# Seeing the Light: physics of the aurora

## Dr Melanie Windridge

The polar lights are a natural phenomenon, often stimulating awe and wonder in those who view them. It is not surprising, therefore, that many polar communities have their own legends or explanations for the lights.

We now know that the northern and southern lights are caused by a charged particle “wind” from the Sun interacting with the Earth’s atmosphere. The concept of Space Weather came into focus in the 1990s as satellites such as ACE and SOHO improved studies of the Sun-Earth connection, whilst the consequences of disruption were becoming apparent in the more technologically-advanced and space-dependent age.

Credit: Senior Airman Joshua Strang, US Air Force

This beautiful and inspiring lecture will describe our connection to the Sun, the scientific processes behind the polar lights, and some of the unwanted technological effects of Space Weather.

Dr Melanie Windridge has a PhD in Plasma Physics (Fusion Energy) from Imperial College London, and spent much of her research time at the JET facility at Culham Centre for Fusion Energy. In 2010 Melanie was the Institute of Physics Schools lecturer and spoke to over 10,000 students about fusion. Melanie has made many TV and radio appearances, including BBCs Bang Goes the Theory and James May’s Things You Need to Know. She has published a basic, introductory book on fusion power and her next book will be on the Northern Lights. As well as communicating science, Melanie works as a consultant for Science and Technology start-up businesses and in Education.