**Transcript**

***Dr Andrew McDonald – Probing the Earth’s Upper Atmosphere***

My research involves the use of high powered radars to probe the upper reaches of the Earth’s atmosphere. So we look at altitudes in excess of 100 kilometres, so roughly 10 times higher than a plane flies where the atmosphere is extremely dynamic, circulating at speeds of up to 5,000km/hr.

The upper atmosphere, it’s like a window into space so electric and magnetic fields coming from the earth and from the sun drive the atmosphere around the globe much like the winds do in the lower atmosphere. So, we hope to better understand the movement of the upper atmosphere and also its response to violent events on the sun such as solar flares.

This research is critical to satellite operations in close earth orbits, to GPS navigation, to long range radio communications and also in understanding the aurora which is the beautiful light shows seen over the polar regions.