Case study

Airborne radar for environmental research

Better measurement of variables in soil moisture, soil and water salinity, and vegetation structure will enable more efficient and sustainable water management. It will also assist with the development of applications for weather and climate prediction, flood and drought warnings, and better land management practices.

A proposal led by Associate Professor Jeffrey Walker from The University of Melbourne has been awarded $400 000 under the ARC **Linkage Infrastructure, Equipment and Facilities** scheme towards the purchase of a custom-built polarimetric L-band imaging synthetic aperture radar. The radar, when mounted on a light aircraft, will be able to measure the top 5cm of soil moisture content and salinity, vegetation structure, terrain elevation and ocean surface roughness at 5m resolution. When used in conjunction with the L-band radiometer the radar will be able to simulate active–passive microwave data that will soon be available from the NASA Aquarius and Semantic Media Adaptation and Personalisation missions.

The radar will be used by more than 30 researchers, including PhD students, from The University of Melbourne, Flinders University, The University of Adelaide, Curtin University of Technology and The University of New South Wales. It will provide hydrologic, ecologic, atmospheric and oceanic researchers with the capability to capture high-resolution data which will be used for the modelling of environmental variables. It will facilitate collaborative projects between the participating universities and with other organisations, including those funded under the **Discovery Projects** and **Linkage Projects** schemes.