



## Earth Sciences

PARI maintains a variety of instruments to monitor our local space environment through many geophysical and radio parameters. By “local space environment,” we mean Earth and how it is affected by the Moon, Sun, Jupiter, cosmic rays and meteors. Most instruments stream real-time data to the PARI web site.

The following instruments are currently located on the PARI campus:

- Geomagnetometer detects solar activity effects upon Earth’s magnetic field
- Seismometer detects earthquakes
- UNAVCO Plate Boundary Observatory measures plate tectonic movement
- North, Central and South weather stations collect weather and solar data
- North and Central lightning detectors measure lightning strikes within 150 miles
- Georgia Tech Low Frequency AWESOME Experiment detects lightning strikes over an entire hemisphere
- Cloud sensor uses sky temperature measurements to detect clouds
- Clemson Fabry Perot Interferometer studies upper atmospheric particle density and winds

While the weather stations and lightning detector are primarily to insure instrument safety by warning of hazardous conditions, they are also important in recording environmental information for long-term study. PARI continuously records temperature, humidity, wind speed and direction, precipitation and cloud cover, and makes this information available for environmental studies.

In addition to its own instruments, PARI also hosts instruments used in conducting research for other organizations. Clemson University has installed an upper atmospheric wind detector, the Clemson Fabry Perot Interferometer. A new instrument in an array that spans the globe from Alaska to Peru, the Clemson Interferometer measures high velocity winds and temperatures in the thermosphere.

NASA operates an all-sky camera on the PARI campus that is part of the Fireball Network, looking for meteorites and tracking their trajectories. Georgia Tech University monitors lighting from the PARI campus as part of an online long-term study.

As part of the National Science Foundation’s EARTHSCOPE project, UNAVCO has installed a highly sensitive GPS sensor on the PARI campus to measure geologic movements in the Earth’s crust. The instrument was one of the first east of the Rocky Mountains in the UNAVCO network.

*PARI is a public not-for-profit organization. See [www.pari.edu](http://www.pari.edu) for more information.  
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