

NWC SAF User's Workshop 2025

Use of weather tools to analyze weather case studies CASE STUDY

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Tools that are aids to case studies

- Looking at the kind of weather that had affected a specific area, specific tools can be used to arrive at how the weather evolved
- Use satellite images such as the Airmass RGB which could show the type of air mass that could have influenced the weather pattern for a particular even
- NWCSAF products like the Adaguc Viewer becomes a very important tool to give a narrative of what could have been expected, you use features such as Convective Initiation, Precipitation likelihood, Convective rainfall rate
- In an event that a storm had ravaged a given area, you would at satellite channels like: Convection RGB that would guide as to how a development could have occurred.

Tools that are aids to case studies Cont'd

- Cloud phase and cloud type
- Observation and historical data quite essential
- Precipitation likelihood, Convective rainfall rate
- In an event that a storm had ravaged a given area, you would at satellite channels like: Convection RGB that would guide as to how a development could have occurred.

Example of a case study of flooding in Mpulungu district in Zambia

- The event I would talk about is a flooding that occurred in Mpulungu district in the Northern Province of Zambia
- The district lies in the Northern province of the Country and on the shores of Lake Tanganyika.
- The Country was affected by the effect of El Nino during the 2023/2024 season.
- Mpulungu district received a seasonal record high rainfall **2025.9mm** during the 2023/2024 rainy season
- In the month of January 2024, rainfall amount of **525.1mm** was recorded

Example of a case study of flooding in Mpulungu district in Zambia Cont'd

- One notable event was the amount of 24 hour rainfall of **107.1mm** that was recorded on **21st January 2024**
- Mpulungu has a mountainous terrain and rain that fall has a funneling effect. Rain falls on highland usually collects on low land creating a flooding effect and also drains water into Lake Tanganyika.
- Social impacts included flooding

Example of a case study of flooding in Mpulungu district in Zambia Cont'd

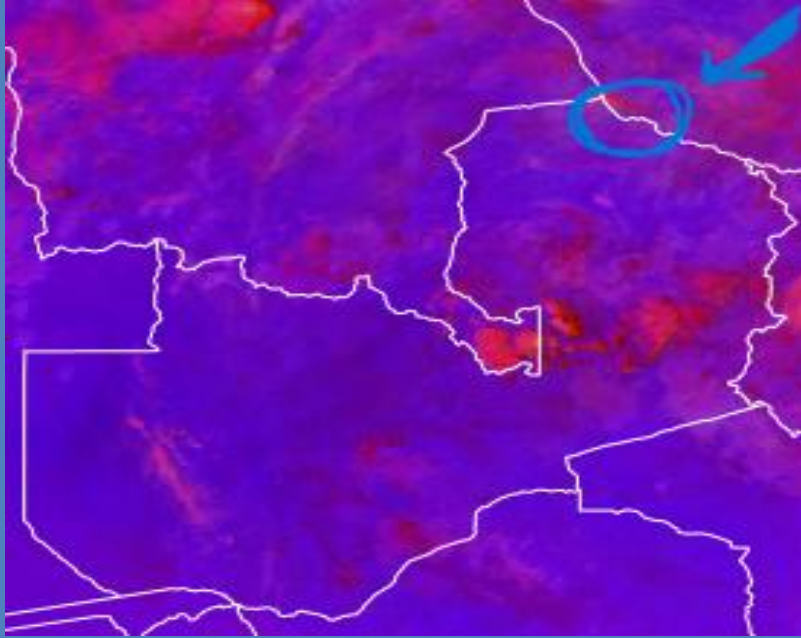
- Area of land claimed by the lake was a distance of 30meters.
- Some buildings were submerged
- Other buildings crumbled down

Data Collection

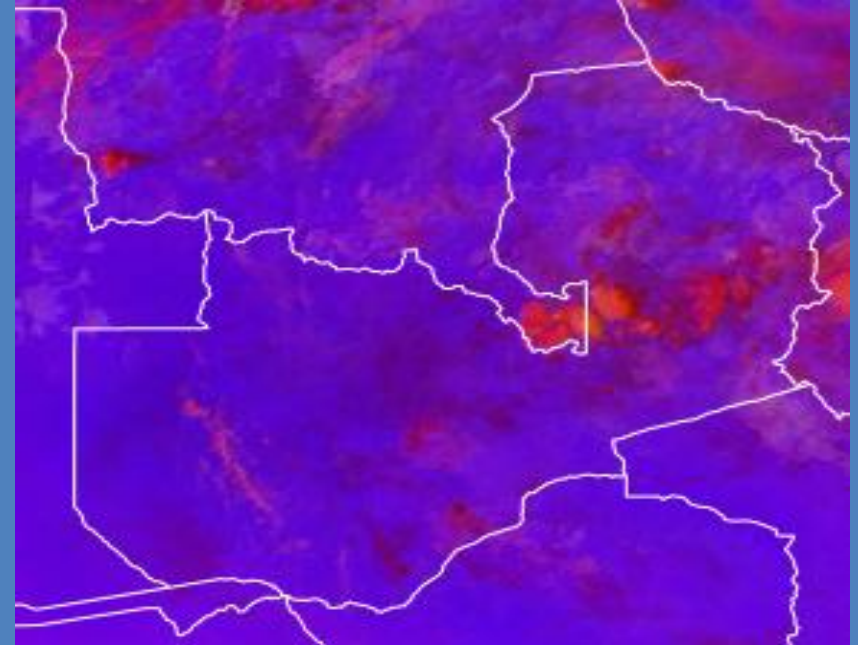
- Data source for analyzing an event leading to the high rainfall fell on 21st January was the satellite images mainly the convection RGB and the Rapid Developing Thunderstorms
- Other data sources for precipitation is from the meteorological rainfall register for the district

Satellite information

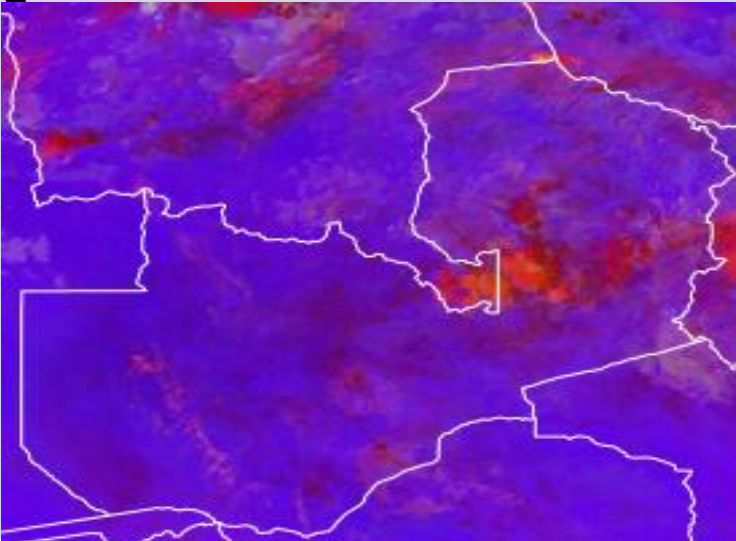
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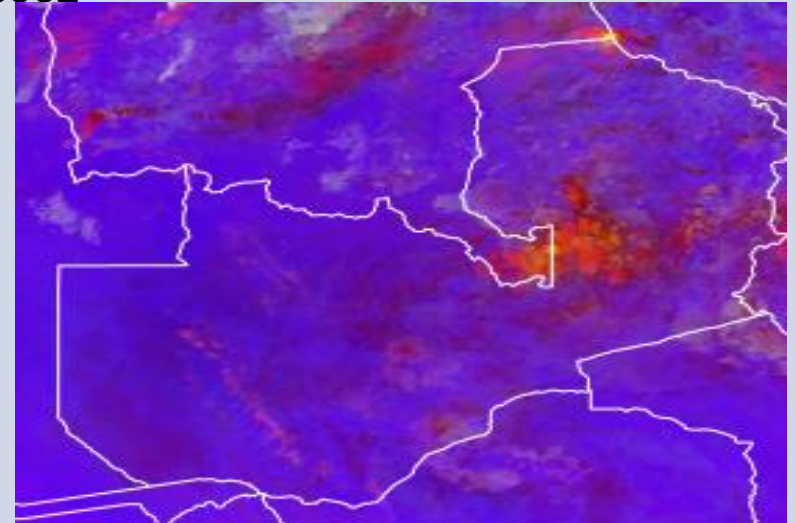
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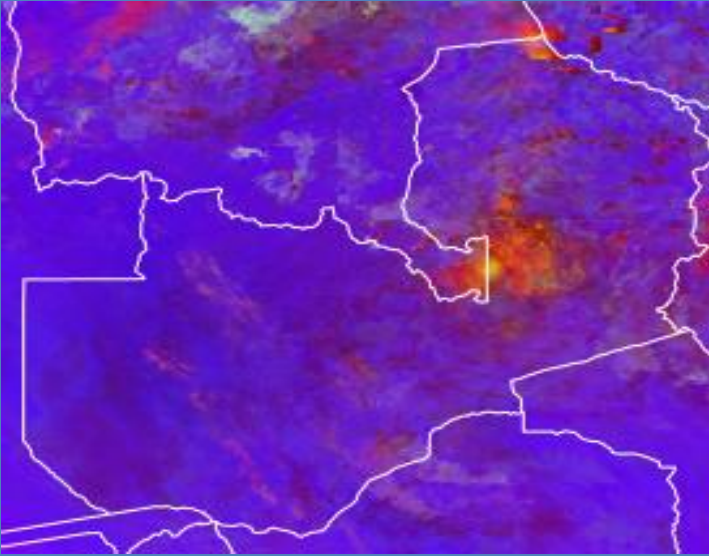


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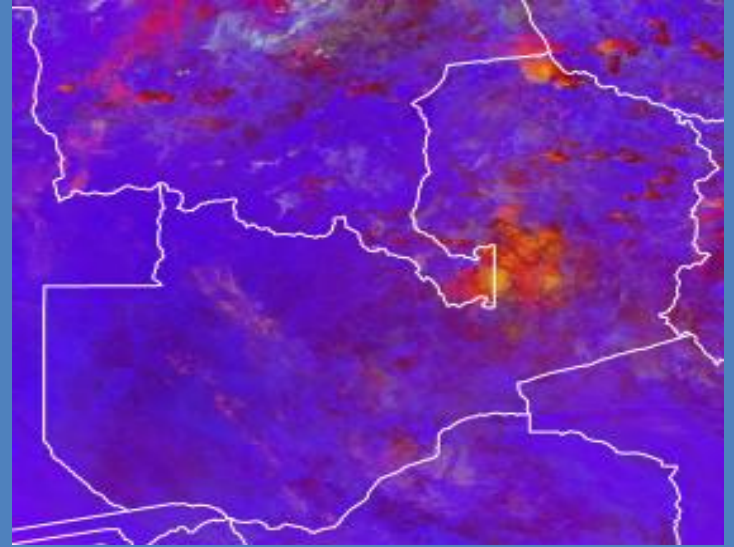


Satellite Information Cont'd

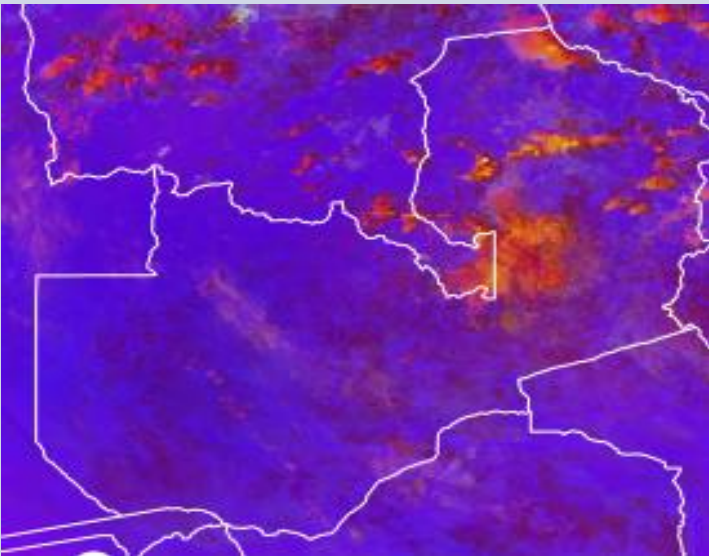
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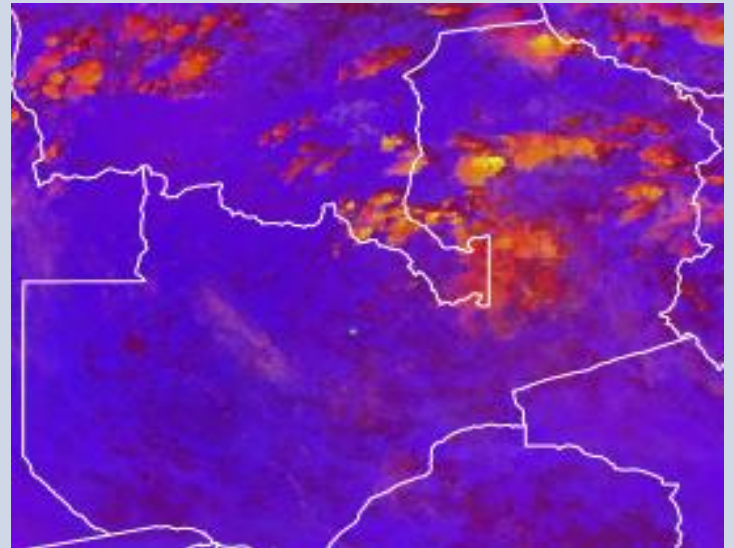
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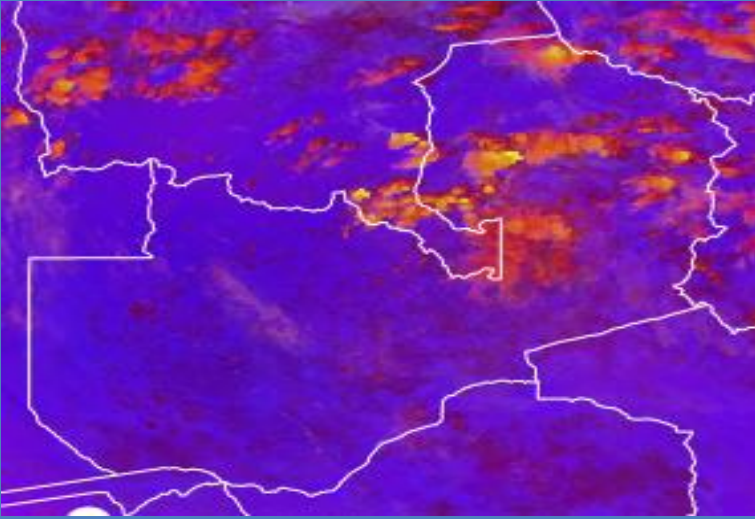


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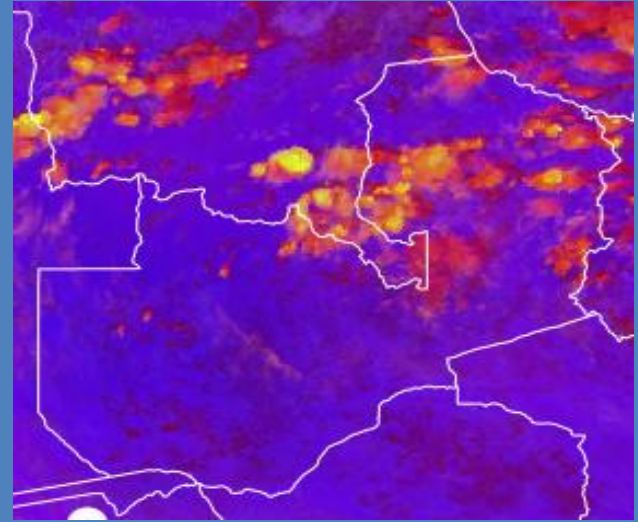


Satellite Information Cont'd

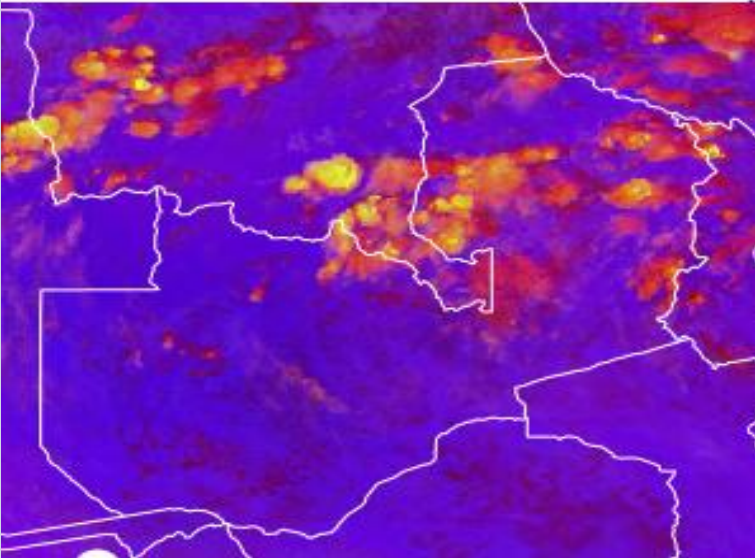
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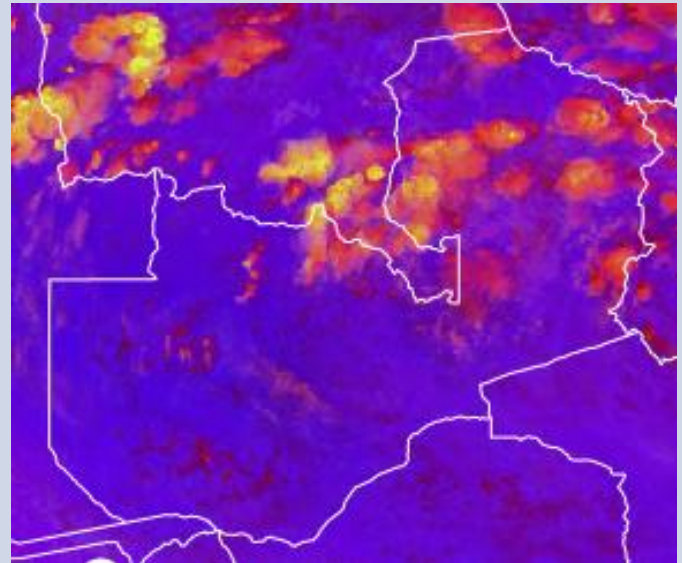
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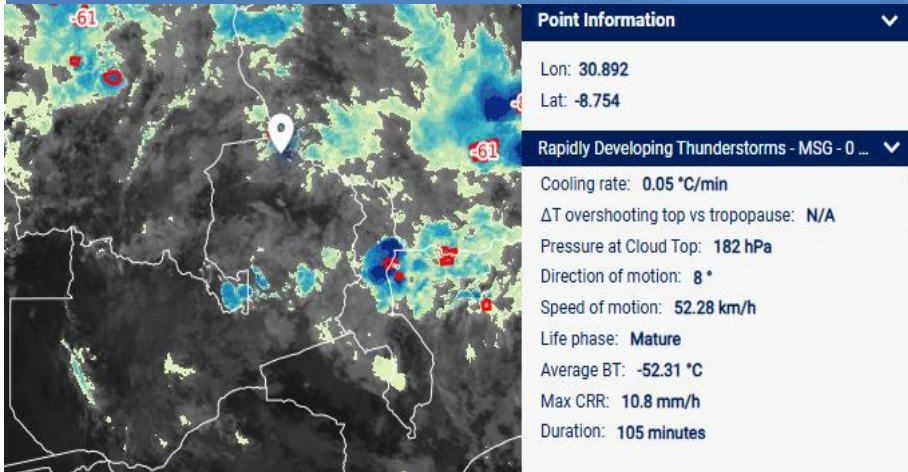


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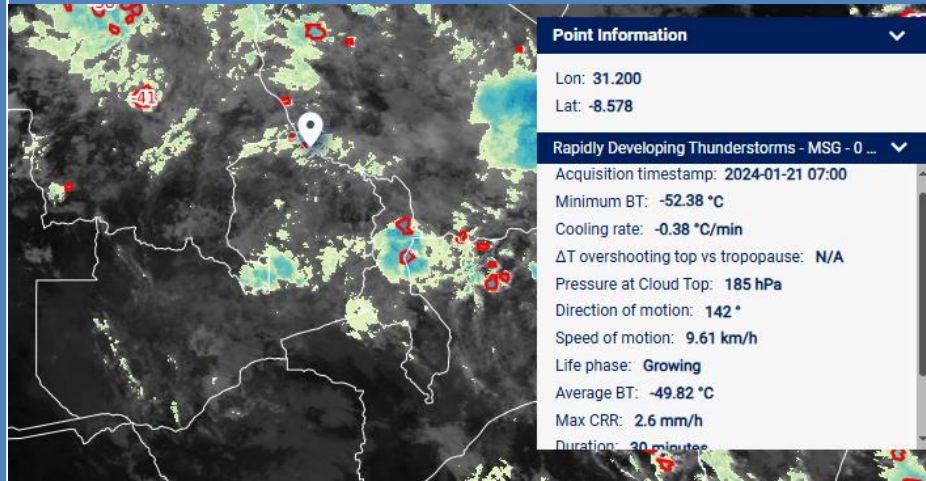


RDT Satellite Information

21 Jan 0500Z



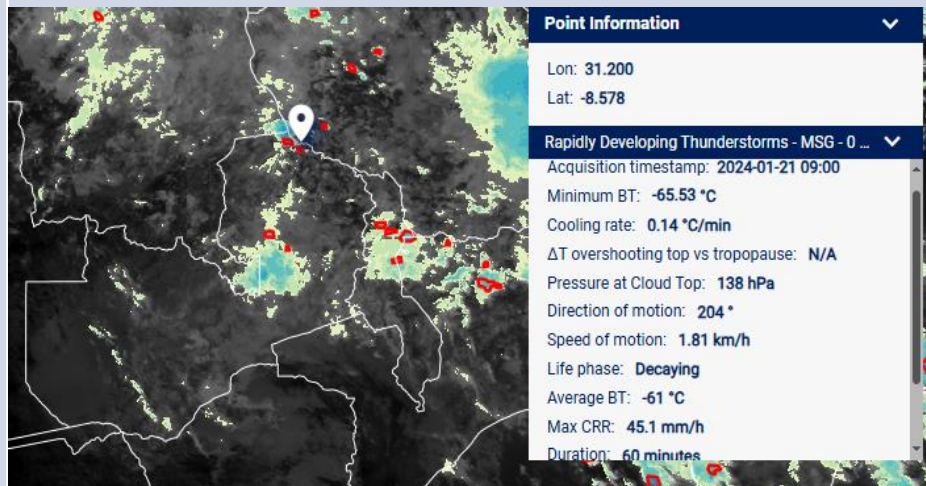
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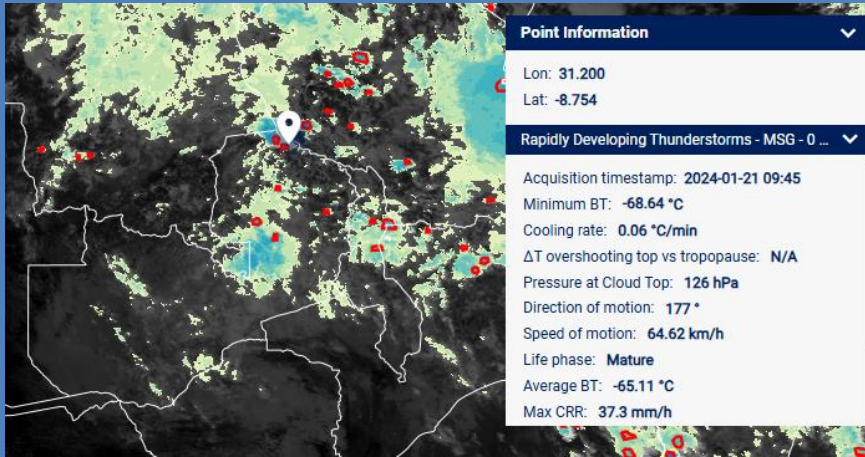


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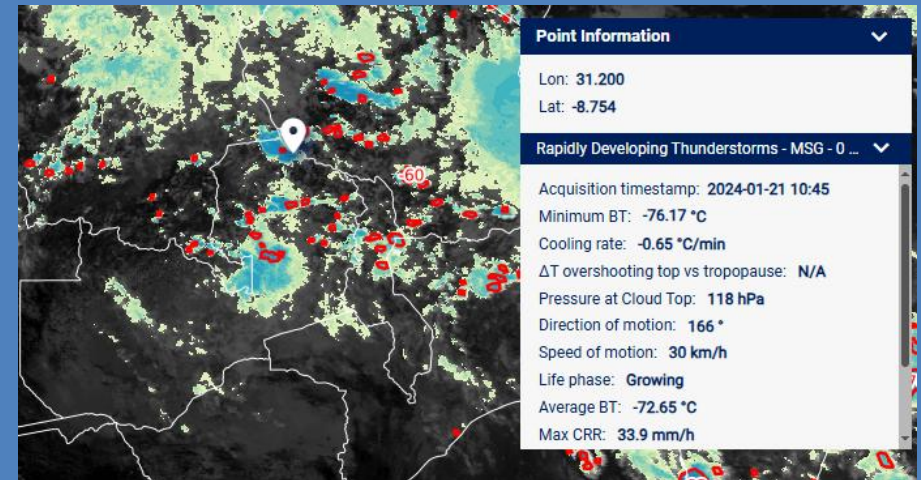


RDT Satellite Information Cont'd

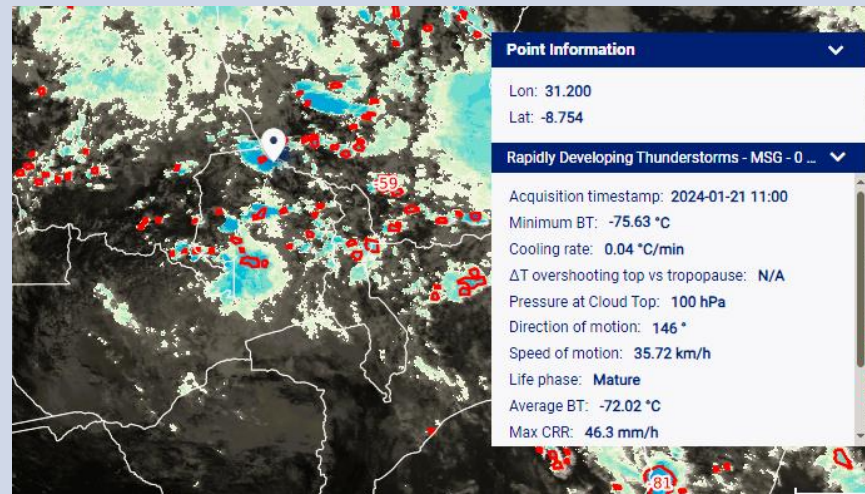
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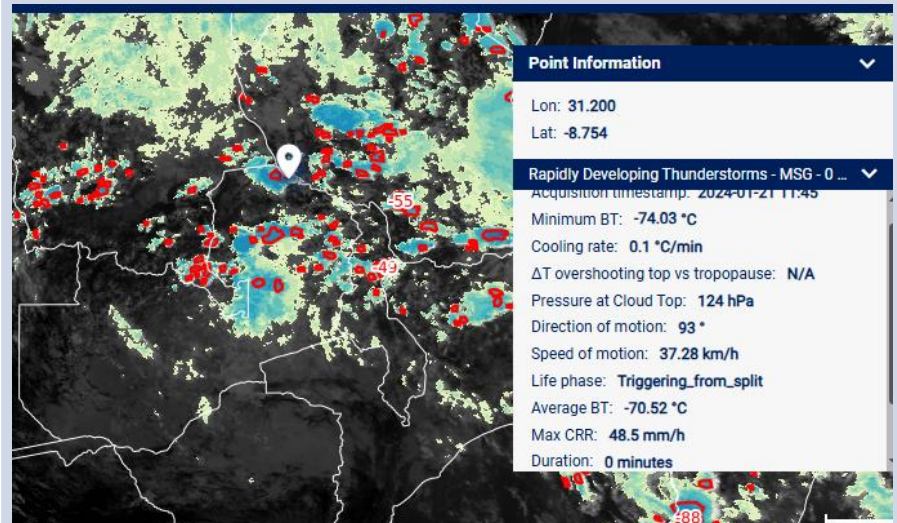
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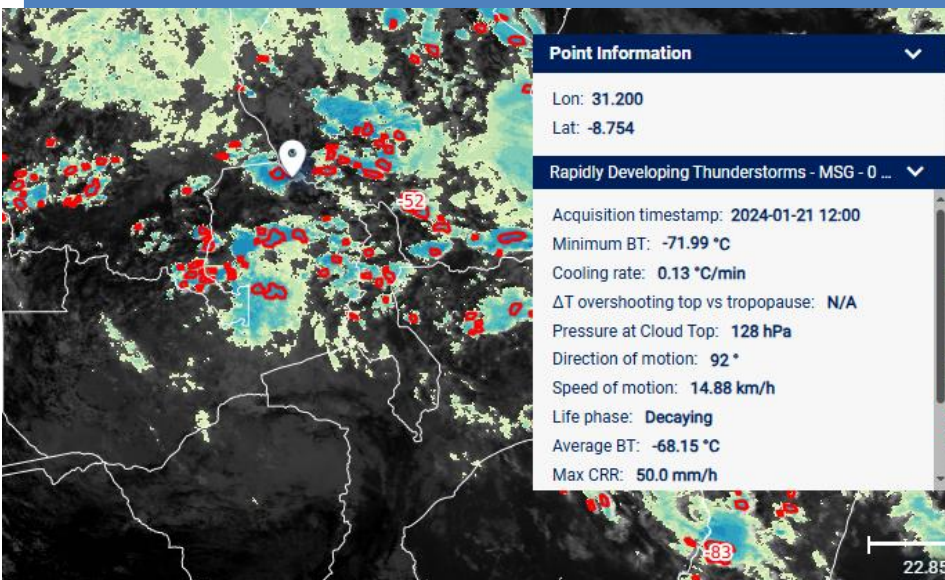


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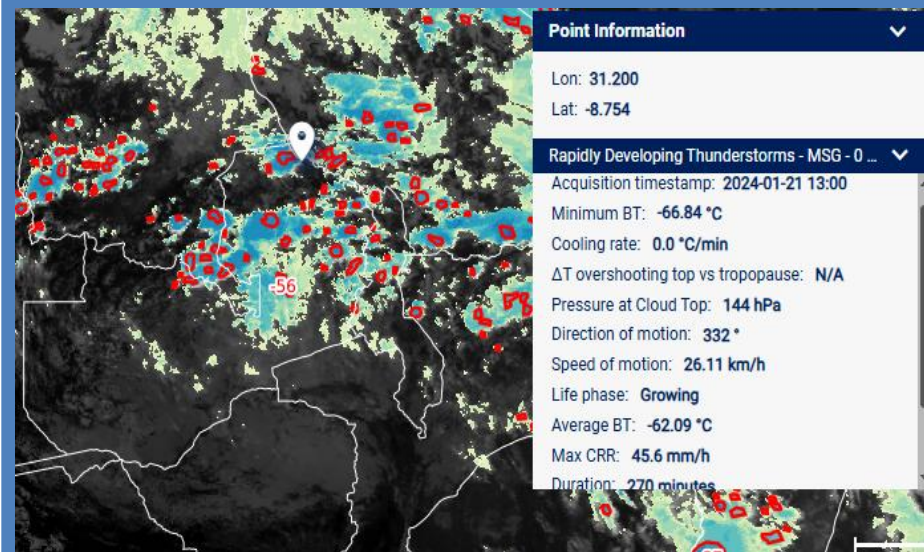


RDT Satellite Information Cont'd

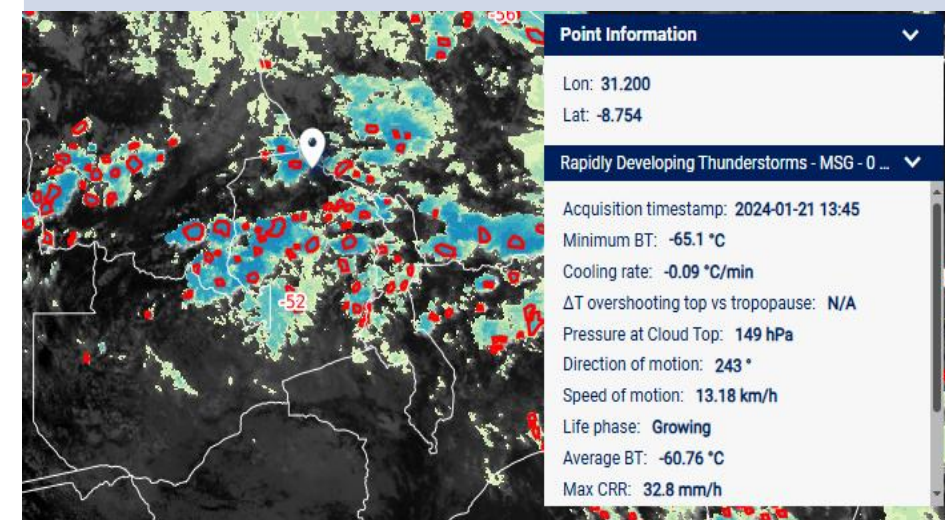
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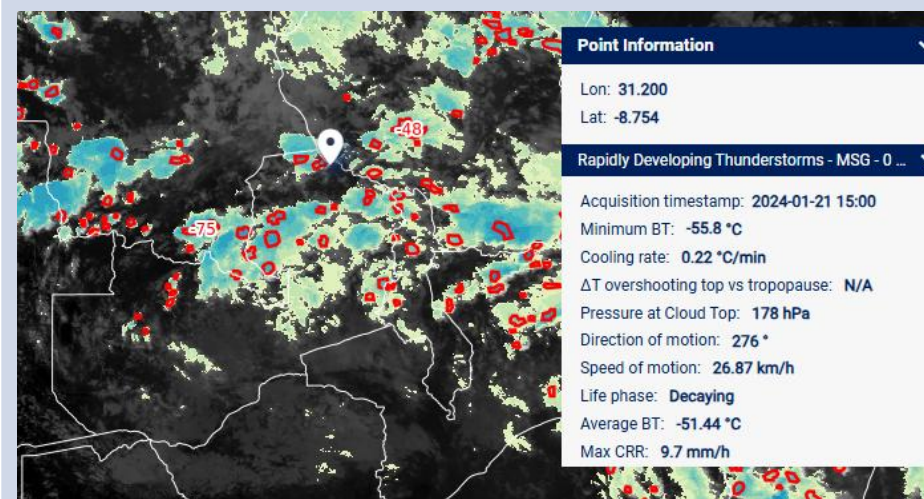
1300Z



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Flooded areas

Pendulum Transport Company



Great Lake Lodge



Village hoses



Flooded areas



Conclusion

- NWC SAF products are essential to use when doing case studies
- Satellite images are essential when tracking the development of a weather even that occurred
- The 2023/2024 season recorded the record high amount of rainfall for the district of Mpulungu
- Most precipitation in the district occur following a convective development
- This fall triggered flooding on some places as some significant falls had occurred prior to that date
- The funneling effect of the terrain of the district contributed to flooding of in some villages
- Rise in water level over Lake Tanganyika

END OF PRESENTATION

THANKS FOR YOUR ATTENTION