



The national airborne field experiments

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Soil moisture remote sensing has matured significantly over the past two decades as a result of intensive airborne campaigns, yet there remain many unanswered questions, including: i) how best to estimate surface soil temperature and vegetation attenuation for use in routine surface soil moisture retrieval; ii) the impact of dew, topography, surface roughness and surface rock on surface soil moisture retrieval; iii) how best to downscale the low resolution passive microwave observations of surface soil moisture; and iv) how best to retrieve root zone soil moisture estimates from surface soil moisture observations.. Such questions can only be resolved through carefully planned and executed field experiments in well instrumented basins together with intensive ground and airborne measurements of the appropriate type and spatial/temporal resolution. A series of airborne field experiments have been planned for several well instrumented catchments in south-eastern Australia with a range of climatic, land use, land cover and topographic conditions to answer these specific questions. The first of these collaborative field experiments was undertaken in the Goulburn River catchment during November 2005, with the second experiment scheduled for November 2006. This paper describes the ground and airborne data sets being collected as part of these (inter)national airborne field experiments. While these experiments have a particular emphasis on the remote sensing of soil moisture, they are open for collaboration from interested scientists from all disciplines of environmental remote sensing and its application. See www.nafe.unimelb.edu.au for more detailed information on these experiments.