

Waroona fire. Photo: Neil Bennett, Bureau of Meteorology

- Key Topics: fire impacts [2]
- fire severity [3]
- fire weather [4]

Coupled fire-atmosphere modelling [5]

The project aimed to improve understanding of fire and atmosphere interactions and feedback processes through running the coupled fire-atmosphere model ACCESS-Fire. ACCESS-Fire is an important research tool and has the potential to be a critical operational tool. It will assist in informing fire management decisions as increasingly hazardous scenarios are faced in a changing climate. Further deliverables from the project include the preparation of meteorological and simulation case studies of significant fire events as publications, installation and testing of the ACCESS-Fire coupled model on the National Computing Infrastructure; and preparation of training material to support operational implementation of research findings. The project has demonstrably achieved the objective of building and sharing national capability in fire research and has provided fire and meteorology expertise during high impact events in support of end-users inside their operational centres.

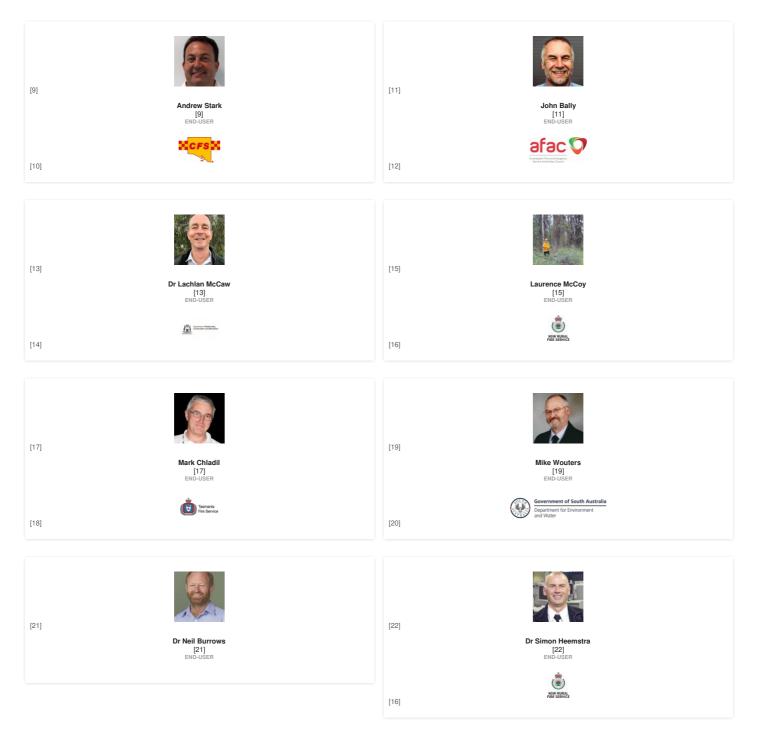
Project: detail Notabs

Research team

Research leader



End User representatives



Description

This project aimed to improve understanding of fire and atmosphere interactions and feedback processes through running the coupled fire-atmosphere model ACCESS-Fire.

Project deliverables include: preparation of meteorological and simulation case studies of significant fire events as publications; installation and testing of the ACCESS-Fire coupled model on the National Computing Infrastructure (NCI); and preparation of training material to support operational implementation of research findings.

The project has demonstrably achieved the objective of building and sharing national capability in fire research and has provided fire and meteorology expertise during high impact events in support of end-users inside their operational centers. That outcome is not a specific project deliverable and is to some degree intangible, so not as easily measured as outcomes such as publications. However, it successfully realises the CRC objective of building collaborations and trusted partnerships and strengthening national capability. The operational support capability is recognised and valued across fire and land management agencies and in the Bureau.

Read the final report here. [23]

Related News



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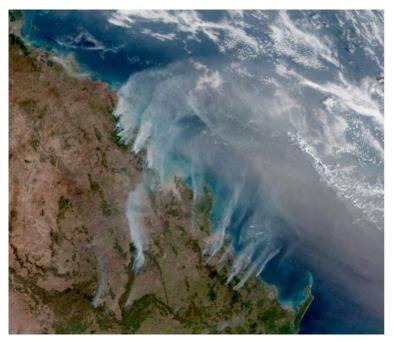
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[45]



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Mercury rising replay available COMMUNITIES, FIRE SEVERITY

[48]

Publications

24 APR 2015

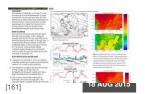
07 OCT 2014

Year	Туре	Citation
2022	Book Chapter	Golding, B. [49] et al. Towards the "Perfect" Weather Warning: Bridging Disciplinary Gaps through Partnership and Communication 149 (Springer Nature, 2022). doi:doi.org/10.1007/978-3-030-98989-7_
2021	Report	Peace, M. [8], Kepert, J. [6], Ye, H. [54] & Greenslade, J. [55] Coupled fire-atmosphere modelling – final project report [23]. (Bushfire and Natural Hazards CRC, 2021). Google Scholar [56] BibTeX
2020	Journal Article	Peace, M. [8], Charney, J. [59] & Bally, J. [11] Lessons learned from coupled fire-atmosphere research and implications for operational fire prediction and meteorological products provided by
2020	Report	Peace, M. [8], Kepert, J. [6], Ye, H. [54] & Greenslade, J. [55] Coupled fire-atmosphere modelling: ACCESS-Fire – annual report 2019-2020 [65]. (Bushfire and Natural Hazards CRC, 2020). Google
2019	Conference Paper	Peace, M. [8], Kepert, J. [6] & Ye, H. [54] ACCESS-Fire: coupled fire-atmosphere modelling [69]. Bushfire and Natural Hazards CRC Research Day AFAC19 (2019). at https://knowledge.aidr.org.au
2019	Conference Paper	Sturgess, A. [74] & Peace, M. [8] Science in operations: QFES response to the 2018 Queensland fires [75]. Bushfire and Natural Hazards CRC Research Day AFAC19 (2019). at https://knowledge.com
2019	Journal Article	Virgilio, G. [79] et al. Climate Change Increases the Potential for Extreme Wildfires [80]. Geophysical Research Letters 46, 8517-8526 (2019). DOI [81] Google Scholar [82] BibTeX [83] EndNote XM
2019	Report	Peace, M. [8], Kepert, J. [6] & Ye, H. [54] Coupled fire atmosphere modelling annual report 2018-2019 [85]. (Bushfire and Natural Hazards CRC, 2019). Google Scholar [86] BibTeX [87] EndNote XM
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2017	Conference Paper	Peace, M. [8] et al. Lessons learned from a multidisciplinary investigation into the Waroona fire [98]. AFAC17 (Bushfire and Natural Hazards CRC, 2017). Google Scholar [99] BibTeX [100] EndN
2017	Journal Article	Peace, M. [8] et al. Meteorological drivers of extreme fire behaviour during the Waroona bushfire, Western Australia, January 2016 [102]. Journal of Southern Hemisphere Earth Systems Science
2017	Report	Kepert, J. [6], Peace, M. [8] & Ye, H. [54] Coupled fire-atmosphere modelling project: annual project report 2016-17 [107]. (Bushfire and Natural Hazards CRC, 2017). Google Scholar [108] BibTeX
2016	Report	Kepert, J. [6] & Peace, M. [8] Coupled fire-atmosphere modelling: Annual project report 2015-2016 [111]. (Bushfire and Natural Hazards CRC, 2016). Google Scholar [112] BibTeX [113] EndNote X
2015	Presentation	Kepert, J. [6] & Peace, M. [8] Coupled Fire-Atmosphere Modelling [115]. (2015). Google Scholar [116] BibTeX [117] EndNote XML [118]
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Posters



Meteorology of the Sampson Flat Fire in January 2015

[161] FIRE [127], FIRE WEATHER [4] In January 2015, the Sampson flat bushfire burnt in the Adelaide hills. it was active for 6 days, burning 12,...

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Coupled fire-atmosphere modelling project: case study of the Waroona fire [162]

REMOTE FIRE SEVERITY [3], SENSING [163]

Coupled fire-atmosphere models show three-dimensional interactions between a fire and the surrounding...

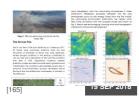


Access-fire: Australia's coupled fire-atmosphere model

[164]

FIRE IMPACTS [2], FIRE SEVERITY [3]

Some bushfires exhibit extreme behaviour that exceeds the bounds of existing predictive guides. Coupling...



Coupled fire-atmosphere simulations of the Sir Ivan Fire

[165]

FIRE IMPACTS [2], FIRE SEVERITY [3]

ACCESS-Fire couples an empirical fire spread model to the Australian numerical weather prediction model. The..



Lessons learned from coupled fire-atmosphere research and implications for operational fire modelling [166]

FIRE IMPACTS

[2], FIRE SEVERITY [3] Coupled models are a class of fire prediction models that combine fire and atmospheric components. The...

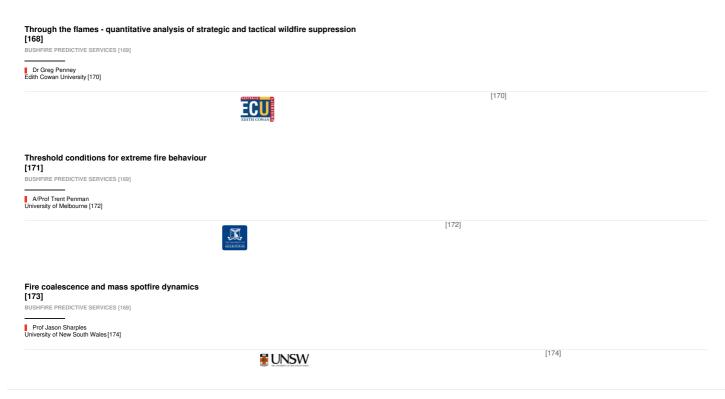


ACCESS-Fire: a case study

[167] MODELLING [128]

Key findings: Coupled modelling can provide the next level of value for fire danger forecasting, if it can be...

Linked Projects



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