

Current and Future Plans at NCEP for Reanalysis

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NCEP was one of the first weather centers to produce a reanalysis of previous years using a fixed numerical analysis and forecast model. The NCEP/NCAR (R1) reanalysis began production in 1994 and produced a reanalysis from 1948 to the present. Some errors were diagnosed in R1 and in 1996 the NCEP/DOE reanalysis (R2) began to run. Both are currently running. Satellite derived temperature retrieval profiles from NESDIS are assimilated. These models are quite old by today's standards. In 2010, NCEP created the Coupled Forecast System Reanalysis (CFSR). However, its primary purpose was to create initial conditions for the hindcast calibrations of Climate Forecast System (CFS) version 2, which became operational in April 2011. With this purpose in mind, this reanalysis was coupled with the ocean, cryosphere, and land surfaces. It uses Gridpoint Statistical Interpolation (GSI) to assimilate satellite radiances. It was run for the period 1979 to present, continues to run in real time as the assimilation component of the CFS. A comprehensive evaluation of this CFSR by CPC scientists revealed several issues when assessing the CFSR as a climate reanalysis. NCEP has since been resolving these issues and is working toward running a follow-on reanalysis that will be able to replace R1. Our presentation will focus on the merits of R1 and R2, why they need to be replaced with a newer more comprehensive reanalysis, an examination of the CFSR, and NCEP's efforts to resolve the issues within the CFSR and produce a quality reanalysis to replace R1.