



## Use of information technology to optimise the application of aircraft in managing wildfires

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**ABSTRACT**– This paper describes the use of the ARENA networked information system to improve the management and support of aircraft used in wildfire response and mitigation. The paper also describes how ARENA supports the sharing of specialised aerial assets between jurisdictions. Crewed and un-crewed aircraft are increasingly being used to support response to wildfires, and in mitigation practices such as planned burning. Aircraft may be used in a variety of roles, including dropping of suppressants and retardants to modify the spread of wildfire, delivery of specialised firefighters to strategic locations, dropping of incendiaries for modification of ground fuels, or the gathering of intelligence to support planning of response or the provision of information to affected communities. Used properly, aircraft may be very effective and efficient in these roles. However, aircraft are relatively costly, and the use of aircraft poses risks that need to be managed. The National Aerial Firefighting Centre of Australia (NAFC) has investigated means of utilising information technology to optimise the application of aircraft resources and to assist response and mitigation agencies to manage associated risks. NAFC has now developed and implemented the ARENA networked information system. ARENA provides a centralised registry of aerial capabilities and uses real time geospatial location technology to enable effective and cost-efficient deployment of aviation resources. ARENA records and displays event information from aircraft, such as firebombing drops, and integrates this data with information from a range of sources to provide overall situational awareness and real-time decision-support to fire managers. The integrated data also significantly improves accountability for the application of expensive and sometime scarce aerial resources, as well as streamlining administrative processes. The collected data is now also proving useful for post-incident analysis of effectiveness of aerial resources, providing further opportunities to improve their utilisation. Australia is a federation of sovereign states. Management and administration of aerial resources using a common technology platform such as ARENA across all jurisdictions, enables these states to efficiently share assets, providing surge capacity and effective increase in capability.

**Keywords:** Aerial firefighting; aircraft; information technology; wildfire management

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