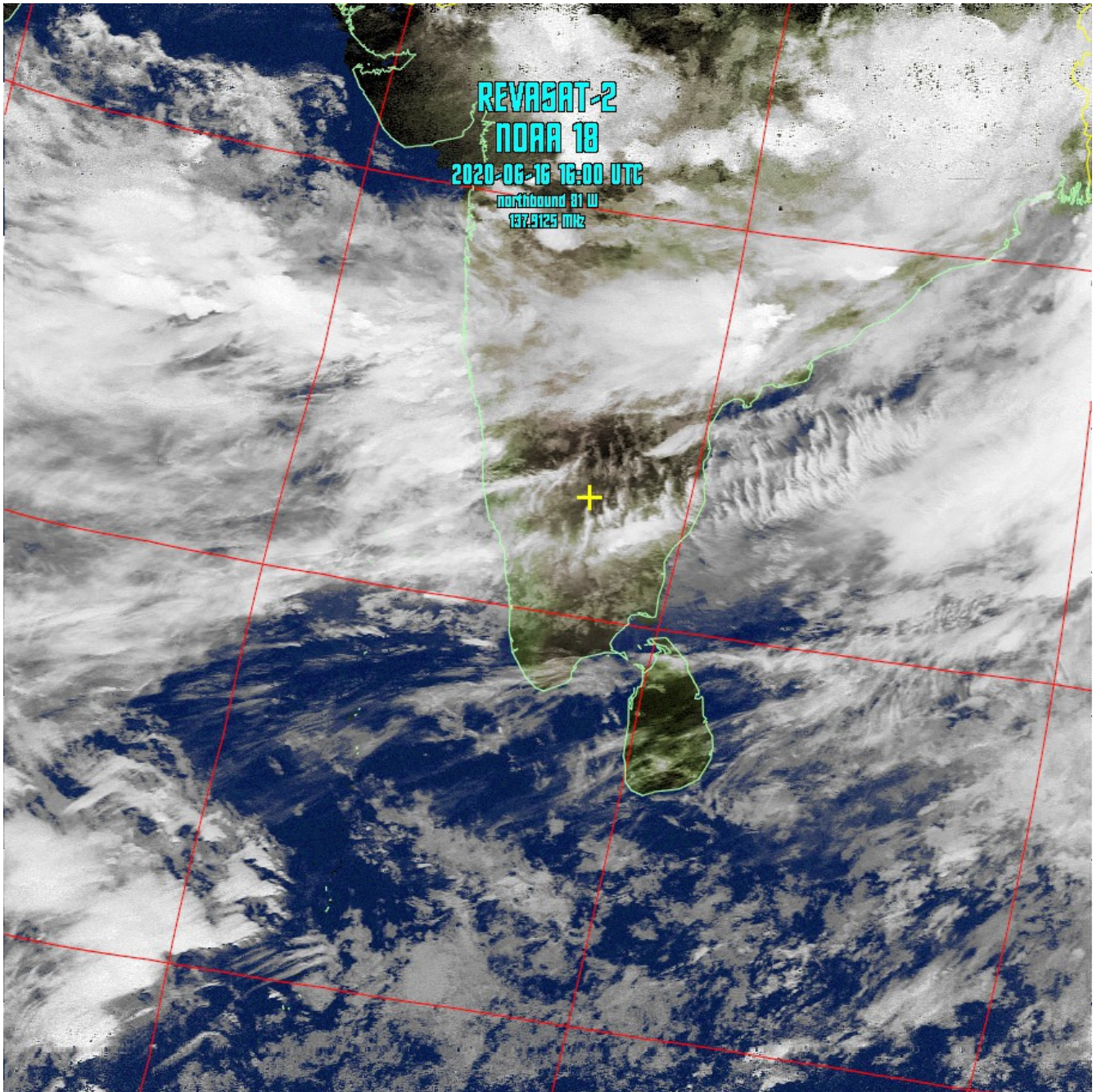


## Meteor Images:



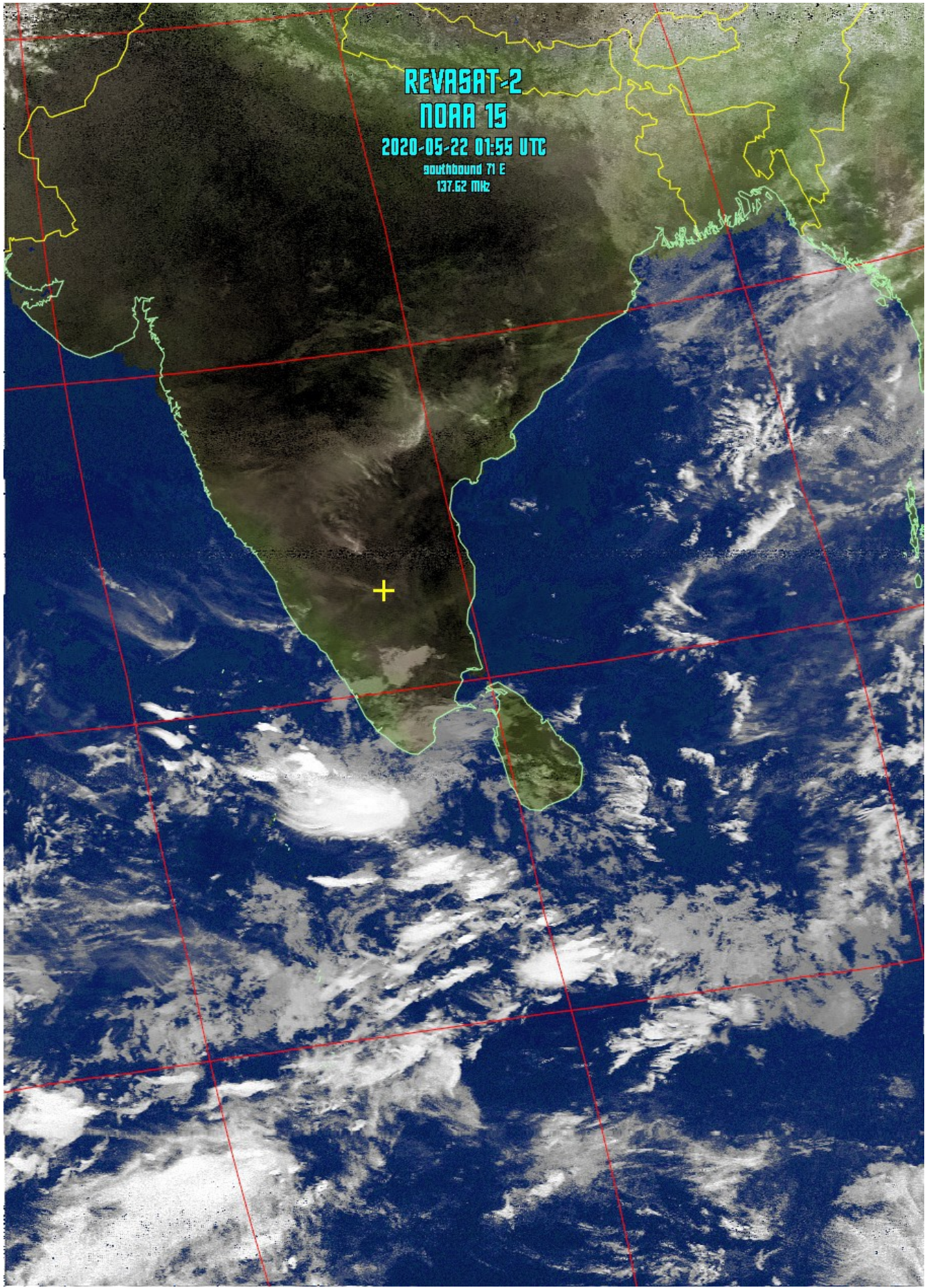


# NOAA Images:



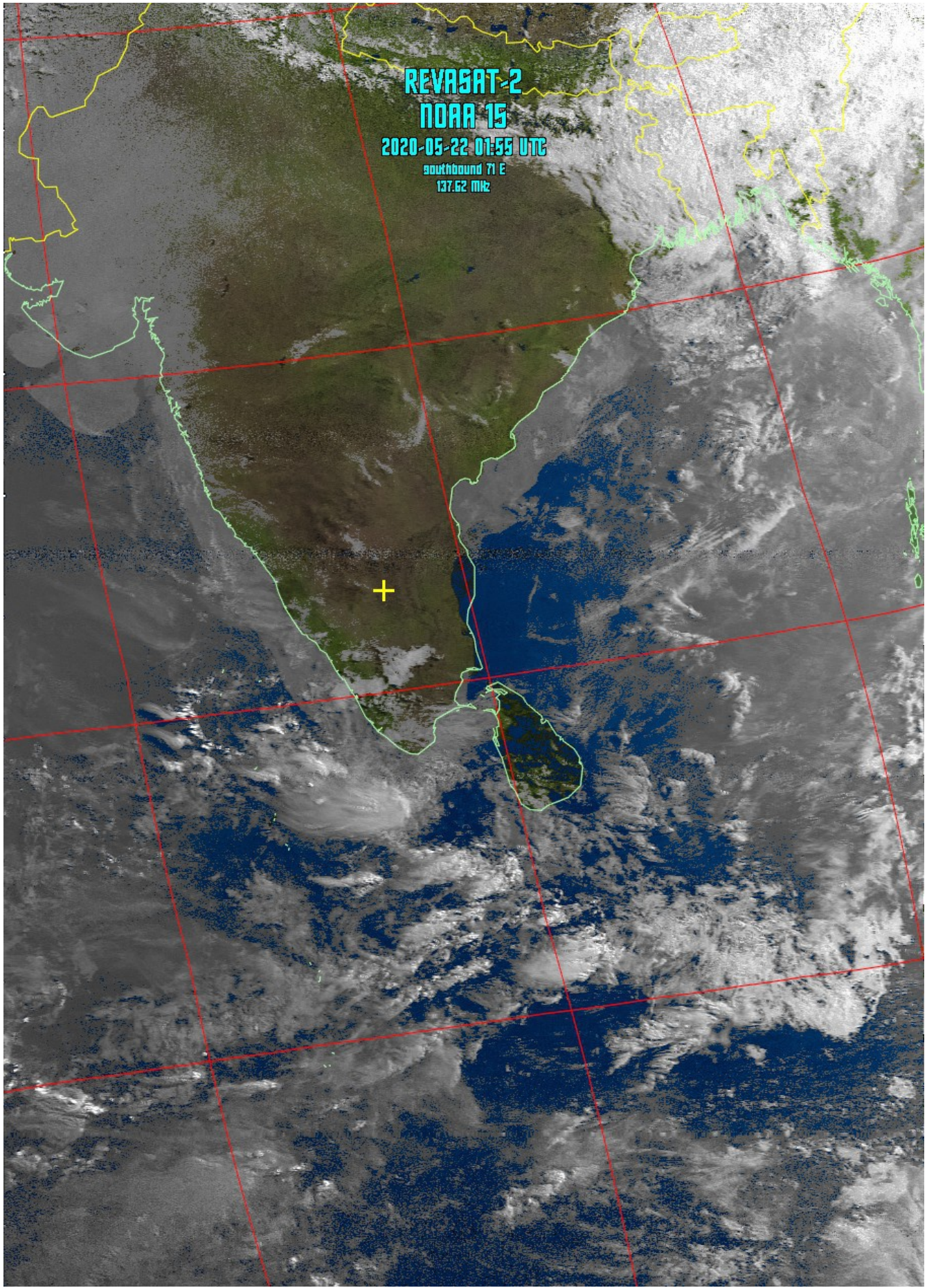


REVASAT-2  
NOAA 15  
2020-05-22 01:55 UTC  
southbound 71 E  
137.62 MHz



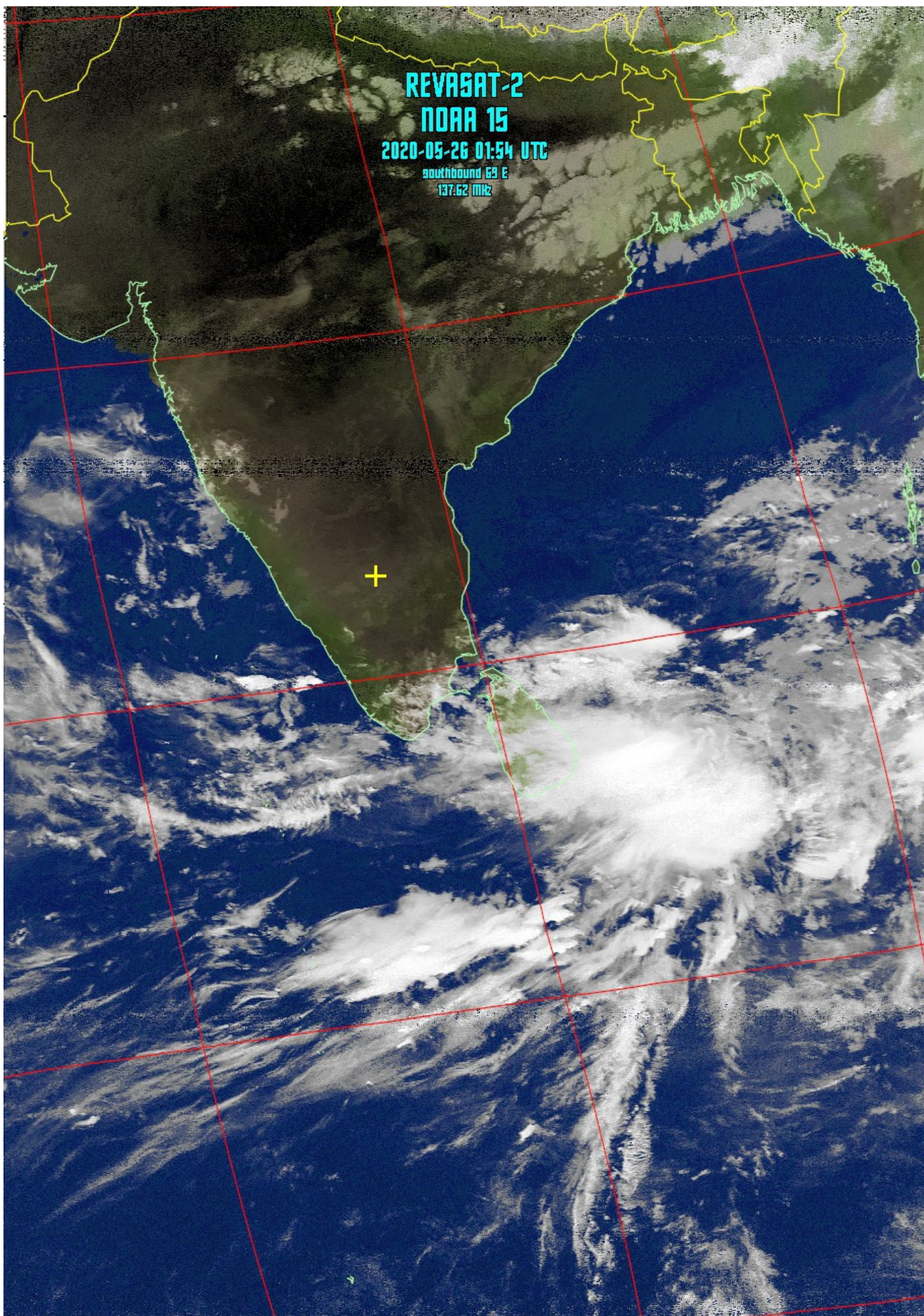


REVASAT-2  
NOAA 15  
2020-05-22 01:55 UTC  
southbound 71 E  
137.62 MHz



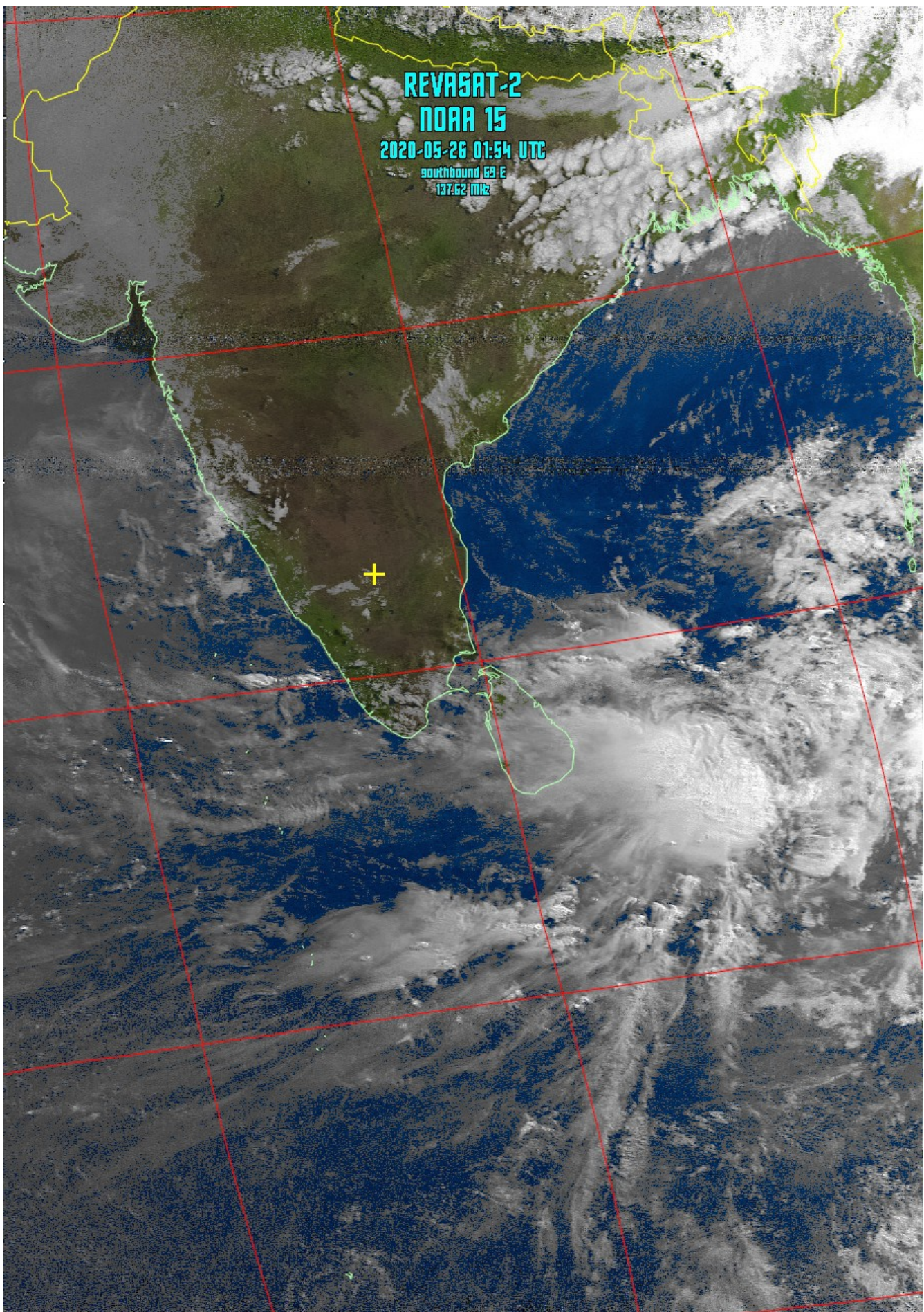


REVSAT-2  
NOAA 15  
2020-05-26 01:54 UTC  
southbound 69 E  
137.62 MHz

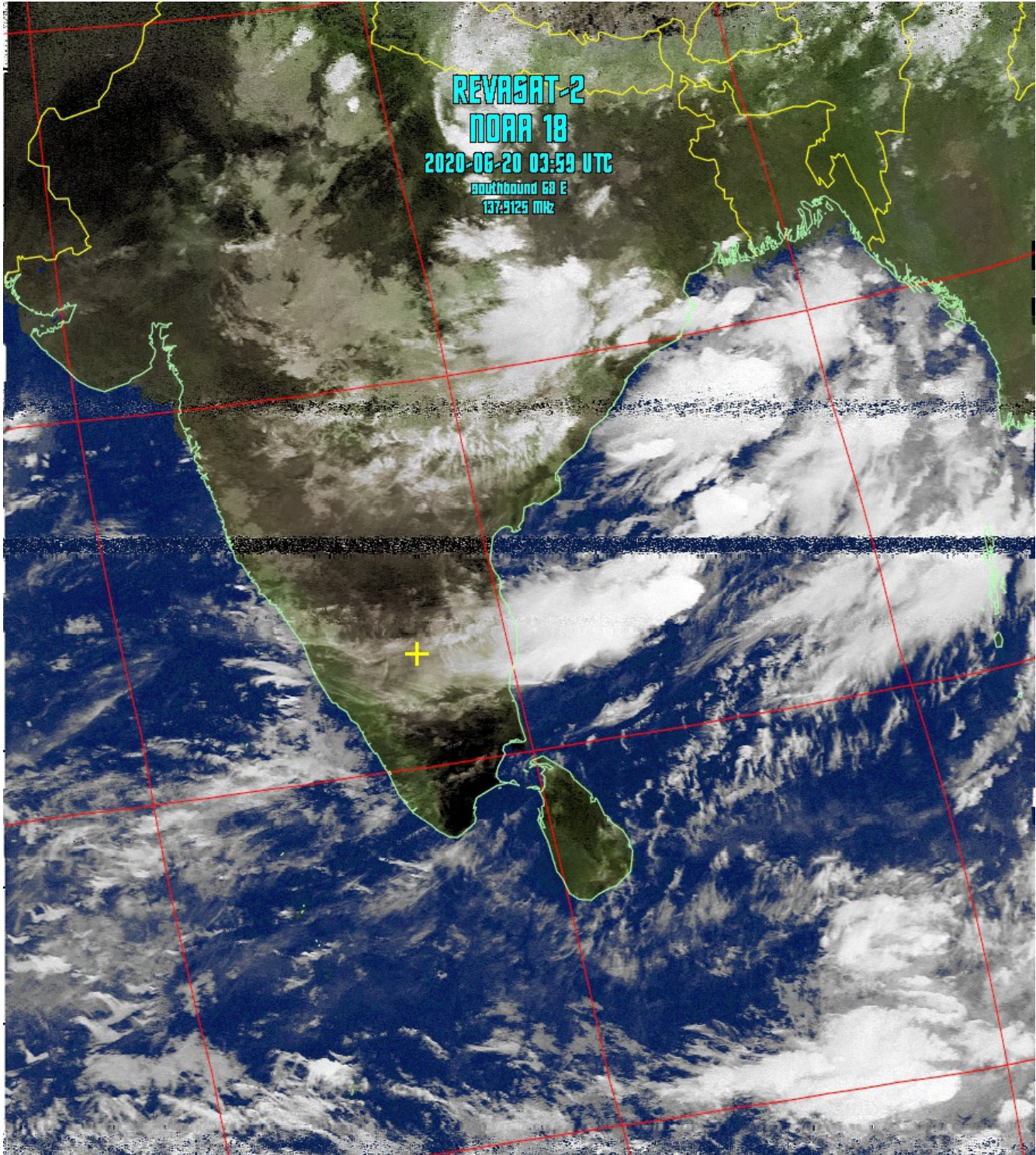




REVASAT-2  
NOAA 15  
2020-05-26 01:54 UTC  
southbound 69 E  
137.62 MHz







REVASAT-2

NOAA 18

2020-06-20 03:59 UTC

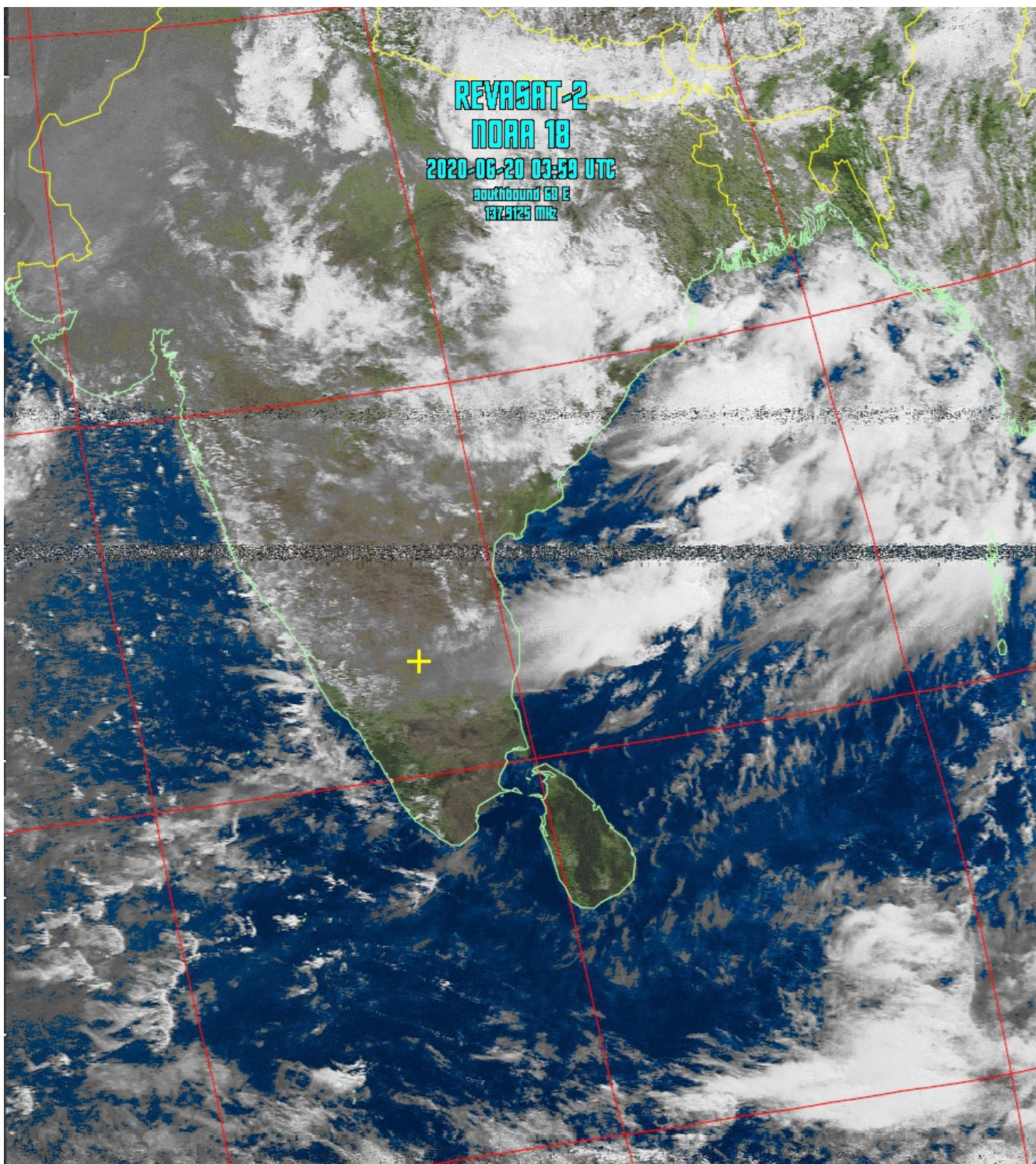
southbound G8 E

137.9125 MHz



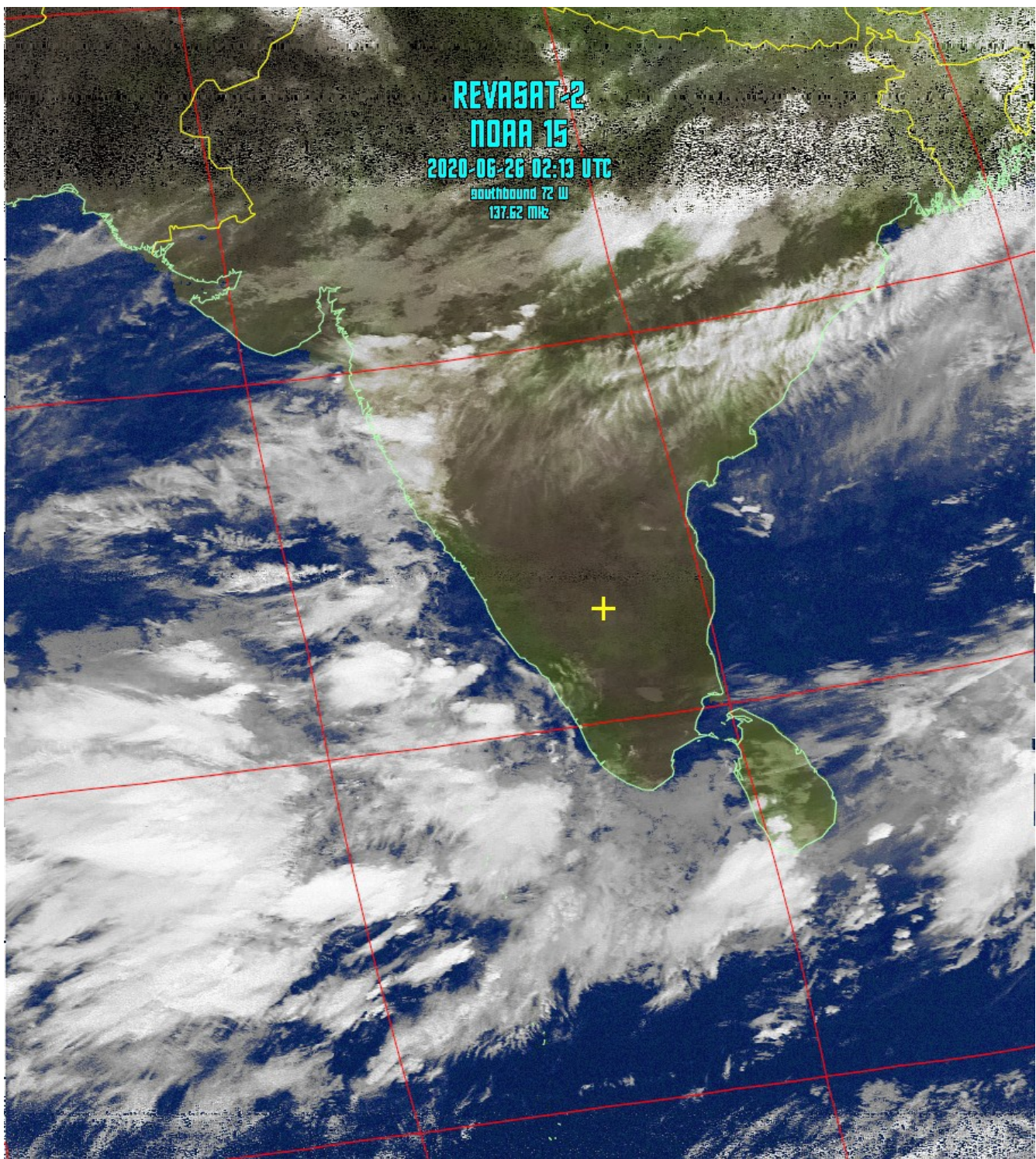


REVSAT-2  
NOAA 18  
2020-06-20 03:59 UTC  
southbound G8 E  
137.9125 MHz



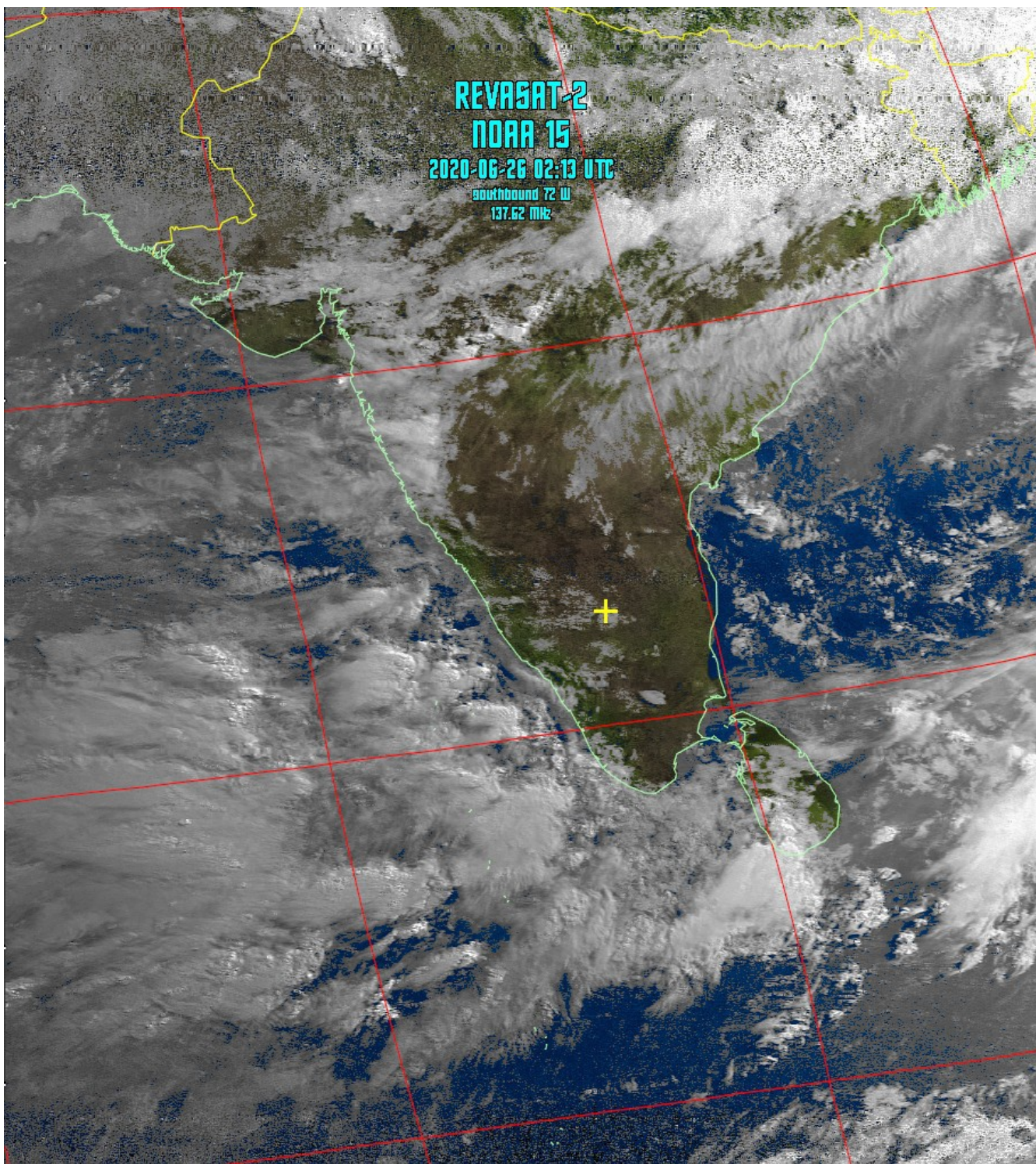


REVASAT-2  
NOAA 15  
2020-06-26 02:13 UTC  
southbound 72 W  
137.62 MHz



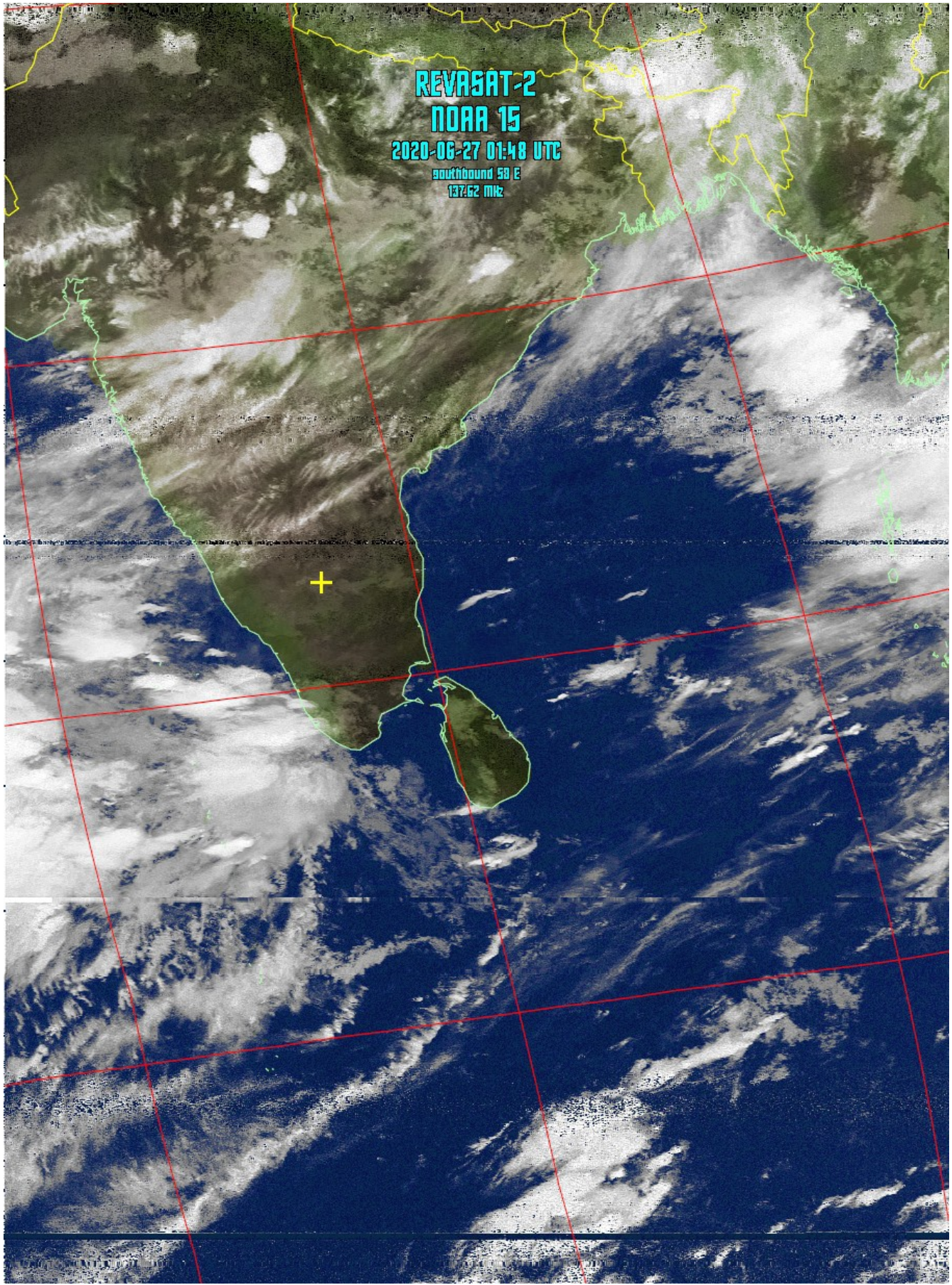


REVASAT-2  
NOAA 15  
2020-06-26 02:13 UTC  
southbound 72 W  
137.62 MHz



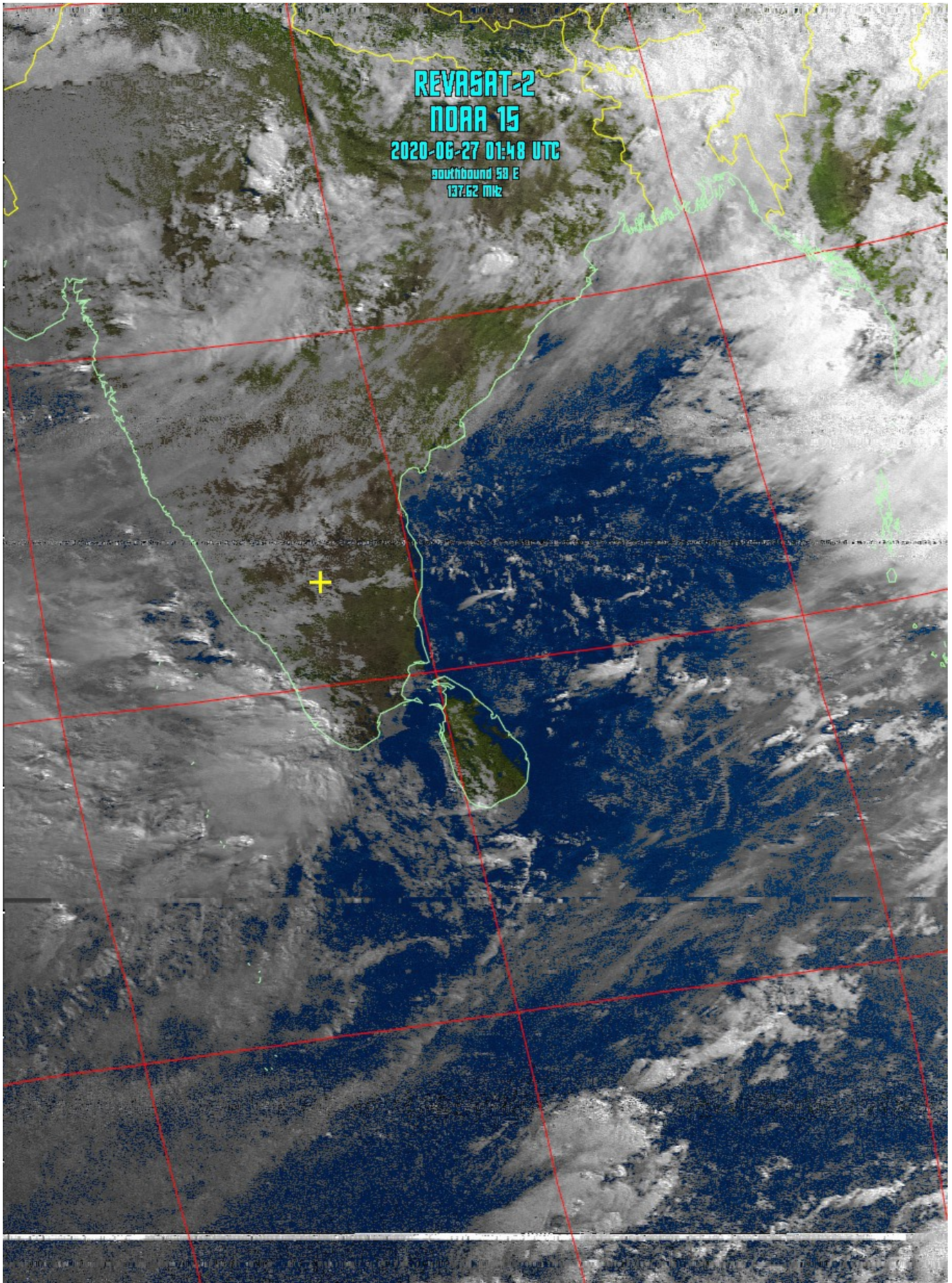


REVASAT-2  
NOAA 15  
2020-06-27 01:48 UTC  
southbound SB E  
137.62 MHz





REVASAT-2  
NOAA 15  
2020-06-27 01:48 UTC  
southbound 58 E  
137.62 MHz





REVASAT-2  
NOAA 15  
2020-08-15 01:52 UTC  
southbound G2 E  
137.62 MHz





REVASAT-2  
NOAA 15  
2020-06-15 01:52 UTC  
southbound G2 E  
137.62 MHz

