**S-PolKa Provides Unique Research Quality Data in Remote Areas of the World**

**S-band and Dual-Polarization Capability**
- Real-Time Data Quality
  - Ground clutter identification
  - Brightband identification
  - Improved separation of noise and signal
  - Attenuation correction
- Hydrometeor Classification
  - Mixed phase precipitation
  - Hall identification, etc.
- Improved Rainfall Estimates
  - Drop size distribution information
  - Partial beam blockage mitigation
- Refractivity
  - Near surface humidity
- Dual-Wavelength Retrievals
  - Humidity Retrieval
  - Liquid Water Content Retrieval
  - Attenuation based
  - Independent of DSD

**WSR-88D Operational Testbed**
- No clutter rejection
- Clutter rejection using CMD
- Algorithms Developed and Tested on S-Pol
- Ground Clutter Mitigation Decision (CMD)
- Range Velocity Ambiguity Mitigation

**Versatile Polarization Switching for S-Pol**
- Transmit Fast Alternating H and V (FHV)
  - Normal S-Pol operations
  - Zdr relatively insensitive to depolarization
- Transmit Simultaneous H & V (SHV)
  - Common radar configuration – e.g., WSR-88D
  - Zdr sensitive to depolarization (particles & dish)
- Switch Quickly Between FHV and SHV
  - Determine depolarization impacts on Zdr at SHV