## Recent wildfires in Central Chile: Detecting links between burned areas and population exposure in the wildland urban interface

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## Abstract

Wildfires are gaining importance in the Mediterranean regions owing to climate change and landscape changes due to the increasing closeness between urban areas and forests prone to wildfires. We analysed the dry season wildfire occurrences in the Mediterranean region of Central Chile (32°S–39°30′S) between 2000 and 2017, using satellite images to detect burned areas, their landscape metrics and the land use and covers (vegetal) pre-wildfire, in order to determine the population living in areas that may be affected by wildfires. The existing regulations in western Mediterranean countries (Portugal, Spain, France, and Italy) were used to identify and define the wildland-urban interface (WUI) areas, quantifying the people inhabiting them and estimating the population affected by burned areas from 2001 to 2017. We used the Google Earth Engine to process MODIS products and extract both burned areas and land covers. We detected that 25% of the urban population inhabits WUI areas (i.e. Biobío, Araucanía and Valparaíso regions) where the urban population exposed to burned areas exceeds 40%. Most of the land use and land covers affected by wildfires are anthropogenic land covers, classified as savannas,

croplands, evergreen broadleaf forests and woody savannas, representing >70% of the burned areas. Urban areas show only 0.6% of the burned surface from 2001 to 2017. We estimate that 55,680 people are potentially affected by wildfires, and 50% of them are in just one administrative region. These results show the imperative need for public policies as a regulating force for establishing WUI areas with the purpose of identifying wildfire risk in urban areas, such as establishing prevention methods as firewalls and prescribed fires.