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# Modeling spatial and temporal patterns of wildfires in Indonesia with the FLAM model

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The wildfire climate impacts and adaptation model (FLAM) uses a process-based fire parameterization algorithm, capturing complex interactions among burned areas, climate, human activity, and fuel availability. The study is devoted to application of the FLAM to Indonesia and features the following methods. The fuel moisture computation is based on the Canadian Fire Weather Information (FWI) system: the Drought Code (DC) is applied to peatland, while the Fine Fuel Moisture Code (FFMC) is applied to non-peatland biomass available for burning (coarse woody debris (CWD) and litter). The ignition probability functions, conditional on these codes, are identified using the optimization approach, based on the observations provided in the Global Fire Emissions Database version 4. The spatial peatland distribution is based on the GFED4; the biomass available for burning – on the tropical and Global Forest Database maps. Thus, the peat fires block is implemented in the FLAM, including a fire spread algorithm. The human ignition probability is based on the human impact map, developed at IIASA using crowdsourcing. Finally, a filtering approach is implemented in the procedure for calibrating the fire suppression efficiency depending on the fire scale. The FLAM accuracy in modeling burned areas is verified over the historical period 2000-2016.