**Motivation**
Observational sampling of 3D cloud fields has been a longstanding goal of ARM.

Cloud fields required for 3D radiative transfer calculations

Evaluation/formulation of overlap assumptions for statistical cloud schemes

The 157 WSR-88D weather radar sites exhibit a wide range of climatic regimes

**Challenges**
Can the WSR-88D weather radar be used for cloud sounding?

Reflectivities of -25...-30 dBZ @ 10 km should be observed with a radar. Can this sensitivity be achieved with the WSR-88D?

**Sensitivity of the WSR-88D with the ‘cloud’ signal processing**

**CONCLUSIONS:**
- Observations from WSR-88D KOUN illustrate the advantage of scanning Doppler polarimetric radars: near-instantaneous sampling of 3D cloud fields and their evolution
- Enhanced signal processing techniques applied to the WSR-88D increases sensitivity to -25.5 dBZ@10km in dual-polarization mode and -33 dBZ in single polarization mode
- Polarimetric capabilities allow for classification of hydrometeor type
- The existing NEXRAD radar network could be employed for cloud-climate studies and incorporation into NWP update cycles