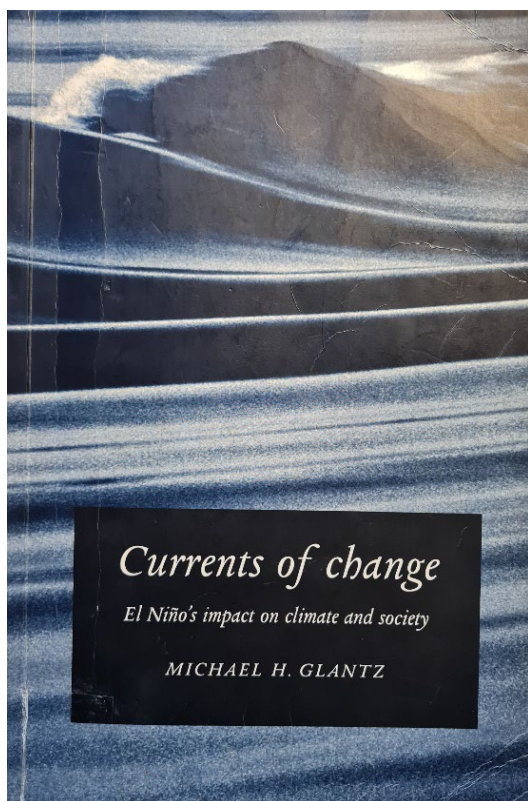


My 1996 ‘Climate Book of the Year’

Glantz, M.H. (1996) *Currents of Change: El Niño’s Impact on Climate and Society*. Cambridge: Cambridge University Press. 194pp.

This essay continues my series of monthly posts in which I select one ‘climate’ book to highlight and review from one of the 44 years of my professional career in climate research (starting with 1984, my first year of academic employment). The series will end in September 2027, the month in which I shall retire. [See here for more information](#) about the rationale for this series, and the criteria I have used in selecting my highlighted books.

This ‘1996 essay’ can be [download as a pdf](#).



As I write this essay, the waters of the eastern Pacific are cooling after the excess of warmth caused by the 2023-24 El Niño. During El Niño events, heat stored in the deep Pacific is released into the atmosphere, adding up to a couple of tenths of a degree Celsius to the world’s average temperature for the year in question. And so the warmth from the 2023-24 El Niño pushed the global average temperature in 2024 to its highest recorded level, about 1.5°C above the late nineteenth century average. But an El Niño does much more than cause an up-tick in the world’s temperature. It’s signature includes regional weather anomalies across much of the tropics and sub-tropics, extending in places into the mid-latitudes: less rain in southeast Africa, for example, and more rain in the southern USA; stronger hurricanes in the central Pacific, weaker ones in the Atlantic.

The ocean-atmosphere phenomenon which came to be known as El Niño—literally in English ‘the boy child’, named thus by the Spanish owing to the warm ocean current appearing off Peru usually in the weeks before Christmas—is a natural feature of the world’s climate system. Documentary and oral history evidence tracks these types of weather perturbances back to the early nineteenth century, in some cases back to the Spanish

colonisation of South America in the sixteenth century.¹ And palaeoclimate proxies can yield evidence of El Niño-type events occurring over the past several thousand years.

But it was the advent of worldwide ocean and atmospheric monitoring networks in the 1960s, combined with the strong El Niño events of 1972-73 and, especially, 1982-83 which pushed El Niño to much wider public and policy prominence. While meteorologists and oceanographers were beginning to piece together the physical dynamics behind El Niño—including the development during the 1980s of model-based forecasts of their onset—climatologists and social scientists were beginning to collaborate so as to better understand its full range of its regional and local impacts on societies. Michael ‘Mickey’ Glantz (b.1939), one of the leading climate social scientists of the latter decades of the twentieth century, was deeply interested in such questions and I have chosen his book ‘Currents of Change: El Niño’s Impact on Climate and Society’ as my **1996 Climate Book of the Year**.

Prior to the mid-1990s, very few books about El Niño had been published, and those few were edited collections of technical scientific studies. The only existing monograph had been written by atmospheric scientist George Philander—‘El Niño, La Niña and the Southern Oscillation’, published in 1990—but this was a physical science text book which included some demanding mathematics.² In ‘Currents of Change’, Glantz sought to do something different. As explained by a reviewer at the time, “[Glantz] aims to provide a user-friendly account of what El Niño is, what it does and why we, as members of different societies, need to have more than a passing, intermittent interest in it, limited for the most part to when it occurs every few years or so.”³

Glantz was 57 years old when ‘Currents of Change’ was published. Originally trained as an engineer, and then as a political scientist, in 1974 Glantz joined the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, as a 35-yr old postdoctoral fellow. Here, he “accidentally ‘stumbled’ across El Niño” [p.xi] and he began to focus on the impacts of climate variability on societies and ecosystems. In 1979, Glantz was appointed head of NCAR’s Environmental and Societal Impacts Group (ESIG) and in the years that followed became increasingly aware of the global-scale importance of El Niño. His early studies at NCAR focused on the 1968-1973 drought in the West African Sahel and on drought in the Canadian Prairies, but he also became interested in the societal value of potential El Niño forecasts. While undertaking my PhD in the early 1980s on rainfall variability in the African Sahel, it was in this latter regard that I first came across Glantz’s work, specifically his 1977 paper, ‘The value of a long-range weather forecast for the Sahel’.⁴

¹ See, for example, Garcia-Herrera, R., Diaz, H.F. and co-authors (2008) A chronology of El Niño events from primary documentary sources in Northern Peru. *Journal of Climate*. 21: 1948–1962.

² Philander, S.G. (1990) *El Niño, La Niña and the Southern Oscillation*. London: Academic Press. 293pp.

³ Smithson, P.A. (1997) Review of: ‘Glantz, M.H. 1996: Currents of change: El Niño’s Impact on Climate and Society. Cambridge: Cambridge University Press.’ *Progress in Physical Geography*. 616-617

⁴ Glantz, M.H. (1977) The value of a long-range weather forecast for the Sahel. *Bulletin of the American Meteorological Society*. 58: 150-158.

Glantz describes in his own words how these developments at NCAR came about:

I was allowed to organize a conference in 1977 on ‘Multidisciplinary Aspects related to the Atmospheric Sciences’ ... That allowed me to invite social scientists to NCAR and to develop an advisory committee that was involved in the social aspects of climate and weather issues ... [this helped] focus attention on the politics of so-called natural disasters such as droughts. [Up] to the mid-1970s, it seemed [to me] that most blame for [the] impacts of climate anomalies was focused on the physical effects of a drought or tropical storm, [thereby] neglecting the human dimension. The need to study more closely the interactions among climate, human activities and environment was elevated to a new heightened level of visibility.⁵

In ‘Currents of Change’, Glantz describes how the 1972-73 El Niño had alerted the international scientific community to a phenomenon that had been well-known locally in Peru since the late 1800s. For example, he quotes the Peruvian geographer Federico Alfonso Pezet from 1895, “... the existence of this counter-current [El Niño] is a known fact, and what is now wanted is that proper and definite studies, surveys and observations should be undertaken ... [to] find out everything relating to this counter-current, and to the influence which it appears to exercise in the regions where its action is most felt.” [pp.3-4].

But it was the 1982-83 event, the strongest yet recorded by scientific measurements, that really propelled El Niño to wider public awareness. In February 1984, *National Geographic* ran a richly illustrated cover story, ‘El Niño: Global Weather Disaster’ (see image). Henry Diaz, a climatologist at the University of Colorado and working for NOAA at the time, remembers this growing interest in El Niño,

... in the early ‘80s, El Niño became ‘the thing’, with the ‘82-83 event. Money started flowing for studies of El Niño. Part of [this] was looking at historical records. So, I was involved in bringing as much [climate] data as we could ... I've always worked where there was a lot of data around [and] so it was easy to just bring it in, [to] get the data.⁶



El Niño returned in 1986-87, a somewhat weaker affair, and again, in more halting form, in the years 1991-95. Experimental forecasts of this latter El Niño had not proved accurate; the physical dynamics behind what was now being described as ENSO—Niño-Southern

⁵ Source: [Tiempo Cyber-Library, interview conducted 2009](#).

⁶ Henry Diaz, oral history interview, August 2023. Source: University of Cambridge Library.

Oscillation, a more comprehensive label to capture the interplay between large-scale ocean and atmosphere circulations—were still not well understood.

Glantz had previously worked with colleagues to publish some findings about the 1982-83 event⁷, so by the mid-1990s he was in an ideal position to write ‘Currents of Change’, the first inter-disciplinary book about El Niño intended for a wide audience. It’s timing was fortuitous, for the 1997-1998 El Niño—which today remains the strongest El Niño on record—would hit the climate system a couple of years later.

As Director of ESIG at NCAR, finding ways of making climate science more useful for society was a long-standing concern of Mickey Glantz. He writes in the Preface to the book, ‘El Niño is a natural phenomenon, and improved information about it could yield great benefits to those who choose to use it judiciously. It can lead to more effective decision-making’ [p.xii]. This explains the inclusion in ‘Currents of Change’ of Chapter 12, titled ‘Useable Science’. Here, Glantz makes the case for more work to “bridge the gap between scientific output and societal need” [p.175] and draws attention to several international workshops he convened in the early 1990s to identify potential uses and users of El Niño forecast information.

‘Currents of Change’ covers all aspects of El Niño—its history, societal impacts, forecasting and possible future—and offers an ideal introduction to the topic. Perhaps the most unusual—and interesting—chapter is ‘In Their Own Words ...’ (Chapter 11). Glantz brings together 36 voices of (mostly American) scientists and social scientists who had been engaged in one way or another with the study of El Niño. In short paragraphs, they each offer their own perspectives on the causes and impacts of El Niño, and about the possibilities for forecasting it. Collectively, these voices offer an excellent example of ‘science in the making’, and of the diversity of viewpoints held within the scientific community in the mid-1990s.

Looking back from the perspective of 2025, it is interesting to see how Glantz used the natural phenomenon of El Niño to anchor his argument about useable climate science. In the 1990s, not everything concerning climate variability and climatic extremes was seen through the lens of anthropogenic global warming. Glantz is much more focused on the science of El Niño forecasting (Chapter 6) and on seeking to make climate science useful to society (Chapters 10 and 12) than he is on trying to relate El Niño behaviour to the rising concentration of atmospheric carbon dioxide. Indeed, in the mid-1990s there was very little clarity about this relationship and to which topic Glantz devotes only a few pages, quoting the outcome of the most recent workshop on the topic, “Anything we say about future changes of ENSO must, at the very least, be tempered by our lack of ability not only to simulate present-day ENSO phenomena with models, but also to fully understand the behaviour of ENSO events” [p.136]. Even 25 years later, in 2021, the IPCC’s 6th Assessment

⁷ Glantz, M.H., Katz, R.W. and Krenz, M. (1988) *Climate Crisis: The Societal Impacts Associated With the 1982-83 Worldwide Climate Anomalies*. Tokyo: UNU Publications. A few years later this was expanded into an edited book: Glantz, M.H., Katz, R.W. and Nicholls, N. (eds.) (1991) *Teleconnections: Linkages Between ENSO, Worldwide Climate Anomalies and Societal Impacts*. Cambridge: Cambridge University Press.

Report concluded that there remains “no model consensus” about any systematic change in the amplitude of El Niño variability over the coming century as a result of global heating.

Following the super-charged 1997-98 El Niño, Glantz received funds from the UN Foundation to undertake a 16-country study on lessons learned from its consequences. Prompted by this new work, he published a revised version of the book, expanded to also consider the effects on societies of El Niño’s mirror opposite, La Niña, and now titled ‘Currents of Change: Impact of El Niño and La Niña on Society’.⁸

Mickey Glantz continued at NCAR until 2008, when he left to take charge of the Consortium for Capacity Building (CCB), renamed and relocated from NCAR to the University of Colorado, Boulder, and now supported by a grant from the Rockefeller Foundation. This Consortium reflected Glantz’s concern with useable climate science. Whether dealing with climate variability or climate change, whether causes were natural—El Niño—or human-driven—global warming—Glantz continued to champion the importance for society to make effective use of the best climate science to minimise climate’s threat to society. His 1996 book, ‘Currents of Change’, was an early illustration of this manifesto.

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⁸ Glantz, M.H. (2000) *Currents of Change: Impact of El Niño and La Niña on Society*. (2nd Edn.). Cambridge: Cambridge University Press. 266pp.

Other significant climate book published in 1996

Paterson, M. (1996) *Global Warming and Global Politics*. New York/London: Routledge. 238pp.



The signing of the UN's Framework Convention on Climate Change in 1992, its ratification in 1994, and the first meeting of the Parties to the Convention in Berlin in 1995 were events that accelerated political scientists' engagement with the challenges of climate change. [In a previous post in this series](#), I drew attention to the first climate book in the English language in which the word 'politics' appeared in the title, Pat Michaels' 1992 'Sound and Fury: The Science and Politics of Global Warming.' But Michaels was a climatologist, hardly well-qualified to explain the difficult politics of anthropogenic global warming. The book I draw attention to here, published four years later, is Matthew Paterson's '**Global Warming and Global Politics**'. This book offers the first sustained and systematic treatment of the politics of climate change written by a political scientist.⁹ The book had its origins in Paterson's PhD thesis, which he completed at the University of Essex between

1990 and 1994, but now developed for a wider readership. In 200 pages, Paterson inserts international politics firmly into the discussion of climate change, as befits someone who during this period was affiliated to [Chatham House, the Royal Institute of International Affairs](#) in London. His Introduction alone offers an excellent explanation of the diverse range of political interests which leads to climate change being framed in a multiplicity of ways reflecting, variously, liberal, realist, institutionalist, conservative, socialist, post-colonial, and green ideological positions. Since 1996, the politics of climate change have proved much more intractable than many people writing in the 1990s imagined. Paterson's early foray into this terrain still yields valuable insights into the political dilemmas confronting a world, 30 years later, still trying to arrest global warming. More broadly, 'Global Warming and Global Politics' offers a valuable introduction to the central role that climate change played in the rise of global environmental politics in the 1990s.

⁹ Ian Rowlands book, *The Politics of Global Atmospheric Change* (Manchester University Press, 1995), was published the previous year, but it was less focused on climate change per se and more about broader aspects of atmospheric pollution.