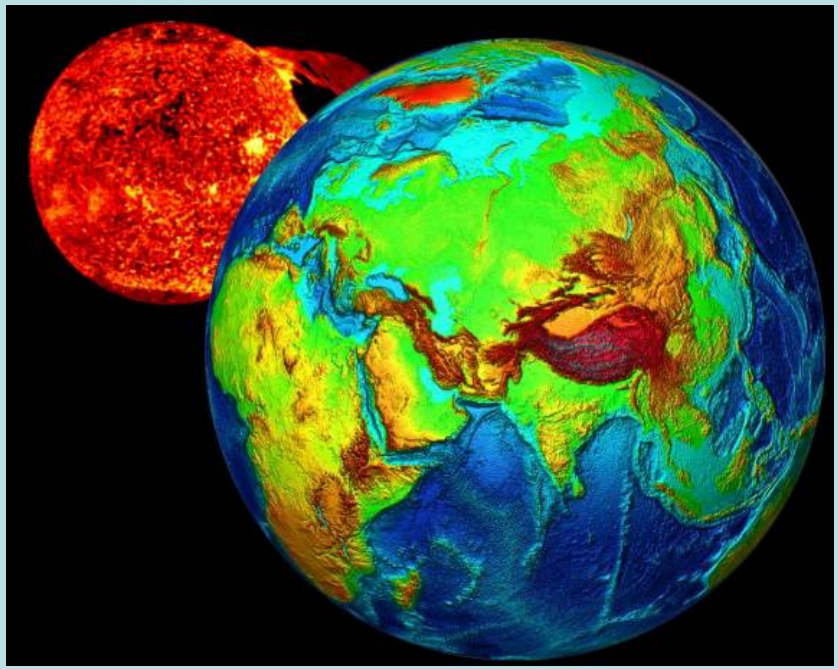
CAWSES

Theme 1: Solar Influence on Climate

Co-Chairs: Mike Lockwood, Lesley Gray

- Summary of Aims
- Members
- Recent Activities
- Future Activities



IUGG, Toulouse, July 2005

Theme 1: Solar Influence on Climate

WG 1.1 Assessment of Evidence for Solar Influence on Climate

Juerg Beer

WG 1.2 Assessment of the Mechanisms for Solar Influence on Climate

Ulrich Cubasch

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WG 1.1 Assessment of Evidence for Solar Influence on Climate

- Timescales from paleo to 11-year to 27-day solar variations
- Upper atmosphere through to the Earth's surface
- Detection and interpretation of solar cycle signal in recent climate data (temperatures, winds, ozone, circulations, climate signatures e.g. ENSO, monsoons)
- Evaluate statistical significance
- Evaluate and improve long-term TSI reconstructions (WG4.1: solar irradiance variability)

Theme 1: Solar Influence on Climate

WG 1.1 Assessment of Evidence for Solar Influence on Climate

J. Beer (Chair)
L. Hood
K. Labitzke
J. Lean
A. Mangini
R. Narasimha
G. North
P. Stott
G. Thuillier (joint with WG4.1: Solar Irradiance Variability)
I. Usoskin
H. Weng
W. White

Theme 1: Solar Influence on Climate

WG 1.2 Investigation of the Mechanisms

- Evaluate theories for transfer and amplification of solar signal from upper atmosphere to the Earth's surface (Theme 3: atmospheric coupling processes)
- Theories to be tested using models and data

  - UV heating and ozone changes in stratosphere (WG 3.1: dynamical coupling; WG 3.2: coupling via photochemical effects)
  - Global electric field effects (WG3.3: coupling by electrodynamics)
  - Influence of galactic cosmic rays on clouds

Theme 1: Solar Influence on Climate

WG 1.2 Investigation of the Mechanisms for Solar Influence on Climate

U. Cubasch (Chair)
M. Baldwin
R. Bradley
R. Garcia
G. Harrison
C. Jackman
K. Kodera
J. Egil Kristjansson
U. Langematz
D. Rind

Meetings

ISSI Workshop on Solar Variability and Planetary Climates

Bern, Switzerland, June 6-10 2005

~50 participants

Solar output variability (Frohlich, Rottman, Heber, Solanki, Beer)
Long-term observations and reconstructions (Crucufix, Raisbeck, Beck, Mann, Jones, Goosse, Hudson, Chanin, Labitzke)
Tropospheric aerosols, radiation budget and changes (Kaufman, Ramanathan, Rosenfeld, Lohmann, Curtius, Arnold)
Theory and models (Bengtsson, Ingram, Bronnimann, Schmidt, von Erlach, Baldwin, Haigh, Gray, Kodera, Salby)
Recent space data (Jackman, Yee, Murtagh, Chipperfield, Hauchecorne, Lopez-Puertas, Burrows, Hilsenrath)
Planetary science (Keating, Lefevre, Korablev, Montmessin, Taylor)

Output: volume of collected papers (submission deadline 31st July 2005)

- Editors include Gray, Lockwood, Langen, Bonnet
- Foreward: Paul Crutzen
- Introduction: Joanna Haigh

Meetings
Solar Variability and Earth Climate

27 June – 1 July, 2005
Rome, Italy
http://www.mporzio.astro.it/sec

Scientific organising committee: Berrilli, Cubasch, Ermolli, Fox, Frohlich, Guhathakurta, Haigh, Navarra, Opgenorth, Pap, Solanki, Sprigg, Vazquez

Scientific sessions:

- Solar radiation and climate records: status and current measurements
- Mechanisms and physical models for irradiance variations
- Mechanisms and physical models for climate variations
- Modelling terrestrial climate: coupling of the middle and lower atmosphere
- Sun – climate connection
- Perspectives and future developments of Sun – Climate research

The **proceedings** of the conference will be published
Editors: Ermolli, Fox, Pap
Deadline for submission: August 1st 2005

Meetings

IAGA Scientific Assembly,

Toulouse, 18-29 July 2005

Monday 18th July

Vertical coupling of the atmosphere-ionosphere system and solar effects on it

Convener: Pancheva, D.

Co-Convener: Hood, L.; Kazimirovsky, E.

Tuesday 26th July

Solar variability effects on the middle atmosphere and troposphere

Convener: Hood, L.

Co-Convener: Langematz, U.

Meetings

IAMAS 2005,

August 2-11th, Beijing, China

Solar Activity and its Influences on the Earth's Weather and Climate

This symposium invites papers on topics relating to the nature and consequences of changes in solar activity, total and spectral irradiance, and in the short and long-term influences of these changes on the Earth system and the linear and nonlinear processes through which these influences may occur.

Conveners: Werner Schmutz, Joanna D. Haigh, Judit Pap, Hengyi Weng

Future Activities

ISSI Team on Solar Influence on Climate

Gray, Lockwood, Geller, Haigh, Beer, Cubasch

Goals

1. To review and assess the current knowledge and understanding of
   (a) The observational evidence for impacts of solar variations on our climate and weather
   (b) The mechanisms for transfer and amplification of solar variations by the Earth's atmosphere
2. To promote international communication and collaboration within this science discipline so that the rate of acquisition of knowledge and understanding is enhanced.

1st Team meeting June 2005; small workshop planned for Easter 2006

Interaction with 2 other ISSI Teams

- Relationship between Solar Magnetism and Irradiance
  (WG 1 contact = Beer)
- The dynamic heliosphere, variable cosmic environments and their imprints in Earth's archives
  (WG1 contact = Frohlich).

Future Activities

Solar Influence for SPARC* (SOLARIS)

Kuni Kodera (kodera@mri-jma.go.jp)
Katya Matthes (kmatthes@ucar.edu)
Lesley Gray (lesley@met.rdg.ac.uk)

- New SPARC working group on solar variability.
- Extension of the GRIPS* solar influence inter-comparison.
- Objective : Modelling and understanding the solar influence on climate through stratospheric chemical and dynamical processes.
- Collaboration of SPARC and CAWSES programs

*SPARC: Stratospheric Processes and their Relation to Climate, part of WCRP (World Climate Research Programme)
*GRIPS: GCM / Reality Inter-comparison Project for SPARC