AGU 2015 - abstract

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From carbon numbers to ecosystem services: usable results comparing natural versus managed lands

We ran the MC2 dynamic vegetation model for the conterminous US at 30 arc sec with and without land use and fire suppression for several climate change scenarios. We translated model results into key ecosystem services (ES) such as climate regulation through carbon uptake and sequestration (global climate) or through transpiration (regional climate) as well as water provision through runoff and throughflow. We also projected timber production and gauged the risk of production lost to fire and/or drought by simulating fuel loads and forest vigor annually through the 21st century. We calculated the rising irrigation demand for agricultural land which, coupled with available information on groundwater resources, could help plan for future cropping systems. By combining these results we can evaluate land cover value across the country in terms of quantity and quality of services rendered. By comparing projections with and without landuse and fire suppression we can illustrate differences in regulating and provisioning services between managed and natural lands.