

**PARALLEL SESSION B : FRONTIER DOWNSCALING TOOL
B3: A FOCUS ON ESD SPECIFIC OPPORTUNITIES**

Future precipitation in central Andes of Peru

Gustavo DE LA CRUZ

Meteorologist - Peru

In this research, we explored ten geographical domains and a set of 33 predictors, which are the physical large-scale forcing for precipitation, minimum and maximum temperature of representative locations in the Upper Mantaro basin. This basin provides surface water to Lima, and is located in an arid region that now is home to nine million 689 thousand 011 inhabitants, but It's estimated to reach in 2021, the year of the bicentennial of the Republic, ten million 764 thousand 428 people. For this reason, water demand will increase in the in the coming decades and it is necessary to study the water availability in the basin under climate change conditions.

The representative stations located in areas of interest were grouped using the Regional Vector Method. For precipitation, Five main groups were defined, while for temperature only one group was defined because the low number of stations measuring this variable in the area under study. Predictors and optimal domains were selected under the principle that should have a significant and physically interpretable association with the predictand, in addition to the necessary statistical support. We used several different statistical downscaling methods (from the analogs, weather typing and regression families) in order to find the most appropriate technique for future projections of temperature and precipitation in different climate change scenarios.

Gustavo De la Cruz, Delia Acuña Azarte¹

National Service of Meteorology and Hydrology of Peru