

The SunCloud project: worldwide compilation of long-term series of sunshine duration and cloudiness observations

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Introduction

One problem encountered when establishing the causes of global dimming and brightening is the limited number of long-term solar radiation series with accurate and calibrated measurements. For this reason, the analysis is often supported and extended with the use of other more widely and longer measured climatic variables such as **sunshine duration**, cloud cover, diurnal temperature range and evaporation.

Specifically, sunshine duration is defined as the amount of time usually expressed in hours that direct solar radiation exceeds a certain threshold (usually taken at 120 W m⁻²). Consequently, this variable can be considered as an excellent proxy measure of solar radiation at interannual and decadal time scales, with the advantage that measurements of this variable were initiated in the late 19th century in different main meteorological stations. Nevertheless, detailed and up-to-date analysis of sunshine duration behavior on global or hemispheric scales are still missing.

SunCloud project

→ Worldwide compilation of the longest daily and monthly sunshine duration from the late 19th century until present

→ As a complement, also compilation of surface cloudiness observations series since mid-19th century as well as early instrumental sky state observations (< 1850)

→ Project supported by a postdoctoral position, funded by the regional government of Catalonia (2009 BP-A 00035), in the Institute for Atmospheric and Climate Science at ETH Zurich:

- Principal Investigator: Arturo Sanchez Lorenzo (asanchezl@pcb.ub.cat)

- Responsible investigator: Martin Wild

→ Period: 1st September 2010 – 31th August 2012

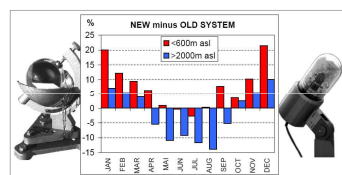
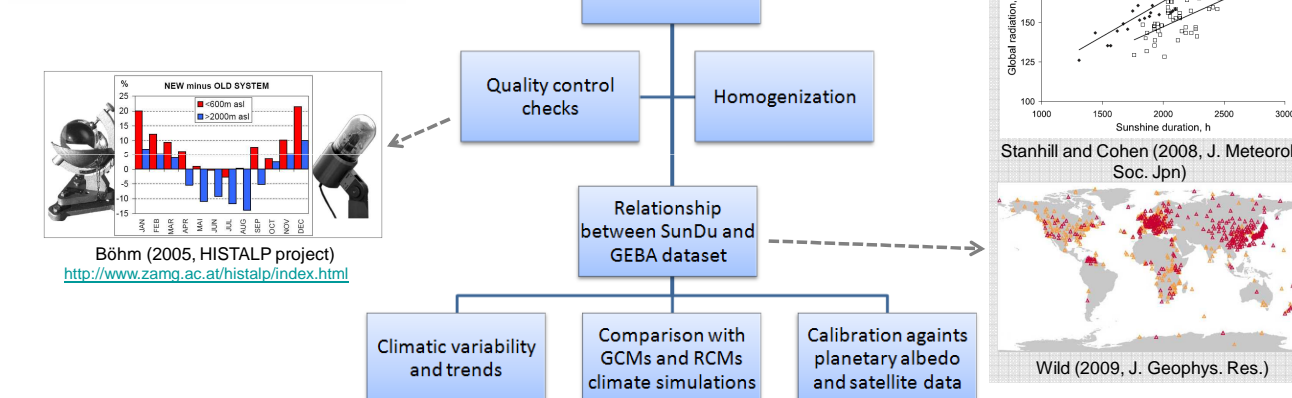
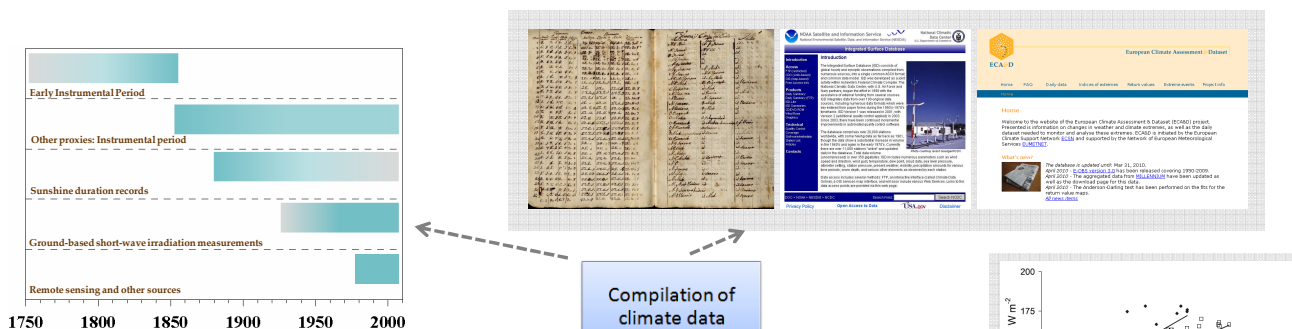
→ Support of other projects:

- NUCLIEREX project (CGL2007-62664/CLI), PI: Josep Calbó Angrill (UdG)

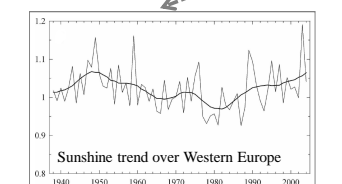
- "The Terrestrial Climate, the clouds and the albedo" project (CGL2009-10641), PI: Enric Pallé (IAC)

→ Any co-operation is highly welcome and we seek to encourage the climate community to contribute with their own datasets to the SunCloud project

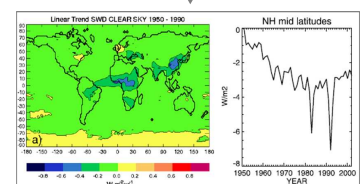
→ During the second half of 2010 we will launch a webpage with the main details of this project



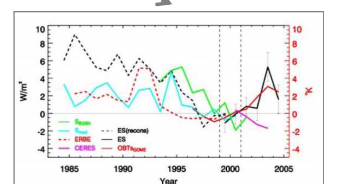
Böhm (2005, HISTALP project) <http://www.zamg.ac.at/histalp/index.html>



Sanchez-Lorenzo et al. (2008, J. Climate)



Stier et al. (2005, 2006, Atmos. Chem. Phys.)



Pallé et al. (2005, Geophys. Res. Lett.)

