UNIVERSIDAD DE CUENCA
DEPARTAMENTO DE RECURSOS HÍDRICOS
Y CIENCIAS AMBIENTALES (IDRHICA)

UNIVERSIDAD DEL AZUAY
50 AÑOS

Evapotranspiration of Tropical Andean grasslands: measurement and estimation methods

Ana Ochoa-Sánchez, Patricio Crespo, Galo Carrillo-Rojas, Adrián Sucozhañay and Rolando Célleri

IMC Innsbruck 2019
International Mountain Conference

Workshop 1.2.A.
Insbruck, September 2019

An important study area in the Andes… The Páramo

Map: T. Distler and C. Ulloa, Missouri Botanical Garden.

Water resources are used for:

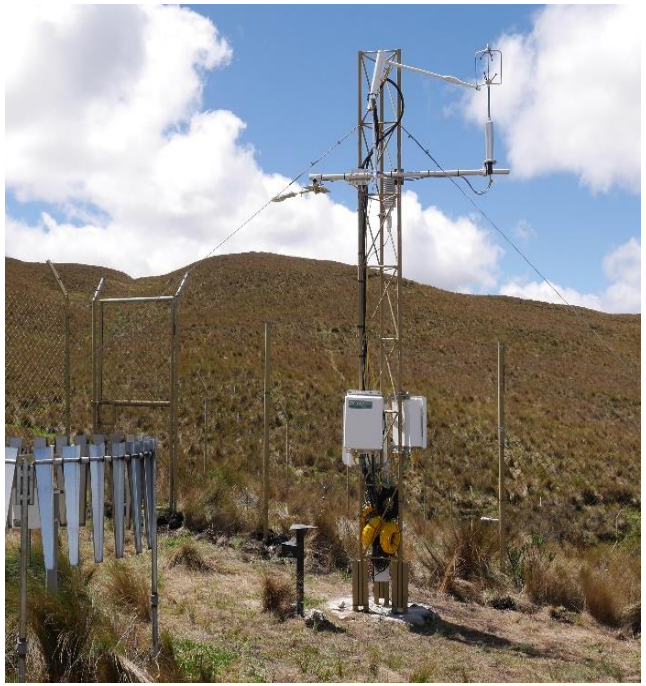
- Drinking water
- Agriculture
- Hydropower
- Sustaining aquatic ecosystems

Characteristics

- Complex orography
- High altitude
- High RH
- High T variability during day
- Highly biodiverse

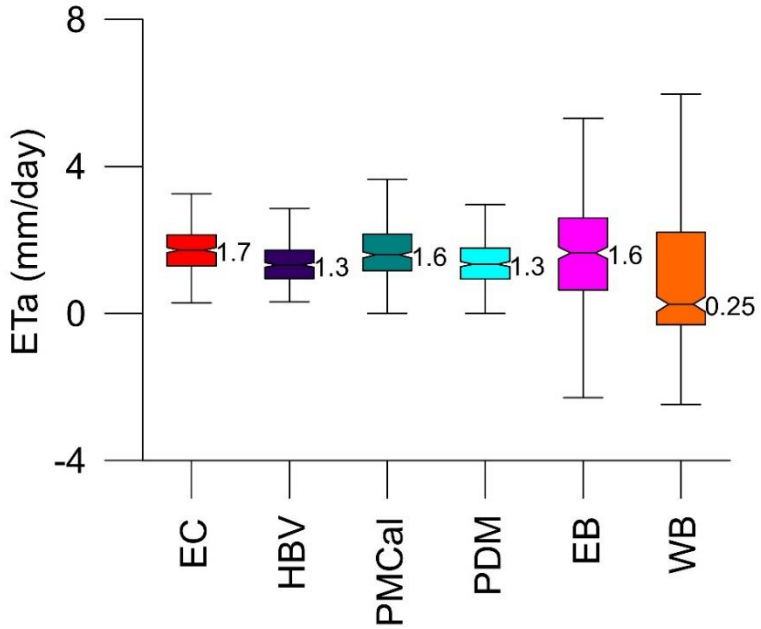
Actual Evapotranspiration Methods

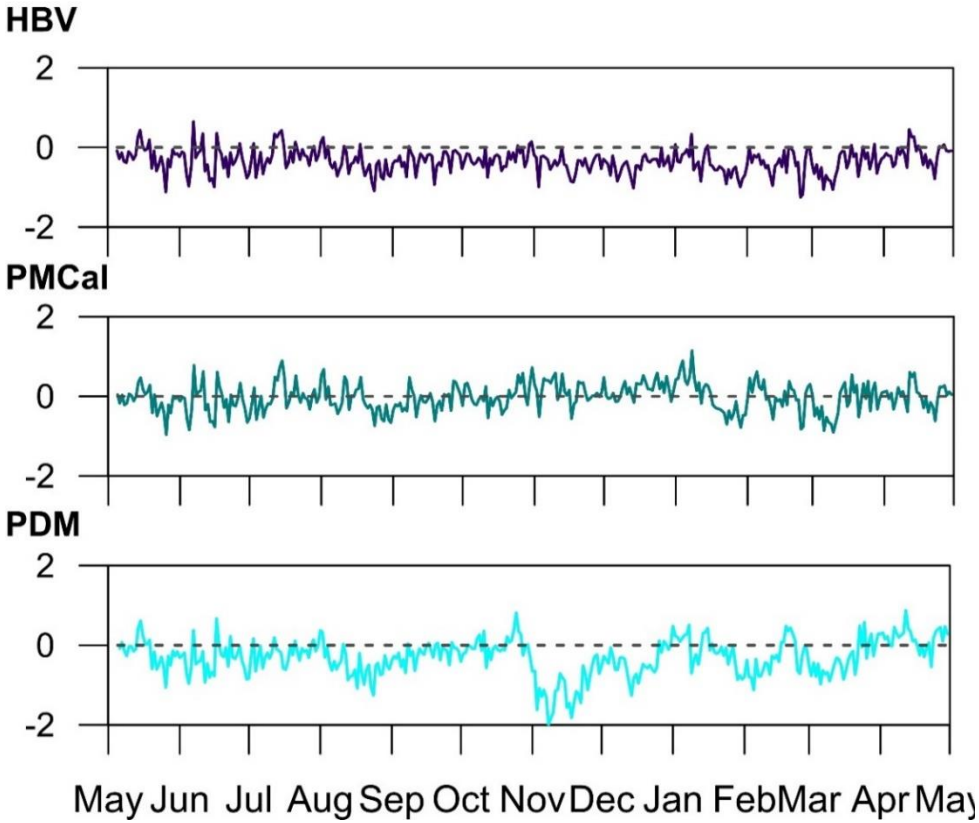
- Measurement
  - **Eddy covariance**
  - Lysimeters
- Estimation
  - Water balance
  - Energy balance
  - Penman-Monteith calibrated equation
  - Hydrological models



Alternatives to EC

- Hydrological models and the Penman-Monteith calibrated equation





- High uncertainties remain on volumetric lysimeters, water balance and energy balance methods

Next challenges

- Land-atmosphere exchange modelling for finding regional estimations and projections of ETa

- ETa partitioning for conceptualization of each component

- Now that we understand ecohydrological processes at the páramo, what will be the impact of **climate change**?

UNIVERSIDAD DE CUENCA
DEPARTAMENTO DE RECURSOS HÍDRICOS
Y CIENCIAS AMBIENTALES (IDRHiCA)

UNIVERSIDAD DEL AZUAY
50 AÑOS

Thank you!

Ana Ochoa-Sánchez, Patricio Crespo, Galo Carrillo-Rojas, Adrián Sucozhañay and Rolando Célleri

IMC Innsbruck 2019
International Mountain Conference

Workshop 1.2.A.
Insbruck, September 2019