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Variability of surface solar radiation in unforced CMIP5 simulations

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We examine the natural variability of surface solar radiation (SSR) under pre-industrial conditions with time-invariant forcing in control runs in global climate simulations of the latest coupled model intercomparison project, CMIP5. We consider global and regional scales, as well as annual and seasonal data. Special emphasis is given to the likelihood of spurious SSR trends. To address this question, we determine for each model the range of linear SSR trends as function of the number of years over which the trend is taken. We discuss our findings with regard to potential aerosol induced dimming and its detectability in the second half of the 20th century.