



Empowering understanding: the climate, its physics and the impact to our collective communities

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There is a very natural and raised level of concern throughout our global community about the risks to all our global communities due to anthropogenic induced climatic change. The consequences are very visible through our media and in many cases are causing food in-security migration and conflict. Over the past few years, as a theorist (Physics at Lancaster PhD in 1994) I have been looking into the effective communication of our understanding about the physics of the climate. There is a strong need to understand the intrinsic mechanisms that drive and force the climate: in essence to better understand its physics. As part of this I am elected into two policy groups in the UK and Ireland's Institute of Physics (IOP): Physics Communicators (as a group officer) and co-opted into the Women in Physics Group. While researching at Exeter – through its Education incubator projects styles and form of directed learning that reaches a wider audience has been collectively formulated. From this recent activity it has been established that empowering and creating an even better educationally based understanding of the physics of the climate involves creating a) workplace diversity, especially currently to address gender parity and b) a wider community trust in the physics. Both of which are facilitated by seamless communication and outreach. One of the key anticipated outcomes of this initiative is that we will create a wider understanding of the mathematical fundamentals of the physics of the climate. This helps the education pathways at all age group stages by de-mystifying the mathematical complexity and instead replacing this by the way that these climate phenomena appear to us in nature. For example, El Nino events can be clearly discerned in tree ring records. In this work I'll discuss the relative benefits of adopting this empowered learning approach to understanding the physics of the climate and how this can be of wider use throughout our global community.