

## The climatic scales in viticulture

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A systemic approach to the assessment of climatic variability at the local scale (a wine region) will require a consideration of the structure of the main natural components:

- atmosphere (clouds, wind...)
  - topography (slope, altitude...)
  - water surface (ocean, river...)
  - vegetation (forests, cultures...)
  - anthropogenic actions (roads, buildings, human activities...),
- considering that these components are interdependent (H. Quénol, 2013).

To study climate, scientists consider mainly three scales (Figure 1):

- macroclimate at the level of a country-big region
- mesoclimate at the level of a vineyard or a group of vineyards
- microclimate at the level of a vine (canopy and/or bunch zone)

While trying to understand the climatic effects (i.e. the effect of abiotic factors such as water, light, temperature) on grapevine physiology, berry development-composition/ripening & wine styles, the preferred scale is the microclimate (generally in association with mesoclimate). Climatic & physiological studies required the right sensors, to collect-store the data & to be able to properly analyse-interpret the information.

Day and night temperatures matter. A vine is able to transpire overnight (Rogiers *et al.*, 2009), & some genes involved in berry ripening are expressed only during nights (Rienth *et al.*, 2014).

### References

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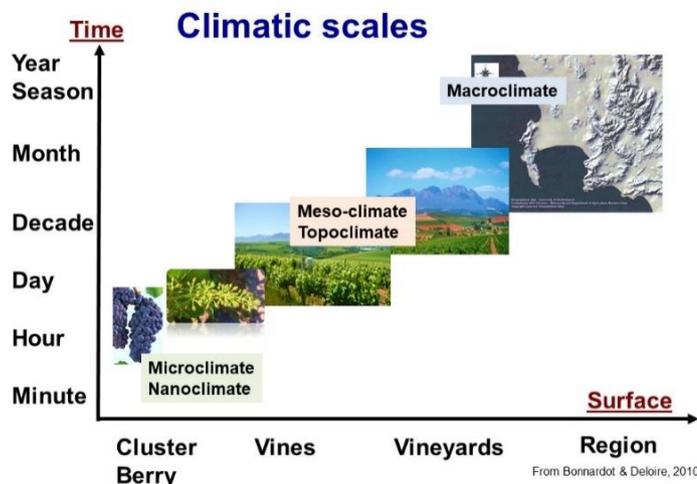


Figure 1: the main climatic scales used in viticulture

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