

What 2013's weather means in the long run

Written by Vicky Kelly
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A stream gauging station on Wappinger Creek. / Courtesy photo

For more than 30 years, the Cary Institute of Ecosystem Studies in Millbrook has collected information about local weather conditions. Equipment used to monitor acid rain was installed in 1983 and has provided continuous insight into rain and snow data. Temperature, relative humidity, wind and other sensors were added in 1988. And stream gauging equipment was installed in 1993. The wealth of information captured by the Cary Institute's Environmental Monitoring Program helps us detect and explain weather trends.

Many are probably wondering, just how did 2013 stack up to years past? All in all, it was largely unremarkable. It was the seventh wettest year in the 30-year record of precipitation and the 12th coolest in the 26-year temperature record. The year was punctuated with several very heavy rain events in June and one in August with, mercifully, no significant tropical storms in the autumn. The year ended with some very cold temperatures in November and December, initiating what has become a colder-than-average winter.

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It is more important to a look at the long-term trends this data set allows. If you add many years of weather data together, you get climate, and it is our changing climate that we need to prepare for. So what does the long-term data tell us? Annual minimum temperatures have been increasing, but we see no increase in annual maximum temperatures. Likewise, the record shows a decrease in the number of days below —10 C (14 F) but no significant change in the number of summer days above 32 C (90 F). So winters are getting warmer but not summers. It will be interesting to see how this winter throws off the average.

In contrast to air temperatures, summertime stream temperatures have been increasing in the East Branch of Wappinger Creek in the Cary Institute's Fern Glen. The increases can be seen in summer, spring, and early autumn. Winter stream temperatures, however, have not changed. This makes sense, as the stream freezes at our gauging station and the temperature of the water remains 0 C (32 F) for long stretches. It will be important to continue to monitor this as the climate continues to change in the coming years.

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