



# CHINESE WHISPERS

## HOW CLIMATE SCIENCE GETS LOST IN TRANSLATION

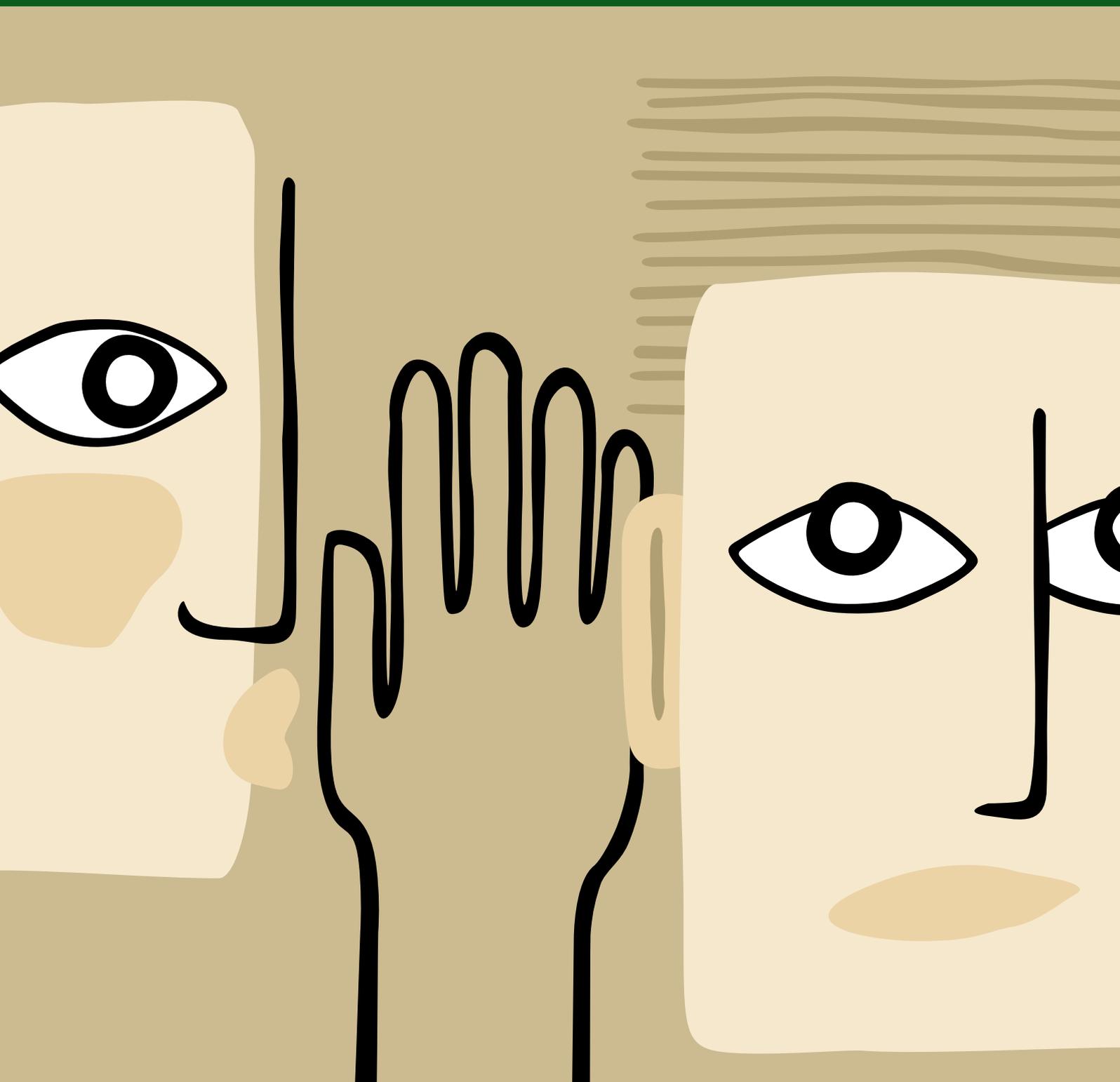
Ralph Alexander

# Chinese Whispers: How Climate Science Gets Lost in Translation

Ralph Alexander

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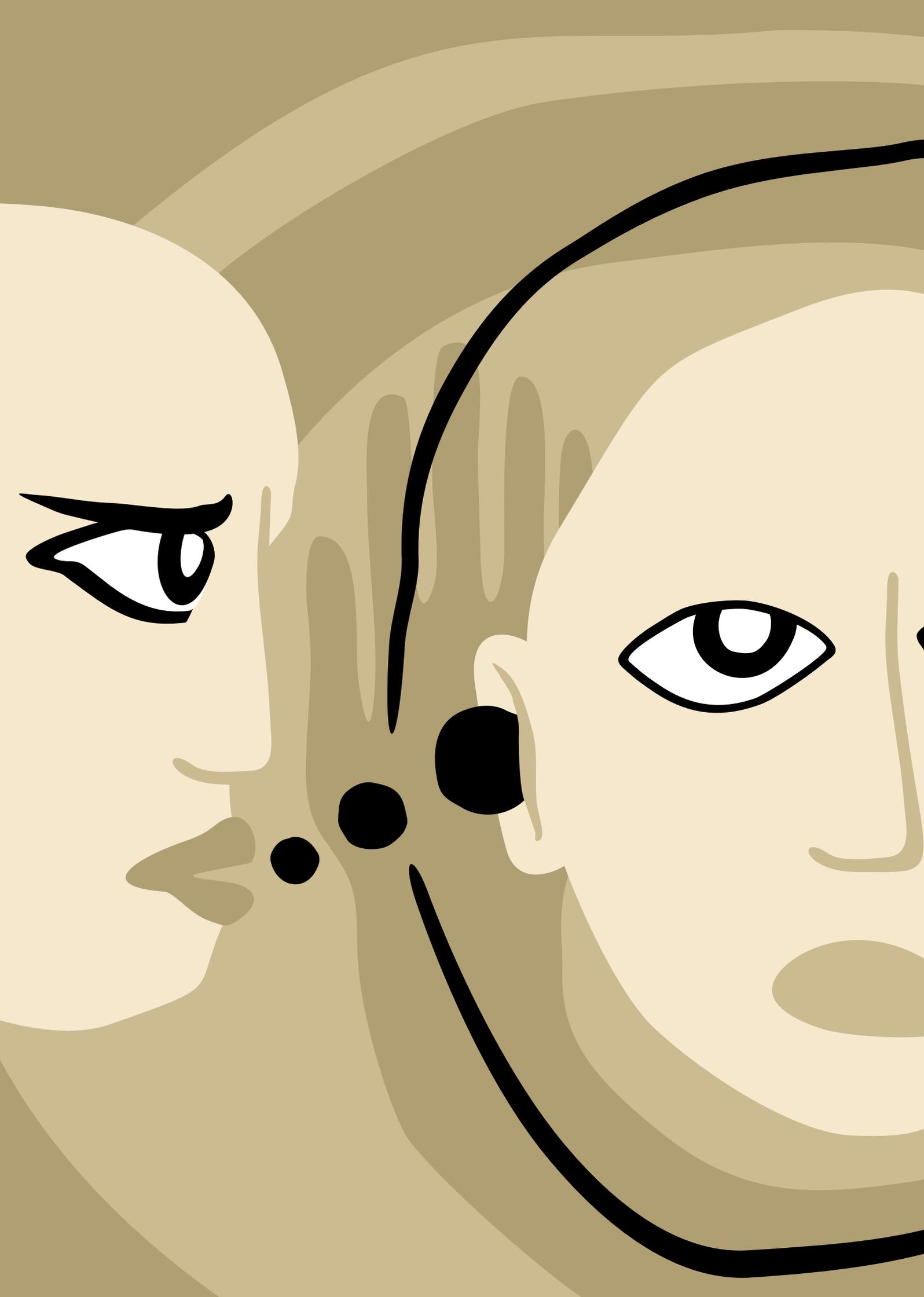
## About the author

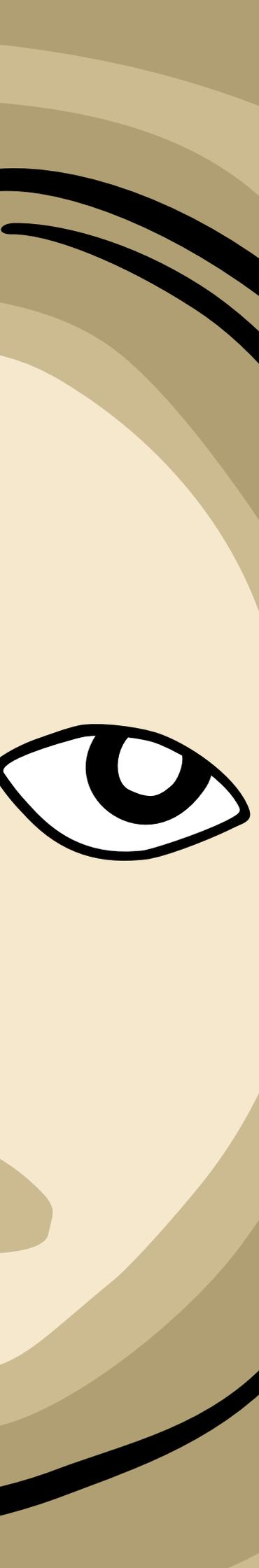
Retired physicist Dr Ralph B. Alexander is the author of *Global Warming False Alarm* and *Science Under Attack: The Age of Unreason*. With a PhD in physics from the University of Oxford, he is also the author of numerous scientific papers and reports on complex technical issues. His thesis research in the interdisciplinary area of ion-solid interactions reflected his interest in a wide range of scientific topics.

Dr Alexander has been a researcher at major laboratories in Europe and Australia, a professor at Wayne State University in Detroit, the co-founder of an entrepreneurial materials company, and a market analyst in environmentally friendly materials for a small consulting firm.

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## 1. Introduction

In his recent book *Unsettled* and a GWPF Annual Lecture of the same title,<sup>1</sup> New York University's Steven Koonin questions the conventional political wisdom that the science of climate change is settled, and discusses how this misconception came about. He explores how the science, with all of its certainties and uncertainties, becomes 'The Science' – how it gets summarised and communicated, and what is lost in the process. The end result is that the popular perception of global warming differs markedly from what the science says.

Koonin concludes that most of the disconnect arises from miscommunication, analogous to the children's game of Chinese Whispers, as it is known in the UK, or its North American counterpart, Telephone. He points out that there are ample opportunities for climate information to be misinterpreted or even twisted as it is successively distilled down in going from the research literature to scientific assessment reports, to summaries of the assessment reports, to press releases and ultimately to the media. Media coverage is, of course, the public's primary source of information about climate science.

The purpose of this paper is to show how Koonin's assertion about distorted transmission of the climate message is essentially correct. To do this, I will examine in detail two examples drawn from the voluminous climate science literature: the global temperature record over the last 2000 years, and marine heatwaves. I will trace the distortion of the underlying science as it progresses through the following stages, focusing on the 2021 Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC):

- Assessment Report → Summary for Policymakers (SPM)
- SPM → Press release
- Press release → Media and environmental coverage

Since relatively little daylight exists between the research literature and most assessment reports, there is no need for me to include that stage of transmission.

It should be noted here that IPCC assessment reports actually consist of three separate reports, compiled by three different working groups, plus the SPM. Working Group I consists largely of climate scientists and concentrates on the science; the other two working groups and an associated taskforce comprise mostly non-climate scientists, engineers and government bureaucrats, who focus on the impact and mitigation of global warming. The SPM, on the other hand, is written primarily by government representatives, and is often put together before the full report is completed.

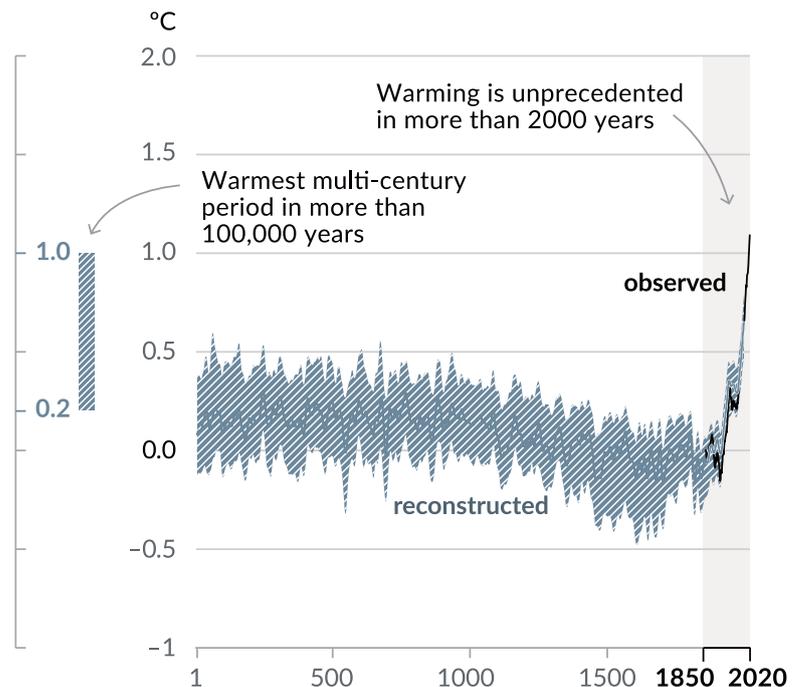
## 2. Global temperature history

### 2.1 Assessment Report → Summary for Policymakers

In AR6, the IPCC revives the infamous ‘hockey stick’<sup>2</sup> – a reconstructed temperature graph for the past 2020 years resembling the shaft and blade of a hockey stick on its side, with no change or a slight decline in temperature for the first 1900 years, followed by a sudden, rapid upturn during the most recent 120 years. Prominently displayed near the beginning of the SPM, the IPCC’s latest version of the hockey stick is shown in Figure 1.<sup>3</sup>

Figure 1: The IPCC’s ‘hockey stick’ in the AR6 SPM.

The solid grey line from 1 to 2000 is a reconstruction of global surface temperature from paleoclimate archives, while the solid black line from 1850 to 2020 represents direct observations; both are relative to the 1850–1900 mean and averaged by decade. Source: IPCC.<sup>3</sup>



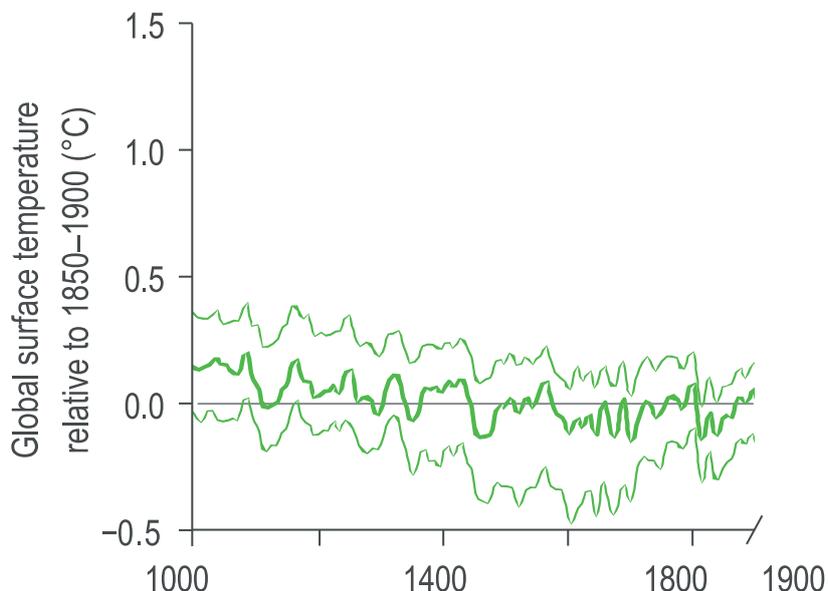
The hockey stick – the creation of climate scientist and IPCC author Michael Mann – first appeared in the IPCC’s Third Assessment Report in 2001, but was conspicuously absent from AR4 and AR5. The main reason for its disappearance was its debunking in 2003 by Canadian mining analyst Stephen McIntyre and economist Ross McKittrick, who found that the graph was based on faulty statistical analysis, as well as preferential data selection.<sup>4</sup> The hockey stick was also discredited by a team of scientists and statisticians assembled by the National Research Council of the US National Academy of Sciences.<sup>5</sup>

The hockey stick stands out for the absence of two previously well-documented features of our past climate: the Mediaeval Warm Period (MWP) around the year 1000, a time when warmer than normal conditions were reported in many parts of the world, and the cool period centered around 1650 known as the Little Ice Age (LIA).

Its resurrection in the AR6 SPM, however, illustrates very clearly how the science can be lost in translation. Figure 1, or discussion of it, does not appear anywhere in the body of the report. The closest resemblance is found in a segment of a com-

Figure 2: The IPCC's AR6 global surface temperature history, 1000-1900.

The thick green line is a multi-method reconstruction, relative to the 1850–1900 mean and averaged by decade; the thin green lines are the 5th and 95th percentiles. Source: IPCC.<sup>6</sup>



plex graphic depicting global temperature history throughout the Holocene, back to 10,000 BCE (Figure 2).<sup>6</sup>

The discussion in AR6 of global temperature history<sup>7</sup> is based on multiple reconstructions from paleoclimate proxies such as tree rings, marine sediments, ice cores, boreholes and leaf fossils. Although many reconstructions have supported Mann's position that the MWP and LIA did not exist, a large number also provide strong evidence that they were real. This is demonstrated by the 2016 summary paper of Christiansen and Ljungqvist,<sup>8</sup> cited in AR6, which found that of the 16 large-scale reconstructions they studied, 9 had their warmest year in the 20th century and 7 during the MWP.

The overall choice of research papers in AR6 is biased toward the lack of both the MWP and LIA. As reflected in Figures 1 and 2, a number of papers verifying their existence are also cited. Note that AR6 does not actually use the terms Mediaeval Warm Period or Little Ice Age because, it claims, 'the timing of these episodes is not well defined'.



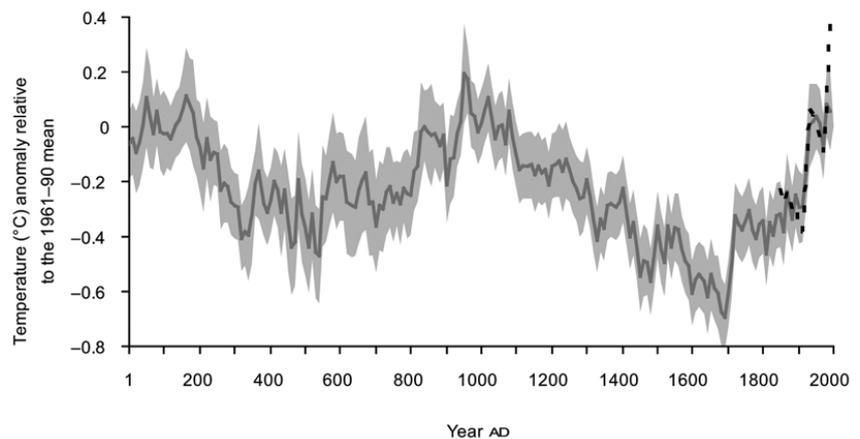
A partial list of papers supplying evidence for the MWP and LIA has been compiled by climate writer Pierre Gosselin.<sup>9</sup> A typical example is Ljungqvist's 2010 reconstruction<sup>10</sup> depicted in Figure 3, although this is for the Northern Hemisphere only. Both the MWP and LIA are clearly visible, as well as the end of the Roman Warm Period at the beginning of the previous millennium.

A Southern Hemisphere example is shown in Figure 4, depicting reconstructed temperatures for the continent of Antarctica back to the year 500.<sup>11</sup> This also reveals a distinct LIA and what appears to be an extended MWP at the South Pole. The obvious differences between Figures 1 and 2, and Figures 3 and 4, emphasise just how much the science behind the earth's temperature history has been misrepresented in the transition from the body of AR6 to its SPM, the first link in the chain of whispers.

Unsurprisingly, the reappearance of the hockey stick in the SPM was quickly noticed by McIntyre.<sup>12</sup> He discovered that, regardless of the IPCC's deceit in displaying a graph in the SPM that is not backed up by the assessment report itself, many of the temperature reconstructions cited in AR6 are faulty because they rely on cherry-picked or incomplete proxy data.

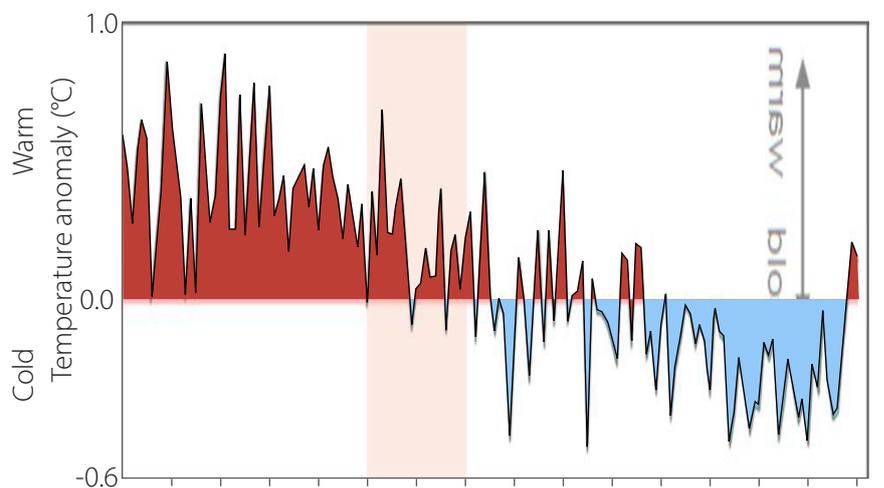
**Figure 3: Reconstructed Northern Hemisphere surface temperature, 1–1999.**

Extra-tropical latitudes, 30–90°N; relative to the 1961–1990 mean and averaged by decade. Source: F.C. Ljungqvist.<sup>10</sup>



**Figure 4: Reconstructed surface temperature in Antarctica, 500-2000.**

Average over 60 sites, relative to the 1979–2000 mean. Source: Redrawn from Sebastian Lüning et al.<sup>11</sup>



## 2.2 Summary for Policymakers → Press release

The big jump in the whispered message from assessment report to SPM is distorted further in the IPCC's press releases. The first release, on the IPCC's website, includes the sweeping statement:

Many of the changes observed in the climate are unprecedented in thousands, if not hundreds of thousands of years...<sup>13</sup>

This repeats the word 'unprecedented', a term which is used more than 100 times in AR6 to describe purported changes in the global climate.

Although the 'thousands' of years clearly refers to the supposed absence of the MWP and LIA featured in the SPM, there is no justification for calling any changes unprecedented in 'hundreds of thousands' of years. The section of AR6 that analyses the distant past includes a discussion of temperatures during the last interglacial, which occurred approximately 125,000 years ago. Marine sediment proxies indicate that the mean surface temperature in that period was anywhere from 0.5°C (0.9°F) to 3.0°C (5.4°F) above the 1850–1900 mean, a range that encompasses today's global warming but also goes well above it. AR6 does not attempt to estimate mean temperatures during earlier interglacials. The IPCC press release, therefore, has no basis in either AR6 or the SPM (apart from a label in Figure 1 above) for declaring modern changes in climate unprecedented over hundreds of thousands of years.

The second IPCC press release, on the UN's website, takes the Telephone game to an entirely new level, with UN Secretary-General António Guterres warning that:

Today's IPCC Working Group 1 Report is a code red for humanity. The alarm bells are deafening, and the evidence is irrefutable.<sup>14</sup>

The wording of this widely reported statement may have been chosen for maximum political impact, but has little connection to the science reported in AR6. The Secretary-General also repeats the IPCC's statement above about 'unprecedented' changes.

## 2.3 Press release → Media and environmental coverage

The scientific message becomes even more contorted as the media and environmental organisations pick up on the IPCC's press releases. In this case, one of the only media sources to respond directly to the resuscitation of the hockey stick was Yale Climate Connections, under the subheading 'Hottest in two millennia', in an article on its website, arguing that:

Global temperature has risen more since 1970 than in any half century going back to (and before) the days of Caesar, Cleopatra, and Christ. To arrive at a multicentury period warmer than 1850–2020, one has to go back to before the last ice age, more than 100,000 years ago.<sup>15</sup>

Just like the SPM and the IPCC's first press release, the article ignores the existence of the MWP, evidence for which is discussed in the original assessment report. But the language in the media article twists the science yet again, describing the IPCC report as taking 'an arresting new look at observed global temperature'. In just three whispers, the IPCC's relatively neutral stance on the MWP (and LIA) has disappeared and been transformed into the hockey stick.

Other media coverage, for example by the BBC<sup>16</sup> and Reuters,<sup>17</sup> focuses primarily on the link that AR6 draws between climate change and weather extremes. As I discuss in a recent GWPF report,<sup>18</sup> this claim is untrue and contrary to the available evidence.

### **3. Marine heatwaves**

#### **3.1 Assessment Report → Summary for Policymakers**

The SPM in AR6 declares with 'high confidence' that:

Marine heatwaves have approximately doubled in frequency since the 1980s.<sup>19</sup>

But this statement does not come from the assessment report itself, although it is reported there. Rather, it comes from the IPCC's 2019 Special Report on the Ocean and Cryosphere,<sup>20</sup> which was prepared jointly by IPCC Working Groups I and II. Working Group I concentrates on the science, as mentioned earlier, while the focus of Working Group II is the impact of global warming.

The inclusion of Working Group II in drawing up a report ostensibly based on science means that the Special Report cannot be considered a purely scientific assessment, but is likely biased by the IPCC's political views. This may be why the AR6 SPM's strong statement above about marine heatwaves is not justified by the discussion in the underlying report, which fails to present any convincing empirical evidence for such an assertion.

In fact, some of the evidence presented in the Special Report, and repeated in AR6, contradicts the SPM declaration. The IPCC asserts that marine heatwaves doubled in frequency from 1982 to 2016 and that they have also become longer-lasting, more intense and more extensive. However, both reports cite a 2018 paper revealing that from 1925 to 2016, the global average marine heat-wave frequency and duration increased by only 34% and 17%, respectively;<sup>21</sup> an increase in frequency of only 34% precludes a doubling over the shorter period from 1982 to 2016. In any case, earlier marine heatwaves were likely missed because sea surface temperature data from the pre-satellite era was unreliable and sparse.

#### **3.2 Summary for Policymakers → Press release**

The IPCC's second press release, on the UN website, singles out marine heatwaves for special attention, saying that among the many effects of global warming are:

...increases in the frequency and intensity of heat extremes, marine heatwaves...<sup>14</sup>

Such a statement escalates the importance of marine heatwaves above even that of atmospheric heatwaves, which are not mentioned explicitly in the release (though perhaps included in the term 'heat extremes') and for which there is actually limited evidence of a recent rise in frequency. By doing so, the press release twists the science in the assessment report.

### **3.3 Press release → Media and environmental coverage**

Most of the coverage of marine heatwaves by media and environmental organizations picks up on the wider hype in the IPCC's press releases about atmospheric heatwaves. The BBC, for example, declares that:

It is 'virtually certain' that hot extremes including heatwaves have become more frequent and more intense since the 1950s.<sup>16</sup>

Reuters<sup>17</sup> and Yale Climate Connections<sup>15</sup> make similar statements. Environmental NGO World Resources Institute specifically repeats the claim in the AR6 SPM about marine heatwaves, saying:

...marine heatwaves have become much more frequent over the past century,<sup>22</sup>

...a highly exaggerated assertion, when the actual rise in frequency is no more than 34%, as discussed in Section 3.1.

Once again, the Chinese whisphers have succeeded in transforming the IPCC's inconclusive discussion of marine heatwaves into the categorical but false statement that marine heatwaves became twice as frequent over the 35-year period from 1982 to 2016.

## **4. Conclusion**

Theses two examples show just how large a gulf can exist between the science presented in the IPCC's climate assessment reports and how the public perceives it, thanks to garbled transmission as the scientific message progresses from assessment reports to their summaries to press releases and then to the media. This progression, as Steven Koonin correctly discerns, provides ample opportunities for the message to be distorted, either willfully or not. The hockey stick, which reappears in the AR6 SPM, and which has been trumpeted in the press, clearly illustrates the accuracy of Koonin's conjecture. By excising the MWP and LIA from the global temperature record, the assessment report's fairly impartial stance on the existence of both becomes warped to the point where the SPM can declare modern warming to be unprecedented. The IPCC's discussion of marine heatwaves also backs up Koonin's Chinese Whispers or Telephone analogy, showing how the popular perception that marine heatwaves are now twice as common as they were just 40 years ago is wrong.

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