US agencies rank 2014 as Earth's warmest recorded year

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Two US government agencies, the space agency NASA and the National Oceanic and Atmospheric Administration (NOAA) have both released reports announcing that the average combined global land and ocean surface temperature for 2014 was 0.69 degrees Celsius (1.24 degrees Fahrenheit) above the 20th century average of 12.2 degrees Celsius (54.0 degrees Fahrenheit), the highest temperature since records began in 1880. They concur with a report issued by the Japan Meteorological Agency earlier this month, which also found 2014 to be the hottest year ever recorded.

It is noteworthy that these temperatures, which beat the previous records of 2005 and 2010 by 0.04 degrees Celsius, occurred outside of an El Niño year. This weather pattern, which has been absent for 32 months, is marked by a persistent warm current in the equatorial Pacific Ocean which tends to drive up global temperatures. It is likely that when El Niño again picks up, global temperatures will be driven even higher.

2014 is also the 38th consecutive year that annual global temperatures have been above average. Of the 135-year period of record, 9 of the 10 warmest years have occurred since 2000, with 1998 ranking fourth. In addition, December 2014 had the highest monthly average surface temperature over the 135-year period, at a record 0.77 degrees Celsius above the 20th century average.

Surface temperatures across the oceans also saw record highs. For the months of May-November, globally-averaged ocean temperatures set continuously higher record monthly figures, the trend ending in December. Even so, the year ended 0.55 degrees Celsius above the 20th century average. The annual average was 0.57 degrees Celsius above the 20th century average.

Raw temperature data for both the NASA and NOAA studies were recorded over land and sea from more than 6,000 weather stations, ship- and buoy-based observations and Antarctic research stations. Additional data was collected using a fleet of satellites along with airborne observations.

These results again confirm the trend that has been observed by climate scientists for the past thirty-five years—Earth is undergoing a long-term warming. Since 1880, the average surface temperature of Earth has increased by 0.8 degrees Celsius, with the majority of the warming occurring in the past three decades. The weight of scientific evidence points to the increase of carbon dioxide and other greenhouse gases in the atmosphere as a result of human activity as the cause.

Regional effects were larger, particularly in December. During that month, Austria was 2.4 degrees Celsius above an average spanning 1981-2010 and among the 15 warmest for the country in the past 247 years. Norway was 1.5 degrees Celsius above its 1961-1990 average. Every territory in Australia experienced an above average spring (September-November) and a beginning of summer 0.9 degrees Celsius above the 1961-1990 monthly average. The United States experienced its second warmest December, with the average temperature reaching 2.2 degrees Celsius above the 1981-2010 average.

Higher temperatures give rise to high levels of extreme weather events. As noted in the World Meteorological Organization's (WMO) *Annual Statement on the Status of the Climate,* the past two years have seen record-breaking heat and wildfires in Australia, the worst drought in northwestern Brazil in 50 years, and this year's extreme drought in California, the most severe on record for that state. Particular attention was given to the 2012-2013 Australian summer, the hottest since national records began in

1910.

The WMO report also analyzed the ability of climate scientists to untangle natural from human-induced factors. Nine different climatic models were run to examine the possibility that some constellation of random factors, such as changes in oceanic surface currents, dust absorption from volcanic eruptions, and changes in solar radiation, could independently explain this global warming. The probability of extreme events increased five-fold when human influences were included in the model.

A further danger is towards the world's marine life. A report released in *Science* around the same time as the NASA/NOAA announcement indicates that the world's oceanic life may be on the verge of a major extinction event as a result of human activity. As carbon dioxide is constantly pumped into the atmosphere, the oceans act as a reservoir, absorbing a great deal of it. Oceans act in the same manner for the majority of the heat generated by the increasing levels of greenhouse gases in the atmosphere.

This causes stress on a great many oceanic creatures, particularly plankton and coral. Both are very sensitive to heat and acidity and major changes in both threaten a mass die-off. And while temperature and acidity levels are not yet enough to cause this, the data point towards this day not being far off with current levels of CO2 emissions. If such an event should occur, the results would be globally catastrophic. Plankton and coral act as the basis of the food chain for nearly every animal on the planet. The mass loss of either life-form would risk triggering a worldwide ecological collapse.

Despite the vast amount of evidence indicating that emergency action must be taken on a worldwide scale to prevent an environmental disaster, the summits called by governments and international organizations attempting to address these problems have resolved nothing. This is not an accident. The inherently global issue of climate change cannot be resolved when the world is divided into rival capitalist nation-states. Rather than work together, the major powers use the environmental crisis as yet another arena to seek dominance over their rivals.

The only serious solution to the environmental crisis is to place the management of Earth's resources in the hands of the international working class. The problem is not the growth of the productive forces themselves, but rather the strangulating effect of private ownership and the drive for profit. None of the scientific solutions to climate change can be implemented until the capitalist drive for private profit is abolished and human society organized on the basis of meeting social needs. This is a political struggle—the fight for socialism.