Protocols

Selecting and Documenting Your Atmosphere Study Site
Instructions on how to select the best site for making atmospheric observations, setting up and documenting your atmosphere study site.

Instrument Construction: Instrument Shelter
Instructions for building an atmosphere instrument shelter.

Instrument Construction: Snowboard
Instructions for making a snowboard for measuring solid precipitation.

Instrument Construction: Surface Ozone
Instructions for making an ozone measurement station and wind direction instrument.

Cloud Protocols
Students estimate the amount of cloud and contrail cover, observe which types of clouds are visible, and count the number of each type of contrail.

Aerosols Protocol
Students use a red/green sun photometer to measure the amount of sunlight reaching the ground when clouds do not cover the sun.

Water Vapor Protocol
Students use a near-infrared sun photometer to measure the amount of sunlight reaching the ground at wavelengths that are correlated to water vapor.

Relative Humidity Protocol
Students measure the relative humidity using either a digital hygrometer or a sling psychrometer.

Precipitation Protocols

Students measure daily rainfall using a rain gauge, daily snowfall using a snow board, total snow accumulation on the ground, the equivalent depth of rain for both new snow and snow pack, and use techniques from the *Hydrology Investigation* to measure pH of rain and melted snow.

Digital Multi-Day Max/Min/Current Air and Soil Temperature

Students use a digital multi-day maximum/minimum thermometer mounted in their instrument shelter to measure the maximum and minimum air and soil temperatures for up to six previous 24-hour periods.

Maximum, Minimum, and Current Temperature Protocol

Students use a maximum/minimum thermometer mounted in their instrument shelter to measure current temperature and the maximum and minimum temperatures for the previous 24 hours. Students also may collect current temperature only.

Surface Temperature Protocol

Students use an infrared thermometer (IRT) to measure the temperature of Earth's surface.

Ozone Protocol

Students expose a chemically sensitive strip to the air for an hour and determine the amount of ozone present using an ozone strip reader.

Barometric Pressure Protocol

Students use an aneroid barometer to measure barometric pressure in support of the *Aerosols* and *Water Vapor Protocols.*

Automated Weather Station Protocols

Students use an automated weather station (*Davis*, *RainWise*, or *WeatherHawk*) to measure barometric pressure, relative humidity, rain rate and amount, air temperature, and wind speed and direction every 15 minutes.

HOBO® Data Logger Protocol

Students use a data logger and temperature sensors to measure air temperature and soil temperature at 5, 10, and 50 centimeter depths every 15 minutes for extended time periods.

AWS Earth Networks® Schools Protocol

Students define their school's AWS Earth Networks® station as a GLOBE Atmosphere Study Site and arrange for GLOBE to retrieve a copy of the data from their station to include in the GLOBE data archive.