General mathematical formulation of homogenization of climate data series

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Abstract
There are several methods and software for the homogenization of climate data series but unfortunately there does not exist any exact well elaborated mathematical theory of this problem. At the climatological examinations mainly the physical experiences are dominated while the mathematical formulation of the problems is neglected in general. We do not argue the importance of the physical aspects but the applied not too advanced mathematics is in contrast with the fact that the methods are declared to be based on the mathematical statistics. Moreover often there are some mathematical statements at the description of the methods in the papers but without any proof and this way is contrary to the mathematical conventions of course. As a consequence of this practice the exact evaluation of the methods is very problematic or properly speaking it is unrealistic and the progress of the homogenization research activity is doubtful. Therefore we try to provide a general approach for the mathematical formulation of homogenization in accordance with the mathematical conventions. We believe the correct mathematical principles can promote understanding and clarifying the questions of homogenization in climatology.

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