

Mitigating the effects of severe fires, floods and heatwaves through the improvements of land dryness measures and forecasts.

Research Advisory Forum /

July 2019

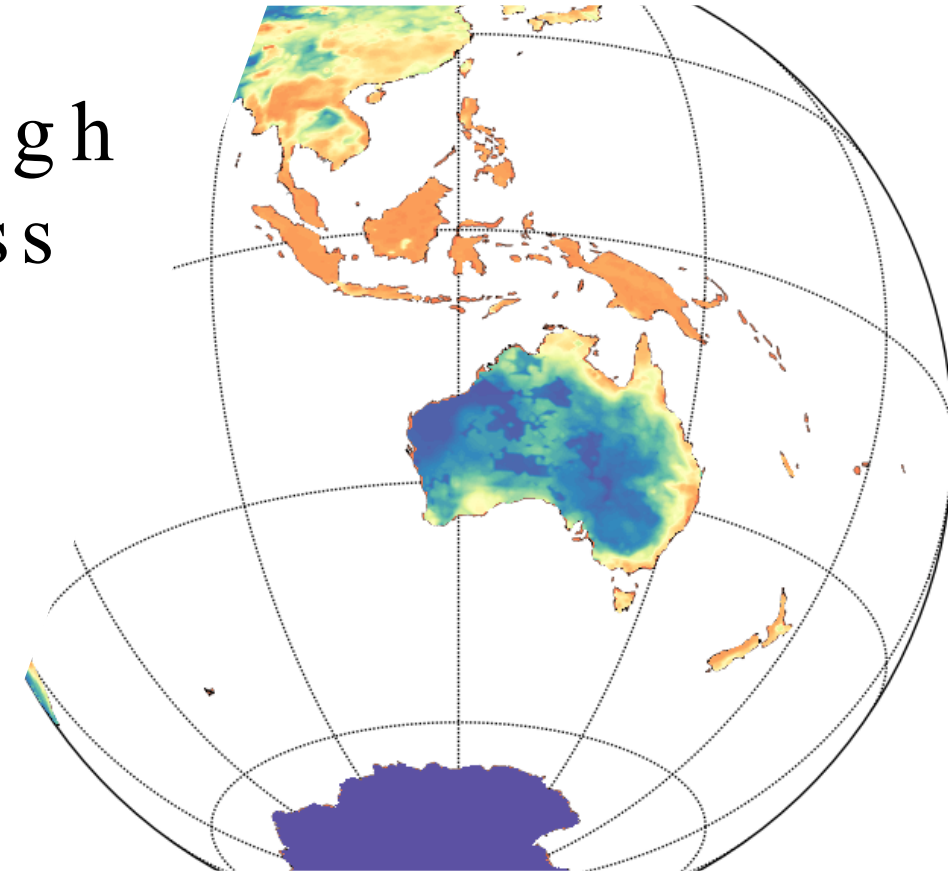
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JASMIN

JULES based Australian Soil Moisture Information

■ Status against milestones

- On target.
- 2018/19 annual report submitted.
- Positive end -user feedback.

■ Recent progress

- Routine updates to JASMIN.
- Tech -report on downscaling submitted.
- Research on soil – fuel moisture content relationship under way.

■ Research impacts

- Assessed in WA -DBCA research study.
- JASMIN methodology adopted in BARRA for soil moisture initialization.
- Tas Parks evaluated JASMIN for placing open fire restriction on national parks.

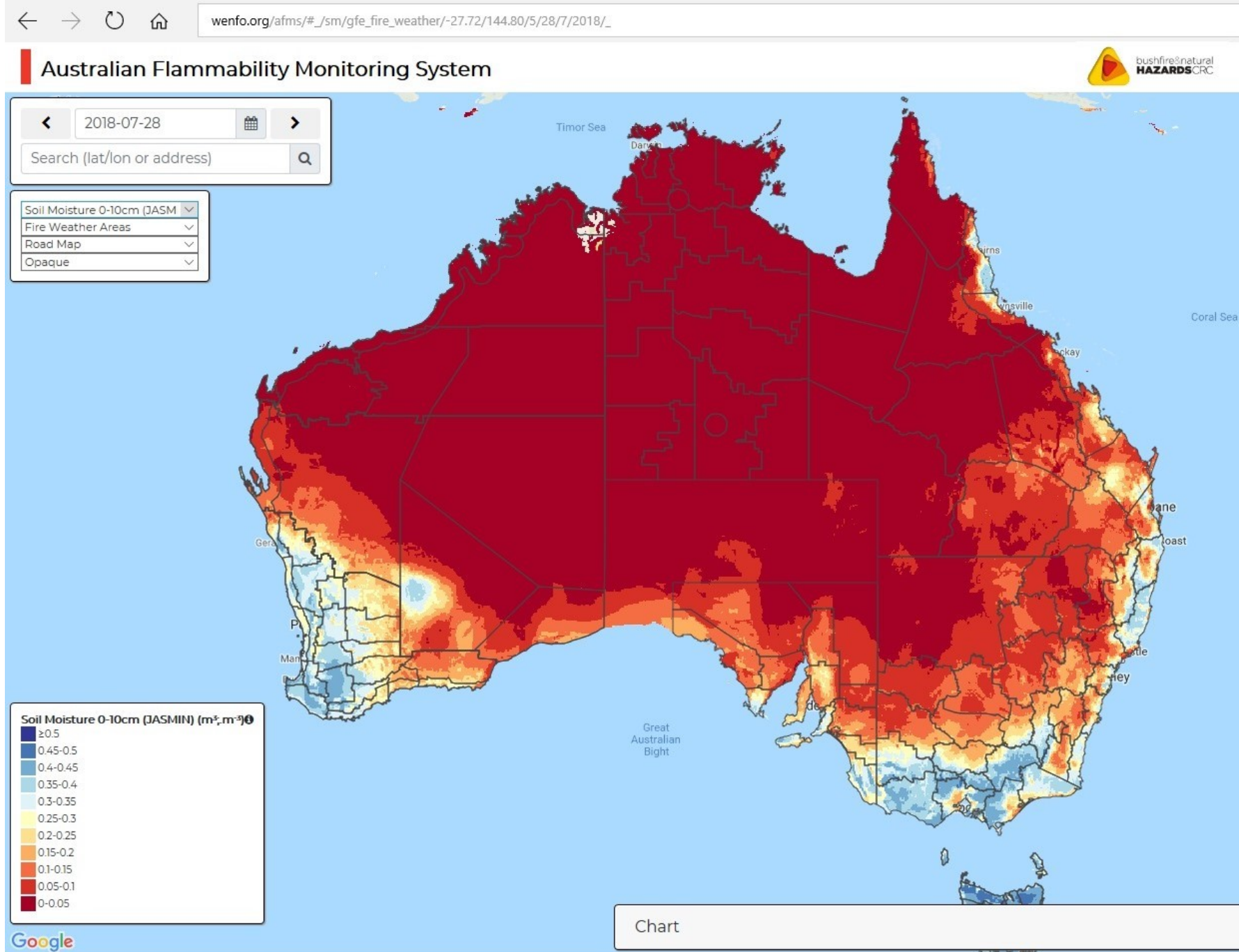
JASMIN: A prototype high resolution soil moisture analysis system for Australia

Intiaz Dharssi and Vinodkumar
October 2017



JASMIN on AFMS

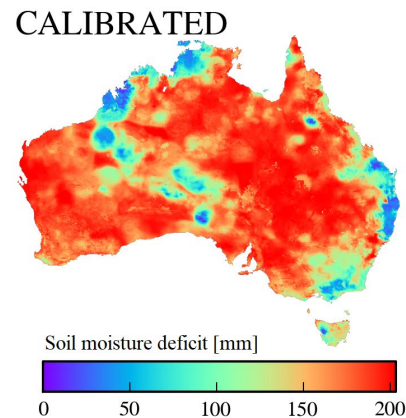
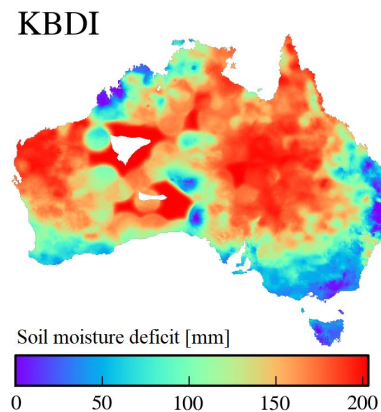
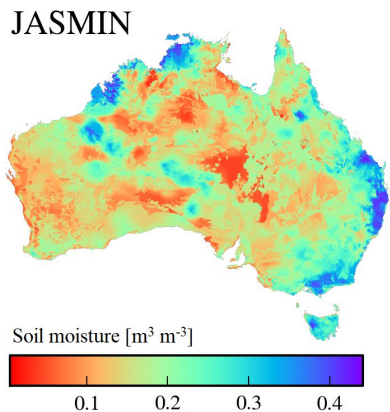
- Data visualization.
- Can easily pull the timeseries over a location as a csv file.
- Only the soil moisture data currently available.
- Data provided as volumetric soil moisture ($\text{m}^3 \text{m}^{-3}$).
- Daily interval
- Top two model soil layers.
 - 0–10 cm;
 - 10–35 cm;



Calibration of JASMIN

For easier utilization of JASMIN

- Utilization of JASMIN in existing operational frameworks.
- Rescale native moisture content from JASMIN to moisture deficit (0 – 200 mm).
- Each calibration product is tailored for potential user requirement.



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Agricultural and Forest Meteorology

Volume 264, 15 January 2019, Pages 27-39



Evaluation and calibration of a high-resolution soil moisture product for wildfire prediction and management

Vinodkumar ^{a, b}, Imtiaz Dharssi ^a

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<https://doi.org/10.1016/j.agrformet.2018.09.012>

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Highlights

- Utilization of soil moisture from a land surface model for wildfire applications.
- Robust performance by the new product against ground observations.
- Calibration of the soil moisture product for use in operational practices.
- Improvements to existing drought indices used in operations.

Abstract

Soil moisture deficit is a key variable used in operational fire prediction and management

BOM THREDDS

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Catalog

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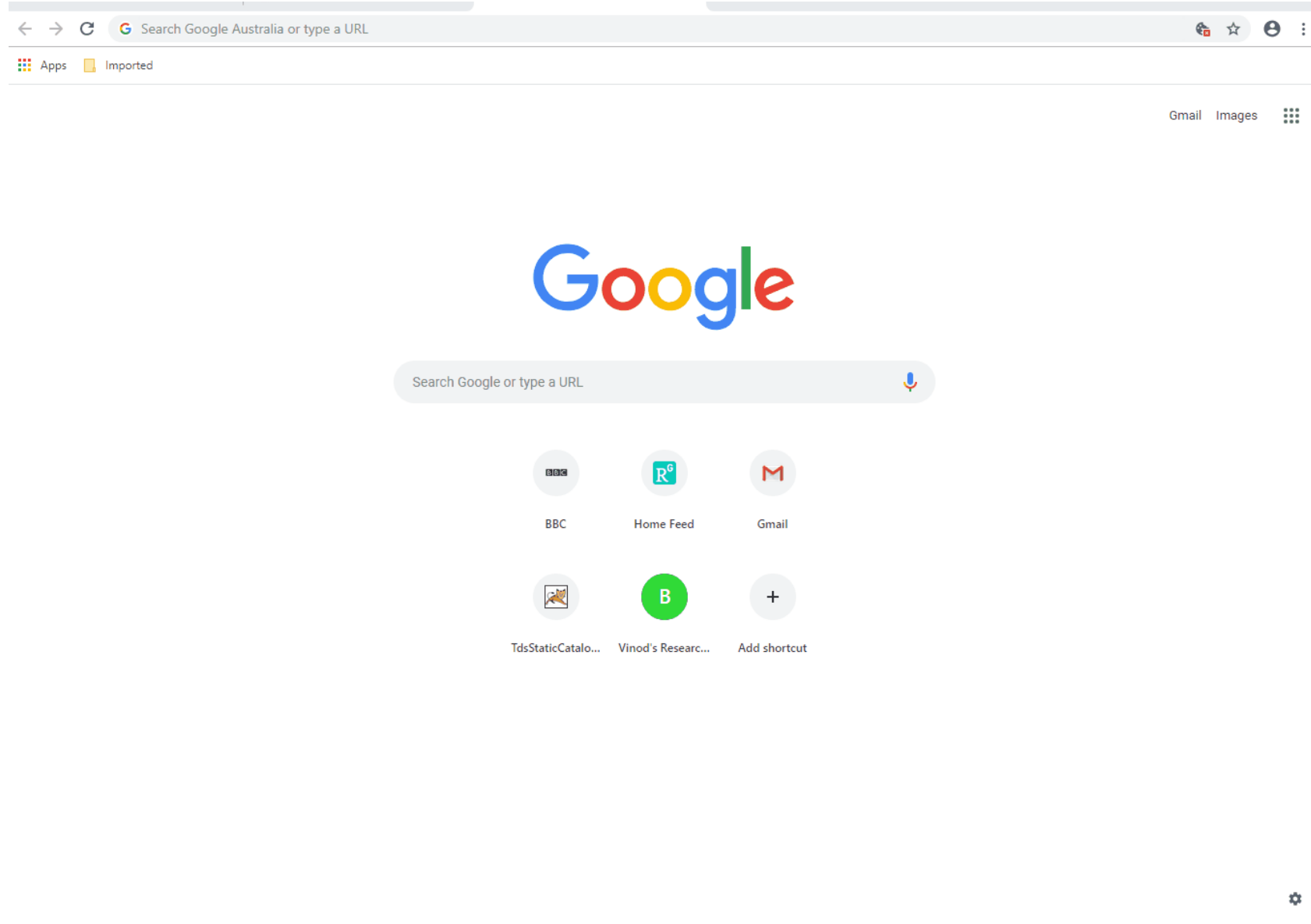
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[TDS Research Data service at Australian Bureau of Meteorology](#)
THREDDS Data Server [Version 4.2.8 - 20110727.2340] [Documentation](#)



BoM internal project web page

For Extreme Weather Desk



Summary

Data availability

- Utilization strategy.
- Addresses immediate requirement for more accurate soil dryness product.
- Simple, faster and cost -effective.

- AFMS / OPeNDAP -THREDDS
- Internal web platform for Extreme Weather Desk
- Routine updates

Calibration of JASMIN

Future plans

- JASMIN in the prototype National Fire Danger Rating System.
- Soil-fuel moisture relationship.
- JASMIN within NASA's Land Information System (LIS) framework.

Thank you

Acknowledgements

- BNHCRC and the end -users.
- Marta Yebra / ANU / AFMS.
- BoM colleagues in StS.
- Monash University & University of Melbourne for OzNet .
- CSIRO for CosmOz .
- TERN for OzFlux .

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