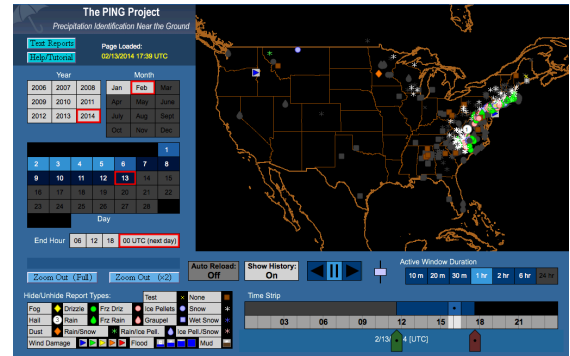## NOAA National Severe Storms Laboratory
mPING

Meteorological Phenomena Identification Near the Ground (mPING) is a project designed to collect weather information from the public through their smart phone or mobile device with GPS location capabilities.
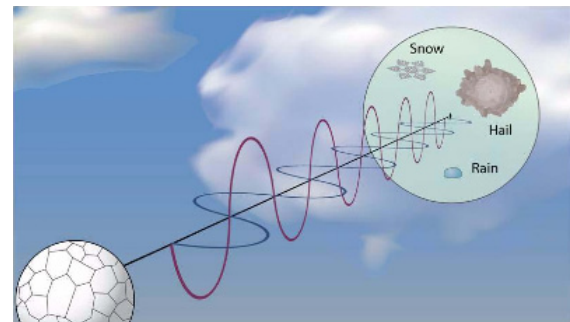
Crowdsourcing weather reports

Using the free mPING app, anyone can submit a weather observation anonymously. The data immediately goes into a database at NSSL and is displayed on a map that is accessible to everyone. mPING was deployed in 2012 and developed through a partnership between NOAA/NSSL, the University of Oklahoma, and the Cooperative Institute for Mesoscale Meteorological Studies.
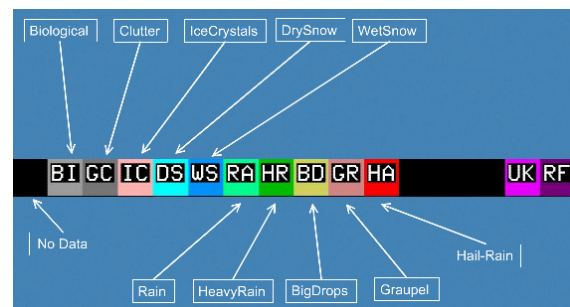
Dual-pol motivation

All National Weather Service radars have been upgraded with dual-pol, a technology that is sensitive to the horizontal and vertical measurements of an object as well as its content (liquid water, ice, or a mixture). Dual-pol gives forecasters an estimate of the size and shape of an object, making it easier to tell the difference between liquid and frozen types of precipitation.
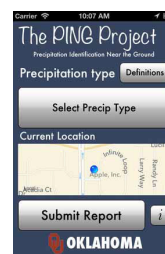
Sorting precipitation

NSSL/CIMMS researchers develop computer programs, or algorithms, that automatically sort radar echos of precipitation from non-precipitation such as birds, bats and bugs. The algorithms also sort precipitation into frozen or liquid categories, and further classify the echoes as rain, hail, snow, freezing rain or ice pellets. Radars cannot scan at the Earth's surface, so direct observations at the surface are needed to confirm the precipitation type algorithms are working. With the mPING database, researchers can compare the public reports with radar echoes and make the algorithms more accurate.
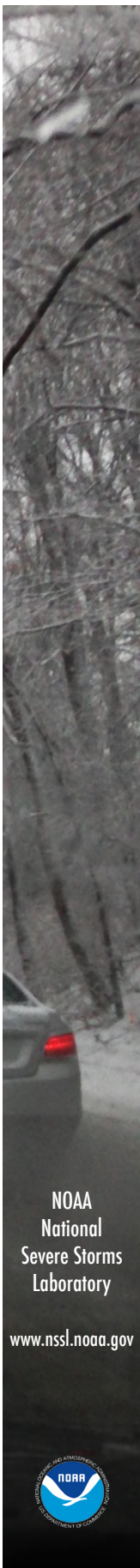
Other ways to use mPING reports

mPING data is also used to improve weather computer models, predict ground icing for road maintenance and aviation operations, and predict the potential for in-flight icing. Many NWS forecast offices display the data on large monitors and use the reports to fine-tune their forecasts.

NOAA
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www.nssl.noaa.gov

mPING report display during a major winter event on the East Coast.

Dual-pol technology

An algorithm sorts precipitation by type

The mPING project app