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Extended Abstract

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Climate change and global warming: thoughts of a Quaker scientist

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This talk arises from two articles recently accepted for publication by Elsevier in their Reference Modules [1,2]; the first also comes out next year in paper copy in the 3rd edition of Encyclopaedia Analytical Sciences, Written for the intelligent non- expert, the science of the greenhouse effect and the most up-to-date data are presented in the first article [1]. In summary, the two most significant secondary greenhouse gases remain CO2 and CH4, together they contribute c. 80-85% of the secondary greenhouse effect, and this percentage has not changed for the last 20-30 years. CH4 could indeed prove to be as serious a secondary greenhouse gas as CO2. However, the total radiative forcing which causes the increase in Planet Earth's temperature has increased consistently over this time window, and the huge majority of the world's scientists now accept that we have a huge environmental issue on our hands that will not disappear. In the second article [2], suggestions are made as what issues people should think about from individual, government and world positions. The author is a practicing member of the Quaker (Society of Friends) religion, and throughout he comes to this problem from a moral viewpoint. This will not be a talk about religion, but rather how the six Quaker Testimonies (i.e. way we should lead our lives) on Truth and Integrity, Social Justice, Equality, Simplicity, Peace and Sustainability lead him in certain personal directions, and what advice he might give to Governments and World organisations (e.g. the United Nations). A concise and simple explanation of the Quaker religion in the UK in 2017 is written elsewhere [3]; much of it may surprise many delegates!

The average temperature of the Earth (red) and the concentration level of CO2 in the Earth's atmosphere (in red) during the recent history since AD1880. (Stoft http://zfacts.com/p/226.html or Hocker http://wattsupwiththat.com/2010/06/09/). A rise of 1 F is equivalent to 0.56°C. From a scientific viewpoint, there is no proven correlation between the two sets of data.

Climate change, broadly interpreted, is a significant and lasting change in the statistical distribution of weather patterns over periods ranging from decades to millions of years. It may be a change in average weather conditions, or in the distribution of weather around the average conditions (such as more or fewer extreme weather events). Climate change is caused by factors that include oceanic processes (such as oceanic circulation), biotic processes (e.g., plants), variations in solar radiation received by Earth, plate tectonics and volcanic eruptions, and human-induced alterations of the natural world. The latter effect is currently causing global warming, and "climate change" is often used to describe human-specific impacts. During the 1970s, scientific opinion increasingly favored the warming viewpoint. From ancient times, people suspected that the climate of a region could change over the course of centuries. By the 1990s, as a result of improving fidelity of computer models and observational work confirming the ilankovitch theory of the ice ages, a consensus position formed: greenhouse gases were deeply involved in most climate changes and human-caused emissions were bringing discernible global warming. Since the 1990s, scientific research on climate change has included multiple disciplines and has expanded. Research has expanded our understanding of causal relations, links with historic data and ability to model climate change numerically. Research during this period has been summarized in the Assessment Reports by the Intergovernmental Panel on Climate Change.The evidence that anthropogenic carbon emissions are contributing to the increasing temperature of the Earth grows stronger by the year. Whilst impossible to prove, it is suggested that the correlation between CO2 concentrations and the temperature of the planet is as strong as it ever can be. It follows that actions both by individuals and governments around the world are needed now to protect everyone against the rising temperatures that are almost inevitable. CH4 could prove to be as serious a secondary greenhouse gas as CO2. Possible changes in legislation and adaptions to lifestyle are suggested for the UK. At a global level and in the hope that such subjects are brought into the open, charging for excess use of carbon, food and its production, and levels of population in the world are discussed. A graviton Lagrangian is obtained as a curvature integral on a graviton volume, and a Hamiltonian tensor is obtained for the gravitational coordinates and velocities. In a gravitational field, the time space coordinates are deformed. In such a field, any plane wave remains perpendicular geodesic, while an additional acceleration is possible in the wave plane.

Bottom Note: *This work is partly presented at 5th International Conference on Physical and Theoretical Chemistry October 11-13, 2018, Edinburgh, Scotland*