Introducing the Palouse:
The Palouse region of the Inland Pacific Northwest is one of the most productive dryland cereal grain producing regions of the world. The Mediterranean climate regime is characterized by wet, cold winters and dry, hot summers. Mean annual precipitation generally increases with elevation with precipitation in western regions of less than 20 cm to precipitation in higher eastern regions above 75 cm. Producing grain in the dry western regions is not feasible without irrigation due to the lack of available soil moisture. With increasing precipitation, growers generally transition from irrigated systems to grain-fallow systems, where crops are grown every other year, to crop-fallow transition regions, where crops are grown 2 out of 3 years, to annual cropping systems in the wetter, eastern regions. Huggins and Rupp (2015) describe each of these cropping systems as “Agroecological Classes (AECs)” and have mapped changes in these systems over the last 10 years (see Figure 1).

Generally, the climate in the region over the next 80 years is expected to be wetter and warmer which will likely cause more shifting of these AECs. In this study, we use a simple hydrologic, cropping model to quantify changes in available soil water for each of the three major cropping systems at specific points throughout the Palouse region using daily downscaled climate data from 12 global climate models (Abatzaglou, 20%). These simulations not only provide insight into the effects of future climate change on water availability in AECs but also provide an indication of the potential environmental consequences (e.g., teaching, runoff) that may be associated with future climates.

Objectives:
1. Quantify how climate change will affect plant water availability and the selection for fallow and annual cropping management strategies for arid cereal production in the REACH region.
2. Assess potential environmental and economic implications of the adaptations.

Agroecological Classes (AECs):
2015 Dynamic AEC Map (Huggins et al., 2015)

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