

Phenomenological reconstructions of the solar signature in the Northern Hemisphere surface temperature records since 1600

Scafetta, N.¹; West, B.J. **Source:** *Journal of Geophysical Research-Part D-Atmospheres*, v 112, n D24, D24S03-1-10, 27 Dec. 2007

ISSN: 0148-0227 **CODEN:** JGREA2

Publisher: American Geophysical Union, USA

Author affiliation:

¹Phys. Dept., Duke Univ., Durham, NC, USA

Abstract: A phenomenological thermodynamic model is adopted to estimate the relative contribution of the solar-induced versus anthropogenic-added climate forcing during the industrial era. We compare different preindustrial temperature and solar data reconstruction scenarios since 1610. We argue that a realistic climate scenario is the one described by a large preindustrial secular variability (as the one shown by the paleoclimate temperature reconstruction by Moberg et al. (2005)) with the total solar irradiance experiencing low secular variability (as the one shown by Wang et al. (2005)). Under this scenario the **Sun** might have contributed up to approximately 50% (or more if ACRIM total solar irradiance satellite composite (Willson and Mordvinov, 2003) is implemented) of the observed global warming since 1900. (68 refs.)