Prof. J. TODD HOEKSEMA, Ph.D.

Solar Observatories Group
W.W. Hansen Experimental Physics Laboratory
Stanford University

THoeksema@solar.stanford.edu
http://sun.stanford.edu/~todd
(650) 723-1506
Cypress C-13, 452 Lomita Mall
HEPL, Stanford, CA 94305-4085

Professional Preparation, Education

The Prairie School, Racine, WI; High School Valedictorian, 1974.
Calvin College, Grand Rapids, MI; B.A. in Physics (with Honors) and Mathematics, 1978.
Stanford University, Stanford, CA; Dept. of Applied Physics; M.S., 1980; Ph.D., 1984.

Appointments, Professional and Management Experience

Professor of Physics (Research), Stanford University, 2022-present.
Director, COFFIES DRIVE Science Center, 2020-2027.
Senior Research Scientist, Hansen Experimental Physics Lab., Stanford University, 1989-2022.
SDO/HMI Magnetic Science Team Lead, 2004-present.
SOHO/MDI Stanford Instrument Scientist, 1986-2011.
Wilcox Solar Observatory, Director since 2004; operations & maintenance since 1978.
EPO: Principal Scientist, Stanford SOLAR Center.
NASA HQ, Washington, DC, Heliophysics Discipline Scientist (IPA), 2000-4.
Assistant á l'Observatoire, Observatoire de Nice, France, Spring 1985.
Research Associate, Center for Space Science and Astrophysics, Stanford University, 1984-89.

Profile

Primary scientific interests include the physics of the Sun and heliosphere, observation and analysis of solar and coronal magnetic fields, the solar activity cycle, solar velocity fields, helioseismology, solar-terrestrial relations, and education and public outreach. Experience includes research administration, management, and strategic planning, system and scientific programming, and the design, construction, and operation of instruments to measure solar vector magnetic and velocity fields from ground and space.

Professional Society Memberships & Leadership Positions

American Astronomical Society, Solar Physics Division; SPD Chair/Vice-Ch., 2006-10
American Geophysical Union, Space Physics and Aeronomy Div.; SH Secretary, 2015-19.
International Astronomical Union. American Scientific Affiliation. AAAS.

Selected Activities and Awards

Awards

Calvin College Distinguished Alumni, 2017.
NASA Distinguished Public Service Medal, 2006.

Leadership Positions

NASA Heliophysics Roadmap: Chair, 2005-6; HQ Rep. 2002; Member, 1999.
Committee on Solar and Space Physics (NAS SSB CSSP): Co-chair, 2013-6.
AURA Solar Observatory Council: Chair, 2010-3.
SPD Metcalf Travel Award Committee: Chair, 2010-18.

Committees, Memberships, and Activities

AURA Board of Directors, 2018-2024, 2010-13.

AAS Committee on Astronomy & Public Policy, 2012-2022.

2012 Solar & Space Physics Decadal Survey*:* Committee Member.

Astro 2020 and Astro 2010 Decadal Survey GB-OIR Program Prioritization Panels.

National Academy of Sciences and Medicine Study Committees, various including *Survey of Surveys, Evaluation of NSF Geospace Portfolio Review, etc.*

Jack Eddy - LWS Postdoc Steering Committee, 2010-16.

Solar Cycle 24 Prediction Panel, SWPC, 2006-9.

NASA Advisory Council - Heliophysics Subcommittee, 2006-9.

Scientific Organizer, numerous meetings & sessions; e.g. SDO 2021, 2022 Fall AGU

1990s and Earlier

JGR-Space Physics: Associate Editor, 1997-2001; JGR, Editor's Citation for Excellence, 1997.

NASA Solar Physics MOWG

GONG Magnetic Users' Group; NSO/SOLIS Science Advisory Group

COSPAR, Vice-chair, Section E.2

Scientific Organizer, numerous science meetings, e.g. SOHO-4,1995

Project Astro, Visiting Astronomer

Undergraduate Academic Advisor, Stanford; 5 & 10 year Master Advisor Awards.

IRIS network member (Global helioseismology observing network)

NSF Undergraduate Research Program, Solid State Physics, Loyola U., Chicago, IL, 1977.

U.S. Presidential Scholar (Wisconsin), 1974.

NSF Summer Science Program in Astronomy, Ojai, CA, 1973.

Publications

Author/Co-author of more than 200 papers in astronomical and geophysical journals and more than 200 contributed and invited lectures. Current lists of publications, and presentations: Before 2005 and After 2005

J.T. Hoeksema, W.P. Abbett, D.J. Bercik, M.C.M. Cheung, M.L. DeRosa, G.L. Fisher, K. Hayashi, M.D. Kazachenko, Y. Liu, E. Lumme, B.J. Lynch, X. Sun, B.T. Welsch; *The Coronal Global Evolutionary Model: Using HMI Vector Magnetogram and Doppler Data to Determine Coronal Magnetic Field Evolution*, 2020, ApJS 2020ApJS..250...28H; DOI: 10.3847/1538-4365/abb3fb

T.S. Horbury et al. (49 authors, incl. T. Hoeksema); *The Solar Orbiter Magnetometer*, 2020, Astronomy and Astrophysics 2020A&A...642A...9H; DOI: 10.1051/0004-6361/201937257

J.T. Hoeksema, C.S. Baldner, R.I. Bush, J. Schou, P.H. Scherrer, *On-Orbit Performance of the Helioseismic and Magnetic Imager Instrument Onboard the Solar Dynamics Observatory*, 2018, Solar Physics 2018SoPh..293...45H, DOI: 10.1007/s11207-018-1259-8

J.T. Hoeksema, Y. Liu, K. Hayashi, X. Sun, J. Schou, S. Couvidat, A. Norton, M. Bobra, R. Centeno, K.D. Leka, G. Barnes, M. Turmon, *The Helioseismic and Magnetic Imager (HMI) Vector Magnetic* ***Field Pipeline: Overview and Performance*****, 2014, Solar Physics , DOI: 10.1007/s11207-014-0516-8**

M. Bobra, X. Sun, J.T. Hoeksema, M. Turmon, Y. Liu, K. Hayashi, G. Barnes, K.D. Leka, *The Helioseismic and Magnetic Imager (HMI) Vector Magnetic Field Pipeline: SHARPs -- Space-weather HMI Active Region Patches*, 2014 Solar Physics, 2014SoPh...289.3549B, DOI: 10.1007/s11207-014-0529-3