Mathematical models of transport and mixing in atmosphere and ocean

Peter Haynes

Transport and mixing processes play an important role in atmosphere and ocean. Some aspects of these processes are well-captured by numerical models used for prediction of weather, climate, pollution, etc and some are not. I will present give some examples of how relatively simple mathematical models have been distilled from the complicated details of transport and mixing processes in the real atmosphere and ocean and discuss how the behaviour deduced from such models can be used to improve broader understanding and modelling capability.