Geophysical Research Abstracts
Vol. 18, EGU2016-12783, 2016
EGU General Assembly 2016

20CR-1815: Extending reanalysis back to Tambora

Philip Brohan (1), Gilbert P. Compo (2,3), and Stefan Brönnimann (4)

(1) Met Office Hadley Centre, Exeter, UK, (2) Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80309, USA, (3) Physical Sciences Division, Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder, Colorado 80305, USA, (4) Univ. Bern, Oeschger Centre and Institute of Geography, Bern, Switzerland (stefan.broennimann@giub.unibe.ch)

Two hundred years ago a very cold and wet summer devastated agriculture in Europe and North America, causing widespread food shortages, unrest and suffering. This is usually blamed on a very large volcanic eruption - mount Tambora, in Indonesia - the previous April, but making a link between these two events has proved difficult, as the major impacts were at smaller space and time-scales than we can reconstruct with tree-ring observations and GCM simulations. To mark the bicentenary of the eruption, we have rescued weather observations from the period from about 50 sites, mostly in Europe; used the pressure observations to constrain a dynamical reanalysis, and the temperature observations to validate it. Running the reanalysis with and without volcanic aerosol forcing lets us estimate what parts of the event can be attributed to the volcano.