

# Economic losses from changing hydrology under future climate change, glacier shrinkage and growing water demand in the Tropical Andes

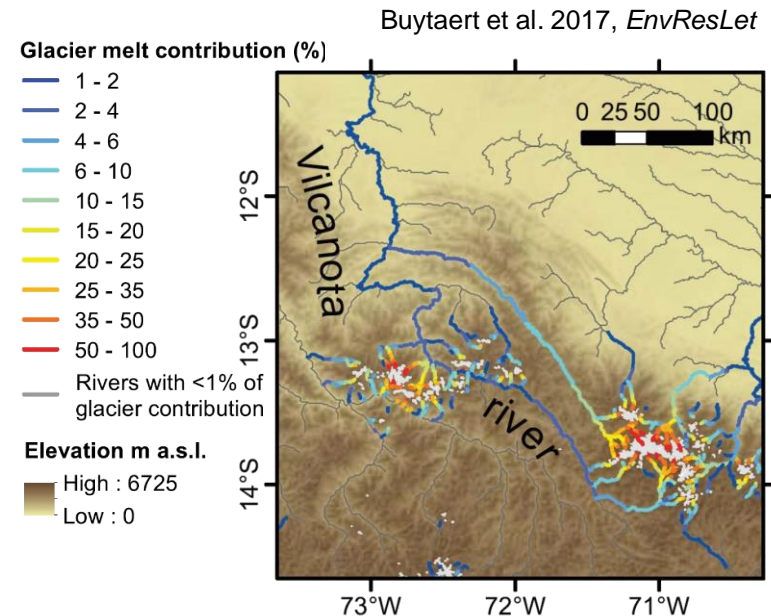


Fabian Drenkhan, Randy Muñoz, Christian Huggel, Holger Frey, Fernando Valenzuela, Alina Motschmann



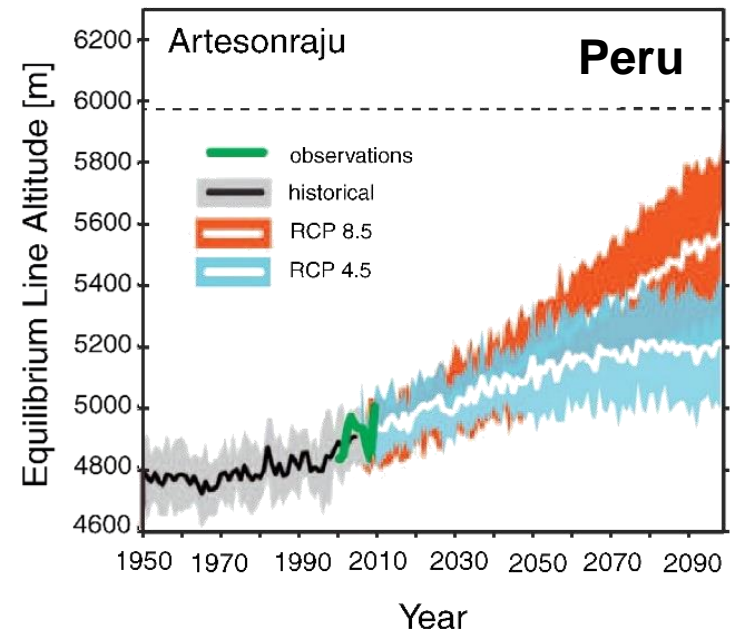
## Glacier shrinkage and meltwater contribution

- As part of the **tropical region**, **Andean glaciers** are among the **most vulnerable** to climate change impacts indicating **accelerated shrinkage rates**
- **Meltwater contribution to river streamflow** which plays a fundamental role for upstream and downstream water use might **considerably decline**, particularly in dry months

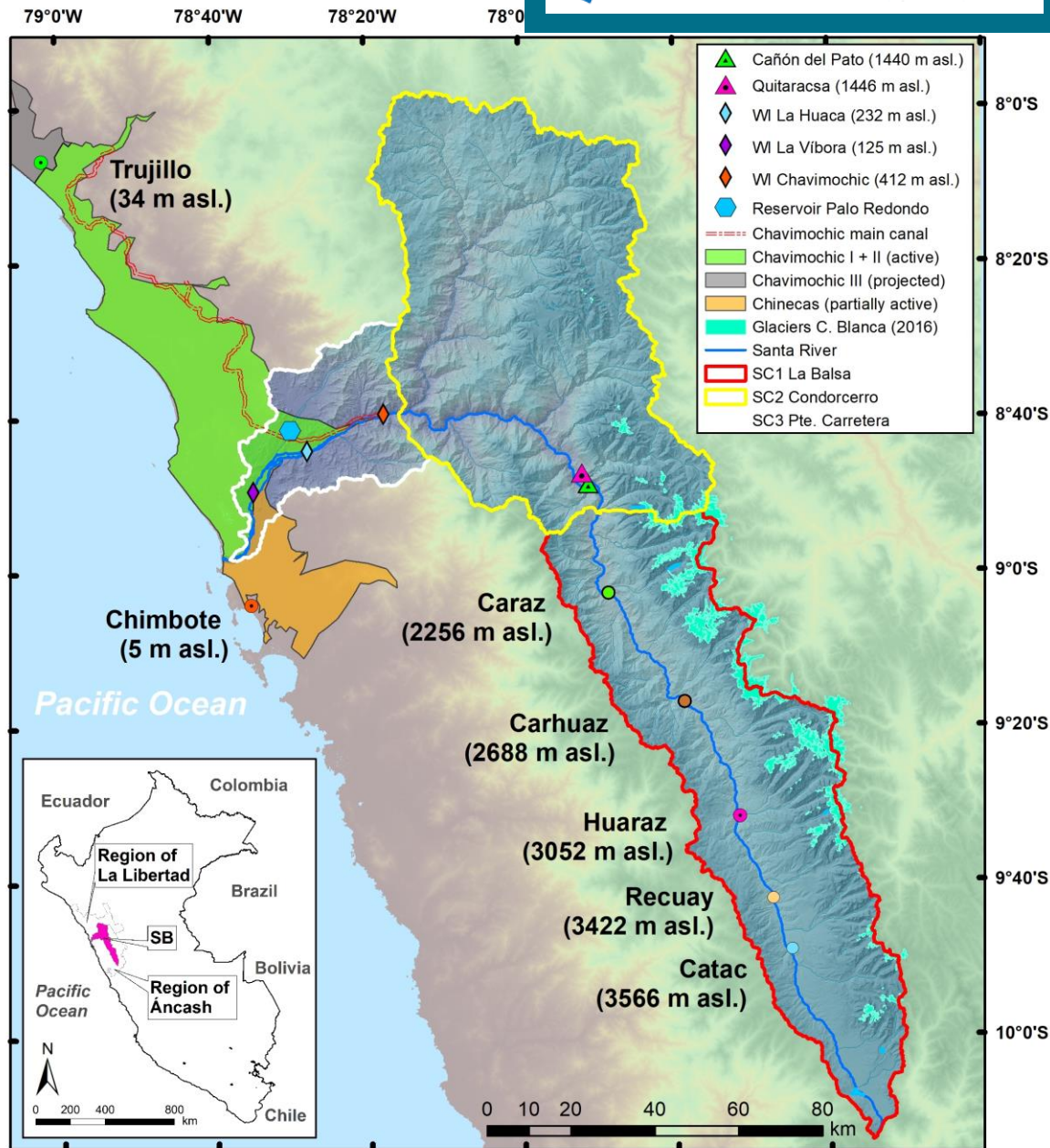


## Glacier shrinkage + socioeconomic processes

- **Future projections** of glacier extent in the Tropical Andes indicates a possible **vanishing of entire glaciers below 6000 m asl.**
- **Combined impacts from current and projected glacier shrinkage and increasing water consumption would lead to severe consequences in spatio-temporal water availability and long-term water security**

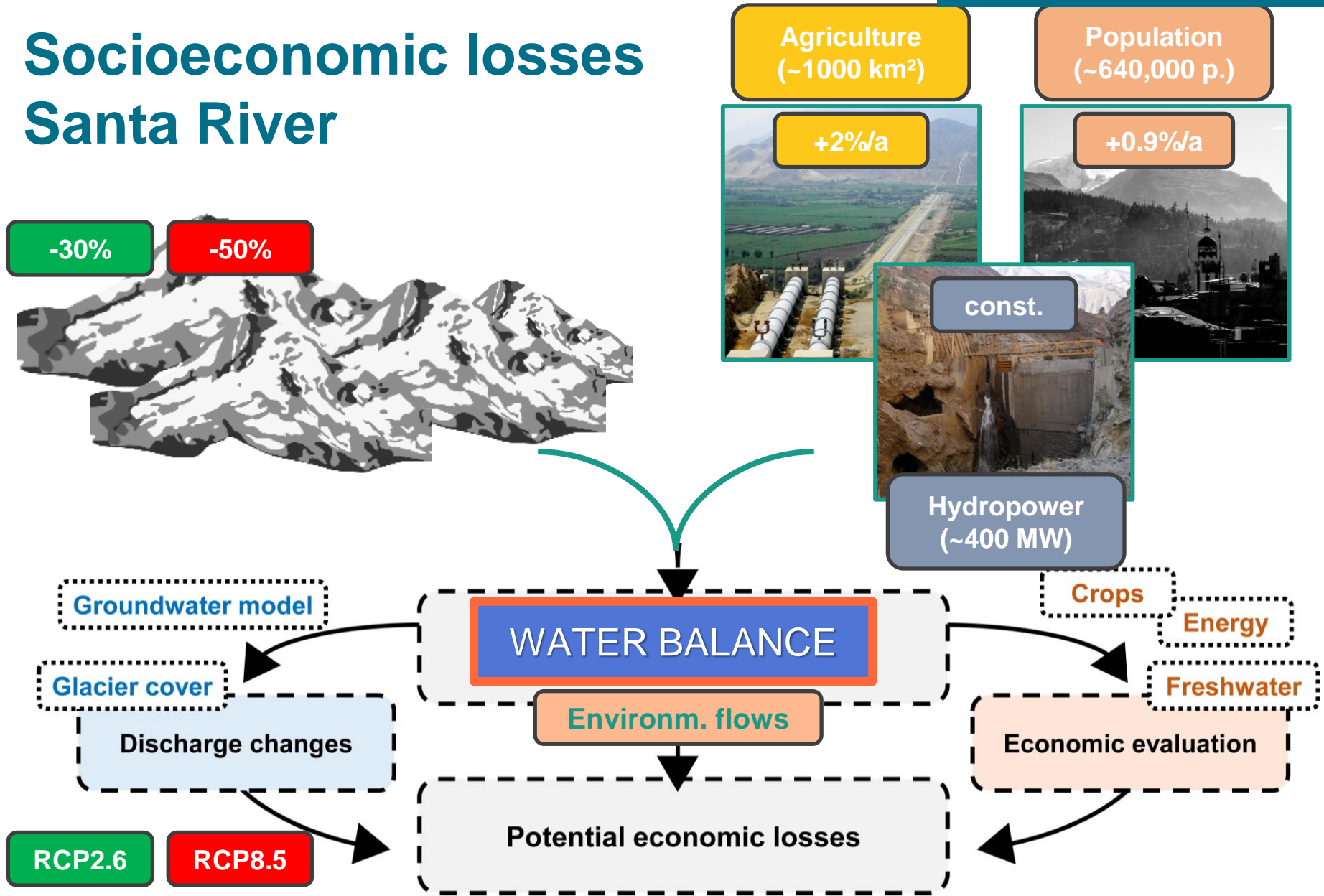


## Santa River basin Cordillera Blanca Peru

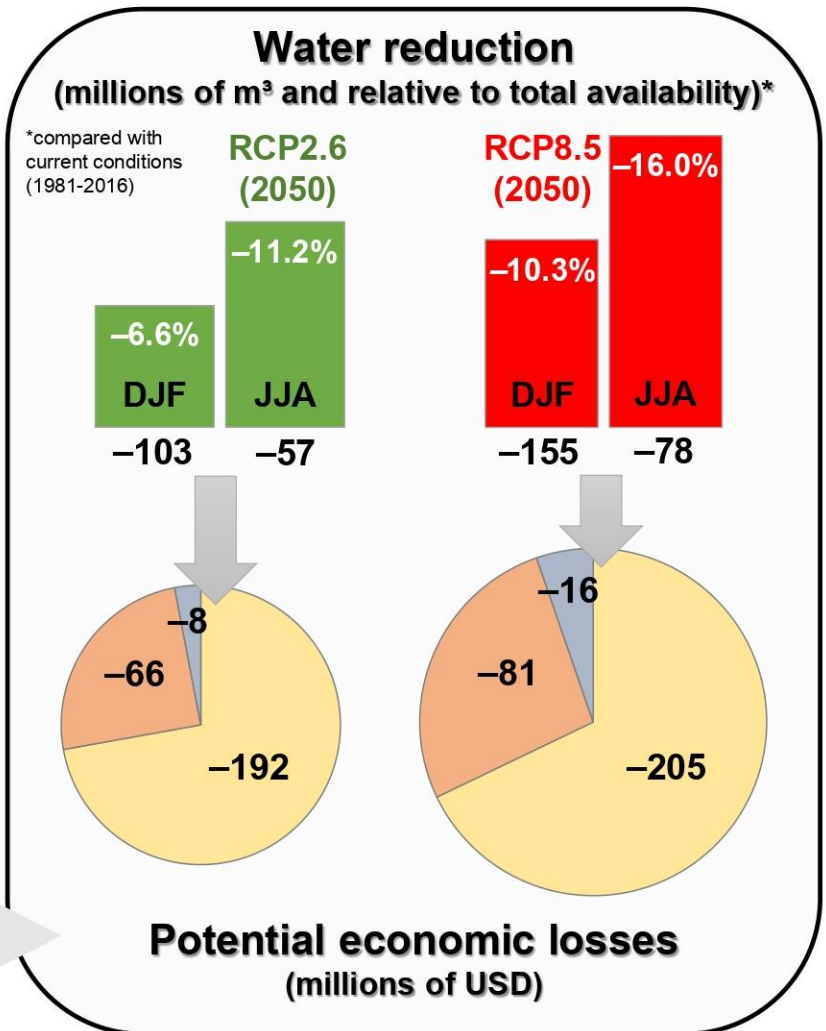
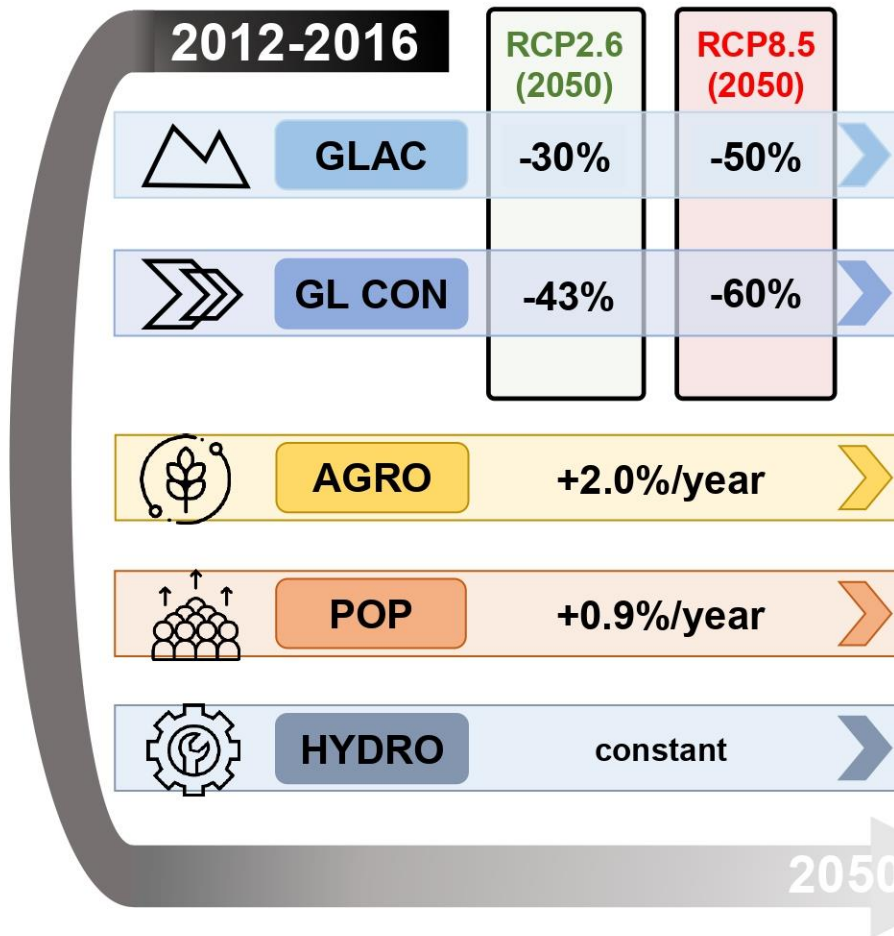




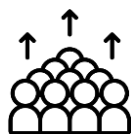
## Socioeconomic losses Santa River



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## Identification of potential negative feedbacks increasing losses



**Domestic:** investment in new infrastructure

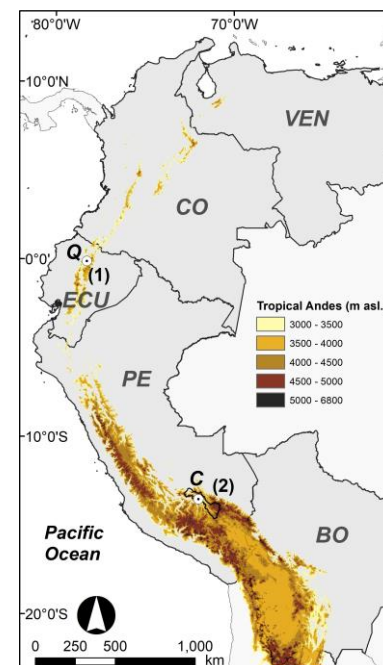


**Agriculture:** CC driven crop failure and lower productivity



**Hydropower:** potential rationing costs

**Potential for upscaling**  
**Andean region and beyond**







¿Questions?

E<sup>Clim</sup>

Fabian Drenkhan [fabian.drenkhan@ge.uzh.ch](mailto:fabian.drenkhan@ge.uzh.ch)  
Randy Muñoz [randy.munoz@geo.uzh.ch](mailto:randy.munoz@geo.uzh.ch)

[eclim-research.ch](http://eclim-research.ch)