

Weird: Four rainbows photographed, but not quadruple rainbow

April 22 2015, by Seth Borenstein



In this photo provided by Amanda Curtis, rainbows appear in the sky at a Glen Cove train station Tuesday, April 21, 2015, on Long Island in New York. Many are calling it a quadruple rainbow, but it's not, said Raymond Lee, a professor of

meteorology at the U.S. Naval Academy. He said they are reflections off of a water body, when the light bounces off a bay and then heads back through the droplets again. (Amanda Curtis via AP)

A photo of four rainbows in New York is striking a pot of gold on social media, but an expert in such rare events said this isn't quite the quadruple miracle that it seems.

"I had a moment of awe, heard my train coming, snapped the photo and ran after my train," said Amanda Curtis, co-founder of a Brooklyn-based fashion startup called Nineteenth Amendment, who took the photo in Glen Cove on Long Island. "It was very inspiring."

Many are calling it a quadruple rainbow. But it's not, said Raymond Lee, a professor of meteorology at the U.S. Naval Academy, who studies and writes about rare [rainbows](#).

First, a quick primer on rainbows. They are created when [light](#) is reflected through [water droplets](#). A double rainbow happens when leftover light comes back for a second reflection through the raindrop. With each turn, the rainbow fades a bit.

When light heads through for a third or fourth time—called tertiary and quaternary, not quadruple—that is rare, maybe five have been confirmed in 250 years, Lee said.

But when that occurs, the third and fourth rainbows are on the opposite side of the sky, like book ends, something dictated by complicated physics, Lee said. Weather Underground meteorology director Jeff Masters and University of Georgia physics professor Craig Wiegert confirmed this.

"What happened this morning in New York was quite a different phenomenon," Masters said in an email. They are reflections off of a water body, when the light bounces off a bay and then heads back through the droplets again, the experts said. These are called reflection rainbows, unusual but not oh-my-God.

"This is a fairly rare photograph," Lee said. But he adds "not precedent-setting."

And even though he rained a little on Curtis' parade, Lee is impressed with her work: "I'm miserable at taking photographs of rainbows."

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