The CSU-CHILL National Weather Radar Facility, located in Greeley, CO, is an advanced, transportable dual-polarized S-band weather radar system. The facility is funded by the National Science Foundation and Colorado State University, and is hosted by the Departments of Atmospheric Science and Electrical and Computer Engineering.

**Features**
- Dual-offset, dual-wavelength low side-lobe Gregorian antenna system
- Easy-to-use, remotely accessible radar control interface
- Polarization-agile dual-Klystron 1 MW transmitter at S-band
- Simultaneous transmit 25 kW Magnetron transmitter at X-band
- Dual-channel software-defined digital IF receiver
- Flexible signal processor, customizable to project needs
- Comprehensive calibration subsystem
- VCHILL real-time control and distribution of radar data
- Dual-doppler capability with CSU-Pawnee S-band radar

**User Access**
- NSF-funded projects reviewed by Observing Facilities Allocation Panel (OFAP)
- Cost recovery non-NSF projects, also reviewed by OFAP
- Small scale “10-hour” projects, conducted at Greeley.
- Live virtual tours of the radar facility

---

The facility is an integral element of engineering and atmospheric science programs at CSU and institutions nationwide.

**Research Activities**
- Advanced signal processing techniques
- Radar hardware research and design
- Advanced polarimetric rainfall analysis
- Automated hydrometeor identification algorithms

**Classroom Activities**
- A rich collection of radar data in support of classroom activities
- Tutorials with guided interpretations of polarimetric radar cases
- Short courses which integrate the CSU-CHILL Facility

**Virtual Radar Tours**
- Internet streaming video from multiple on-site cameras
- Close-up views of the antenna structure
- Walk-around of the transmitter/receiver subsystems
- Remote presentation via video by CSU-CHILL staff

**Research Experience for Undergraduates**
- Hands-on experience with radar hardware and operations
- Individual mentoring by faculty staff
- Majors in Physics, Engineering, Computer Science and Atmospheric Science

---

**Educational Field Trips**
- Tours conducted for small groups of visitors
- Includes introduction to radar, visits to radar hardware and a live demo

---

**Example Measurements with the CSU-CHILL Radar**

Severe thunderstorm observed during the DC3 project on the evening of June 7, 2012. This storm produced widespread damaging hail. Near 0-dB differential reflectivity values were observed in the reflectivity core, coincident with observations of large hail shown below. The hail area also displayed enhanced linear depolarization levels. At a slightly higher elevation angle, a mesocyclone circulation was present.

---

This facility is sponsored by NSF cooperative agreement no: AGS1138116