



Special Seminar

Richard Forbes

Visiting from the European Centre for Medium-Range Weather Forecasts

**Reducing cloud and radiation systematic errors
in global NWP and climate models**

Hosted by Christine Chiu

**3:30 p.m. Monday, June 17
ATS 101**

There are significant systematic errors in cloud and radiation in different meteorological regimes across the globe that are common to many global weather and climate models. The ECMWF global numerical weather prediction (NWP) model (the IFS) is no exception and ongoing efforts to reduce these regime-dependent systematic errors are vital to improve the realism and predictive skill of the model. Here we discuss a number of examples of systematic error reduction using the IFS model, observations and data assimilation to understand the source of the errors and implement improvements to the physical parametrizations.

Top-of-atmosphere reflected shortwave radiation is a key quantity for assessment as it is well-observed globally, fundamental for driving the atmospheric dynamics and is strongly affected by cloud. Examples of attributing shortwave radiation errors to different aspects of the cloud field are given for the high-latitudes and Southern Ocean storm-track, and for the sub-tropical cumulus and stratocumulus regimes. The talk highlights the value of using short-range NWP forecasts combined with a wide variety of observations to understand and reduce these common systematic model errors.