

# USABLE THOUGHTS

CLIMATE, WATER AND WEATHER  
IN THE TWENTY-FIRST CENTURY



Michael H. Glantz and Qian Ye

# **Usable Thoughts**

## **Climate, Water and Weather in the Twenty-first Century**

**Michael H. Glantz and Qian Ye**



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# Introduction

## **Rates and processes of a changing climate: The year 2020 is the new 2050**

The phrase “the new black” was used repeatedly in the 1980s to indicate that other colours (such as grey, brown or navy blue) had temporarily displaced the colour black’s position in fashion as the versatile trend around which most other fashion accessories could be coordinated. Now it is a catch phrase used to indicate the sudden popularity of a new idea at the expense of the popularity of an older established idea. What could this fashion-related concept say about climate change?

For the past decade or so – and especially as we march into the twenty-first century – the media have warned us that the atmosphere is heating up beyond what might be expected to occur naturally. The primary cause is the build-up of greenhouse gases (GHGs) in the atmosphere, which is influencing (augmenting) the naturally occurring greenhouse effect and is the result of human activities.

Over the past few decades, scientists have learned a lot about GHGs, especially about their sources, sinks and rates of change and even about

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their impacts and how to monitor them. Attribution is a key problem. How do we distinguish between an impact resulting from a normally occurring change in climate to one that is the result of global warming? The problem is that no single meteorological event can be attributed to one or the other with any sense of reliability.

Though scientific findings might not yet provide a perfect picture of the future, they are certain and reliable enough to generate concern, and are thereby usable. These findings serve as a warning about foreseeable changes in the global climate system and the impacts of these changes on ecosystems and societies. If we continue on a “business as usual” path – choosing not to alter our types and patterns of energy and land use – global warming will intensify.

Scientists have developed scenarios that have generally focused on climate changes and their impacts that might plausibly be expected to occur by 2050 or 2100 if the computer model results of the Earth’s changing atmosphere prove correct.

For a long time we have worried about both the projected rates of change as well as the processes of change. Many are barely discernible over short time-frames. Now, reports are coming in from scientists and the



media worldwide that the rates of environmental change are occurring faster than had been previously projected for a wide range of ecological, social and climate impact factors. As a vivid example, the Arctic's ice cover is disappearing rapidly. Using sophisticated computer models, scientists had projected some years ago that there would be a notable percentage of loss in sea ice cover in the Arctic by the year 2020. Based on actual measurements, however, the sea ice melting had reached those projected levels by 2007 – 13 years early!

The rapidity of this Arctic melt has generated concern about the rates of changes occurring in other ecosystems. Around the world, warming and its impacts that had been projected to appear many, many decades into the future are emerging now before our eyes – and through the even sharper eyes of satellites and microscopes. In other words, “the future is arriving much earlier than expected”.

Let's look at how the fashion concept of “the new black” relates to these impacts of a changing climate. For decades, the colour black was “in” and considered the best choice to wear since it is versatile enough to match with a huge variety of other colours and fashion accessories. Then, in the 1980s, fashion gurus anointed grey as the new black. Since then, many colours have achieved the title, including green, anointed by environmentalists.

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As an analogy, we are suggesting that 2020 is the new 2050. Scenarios for 2050 or for 2100 are of much less concern to the public or to most decision makers than are scenarios closer to our contemporary time, life and governance. If science is going to be relevant to most policymakers today, then its projections must also concentrate on time periods that are far closer than those that are still half a century or more away. For those who are concerned with societal responses to a “dangerous” climate change, 2020 must be seen as the “new black”.

Not only does 2020 become the new 2050, but the impacts projected for 2100, for example, may now plausibly arrive as early as 2050. Clearly, the climate is changing, and apparently far faster than we had expected.

These accelerated physical and ecological changes create a major dilemma when thinking about and acting on climate impacts since they are apparently occurring far faster than the rates at which institutional bureaucracies can effectively cope. Furthermore, because over the past couple of decades we have focused on adapting to and mitigating future impacts, we seem to have abandoned the concept of prevention.

There are at least two options available to tackle these dilemmas: (1) organizations **MUST** rethink their structures and functions, asking if their

twentieth century (or nineteenth or eighteenth century) bureaucracies are prepared to address twenty-first century climate-related problems. Some are, but many are likely not; and (2) bring prevention back into the discussion.

Any new activities that might worsen an already existing climate change-related impact should be avoided. Note that coal-fired power plants are still being constructed, emission violations still go unchallenged, deforestation is still allowed to continue for a range of profit-generating reasons, and so forth.

We must now convince policymakers at all levels of society – from local to national to global – that 2020 is the year to fear, not 2050 or 2100.

We have often written about creeping environmental changes and problems, but we have come to realize that societies seem to have surrendered, accepting incremental, adverse environmental changes as inconsequential and of little importance to their well being. This acceptance must no longer continue. There is not much time left to combat global warming, which happens to be the most threatening of all creeping environmental changes of our times.

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Short quotations are often used to stimulate thought and evoke discussion. The intention of this book is no less ambitious. Drawing upon a series of quotations taken from the World Meteorological Organization-sponsored publication, *Climate: Into the 21st Century*, the authors set out to encourage thought and discussion on the earth's climate system, including its interrelatedness to human society and the environment, the impact of climate variability, and climate extremes and change.

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