Impact of climate change on water availability in Tropical Andean catchments: a case study in the Vilcanota catchment, Peru

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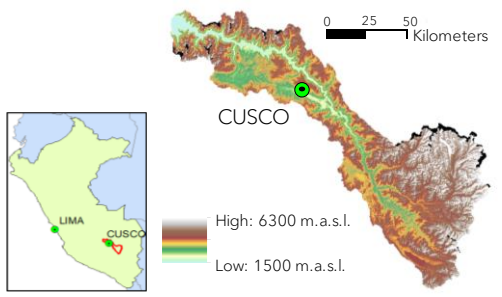
Motivation

- Current and future **runoff**?
- Current and future **water demand**?

Study periods: 1990 – 2010 / 2025 – 2050



Method

Hydrological simulation (Shaman model)

Water supply scenarios: RCP2.6 and RCP 8.5

Water demand scenarios: SSP1, SSP2 and SSP3

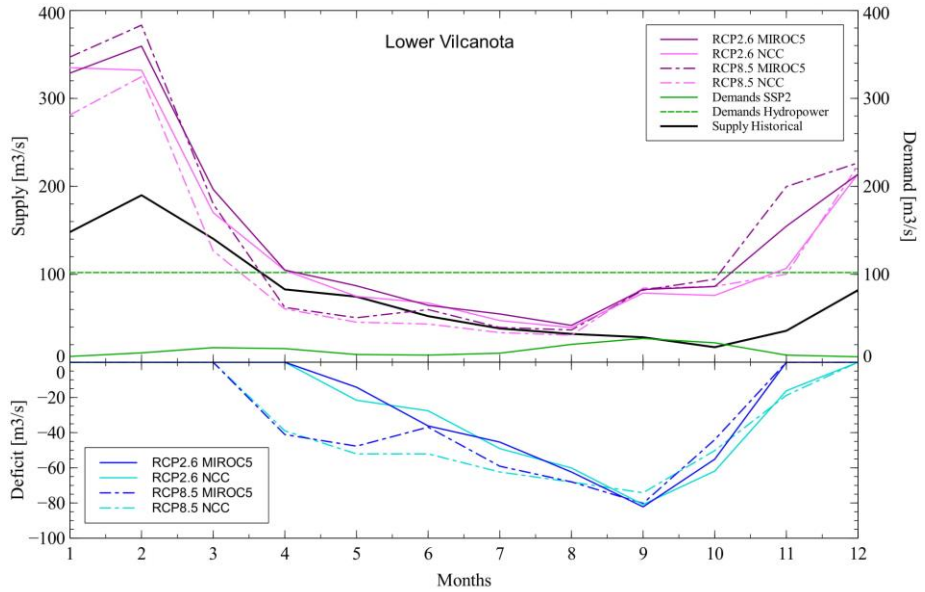
Agriculture
Area + change rate (SSP), irrigation

Domestic
Population + change rate (SSP), consum, system efficiency

Ecology
5% of the runoff

Hydropower product.
Current demand + future projects

Results



Take-home messages

- Higher water deficit during the dry season
- Deficit is related to higher water demand
- Lack of hydrometeorological data
- Lack of local adaptions to the SSP scenarios

Sources:
Basic literature: Drenkhan, F. et al. (2018), *Current and future glacier and lake assessment in the deglaciating Vilcanota-Urubamba basin, Peruvian Andes* in 'Global and Planetary Change'.
PISCO: Aybar Camacho et al. (2017) in 'Nota Técnica 001 SENAMHI-DHI-2017', Lima, Perú.
SSP: Riahi, K. et al. (2017), *The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview* in 'Global Environmental Change'.

Picture: ceraldi.ch (2017)