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## Argument, Authority and Anxiety in the Atmospheric Sciences

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In late July 2013, the city of Manchester hosted the 24<sup>th</sup> International Congress of History of Science, Technology and Medicine, in which nearly two thousand delegates participated in discussions regarding the theme ‘Knowledge at Work’. Among them were twenty members of the International Commission on the History of Meteorology (ICHM), who shared their research in a day-long symposium on the theme of ‘Gaining It / Losing It / Regaining It (?): Knowledge production in climate science – status anxiety and authority across disciplines’. The articles that feature in this volume are a selection of the exciting range of work presented there by scholars from Australia, the Americas and Europe, on topics ranging from the geo-engineering of colonial northern African environments to the histories of sunlight and health.

The theme of ‘Gaining It / Losing It / Regaining It (?)’ emerged from the work of symposium co-convenor James R. Fleming, who first shared the idea at the ICHM conference on *Weather, Local Knowledge and Everyday Life* in Rio de Janeiro, Brazil in 2009.<sup>1</sup> His exploration of the concepts of status anxiety and authority in the climate sciences was especially timely as the so-called ‘Climategate’ email hacking scandal unfolded later that year. After developing these ideas in relation to his research on climate change and climate control, Fleming sought to encourage in Manchester the closer examination of processes of ‘knowledge-making, loss and regaining of knowledge-use, and dissent and authority in climate science and, by comparison, in other discourse communities’.<sup>2</sup> Although Fleming, with Vladimir Jankovic, conceptualised the symposium in terms of the atmospheric sciences, as this volume shows, the themes and discussions that developed in Manchester transcend the temporal, cultural and disciplinary boundaries of knowledge production.

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<sup>1</sup> Vladimir Jankovic and Christina Barboza (eds), *Weather, Local Knowledge and Everyday Life: Integrated Climate Studies*, Rio de Janeiro, MAST, 2009.

<sup>2</sup> James R. Fleming, ‘Gaining It, Losing It, Regaining It? Lessons from the History of Climate Change and Climate Control’, *Climate Change in Social Sciences*, National Hellenic Research Foundation, Athens, Greece, January 2013; and James R. Fleming, ‘S103: Symposium abstract’, *iCHSTM 2013*, 2013, <http://www.ichstm2013.com/programme/guide/s/S103.html>

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**Gaining It / Losing It / Regaining It (?): Knowledge Production in Climate Science**

In the wake of ‘Climategate’, the less-than-impressive outcome of the Copenhagen convention of 2009, the InterAcademy review of the Intergovernmental Panel on Climate Change (IPCC), the upcoming Fifth Assessment Report (AR5), the 2012 skirmish between climate activist Peter H. Gleick and the Heartland Institute, and the need to communicate scientific results to a sceptical general public, the Manchester symposium offered the opportunity to examine ‘status anxiety’ in the field of climate science from historical and science studies perspectives in order to provide some perspective on the so-called ‘climate wars’.

The notions of gaining knowledge and authority, losing them, and regaining them, reflect the complexities of knowledge production in climate science not only in recent decades, but which stretch back to Antiquity. With researchers from the historical and social sciences, the Manchester symposium produced a host of interdisciplinary discussions and debates about status anxiety and authority in climate science that feature in this volume. The volume contributors engage with three key themes. The first concerns the cacophony of voices that seek to dominate discussions about climate, climate science, climate policy, and the environmental conditions of the future. The next underlines the cultural and political tensions between universalising Western climate science and local knowledge, between the global and the local. The final theme considers the extent to which definitions of climate as agency and as index are distinct or share common ground.

The volume opens with two articles that consider the role of climate science in European encounters beyond Europe. Among the ‘tools of empire’ which supported the expansion of European imperialism in the eighteenth and nineteenth centuries were the sciences of exploration and development, including the nascent fields of meteorology. The understanding of unfamiliar climes would go some way to render ‘climates of conquest’ legible, predictable and productive for the imperial project. This volume opens with Christian O’Brien’s exploration of European attempts to decipher the tropical environments of northern Australia and southeast Asia from the sixteenth to the twentieth centuries. Such European encounters with the wider world are also the subject of the work of James Kneale and Samuel Randalls, who examine the ways in which British insurance companies evaluated risk during the Victorian era to the end of the Great War.

The second part of the volume is concerned with the personalities, politics and knowledge production of the atmospheric sciences from the 1970s to the twenty-first century. Gabriel Henderson first considers the contrasting approaches of climate scientists to the communication of the risks of anthropogenic climate change in the 1970s. The state of climate science a decade later is the focus of David G. Hirst’s study of the first assessment cycle of the Intergovernmental Panel on Climate Change (IPCC). In the final article of the volume, Martin Mahony considers the ways in which the IPCC has struggled to gain and maintain its scientific credibility in the face of numerous challenges.

Since the Manchester symposium, there have been encouraging signs for the authority of climate science. In 2013, researchers showed that global warming had not ‘paused’ since 1998, nor is there a ‘consensus gap’ among climate scientists – in fact, there is an overwhelming

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consensus among scientists that humans are responsible for global warming.<sup>3</sup> Less encouraging was the National Oceanic and Atmospheric Administration report that the concentration of carbon dioxide in the atmosphere had passed 400 parts per million (ppm) – far in excess of the recommended threshold of 350 ppm required in order to avoid irreversible climate change.<sup>4</sup> In face of such conditions, some scientists posture as planetary surgeons, capable of ‘fixing the sky’, while others hold out hope for a global agreement to curb climate change.<sup>5</sup> As 2014 looks set to be the hottest year on record, the importance of interdisciplinary conversations on the production and understanding of climate science cannot be underestimated.

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<sup>3</sup> John Cook et al., ‘Quantifying the consensus on anthropogenic global warming in the scientific literature’, *Environmental Research Letters*, vol. 8, no. 2, 2013.

<sup>4</sup> Robert Kunzig, ‘Climate milestone: Earth’s CO2 level passes 400ppm’, *National Geographic*, 9 May 2013.

<sup>5</sup> James R. Fleming, *Fixing the Sky: the checkered history of weather and climate control*, NY, Columbia University Press, 2010.