



Forecasting extreme events in the southwest Indian Ocean on a monthly scale

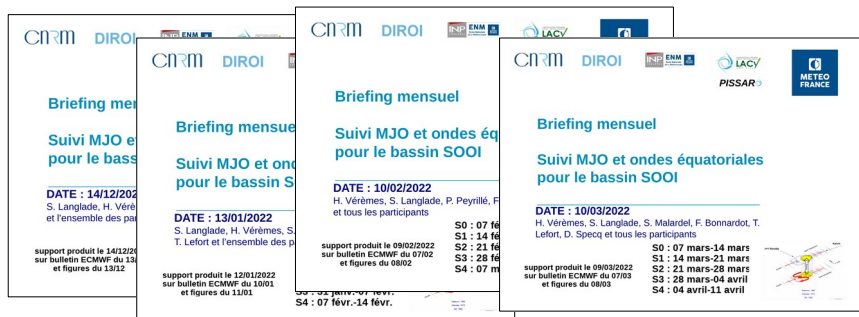
**Role of the monthly forecasting
experimental briefing in the
SWIO for the PISSARO project**

Hélène Vérèmes

Email: helene.veremes@univ-reunion.fr



Summary of the activity since the beginning of the project



- **9 monthly briefings** on 2 cyclonic seasons (2020-2021 / 2021-2022)
- Thursdays on Monday forecasts
- In person / By videoconference
- **Increasing number of participants**
- **2 retex**

In the 2021-2022 season, provision of:

- A posteriori, complete annotated briefing support
- Before, 2 selections of figures, updated weekly on the pissaro.re website, for use by forecasters, for possible consultation

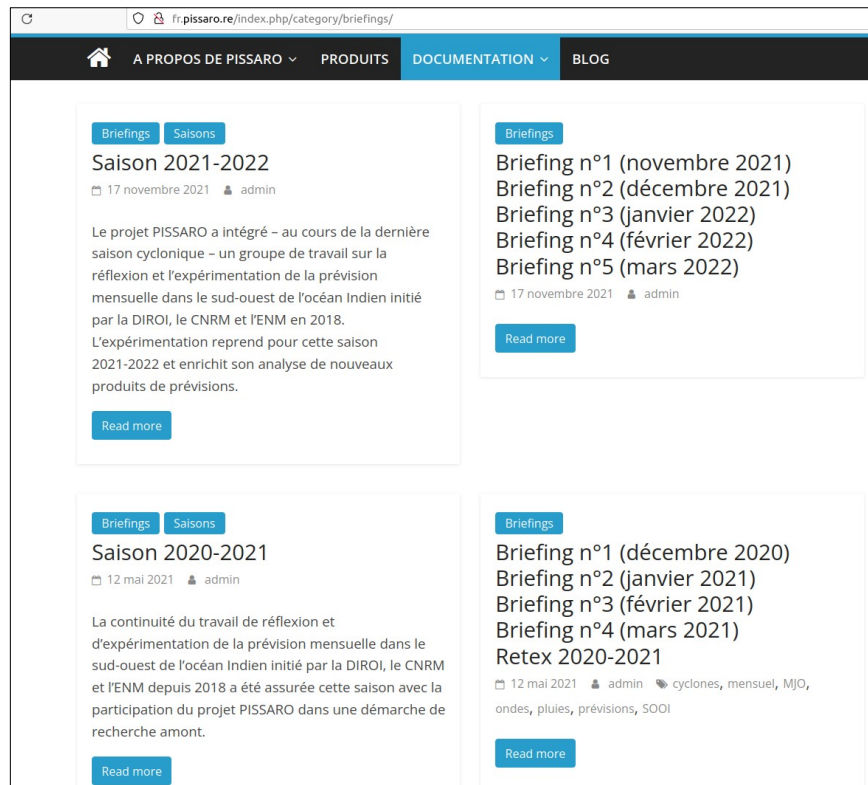


Figure. Screenshot of the pissaro.re website page on news and archiving of the monthly briefings conducted at the DIROI

The briefing support

Experimental monthly forecast briefing support (25 – 30 pages)

Last 4 weekly compilations of figures available on the PISSARO website

Only between october and april

Semi-automatic production

Once by month, human expertise brought by the experimental monthly briefing of the DIROI

Which use?

The human expertise of a qualified user will allow to extract the relevant information and to nuance the forecasts from the numerical models to propose an informed forecast of the cyclonic activity and weather patterns for the next 4 weeks in the SWIO.

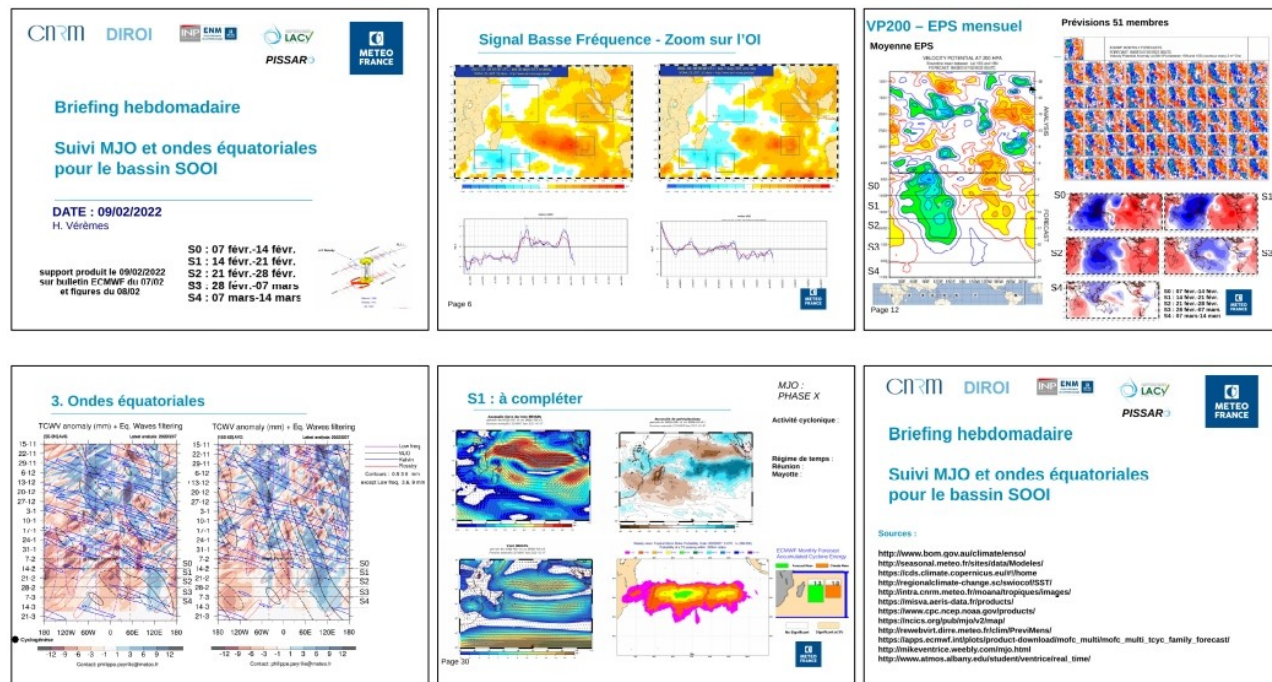


Figure. Illustration of the product with an extract of the monthly forecast support in the south-west Indian Ocean produced on 9 February 2022

Web page for quick analysis

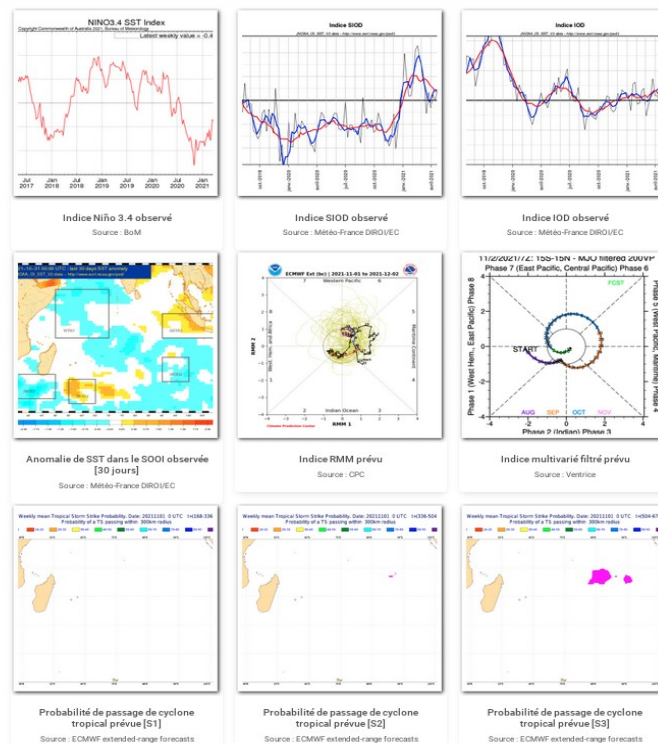
Selected figures (15) for quick analysis :

- ENSO, SIOD and IOD indices and SST anomalies over the Indian Ocean
- MJO forecast with RMM, Hovmöller diagrams of VP200, wind and rainfall anomalies forecast, from W1 to W3
- ECMWF tropical storm probability map from W1 to W3
- Map of all predicted tracks from S1 to S3 ECMWF data
- PISSARO products

Availability on website with restricted access to forecasters and briefing experts (1/week)

Waiting for feedbacks on the use of this product by the forecasters

Support pour analyse rapide de la prévision mensuelle dans le SOOI
Produit le 2 nov. 2021 - Projet PISSARO



User-oriented products and methodology

Adaptation of the product for the Seychelles forecasters:

- Refining the zoning
- Development of cartographic product on heavy rainfall
- Proposing a specific monthly briefing methodology

Figure. Automatic diagnosis of the ITCZ applied to the average of the 50 members of the ECMWF ensemble forecast (run of 15/11/2021). Source: Final year project work of A. Cachard

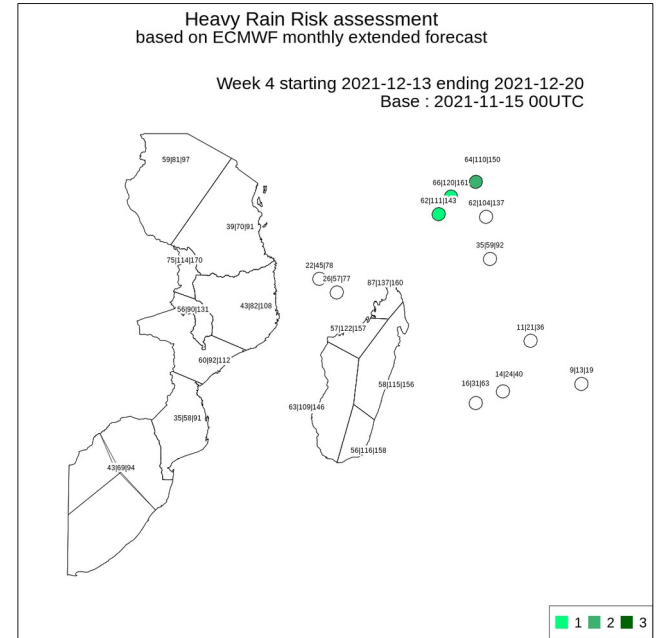
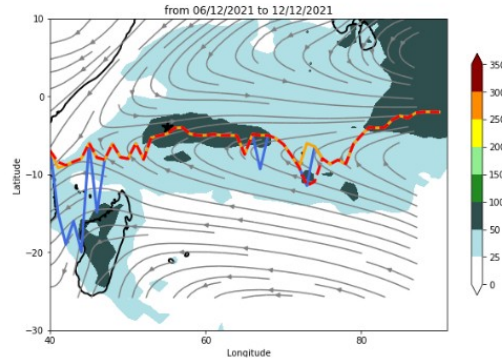


Figure. Forecast from 15-11-2021 at W4. This forecast shows the signal for the start of the rainy season in Seychelles. Source : EC/DIROI

Scientific investigations

So many research topics to be explored that emerge or recur in the monthly briefings:

- Characterisation / functional schemes of the MJO
- Relevance of the use of the MJO indices
- Role of wave activity on the development of tropical storm precursors
- Etc.

So many points for a research project on intra-seasonal forecasting!

Training

Need to promote monthly forecasting in operational weather forecasting services

Interest in training forecasters

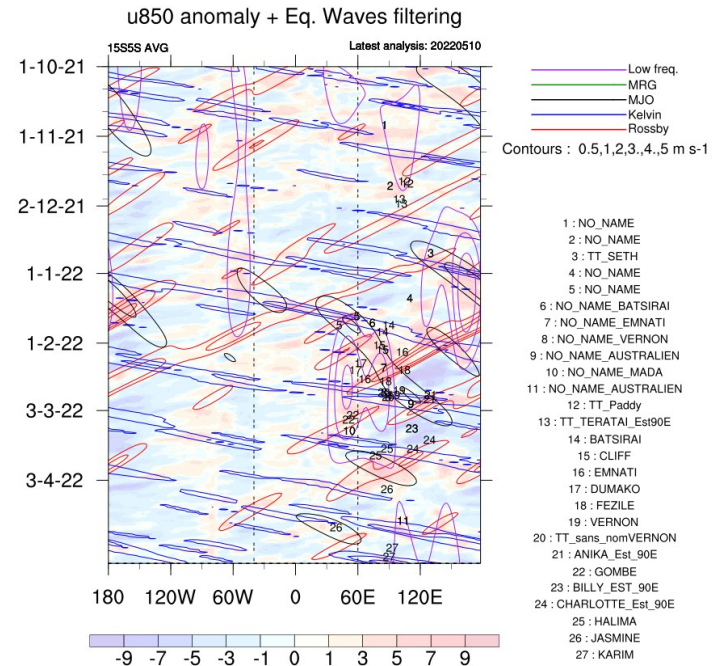


Figure. Hovmöller diagram of VP200 for the 2021-2022 cyclonic season, with filtering of the waves and superimposition of all the precursors.

Courtesy of Philippe Peyrillé

PISSARO summer school in Seychelles in 2023

**Special thanks to : Sébastien Langlade, François
Bonnardot, Philippe Peyrillé, Damien Specq,
Thierry Lefort and all the participants (regulars
and one-offs) of the monthly briefing**

