Downscaling Daily Temperature with Neuroevolutionary Algorithm

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Abstract : State of the art research with Artificial Neural Networks for the downscaling of General Circulation Models (GCMs) mainly uses back-propagation algorithm as a training approach. This paper introduces another training approach of ANNs, Evolutionary Algorithm. The combined algorithm names neuroevolutionary (NE) algorithm. We investigate and evaluate the use of the NE algorithms in statistical downscaling by generating temperature estimates at interior points given information from a lattice of surrounding locations. The results of our experiments indicate that NE algorithms can be efficient alternative downscaling methods for daily temperatures.