

11.1 UNCERTAINTY QUANTIFICATION FOR ARM CLOUD RADARS

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The ARM climate research facility has deployed scanning cloud radars in a variety of regimes around the world to study cloud properties. Cloud properties are essential for the treatment and representation of clouds in models. Cloud radars operate at millimeter wavelengths to observe smaller cloud particles when compared to the traditional weather radars operating at centimeter wavelengths. These cloud radars are able to operate with complex waveforms. This paper presents the uncertainties in spectral moments and polarimetric variables estimated with these complex waveforms. The uncertainties are presented for spectral processing as well as auto-correlation based estimators for uniform, staggered pulsing, and frequency-hopping pulsing.