

Observations and Forcing Data for the ERA-CLIM Project

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ERA-CLIM is a joint project between nine institutes (including ECMWF) that is awarded a three-year funding (2011-2013) by the European Commission within the Seventh Framework Programme. ERA-CLIM is developing observational datasets suitable for global climate studies, with a focus on the past 100 years.

These data sets include atmospheric, oceanic, and terrestrial observations from a variety of sources. Besides abundantly available satellite data for the last few decades, this includes data from existing archives such as the International Surface Pressure Databank (ISPD), International Comprehensive Ocean-Atmosphere Data Set (ICOADS) and the Integrated Surface Database (ISD).

In addition, ERA-CLIM will make a substantial contribution to filling known data gaps. Data recovery efforts focus on upper-air observations made in the first half of the 20th century, as well as near-surface observations of wind and humidity, in all regions of the globe.

A specific goal for the project is to improve the quality and consistency of climate observations through the integration of a number of global pilot reanalyses. The first of such pilot reanalyses, ERA-20C using surface-observations only, will be reported in this meeting by Poli et. al. These pilot runs will provide a powerful tool to dynamically inter-validate observations from a variety of physical nature and origin, by using the laws of physics that relate them. The in this way obtained information, called analysis feedback, will be included in a newly developed Observation Feedback Archive, and will be made available to users world-wide.

This presentation will focus on the preparation of data sets as required for the pilot reanalyses. Besides the collection of observation data sets, this embraces the provision of an adequate 20th century long-term evolution of forcing data as required by the ECMWF model. Such evolution for solar forcing, ozone, greenhouse gases, tropospheric and volcanic aerosols is based on CMIP5 recommended data sets. A historical reconstruction for the boundary condition at the ocean surface (sea-surface temperature and sea-ice cover) HadISST2, is provided by the Hadley Centre as part of the ERA-CLIM project.

Some challenges regarding the interpretation and homogenization of historical data sets and some choices to be made on forcing data will be highlighted.

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