

Mathematics for Urban and Forest Fires

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Burned area mapping with spatiotemporal satellite data

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The analysis of surface reflectance data over time, acquired by multi-spectral optical sensors on board of Earth observation satellites, gives useful information regarding the occurrence of wildfires. This data allows us to identify “event” which correspond to change detections in land cover that may be related to fires. In addition, thermal sensors capture high temperatures indicating locations of “active fires”. In order to determine spatial patches for burned area mapping, one needs to explore the spatiotemporal structure of big data sets of both “event” and “active fires” and take into account the uncertainties inherent in these data sets.