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Mapping and disentangling the impacts of extreme heat and drought on European forests

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In the course of the last few decades, an increase in the frequency of extremely warm temperatures and drought severity has been observed across Europe. Such warmer and drier conditions may drive the changes in productivity and composition of forest communities. However, we still lack a robust, biogeographical characterization of the negative impacts of climate extremes as heat waves and dry spells on forests. In this context, we investigated the impact of the 2017 heat and dry summer on European forests. The Normalized Difference Vegetation Index (NDVI) was obtained and related to the Standardized Precipitation Evapotranspiration Index (SPEI) drought index. The spatial pattern of NDVI reduction in 2017 was largely driven by the extremely warm summer for parts of the central and eastern Mediterranean Basin (Italy, Balkans). The vulnerability to the 2017 summer drought was heterogeneously distributed over Europe and topographic factors buffered some of the negative impacts.