

Shifts in Seasonal Columbia River Runoff Associated with Large-Scale Climatic Oscillations

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Abstract. Decadal climate variability in the form of the Pacific Interdecadal Oscillation (PDO) is analyzed with the El Niño Southern Oscillation (ENSO) to assess impacts on seasonal water supply in the Columbia River Basin and to test for statistical significance. Results show there is a statistically significant change in the mean January through July volume runoff only when El Niño events occur during the positive phase of the PDO and when La Niña events occur during the negative phase of the PDO. Precipitation and temperature patterns are illustrated to explain this shift in the mean runoff. While slight shifts in variability are evident for the various climate conditions, significance tests show that the changes in variability do not differ significantly from the neutral condition.

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