Climate past, climate present and climate future: A tale from a statistician.

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A grand scientific challenge for this century is to understand the complex interrelationships among the physical processes and human activities that define the Earth's climate. One specific concern is the warming of our climate brought about by the increase of greenhouse gases, such as carbon dioxide, being released into the atmosphere. What do we know about the Earth's past climate? Is global warming over the last century real? What is a climate model and how is it used to understand changes in our future climate? In answering each of these each of these questions statistical science can play a role in quantifying the uncertainty in scientific conclusions, for combining different kinds of information and summarizing complex data.