Communicating Quantitative Climate Change Information to Stakeholders and The Public: Opportunities and Challenges of a Regional Web Portal for Wyoming

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ABSTRACT:

Demand for reliable regional climate model output to drive regional climate change information hubs is increasing. Questions arise about how to effectively communicate quantitative information to stakeholders and the public at large. Funded by the National Science Foundation under the Wyoming Anticipating Climate Transitions (WyACT) award, we've begun development of a web portal to complement and contextualize our regional climate monitoring and modeling efforts (https://wyadapt.org/), offering a reliable way to share targeted climate change information with the public. Information is parsed to the level of cities, counties, and small watersheds, initially guided by nine CMIP6 GCMs, bias-corrected and dynamically downscaled to a 9 km grid, which is marginally sufficient to capture terrain-dependent climate change response. For Wyoming, the headwater region for the Colorado, Snake, and Missouri rivers, the main challenges relate to water: (a) the gradual shift from snow-dominated to rain-dominated cold-season precipitation and associated changes in the seasonal mountain snowpack, and (b) changes in probabilities of extreme, prolonged drought, and associated changes in wildfire probabilities and intensities. Changes in water availability and in extreme events (droughts or floods) are far more uncertain than changes in temperature, and questions arise how to effectively communicate this uncertainty. As such, we see the public-facing web portal as a long-term companion to regional climate modeling efforts and decision support tool development for effective communication of regionally-specific climate change information as we aim to communicate the significant climate challenges ahead, along with related data, to stakeholders and the public.

KEYWORDS: *climate change, public communication, uncertainty, decision support tool, data sharing*

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