



Forest Hydrology Program

Program Leader: Dr Rob Vertessy

Project F05: Predicting the water yield impact of forest harvesting in the Maroondah and Thomson catchments using the Macaque model

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Introduction

The CRC (through Ph.D student Fred Watson) developed the Macaque catchment hydrology model to complement its earlier TOPOG model for simulating hydrological changes in mountain ash forests. While TOPOG was appropriate for small experimental catchments (up to 10km²), researchers required a model that could simulate catchment behaviour at the scale of a reservoir watershed (100–1000km²). Macaque has now been applied to two large Victorian catchments – the 160km² Maroondah catchment and the 500km² Thomson catchment. It is now being applied to the North Esk basin in northern Tasmania.

Using data collected from the Maroondah catchment since massive bushfires in 1939, the CRC has validated Macaque's ability to predict long-term changes in water yield from old-growth and regenerating forests. In the Thomson catchment, Macaque was used to predict long-term changes in streamflow caused by timber harvesting activities. The aim was to provide a scientific basis for Melbourne Water and DNRE to use in planning sustainable timber and water management strategies for the catchment. The research also identified sensitive areas where logging may have a greater environmental impact.