
Letters



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Trials of the low-cost, high-accuracy CoCoRaHS raingauge

Amongst Over the last two years, independent comparative trials of the CoCoRaHS raingauge have taken place in two very climatically different locations – my own observing site at Stratfield Mortimer in Berkshire, and Dave Evans' very exposed hillside site at Middleton in Derbyshire.

CoCoRaHS (<http://www.cocorahs.org>) is a North American grassroots volunteer network of backyard weather observers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow) in their local communities: CoCoRaHS is an abbreviation for 'Community Collaborative Rain, Hail and Snow Network'. By using low-cost measurement tools, stressing training and education, and utilising an interactive Web-site, the organisation aims to provide high-quality data for natural resource, education and research applications.



Figure 1. The CoCoRaHS raingauge.

The trials have demonstrated remarkable agreement between the CoCoRaHS gauge (Figure 1) and the standard Snowdon-pattern 'five-inch' raingauge – with the CoCoRaHS gauge having the advantage of being about one-fifth of the price of a standard copper gauge. For accurate rainfall measurements, a dedicated raingauge exposed in a suitable manner is essential – the tipping-bucket or tipping-spoon units used in most consumer automatic weather stations (AWSs) are notoriously inaccurate, typically ± 20 per cent or worse 'out of the box'. In contrast, when benchmarked against a standard Snowdon checkgauge, rainfall totals from the CoCoRaHS unit were within a very acceptable 2 per cent over a 12 month period (Table 1).

Table 1 Comparison of 12 month rainfall totals at the two trials sites

Site	Period of observations	Checkgauge 12 month total, mm	CoCoRaHS gauge 12 month total, mm	CoCoRaHS gauge as % checkgauge
Berkshire – Stratfield Mortimer (51.4°N, 1.0°W, 60m AMSL)	July 2012 to June 2013	802.5	789.3	98.4
Derbyshire – Middleton (53.1°N, 1.6°W, 321 m AMSL)	July 2013 to June 2014	1165.5	1182.2	101.4

Full details of the trials and a more detailed analysis, together with other equipment reviews, can be found in the downloadable PDF on my website at <http://measuringtheweather.com/equipment-reviews>.

I would strongly encourage any COL observer who does not currently use a dedicated raingauge to invest in a CoCoRaHS gauge to improve the accuracy of measured rainfall amounts. This is particularly important if you are relying solely on uncalibrated AWS measurements.

CoCoRaHS gauges are available from several suppliers in the UK. I would encourage COL members to purchase from John Dann of Prodata Weather Systems (<http://www.weatherstations.co.uk/cocorahs.htm>), as John was kind enough to provide the units used in this independent comparative trial. At the time of writing, the CoCoRaHS gauge was available from stock at Prodata, priced at £45.00 including VAT, plus delivery.

Stephen Burt
Stratfield Mortimer, Berkshire