

## **Another Abnormally Warm September Nears Its Conclusion**

By Don Sutherland

Under the cover of darkness at 9:54 pm on September 22, autumn began. The start of autumn coincided as yet another abnormally warm September was moving toward its conclusion in the New York City area.

Through September 23, the monthly average temperature stood at 72.3° at New York City's Central Park, where records go back to 1869. That was tied for the 16<sup>th</sup> warmest September 1-23 period on record.

Since recordkeeping began, there were 21 years during which the September 1-23 period had a mean temperature of 72.0° or above. In 17 or 81% of such cases, September went on to have a monthly average temperature of 70.0° or above. The mean figure from such cases was 71.4°.

Applying sensitivity analysis to the latest model guidance, September 2018 had approximately an 80% probability of finishing with a mean temperature of 70.0° or above, which was nearly identical to the historic record cited in the preceding paragraph. The estimated range was 70.6° - 71.8°.

Such warmth was relatively infrequent prior to 1980. Since then, the return time for 70.0° or warmer Septembers has shortened markedly:

Before 1980: 5.0 years

1980-2017: 3.2 years

2000-2017: 2.3 years

2010-2017: 1.6 years

1869-2017 Period: 4.4 years

According to the data from the National Climatic Data Center. Since 1895, September in New York City has been warming at a rate of 0.1°F per decade. Since 1950, that rate increased to 0.3°F per decade. Since 1980, that rate of warming was 0.6°F per decade. That both the rate of warming and a pronounced shortening of return times of 70.0° or warmer September cases has occurred after 1980 essentially rules out what is known as the urban heat island effect as the principal driver of the warming. New York City has had a mature urban footprint during this period, so climate change is playing the lead role in the continuing warming.