

Jonkershoek: Africa's oldest catchment experiment - 80 years and counting

Hydrological Processes

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Abstract

The Jonkershoek Forestry Research Station was established in the Mediterranean climate region of South Africa in 1935 to implement a multiple catchment experiment to determine the effects of afforestation on water yield. The experiment consists of six neighbouring catchments previously supporting indigenous fynbos shrublands, five of which were sequentially afforested with *Pinus radiata* plantations every 8 years from 1940 to 1980 and one kept as the control. They conclusively demonstrated a significant impact of afforestation on streamflow. The treatment catchments have seen subsequent plantation rotations since 1980 and rainfall and streamflow observations have been continued to date. Here we describe the site, experimental design, rainfall and streamflow records, instrumentation, and how to access the data. We also provide details of recently installed instrumentation, including full weather stations, fog gauges, and an eddy covariance flux tower. The Jonkershoek catchment experiment was the core of a globally significant interdisciplinary research programme (1935-1992) that shaped most environmental policies and practices relating to biodiversity, forestry, fire and water in South Africa and beyond. The South African Environmental Observation Network (SAEON) inherited the experiment in 2010 and is maintaining it as a long-term eco-hydrological research platform and global change observatory.