

The solar activity cycle: physical causes and consequences

Information on the book

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14 November 2013
(revised)

From the First Circular of the Workshop

Following the Workshop, its output will be published as a volume in the Space Science Series of ISSI by Springer, in parallel with publication of the papers in Space Science Reviews.

It is expected that a total of up to 20 review style and quality papers, submitted to the usual refereeing process, will be published in the book.

Papers will be based talks presented at the Workshop and will be moderated by the discussions in splinter groups.

The Solar Activity Cycle: Physical Causes and Consequences: Draft TOC - 15 November 2013

	Authors	Title
1.	Editors	Introduction
2.	H. Hudson, L. Svalgaard, E. Cliver	Solar Sector Structure
3.	F. Clette, E. Cliver, L. Svalgaard	The Sunspot Number in time: global re-calibration, implications and future extensions
4.	L. van Driel-Gesztelyi, I. Ermolli, K. Shibasaki, A. Tlatov	Solar cycle indices from the photosphere to the corona: measurements and underlying physics
5.	Natalie Krivova, Kok Leng Yeo	Total Solar Irradiance and the solar cycle
6.	Rainer Arlt (+ Nigel Weiss TBC)	The solar butterfly diagram ...
7.	Ed Cliver, Andrey Tlatov	Observational evidence for the Hale cycle in solar activity
8.	Anne-Marie Broomhall, Piyali Chatterjee, and Michael Thompson	Temporal changes in the Sun's interior over the solar cycle: Observations and modelling
9.	Brigitte Schmieder, Vasilis Archontis, Manfred Schussler, Etienne Pariat	Magnetic Flux emergence
10.	Aimee Norton, Paul Charbonneau	Observed Solar N-S Asymmetry in Relation to Dynamo Modeling
11.	A. Pevtsov, M. Berger, A. Nindos, A. Norton, L. van Driel-Gesztelyi	Magnetic helicity, twist and tilt
12.	Gordon Petrie, Kristof Petrovay, Kenneth Schatten (TBC)	Polar magnetic fields
13.	L. Svalgaard	What Geomagnetism can tell us about the Solar Cycle?
14.	Anne-Marie Broomhall, Galina Bazilevskaya, ...	Combined analysis of the Quasi-Biennial Oscillations
15.	Yi-Ming Wang (+ Gordon Petrie TBC)	Solar cycle variations of the Sun's dipole and quadrupole components: Heliospheric consequences
16.	I. Usoskin, G. Bazilevskaya, E. Cliver, G. Kovaltsov	Solar cycle in the heliosphere and cosmic rays
17.	W. Chaplin, S. Basu	Sounding stellar cycles: inferences from asteroseismology
18.	Zs. Kóvári, K. Oláh	Observing dynamos in cool stars
19.	D. Hathaway, R. Cameron, J. Jiang, S. Solanki	Meridional flows and the solar cycle
20.	Nigel Weiss (+ Reiner Arlt TBC)	Solar cycle variability: stochastic or chaotic?
21.	Ilidio Lopes, Melinda Nagy	Oscillator models of the solar cycle
22.	P. Charbonneau, A. Choudhury, J. Jiang, B. Karak, M. Miesch	Challenges for the solar dynamo: what kinematic mean field models and direct numerical simulations can teach each other

Space Sciences Series of ISSI

A. Balogh · H. Hudson · K. Petrovay · R. von Steiger *Editors*

The Solar Activity Cycle: Physical Causes and Consequences

The topic of this book is the 11-year solar activity cycle, best known from observations of sunspots since Galileo discovered them. Solar activity has become a wonder for both its spectacular manifestations and the complexity of the physical processes that regulate its ebbs and flows. All solar phenomena vary with a period that has remained close to 11 years ever since they have been observed. However, complex chains of causes and effects remain to be understood in their fullness. Making progress in this field is important because of the increasingly recognised importance of solar effects on our life on Earth. The book reviews the way solar phenomena vary in the 11-year cycle and the complex relationship between them. The objective is to take stock of how well we understand the Sun and to improve our ability to predict its activity.

Previously published in *Space Science Reviews*.



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Balogh · Hudson
Petrovay · von Steiger

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The Solar Activity Cycle

SPACE SCIENCE SERIES OF ISSI

The Solar Activity Cycle: Physical Causes and Consequences



A. Balogh · H. Hudson ·
K. Petrovay · R. von Steiger · *Editors*

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Guidelines for Space Science Reviews,
and the Space Science Series of ISSI books.

Word count: about 680/page

Character count: about 3500/page

Characters with spaces count: about 4100/page

Number of lines on the page: 49

Words per line: about 14 (average)

Book size target: 450 to 550 pages

Colour: OK

Schedule:

Submission of papers for review to Springer Editorial
Manager:

- 31 March 2014

Review process completed:

- 30 June 2014

Proof editing, production, papers online:

- End of August 2014

Publication in Space Science Review:

- October 2014

ISSI book publication:

- End of 2014

When ready to submit, please do so to
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to Article Type:

"Solar Activity Cycle"

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