



Combining Nowcasting products, NWP output and Satellite imageries to Monitor and forecast weather for Public and Aviation.



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Introduction

The lack of observational data and the sparsity of synoptic stations across West Africa have significantly affected weather monitoring and forecasting. Fortunately, satellite imageries, Nowcasting and Numerical Weather products plays a crucial role in filling this gap by providing valuable information to monitor and improve weather forecasting. This paper will investigate methods for effectively combining these data sources, including intra-seasonal products and parameters. The resulting integrated system will be valuable in improving techniques and methods for weather monitoring and forecasting in West Africa.

Materials and Methods

Tools Used

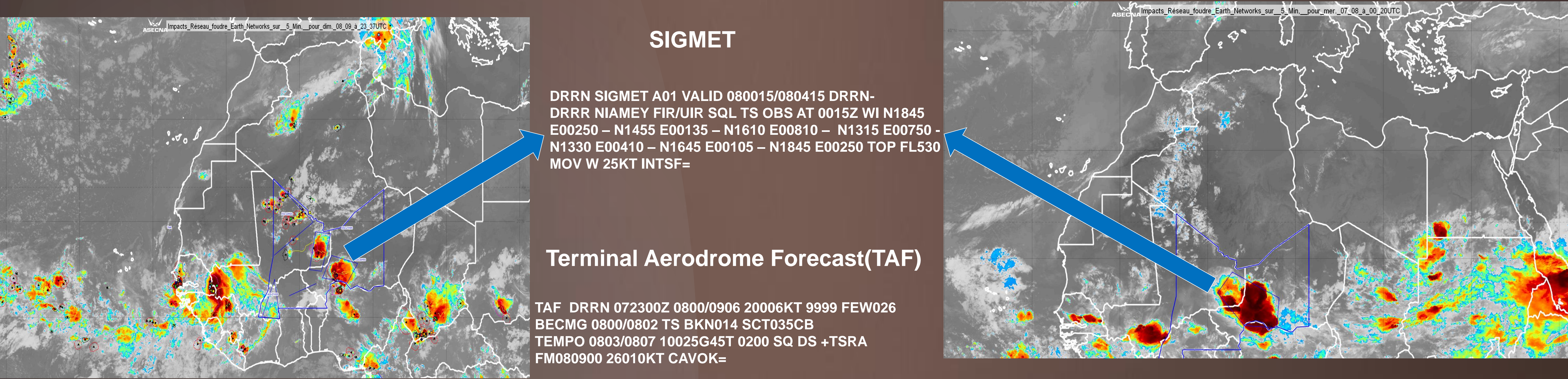
- NWP Products used are : -Mean Sea Pressure Level; Winds, Pressure Tendancy ect....
- Satellites Imageries such as : IR 3.9; IR 10.8, H-24 Dust Microphysics RGB 10-9,9-7,9, ect.....
- Nowcasting products are: Lightning , RDT, Turbulence, Icing, Radiosonding ect

Factors Governing the Mechanisms Dust and Convection

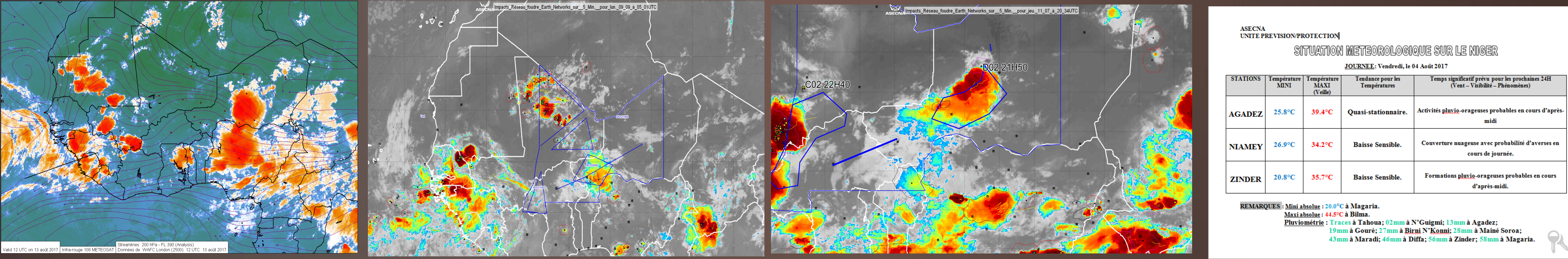
- Climate.
- Surface roughness : Vegetative Cover and Erosivity.
- Land use practice.
- Surface and low level wind acceleration.
- Vortices.
- Waves.
- JET(AEJ-TEJ-STJ ect.....)
- Monsoon Depth.

Results and discussion

Use of Nowcasting Products and Satellite imageries to issue Aeronautical Warning Messages



Combination of Nowcasting Products, Satellite image and NWP out put to issue weather forecast for public



Infra-Red 10.8 &Streamlines

Nowcasting Products and & Satellite imageries

Public Forecast Bulletin

Conclusion

Nowcasting products with its combination of Satellite imagery and NWP out put plays a critical role in detecting, monitoring, and forecasting weather over West Africa. It provides crucial information that optimizes planning and is invaluable to our communities, decision-makers, and stakeholders. The upcoming Meteosat Third Generation (MTG) is expected to further enhance weather forecasting capabilities in West Africa thanks to its advanced products.