



# Early seasonal outlook for cyclone activity in SWIO region (2022-2023 season)

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*Contribution from RSMC La Réunion*

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***Regional Outlook Forum for South-West Indian Ocean countries***

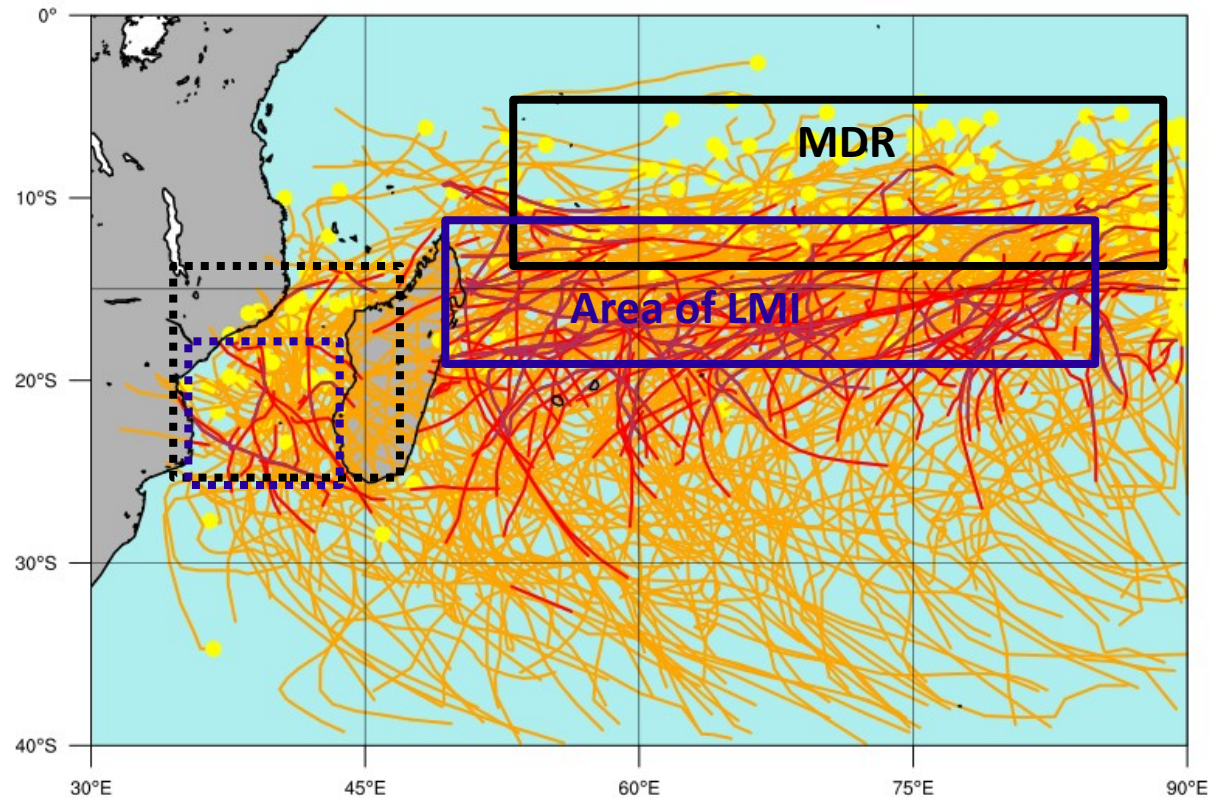
*September 22 septembre 2022*

*- Seychelles -*

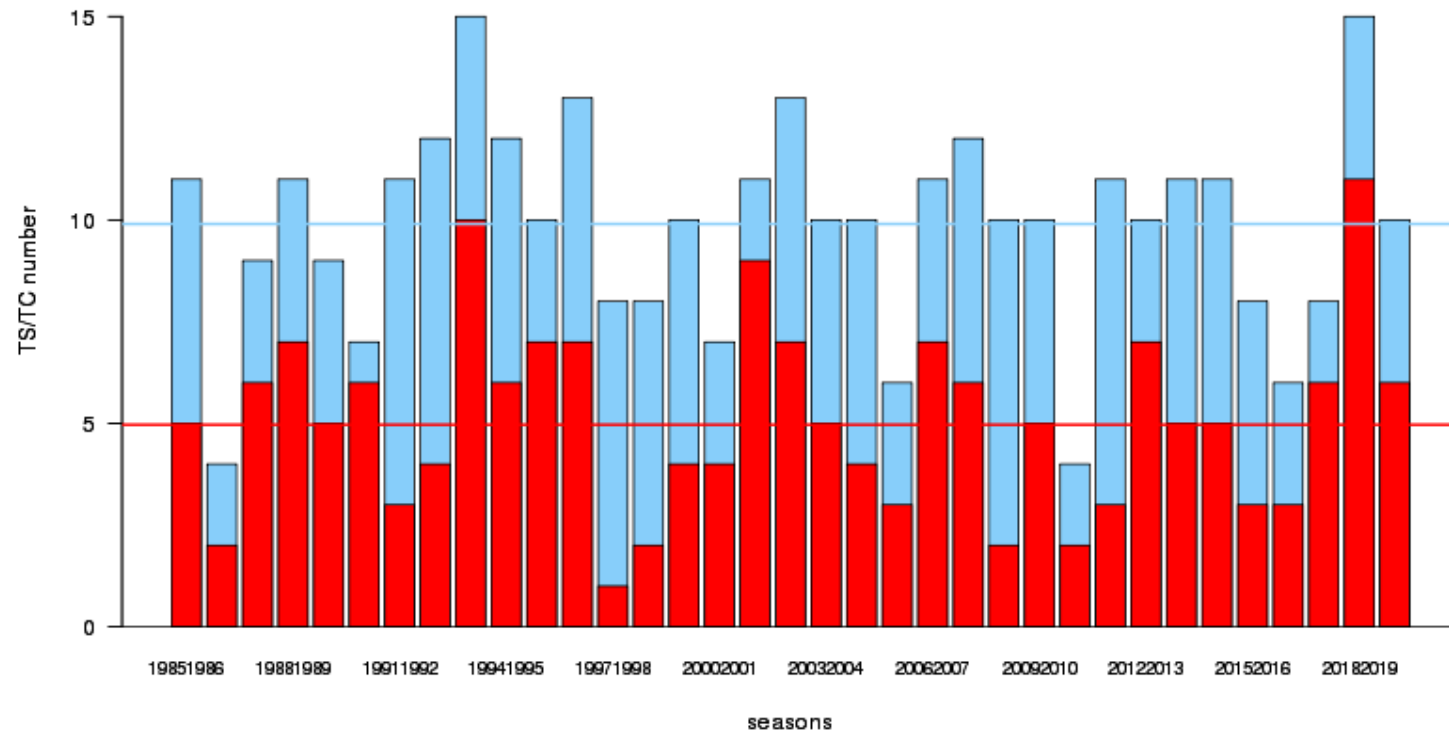
# SWIO : Climatology and Interannual TC activity

RSMC best-tracks (1985-2018)

- Average of 10 named systems every year, 5 of which reach cyclone intensity
- Cyclonic season defined as from november to april
- Main Development Region north of 15°S and east of 55°E
- Life Maximum Intensity usually reached between 10°S and 20°S east of Madagascar
- Mozambique channel : ~15 % TC genesis with a local MDR and LMI area shifted southwards



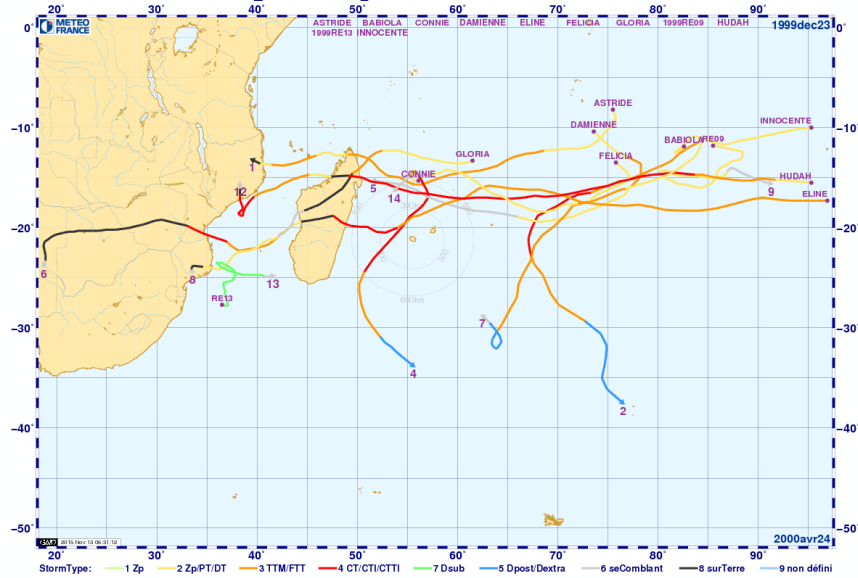
# SWIO : Climatology and Interannual TC activity



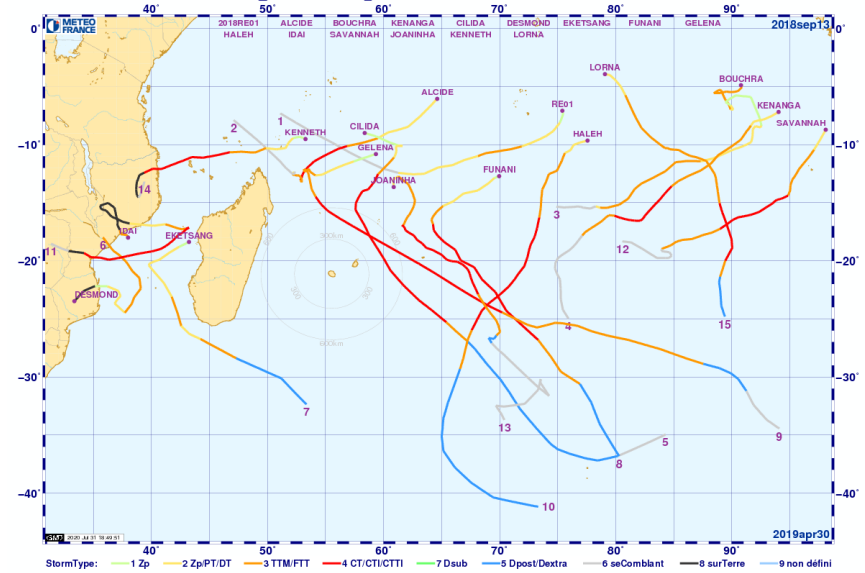
→ Large interannual variability is observed over the SWIO. A key point in TC seasonal forecast is to understand the relationship between climate drivers and SWIO TC activity

# SWIO : Climatology and Interannual TC activity

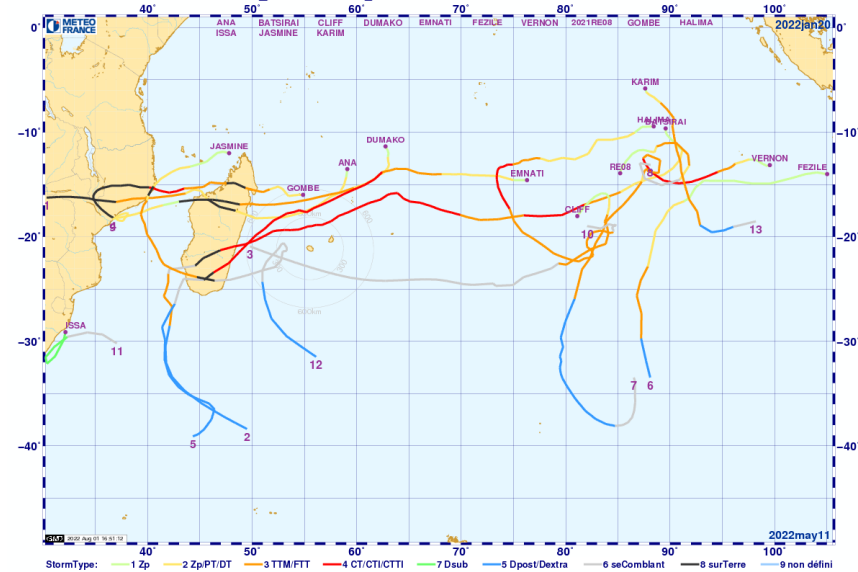
activité cyclonique de la saison 1999-2000



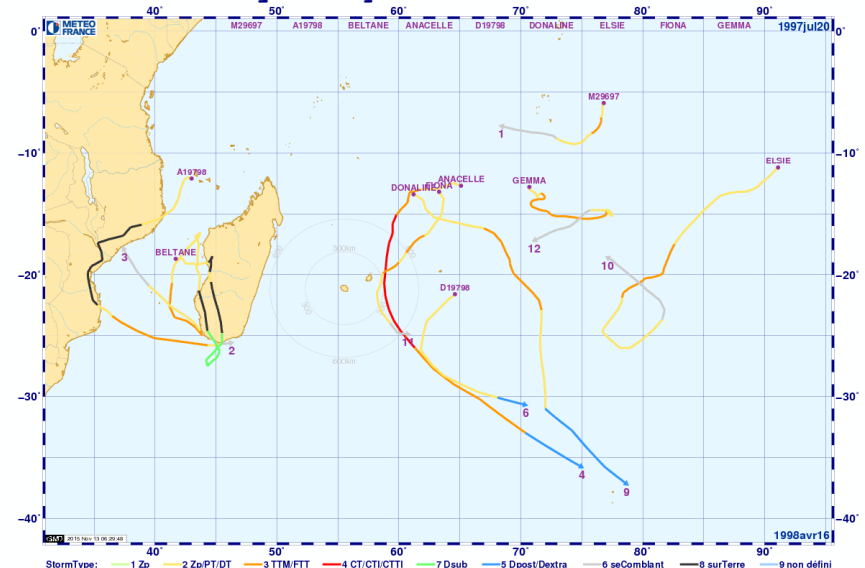
activité cyclonique de la saison 2018-2019



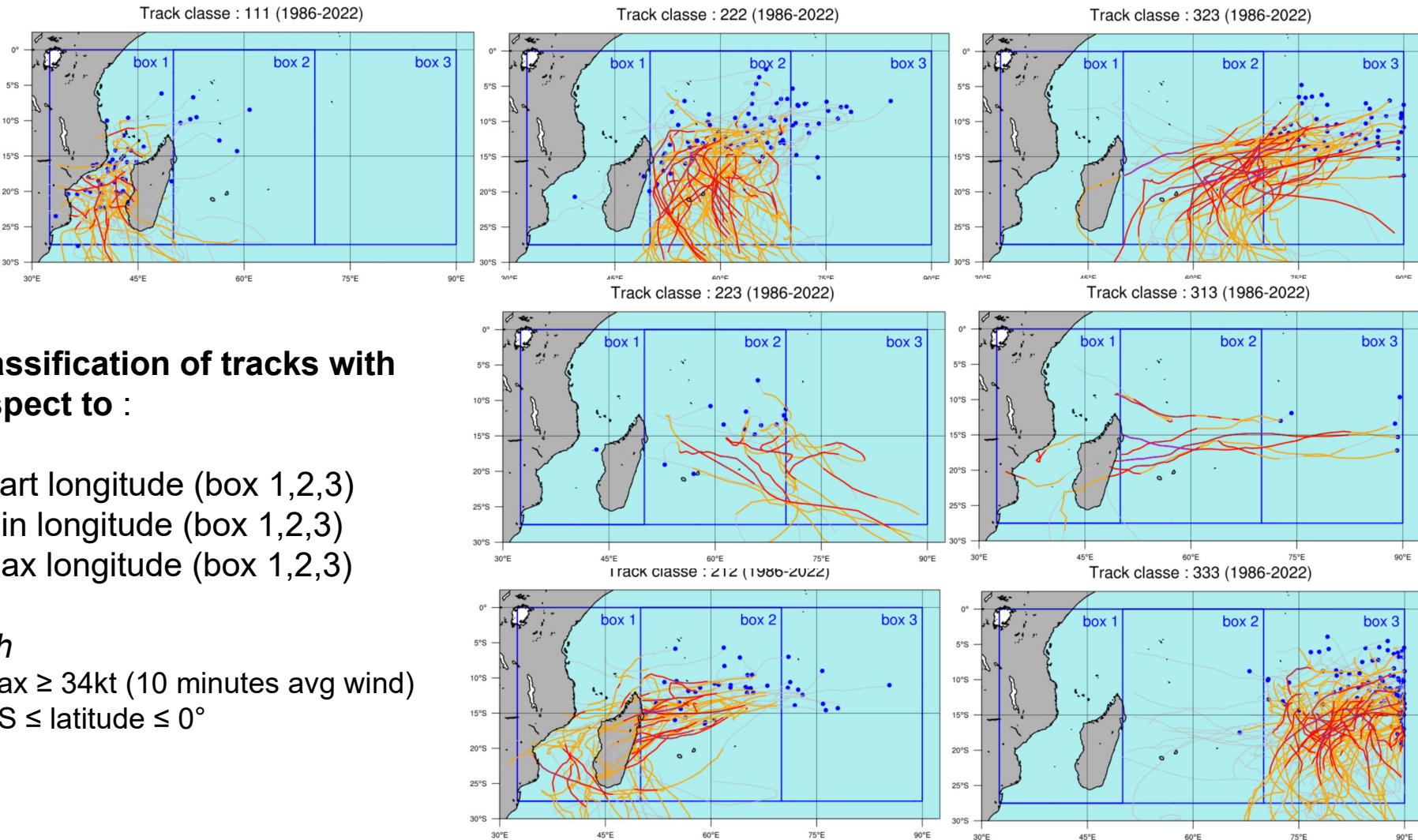
activité cyclonique de la saison 2021-2022



activité cyclonique de la saison 1997-1998



# SWIO : TC tracks clustering



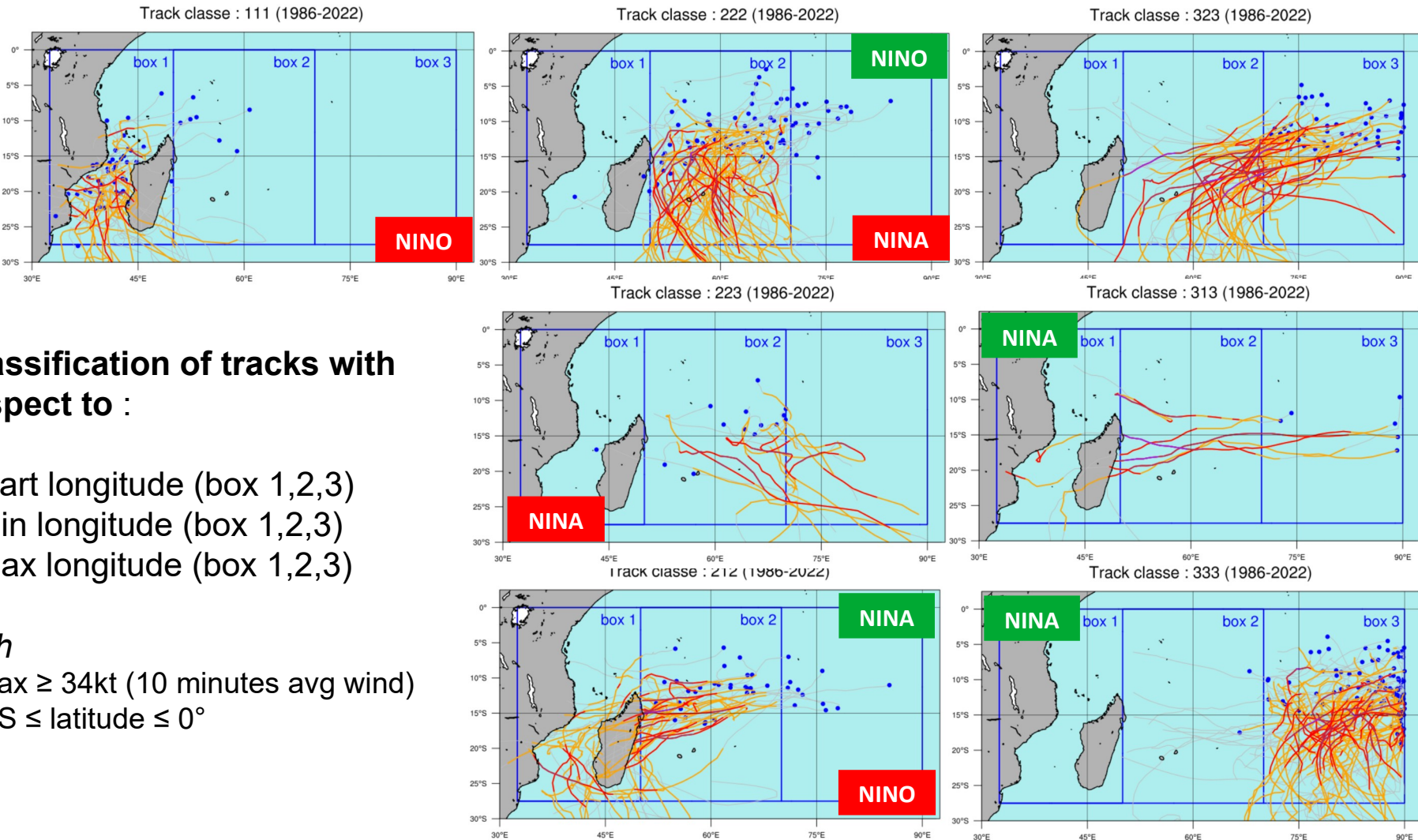
## Classification of tracks with respect to :

- start longitude (box 1,2,3)
- min longitude (box 1,2,3)
- max longitude (box 1,2,3)

*with*

$V_{max} \geq 34kt$  (10 minutes avg wind)  
 $25^{\circ}S \leq \text{latitude} \leq 0^{\circ}$

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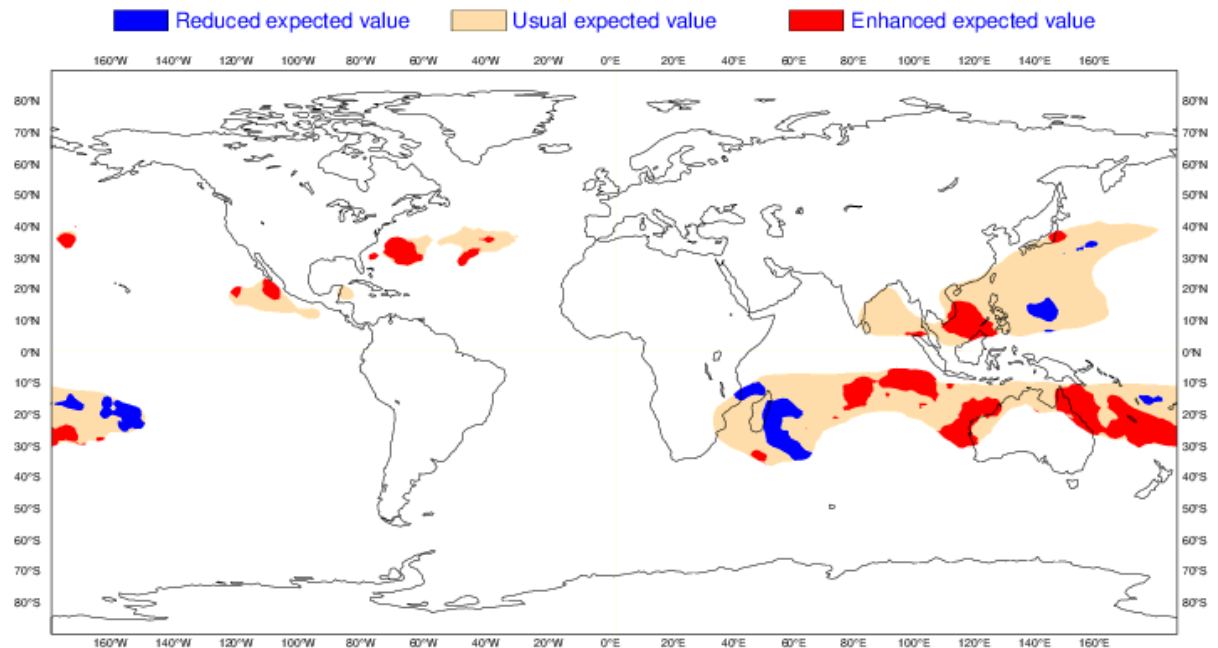
# Methodology

Seasonal forecast for cyclone activity relies on a blending of different approach

- Identification of the main climate drivers, large scale conditions assessment
- Analog approach : find years in the passed with « similar » large scale conditions
- Composites / Canonical Correlation Analysis
- ECMWF TC products

ECMWF Seasonal Forecast  
Standardized Tropical Storm Density  
Forecast start reference is 01/09/2022  
Ensemble size = 51, climate size = 575

SEAS5  
ONDJFM 2022/23  
Climate (initial dates) = 1993-2015



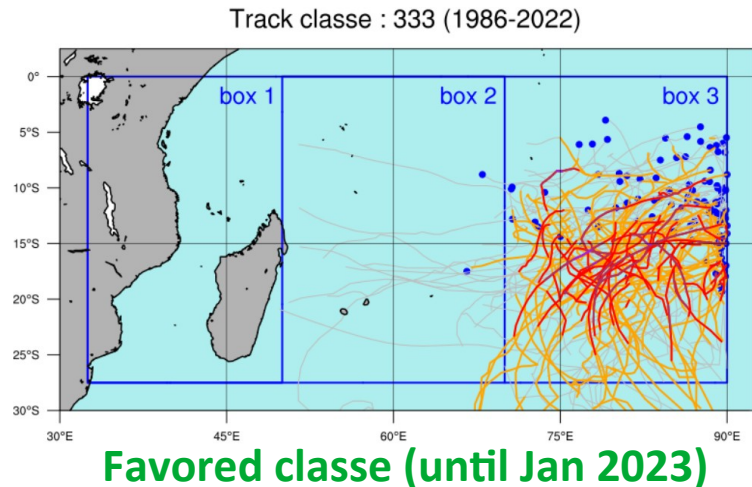
# Preliminary outlook for season 2022-2023

➤ **Near normal to Below normal TC activity is expected for the forthcoming season (Oct → Apr)**

➤ **Oct → Jan** : robust signals for a delayed start of the cyclonic season (up to Jan), reduced TC activity (expected mainly over the eastern basin).

- ✗ developments privileged east of 70E far from inhabited lands.
- ✗ Developments very unlikely west of 70E.

➤ **Second part of the season (Feb and beyond)** : Activity may develop further west and closer to inhabited land but will largely depend on how SIOD+/La Nina develop.





## Next step

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→ **TC-outlook mini-forum end of october (oct. 27)**

→ event co-organized by WMO, PIROI and RSMC (La Réunion)

→ update of this early outlook, more detailed information, discussions with stakeholders...