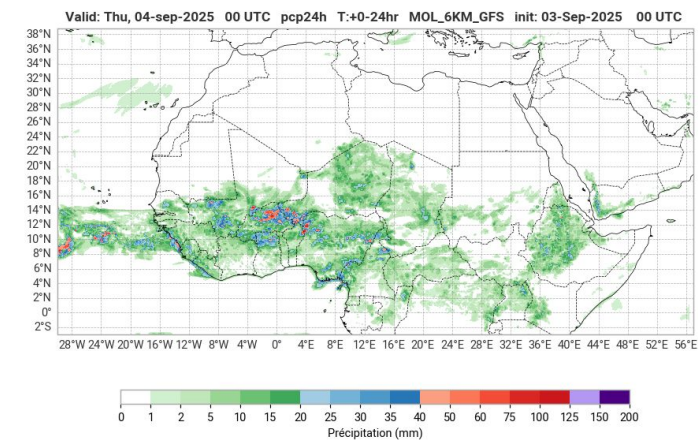
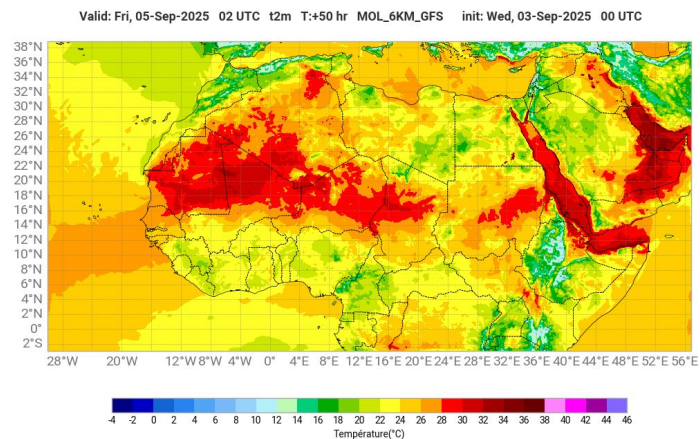




MOLOCH AFRIQUE

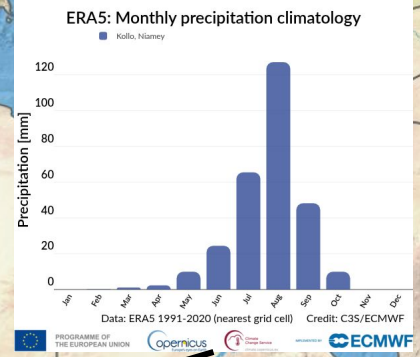
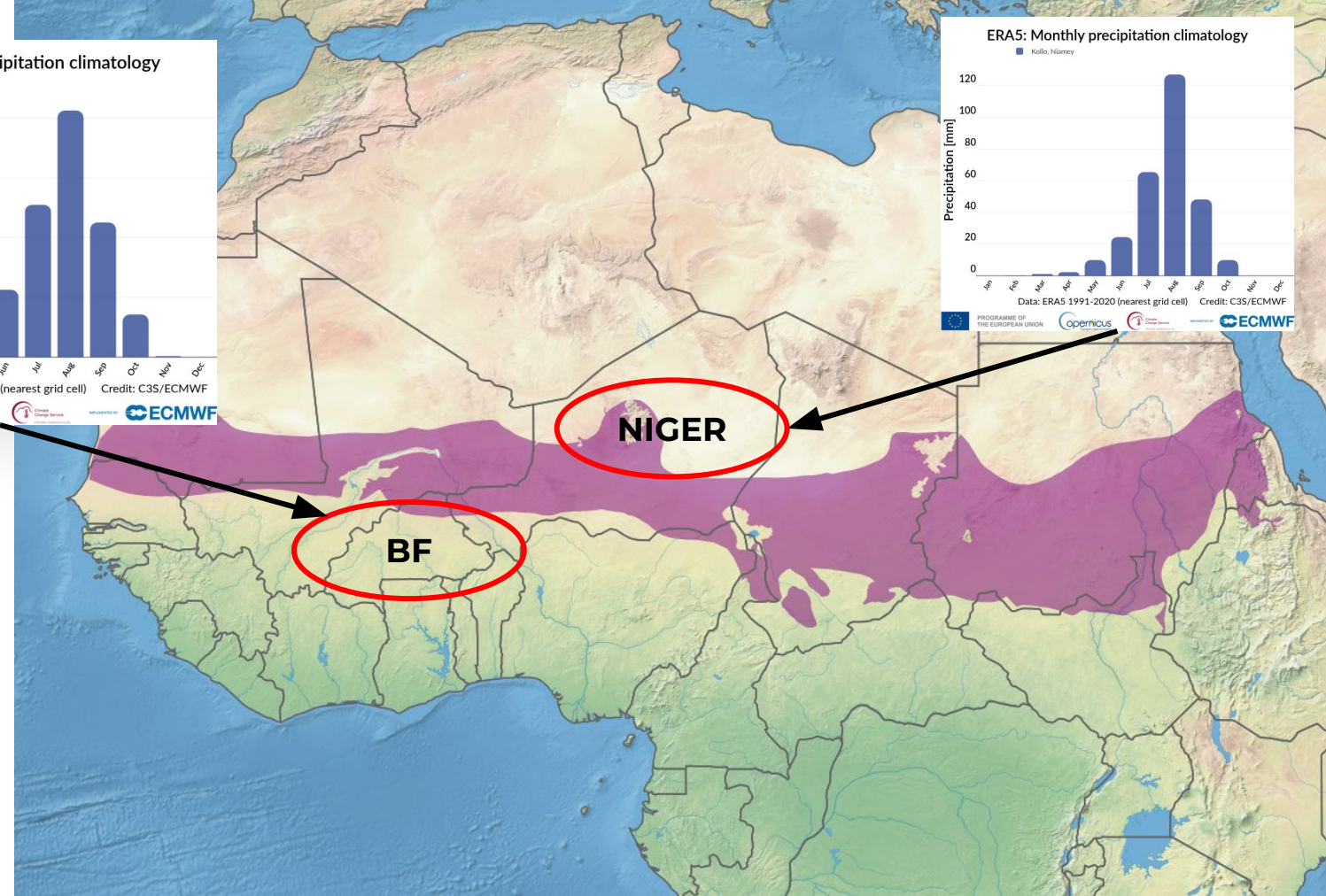
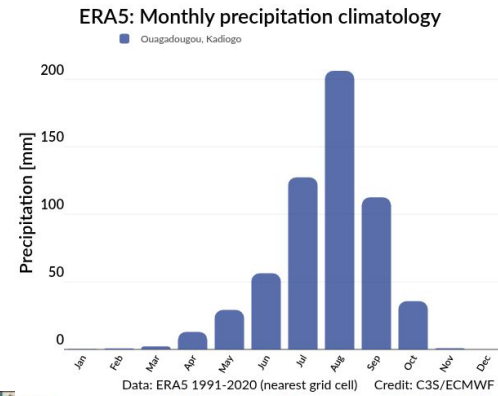
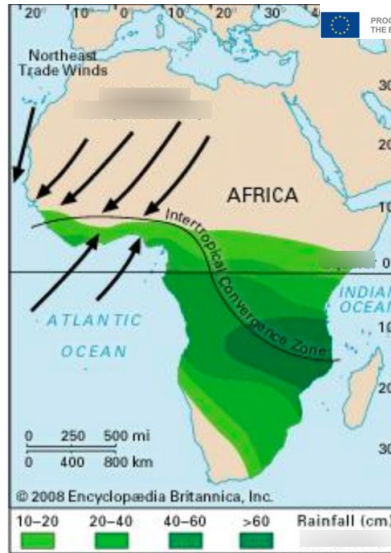
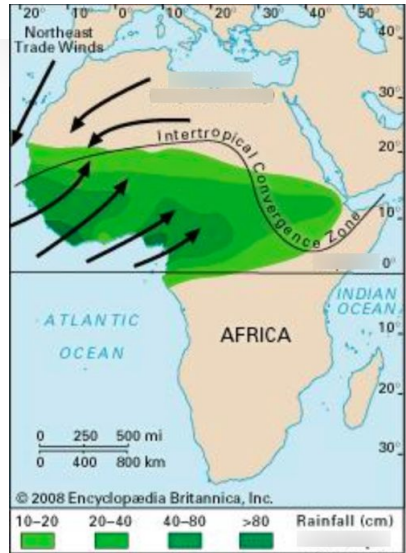
Francesco Pasi - Consorzio LaMMA / CNR



Regione Toscana



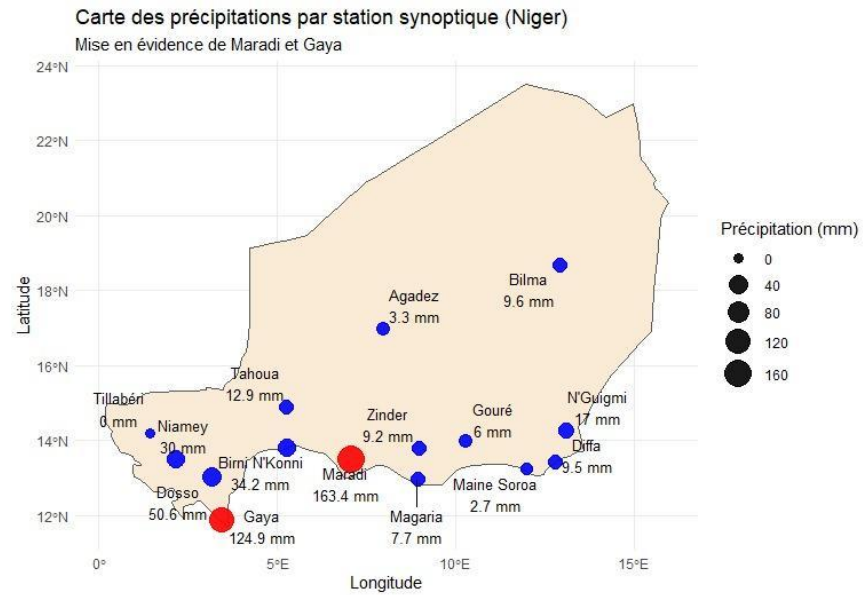
Intro

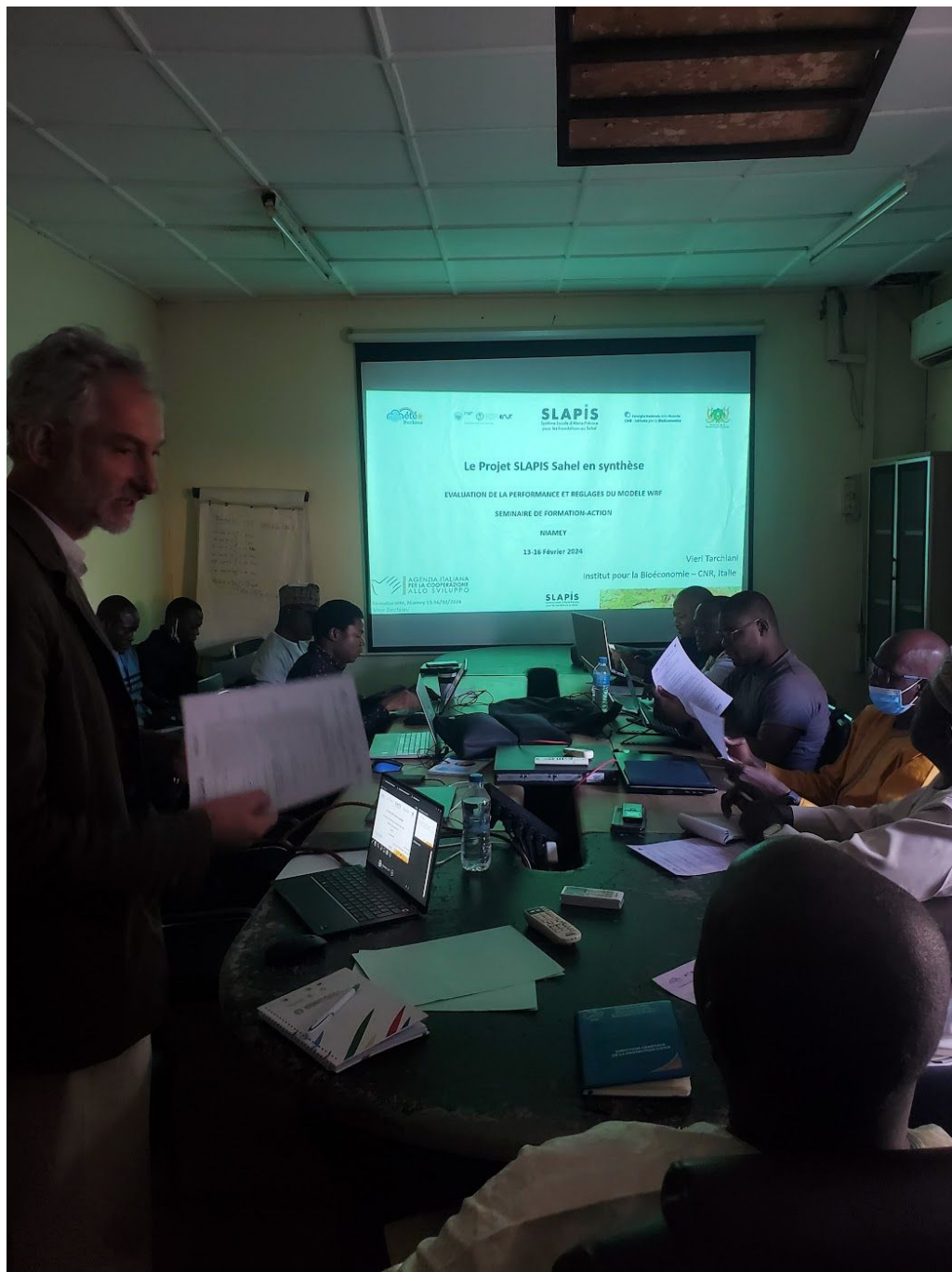


- DMN (Direction de la Météorologie Nationale) - Niger
- ANAM (Agence Nationale de la Météorologie) - Burkina Faso



30 August 2024



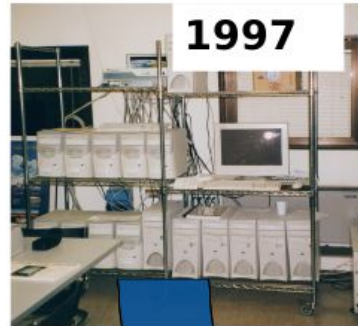


LAMMA COMPUTING RESOURCES

Settore Modellistica



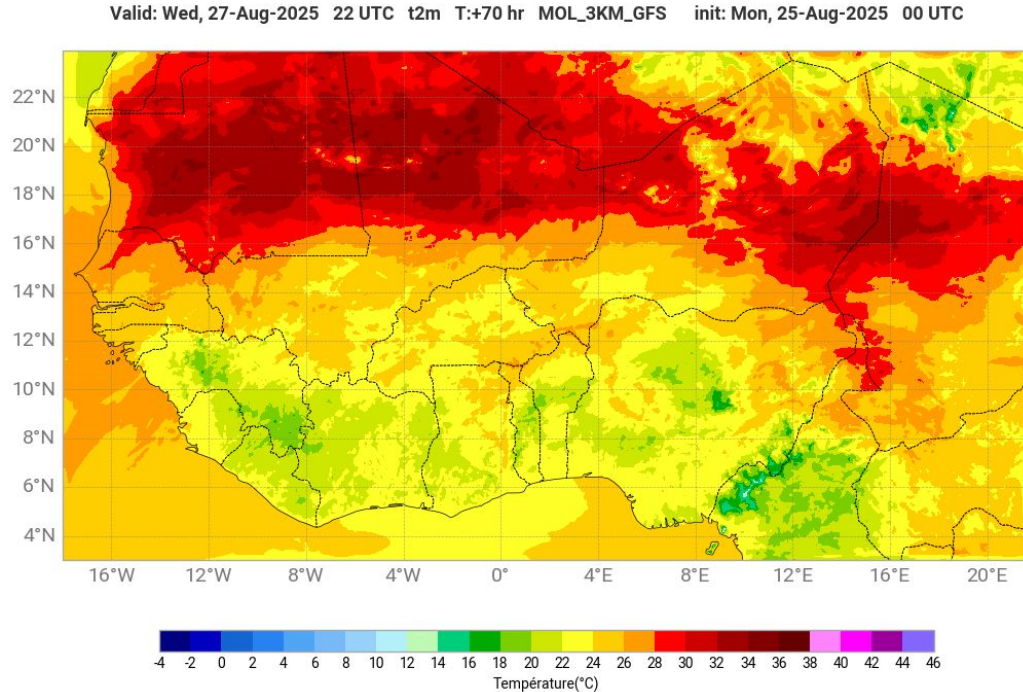
Evoluzione del Cluster di calcolo



- Aumento della potenza di calcolo
- Riduzione dei costi operativi
- Sensibile risparmio energetico

from 1997 to 2020

MOLOCH 3 km



2 RUN / daily
00/12z

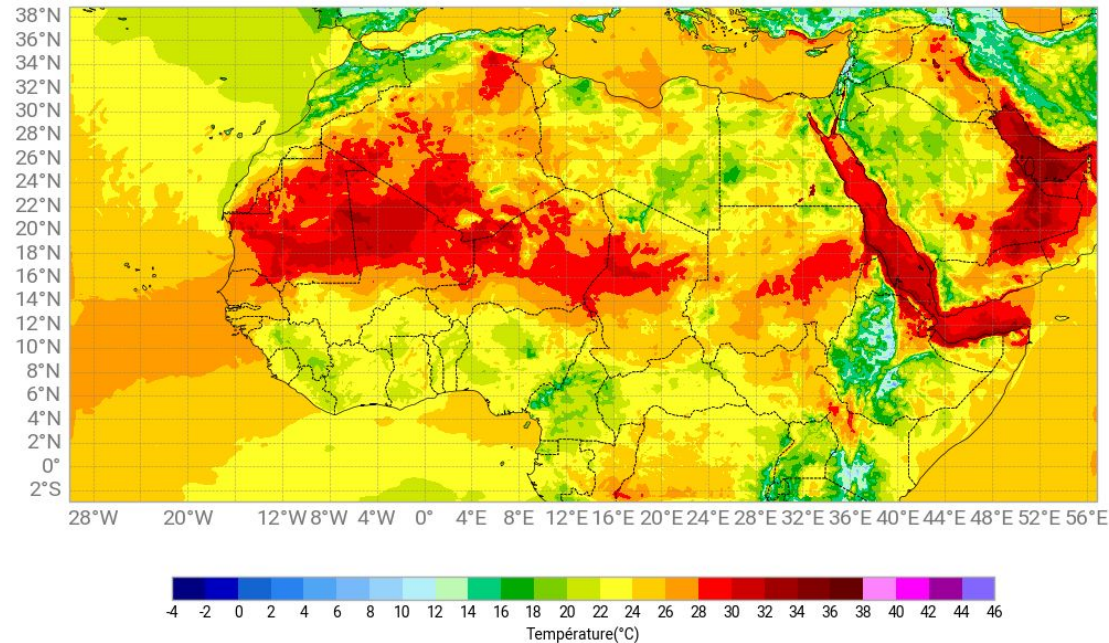
72 hr
(3 days)

LATITUDE : 3 N / 24 N

LONGITUDE: -18 west / 24 east

MOLOCH 6 km

Valid: Fri, 05-Sep-2025 02 UTC t2m T:+50 hr MOL_6KM_GFS init: Wed, 03-Sep-2025 00 UTC



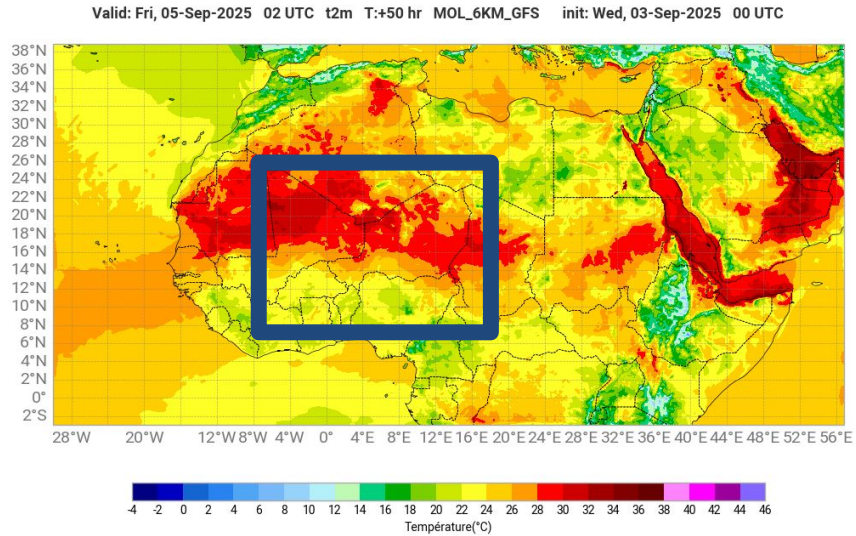
2 RUN / daily
00/12z

72 hr
(3 days)

LATITUDE : -2 S / 38 N

LONGITUDE: -30 west / 58 east

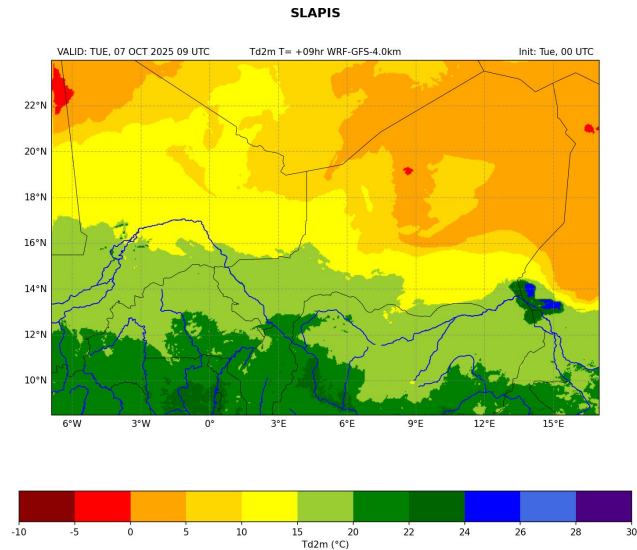
MOLOCH vs WRF



LATITUDE : -2 / 38
LONGITUDE: -30 / 58

364 x 283

24 hr = 15 minutes



LATITUDE : 8 / 24
LONGITUDE: 6 / 16

598 x 388

24 hr = 40 minutes

INITIAL DATA

 **ECMWF** | 50

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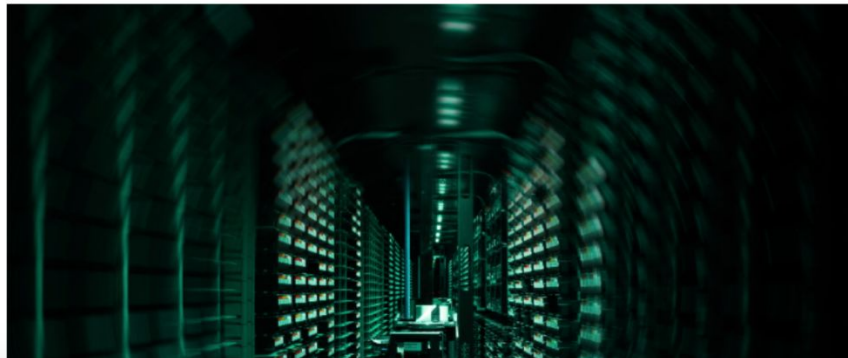
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ECMWF makes its entire Real-time Catalogue open to all

1 October 2025



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Key facts and figures

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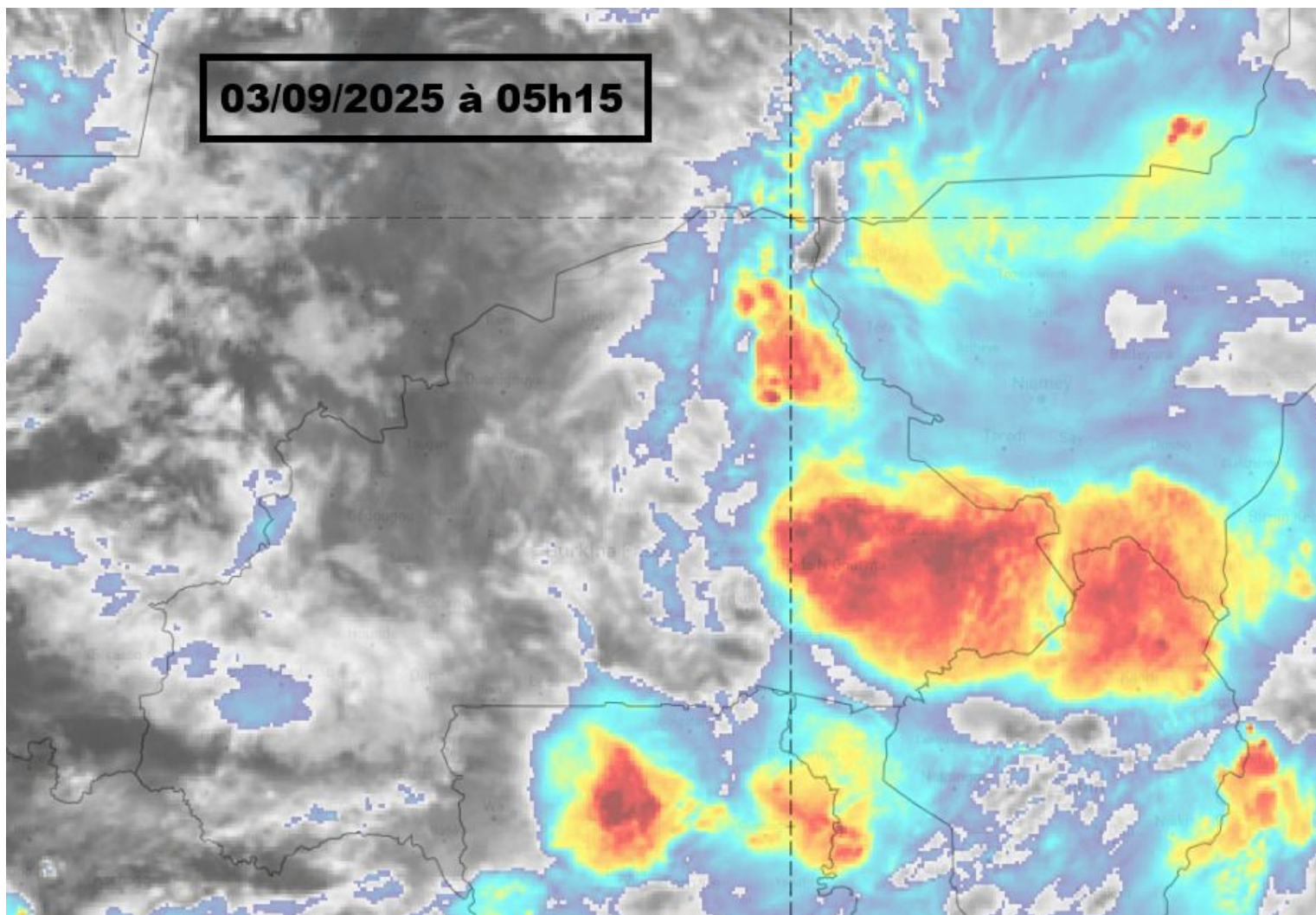
ECMWF

GFS

open data

STUDY CASE 3 SEP 2025

03/09/2025 à 05h15



République du Niger
Ministère des transports
Et de l'Aviation Civile

septembre 2025

lu	m	je	ve	sa	di
1	2	3	4	5	6
8	9	10	11	12	13
15	16	17	18	19	20
22	23	24	25	26	27
29	30				

ADRESSE:

BP: 218, 08 Rue du Grand Hôtel
Niamey, Niger
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Web: www.meteo-niger.org
Facebook: Média Météo Niger
@Nigermeteo

Direction de la Météorologie Nationale (DMN)

Bulletin météo spécial

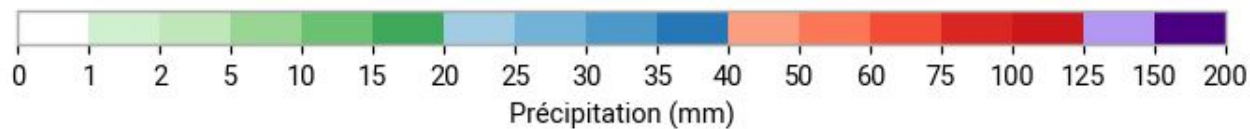
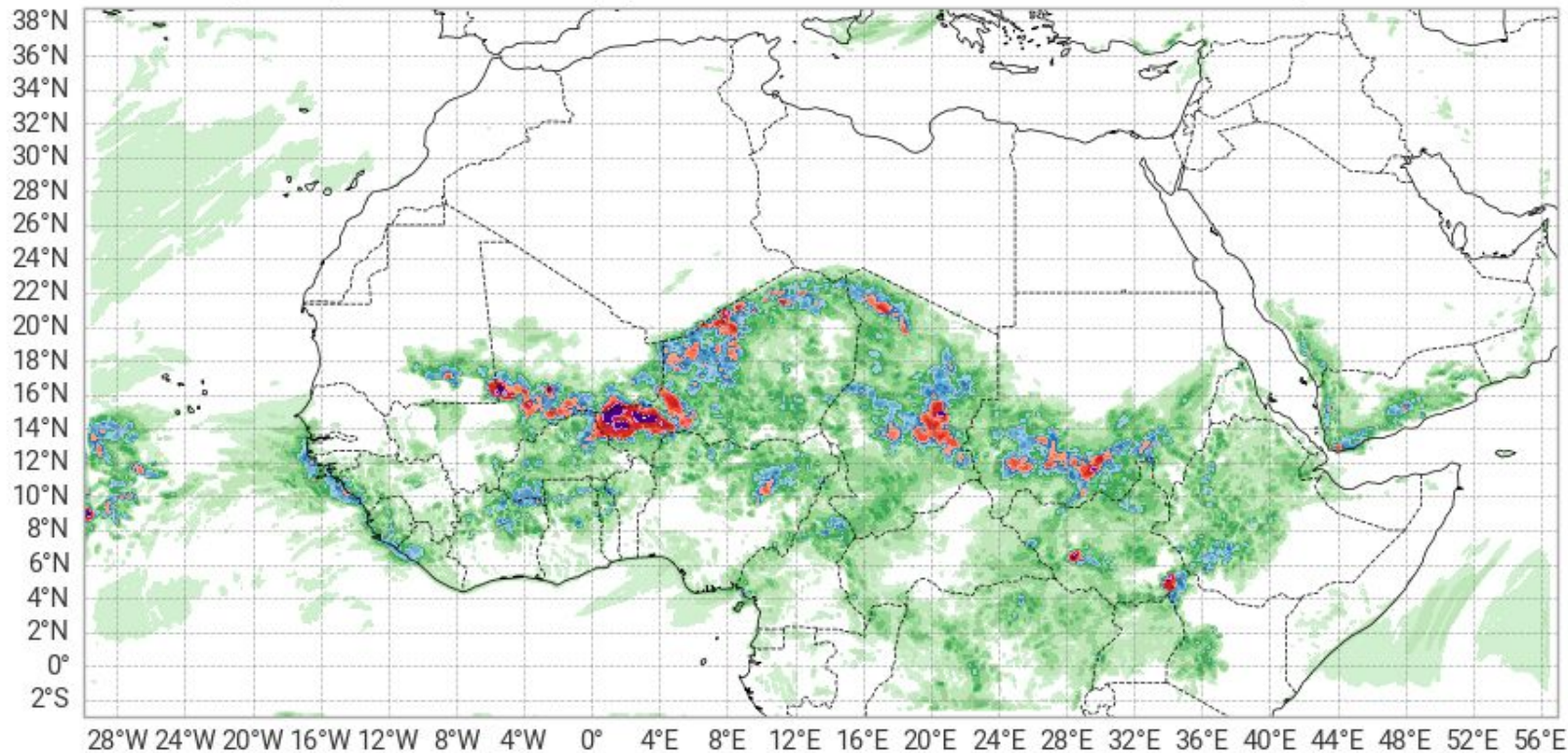
Etabli, le 1^{er} septembre 2025

La Direction de la Météorologie Nationale prévoit du 1^{er} au 04 septembre 2025, des activités pluvio-orageuses **modérées à localement fortes** sur les régions de Diffa, Zinder, Maradi, Tahoua, Tillabéri, Niamey, Dosso, l'Aïr et le département de Bilma.

Avis et conseils : face aux événements pluvieux attendus, il est crucial de redoubler de vigilance en raison des inondations déjà signalées dans certaines **de ces régions**.

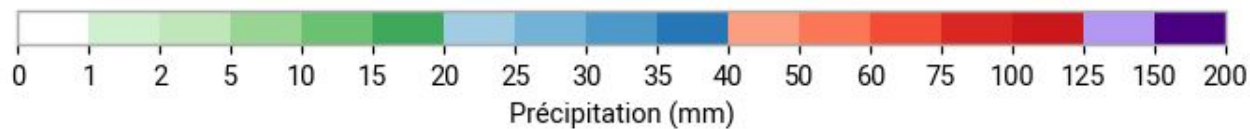
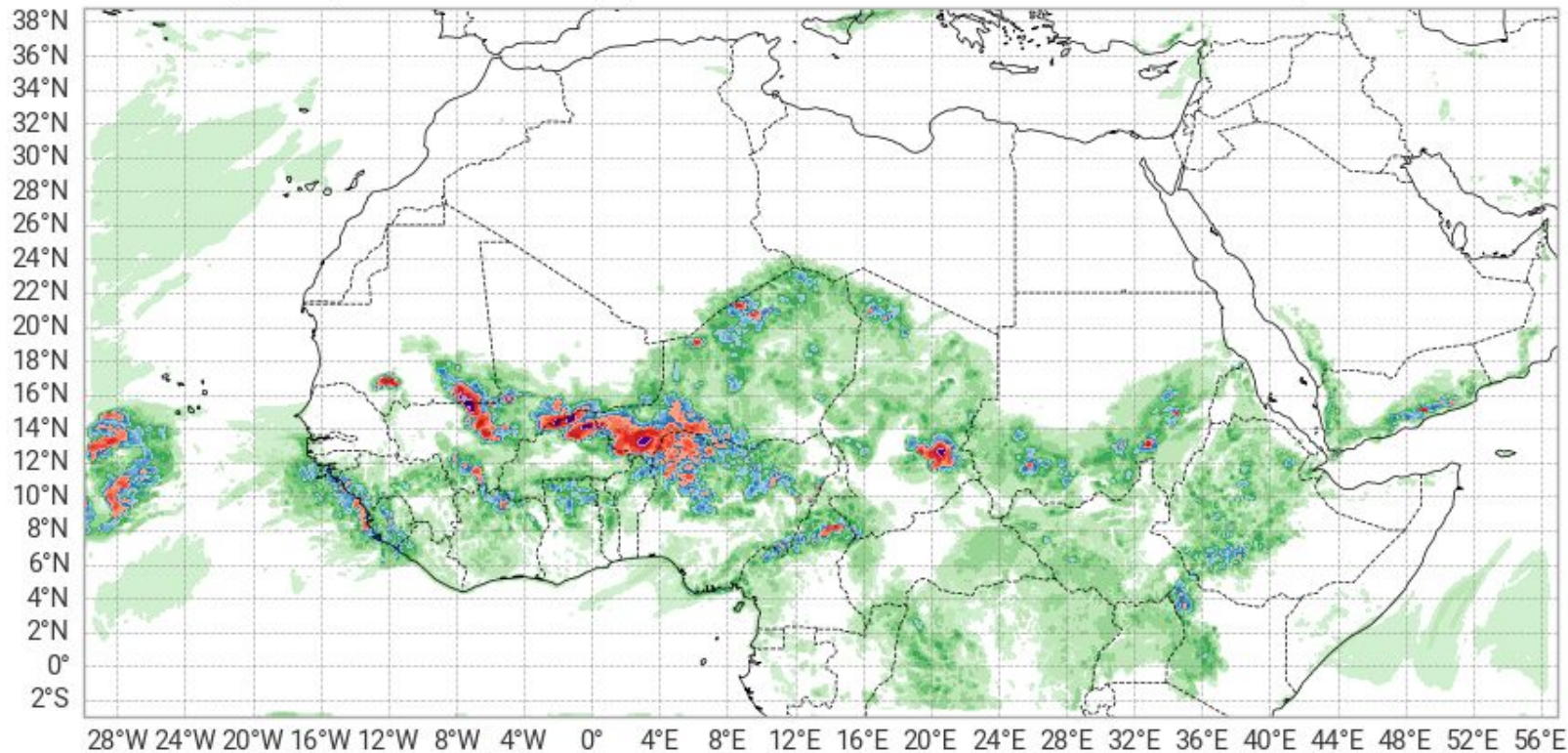
MOLOCH FORECAST DAY -2

Valid: Thu, 04-sep-2025 00 UTC pcp24h T:+48-72hr MOL_6KM_GFS init: 01-Sep-2025 00 UTC



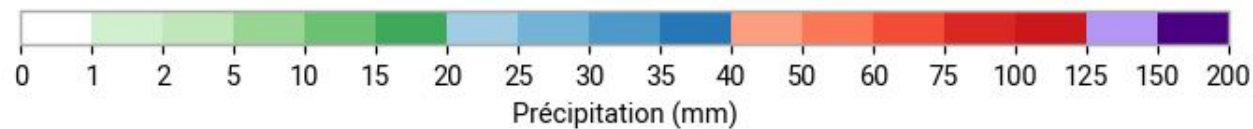
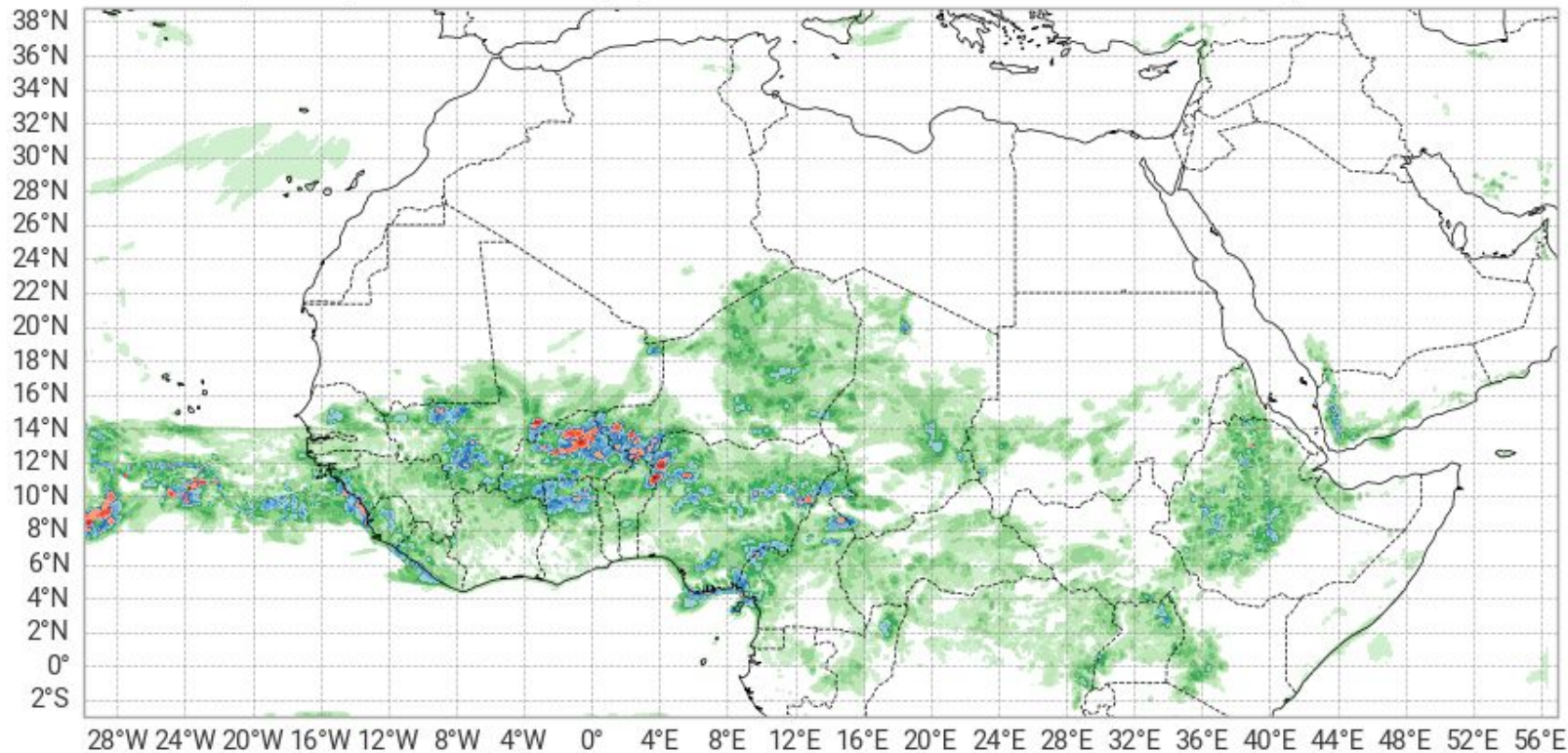
MOLOCH FORECAST DAY -1

Valid: Thu, 04-sep-2025 00 UTC pcp24h T:+24-48hr MOL_6KM_GFS init: 02-Sep-2025 00 UTC

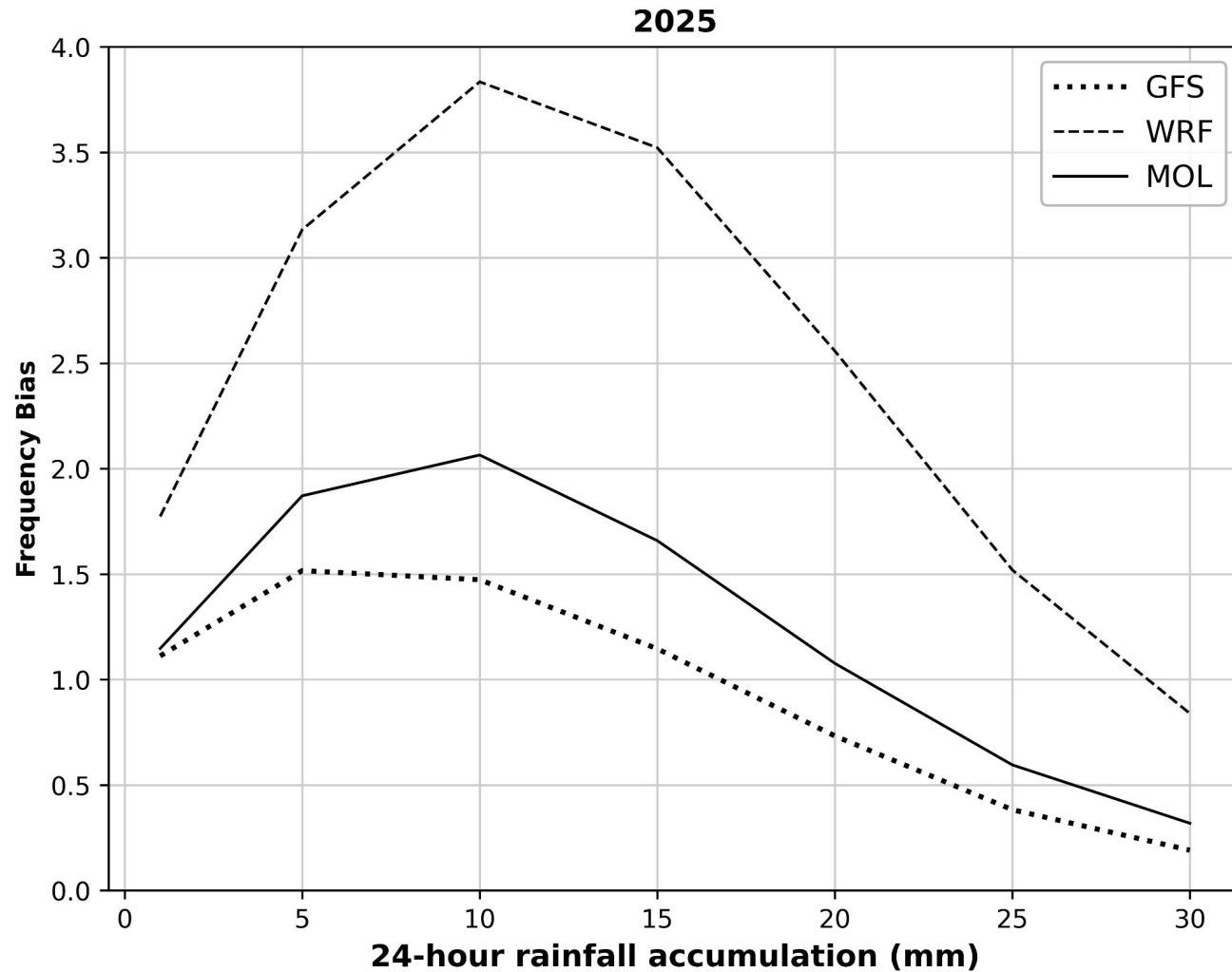


MOLOCH FORECAST DAY-0

Valid: Thu, 04-sep-2025 00 UTC pcp24h T:+0-24hr MOL_6KM_GFS init: 03-Sep-2025 00 UTC

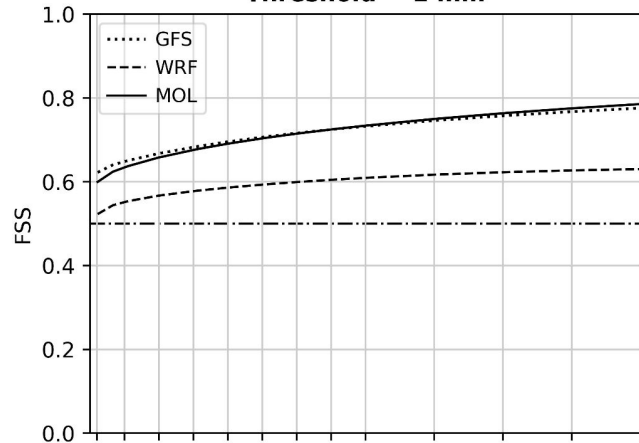


MOLOCH vs WRF

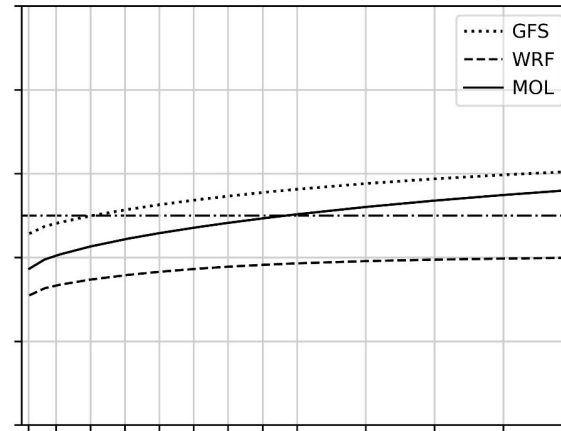


MOLOCH vs WRF

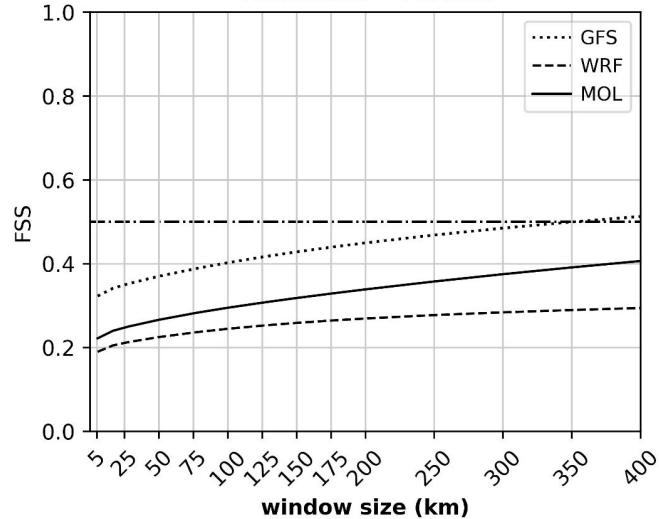
Threshold = 1 mm



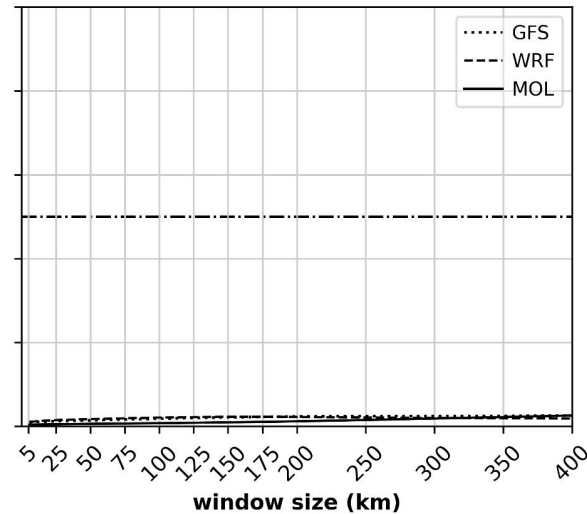
Threshold = 5 mm



Threshold = 10 mm



Threshold = 30 mm



Conclusion (1)

- Strong cooperation
- Scientific and personal improvement
- Implementation of “Italian” model in Sahel
- Use of free of charges open data

Conclusions (2)

- A lot of work done, a lot of work still to do
- Implementation on-site in ANAM and DNM
- High resolution modelling for early warning (1-2 km)
- Personnel formation on site

Grazie per l'attenzione



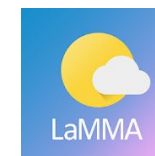
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