Climate Change in the Interior Pacific Northwest

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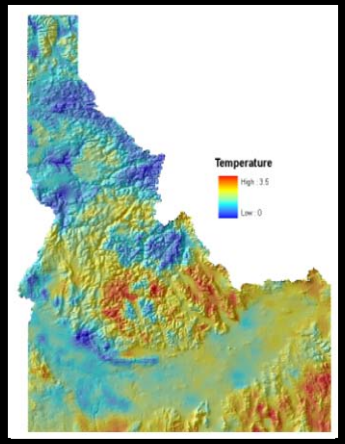
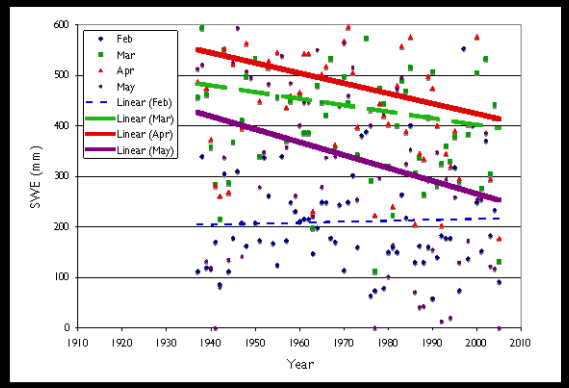




Projected changes in the rain-snow transition zone

All rain

80% rain

80% snow

All snow

Klos and Link., in prep.

Projected Mid-winter Snow > Rain Shift

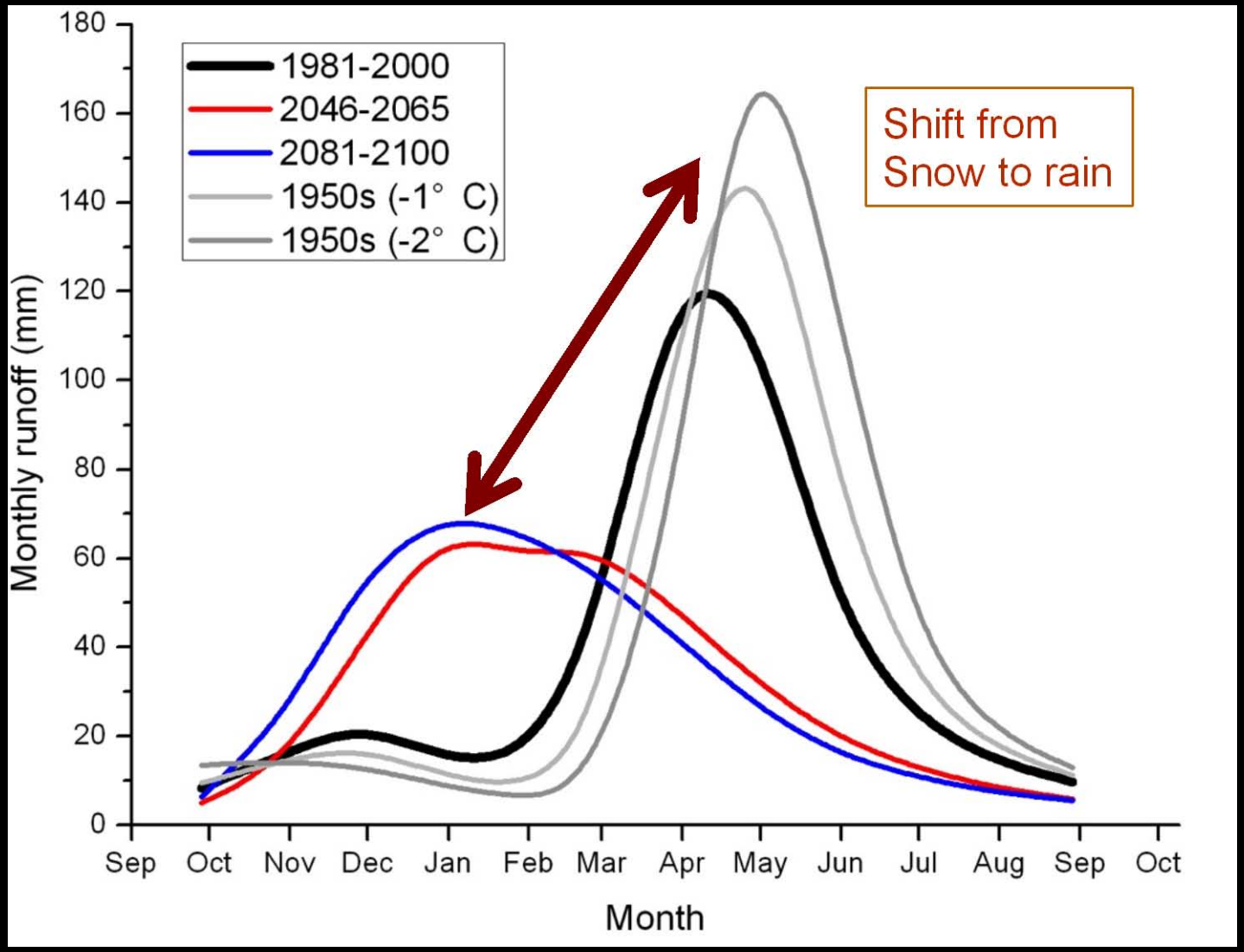
Mica Creek Exp. Watershed

Darker areas have a greater proportion of winter precipitation

Klos and Link., in prep.

Changing Flow Regimes

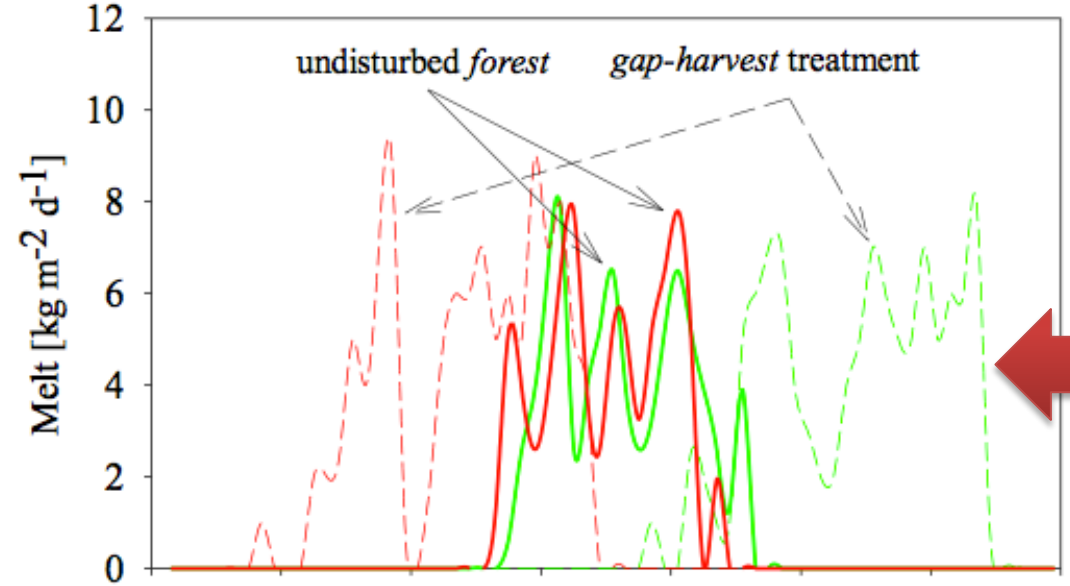
Mica Creek Experimental Watershed: DHSVM



Du & Link, in prep.

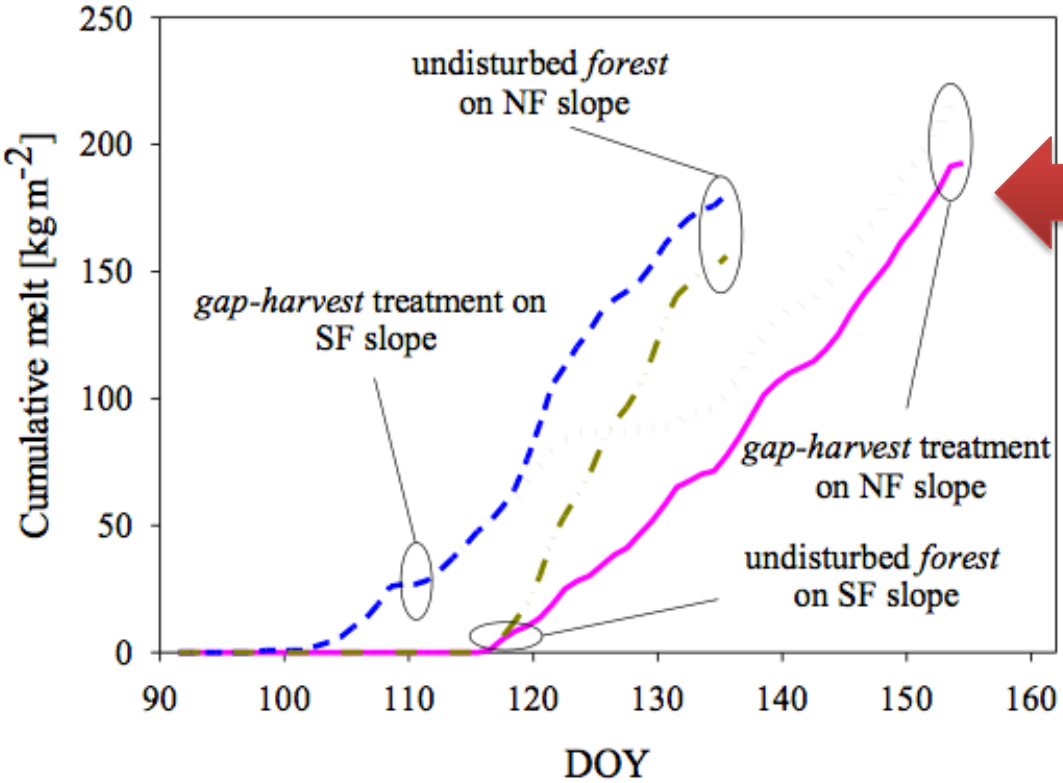
Changing Flow Regimes

- Many watersheds may transition to rain-dominated hydrograph.
- Many watersheds may be buffered by higher elevations and colder areas.
- Which critical water supplies will be affected by these changes?
- How will flood risks change in the rain-snow transition zone?
- What adaptation strategies can be implemented?
- Can forest management enhance flow regimes?



Forest gap harvests:

- Increase snow
- Reduce radiation to snow
- Desynchronize melt
- Delay melt and runoff



Ellis, Pomeroy, and Link, in prep.

Adaptation by Precision Land Management

- Small gaps on level and north slopes:
  - Increase snow
  - Reduce radiation to snow
  - Delay and extend melt
- Are gap harvests a viable adapation strategy?
- How are streamflows affected?
  - Dry vs. wet years?
  - Cloudy vs. clear seasons?
  - Function of elevation, physiography, and geology?
- What are additional benefits?
  - e.g. fire hazard reduction, fiber production
- Are there ecological, operational, and/or social barriers?