

# CALL FOR EXPRESSION OF INTEREST FOR ERP 10 – USER INTERFACE FOR FIRE WEATHER DATASET

Proposals due **20 July 2018** to [office@bnhrc.com.au](mailto:office@bnhrc.com.au)

## INTRODUCTION

The Bushfire and Natural Hazards Cooperative Research Centre (hereafter the CRC), in conjunction with our client, the Department of Environment Land Water and Planning (Victoria) (DELWP) is seeking expressions of interest for the following project.

### **User interface platform for the Victorian historical fire weather dataset**

## PROJECT AIMS AND OBJECTIVES

1. Development of a new user interface for the Victorian historical fire weather gridded dataset that is easily accessible and informs risk tools for strategic, tactical and community engagement purposes. This interface will be utilised by Victorian bushfire management agencies
2. This project will incorporate the surface elements of the gridded dataset into an existing Google Climate Engine (Climateengine.org) and develop a web-based user interface to provide user access to the data for bushfire behaviour and risk analysts. The interface functionality will include simple statistical summaries (i.e. mean, max, min, boxplot) as well as more detailed queries around spatial and temporal patterns of fire weather variables.
3. The climate engine and interface will provide storage and access of the surface datasets as both daily and hourly versions.

## BACKGROUND

### *Safer Together*

1. In November 2015, the Victorian Government released the Safer Together policy platform, setting out the future direction for bushfire management in Victoria. Safer Together is part of broader government reform to Victoria's emergency management sector and sees land and fire management agencies working together, in partnership with local communities to combine fire expertise with local knowledge.

2. A key pillar to Safer Together is science data and technology. The policy specifically states “we use the latest science, data and technology to make sure our actions are targeted at reducing bushfire risk and protecting those things we care about. It also notes under “what we do:” “Commission bushfire science research” (p. 9), “What we will do: continue to invest in new science to address knowledge gaps and reduce uncertainties in our bushfire modelling.” (p. 17) and “Risk is dynamic and constantly shifting, so we need to keep building on our evidence base. We will continue our investment in science, and in partnership with research institutions, to build knowledge of the relationship between fire and the environment and to better manage risk.” (p. 18)
3. In May 2017 \$23m was announced to fund a two-year Safer Together program. In part these funds were allocated to ensuring that Victoria’s significant investment in bushfire preparedness and response is supported by a systematic and ongoing investment in developing scientific evidence.
4. The implementation of Safer Together is being improved by applying a systematic approach to understanding what some of the key sector knowledge gaps are, the resulting risks they may pose to the achievement of Safer Together objectives, and determining how these risks can be mitigated by specific pieces of research.
5. Through being able to clearly articulate what existing research delivers, and where the priority knowledge gaps occur, the sector will be able to respond quickly and consistently in answering questions about resource requirements, in accessing external, collaborative or partnership opportunities, or in leveraging off existing programs.
6. This project is one of nine intended for delivery through the Safer Together program.

## CONTEXT

1. In recent years, the Department of Environment, Land, Water and Planning (DELWP) has supported the development of a historical fire weather gridded dataset (from 1972 to 2017) for Victoria (through Monash University and the Desert Research Institute (DRI)). This dataset comprises several weather variables and Forest Fire Danger Index (FFDI) outputs
2. Currently, this dataset is managed by DELWP on the RedShift database with limited capacity to service a range of end users. In order for this valuable dataset to be utilised by regional and district risk analysts from all agencies, a user-friendly data platform is required. This will result in improved efficiency by analysts to determine suitable weather scenarios for the application of bushfire risk assessments through Phoenix Rapidfire and VFRR processes
3. The gridded weather dataset has already been utilised for multiple research projects within CFA and DELWP. It has been used to model Mallee fire spread to assess the performance of Phoenix, evaluate Drought indices in determining lightning caused fires (and comparison with BoM soil moisture products), examine escaped burns in

relation to weather variables and fire danger period, and to identify FFDI and drought at ignition points, but, it currently lacks a user-friendly interface

4. With the inception of *Safer Together*, there is an expectation that risk tools for strategic, tactical and community engagement purposes be used by all agencies. Currently, CFA and other partner agencies do not have access to, or the skills necessary to view or extract data from the RedShift database for informing, trialling and implementing evidence and risk-based approaches using VFRR or assessing bushfire attack levels for new developments

## SCOPE

### INCLUSIONS

1. Sector partnership to develop and design the user interface
2. Identification and limitations of key and non-key user group and agencies
3. A key user survey to seek functionality requirements
4. A mock-up of the final interface
5. User acceptance testing at the earliest opportunity
6. Develop online training for wider user base
7. Ensure future weather data can be easily added into the system to ensure the dataset remains current
8. Establishment of local ongoing support
9. Accessible through existing managed secure online portals (Fireweb or EMCOP).

### EXCLUSIONS

1. Connectivity to existing systems
2. Public access

## PROJECT SPECIFICATIONS

### Key Steps

In developing the project proposal to be submitted in response to this Call for Expression of interest researchers should be mindful of the following project requirements.

- A detailed project plan (using the DELWP template) will be required as an early project deliverable.
- Initial meetings between partners to better scope the work and understand constraints and feasibility.

- Sector partnership to develop and design the user interface to ensure the effective useability of the interface
- A key user survey to be undertaken to seek functionality requirements for the interface
- A mock final application to be produced to assess, as well as user acceptance testing at the earliest opportunity
- Online training to be developed for the wider user base
- A friendly user interface to be produced to allow users to output useful analyses as listed in the expected outputs

## Expected Outputs

*The deliverables of the project are:*

1. Transfer of the gridded dataset into the Google Climate Engine
2. A user interface that allows users to access the Victorian fire weather gridded surface dataset through a secure web portal (Fireweb or EMCOP)
3. Inclusion of FFDI and GFDI (when complete) datasets in the Climate Engine
4. Ability for users to save specific individual or user group named selections for future reuse

*The user interface when complete will allow users to output useful analyses as shown below:*

- The trends and variability of fire weather
- Return intervals of FDR categories and/or number of days with threshold values
- Include a query system on parameters with values or ranges to output selected weather elements within spatial and temporal boundaries
- Spatial and temporal differences of fire weather across Victoria
- Graphical output of data where applicable
- Export data in csv or kmz for use in other systems
- Time driven animated display of data with play controls
- Conversion from UTC to local time
- Peer review should occur at all stages, and advice from other key agencies should be incorporated into the project

## Quality Control

### Final report and other project outputs

It is the expectation of the Bushfire and Natural Hazards CRC and our client DELWP that the material delivered as part of this project will meet the highest scientific standards and will be suitable for internal and external distribution.

It is a requirement of this project that the final report (and any supporting material) is 'submitted to the States' satisfaction'. To ensure the final report meets this expectation it will

be subject to up to two rounds of review (with a minimum of two weeks for each review) by DELWP. Research organisations are required to ensure an internal peer review process is undertaken prior to the draft final report being submitted for DELWP consideration.

Before the report is final report is submitted to the State's representative for approval it must also have been

- Through an independent peer reviewer approved by the Bushfire and Natural Hazards CRC Project Manager
- Professional proof read and copy edited

These steps must be arranged by the research organisation costed as part of project budget and completed within the project timeframe.

**Reports that have not been independently peer reviewed and professionally proof read and copy edited will not be considered final.** A copy of the independent peer review and the researcher response to any comments must be provided to the CRC.

### **Communication**

To further assist with the quality assurance it is expected that:

- The project team will utilise a consultative approach when developing the overall framework and data management processes/criteria, and will demonstrate this by documenting engagement activities within the relevant reports. This will involve seeking input from DELWP subject matter experts to ensure development of a framework and processes that are fit for purpose.
- The research team leader will give periodic presentations (e.g. annually) to key stakeholder groups (Ecological Risk Assessment Working Group, Landscape Evaluators Working Group) to gain critical feedback on project milestones.

Any further quality control processes that are required for this piece of work, as well as key success measures, will be agreed with the DELWP Policy Lead as part of the planning process.

## PROJECT MANAGEMENT AND PROCESSES

### Contractual Arrangements

This project is being delivered under an Agreement in place between the Bushfire and Natural Hazards Cooperative Research Centre and the Department of Environment, Land Water and Planning (DELWP) in the State of Victoria. Under this Agreement the CRC is responsible for the delivery of a number of bushfire related research projects. The contract put in place between the CRC and the research organisation selected to undertake this work will reflect the terms of the Agreement between DELWP and the CRC.

A copy of the draft contract the CRC will provide to the successful research organisation is provided with this document. This contract should be reviewed as part of the EOI process. This is a standard agreement, and any changes will be at the sole discretion of the CRC. If you would like to request amendments to any of the terms and conditions set out in the proposed contract, details of the proposed changes and the reason the changes are requested must be included with the submitted response. In considering, this contract and proposing changes please note we have been advised by DELWP that (i) changes to provisions relating to the ownership of Intellectual Property will only be varied to take account of substantial in-kind contribution from the successful research organisation/s and (ii) no changes can be made to the publications approvals processes.

### Project Governance

Each project is carried out under the supervision of a Project Control Board (PCB) and in accordance with the governance arrangements agreed between CRC and DELWP.

While the contractual relationship for the delivery of this project will be between the research organisation and the Bushfire and Natural Hazards CRC there will also be a strong relationship between the research team and DELWP staff. Communication is an important element of the success of this project and Researchers will be required to maintain strong links with both the DELWP Policy Lead and the CRC Project Manager throughout the project.

A governance plan has been prepared which shows the roles and responsibilities of each of the participants. The successful research team will be required to comply with the processes and expectations as set out in that document.

### Project Planning

The project overview included in this document describes the way the DELWP subject matter experts believe the project can most successfully be undertaken. Alternative approaches can be considered. Any alternative approaches must ensure the delivery of the required outputs including any intermediate outputs identified in this document.

Following acceptance of a project proposal the successful research organisation must prepare a detailed project plan and risk treatment plan **using the DELWP template**. This plan must be approved by the DELWP Policy Lead and will become an attachment to the contract. The project plan must be approved within 3 months of the notification of the acceptance of the project proposal.

### Reporting

The successful research organisation will be required to make at least one presentation (and possibly two) annually to the Project Control Board or other nominated DELWP group during the life of the project.

Research organisations will also be required

- to provide a poster for the annual AFAC/BNHCRC conferences;
- detailed progress reports on a quarterly basis; and
- and contribute to the Project Evaluation Report

Dates for submitting Quarterly Progress Reports

Period covered	Report required
1 July to 30 September	24 October
1 October to 31 December	24 January following calendar year
1 January to 31 March	24 April
1 April to 30 June	24 July

## SUBMISSION OF EXPRESSION OF INTEREST

### Submission Requirements

Research teams responding to this Call for Expression of Interest are required to submit their response, including:

- A draft project proposal (4-6 pages) clearly addressing the requirements of the specifications set out in this document. Proposals must include achievable timelines, which will be used to monitor progress. A statement of capability demonstrating the ability of the proposed project team to undertake the work. This statement of capability should include the names and experience of key team members and their proposed contribution to the project. (The capability statement should not exceed 4 pages)
- Project budget including details of any in kind contribution from the research organisation. A statement of acceptance of the terms and conditions of the proposed

contractual arrangements. If such arrangements are not acceptable details of any changes must be included with the submitted response.

### Additional Information

- Research bids from a consortium of research organisations with expertise in the relevant fields are specifically encouraged.
- Attached is a draft contract which we ask your organisation to review. In your response to the EOI you should identify any items in this contract that will require attention /amendment should your organisation be selected to undertake this piece of work. Please note this contract is based on the Head Agreement between DELWP and the Bushfire and Natural Hazards CRC and as such there is very limited scope to make changes to the draft contract.

**The total maximum budget for this project is \$100,000 (Excl. GST) and all work must be completed by 30 June 2019.**

Any research proposal once submitted will be treated as commercial in confidence. Applications, must be submitted to: [office@bnhcrc.com.au](mailto:office@bnhcrc.com.au) by 20 July 2018.

### Evaluation Criteria

After the closing date the Bushfire and Natural Hazards CRC along with the DELWP policy lead will review proposals against the evaluation criteria below and make a recommendation to the State's representative on the most appropriate organisation to undertake this work. The evaluation criteria provide an indication of those matters that should be included in the project proposal and associated documentation. Details are provided below.

Successful applicants will be advised by 13 August 2018 and it is expected work on the project will commence no later than 3 September 2018.

The decision of the BNHCRC and our client DELWP will be final. The BNHCRC reserves the right not to offer the work, or only allocate a proportion of the available funding, if a proposal does not meet the client's needs. The Project Control Board reserves the right to invite any other specific researchers as it sees fit to submit proposals before or after the closing date.

Evaluation Criterion	% weighting
<b>Research Capability</b> The capacity and capability to deliver an excellent applied research project in a Victorian environment.	15
<b>Project Proposal</b> A clear demonstration that the research team has an understanding of the project scope through the proposed research approach	50



<p>The proposal must also include an indicative timetable of work and interim milestones/project outputs as described in this document</p> <p><b>Quality Control</b> Clear documentation of quality control processes including proposed internal and external reviewers. Identification of copy editors and proof readers.</p>	
<p><b>Industry Engagement</b> Strong Track record of industry engagement with the ability to support and influence bushfire management in Victoria through interaction with land and fire agency personnel</p> <p><b>Victorian Focus</b> Ability to undertake research in Victorian environments individually and/or in cooperation with land and fire managers</p>	15
<p><b>Value for Money</b> Delivery of required outcome within available budget along with the ability to leverage the funds provided with in-kind contributions or supplementary opportunities.</p> <p>The evaluation team will consider the membership of the project team and the proposed roles and time commitment.</p>	20

#### Attachments

1. Call for expression of interest in this project
2. Copy of the Governance Arrangements
3. BNHCRC subcontract including project plan template and evaluation report template
4. Quarterly report template
5. DELWP report template