Identifying and defining landscape dryness thresholds for fires

Thomas Duff

NDWI

Temperature Vegetation Dryness Index

Normalised Drought Index (NDMI)

NDVI

Antecedent Precipitation Index

Fire Behaviour Index

Climate Moisture Index

- There is a huge range of indices available representing fire potential
  - Modelled values
  - Proxies
  - Remotely sensed values
- Most of these have an undeniable physical link to fire behaviour
- Most of these have some kind of demonstrated correlation with fire
- How useful are they?

Live Fuel Moisture (VPD based)? *Mount Soil Moisture Drought Factor Curing* *NFDRS 1000 hour fuel model Vesta* *Fire Fuel Moisture* *Soil Dryness Index*

A Cautionary Note Regarding the Use of Cumulative Burnt Areas for the Determination of Fire Danger Index Breakpoints

F. Pimont [A], J. Ruffault [A], N.K. Martin-StPaul [A] and J.-L. Dupuy [A]

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Fit for Purpose???

- Depends on what the purpose is….

- Many approaches are being applied outside their development range

- The is often more than one purpose

E.g. For McArthur's Forest Fire Danger:

- Suppressibility
- Forward Rates of Spread
- Intensity
- Probability of any fires
- Probability of uncontrollable fires
- Severity (Drought Factor)

KBDI

20 mm

Fit for Purpose?

- Scientific evidence is not necessarily fit for decisions

- For decision making:
  - Tolerance to error may vary
  - Overall model performance may be less important tha ability to discriminate at key times
  - Generally need to predict the future
  - Consequences can be high

- For robust decision making – we need to know what our models are telling us

AUST OUTL

Ab...
Normal fire potential

THE AGE

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This was published 1 year ago

Victorian government pledges $500m to reduce bushfire risk, waives tourist entry fees for emergency workers

By Annika Smethurst
Updated May 8, 2021 — 2.50pm, first published at 10.51am

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What is this project seeking to do

- Review and describe landscape dryness metrics

- Determine the uses and decisions we're making using dryness metrics

- For each decision, look at what our knowledge needs are (sensitivity to detecting an event etc.) and how well they are being filled by existing metrics

- Make recommendations on how pathways for improvement

Seeking Expressions of Interest soon!