Could you help save lives with your homemade weather instruments?

Maybe so!

The National Weather Service Cooperative Observer Program is a network of more than 11,000 volunteers who report weather observations from farms, urban and suburban areas, National Parks, seashores, and mountaintops. Data from volunteer weather observers are used to define the climate of the United States and to help measure long-term climate changes, as well as to provide real-time information to support forecasts, warnings, and other public service programs of the National Weather Service.

The Cooperative Observer Program was officially created in 1890, but the history of volunteer weather observers is even older. John Campanius Holm recorded the earliest known weather weather observations in the United States in 1644-45. George Washington, Thomas Jefferson, and Benjamin Franklin were also serious weather observers. Thomas Jefferson maintained an almost unbroken record of weather observations between 1776 and 1816, and George Washington took his last observation just a few days before he died.

An essential part of any weather observing station is a system for keeping accurate records of observations. Here’s how to set up a Weather Journal, and some tips for making weather forecasts from your observations!
### What You Will Need

Copies of “Weather Journal Data Form”

### How to Do It

At least once each day, record the measurements from each of the instruments in your weather station. Notice that there are two columns for “Barometric Pressure” and “Humidity.” Record the readings from your instruments in the “Instrument” columns. The “NWS” column is where you can record measurements from your local weather office. Comparing the two columns gives you a way to convert your instruments readings to approximately the same scale used for official weather measurements.

Over time, you should begin to see patterns in your data. When the weather changes (it gets windy, starts raining, etc.), check your records for a day or two before. Was there a change in temperature, humidity, or barometric pressure? Did the wind direction shift? These kinds of changes can give clues about what kind of weather is coming. See “Tips for Amateur Forecasters” for more information about these clues.

### Tips for Amateur Forecasters from the National Weather Service

Below is a general summary of wind and barometer indications in the United States. The amateur forecaster should modify the table as needed, based on his or her own observations. Barometric pressures in this table are in inches of mercury at sea level. If you use local weather reports to calibrate your instruments, you don’t have to worry about this because official measurements are converted to sea level before they are reported to the public. A general rule of thumb is that atmospheric pressure decreases by one inch of mercury for every 1,000 feet of elevation.

<table>
<thead>
<tr>
<th>If the Wind is Blowing from</th>
<th>and the Barometer is</th>
<th>the Probable Weather is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest to Northwest</td>
<td>30.10 to 30.20 and steady</td>
<td>Fair with slight temperature change for one to two days</td>
</tr>
<tr>
<td>Southwest to Northwest</td>
<td>30.10 to 30.20 and rising rapidly</td>
<td>Fair, followed by rain within two days</td>
</tr>
<tr>
<td>Southwest to Northwest</td>
<td>30.20 and above and steady</td>
<td>Continued fair, with little temperature change</td>
</tr>
<tr>
<td>Southwest to Northwest</td>
<td>30.20 and above and falling slowly</td>
<td>Slowly rising temperature and fair for two days</td>
</tr>
<tr>
<td>South to Southeast</td>
<td>30.10 to 30.20 and falling slowly</td>
<td>Rain within 24 hours</td>
</tr>
<tr>
<td>South to Southeast</td>
<td>30.10 to 30.20 and falling rapidly</td>
<td>Wind increasing in force, rain within 12 to 24 hours</td>
</tr>
<tr>
<td>Southeast to Northeast</td>
<td>30.10 to 30.20 and falling slowly</td>
<td>Rain in 12 to 18 hours</td>
</tr>
<tr>
<td>Southeast to Northeast</td>
<td>30.10 to 30.20 and falling rapidly</td>
<td>Increasing wind, and rain within 12 hours</td>
</tr>
<tr>
<td>East to Northeast</td>
<td>30.10 and above and falling slowly</td>
<td>In summer; rain may not fall for several days</td>
</tr>
<tr>
<td>East to Northeast</td>
<td>30.10 and above and falling rapidly</td>
<td>In summer; rain likely within 12 to 24 hours</td>
</tr>
<tr>
<td>East to Northeast</td>
<td>30.10 and below and falling slowly</td>
<td>In winter: rain within 24 hours</td>
</tr>
<tr>
<td>East to Northeast</td>
<td>30.10 and below and falling rapidly</td>
<td>In winter: rain or snow, with increasing winds</td>
</tr>
<tr>
<td>Southeast to Northeast</td>
<td>30.00 or below and falling slowly</td>
<td>Rain will continue one to two days</td>
</tr>
<tr>
<td>Southeast to Northeast</td>
<td>30.00 or below and falling rapidly</td>
<td>Rain, with high wind, followed by clearing within 12 hours, and by colder temperatures in winter</td>
</tr>
<tr>
<td>South to Southwest</td>
<td>30.00 or below and rising slowly</td>
<td>Clearing within a few hours, and fair for several days</td>
</tr>
<tr>
<td>South to East</td>
<td>29.80 or below and falling rapidly</td>
<td>Severe storm soon, followed by clearing within 24 hours, and by colder temperatures in winter</td>
</tr>
<tr>
<td>East to North</td>
<td>29.80 or below and falling rapidly</td>
<td>Severe northeast gale and heavy precipitation</td>
</tr>
<tr>
<td>Changing to West</td>
<td>29.80 or below and rising rapidly</td>
<td>Clearing and colder</td>
</tr>
</tbody>
</table>
Want to Do More?

Are you interested in becoming a volunteer weather observer? SKYWARN is a volunteer program established by NOAA’s National Weather Service and partner groups to identify and describe severe local storms. Since the program started in the 1970s, information provided by SKYWARN Spotters has helped the National Weather Service to issue more timely and accurate warnings for tornadoes, severe thunderstorms, and flash floods. In some areas, Spotters also are trained on warning signs for earthquakes, landslides, avalanches, volcanic ashfall, and coastal hazards such as tsunamis, water spouts, and rip currents. See http://www.nws.noaa.gov/om/brochures/Citizen_Scientist.pdf for more information.

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**Weather Journal Data Form**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Temperature</th>
<th>Barometric Pressure</th>
<th>Humidity</th>
<th>Precipitation</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instrument</td>
<td>NWS Instrument</td>
<td>NWS Type</td>
<td>Amount</td>
</tr>
<tr>
<td></td>
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