FIRE MODELLING AND FIRE WEATHER IN AN AUSTRALIAN DESERT.

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Hummock grasses form a discrete fuel for landscape fires in the vast arid and semi-arid regions of Australia. Fore fires to spread in such discrete fuels, the flames need to be long enough to cross gaps, under sufficient wind to have large tilt angles, and impinge on the next hummock long enough to ignite it. Wind speed, discrete-fuel loadings, fuel moisture contents and gap-size distributions are key characteristics for fire-spread modelling in these fuels. Present models derived in the arid region do not have universal application.

Once a model is formed, formal prediction of fire spread requires a three stage process:

i. a domain analysis for the applicability of the inputs to the fire-spread model;
ii. a likelihood-of-any-spread analysis; and,
iii. application of spread model to predict rate of spread of the headfire.

That directs inputs, such as fuel moisture, are not available for models on a routine basis creates problems of prediction. With each extra step in the estimation of inputs, further errors in spread prediction are likely to arise.

ABSTRACTS

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