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## Performance Evaluation of Fire Risk Map from LSA-SAF over Mediterranean region in 2020

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Forest fires have always been present in Mediterranean ecosystems; as such, they constitute a major ecological and socioeconomical issue. Despite being mostly of anthropogenic origin, the influence of the recent increase in temperature and evapotranspiration is associated with an increase in the frequency and severity of wildfires in the region. Large fires are promoted by the occurrence of high temperatures and episodes of drought that may lead to total burnt areas being several times larger than the average, such as the burnt areas in Portugal in 2003 and 2005, and Greece in 2007. The fire season of 2017 in Portugal has been catastrophic by most accounts. The authorities reported more than 100 human fatalities, with about 500.000ha of estimated burnt area, which corresponds to the maximum record since 1980.

The Land Surface Analysis Satellite Applications Facility (LSA SAF) from EUMETSAT operationally disseminates a set of fire related products for the Mediterranean region. The Fire Radiative Power product (FRP-PIXEL) is delivered in near real-time since 2004 with a 15-min temporal resolution. In this work, daily Fire Radiative Energy (FRE) is computed for the Mediterranean region. The Fire Risk Map (FRM) product combines information from the operational forecasts from ECMWF and vegetation state from SEVIRI to derive forecasts of the risk of fire for the Mediterranean region. The FRM algorithm computes the daily values of the set of components of the Canadian Forest Fire Weather Index System (CFFWIS) for Mediterranean Europe, together with levels of fire danger associated with probabilities of occurrence of fires exceeding specified magnitudes. The FRM can be an important tool to support the management of forest fires and the decision making of prescribed burning within the framework of agricultural and forest management practices.

This work aims to assess the performance of the FRM product during 2020 over the Mediterranean region using FRE estimates. In particular, we aim to evaluate if the more severe and intense fires occurred in areas of high fire risk and high probability of occurrence of extreme fires, as obtained using FRM products. This analysis is made for different countries in the Mediterranean Basin, namely Portugal, Spain, Italy, and Greece. Results reveal a good performance of FRM over the Mediterranean region during 2020; however, better results were observed for the fire season in the Iberian Peninsula than for Italy.

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