

## Rainlog.org Taps Weather-Watcher Data

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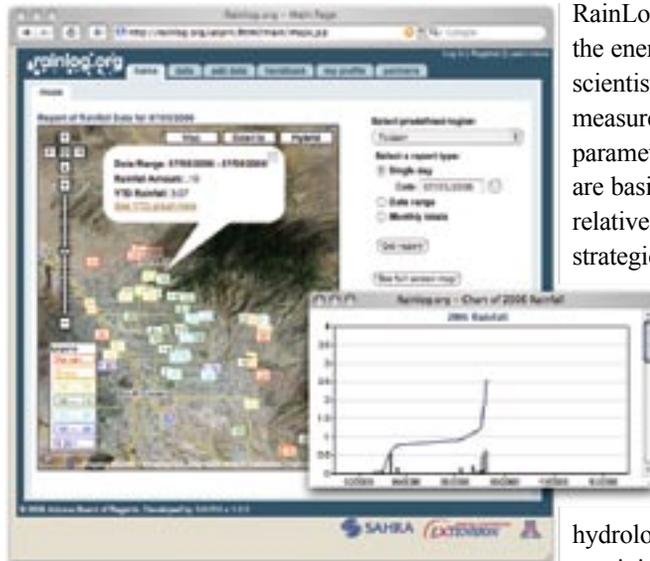
We are experiencing a golden age of hydrologic data. Field instrument readings are relayed by radio or satellite in near-real time, web services access terabytes of historical data, and satellites remotely sense hydrologic parameters over vast areas. And yet, we still struggle to answer basic questions, such as: How much water flows through an arroyo during periodic flood events? What are the soil moisture conditions across a basin? What is the total rainfall volume for a watershed?

This last question is critically important for surface water modeling. In the Southwest, official gauges are sparse, monsoonal precipitation is highly localized, and in rugged terrain, virga and ground clutter often render radar estimates highly inaccurate.

RainLog.org is a web-based collaborative effort that taps hundreds of volunteer weather watchers to estimate rainfall volume at the basin scale. Developed jointly by SAHRA and University of Arizona Cooperative Extension, RainLog.org is designed to meet the needs of many types of users, including drought monitors, irrigation schedulers, weather reporters, and K-12 educators.

Anyone with a backyard rain gauge can join, anywhere in the Southwest. A number of organizations, including drought monitoring groups across rural Arizona, have organized local networks. Website registration includes a Google map utility to pinpoint the latitude and longitude of gauge locations, plus advice on selecting and locating rain gauges. Uploading data after rain events is a simple, straight-forward process. Those who have had rain gauges for years are invited to upload historic data.

Rainfall totals can be displayed at various scales, from neighborhood to state-wide, for a single day or longer periods (see



Rainlog.org home page, with inset showing cumulative rainfall at one measurement location.

figure). Maps can display data from all gauges in the area, or selected subsets, such as a community watershed group or a 10th grade science class. Daily and cumulative rainfall amounts for individual gauges also can be plotted.

RainLog.org and similar efforts that tap the energy and enthusiasm of citizen scientists can provide widely dispersed measurements of critical hydrologic parameters. Granted, the instruments are basic and the observers receive relatively little training. Consequently, strategies must be carefully thought out to deal with missing data, outlier values, and overall data quality control. Further efforts to train volunteers on data collection to improve data quality are being developed as part of RainLog.org. Still, for hydrologic phenomena like monsoonal precipitation, these volunteer networks appear to offer valuable information not otherwise available. An added benefit is educating the public about how research is conducted and creating public support for science in general.

Visit [www.rainlog.org](http://www.rainlog.org); contact Gary Woodard at [gwoodard@sahra.arizona.edu](mailto:gwoodard@sahra.arizona.edu).

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