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### **Sky Imager and Numerical Weather Prediction Solar Forecasting Research at UC San Diego**

Solar forecasting research at the interface of atmospheric sciences and grid integration will be presented. The talk is split into two parts. The development of a high dynamic range sky imaging system is presented together with image processing algorithms to calibrate camera geometry, detect clouds and cloud motion, and generate solar forecasts at high spatio-temporal resolution. However the forecast horizon is limited to 15 minutes. For longer horizon forecasting, numerical weather prediction with the Weather Research and Forecasting (WRF) model is applied specifically for Stratocumulus forecasting in coastal California. Issues with the WRF initialization necessitate cloud data assimilation and inversion base height corrections. A mixed layer model provides insights on the importance of physical processes, specifically advection, entrainment, and surface fluxes.

27.10.2015