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## **Risks of environmental and climate change for the Mediterranean ecosystems, with a focus on mediterranean vines**

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The Mediterranean Basin (which includes the Mediterranean Sea and the countries bordering it) is often referred to as a hotspot for climate change and biodiversity. This image is used to illustrate the multiple risks for the region, its people and its ecosystems. These risks have been assessed by a new analysis of the scientific literature (MedECC 2020), concluding that it is the sum of climate change, pollution, unsustainable use of land and sea and the invasion of non-native species that induces these multiple risks, which are often underestimated. The Mediterranean territory is also a biodiversity hotspot with 25,000 plant species, 60% of which are endemic. It provided a “service” to plant and animal species as refuges during the last ice age (when the climate was much colder and the sea level was 120 m lower). These ecosystems are now under the triple threat of drought, rising sea level and intensified land use. Forest fires due to heat waves and droughts will be increasingly dramatic despite prevention efforts and fire response forces. Climate change, pollution and over-fishing are having a heavy impact on marine ecosystems, which contain 18% of known species and cover 0.82% of the global ocean. This talk will depict a picture of these present and future risks. A focus will be done on the viticulture which is iconic of the Mediterranean agricultural production and which is very vulnerable to climate change especially on its southern fringe where more intense and frequent droughts are projected. The methodology involves the use of a vegetation model offline coupled to earth system models. A shift of several degrees toward the north is projected for the vine area in case of a global warming larger than +2°C according to the pre-industrial period.

MedECC (2020) Climate and Environmental Change in the Mediterranean Basin – Current situation and Risks for the Future. First Mediterranean Assessment Report [Cramer, W., Guiot, J., Marini, K. (eds.)], Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 632pp.