

Motivation to take part in Summer School on Effective HPC for Climate and Weather

Through my studies I have developed knowledge and a keen interest in climate change, meteorology, climate modelling and climate dynamics. There is large uncertainty in how climate and their associated socioeconomic impacts will change in the future. Climate models are the best available tools for projecting future climate changes, providing information needed to inform decisions on adaptation and mitigation. However, due to the complexities of the climate system and uncertainties in its properties, the spread in simulated climate change across models is considerable. Moreover, uncertainty estimates based on the spread across an ad hoc range of models, as often presented, are not objectively determined. Over recent years a number of studies have addressed this issue by applying observational constraints to climate model projections. Such studies exploit relationships between an observable quantity and an aspect of projected climate change across an ensemble of climate models, together with observations, to derive observationally constrained climate projections and associated uncertainties. The ongoing CMIP6 climate model ensemble, which is anticipated to include simulations from more than 100 climate models, together with updated observations of a strengthening climate change signal, will provide an unprecedented opportunity to apply such approaches across a range of variables to derive improved climate change projections.

With big data of multi-model and larger initial-condition ensembles from CMIP6, it strongly requires the process of observationally constrain to be exerted on the HPC environment, especially the cross-validation to evaluate weighting results of my recently study (<https://github.com/yongxiaoclim/cmip>). Therefore, I highly want to join in this summer school and I believe this program could boost my study skill on my research area.

Sincerely,

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