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Considerations for selecting downscaling methods for integrated assessments of climate change impacts

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This presentation will provide a comparative discussion of downscaling methods and scenario selection within the context of integrated climate impacts assessment for stakeholders.

The Climate Impacts Group at the University of Washington has conducted a number of integrated assessments of the impacts of climate change on the Pacific Northwest region of the United States. In this region, a variety of physical and economic sectors are vulnerable to climate change through disruption of the historic in streamflow and snowpack. Thus, the downscaling of climate simulations for hydrologic modeling is the essential first step of these assessments.

We have employed several approaches to downscaling, including statistical techniques and regional climate modeling. Depending upon the nature of the problem and the institutional background of the stakeholders involved, various constraints are imposed on the approach taken. We have, therefore, attempted to provide various approaches to downscaling and for producing hydrologic scenarios while also seeking to maintain consistency in the scenarios presented.

This paper will present some of the issues involved in scenario selection, downscaling methods, and interrelating the various approaches. The implications of these choices will then be discussed through an intercomparison of results. Finally, we will discuss approaches for maintaining consistent scenarios of climate change across various studies.