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Autor: Hall, Alexander
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Framing the Sky: The (re)Birth of Weather Forecasting on British Television¹

Alexander HALL²

On October 15th 1987 one of the UK's most well-known weathermen, the meteorologist and broadcaster Michael Fish, remarked during his TV forecast that, "earlier on today apparently a woman rang the BBC and said she heard that there's a hurricane on the way. Well, if you're watching don't worry – there isn't."³

The following morning the country awoke to devastating scenes (Figure 1). With gusts recorded of over 120mph and sustained wind speeds of over 80mph, the extratropical cyclone that battered the south-east of the UK as the nation slept on October 15th-16th, 1987, was the most powerful storm to hit the region since the Great Storm of 1703.⁴ In the UK alone, the storm accounted directly for 19 deaths, the destruction of approximately 15 million trees, power cuts to millions, and insured damages of a then global record, \$1.4 billion.⁵

Ask any British person what they recollect of the Great Storm of 1987, and it is more than likely that their response will include mention of the Meteorological Office and BBC television forecaster, Michael



Figure 1: The aftermath of the Great Storm of 1987, Taymount Rise, Southwark, London. Source: www.geograph.org.uk © David Wright reproduced under a Creative Commons License

Fish. The severe and fatal storm, which struck the south of the UK on October 15th-16th, 1987, was not, as Fish correctly stated, a hurricane. Yet, rather than for its severity and the destruction it caused, it is often remembered for Fish's infamous forecast and the lack of clear issuance of severe weather warnings by the MO. The storm, its aftermath, and subsequent cultural memory present a late twentieth-century snapshot of the British public's expectations surrounding extreme weather, and its relationship with the expert scientific organisation communicating on its risks, the Meteorological Office.

In the immediate aftermath of the storm, as the afflicted regions struggled to cope with the destruction and disruption it caused, the media were quick to question the UK's national weather service, the Meteorological Office (MO) for its role in forecast-

³ Michael Fish, BBC television weather forecast, October 15th 1987.

⁴ RMS (2007) "The Great Storm of 1987: 20 Year Retrospective," *Risk Management Solutions Inc. Special Report*. For more on the Great Storm of 1703 storm see, RMS (2003): "December 1703 Windstorm: A 300 Year Retrospective," *Risk Management Solutions Inc.*

⁵ House of Commons Debate, 21st October 1987, vol. 120 cc729-42

¹ SPHN Marc-Auguste Pictet Prize 2016 (16th November 2016).

² Newman University. Genners Lane. Bartley Green. Birmingham B32 3NT. United Kingdom.

ing the severity of the weather system. The following day on the British Broadcasting Corporation's (BBC) one o'clock news, a MO forecaster was questioned over their failure to issue a clear warning for the storm. In the days that followed, national newspapers joined in the blaming of meteorological experts for events, leading with headlines such as "Met men fail to predict 'worst recorded storm'" and "Why didn't they warn us?"⁶

In the days that followed pressure was piled on the TV forecasters by the press and the public, with one newspaper even calling for the resignation of the MO Director-General, Dr John Houghton.⁷ Many criticisms, including those objecting to how late the public warning had been issued, stemmed from a lack of understanding of MO procedure. The MO had actually been warning of severe weather for October 15th-16th since four days earlier. Official Gale Warnings for the English Channel were issued early on the 15th, and all TV and radio public broadcasts that day warned of strong winds. However, because the two different computer models operated by the MO produced equivocal forecasts, no warnings were issued for inland gales. Due to the already saturated ground conditions, most TV bulletins placed more emphasis on the rain on the 15th, rather than the strong winds. Specific warnings for civil agencies, such as British Rail and the London Fire Brigade, were issued throughout the late hours of October 15th, and an emergency warning was issued to the public via radio at 1:20am on the 16th. In tempering criticisms of how late this public warning came, Houghton highlighted that under the established emergency warning system, public warnings were only to be issued within three hours of severe weather, and once it was almost certain to occur.⁸

The Ministry of Defence, under which the MO then operated, announced an internal inquiry into the forecasting of the storm.⁹ The inquiry called for revision of the content and style of TV presentations, and a complete review of how the MO dealt with the press and the media, yet it determined Michael Fish's use of the term 'hurricane' (Figure 2) to be merely "unfortunate." Along with the comments of his colleague Bill Giles, who had stated that it would be a bit breezy in the English Channel during the evening bulletin, the inquiry considered such language to be "part of the style of delivery of the forecasts, aimed at making them more interesting rather than a dry repetition of the facts."¹⁰

Despite the inquiry's absolution of the TV forecasters, and subsequent efforts by Fish and other MO staff to clarify events, Fish's broadcast went on to become emblematic of the MO's failure to definitively predict the storm. Through popular science books,



Figure 2: Michael Fish giving his infamous forecast on 15 October 1987. Source: YouTube, BBC weather blooper by Michael Fish storm of 1987.

such as Simon LeVay's *When Science Goes Wrong*, and continued reference to Fish's blunder in the media, the broadcast has become a prominent component of the cultural memory of the disaster, and an infamous exemplar of a failure in science communication. The prominent status of the broadcast in the cultural memory of British society was highlighted by the "clips appearance" in the opening ceremony of the London 2012 Summer Olympics.

The case of the Great Storm of 1987 illuminates many interesting characteristics of the MO's position in British society, and raises issues about their role in, and responsibility for, the public communication of the risks presented by extreme weather. It highlights the extent to which, by 1987, British society relied upon the MO for timely information on predicted extremes of the weather. Although the Great Storm of 1987 and the resulting public scrutiny of the MO is an extreme example of the organisation's late twentieth-century relationship with the British media and public, it is by no means a unique event. Through widespread flooding in 2007 and the

⁶ Anon. 1987: Met men fail to predict 'worst recorded storm', *The Telegraph*, 17 October 1987, p.1; and Anon. 1987a: Why didn't they warn us? *The Daily Mirror*, 17 October 1987, p.1.

⁷ Anon. 1987c: *The Sun*, 19 October 1987

⁸ Houghton, J. T. 1988: The Storm, the Media, and the Enquiry, *Weather*, **43**, 67-70; Gadd, A. J. and Morris, R. M. 1988: Guidance available at Bracknell for the storm of 15/16 October 1987, and the forecasters' conclusions at the time, *Meteorological Magazine*, **117**, 110-118; Flood, C. R. and Hunt, R. D. 1988: Public forecasts and warnings of the storm of 15/16 October 1987, *Meteorological Magazine*, **117**, 131-136; and LeVay, S. 2008: *When Science Goes Wrong: Twelve Tales from the Dark Side of Discovery* (London: Penguin Books), chapter 2.

⁹ House of Commons Debate, 21st October 1987, vol. 120 cc729-42

¹⁰ Houghton, D. M., Hayes, F.R., and Parker, B. N. 1988: Media reaction to the storm of 15/16 October 1987, *Meteorological Magazine*, **117**, 136-140

cold winters of 2009-10 and 2012, the MO has occupied a prominent position as a scientific expert body and communicator of risk in extreme weather events in British society.¹¹ The organisation's position as a prominent disseminator of science communications, and the challenges this position brings for a government-funded body that aims to remain objective and scientific, were acknowledged in a 2012 parliamentary inquiry into MO public weather services. The inquiry, conducted by the House of Commons Science and Technology Committee, stated that

- an accurate forecast is of little use if it is not communicated well and understood by the customer. The Met Office should work with broadcasters to improve communication. In particular, the inherent uncertainty in longer-term forecasts should be clearly explained and we are keen to see broadcasters make greater use of probabilistic information in their weather forecasts.¹²

The call to make greater use of probabilistic information implies the reversal of a general tendency in policy, which, as this laudatio will introduce, dates back to some of the earliest development of weather forecasts on British radio and television. In my thesis, *Risk, Blame, and Expertise: The Meteorological Office and extreme weather in post-war Britain*, I show that many of the areas the inquiry considered, including probability, improved communication, and comprehensibility, have been ongoing issues for the MO since it began to develop its public weather forecasts and warnings in the immediate post-war years.¹³

The MO officials who developed public weather services and warning systems in this period had not foreseen the emergence of the type of institutional blame the organisation was to face in the aftermath of the 1987 storm. Yet, the emergence of blame was not simply the result of the MO not considering the problem of risk communication in creating these public services, but rather because those involved did not understand fully the complexity of the relationships between public risk perceptions and the manifestation of blame.

My thesis explores the post-war history of MO extreme weather warnings, forecasts, and public weather services. Developed through the application of advances in meteorological practice and technologies, these services significantly altered the organisation's public profile and status as a scientific expert body. Through analysis of primary documentation produced by the MO and other government departments, I chart the formation and deployment of post-war public weather services and extreme weather warnings. By considering these developments I illuminate how, as the MO increasingly presented forecasts and warn-

ings to all sectors of British society, they became managers of the risks posed by extreme weather. Through exploring these historical developments at the MO, we see a broader narrative emerge on how the communication of risk by scientific experts interacts with public expectations and manifestations of blame.

Throughout the post-war period, the development of forecasts and warning systems was catalysed by social and economic turmoil brought on by the extremes of the very weather the MO sought to predict. It is the stochastic phenomenon of disasters, the outliers of meteorological forecasts, which carry the biggest risks to both lives and property and have presented the MO with the greatest challenges of forecasting, public communication, and risk management. The Great Storm of 1987 highlighted how much British society had become reliant on MO forecasts in the post-war period.

■ **The world's first televised weather forecast**

On 2 November 1936, the first televised weather forecast anywhere in the world was broadcast live from Alexandra Palace in London as part of the BBC's inaugural television broadcast.¹⁴ The trial format consisted of a shot of a map of the UK with a man's arm drawing weather details such as isobars on it in charcoal and Indian ink; an attempt to not simply recreate the newspaper or radio forecasts, but rather to build on these formats, incorporating the best of the oral and visual aspects to make the weather map "grow before your eyes". Due to the limitations of meteorological forecasting at the time, the segment focussed as much time on the last 24 hours weather as it did the coming 24. In contrast to other early television programmes, the trial broadcasts were relatively informal and conversational in style, using an explanatory educational narrative similar to that found in early educational weather books.¹⁵ In addition to the forecast itself the off-screen "expert" spoke in candid

¹¹ See for example *The Observer*, Met Office warned ministers months ago about flooding, 22 July 2007, and *BBC News Online*, Severe weather continues to grip the UK and cause havoc, 6 January 2010.

¹² House of Commons Science and Technology Committee, 2012: *Science in the Met Office* (London: HMSO), p.3.

¹³ Hall, A. 2012: Risk, blame and expertise: The Meteorological Office and extreme weather in post-war Britain, Doctoral thesis, University of Manchester.

¹⁴ Walker, M. 2012: *History of the Meteorological Office*, (Cambridge: Cambridge University Press), p.243 and p.262.

¹⁵ Anon, 1936: Shorthand transcript of test transmission on 26th October 1936. T16/245/1, BBC Written Archives, Reading, United Kingdom.

terms about the process of collecting observations and creating a forecast and the meteorological theory that underpinned the predictions. The viewer was introduced to terminology such as fronts, and educated about the dominate weather patterns of the British Isles.¹⁶

The television trial was discontinued after only four weeks due to “the somewhat high cost” the BBC would have to pay the MO to prepare the maps.¹⁷ The emphasis of these early trials was not on weather forecasting per se, but more on discussing recent weather systems and the work of MO staff. Then in 1939 the breakout of war put an end to all public meteorological communications in the UK and the development of televised weather forecasts was put on hold.

■ Post-war TV attempts

After the war, senior figures at the MO and the BBC began talks to get weather back on British television. The Director of the MO, Nelson King Johnson was enthusiastic about placing a MO forecaster in the job of providing tailored forecasts to BBC television. The BBC understood that having an MO face (or even more simply a voice) attached to the forecast could be advantageous in ensuring responsibility for the forecast was clearly attributed to the MO. Indeed, the new feature could, as proposed by one BBC member of staff, “be introduced in a short talk by the Weather Clerk himself.... (and then) we can always blame him.”¹⁸ Unaware of the level of blame MO TV forecasters would go on to receive, this somewhat throwaway remark suggests that the BBC understood that a MO meteorologist as a recognisable scientific expert, would provide a direct link for responsibility of the forecast.

Despite initial enthusiasm, in the post-war race to convert the organisation back onto a peacetime footing, TV forecasts were given a low priority, and it was

not until nearly three years later on 24 July 1949, that weather forecasts returned to television. The new format was introduced by an explanatory talk given by second-in-command at the MO, Dr James Stagg – now famous for his role in leading the international meteorological team which created the forecasts for the D-day landings and at the time perhaps the only publicly recognisable figure at the organisation. The bulletin was accompanied by summaries read by a BBC announcer, and consisted of two simple stationary maps showing the UK's earlier evening weather, as well as a forecast for the next morning's conditions (Figure 3). The static format of the forecast, squeezed in prior to the evening's news programme and accompanied by the announcer's limited script, was a significant departure from pre-war trials. Lacking in emphasis on education, it was formal, dry, and austere. The format was a televised version of the forecasts the MO had been supplying to the press, rather than the result of a collaborative creative project between the MO and the BBC to bring to television a “striking form of visual weather forecast,” as had originally been envisaged in 1936.¹⁹

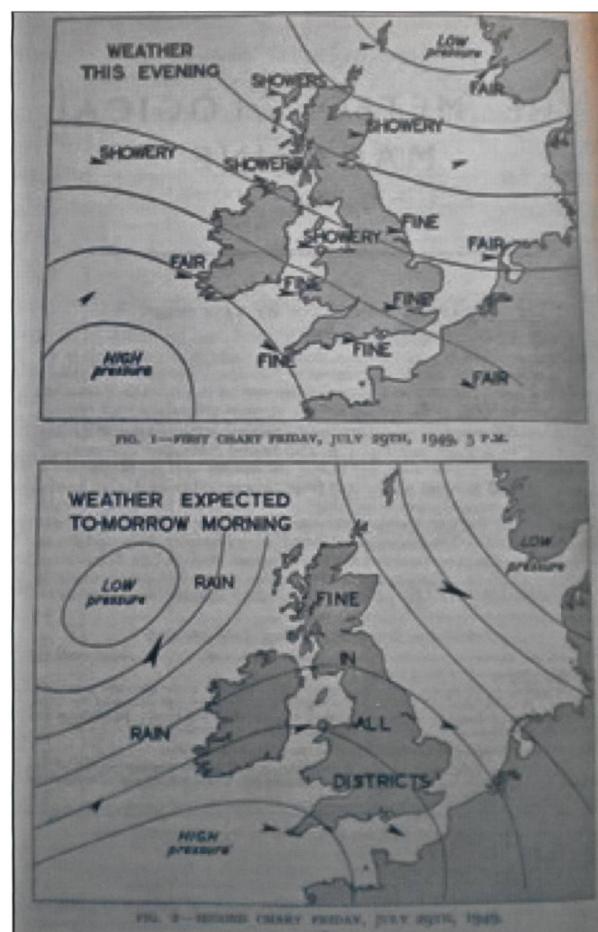


Figure 3: Printed copies of the static 1949 TV weather maps. Source: Bilham, E.G. 1954: Weather Forecasts by Television, *The Meteorological Magazine*, 78, p.278.

Unfortunately, there is little indication of how the public received the relaunch of televised weather forecasts in 1949. In 1949, TV ownership was still at a relatively low level (Figure 6) and so it is likely that a lack of access may have been the key determinant of the public's indifference to the televised forecasts. Whatever public opinion, it is clear that those involved in the project at the MO found the format less than adequate.²⁰ When considering what TV system to implement for his own country, Canadian meteorologist Percy Saltzman summed up the BBC's static format most succinctly: "You could do it like the BBC did – pre-drawn maps, current and prognostic, and a voice off-stage. Pre-drawn stuff is pretty dull and so is a voice without a body."²¹

This was the crux of the problem facing the MO and the BBC, not only had the war severely affected their ability to develop further their pioneering work from late 1936, but in the meantime other nations had caught up. Most notably, the United States of America, where, by the late 1940s, there were already 69 television stations, most of which broadcast weather forecasts.²² The greater competition and more limited regulation of television in the US, led to a huge number of variations in the format of televised weather forecasts. Weather forecasts presented by TV personalities with minimal training in meteorology became the "primary arena for making the newscast more palatable," and featured light-hearted elements such as puppets and cartoon characters.²³



Figure 4: The extent of devastation, Canvey Island, Essex, 2 February 1953.
Source: Grieve, H. 1959: *The Great Tide: The Story of the 1953 Flood Disaster in Essex*. (Essex: Essex County Council Press) p.292.

The MO and BBC continually sought ways to improve the austere, static format after its launch in 1949, but without greater investment or significant technological breakthroughs only minor tweaks to could be made.²⁴ Conversations continued, but by early 1952 it was agreed by both parties that no more could be done with the weather forecasts until the new BBC presentation studio, then under construction in Shepherd's Bush, London, was completed in March 1953.

Given that television stations in Germany, the Netherlands, Belgium, and the USA, amongst others, all had a "face" for their weather segments, the inclusion of a presenter on the BBC TV weather was only a matter of time.²⁵ A new impetus to how quickly and in what form these changes would emerge came in March 1953, when the Director-General of the BBC, Ian Jacob, attended a meeting to discuss MO and BBC partnerships, where:

It was explained by a young but highly professional meteorologist who was in the party that a far better job could be done if the meteorologist himself were to go on air. This would be particularly true in television where we have the use of the weather map, etc. I think we should seriously consider this point.

Whilst directly catalysed by the Director-General's desire to see an on-screen meteorologist presenting the weather, development of the new format was also to be shaped by the events of the North Sea Flood of 1953.

I The North Sea Floods, 1953

The North Sea Floods of January and February 1953 were caused by the combination of a large meteorological depression and record spring tides.²⁶

²⁰ Bilham, E.G. 1954: Weather Forecasts by Television, *The Meteorological Magazine*, 78, 277-279.

²¹ Saltzman, P. 1954: The Weather on Television, *Royal Meteorological Society – Canadian Branch*, 5, 1-112.

²² By 1952 this number had grown to 108, and, after the Federal Communications Commission freeze on station licensing was lifted in 1952, the figure had rocketed to 469 by 1955. Henson, 2010: p.9-11.

²³ Henson, 2010: p.9-11 and p.70

²⁴ Stagg, J.M. 1949: Meteorological Office loose minute by J.M. Stagg (PDDMO), 22 August 1949; and Barnes, G.R. 1951: Memorandum by G.R. Barnes (BBC Director of TV), 21 May 1951. T16/245/1 and T16/245/2, BBC Written Archives, Reading, United Kingdom.

²⁵ McGivern, C. 1953: Memorandum from Cecil McGivern (BBC TV Controller of Programmes), 7 December 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.

²⁶ Hall, A. 2011: The rise of blame and recency in the United Kingdom: A cultural, political and scientific autopsy of the North Sea flood of 1953, *Environmental History*, 17, 379-408.

The storm triggered a major storm surge, which flooded vast swathes of the east coast of Britain (Figure 4), the Netherlands and Belgium. In England alone it caused 1,200 breaches of sea defences resulting in over 160,000 acres of land being flooded, the evacuation of over 32,000 citizens, damage to 24,000 properties, and 440 deaths.²⁷ In Belgium it caused 22 deaths and in the Netherlands, where the breaching of key dikes flooded vast areas of below sea-level polders, the storm surge resulted in 1,836 deaths.²⁸ For both the Netherlands and the UK, the flood takes the unwanted title of the worst naturally-triggered disaster during the 20th century.

The event was responsible for large scale developments in warning systems, flood defences, and disaster management in all three countries. In the UK, the immediate response to the flooding was ad-hoc and largely community-led. The clean-up and aftermath has been placed within a narrative of resilience, with recent accounts portraying a camaraderie and an acceptance of natural flood events.²⁹ Yet this narrative fails to elucidate and unpack the much more detailed interactions of the natural, social, and economic spheres which collided together as the sea breached defences all along the east coast.

Due to a combination of factors, including the large scale of the floods, the high death-toll, the lack of an integrated response, and subsequent political and media pressure, the Government announced the creation of a committee to investigate the lessons to be learned from the flooding. The catastrophe of the floods and the report of the subsequent committee highlighted a disjuncture between meteorologists' scientific world and how the new mass media were communicating their work to the general public. Progress on the new television weather format now began to move quickly. By the time the MO announced the appointment of its new director, Professor Graham Sutton in April 1953, discussions between the MO and BBC about the possibilities their new studio afforded were already well underway.

By the time Sutton officially arrived in post at the MO in September 1953, the first live tests trialling several forecasters from the MO had already been conducted in the new BBC presentation studios. By November, of over 30 MO staff who had been for camera testing at the BBC, only three were considered good enough and placed on a final shortlist.³⁰ Other challenges faced included the restrictions of

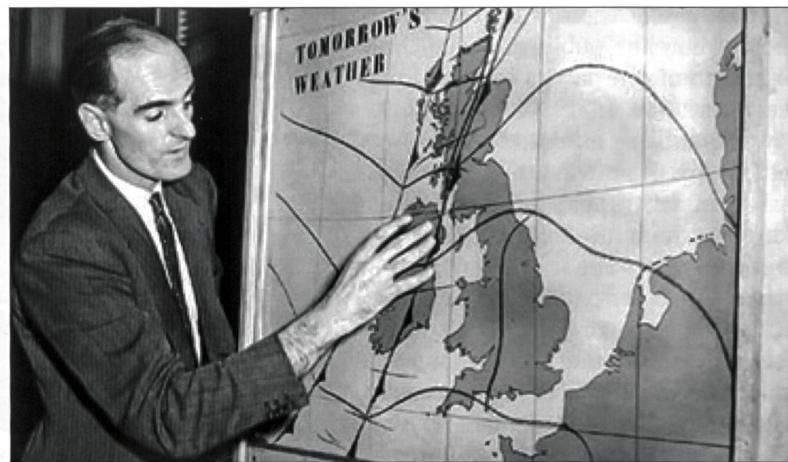


Figure 5: George Cowling presents the new format on the BBC. Source: Wikipedia ©BBC

camera technology and disagreements between the MO's parent department, the Air Ministry, and the BBC over who should foot the bill for the new forecasts.³¹

The launch of meteorologist-presented TV forecasts

On 11 January 1954, at 7.55pm, the MO's George Cowling presented the first ever "in vision" weather forecast on British television. Broadcast live, and lasting for four and a half minutes, the forecast covered the previous day's weather, corrected or explained any errors in it, covered the current day's weather, and provided the outlook for the following day. In these early broadcasts, Cowling, or his colleague Tom Clifton, was accompanied by two weather charts attached to an easel onto which they used charcoal to draw a detailed forecast for the nation (Figure 5).

²⁷ Hall, A. 2015: From the Airfield to the High Street: The Met Office's Role in the Emergence of Commercial Weather Services, *Weather, Climate and Society*, 7, 211–223; Steers, J.A. 1953: The East Coast Floods, *The Geographical Journal*, 119, 280–295; and Baxter, P.J. 2005: The east coast Big Flood, 31st January -1st February: a summary of the human disaster. *Philosophical Transactions of the Royal Society*, 363, 1293–1312.

²⁸ Gerritsen, H. 2005: What happened in 1953? The Big Flood in the Netherlands in Retrospect, *Philosophical Transactions of the Royal Society*, 363, 1271–91.

²⁹ Baxter (2005); and Furedi, F. 2007: From the Narrative of the Blitz to the Rhetoric of Vulnerability, *Cultural Sociology*, 1, 235–254.

³⁰ Rawes, 1953: Rawes (BBC TV Presentation Editor) Progress Report on Live Weather Forecast Project, 10 November 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.

³¹ Rawes, 1953a: Letter from Rawes (BBC TV Presentation Editor) to Farquharson (MO Forecasting Division), 17 December 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.

The BBC's use of an on-screen forecaster was a development driven largely by two concerns. From the broadcasting agency's perspective, it was about improving the visual aesthetics of televised weather. For the MO, however it was the opportunity to *educate* the general public in meteorological matters which spurred developments.³²

Despite the technological limitations and MO concerns over a lack of educational content, the static format of TV forecasts introduced in 1949, had gone on to become one of the most popular early televised programmes.³³ Additionally, since its introduction, TV ownership had risen substantially, and by 1954, over three million people (Figure 6) held a television licence, with this figure increasing at a rate in excess of one million viewers per year. A BBC audience research report, conducted shortly after the new format launched in 1954, found that 88% of the viewing panel surveyed preferred the new format over the old system. Further, the "unusual" amount of mail the BBC received about the new format was almost all positive.³⁴ The new format also received plaudits from staff at the BBC, the MO, and even traditional MO customers such as the Royal Air Force.³⁵

Yet the addition of a "face" to the weather forecast caused another, more unexpected response from viewers. Almost as soon as the new format was introduced, the BBC began to receive letters blaming the meteorologist presenters for inaccuracies in their forecasts. Whilst criticism of inaccurate forecasts was nothing new, the manner, swiftness, and volume of the blame directed specifically at Cowling and Clifton was unprecedented. The Director of the MO personally responded to most of the letters, on one occasion stating:

I think that the meteorologist should be regarded more as an adviser than as a prophet...The difficulty, however, is to strike a balance between the professional chart with its mass of hieroglyphics (sic) and the extremely simplified version which will be intelligible to the average viewer.³⁶

The forecasters had come up against what science communication theorists were later to identify as a key weakness of the 'deficit model's' dichotomous approach, in which attempting to communicate to a broad spectrum of society with varied levels of education would always have limited success.³⁸ In developing the new format, the BBC had encouraged

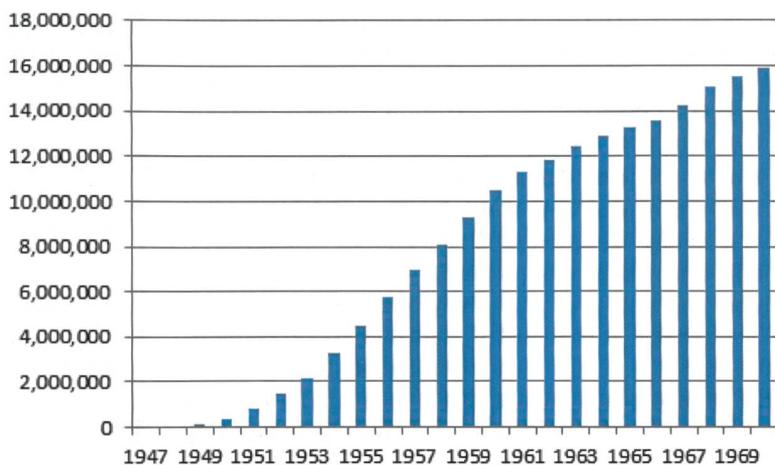


Figure 6: TV ownership in the UK³⁶. Source: BBC Annual Reports.

the MO to embrace more engaging language rather than the dull, scientific terms of established professional practice. Thus, the new faces of the weather attempted to connect directly with the viewer: in the first broadcast of the new format, George Cowling informed housewives that the windy weather would make it a good day to hang out the laundry.³⁹ Whilst this language was engaging, compared to the more traditional "there is a high probability of it being windy today," it imparted a greater sense of certainty and personal connection. The increased risks that came with the MO's new public profile and how far the public might in the future extend blame to the new faces of the weather were hinted at in August 1954, when the Duke of Norfolk blamed the television weather forecast for the low attendance at a charity cricket match. The Duke

³² Anon. 1954: Two Weather Men. *Radio Times*, 122, 8 January 1954, p.15

³³ Rawes, 1953b: Handwritten note by Rawes (BBC TV Presentation Editor) to Jacobs (BBC Director General), 11 November 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.

³⁴ Anon; 1954: Audience Research Report - The Weather Forecasts, 19 February 1954; and Rawes, 1954: Internal Memorandum from Rawes (Television Presentation Editor) to McGivern (Controller Programmes, Television), 8 February 1954. T16/245/2, BBC Written Archives, Reading, United Kingdom.

³⁵ Morgan, 1954: Letter from Group Captain Morgan (RAF) to Sutton, 1 February 1954. AIR 2/12924, The National Archives, London, United Kingdom.

³⁶ As determined via the total number of mandatory television licenses held.

³⁷ Sutton, O.G. 1954: Letter from Sutton to Denham, 2 March 1954. AIR 2/12924, The National Archives, London, United Kingdom.

³⁸ See Hall, 2012, p.18-22.

³⁹ Anon. 2009: George Cowling Obituary, 27 December 2009, *The Telegraph Online*.

claimed that the previous day's ominous, and, as it happened, erroneous forecast had resulted in 6,000 spectators attending the event rather than the predicted 20,000.⁴⁰

Prior to the new format's launch, the importance of the exact wording of the forecasts had been understood by MO officials. In November 1953, Sutton had proposed putting a senior officer in charge of public services, with the duty of advising the Deputy Director of Forecasting on the nature, content, and wording of all information supplied to the public.⁴¹ It proved to be difficult for the MO team to find a balance between keeping the language engaging enough that it would appeal to a broad spectrum of viewers, whilst clearly communicating uncertainty, probability, and explaining any errors.⁴²

Those at the MO who perhaps naively saw the new format as an opportunity, not only to disseminate their forecasts, but also to educate on basic meteorology, were surprised by cases of wanton blame-casting. If the general public were better educated about how weather systems and the forecasting process worked, then surely their understanding of the fallibility of the forecasts should increase. Such an instinctive view oversimplified the relationship between risk perception and blame, failing to account for the problems of information transfer that occur when communicating risk.⁴³ Two articles published in *Weather* magazine by a MO forecaster in 1954 and 1957 show that some within the organisation did consider these problems in more depth. In these

pieces the author discusses the fallibility of human memory and the problems the lay public have in understanding probabilistic forecasts.⁴⁴

In finding a balance between comprehensively explaining all possible outcomes, and communicating a succinct coherent weather picture, the MO continued to receive blame for inaccurate weather forecasts. As meteorologists develop the range, profile, and crucially, the medium of their forecasts, they do truly become, as the sociologist Gary Fine ominously dubbed them, *Authors of the Storm*.⁴⁵

The introduction of meteorologists as the face of the BBC's new televised weather, simultaneously resulted in the creation of the format's endearing quality, and in increasing the targeted blame that was received when forecasts were inaccurate. During the severe winter of 1947 the Minister for Fuel and Power had found himself a scapegoat, but now if an extreme weather event occurred, would TV's new meteorological experts usurp the politicians as figures of blame? Repeatedly stating an objective to "humanise" the weather, those involved in the TV project did not just choose any human, such as a television presenter as was most common in the US, for the new format. Instead, it was the face of the expert meteorologist that appeared on screen.

The formative technology of television presented an arena where officials at the BBC were more open to experimentation. This experimental attitude was not just restricted to the question of who would present the new format, but also the method by which the forecast should be delivered. Throughout the substantial negotiations and TV trials of 1953, much time and consideration was given by both the MO and the BBC on how to present complex weather forecasts visually so that they could be understood by the layman.⁴⁶ Keen to improve on the basic static weather charts used since 1949, technical staff at the MO and the BBC trialled several creative solutions.⁴⁷ Now that there was a presenter, should the maps be at a more complex level? What level of detail can the cameras pick up? Which elements should be printed and which should be drawn live on air?

Simplifying complex codified synoptic charts (Figure 7) had long been a challenge for those at the MO who produced forecasts for newspapers. Initially, the technical limitations of television cameras had meant that forecasters had to create even simpler charts. Now, with the addition of a moving element and the presenter drawing live on air, the process became even more challenging. Balanced against technological limits and monetary restrictions was a desire to meet the MO's aim for the new format, which was to educate the viewer on modern meteor-

⁴⁰ Anon. 1954: *The Evening Standard*, 2 August 1954.

⁴¹ Sutton, O.G. 1953a: Summary of project progress sent from Sutton to Sandford (DUS – Air Ministry), 24 November 1953. AIR 2/10881, The National Archives, London, United Kingdom.

⁴² For more on the communication of scientific uncertainty and predictions see Sarewitz, D., Pielke, R.A. and Byerly, R. 2000: *Prediction: Science, Decision Making, and the Future of Nature* (Washington D.C: Island Press).

⁴³ See Hall, 2012, p.37-40.

⁴⁴ Farquharson, J.S. 1954: Weather Wisdom by Television, *The Meteorological Magazine*, **83**, 130-133; and Farquharson, J.S. 1957: Television Forecasting by the British Broadcasting Corporation. *The Meteorological Magazine*, **86**, 354-358.

⁴⁵ Fine, A. 2007: *Authors of the Storm: Meteorologists and the Culture of Prediction* (Chicago and London: The University of Chicago Press).

⁴⁶ Rawes, 1953c: Memo from Rawes (BBC Presentation Editor TV) to McGivern (BBC TV Controller of Programmes) 10 November 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.

⁴⁷ Rawes, 1953c; and McGivern 1953a: Weather in Television, from McGivern (BBC TV Controller of Programmes) to Jacobs (BBC Director General), 11 November 1953. T16/245/2, BBC Written Archives, Reading, United Kingdom.



Figure 7: A typical Meteorological Office synoptic chart from the period. Source: *The Daily Weather Report*, The National Meteorological Library and Archive © Exeter, United Kingdom.

ological practices.⁴⁸ The emphasis on describing the development of the synoptic picture, affording yesterday's and today's charts as much airtime as tomorrow's forecast, helped to mitigate blame directed at the forecaster, as it gave him the opportunity to explain errors, ensuring the trust of the viewer was not compromised by false forecasts.⁴⁹

Whilst the meteorological community saw the revamped format as an opportunity to communicate its science to a public audience, few outside the field, both at the time and since, have considered televised weather forecasts as science communication.

⁴⁸ For more on the cartographic development of weather maps see, Monmonier, M. 1999: *Air Apparent: How meteorologists learned to map, predict, and dramatize the weather* (Chicago and London: University of Chicago Press).

⁴⁹ After the formats' launch in 1954 the emphasis on past weather was slowly eroded. In 1957, a conscious decision was made to limit the discussion of past weather restricting it to only those places where it was necessary to make the forecast intelligible. Rawes, 1957: Letter from Rawes (BBC TV Presentation Editor) to Sutton, 23 January, 1957. T16/245/4, BBC Written Archives, Reading, United Kingdom. For more on the misrepresentation of uncertainty in meteorology see Taddei, R. 2009: The politics of uncertainty and the fate of forecasters: climate, risk, and blame in Northeast Brazil, in *Weather, Local Knowledge and Everyday Life: Issues in Integrated Climate Studies*, (ed.) Jankovic, V. and Barboza, C. (Rio de Janeiro: MAST), 287-296.

⁵⁰ Boon, T. 2008: *Films of Fact: A History of Science in Documentary Films and Television* (London & New York: Wallflower Press), p.187-191.

⁵¹ Wilson, K. 2008: Television weathercasters as potentially prominent science communicators, *Public Understanding of Science*, 17, p.73.

⁵² Hall, 2012: p. 200.

In 1949, after pressure from the physicist Mark Oliphant, the BBC Director General had appointed a sub-committee to consider broadcasts on science. The sub-committee was tasked with considering all aspects of BBC science programming on both radio and television. Many issues the committee considered, such as comprehensibility, were similar to those the MO and the BBC project team were wrestling with in 1953. Yet in 1949 no parallels were drawn between the science programming and TV forecasts and therefore the committee considered weather bulletins beyond its remit.⁵⁰ The absence of weather forecasts from the committee's considerations of televised science highlights a gap between how meteorologists and those outside the profession perceived the purpose of the new TV broadcasts. For whilst the meteorologists saw the forecasts as a chance to inform and educate, the general public saw a useful product which could aid their daily lives. Former weather anchor and professor of journalism, Kris Wilson, has considered contemporary television weathercasters as science communicators. Despite the focus of his research being on the communication of climate change science in the US, his assertion that specialist TV forecasters "may be the only source of scientific information that some people encounter on a regular basis," also rings true for those in the UK in the early 1950s.⁵¹ Given that Cowling and Clifton were both practicing meteorologists who wrote their own forecasts for the televised slot, and instantaneously became the most recognisable meteorologists in the country in January 1954, we should consider them both prominent science communicators.

Whilst MO staff spoke of the opportunity to "humanise" the forecast and saw the development of a new televised weather format as an integral part of a modern weather service, there were other agendas driving reforms. The chance to have MO meteorologist on the televised forecasts was an opportunity to raise the profile of the discipline, and build on the organisation's newly established authoritative role in British society.⁵² Further, considering that all of the new Directors' plans for the MO relied upon continued growth of the organisation, and that the technologies required for modern meteorology were increasingly costly, the development of a greater public profile and utility was vital to ensuring the MO's continued taxpayer funding.

In Summary

Despite their best efforts, MO officials were now playing a balancing game they had rarely encountered in their previously limited public engagements. The MO was no longer forecasting at a high level to

specific interest groups, but instead walking the tightrope of making their televised output accessible, but not oversimplified, ever aware that “we need not treat our audience as such complete morons as only to be able to understand the words ‘fine, fair and showery’.”⁵³

During the early 1950s, senior figures at the MO had begun to redirect the focus of the organisation from traditional, specific service users, such as civil aviation, toward a national meteorological service which catered to the broader general public.

In early 1954, when the MO and the BBC launched their new format featuring a qualified meteorologist, they fundamentally changed the British public’s relationship with the organisation. The popularity of the new format, coupled with the huge increase in the popularity of television, significantly raised the public profile of the MO. All those involved with the project welcomed this increased prominence, especially senior MO figures who considered it a great opportunity to educate the public, disseminate knowledge, and raise the profile of their discipline. However, end users of the forecasts were more interested in the utilitarian aspect that predicting future weather could bring to everyday life. Thus, in conjunction with improving forecasting capability, in the years to come the MO reduced its emphasis on education and past weather systems in TV bulletins.

Another unexpected public reaction to the new level of visual communication afforded by the TV forecasts was an increase in the amount of blame cast at the meteorologists and MO if forecasts were wrong. This blame was influenced by the visual and linguistic aspects of the bulletins, but most importantly, by the decision to have an expert rather than a TV announcer presenting the segment. Those involved with the TV project had a rudimentary understanding that the language, face, and visual aspect of the forecasts were important. Yet no one involved pre-

dicted the significance that presenting probabilistic forecasts in deterministic language the viewer at home could relate to, would have on the subsequent development of the public’s risk perception and expectations of weather forecasts in the UK. Given the purported educational motives of MO officials, the absence of televised weather forecasts from contemporary and subsequent debates of science communication on UK television, further highlights the speed with which the revised format became about utility and usefulness for the end user.

The creation and subsequent proliferation of forecasts through the wide-reaching and visual format of television launched in January 1954 was a decisive moment for the MO, as it continued its expansion toward becoming a truly public-facing organisation. The opening-up of services so they would be of greater use to the public fits narratives of the international development of meteorology, which highlight a broadening role for national meteorological services in society during the period.⁵⁴ As the new format went on to become the main contact point with the MO for members of the public, its launch in 1954 was a significant event which increased the MO meteorologists’ profile as scientific experts.

I hope in briefly presenting this one specific case study I have given you some insight into my wider research on this subject. In my PhD thesis, by framing the extreme weather events I examined through an analytical lens of theoretical literature on risk and blame, I sought to enrich accounts of the internationalisation of twentieth-century meteorology. My thesis considers how developments in technology and communication affected those giving forecasts at the MO, and those receiving them throughout the UK. It explores the importance of the public, media and political framing of extreme weather events as natural or anthropogenic crises on the emergence of blame in such events. The implementation of new forecasting practice, and wider forecast dissemination using new technologies and approaches, were all vital in enabling the MO to become an expert scientific body, relied upon by both the government and the public. However, as we have seen, in expanding its operations, deploying more forecasts and warnings, and developing a more prominent public profile, the MO inadvertently became a manager of the risks presented by extreme weather conditions. As we allegedly enter a ‘post-truth’ world,⁵⁵ understanding how, in the recent past, specific scientific disciplines and organisations have gained, kept and lost positions of trust and authority in society will continue to be of increasing importance.

⁵³ Barnes, G. R. 1951: Memorandum by G.R. Barnes (BBC Director of TV), 21 May 1951. T16/245/2, BBC Written Archives, Reading, United Kingdom.

⁵⁴ For general narratives on the twentieth-century development of meteorology see Nebeker, F. 1995: *Calculating the Weather: Meteorology in the Twentieth Century* (San Diego: Academic Press); and Harper, K. 2008: *Weather by the numbers: the genesis of modern meteorology* (Cambridge, MA: MIT Press). For more on national meteorological services’ provision of public weather services, see Zillman, J.W. 2005: The Role of National Meteorological Services in the Provision of Public Weather Services, *WMO Paper*.

⁵⁵ Oxford Dictionaries 2016: Word of the year 2016. Available online at <https://en.oxforddictionaries.com/word-of-the-year/word-of-the-year-2016> (last accessed 03/01/2017).