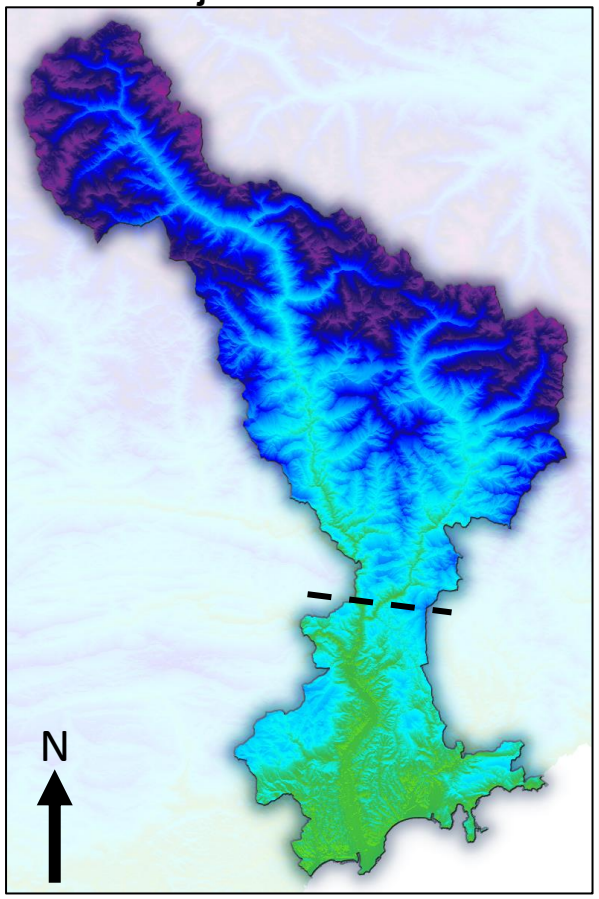
HAUT CONSEIL LOCAL
POUR LE CLIMAT ET LA BIODIVERSITÉ
Métropole Nice Côte d'Azur

Les rencontres du Haut conseil local pour le climat et la biodiversité

le 20 mai 2026, à Nice

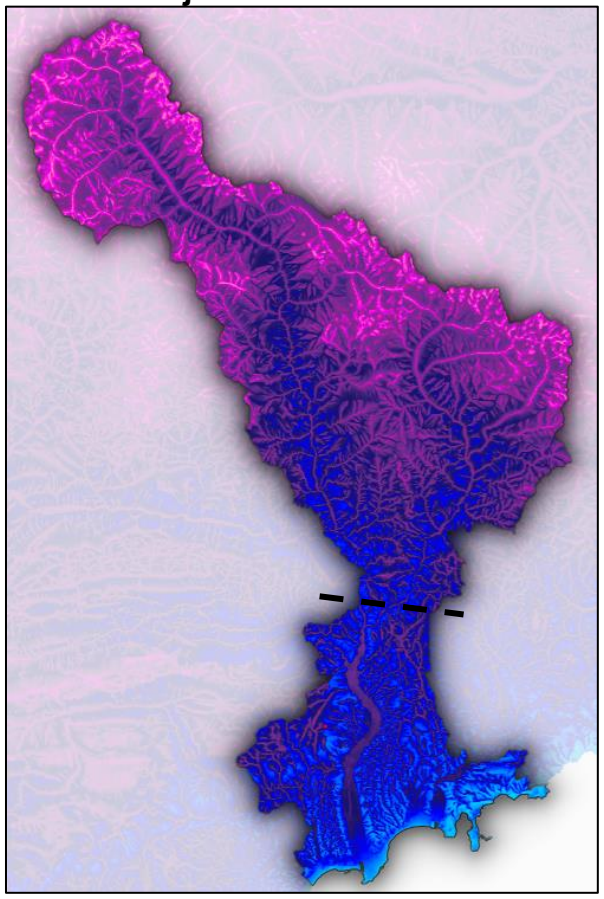
Températures minimales et maximales moyennes de janvier et juillet 1986-2005 en °C

Températures maximales de janvier 1986-2005



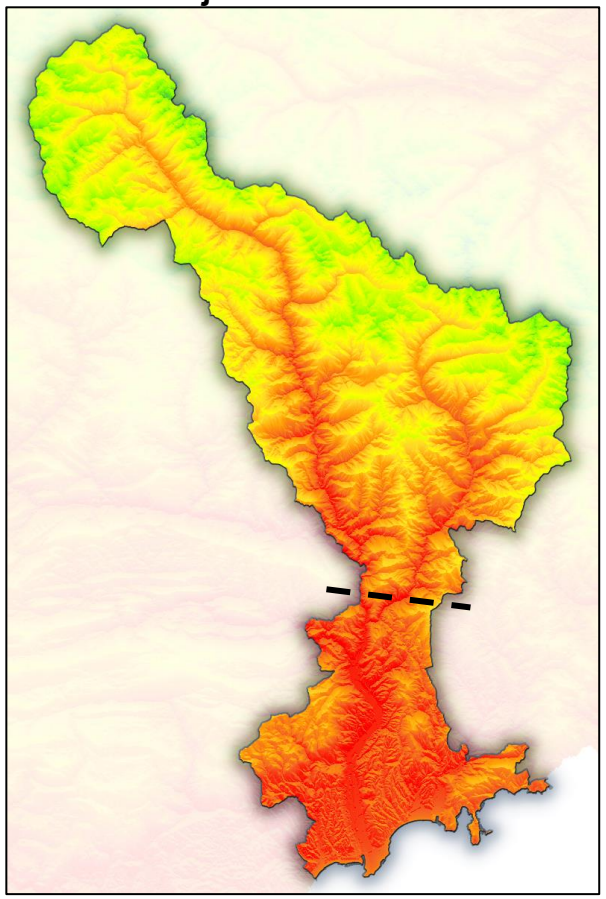
Moyenne Nord : 3,4 °C
Moyenne Sud : 11,2 °C

Températures minimales de janvier 1986-2005



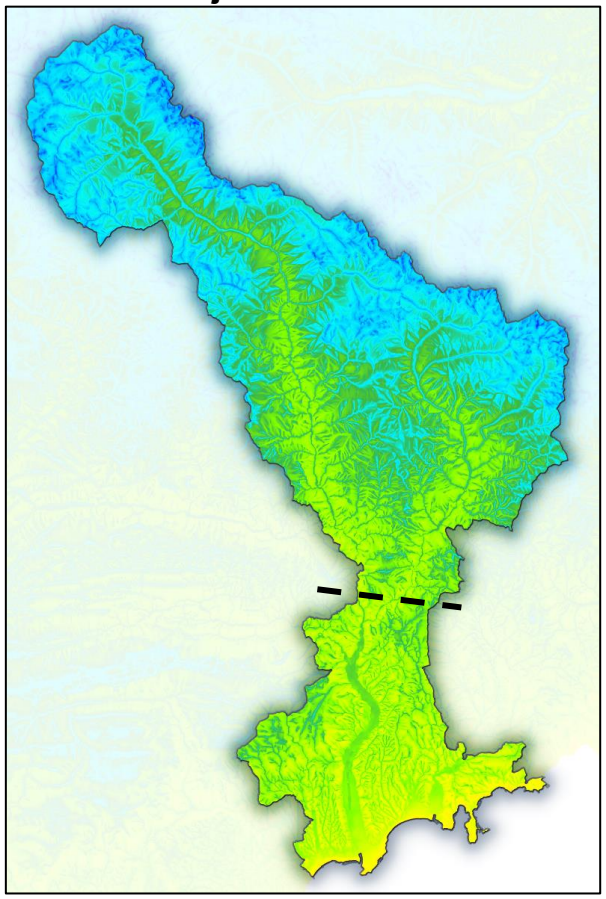
Moyenne Nord : -3 °C
Moyenne Sud : 1,6 °C

Températures maximales de juillet 1986-2005

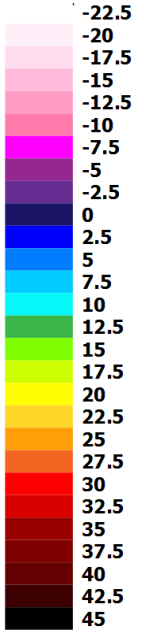


Moyenne Nord : 21,6 °C
Moyenne Sud : 27,4 °C

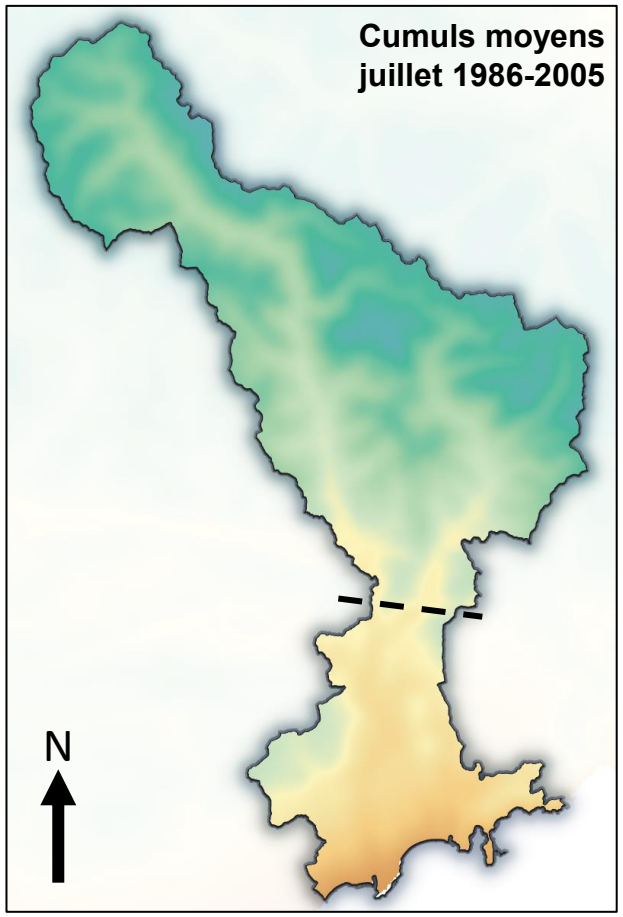
Températures minimales de juillet 1986-2005

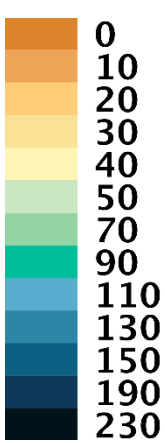


Moyenne Nord : 11,3°C
Moyenne Sud : 16,3 °C



Cumuls moyens de précipitations de juillet, d'octobre et à l'année en 1986-2005 en mm





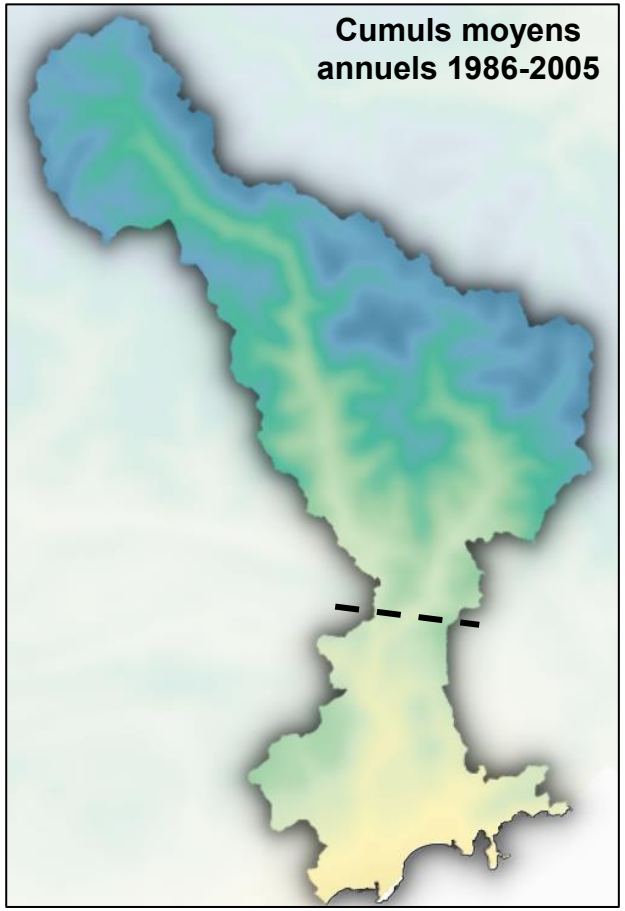
Moyenne nord : 74 mm

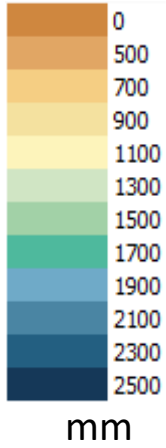
Moyenne sud : 31 mm

Moyenne nord : 163 mm

Moyenne sud : 151 mm

1 mm = 1 litre /m²

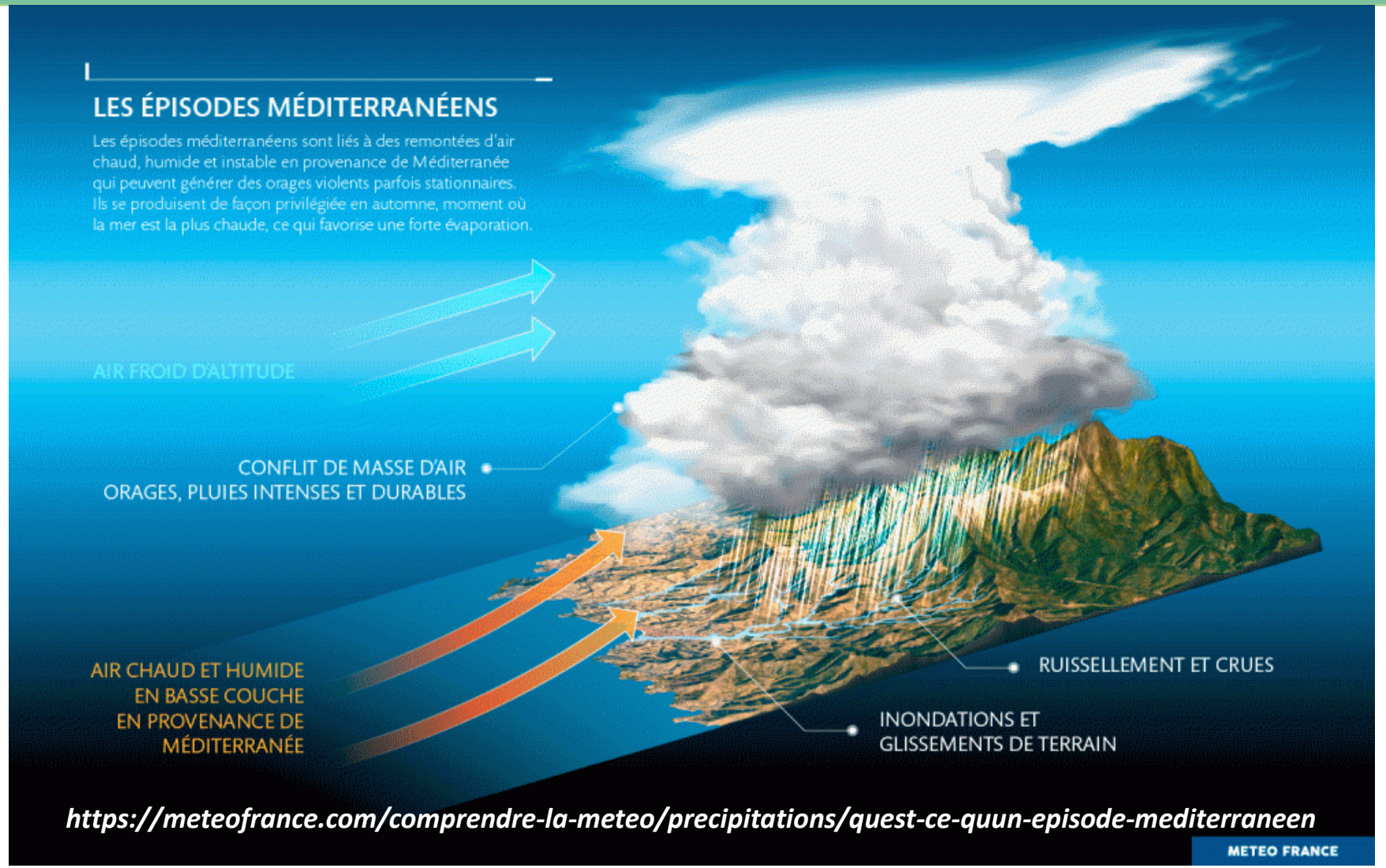




Moyenne nord : 1118 mm

Moyenne sud : 866 mm

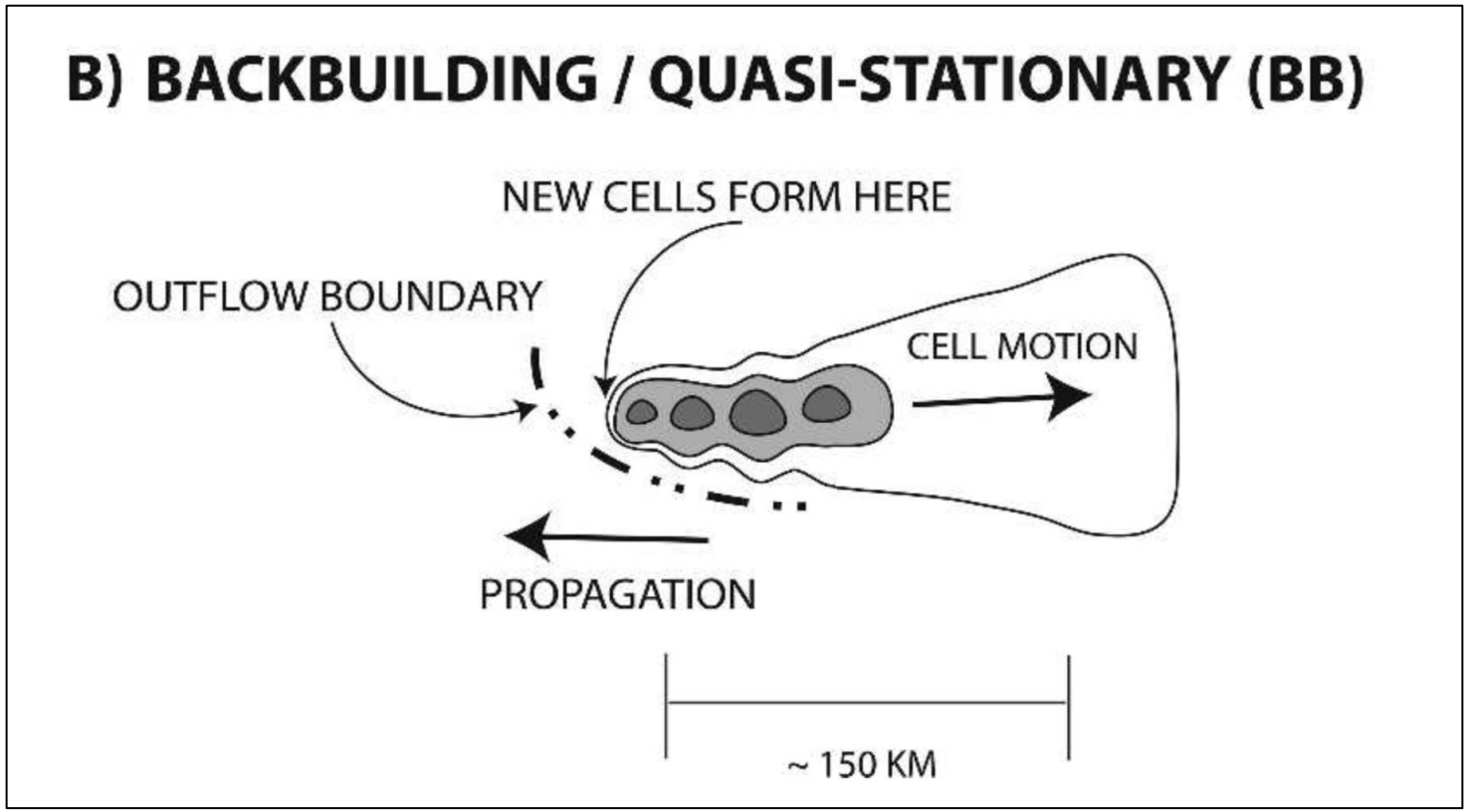
Précipitations intenses méditerranéennes



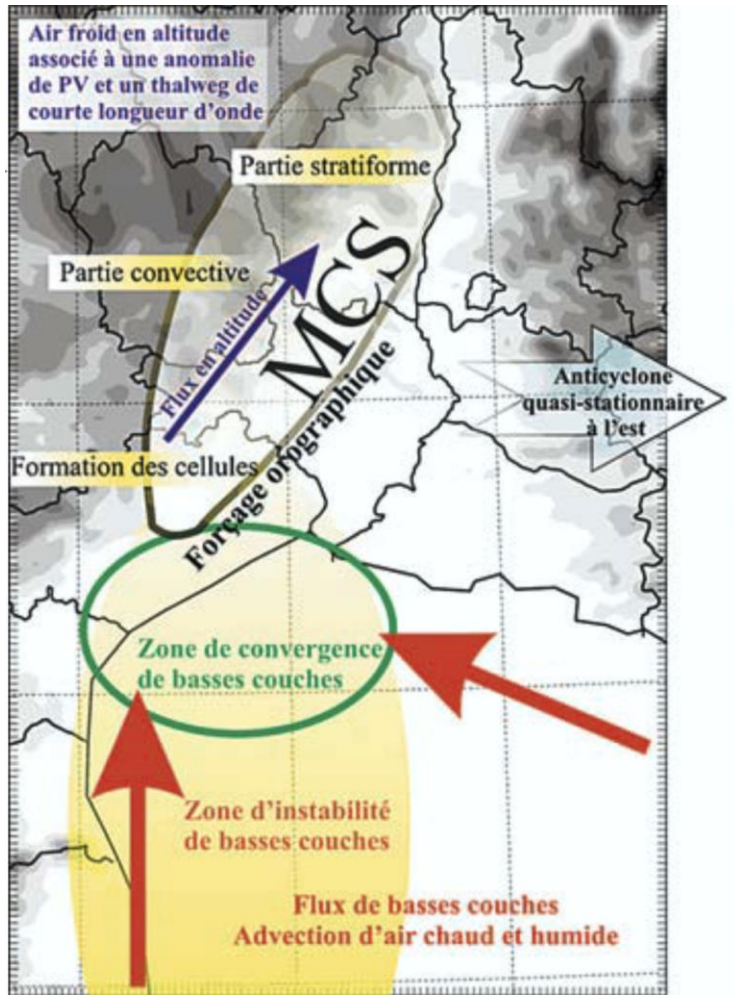
https://meteofrance.com/comprendre-la-meteo/precipitations/quest-ce-quun-episode-mediterraneen

Précipitations intenses méditerranéennes

Système convectif de méso-échelle à régénération rétrograde

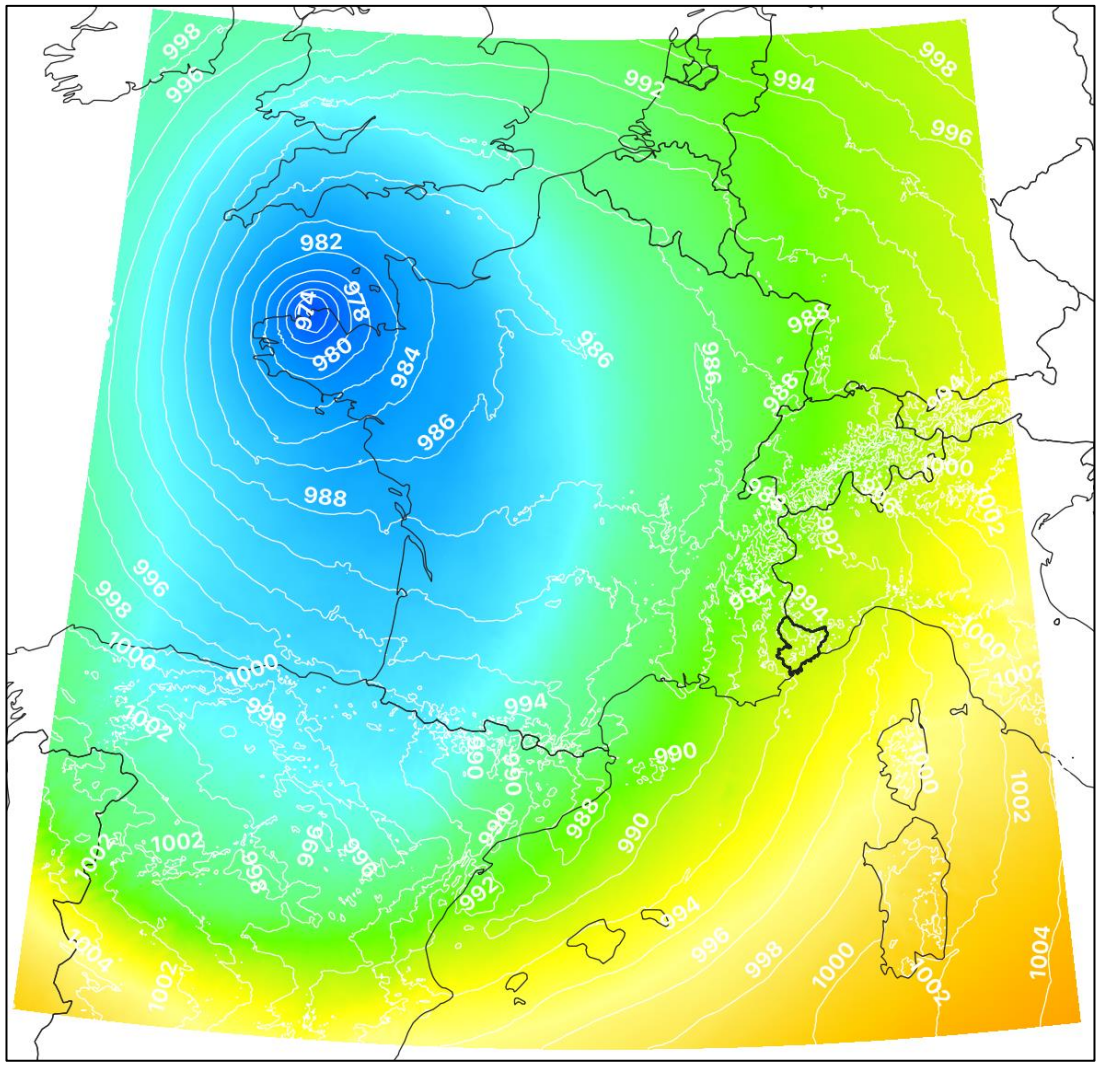


Schumacher and Johnson, 2005



D. Ricard, 2005

Tempête Alex du 2 octobre 2020

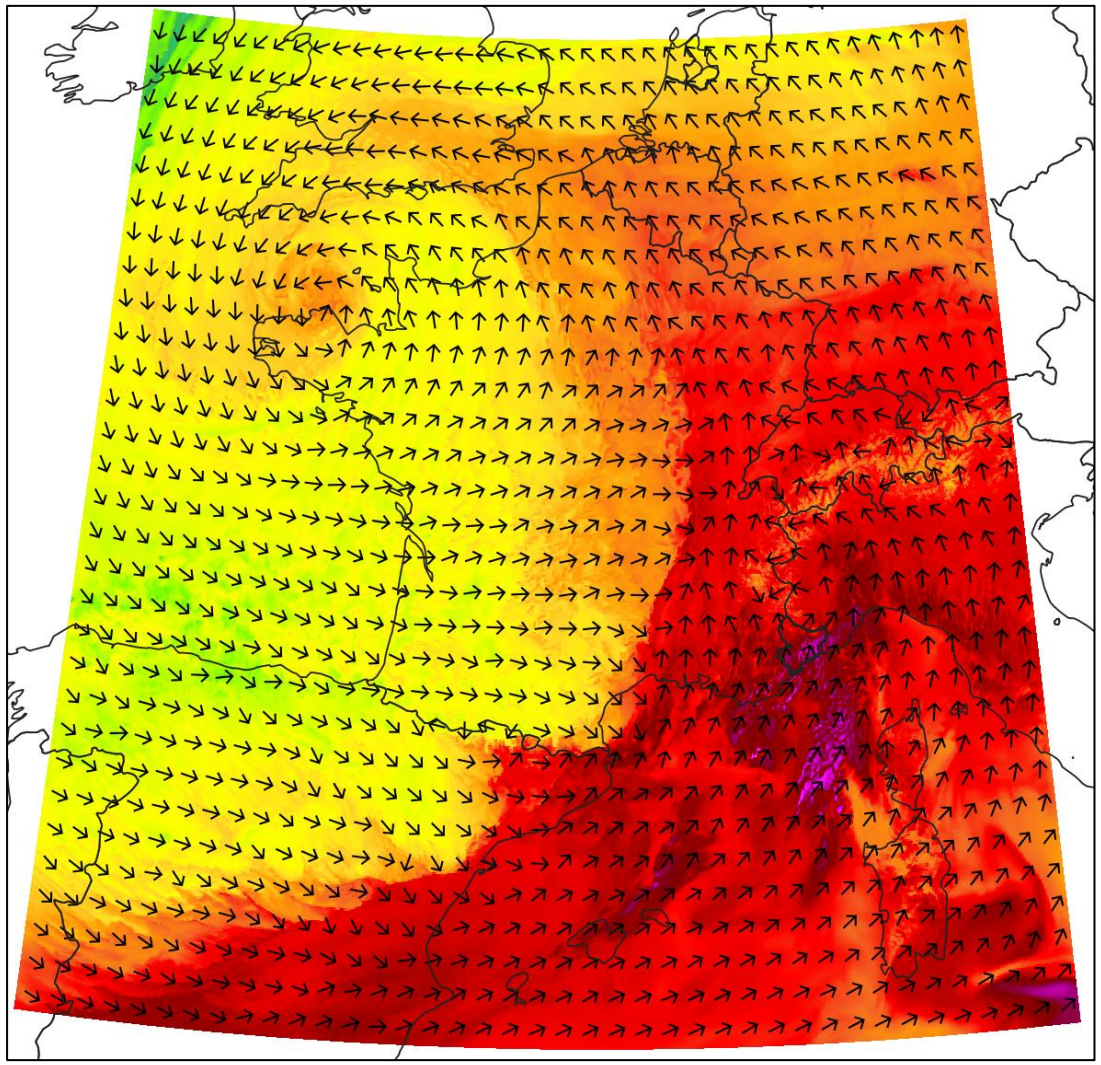


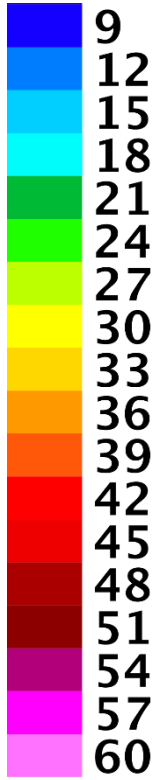
Modélisation AROME 2,5 km
run du 2/10/2020 à 6h TU

Pression en surface en hPa et
altitude du géopotentiel 500 hPa

Chochon, Martin, Lebourg et Vidal, 2021

Tempête Alex du 2 octobre 2020



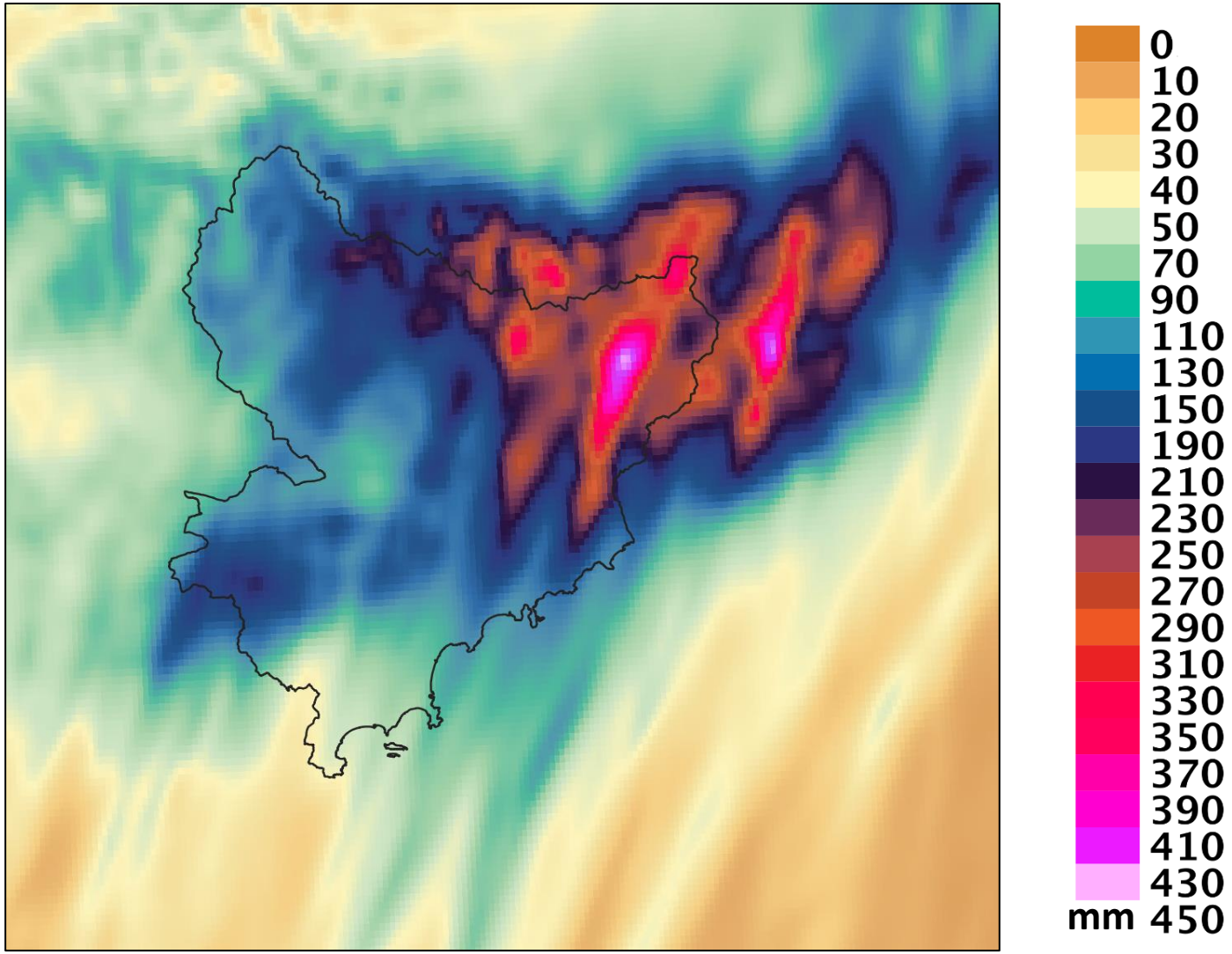


Modélisation AROME 2,5 km
run du 2/10/2020 à 6h TU

Masses d'air : Theta e
à 850 hPa (1500 m)
et flux d'air

Chochon, Martin, Lebourg et Vidal, 2021

Tempête Alex du 2 octobre 2020



Modélisation AROME HD 1,3 km
run du 2/10/2020 à 6h TU

Cumul sur 24h en mm à 1,3 km

Chochon, Martin, Lebourg et Vidal, 2021

Tempête Alex du 2 octobre 2020

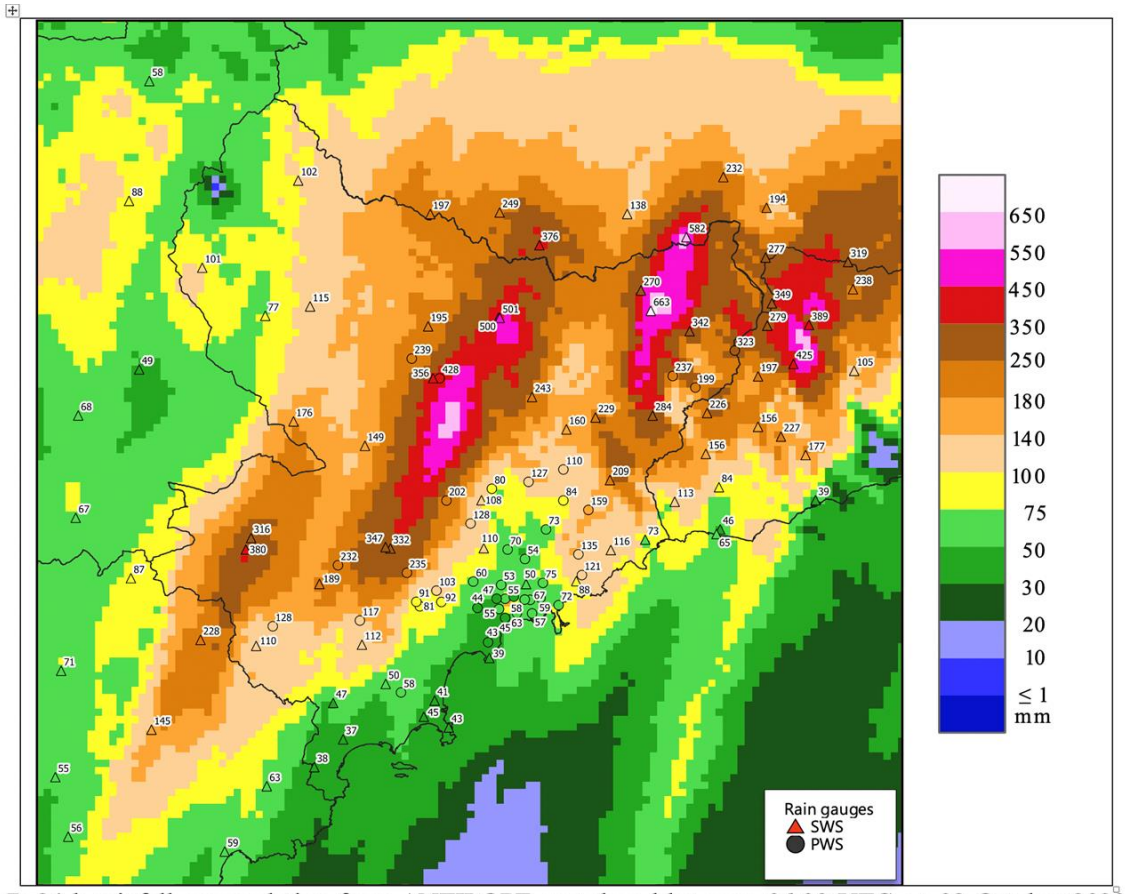


Figure 7: 24 h rainfall accumulation from ANTILOPE reanalyzed between 06:00 UTC on 02 October 2020 and 06:00 UTC on 03 October 2020. Labels show rain gauges measured accumulations.

Cumuls observés sur 24h en mm à partir des radars et des stations météorologiques (MF, EDF, réseau amateurs)

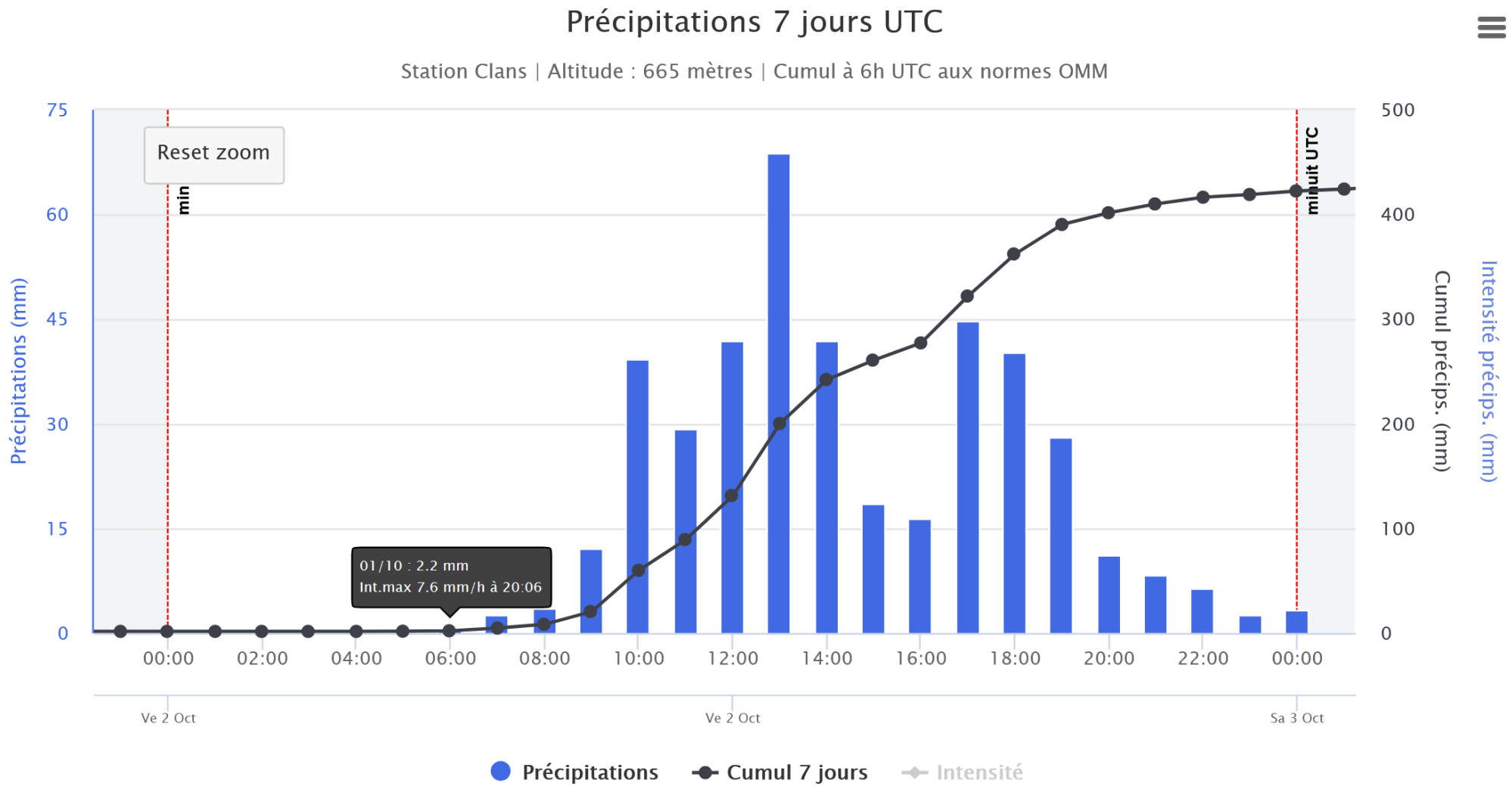
428 mm à Clans (Tinée)

500 mm à Saint-Martin Vésubie

663 mm au lac des Mesches (Roya)

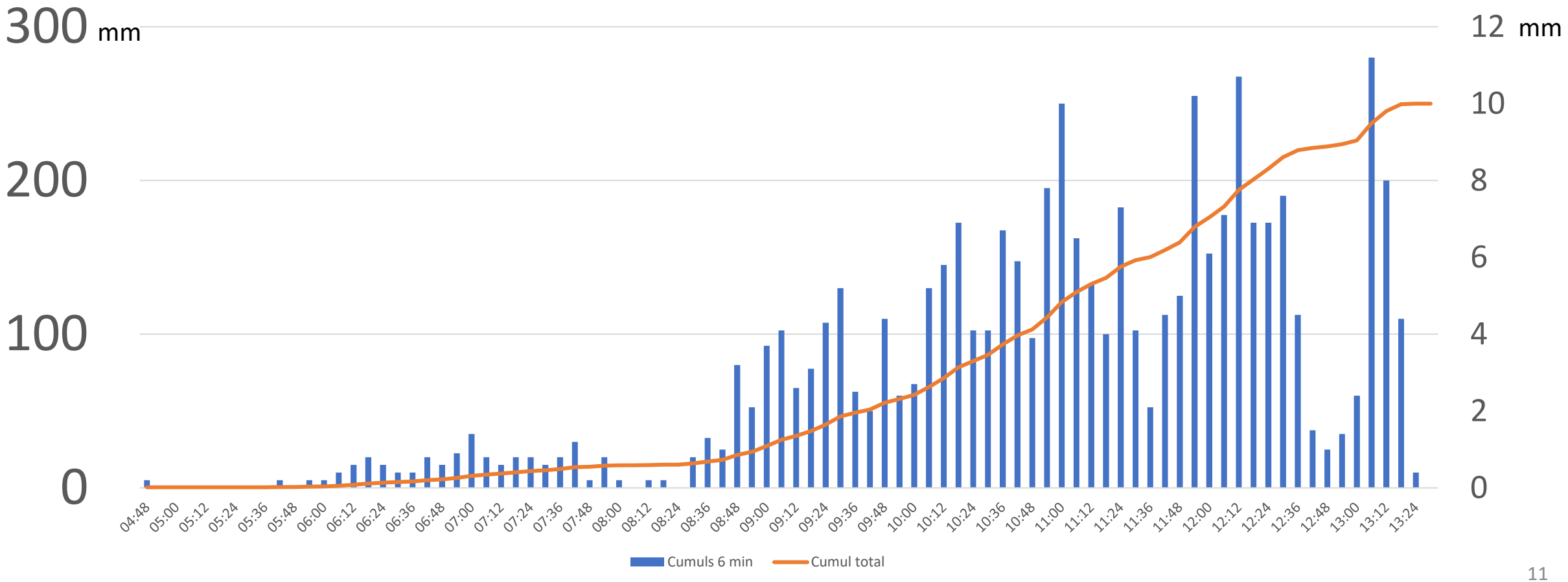
Chochon, Martin, Lebourg et Vidal, 2021

Cumul de précipitation et intensité horaire

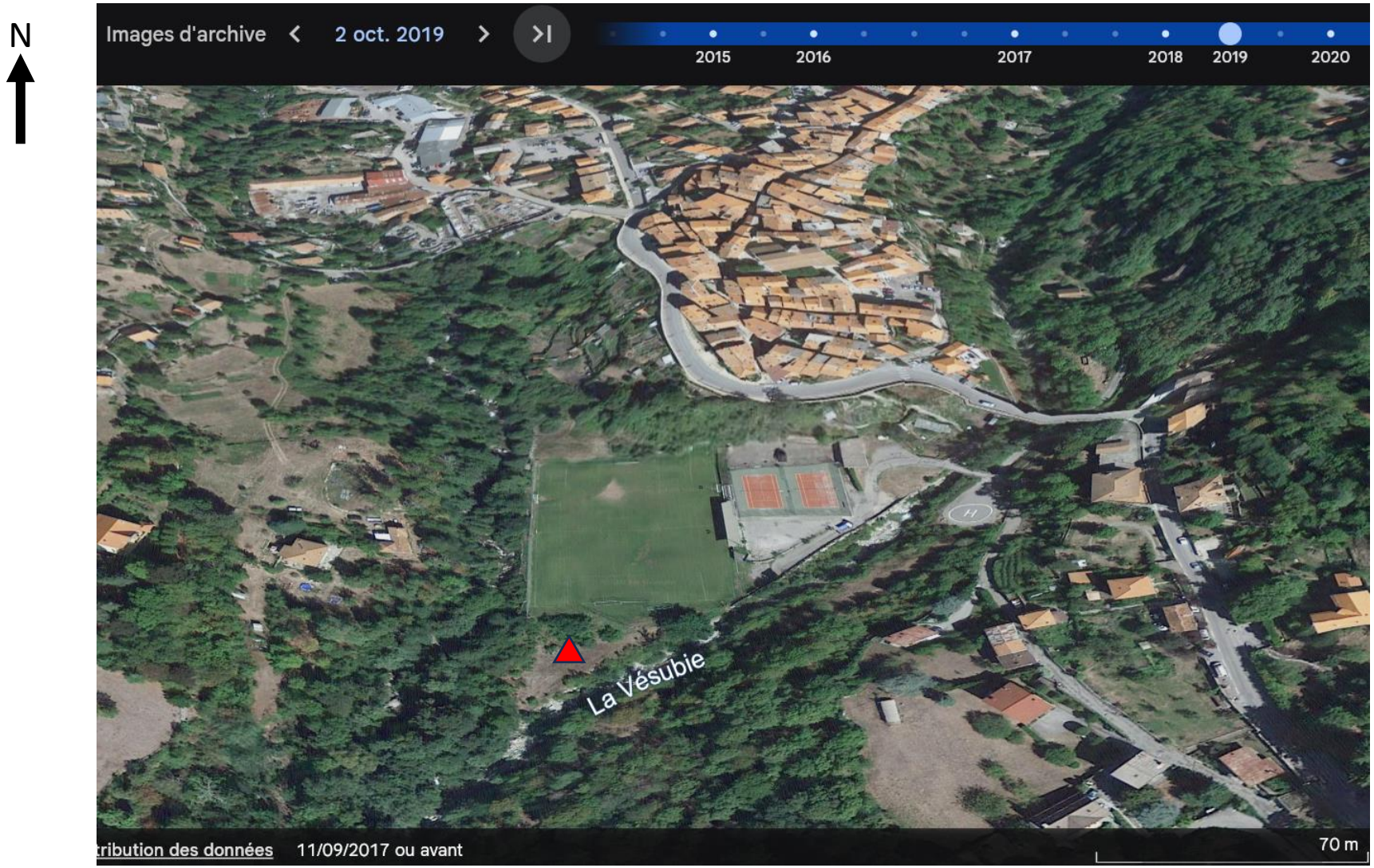


Cumul de précipitation et intensité 6 min

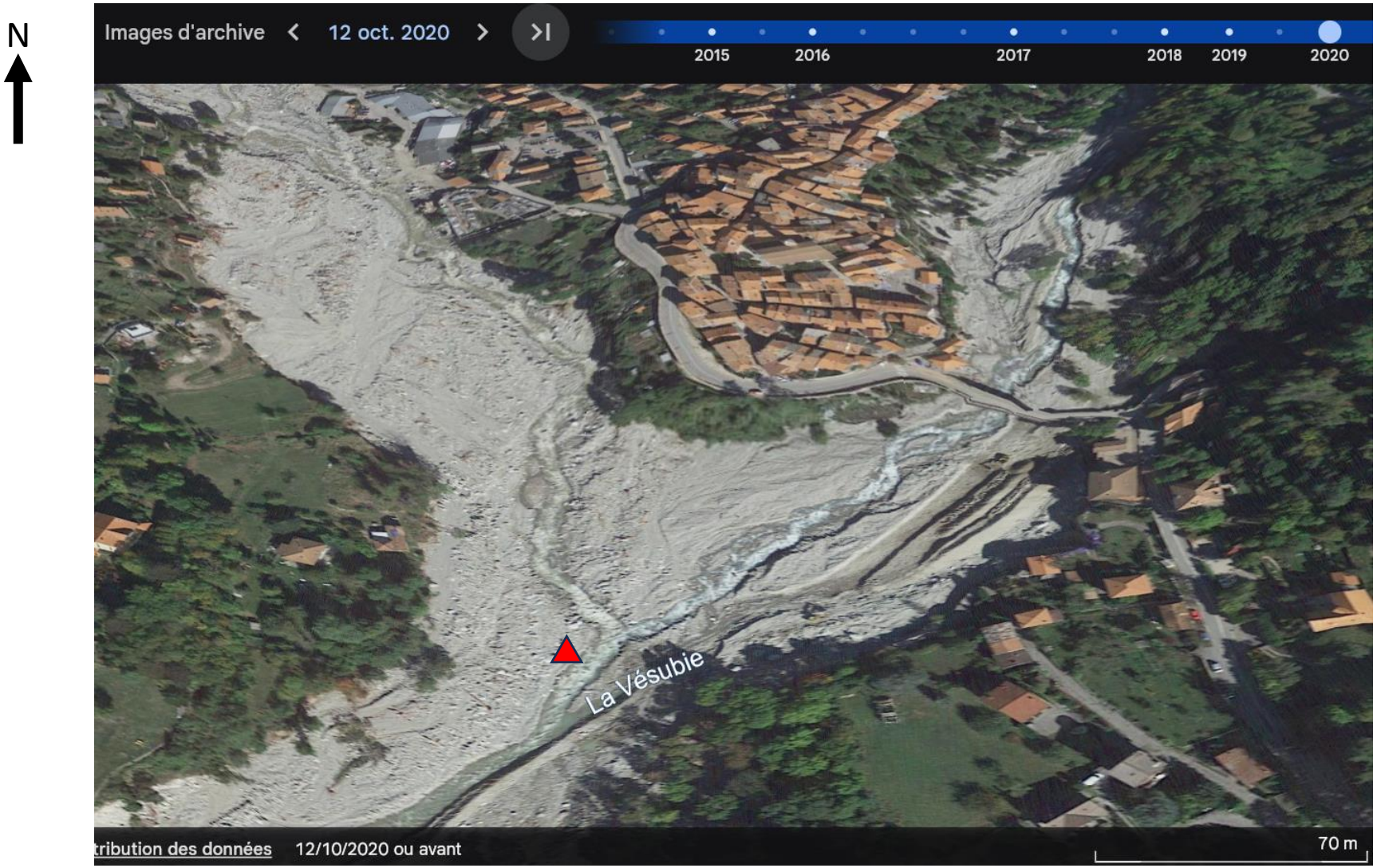
Relevé Météo-France à Saint Martin Vésubie le 2 octobre 2020 en mm



Station Météo-France Saint-Martin Vésubie



Station Météo-France Saint-Martin Vésubie



Tendances passées/actuelles et futures

Climate Dynamics
https://doi.org/10.1007/s00382-018-4179-2

CrossMark

Observed increase in extreme daily rainfall in the French Mediterranean

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Abstract
We examine long-term trends in the historical record of extreme precipitation events occurring over the French Mediterranean area. Extreme events are considered in terms of their intensity, frequency, extent and precipitated volume. Changes in intensity are analysed via an original statistical approach where the annual maximum rainfall amounts observed at each measurement station are aggregated into a univariate time-series according to their dependence. The mean intensity increase is significant and estimated at + 22% (+ 7 to + 39% at the 90% confidence level) over the 1961–2015 period. Given the observed warming over the considered area, this increase is consistent with a rate of about one to three times that implied by the Clausius–Clapeyron relationship. Changes in frequency and other spatial features are investigated through a Generalised Linear Model. Changes in frequency for events exceeding high thresholds (about 200 mm in 1 day) are found to be significant, typically near a doubling of the frequency, but with large uncertainties in this change ratio. The area affected by severe events and the water volume precipitated during those events also exhibit significant trends, with an increase by a factor of about 4 for a 200 mm threshold, again with large uncertainties. All diagnoses consistently point toward an intensification of the most extreme events over the last decades. We argue that it is difficult to explain the diagnosed trends without invoking the human influence on climate.

Keywords Precipitation · Extreme events · Climate change · Detection and attribution · Mediterranean

Tendance observée des pluies extrêmes (sup à 200 mm/j) sur l'arc méditerranéen français de 1961 à 2015

Tendances passées/actuelles et futures

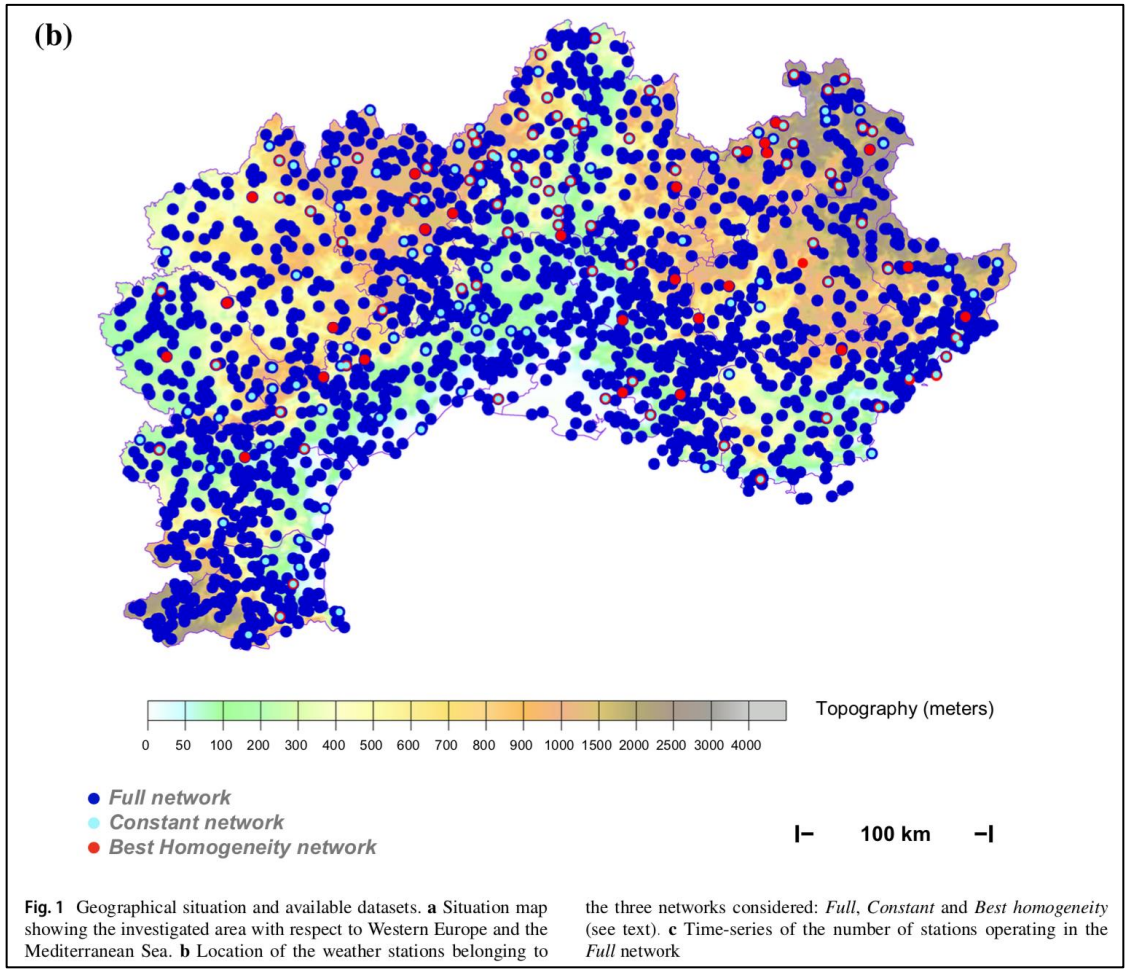

Fig. 1 Geographical situation and available datasets. **a** Situation map showing the investigated area with respect to Western Europe and the Mediterranean Sea. **b** Location of the weather stations belonging to the three networks considered: *Full*, *Constant* and *Best homogeneity* (see text). **c** Time-series of the number of stations operating in the *Full* network

ability. The trend analysis indicates a significant increase in the mean intensity of annual maxima over this region; significance is found from about the year 2000 onwards. The relative change is estimated at + 22% over the 1961–2015 period, with a 90% confidence interval of [+ 7%, + 39%] which is representative of the large uncertainty and variability related to such extreme events, even after aggregation over a relatively large spatial domain. This key result, as well

Hausse de l'intensité des extrêmes entre 1961 et 2015

In a second step, we analysed long-term trends in the number of events exceeding a given threshold. A frequency increase is assessed as robust and statistically significant for high thresholds, most notably between 200 and 250 mm in 1 day. This result holds for the three measurement station networks considered since the late 90's. The frequency of a 200 mm event in the Best Homogeneity network is estimated to have been multiplied by a factor as large as 2.7, with a 90% confidence interval of [1.4, 5.4] between 1961 and 2015. For

Hausse de la fréquence des extrêmes entre 1961 et 2015

in response to anthropogenic influence. Consequently, further strengthening of those events should be expected in the future as global warming increases. The pace of this future change, however, remains quite uncertain (about a factor of 4 in the current study) based on past observations.

Poursuite de cette tendance climatique attendue (beaucoup d'incertitude sur la vitesse)

A. Ribes et al., 2018