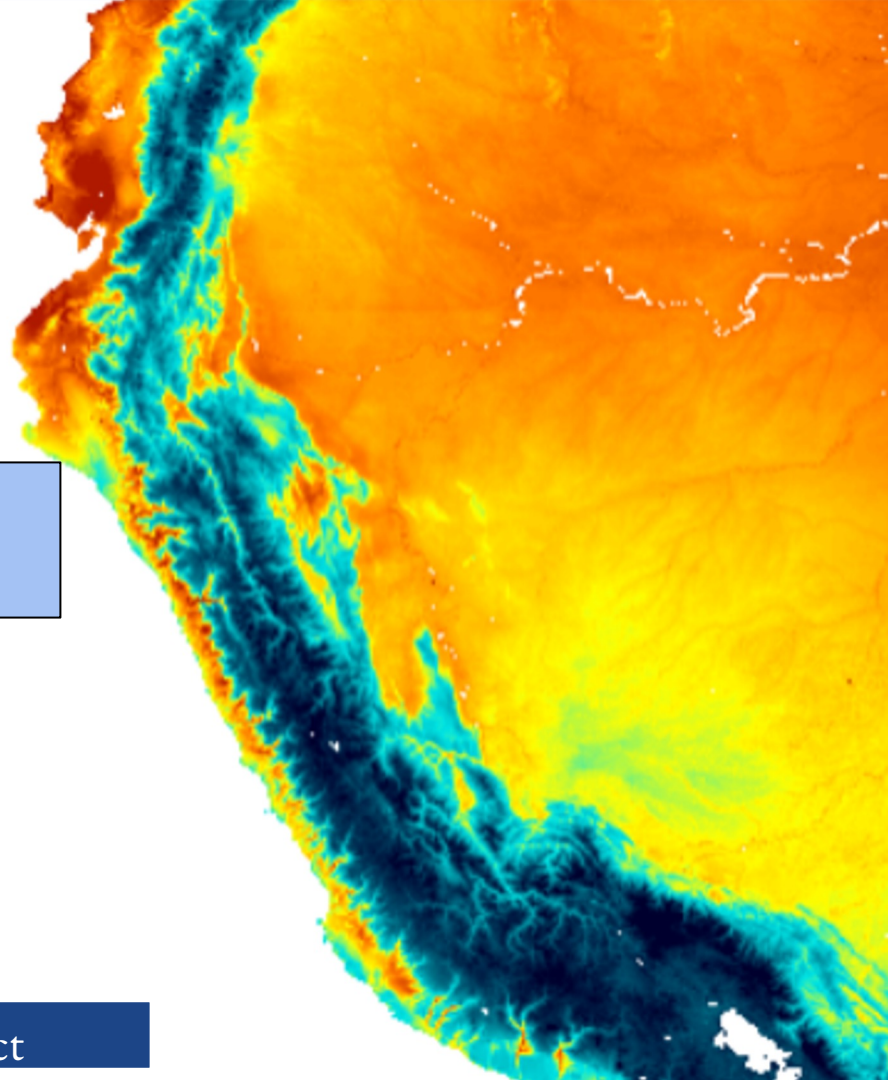


Improving the Performance of an Advanced Land Surface Model for Simulating Hydrology of Ecuadorian Amazon subbasins

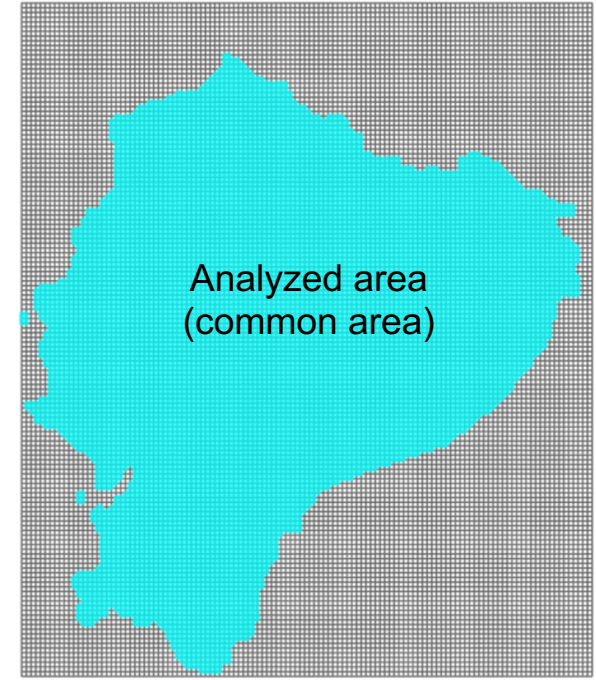
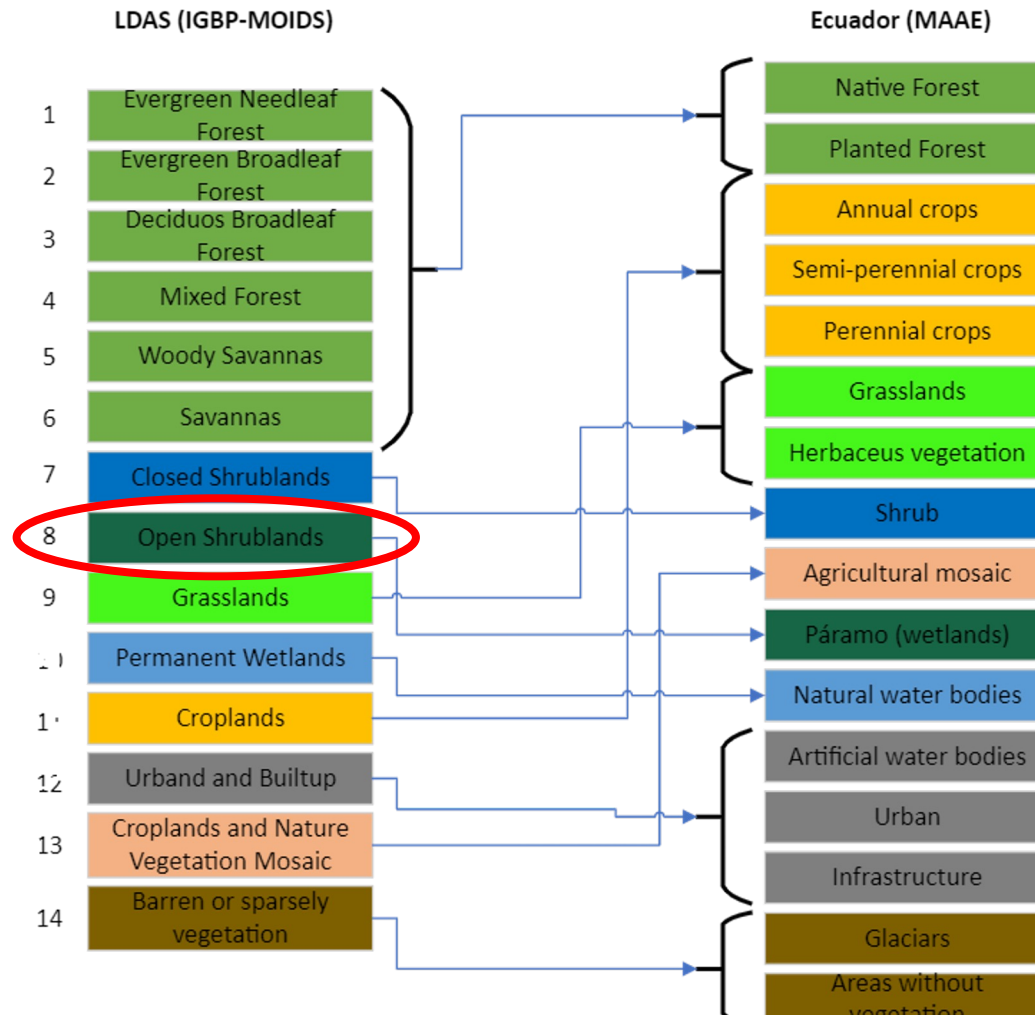
Narvaez M., Benitez L., Osborne T., Zaitchik B.,
Paltan H., Kansara P., Mena C., Pan W., Araujo A.

Johns Hopkins University
Hydroclimate Research Group
Universidad San Francisco de Quito
Duke University
Minas Gerais University
Cayetano Heredia University

Malaria Early Warning System (MEWS) project



MODIS (LDAS) Land Use Compared to Observations



MODIS (LDAS) Land Use Compared to Observations

Ecuador

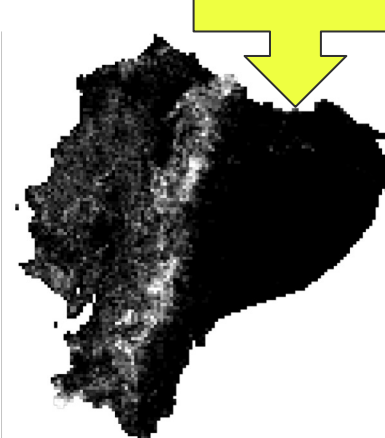
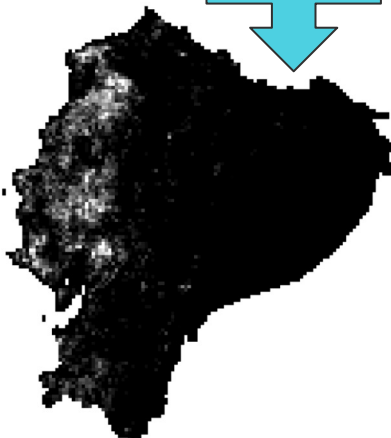
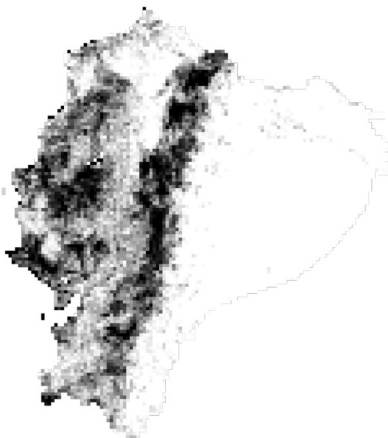
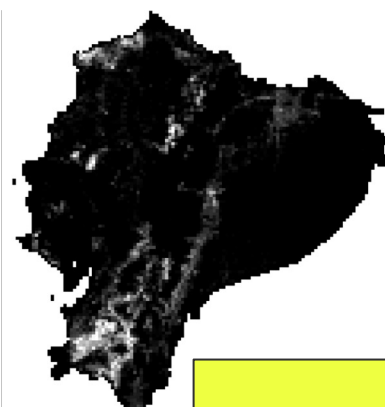
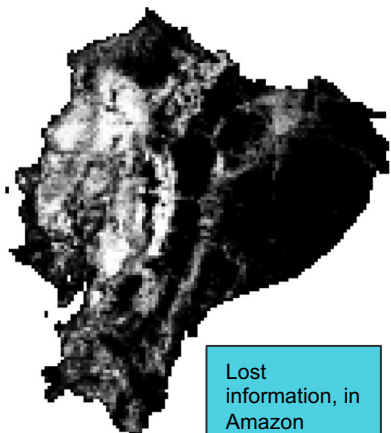
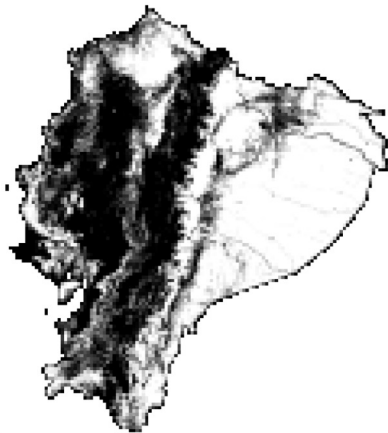
Forest

Agricultural mosaic

Grassland

Open Shrubland + Paramo

MODIS

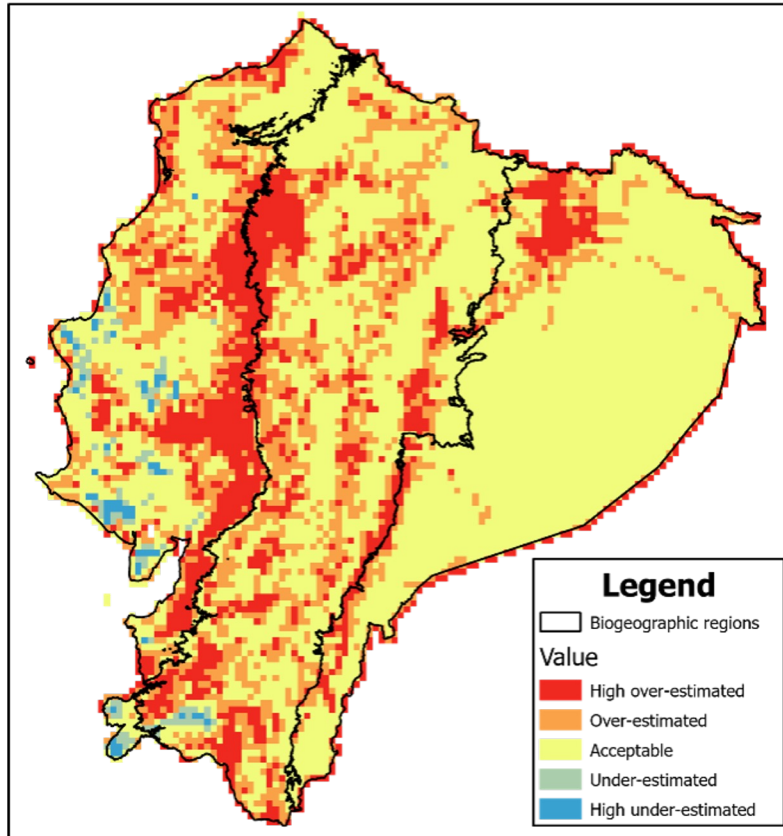


Lost
information, in
Amazon
region

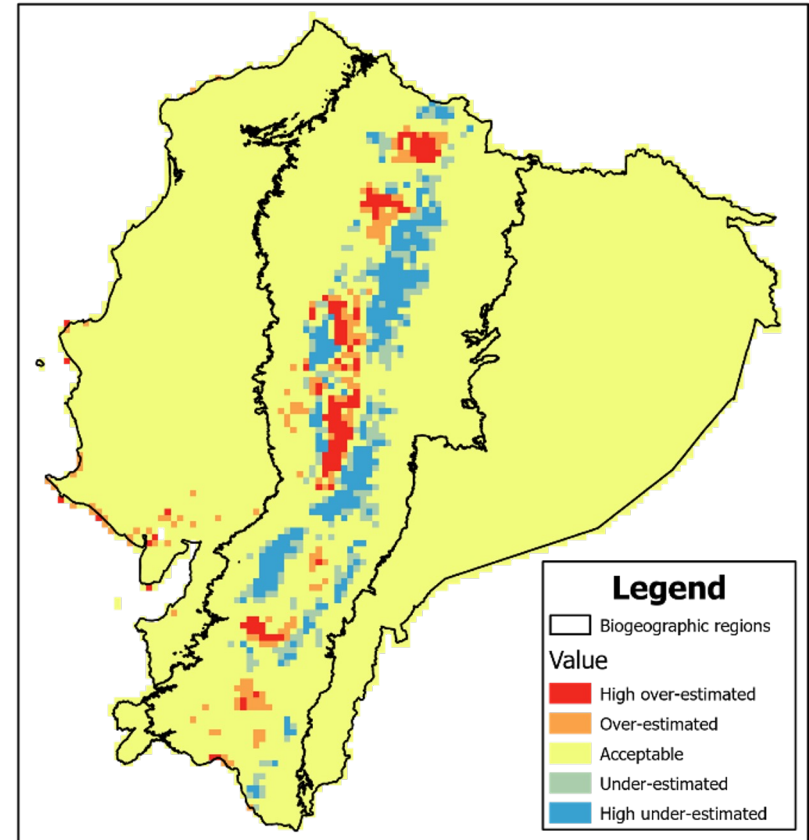
We can see an
overestimation

Results: LDAS Land Use Compared to Observations

FOREST



PARAMO

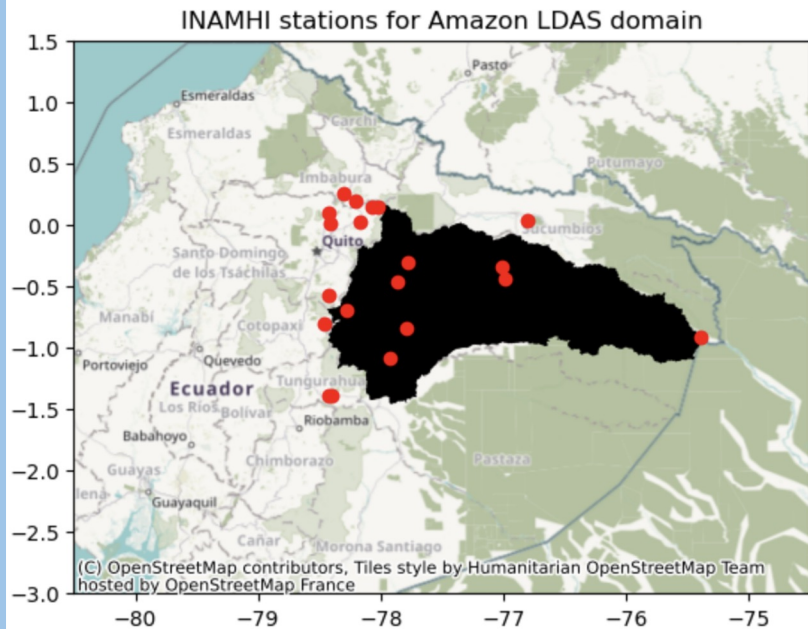
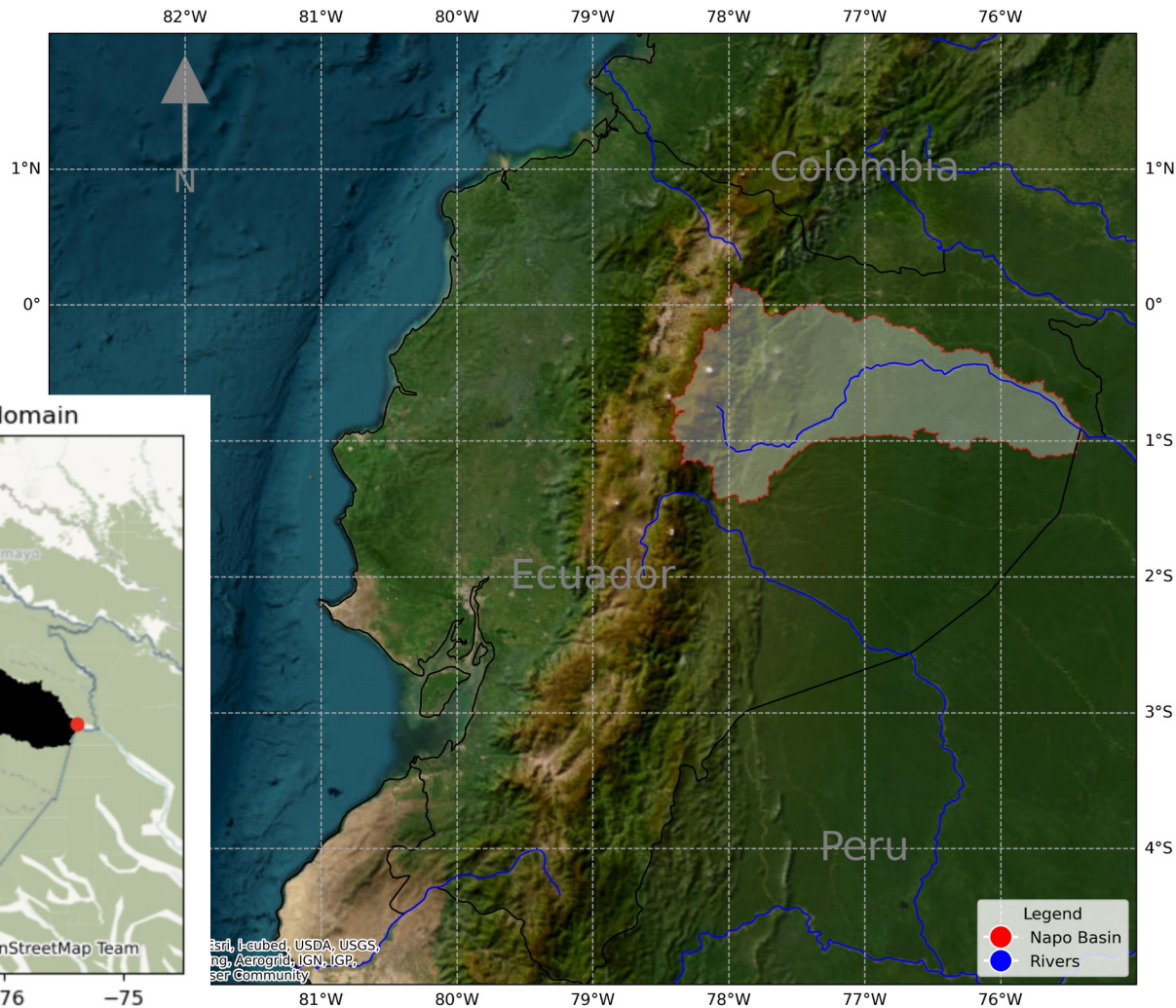


Napo subbasin

Area~3000 km²

8 hydrometeorological gauges

60% Rainforest, 15%Paramo



Local Features

Paramo (Andean Tundra)

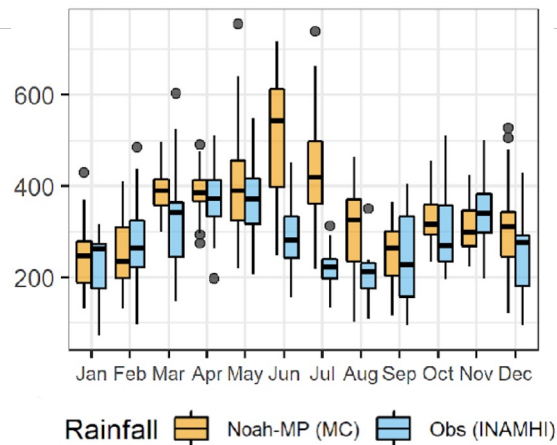
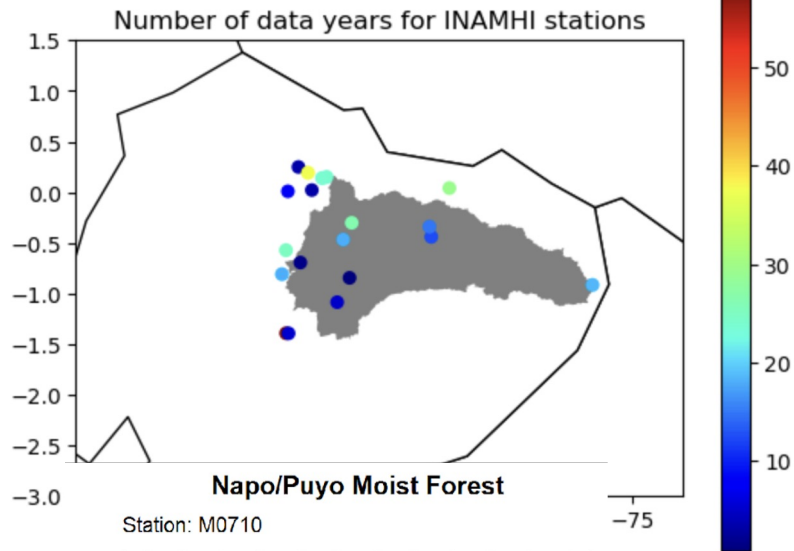
Water regulation ecosystem service

Cloud Water Interception

Co2 exchanges

Feedbacks??

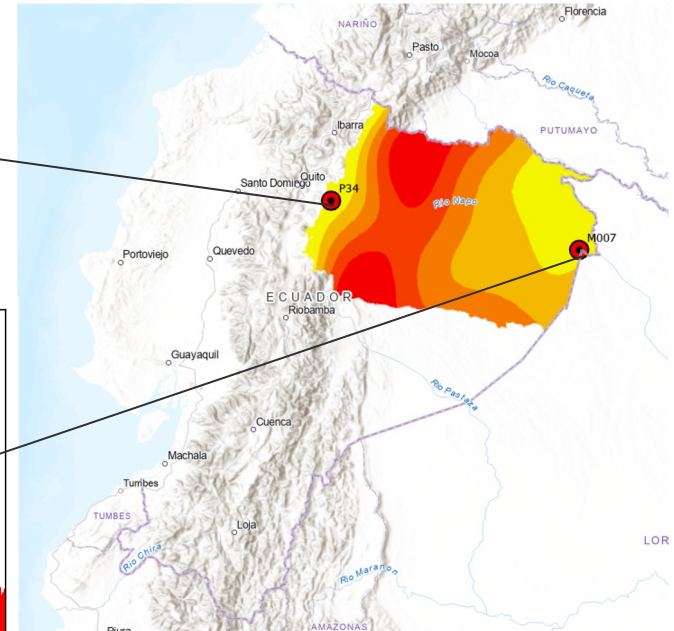
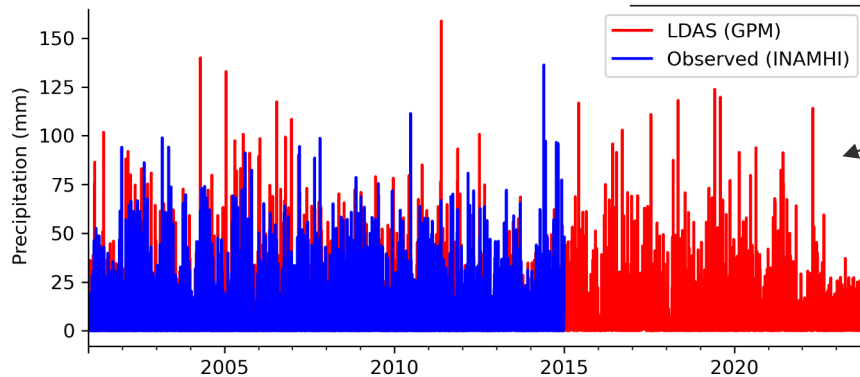
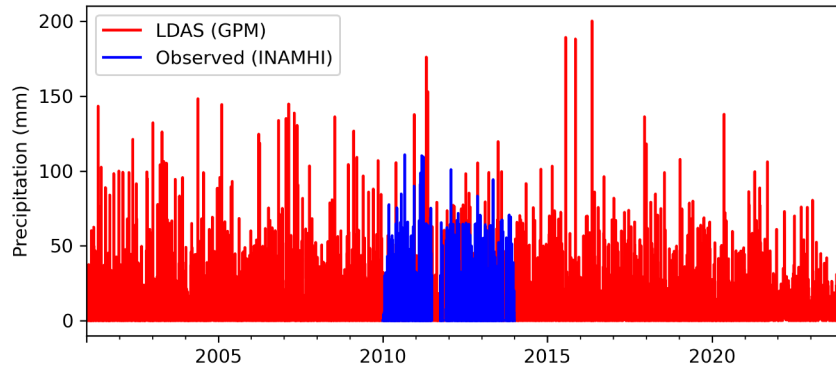
(Carrillo Roja, G et. al, 2019)(Ayala Izurieta, J.E et. al, 2019)(Mosquera, G. et al, 2023)



Recalde, C. 2022

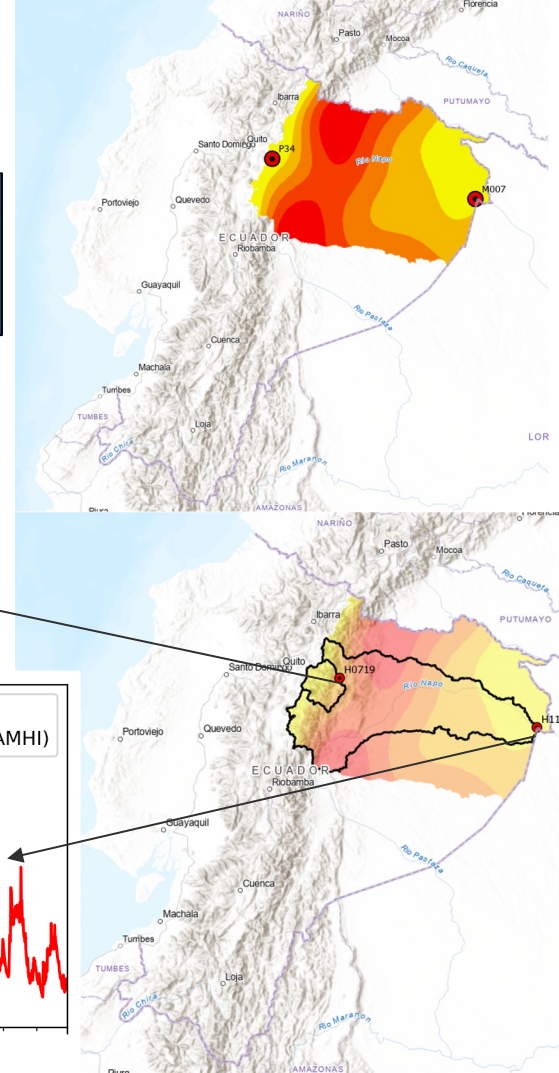
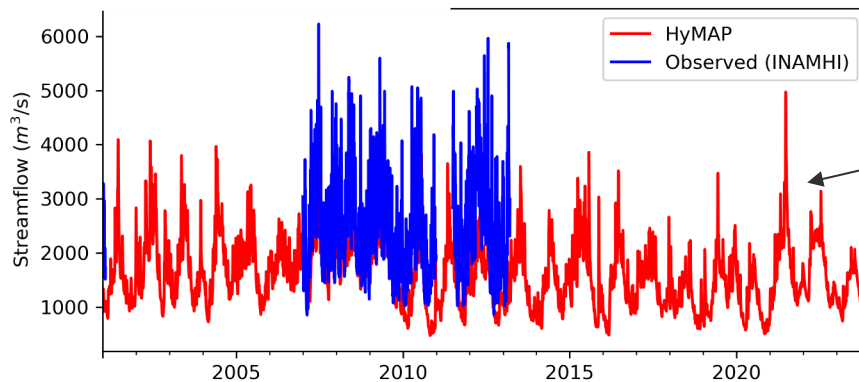
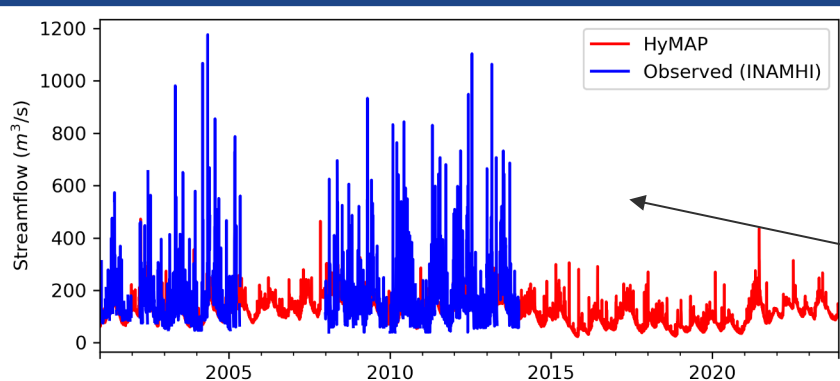
Precipitation 2001-2023

GPM-IMERG and Observations (INAMHI)



Streamflow 2001-2023

Evaluate the accuracy of LDAS+HYMAP



Thank you

mnarvae2@jh.edu