

Ensemble projections of wildfire activity in the Western US

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We present projections of future wildfire activity in the western US. These are based upon (1) bias-corrected and empirically downscaled projections of future temperature and precipitation (http://gdo-dcp.ucllnl.org/downscaled_cmip3_projections/dcpInterface.html); (2) projections of future hydrological quantities (water balance deficit, etc.) created using a hydrological model forced by temperature and precipitation projections; (3) empirical statistical models relating historical variations in hydroclimate to historical variations in wildfire area burned in 18 ecoregions in the Pacific Northwest. These models take into account the differing relationships between climate and wildfire activity in different ecosystems; they have moderate to good skill at hindcasting late-20th century wildfire activity. We produced projections of future wildfire area burned based upon 112 simulations of future climate and hydrology, representing 3 different scenarios of future greenhouse gas emissions simulated by 16 of the CMIP3 global climate models. We analyze sensitivity of projected wildfire activity to assumed future greenhouse gas emissions and to choice of global climate model, and assess the limitations of statistical fire model projections.