Global Climate Change: Was it Impacted Upon by the COVID-19 Industry 'Lock-downs'?

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Abstract

Evidence is emerging that the policies adopted by the world's nations to deal with the COVID-19 pandemic may have had an unanticipated consequence in relation to the Earth's climate. For much of 2020, and continuing into 2021, many nations have seen the imposing of industry 'lock-downs' as the strategy of choice to bring COVID-19 under control. In so doing, an involuntary experiment, which provides insight as to how a future transitioning away from a carbon-based economy might address global climate change, may have been conducted.

An analysis of trends in the Global Mean Temperature (GMT) data* to Feb-2021 has been undertaken, and its results are intriguing. In analysing the data, the manner in which short-term fluctuations in the GMT are driven by the El Niño Southern Oscillation (ENSO) phenomenon** is established as being somewhat more significant than other drivers of global climate. The impact of the ENSO phenomenon also displays a seasonal cycle, being particularly strong in the northern winter.

The long-term trend in GMT is described in terms of a third-order polynomial, with the impact of the ENSO phenomenon eliminated. This enables an assessment of the influence of other GMT drivers. For example, in Jun-1991, when the Mount Pinatubo eruption took place, the departure of GMT from trend was +0.15°C. Fifteen months later, it was -0.36°C. That drop of 0.51°C is largely attributed to the injection of volcanic gases, such as sulphur dioxide, into the stratosphere by the eruption.

In Feb-2020, the departure of GMT from trend was +0.18°C. A year later, it was -0.27°C. That drop of 0.45°C requires explanation. That it coincides with a year of industry 'lock-downs' suggests that it might be a consequence of those 'lock-downs'. The primary purpose of this paper is to explore the validity, or otherwise, of this suggestion.

***https://data.giss.nasa.gov/gistemp**
****http://www.bom.gov.au/climate/enso/soi/**