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Abstract

Climate Classification of the Fire-Spotting Generated Wildfires †

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Several cross-sectional studies recognize that conductive climatic conditions, including grave weather conditions favorable for ignition, larger burned areas, increasing fuel load and longer fire season, can lead to extreme events and enable fires to spread faster. Thus, the knowledge of relevant climatic and biomass characteristics is necessary for a reliable modelling of the fire-spotting generated fires.

This work concerns fire-spotting generated fires that occur worldwide in any vegetated area and are impacted by numerous factors, such as wind velocity and the ambient air temperature. However, atmospheric stability [1] and fuel moisture [2] are also important for generation of the spotting fires. Moreover, biomass characteristics determine energy available for combustion, and thus can be considered as a primary driver of fire behavior and possibility of the fire-spotting.

In present study we are aimed to integrate the diversity of climate-dependent parameters of the fire propagation into a few differentiable regions basing on climate-biome classification. For that purpose, RandomFront2.3 routine described in [3] is considered and improved by inclusion of climate-dependent parameters. This improvement allows the modelling of various scenarios for the fire-spotting in changing climatic conditions.

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