

Supplemental material

A hybrid stochastic Lagrangian - cellular automata framework for modelling fire propagation in inhomogeneous terrains

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Videos showing the flame propagation in the Australian fire experiment and the fire in Mati are found in the Supplementary Material. A description of the videos is given in the following.

- S1_Australian_FI_0.15.avi

Movement of fire particles, sized and coloured by their $Y_{st,p}$, at the indicated time from line ignition at $x=0$ in the controlled fire experiment of [Section 3.2](#) (Australian fire). Here the factor appearing the random walk equation is $F=0.15$. Other parameters are taken from Table 1 in the paper.

- S2_Australian_FI_0.05.avi

Movement of fire particles, sized and coloured by their $Y_{st,p}$, at the indicated time from line ignition at $x=0$ in the controlled fire experiment of [Section 3.2](#) (Australian fire). Here the factor appearing the random walk equation is $F=0.05$. Other parameters are taken from Table 1 in the paper.

- S3_Australian_FI_0.25.avi

Movement of fire particles, sized and coloured by their $Y_{st,p}$, at the indicated time from line ignition at $x=0$ in the controlled fire experiment of [Section 3.2](#) (Australian fire). Here the factor appearing the random walk equation is $F=0.25$. Other parameters are taken from Table 1 in the paper.

- S4_Mati_tauign_60_s.avi

Movement of active fire particles in the case of Mati fire ([Section 3.3](#)), coloured with red for radiation particles and with yellow for convection particles, and iso-lines of the fire spread (denoted with black) at the indicated time of ignition at $x=760$ m and $y=3760$ m (with the origin being the most south-west point of the simulation domain). Thick lines: outline of the high fire intensity region (red) and the extent of the fire scar (blue), from post-fire satellite images. Here the assumed ignition delay time is $\tau_{ign}=60$ s with other parameters taken from Table 1 in the paper.

- S5_Mati_tauign_120_s.avi

Movement of active fire particles in the case of Mati fire ([Section 3.3](#)), coloured with red for radiation particles and with yellow for convection particles, and iso-lines of the fire spread (denoted with black) at the indicated time of ignition at $x=760$ m and $y=3760$ m (with the origin being the most south-west point of the simulation domain). Thick lines: outline of the high fire intensity region (red) and the extent of the fire scar (blue), from post-fire satellite images. Here the assumed ignition delay time is $\tau_{ign}=120$ s with other parameters taken from Table 1 in the paper.