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Testing a particle filter to reconstruct climate changes over the past centuries

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We implement a data-assimilation method, a particle filter, in a climate model focusing on 100 years time scale. Several tests are performed with particle filtering using pseudo-observations obtained from a twin experiment with the coupled climate model LOVECLIM, as well as using real-data observations over the last century HADCRUT3. These tests demonstrate that it is possible to obtain a model output correlated well with the observations at the large scales at a reasonable cost.