**Transcript**

***Dr Evan Robertson – Shining infrared light on the atmosphere***

Okay, well I describe myself as a spectroscopist. That means that we use visible and invisible wavelengths of light to explore the properties of matter and also to measure how much is present. The main application of that in my research is to atmospheric composition and the chemicals in the atmosphere. That would include greenhouse gases for example. So like chloroflourocarbons that act to enhance global warming. They do that by trapping infrared radiation that gets emitted by the Earth. So we study those molecules and we also look at aerosols. So, within the air there is more than just, just gas molecules, there’s also tiny particles that we call aerosols. So, if you, for example, you know take a breath chances are you’ve just inhaled a few thousand aerosol particles, believe it or not. Most of those are really tiny. They’re less than a micron across and, but their size not withstanding they actually have quite an impact on our climate and the weather systems for example. They seed cloud formation, and that effects very much you know, the way that our planet sort of works and functions.

Recently we’ve been making icy aerosol particles in a laboratory environment, actually at the Australian Synchrotron and studying those particles using infrared light. It’s a region of the spectrum that’s actually pretty important. About half of the radiation that escapes from Earth is in the far infrared region. So, we’ve been learning about how those particles form and about some of their fundamental properties such as how they scatter or absorb radiation. Now, that kind of information is really crucial to be able to put into radiative forcing models let’s call it. Basically is concerned with how much of the heat gets trapped in the atmosphere and it goes into models that predict climate change.

So, in terms of the impact that that knowledge will have if we get better climate change models then hopefully, if we have any wisdom, that might inform policy and help shape the way that, you know, decisions are made at societal level.