

Real time measurement of acidity and conductivity in rainwater

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Abstract

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To monitor the acidity of rainwater, an automated rain sampler which can measure the real-time pH level and conductivity of rainwater was developed and utilised during the southwest monsoon season. The rainwater sampler detects the start of a rain and collects 250 ml of rainwater. The pH level and the conductivity of the collected rainwater samples were measured and recorded with the prevailing weather parameters. The pH probe was subjected to a verification test using a standard buffer solution whereas the conductivity probe reading was verified using distilled water. The pH level and conductivity measurements including weather data were transmitted to a central location using a GSM modem for further analysis. A programmable logic controller was used to control the entire process. Using the instrument, field measurements were carried out in Kandy in the hill country of Sri Lanka during the months from May to mid September. We conclude from the analysis that there are no changes in the acidity of the rainwater during the southwest monsoon season and the developed instrument can be used successfully for the purpose of environment monitoring in real time.

Keywords: conductivity, pH, remote monitoring, rainfall, acid rain