SCOSTEP 2026 Distinguished Scientist Award

SCOSTEP is pleased to announce that the
2026 Distinguished Scientist Award is given to


Michael Lockwood

Prof. Michael Lockwood, FRS
University of Reading, UK

Citation: His research has fundamentally advanced our understanding of the coupled Sun-Earth system, from the basic physics of magnetic reconnection and magnetosphere-ionosphere coupling to long-term solar variability, space climate, and the influence of solar activity on the Earth's environment. At the same time, he has provided outstanding scientific leadership, mentored generations of researchers, and made lasting contributions to the international solar-terrestrial community

Prof. Michael Lockwood is one of the worldwide leaders in solar-terrestrial physics. His research has fundamentally advanced our understanding of the coupled Sun-Earth system, from the basic physics of magnetic reconnection and magnetosphere-ionosphere coupling to long-term solar variability, space climate, and the influence of solar activity on the Earth's environment. Many of his discoveries have become so deeply embedded in solar–terrestrial physics that they are now part of the way the subject is routinely taught and understood. Across multiple fields, he has consistently combined physical insight, rigorous analysis, innovative use of observations, and last but not least, a remarkable ability to connect phenomena across the entire Sun-Earth system.

One of the first major discoveries of Prof. Lockwood was the identification of the cleft ion fountain using observations from the Dynamics Explorer spacecraft. Then he fundamentally changed the interpretation of incoherent scatter radar observations (including EISCAT) by demonstrating the importance of non-Maxwellian ion velocity distributions produced through ion-neutral collisions during strong plasma convection. His influential pioneering contributions to understanding magnetic reconnection and the transfer of solar-wind energy into geospace were of primary importance. Among others he played a leading role in establishing the observational basis for the modern understanding of transient magnetic reconnection through flux transfer events. His work identified their ionospheric signatures, quantified the magnetic flux transferred during individual events, and developed methods to infer reconnection rates directly from cusp ion observations. Another important contribution was his work, together with S. Cowley and colleagues, on what has become known as the Expanding-Contracting Polar Cap (ECPC) paradigm This elegant framework fundamentally changed how the community interprets ionospheric convection. In the area of solar/heliospheric variability, he demonstrated that the Sun's open magnetic flux approximately doubled during much of the twentieth century, fundamentally changing scientific understanding of long-term solar variability. This discovery stimulated an entirely new generation of investigations into secular solar change and its implications for heliospheric conditions. He also developed physically based methods for reconstructing the heliospheric magnetic field, open solar flux, and solar-wind properties over centuries by combining geomagnetic observations, cosmogenic isotope records, and modern spacecraft measurements. He has played a leading role in establishing what is now recognised as the field of space climate. His work has always been characterised by careful physical reasoning and, particularly, by a talent for extracting new insight from diverse observations.

It is necessary to mention his dedication to mentoring the next generation of scientists. He has supervised or co-supervised more than thirty doctoral students, the overwhelming majority of whom have gone on to successful scientific careers, many now occupying senior leadership positions in universities, research institutes, and space agencies around the world. Colleagues and former students know him as an exceptionally generous collaborator, an insightful mentor, and a scientist who combines intellectual rigour with genuine enthusiasm for discovery.