

PUBLIC WEATHER SERVICE CUSTOMER GROUP

Annual Report 2019/2020



Admiral Duncan Potts CB

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I am delighted to present this year's Annual Report of the Public Weather Service Customer Group (PWSCG), which highlights PWSCG activity through the year and key areas and metrics on which the Group and Secretariat have focussed.



I would like to start by introducing myself. I retired from the Royal Navy as a Vice Admiral in late 2018 and took up my appointment as Chair in December 2019. Meteorology and Hydrography have been an integral part of my professional career for 40 years. This has also sparked a close personal interest in the Weather and the impact it has on almost every aspect of our national life. Consequently, I am delighted to play my part in the delivery of the Public Weather Service. I would also like to thank my predecessor Dr Wyn Williams for his support in a seamless handover, but also his work over 6 years, where he reshaped the PWSCG to provide the level of scrutiny and constructive challenge that has helped to develop the Public Weather Service.

As if we needed reminding, 2019/2020 highlighted the impact the weather has on national life. The trend to more extreme weather events has continued. 25 Jul 19 saw a new record high of 38.7C being achieved in Cambridgeshire. Whereas the wetter than average winter saw floods in South Yorkshire on 7 Nov 19 and Storms Ciara and Dennis on 8-9 Feb and 15-16 Feb saw widespread flooding and wind damage. 2019/20 had 449 total warnings issued including 1 Red warning, in contrast to 310 and 0 Red in 2018/19. This highlights the significant and sometimes catastrophic impact weather has on people's lives, property, responders and the economy.

The financial year has ended with the Covid-19 pandemic, which this has caused the Met Office to move to remote working. This all demonstrates the importance of a Group that can challenge the Public Weather Service and where necessary constructively hold it to account. I am very grateful to all members of the PWSCG who give freely of their time and add authority and breadth to our work. This has been especially so this year with the focus on Brexit and latterly on Covid-19. After 4 months I have been struck by the expertise and commitment shown by all who play a role in delivering the Public Weather Service. Central to that is the Met Office where all have been open to challenge, new thinking and where a public service ethos is evident.

Finally, this year seems set to be defined by Covid-19. We are working with the Met Office to ensure key outputs are met whilst also recognizing the constraints imposed; the PWSCG is engaged on prioritising activity. We have agreed the Customer Supplier Agreement and will work this year to ensure that next year's CSA is more focused on customer requirements with commensurate metrics. My aim is that it is more geared to outputs, leaving the Met Office to focus on how it achieves these.

I look forward to working with you throughout the year.

A handwritten signature in blue ink, appearing to read 'Simon L. [unclear]'. The signature is written in a cursive style.

What is the PWSCG?

The Public Weather Service Customer Group (PWSCG) acts as the customer on behalf of the Government, responders and UK citizens for the free-at-the-point-of-use weather services and advice provided by the Public Weather Service (PWS) delivered by the Met Office. It ensures that these services meet the operational needs of public sector users of PWS outputs and acts as the guardian for the Met Office's underpinning operational capability upon which all UK weather services depend. It is responsible for setting the outputs and monitoring the performance of the Met Office in delivering the PWS.

The responsibilities of the PWSCG are as follows:

- Setting the current and future outputs required from the PWS and specifying its performance indicators and targets;
- Monitoring the performance and delivery of the PWS outputs against the agreed performance indicators and targets, and considering in-period modifications to the PWS as appropriate;
- Reviewing whether Met Office plans for the underpinning capability and international commitments are appropriately prioritised and have a demonstrable, value for money link to support the delivery of PWS outputs and other direct services to Government, the public sector and civil aviation;
- Reviewing the socio-economic benefits delivered by the PWS, commissioning additional research as necessary;
- Supporting cross-Government cooperation to increase the use of PWS outputs and raise issues relevant to wider Government, including through the Chair's representation on Met Office Governance groups;
- Providing independent advice to Government ministers on the PWS as required;
- Consulting widely with the public and the public sector users of the PWS, as appropriate, in order to effectively undertake its responsibilities above.

The PWSCG convened for three full UK level meetings during 2019/20. These were held in April and October in 2019 and January 2020. In addition to the UK PWSCG, meetings were also held in the devolved nations. A meeting with Scottish stakeholders took place in June and the Northern Ireland meeting took place in November. A full meeting with Wales was not achieved and will take place as a priority when Covid-19 restrictions allow.

The PWSCG took a particular interest and focussed on a number of key deliverables during the year:

- Assisting BEIS in the preparation and evidence gathering for the Budget and future Spending Review
- Provided advice on the re-balance of PWS investment to
 - Better align with evolving customer requirements
 - Better align with future Met Office strategy
- Took decisions around prioritising the work to improve maximum temperature forecasts based on customer feedback on priorities
- Requested further analysis was conducted into the performance of the National Severe Weather Warning Service and the number of yellow warnings issued
- Approved the work to understand user requirements for an extreme heat warning service and feasibility into how a service could work in practice
- Pushed to continue the deployment of new loggers ahead of schedule as part of the SurfaceNet work which provides better access to real-time data from observations

Delivery of the PWS

The Customer-Supplier Agreement (CSA) between the PWSCG, the Met Office and the Department of Business Energy & Industrial Strategy (BEIS) aligns the outputs of the PWS into seven themes: the National Severe Weather Warning Service (NSWWS), Services for the Public (with three sub-themes: Direct Reach, Third Party Reach and Products & Content), Services for Civil Contingencies, Data Services, International Commitments, the National Capability¹ and Delivering Efficiencies.

As well as the main UK and Devolved Government PWSCG meetings there are two PWSCG sub-Groups that review and assess performance on specific delivery themes.

The PWS Assurance Group (PAG) continued to scrutinise Met Office performance under the International Commitments and National Capability themes, reviewing the Observations, Science, Technology and International programmes. The group met in September and March this year. The end of year PAG looked in depth at plans for

¹ This includes the science, observations, forecasts and computing infrastructure that underpin the PWS and all other weather services.

improving forecast accuracy and held Met Office to account on this metric and was pleased to report on the improvements to forecast accuracy that have been delivered since the autumn. The group sought further information and reports on key pieces of work such as future plans on investment and how the Met Office will be exploiting its new future supercomputing capability.

The Media and Reach Group (MARG) chaired by the independent member met in September 2019 but had to postpone the March 2020 meeting due to COVID-19. This group brings together members of the broadcasting community that are key to delivering third party reach of public weather service outputs. The MARG has looked in depth at issues relating to the performance of weather warnings, storm naming, extreme heat and heatwave definitions through a UK public perspective. The MARG requested the Met Office carry out a piece of independent analysis into the relative performance on maximum temperature forecasts. The results of this comparison between the Met Office and its competitors led to the Met Office implementing post processing and underpinning model improvements.



PWSCG Meeting with Scottish Stakeholders

The first part of the year is set to be dominated by the impact of Covid 19. Whilst the PWS continues to meet key outputs, the PWSCG will work with the Met Office to agree priorities if all services can no longer be maintained. Later in the year attention may turn to a Comprehensive Spending Review where the PWSCG and Secretariat will work to state a clear requirement and the benefits of the PWS.

Following EU Exit, negotiations over the future relationship with the European Union will also be a focus to ensure the Met Office International commitments and the benefits of collaboration are reflected. The meeting rhythm of the year with PWSCG, PAG, MARG, Devolved PWSCG meetings and responder customer workshops will be impacted but we will work to ensure that key business is conducted virtually. Finally, the Secretariat will work with the PWSCG to refocus both the CSA and Annual Report. The aim is to focus the level of governance on a more outcome/output basis and then report authoritatively on performance at the end of the year to BEIS, PWSCG and the Met Office.

Case Study of Whaley Bridge

Description of Event

Thunderstorms from an area of low pressure caused flooding across parts of northern England on 30-31 July. Intense downpours caused flash-flooding, with 40 – 60mm recorded in one hour across parts of North Yorkshire and around 60-80mm or more falling in 2 hours. Fig G.1 shows the total rainfall for the 5 days which, across the Peak District and parts of North Yorkshire, equates to 150-200% or more of the July long-term average rainfall.

Impact

On 31 July, this heavy rain damaged the concrete of the spillway of the Toddbrook Reservoir dam in Derbyshire, threatening the integrity of the dam. The dam is about 80 feet high and contains over 1288,000 cubic metres of water. More than 1,500 residents were evacuated from Whaley Bridge on Thursday 1 August as operations to reduce the water level in the reservoir were instigated. To reduce the water level, water was pumped out of the reservoir to a 'safe' level – the equivalent of ~17% of the reservoir's capacity. Meanwhile a Chinook helicopter from RAF Odiham was used to drop more than 600 tonnes of aggregate into place with ~100 military personnel drafted in to help stamping it down.

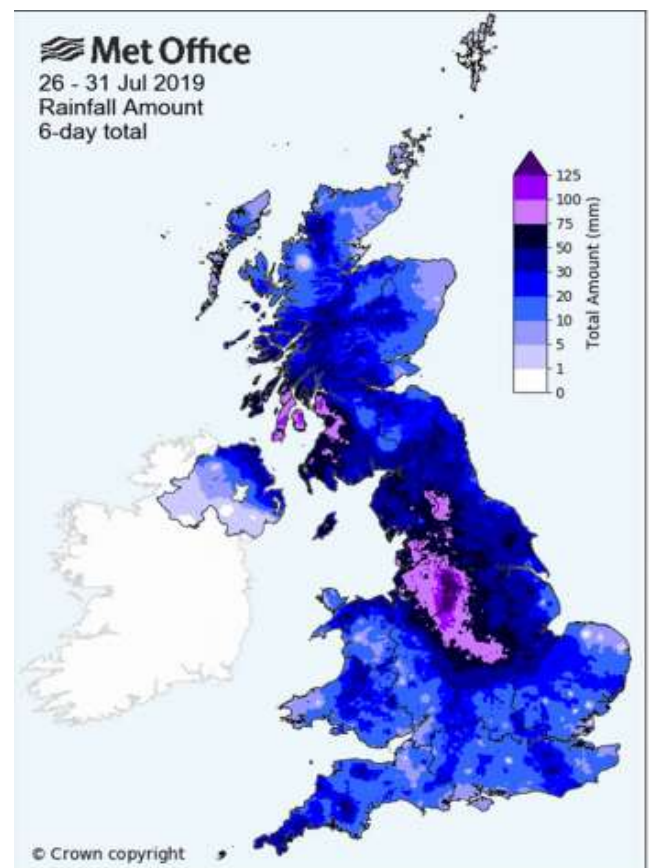


Fig G.1: 6-Day Rainfall total 26-31 July 2019

Fig G.2: Work to shore up the dam spillway



A small number of residents were able to return to their homes on Tuesday 6 August after the water level was adjudged to be 'safe'. However, most residents could not return until Thursday 8 August after engineers had been able to check the damage to the dam wall and further rainfall was assessed not to pose a danger.

Derbyshire County Council has estimated that the emergency response cost them about £700,000 with DEFRA paying the cost of the Chinook (reportedly ~£1.3m).

It was thought that the dam will have to be re-built in a long-term construction project costing about £10m. In the meantime, temporary repairs on the damaged auxiliary spillway were expected to start in early January 2020. The reservoir will remain drained until the permanent repairs have been completed, which is expected to be 2022 or 2023. The Canal and River Trust and the government has separately ordered reviews into the incident.

Storms Ciara and Dennis

Storm Ciara swept across the whole of the UK on Sunday 9 February followed just a week later by Storm Dennis bringing strong winds and heavy rain across the country.

Storm Ciara caused widespread disruption throughout the UK, hundreds of flights were cancelled, and rail passengers advised not to travel. Ferry services were cancelled, the Port of Dover was closed and there were difficult driving conditions on many roads. Power cuts affected over 675,000 homes. Some of the worst impacts were from flooding with the worst affected areas across the Pennines where flooding affected several hundred homes.

The worst of the impacts for Storm Dennis were from the rain. South Wales, Herefordshire, Worcestershire and Shropshire were worst affected and major incidents declared. The Rivers Wye and Severn were reported to have reached their highest-ever levels. The Environment Agency issued over 600 flood warnings and alerts including several severe flood warnings with a record breaking 594 flood warnings and alerts force in England more than any other day on record. Over 1400 homes and businesses were flooded across several counties.



PHOTO@MARCUSWOODBRIDGE

Helping to make better decisions

One of the key objectives of the public weather service is to support decision making. The advice and guidance that the Met Office provided to their customers and stakeholders during this time were far-ranging and across numerous locations. It also provided a clear demonstration of the Met Office's purpose (Helping you make better decisions to stay safe and thrive) in the work they do in partnership with others such as the Environment Agency.

During Storm Ciara, the Met Office's embedded Meteorologist at Heathrow was involved in a formal Demand versus Capacity process, in which the airlines and airport agreed to a 30% reduction in Heathrow's schedule for Sunday 9 February. This meant that 30% of the flights were pro-actively cancelled which meant the airlines and the airport could work together to manage the disruption to passengers. It enabled passengers to be advised in advance reducing unnecessary journeys to the airport and to better manage bookings onto other flights.



PHOTO@TOMBAG

The Met Office's team of civil contingency advisors worked closely with local government, emergency responders, utility and transport agencies providing them with the latest information on warnings in force and potential impacts.

Working closely with the Environment Agency through the Flood Forecasting Centre the Met Office explained that the rainfall from Storm Dennis would be of more concern providing planning conferences to the emergency response community so that they could support the public and local communities at risk of flooding by deploying temporary flood barriers and issuing flood warnings based on the best possible information.



PHOTO: @ENVAGENCY