Mawün-NRT: A multi-product web platform for near real-time analysis of extreme precipitation events in Chile

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https://doi.org/10.5281/zenodo.11365421

1. Motivation

• In an era characterised by **increasing climate variability and the intensification of extreme weather events**, the need for accurate and timely precipitation data has never been more critical.

•While several websites and applications offer weather forecasts that are improving every day, **there is a critical gap in readily available post-event precipitation data**.

•The early identification and accurate characterisation of extreme precipitation events is paramount for **monitoring risks** associated with flooding, landslides and disruption to critical infrastructure.

2. Aim

The objective of this work is to develop a **near real-time web platform** for monitoring **extreme precipitation events** and moving towards an **early warning system for floods.**

3. Datasets

i) the near-real-time Multi-Source Weather (**MSWX-NRT**, 3-hourly, 0.1°; Beck et al., 2022).

ii) PERSIANN Dynamic Infrared–Rain Rate (**PDIR-Now**, hourly and 0.04°; Nguyen et al., 2020; Nguyen et al., 2019)

iii) the Integrated Multi-satellitE Retrievals for GPM (**IMERGv06D**, half-hourly, 0,1°; Huffman et al. 2017).

iv) **in situ rain gauges** collected from Vismet (https://www.vismet.cr2.cl/)

	MSWX-NRT	PDIR-Now	IMERG v06D Early and Late
Temporal resolution	3-hourly	hourly	Half-hourly
Spatial resolution	0.10°	0.04°	0.10°
Latency	1.5 - 4.5 hours	15 - 60 minutes	4 hours (Early), 12-14 hours (Late)
Update frequency	6-hourly	hourly	half-hourly
Data source	GDAS	high frequency sampled IR imagery	GPM
Provider	GloH2O	Center for Hydrometeorology	NASA

4. Main characteristics of Mawün-NRT

• It provides a **user-friendly visualisation** of the spatio-temporal distribution of precipitation events for continental Chile in near real-time.

• Hourly data from rain gauges from Vismet (https://www.vismet.cr2.cl/) are used to **compare the gridded precipitation estimates with the corresponding in situ values**.

• It allows the visualisation of the accumulated precipitation for **different temporal windows**, from 12 hours to 10 days.

• It shows **time series of accumulated precipitation** for any grid cell where the user makes a click.

• When the user makes click in a grid cell where there is a rain gauge, it shows a **time series comparison of** accumulated precipitation for **all the three precipitation products and the rain gauges**.

• It allows **to show the borders of different geographical areas**, from administrative regions and provinces to different definitions of catchments and subcatchments.

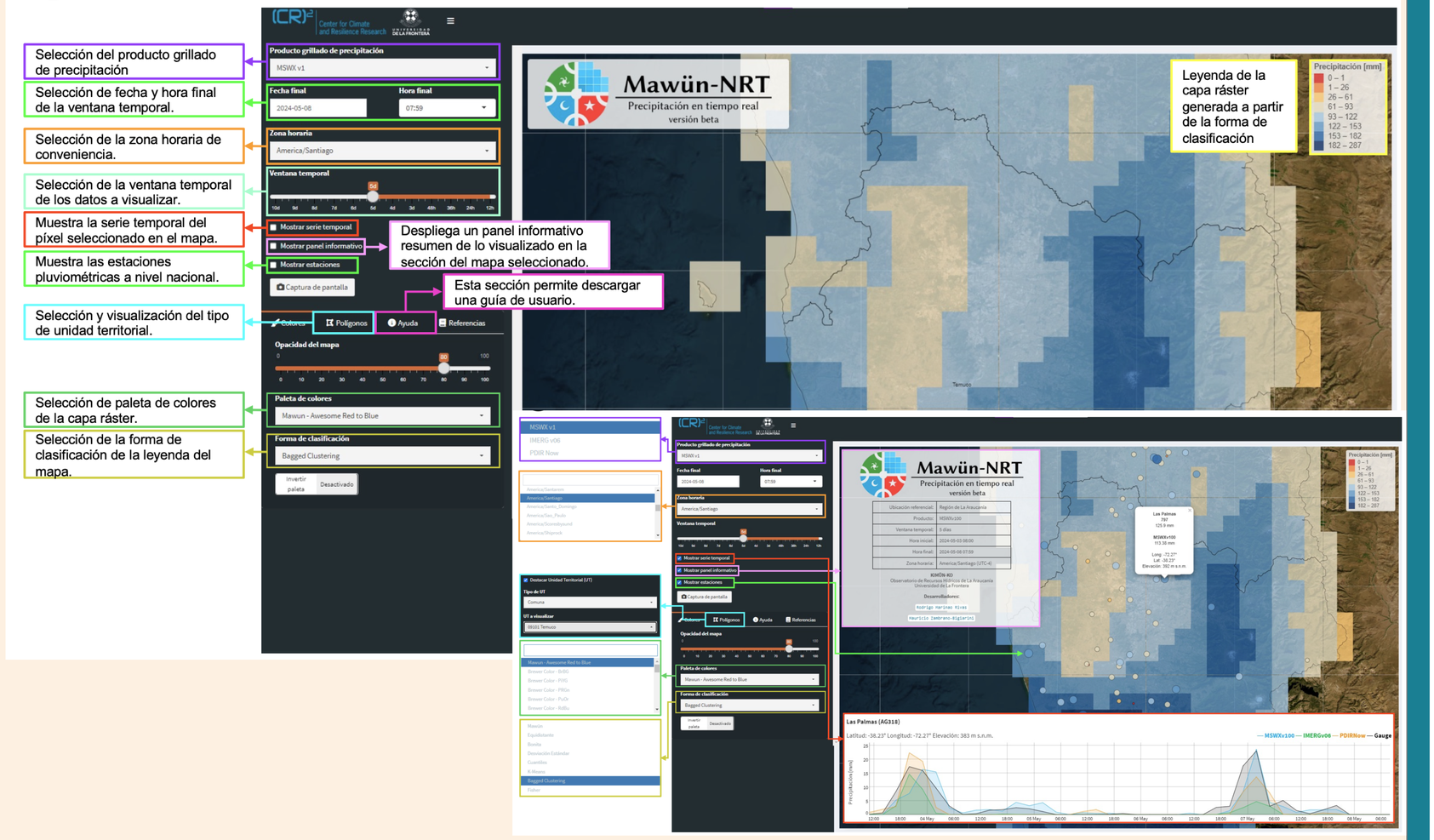
• It allows the user **to select a time zone** (e.g., UTC, GMT-4) used to display the information.

• It allows **to customise the color categories** used to visually represent the gridded precipitation maps.

• It is **free and publicly accessible** web platform (https://mawunnrt.cr2.cl/)

• The platform's near real-time capabilities ensure that users have access to the latest precipitation data, empowering **timely decision-making and proactive response** to evolving weather conditions.

5. Mawün-NRT



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Funding: ANID PCI NSFC 190018, ANID Fondecyt 1212071, ANID FONDAP 1522A0001.

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