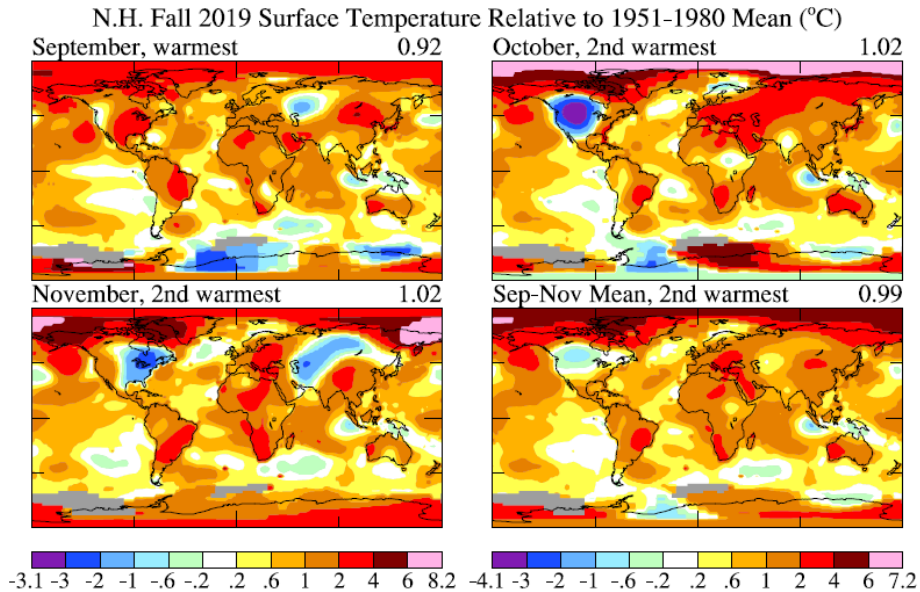


## November 2019 Global Temperature Update



November 2019, on global average, was the second warmest November since reliable measurements began in 1880, at 1.02°C relative to the 1951-1980 base period (1.27°C relative to 1880-1920). As in October, parts of the U.S. and Canada, were unusually cold, but the cold area shifted eastward, centered around the Great Lakes where some locations were about 3°C colder than the 1951-1980 mean (see maps above). Much of northern Asia was also colder than average in November, but the N.H. fall as a whole (September-November) was colder than average only in a Canada/U.S. region (lower right map). The regional cold might cause some Americans to doubt the reality of global warming, but the maps confirm that this is a result of air exchange with the Arctic. Cold air outbreaks increase with a weakened jet stream; perhaps geography tends to favor a targeting of these cold air outbreaks on the United States.

The 2019 meteorological year (prior December through November) was the second warmest at 1.23°C relative to 1880-1920, trailing only 2016. We expect calendar year 2019 to be the second warmest year.

