Dr. John F. Cooper

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EDUCATION:

B.S., Physics, 1972, Georgia Institute of Technology, Atlanta, Georgia
M.S., Physics, 1977, University of Chicago, Chicago, Illinois
Ph.D., Physics, 1983, University of Chicago, Chicago, Illinois

PRESENT POSITION:

Chief Scientist, Sun-Earth Connections Active Archive, Space Physics Data Facility, NASA/Goddard Space Flight Center

EXPERIENCE:

1990-2005 – Senior Research Scientist, Raytheon ITSS, SSDOO Project, NASA/Goddard Space Flight Center
1988-1990 – Senior Research Fellow, Department of Physics and Astronomy, Louisiana State University, Baton Rouge, Louisiana
1985-1988 – Postdoctoral Research Fellow, Space Radiation Laboratory, California Institute of Technology, Pasadena, California
1983-1985 – Postdoctoral Research Fellow, Max Planck Institute for Extraterrestrial Physics, Munich, Germany
1975-1983 – Graduate Research Assistant, Laboratory for Space Research, Enrico Fermi Institute, University of Chicago, Chicago, Illinois
1972-1975 – Surface Warfare and Naval Tactical Data Systems Officer, U.S.S. Enterprise (CVAN-65), United States Naval Reserve

RESEARCH INTERESTS:

Dr. Cooper is responsible within the Space Physics Data Facility for science and data archiving interactions with operational geospace and heliospheric missions, while also having strong research interests in convergent science themes related to space physics for NASA's Sun-Solar

System Connections, Solar System Exploration, and astrobiology programs. These main interests focus on space environment interactions, particularly those of potential astrobiological interest, with solar system bodies within giant planet magnetospheres and with Kuiper Belt and other icy bodies within the heliospheric environment. He has previously been involved in research on energetic particle and related experiment data from the first missions to Saturn and Uranus, respectively Pioneer 11 in 1979 and Voyager 2 in 1986, the CRRES satellite mission in 1990-1991, the Galileo Orbiter mission from 1997 to the present, while now also now pursuing work on the Saturn magnetosphere in relation to the ongoing Cassini Orbiter mission. Dr. Cooper carried out doctoral dissertation research with the late Prof. John A Simpson on modeling the origin of high energy trapped protons in Saturn's radiation belts from galactic cosmic ray ion interactions with the main rings of that planet, while later determining the total ring mass from a related analysis of Pioneer 11 charged particle and gamma ray data acquired near the rings. He has been Principal Investigator on several ongoing NASA research projects relating to analysis of Galileo Orbiter energetic particle data and to modeling of moon-magnetosphere interactions for the Galilean moons in the Jupiter system. Dr. Cooper is now Co-investigator on high capability planetary instrument development teams for active radio sounding and neutral atom imaging intended for application to the Prometheus program, while also collaborating on similar applications with the planetary x-ray spectroscopy group at NASA/Marshall Space Flight Center. He is a current member of the Science Definition Team for the Jupiter Icy Moons Orbiter (JIMO) and contributed to the 2004 final report on science requirements for this mission. He was chairman and lead author on a published 2002 study sponsored by the Division of Planetary Sciences of the American Astronomical Society (AAS) on science objectives and mission priorities for exploration of Europa, while also contributing to a similar DPS decadal study for the Kuiper Belt. Dr. Cooper is an active member of the American Geophysical Union, the American Physical Society, and AAS, while also now being lead guest editor for special issues of the planetary science journal Icarus on the Jovian magnetospheric environment and for the journal Astrobiology on the theme of Space Physics, Mars, and Life. Prior to graduate study he was a surface warfare officer on the first nuclear-powered aircraft carrier, U.S.S. Enterprise (CVAN-65), in combat-support flight operations during the final years (1972-1975) of the Vietnam conflict and managed the operations, programming, and maintenance of the ship's Naval Tactical Data System.

SELECTED PUBLICATIONS:

Cooper, J. F., Nuclear cascades in Saturn's rings: cosmic ray albedo neutron decay and the origins of trapped protons in the inner magnetosphere, J. Geophys. Res., 88, 3945-3954, 1983. (Ph.D. Thesis)

Cooper, J. F., J. H. Eraker, and J. A. Simpson, The secondary radiation under Saturn's A-B-C rings produced by cosmic ray interactions, J. Geophys. Res., 90, 3415-3427, 1985.

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Johnson, R. E., J. F. Cooper, L. J. Lanzerotti, and G. Strazzulla, Radiation formation of a non-volatile crust, Astron. Astrophys., 187, 889-892, 1987.

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Cooper, J. F., R. E. Johnson, B. H. Mauk, H. B. Garrett, and N. Gehrels, Energetic Ion and Electron Irradiation of the Icy Galilean Satellites, Icarus, 149, 133-159, 2001.

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