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Going seamless for impacts: Experiences from the FP7 QWeCI project

Andrew Morse[†];
[†] University of Liverpool, United Kingdom
Leading author: A.P.Morse@liv.ac.uk

Users working on a range of impacts require the prediction of climate variability across a series of time scales. Users' needs do not fit within the scope of any single prediction system and thus have an inherently seamless need for their climate variability predictions, and at longer time scales projections. When working with a seasonal ensemble prediction system (EPS), users require information on intraseasonal predictability. In the tropics this will be typically the timing of the start and end of the rainy season, information on the distribution of break cycles etc., as well as the seasonal mean values for the sub-regions of interest. Often the intraseasonal variability prediction has more use for the impacts community than the seasonal averages, and the prediction of this variability is at the limits of prediction for current seasonal EPS, whereas, at least in the tropics the prediction of the seasonal mean values are more regularly achieved. Seamless approaches using the combination of monthly EPS and seasonal EPS together with the use of new staggered start seasonal EPS are allowing the development of seamless approaches for climate impacts at these lead times. At decadal and multi-decadal scales the users require information on interannual variability, especially sequences of years of above and below average climatic conditions e.g. rainfall and temperature, representing decadal variability; in addition to mean changes across decade blocks. At present decadal EPS is in its infancy, although it shows some promise, it cannot give the level of information on interannual variability required for many impacts communities. Alternative data sources such as SRES forced non-initial condition GCM/RCM systems also cannot give the information on sequences of interannual variability but nevertheless have a useful role. Providing seamless information for climate impacts users at decadal to multi-decadal scales is going to require the use of seasonal EPS, decadal EPS and non-initial condition GCM/RCM outputs to be used in innovative ways. The QWeCI (Quantifying Weather and Climate Impacts on Health in Developing Countries) project working in Africa, draws on expertise built up over the last decade from a series of state-of-the-art end-to-end prediction for climate impacts projects DEMETER, ENSEMBLES, AMMA, EQUIP and ENHanCE. QWeCI is developing seamless approaches at both the monthly to seasonal interfaces and at seasonal/annual to multiannual scales for use in disease prediction. QWeCI together with its sister, health impacts in Africa, FP7 project HealthyFutures, which will use CORDEX RCM outputs, are addressing many practical issues of users requirements across 'traditional' prediction system time blocks. This paper will discuss the frameworks outlined above and present some initial results from current impacts projects working in this challenging and exciting field.