Strategies for improving seasonal prediction

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There are two main strategies being used to drive progress in operational seasonal forecast systems. The first is to develop improved models and improved initialisation systems. Improvement means both reduction in errors in represented processes, and extension to include new potential sources of predictability such as stratospheric processes, sea-ice, land surface, and aerosol effects. The role of resolution in forecast systems may also be important. The second strategy is the use of multi-model systems, to both sample and partially average out forecast errors to produce better forecasts. The interplay of these two strategies at ECMWF is discussed, where both a new higher resolution system (System 4) and an operational multi-model ensemble system are available.