

CHRIS T. RUSSELL

Prof. Russell is a member of the faculties of both the Department of Earth and Space Sciences and the Institute of Geophysics and Planetary Physics. He is a Fellow of the American Geophysical Union, and the American Association for the Advancement of Science, and a member of the American Astronomical Society, the European Geosciences Union, and the International Academy of Astronautics. He is an associate of both the US National Academy of Science and the Royal Astronomical Society. In 1977, Dr. Russell was awarded the Macelwane Award by the AGU, and in 2003, their Fleming Medal. He was the 1987 Harold Jeffreys lecturer of the Royal Astronomical Society, and was awarded the COSPAR Science Award in 2002. He is a past chairman of Commission D of COSPAR and of CODMAC, the NAS Committee on Data Management and Compuation. He has served as a member of the Space Science Board and NASA's Planetary Science Data Steering Group, which he chaired from 1983-1984, and 1990-1995. He is a past president of the Solar Terrestrial Relationships Section of the American Geophysical Union. He is the author of over 1300 articles in journals and books on various aspects of planetary and space plasma physics. The Institute for Scientific Information has named him one of their most highly cited researchers, with over 30,000 citations to his indexed publications.

Prof. Russell began his space research in 1964, as a summer student studying solar radio bursts with the Alouette 1 and 2 ionospheric sounder spacecraft. In 1965, he began working with observations of the solar wind interaction with the Earth's magnetosphere using the highly eccentric Orbiting Geophysical Observatory 1. Later, he continued this work with the observations of OGO 3 and OGO 5. In the 1970's, he worked with the Apollo 15 and 16 subsatellites to map the lunar magnetic field and in 1973, became the principal investigator of the magnetic field investigation on the co-orbiting ISEE 1 and 2 spacecraft that mapped the outer reaches of the Earth's magnetosphere. In the same year, he was selected to be principal investigator of the magnetometer on the Pioneer Venus orbiter. In 1979, he became an interdisciplinary scientist on the Galileo mission to Jupiter and in 1984, was selected to be principal investigator of the magnetic field investigation on the Polar mission that mapped out the high-altitude polar cusp. In 1990, he joined the Cassini magnetometer team to study the saturnian magnetosphere. Currently he is studying the solar wind and interplanetary magnetic field on the twin STEREO mission circling the Sun at 1 AU, studying lightning at Venus with the Venus Express mission, building four magnetometers for the Magnetospheric Multiscale mission that will explore reconnection in the outer magnetosphere with a launch in 2014. Finally, he is leading the Dawn mission that will orbit the two most massive asteroids in the main asteroid belt, 1 Ceres and 4 Vesta. Dawn arrives at Vesta in summer of 2011.

Prof. Russell has made significant discoveries throughout the solar system. He was first to discover the extensive remanent magnetism of the lunar crust and show that the moon had a metallic core. He was also the first to map the ELF waves in the Earth's plasmasphere and magnetosphere. He was a key developer of the neutral point model of substorms and discovered the erosion of the magnetopause by southward interplanetary magnetic fields. He discovered flux transfer events at the Earth's magnetopause and mapped the high-altitude polar cusp. He explained the semi-annual variation of geomagnetic activity and developed a predictive model for geomagnetic storms based on the upstream measurements of the interplanetary magnetic field

and substorms. He also showed that flux transfer events occurred at Mercury as do ULF waves on closed field lines. He discovered lightning in the Venus atmosphere, magnetic flux ropes in the Venus ionosphere and that Venus has an induced magnetic field. He showed that neither Venus nor Mars has a dynamo-driven magnetic field. He participated in the exploration of the interaction of the volcanic moon of Jupiter, Io, with its magnetosphere, the discovery of the ocean inside Europa, and the magnetosphere of Ganymede. He discovered substorms at Jupiter and later at Saturn. Presently he is studying the similarity of the roles of Io and Saturn's moon, Enceladus, in powering their respective magnetospheres.