

Global Dimming/Brightening in ECHAM5-HAM Sensitivity studies 1950 - 2000

Doris Folini and Martin Wild, ETH Zürich

30 ensemble simulations

Surface solar radiation

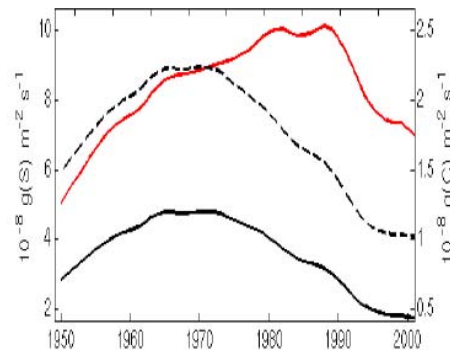
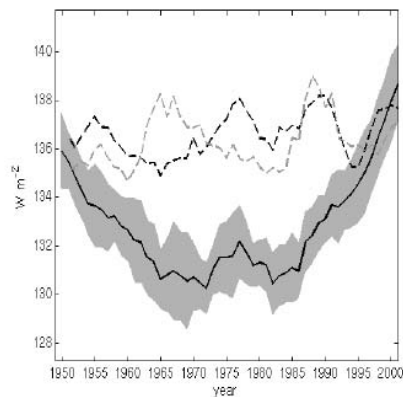
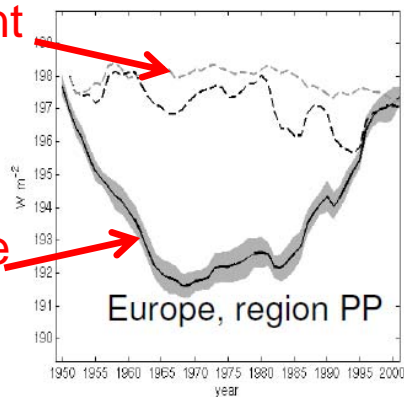
Clear sky

all sky

Emissions

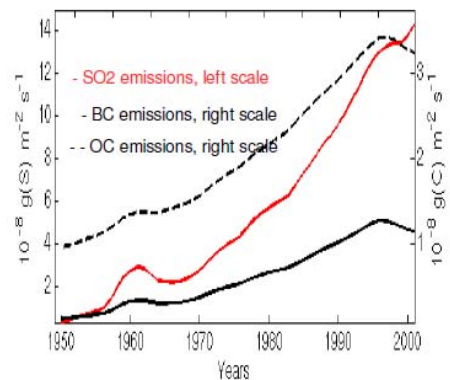
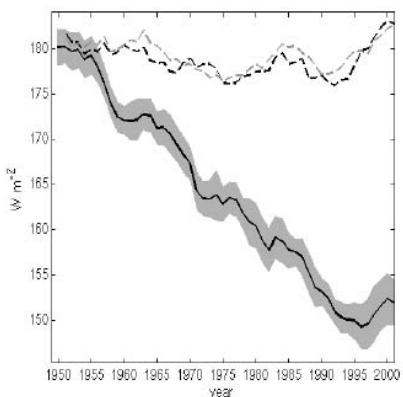
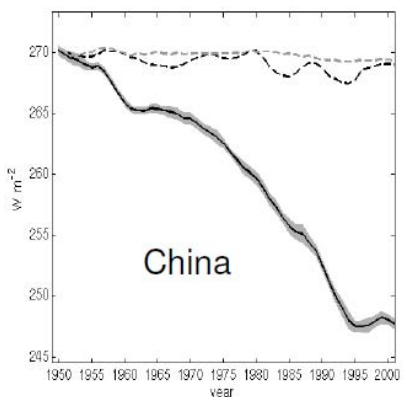
constant
aerosol

variable
aerosol



Europe

1950-2000



China

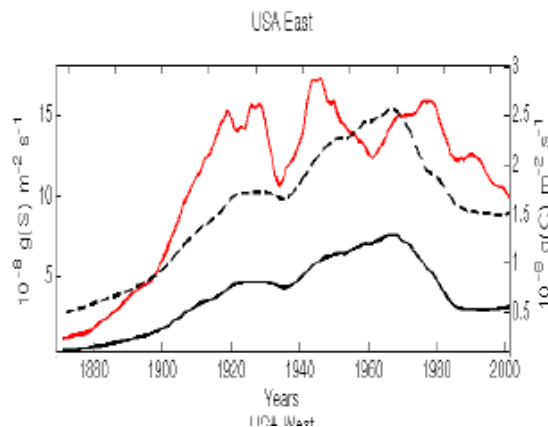
Dimming/brightening well captured in ECHAM5 HAM

Global Dimming/Brightening in ECHAM5-HAM Transient integrations 1870 - 2000

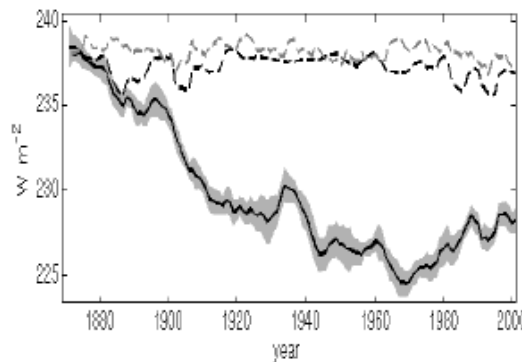
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20 ensemble simulations with ECHAM5-HAM 1870-2000

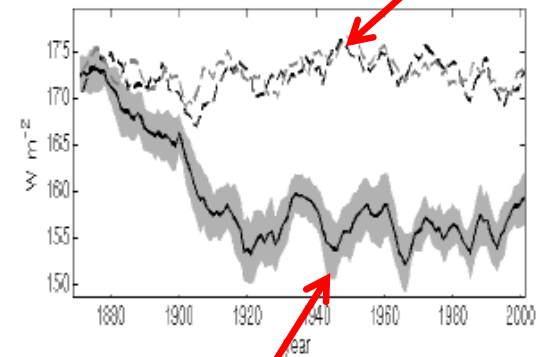
Emissions



Surface solar radiation clear sky



all sky



constant
aerosol

variable
aerosol

Eastern US 1870-2000

**Aerosol effects in surface radiation discernible from
early 20th century onward in industrialized regions**