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## Supplementary Material

# Sub-hourly forecasting of fire potential using machine learning on time series of surface weather variables

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# Supplementary Materials

**Figure S1**. Forecast for different models prior to four fire events considered in the dataset (legend indicates model name, given by the 'look forward' window from training). These forecasts pertain to models evaluated on events not included in the training (out-of-sample). A threshold of 0.7 is marked as a reference (horizontal dashed gray line). Reported fire ignition times are indicated as vertical dashed black lines. It's worth noting that this threshold value is chosen arbitrarily, and performance metrics for the models (explained in subsequent figures) are computed across a range of one hundred thresholds spanning from 0 to 1. The solid lines indicate consensus values, representing the output of the trained models when fed with new data, as here are tested the out-of-sample performance before fire events.

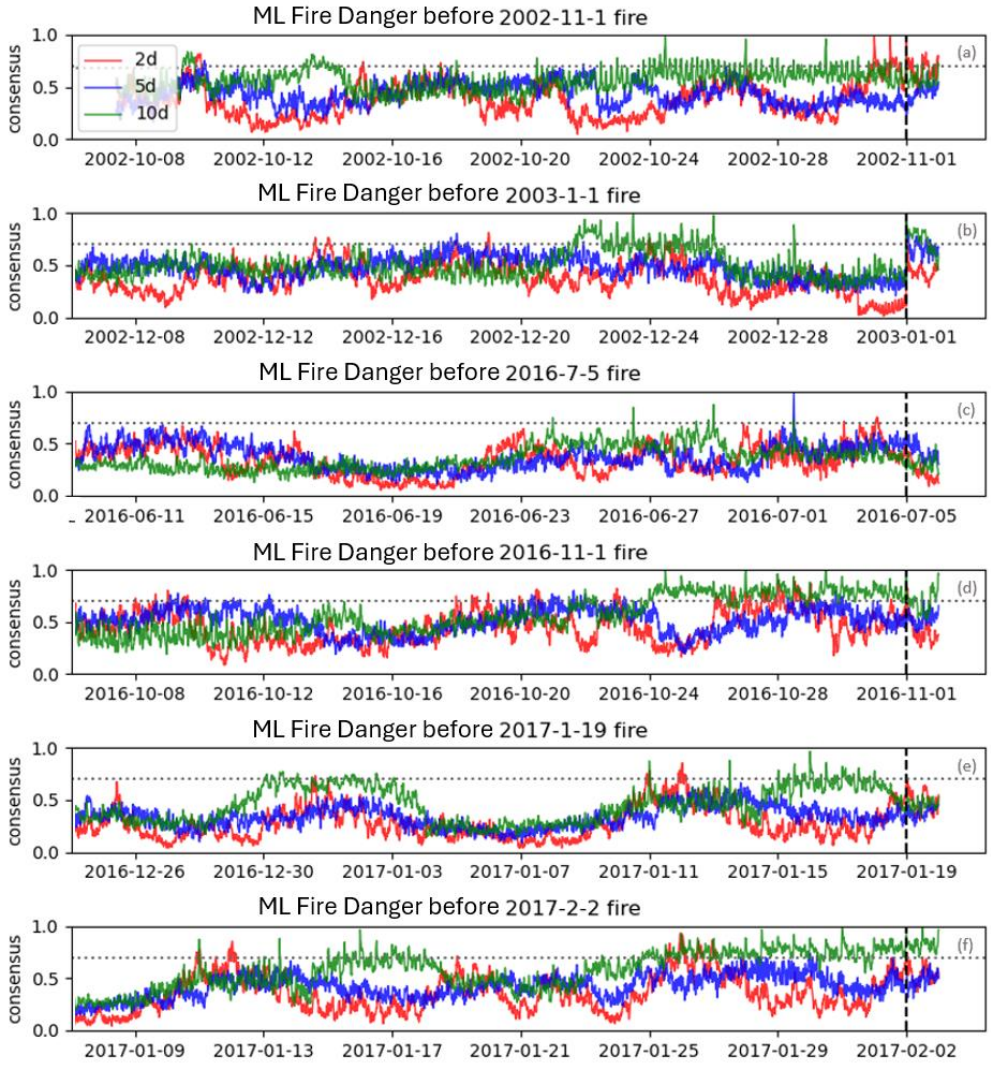

**Figure S2**. Forecast for different models prior fire events (legend indicates model name, given by the 'look forward' window from training). These forecasts pertain to models evaluated on events not included in the training (out-of-sample). A threshold of 0.7 is marked as a reference (dashed gray line).

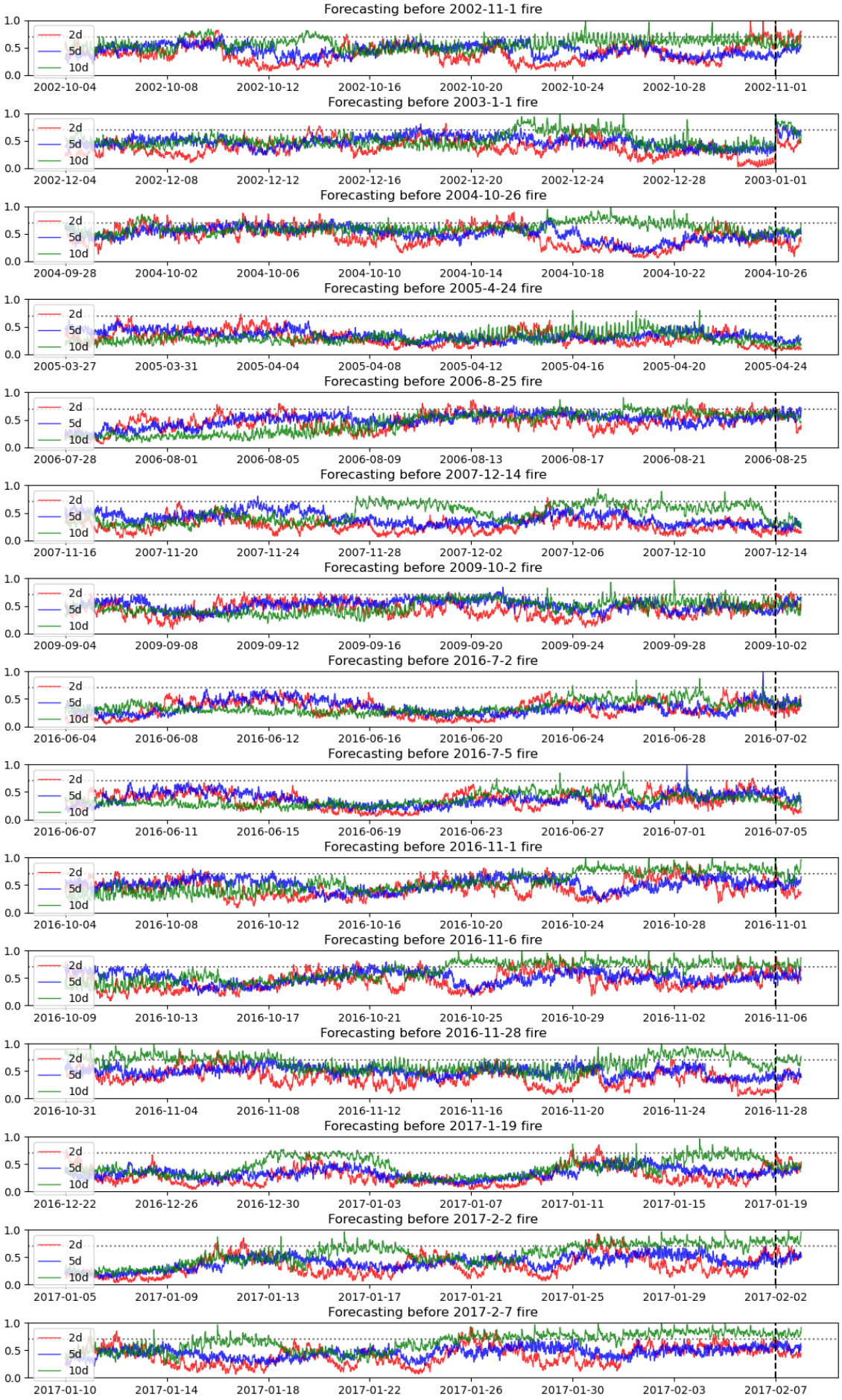

**Table S1**. Wildfires events catalogue for a radios of 10 km around the Sunshine Coast, Queensland, Australia.

| fire_name | ignition_date | fire_type | fuel_type | area_ha | agency | Anticipated |
|---|---|---|---|---|---|---|
| **Noosa** National Park/NP/W/2017/001 | 2017-01-19T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 843.1438 | Queensland Parks and Wildlife Service | |
| **Noosa** National Park/2009/W/1 | 2009-10-02T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 206.0443 | Queensland Parks and Wildlife Service | |
| **Noosa** National Park/2006/W/1 | 2006-08-25T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 94.38235 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/2002/W/1 | 2002-11-01T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 73.4033 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2016/007 | 2016-11-28T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 51.52103 | Queensland Parks and Wildlife Service | |
| **Noosa** National Park/2003/W/1 | 2003-01-01T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 16.94324 | Queensland Parks and Wildlife Service | |
| **Noosa** National Park/2007/W/1 | 2007-12-14T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 12.59514 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2017/001 | 2017-02-02T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 2.408892 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2017/002 | 2017-02-07T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 1.902044 | Queensland Parks and Wildlife Service | |
| **Noosa** National Park/2004/W/3 | 2004-10-26T00:00:00.000Z | Bushfire | primarily eucalypt leaves and bark | 0.901474 | Queensland Parks and Wildlife Service | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Mount **Coolum** National Park/NP/W/2016/004 | 2016-11-01T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 0.628943 | Queensland Parks and Wildlife Service | |
| **Maroochy** River Regional Park/2005/W/1 | 2005-04-24T00:00:00.000Z | Bushfire | primarly melaleuca species' paper-like bark and leave | 0.212002 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2016/005 | 2016-11-06T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 0.051727 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2016/003 | 2016-07-02T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 0.050941 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2016/001 | 2016-07-05T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 0.044375 | Queensland Parks and Wildlife Service | |
| Mount **Coolum** National Park/NP/W/2016/006 | 2016-11-01T00:00:00.000Z | Bushfire | primarly heathland vegetation and eucalypt (leaves and bark) | 0.012719 | Queensland Parks and Wildlife Service | |