



2022/23

Met Office Public Weather Service Annual Report



Foreword

Welcome to this year's Annual Report which provides a summary of the work and activity undertaken by the Public Weather Service Customer Group in 2022/23 and the performance of the Met Office in delivering CSA 22/23.



As we move forward in a world now shaped by the impact of COVID-19, I have been pleased to successfully hold more in-person PWSCG meetings this year alongside our hybrid sessions. The drumbeat of PWS meetings allows us to successfully provide scrutiny and challenge, ensuring that the Public Weather Service continues to deliver services for the UK public. I was particularly pleased to be able to travel to Belfast and Dundee to visit our Devolved Administration counterparts in Northern Ireland and Scotland with a visit to Wales due shortly. We heard a wide range of views from responder communities across the UK, and this first-hand feedback is essential for continuing to ensure that the Public Weather Service meets the needs of all users, no matter where in the UK they are.

Delivery of the 2022-2023 CSA has presented some challenges for the Met Office. At the beginning of the year we set ambitious targets to push the Met Office to raise their performance in some key areas. As we reach the end of year sign off and the review of their performance, we can clearly see which targets have presented the greatest challenge.

Comparative accuracy, public perceptions of accuracy, trust and usefulness are areas where performance scored below the target standard, albeit that these were stretched from previous years and were on the whole only just missed. However, these results give useful insight into where to focus PWSCG scrutiny in order to direct Met Office efforts. Moreover, these results link closely to the Met Office's work during 22/23 on the Citizen Engagement Strategy (CES). The CES is a new strategy that sets the direction of travel for how the Met Office will ensure that their products and services reach a greater proportion of the public. The implementation plan for the CES is being embedded now, and the targeted approach for reach and engagement should see improved performance in public perceptions of accuracy, trust and usefulness over the coming year.

Reviewing performance in the round, it is also important to note the many successes and range of work that the Met Office have completed in other areas. They continue to deliver above target for their warning service, an essential component of their public task, which helps to keep the public safe. The unprecedented heat seen across the UK during 2022 represented an excellent test of the Heat Warning Service. The PWSCG heard extremely positive feedback from broadcasters following the event and saw high levels of action from the public in post-event surveys, demonstrating the success of this service. The Met Office continue to develop their warnings, undertaking work to improve the context and advice which seeks to increase action taken by the public during periods of dangerous weather. Beyond the National Severe Weather Warning Service, they have also driven work to keep the public safe in times of benign weather, for example by increasing the accessibility of beach forecasts, and working to reach a consensus for their role in the delivery of health related forecasts, including UV, pollen and air quality forecasts. There are ongoing discussions across Government on these services, but research as part of the CSA has demonstrated that this is a service that the public expect to see alongside their forecast, indicating some role for the Met Office in this space.

In the final months of this year the PWSCG Secretariat have been undertaking a review of the CSA, as is typical at this time of year. The CSA has been moved to a 5-year rolling CSA, updating the Performance Measures and Deliverables where needed, and weaving the narrative of the Citizen Engagement Strategy into the CSA; the CSA is fully aligned with the Met Office Strategy.

The PWSCG retains a dynamic mix of skills and experience within the Group. This ensures that the ongoing delivery of the CSA remains on track and serves the needs of the Government, public sector and our fellow

citizens who rely on these services to stay safe and thrive. I thank all members of the PWSCG and value their individual expertise in making sure that this is a service which delivers for the UK Public.

INTRODUCTION

What is the Public Weather Service Customer Group?

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.

PUBLIC WEATHER SERVICE CUSTOMER GROUP ACTIVITY DURING 2022/23

The PWSCG continued their role of scrutinising delivery of the PWS on behalf of the Government this year. Successful and well attended full PWSCG meetings were held in April and October in 2022. PWS Assurance Group (PAG) meetings were also held to provide more detailed assurance on delivery of the CSA, with PAG 3 (focussing on theme 3 of the CSA) held in September and March, and a combined PAG 2/4 meeting (focussing on themes 2 and 4 of the CSA) held in March. The PWS Secretariat also reinstated our in-person annual meetings with Devolved Administrations, which had been on hold during the Covid-19 pandemic. During 2022, we held invaluable meetings with the responder communities of Northern Ireland and Scotland, with the Welsh meeting to follow in 2023.

The PWSCG took a keen interest in and focussed on variety of areas related to PWS during the year:

- The development of the new Citizens Engagement Strategy, with the PWSCG Chair and Independent Member providing support to the Met Office during strategy developing;
- Review of the period of extreme heat during Summer 2022;
- Hearing from responder communities across the UK on the performance of PWS products and services;
- The new Met Office supercomputer and delays to the associated implementation programme;
- Assessment of comparative accuracy of Met Office forecasts and the importance of this measure;

- The reach and engagement of PWS services, particularly as some performance measures finish the year below target.

Delivery of the PWS

The CSA aligns the outputs of the PWS into four themes: Theme 1 which provides PWS services to help the UK public to stay safe, Theme 2 which provides services to help the UK public to thrive, Theme 3 which encourages the PWS to have an authoritative voice when communicating the weather, and theme 4 which defines the international commitments and national capability of the PWS.

Themes 1, 2 and 3 have performance measures (PMs), which are monitored via red-amber-green (RAG) status and are required to meet yearly targets, and deliverables (Ds) which are larger pieces of work to drive improvements across PWS services and, in turn, the PMs. In addition to the main PWSCG meetings, there are five PWSCG sub-meetings that review and assess performance on these delivery themes. RAG ratings for 22/23 are shown here.

PWS Performance Measures Summary

		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	EOY
PM1.1	Deliver timely, useful, and accurate warnings to the public & responder community Accuracy of warnings should be 80%, improving to 82% by April 2026													
PM1.2	Ensure warnings reach as much of the UK population as possible Reach of amber & red warnings should be at least 70%, increasing to 80% for snow			No Data		No Data	No Data	No Data			No Data	No Data		
PM1.3	Increase the usefulness of warnings in order to increase action and drive behaviour change Usefulness of amber & red warnings should be at least 85%, with at least 40% 'very useful'			No Data		No Data	No Data	No Data			No Data	No Data		
PM1.4	Maintain and develop the Met Office Civil Contingency Services In biennial responder surveys, achieve >85% satisfaction, with >75% very satisfied													
PM2.1	Ensure availability of products and services Availability of digital channels >99.5%													
PM2.2	The Met Office should be in the top 3 of reported weather providers based on results from an independent provider averaged over a calendar year (Dec-Dec)												No Data	
PM3.1	Action taken by the public after seeing or hearing a Met Office forecast Ensure public action levels do not drop below 85%	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data		No Data	No Data	
PM3.2	Trust held by the public in the Met Office Achieve an end of year 80% combined trust score, with 50% trust a lot score	No Data		No Data	No Data		No Data	No Data		No Data	No Data		No Data	
PM3.3	Public Perceptions of forecast accuracy (direct channels) Improve CAI scores to 79% from 2023 and 82% by 2026		No Data	No Data		No Data	No Data		No Data	No Data		No Data	No Data	
PM3.4	Public Perceptions of forecast accuracy (UK weather market) 13% of the UK public view forecasts as 'Very accurate' and 80% as 'Fairly accurate' or 'Very accurate'	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data		No Data	No Data	
PM3.5	Public Perceptions of forecast usefulness (UK weather market) 40% of the UK public rate forecasts as 'very useful', more than 87% rate forecasts as 'fairly useful' or 'very useful'	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data		No Data	No Data	
PM3.6	Increase awareness of the Met Office as the source of weather in the UK from 38% on the Met Office Trust Tracker	No Data		No Data	No Data		No Data	No Data		No Data	No Data		No Data	

*Note, 'no data' is scored where no relevant surveys or data collection is present for that period.

PWS Deliverables Summary

		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	EOY
D1.1	Implement strategy to engage with community resilience groups, and the voluntary sector with a report to deliver to PAG1 in April 2023 on progress and changes made so far													
D1.2	Improve the context and advice in warnings as agreed in year 1 of the CSA ('21-22, MS1.2b). Before PAG1 meeting April 2023													
D1.3	Complete a review of how warnings are seen and understood on a national scale make recommendations by spring PAG1 meeting 2024	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
D1.4	Review the need for, and if required launch a cold weather warning by Winter 2023 work with partners to assess need and requirements for cold weather warnings													
D1.5	Review communication of short notice warnings following implementation of improved nowcasting Report back at PWSCG Spring 2023													
D1.6	Develop the PWS offer for safety forecasts deliver improvements to the display of & discoverability of beach safety forecasts by April PAG1 2023													
D2.1	Develop new measures of actual accuracy for probabilistic forecasts A report detailing these measures will be delivered by October '23	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
D2.2	Investigate ways to pull through the science and information relating to health Report by October 2022													
D2.3	Make data up to day 14 available for use on web, app and Hazard Manager by August 2024													
D3.0	Citizen Engagement strategy by August 2022, to be discussed at the Autumn PWSCG meeting													Completed
D3.1	Direct Reach 3.1b Deliver campaign by August 2022 and implement recommendations by August 2023.													
D3.2	Indirect Reach 3.2b&c by January 2023													
D3.3	Impact, Building Trust and Maintaining an Authoritative Voice 3.3a Understand the drivers for changes in awareness to allow for targets to be set by Sept 2022													

Summary of Theme 1 delivery during 22/23:

- All Theme 1 PMs and MSs have been delivered on target during 22/23. This is a multi-year trend and demonstrates consistently strong performance of the Met Office warning and advisor services, which help to ensure that the UK public stay safe.

Summary of Theme 2 delivery during 22/23

- Of two Theme 2 PMs, one has ended the year as green (availability of products and services) and one as red (comparative accuracy). Comparative accuracy is an important benchmark of where the Met Office perform in relation to other providers. During 2022 the Met Office moved to a new method for measuring and reporting this PM. The PM requires the Met Office to rank in the top 3 providers, as measured by an independent provider, Forecast Watch, with the ranking based on multiple metrics. The Met Office finish the year in fourth position out of 19 providers. The calculation of this ranking is challenging and has a range of associated caveats. This measure was discussed during PAG 2 in March, with the Group agreeing the importance of assessing comparative accuracy and reflecting that, despite the caveats to this measure, it provides a useful indicator of performance. PAG asked the Met Office to re-review this metric and report back on the suitability of the measurement technique. The PWSCG will then take a view on which solutions would be more reliable.
- There were three Theme 2 deliverables for 22/23. D2.1 has not yet commenced in full and is due to report in October 23. However, PAG 2 were content with information provided during an update on this deliverable. D2.2 is ongoing with a report presented in October when the Customer Group agreed that work should continue. The final deliverable for Theme 2 has finished the year as a red, largely due to slippages in the new Supercomputer. The requirement is for the Met Office to provide 14-day forecasts across channels by August 2024. This deliverable is dependent on improved post-processed data which will become available following implementation of the new supercomputer; the Met Office estimate a completion date during 2025. PAG 2 heard an update on interim solutions for presenting 14-day forecast, such as the use of social media for 14-day video forecasts. The group recognised the challenges associated with delivery of this work, but were not content with the proposed interim solutions. The Met Office will report back with more options for an interim solution during 2023.

Summary of Theme 3 delivery during 22/23:

- Theme 3 performance has been a challenge for the Met Office during 22/23. Two of six deliverables have finished the year as green, with three ambers and one red rating. These deliverables were designed to provide stretch for the Met Office but were deemed achievable. The Met Office have continued to generate high levels of action with the public, and awareness of the Met Office has improved. However, the Met Office did not reach the CSA targets for ratings of trust, perceptions of accuracy and perceptions of usefulness. These results have been scrutinised by the PWSCG PAG and discussed at length with the Met Office PWS team. The Met Office are undertaking work to better understand the performance, and the Citizen Engagement Strategy is anticipated to bring a more targeted approach to making improvements in these areas over upcoming years. Whilst targets were only very narrowly missed there is concern that a trend might be emerging. However, there is currently insufficient data to convincingly support this. Consequently, the PAG took the view that they will monitor this closely in 23/24 to see whether there is a genuine negative trend or a one off dip. Consequently, the PWSCG maintains close scrutiny of these important Theme 3 Performance Measures.
- All four deliverables for Theme 3 continue on track. The Citizen Engagement Strategy (D3.0) was delivered in the Autumn, with an implementation plan currently being devised. Despite some resource challenge for D3.2 during the year, it has been steered back on track by the Met Office and work continues.

Summary of Theme 4 delivery during 22/23:

- Theme 4 requires the Met Office to report on the technical services (observations), science, technology, international commitments, and finance that underpins the PWS. The Met Office have provided good evidence that the requirements of this theme have been met during 22/23, despite challenges in finance and resourcing, which are expected to continue during 23/24. PAG 4 will be required to continue to scrutinise Theme 4 reports as the impact of these challenges develops.

Overall summary of CSA delivery during 22/23:

The RAG ratings this year represent a downward shift in performance compared to previous years; the stretching targets set at the beginning of 22/23 have proved challenging for the Met Office. However, more positively, these amber and red indicate areas where the Met Office need to focus their attention in 23/24 and beyond, particularly within Themes 2 and 3. Having said that, these more demanding targets in 22/23 have only been narrowly missed and the PWSCG will monitor performance closely in 23/24 to determine whether performance is of genuine concern, a blip or whether the method of measuring such performance is indeed taut and accurate. More encouragingly, the PWSCG is encouraged by the direction set within the Citizen Engagement Strategy to continue development and improvement of the Met Office direct channels, as well as the greater emphasis on indirect channels and partners. The PWSCG will monitor closely whether the underpinning work set out within this strategy and embedded within the 2023-2028 CSA will result in improved performance in all types of accuracy, as well as perceptions of trust and usefulness. It is also important to note that the Met Office have delivered an impressive range of work across all themes during 22/23 and importantly they have maintained consistently strong performance in Theme 1 - helping the UK's population to stay safe. Overall, the PWSCG is content to agree that the CSA for 22/23 has been met but will be watching the Performance Measures and Deliverables closely in the forthcoming year to see whether there are any genuine negative trends emerging.

PRIORITIES FOR 2023/2024

The first part of the year is set to be dominated by work to embed the Citizen Engagement Strategy and ensure that Theme 3 of the CSA retains the focus it requires. The Met Office and PWSCG will continue to monitor the implementation of this work, with the PWSCG Secretariat making regular contributions to the process. In turn, the regular cycle of public surveys will help the PWSCG to monitor the in-year performance of a number of metrics, tracking the trends of performance throughout the year.

Importantly, the other key focus for the year will be following-up areas identified by missed performance measures and slipped deliverables where the Met Office have been asked to do further work on the measurement of comparative accuracy and an interim plan for 14-day forecasts.

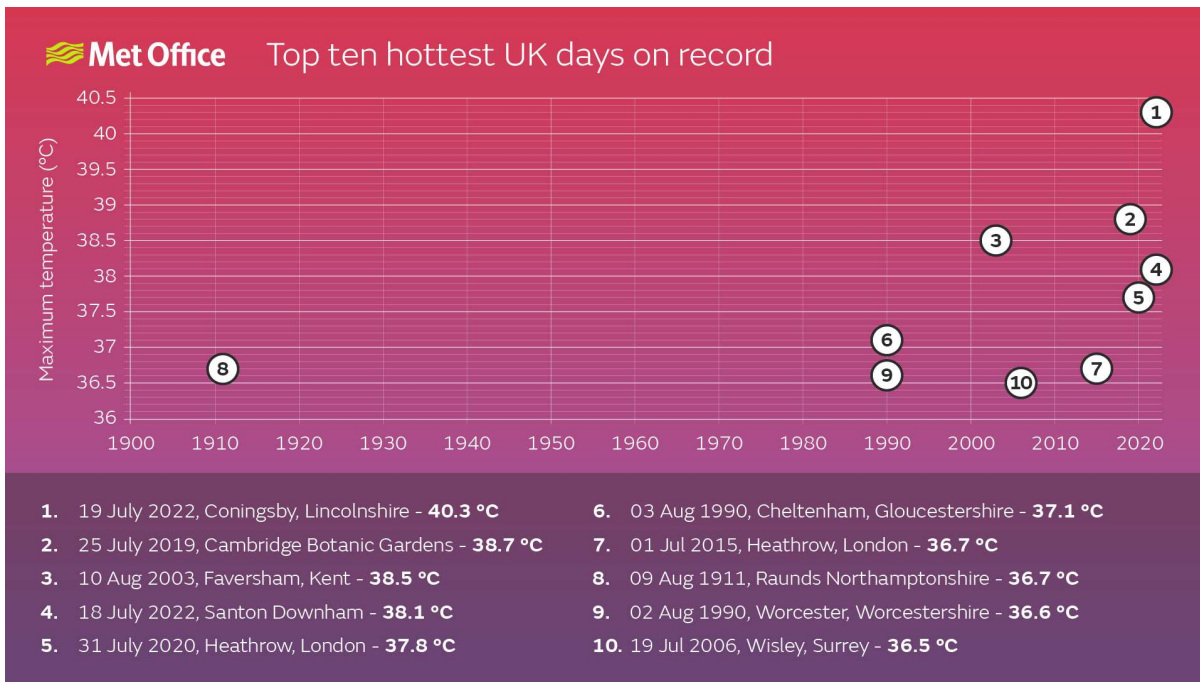
The PWSCG will also look forward to areas of work that may require significant decisions this year, particularly on the potential health forecasts and developments on the Public Weather Media Service.

Finally, the success of in-person meetings held during 22/23 will be continued, as will visits to Devolved Administrations, particularly in Wales for the first time since 2019.

THE PUBLIC WEATHER SERVICE IN ACTION

The financial year spanning April 2022 to March 2023 continued with the recent trend of seeing a number of firsts, with records broken and significant weather impacts being felt across all of the UK.

2022 has been the warmest year on record for the UK seeing the highest average temperature across the UK of 10.03°C, exceeding the previous record set in 2014 when the average was 9.88°C. All four seasons have fallen in the top ten in a series which began in 1884 and the 10 warmest years have all occurred since 2003. 2022 was also the warmest year on record in the 364-year Central England temperature series from 1659, the world's longest instrumental record of temperature.

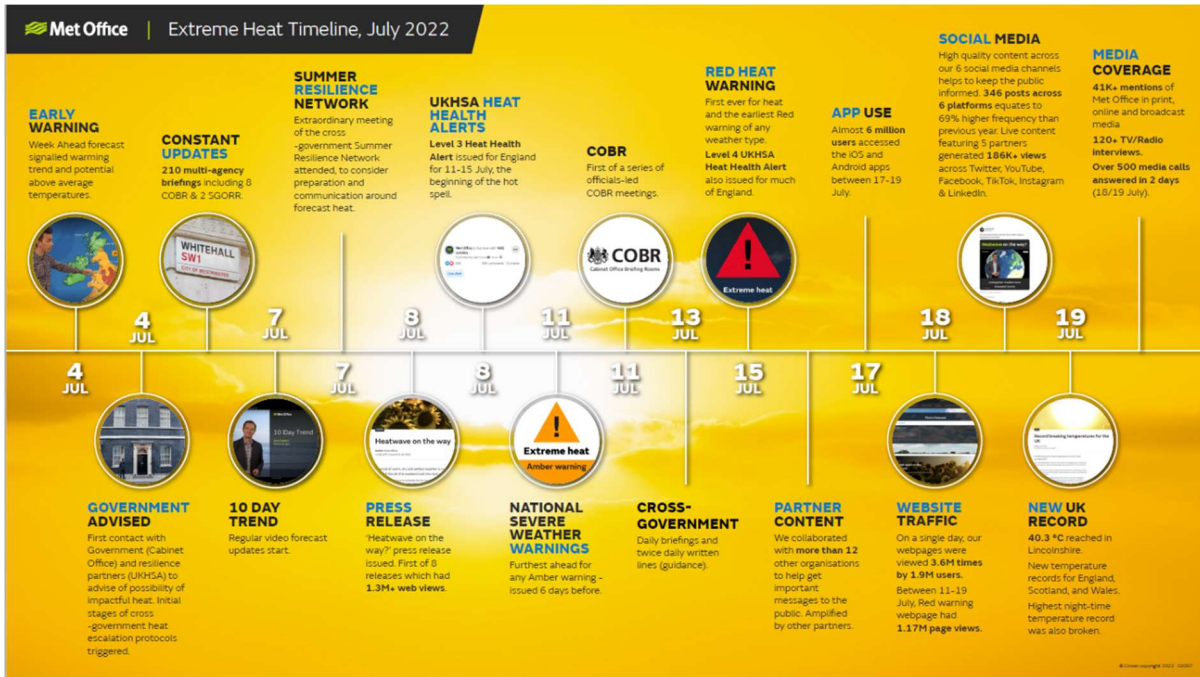


As well as setting a new 139-year annual mean temperature record, 2022/23 will also be remembered for several other significant weather events.

In July 2022 temperatures in excess of 40C were recorded in the UK for the first time. Coningsby, Lincolnshire, recorded the highest temperature, with 40.3C exceeding the previous UK record by 1.6C. Wales also recorded a new daily maximum temperature record of 37.1C, with Scotland seeing a new record of 34.8C.

The hot period in July saw the Met Office issue its first ever red warning for extreme heat with widespread impacts for the UK, with the warning being issued a full week in advance for large areas of the UK, with further notice being provided to government and key stakeholders. An independent survey of the UK public commissioned at the time of the warning showed that 97% of people were aware of the warning, while 98% of people 'took action' based of the warning such as drinking more water, drawing curtains and staying in.





December 2022 saw the coldest first two weeks of December since 2010. Temperatures dropped as low as -17.3C at Braemar on 13 December as cool northerly air influenced the UK weather. February saw impacts by Storm Otto with widespread impacts across Scotland including travel disruption, 150 schools closing, and power lost to 40,000 homes, some for a period of up to 48 hours. March saw three Amber warnings for snow across the Pennines, North Wales and the East of Northern Ireland seeing major travel disruption, 30,000 properties without power in Yorkshire and Derbyshire with some rural communities cut off.

The average reach of National Severe Weather Warnings issued over during the financial year (April-March) was 90%, with those taking action after seeing or hearing a Met Office forecast (measured via an independent survey) scoring 91%, the highest levels seen since surveys began. This is evidence of the Met Office Public Weather Service in action in delivering the Met Office purpose of helping people to make better decisions to stay safe and thrive.

This year saw a number of projects delivered to improve the services provided by the PWS, one such project was improvements made to the beach safety forecasts to ensure that forecasts are readily available on direct digital products, ensuring the safety of the UK public where possible. The Met Office worked with partner organisations including the RNLI, Maritime and Coastguard Agency and the University of Plymouth through collaborative workshops to identify the priority areas to address. Further research, prototyping and user testing was conducted to deliver iterative improvements on the public website and apps during 2022 before being rolled out on the Met Office website and apps during early 2023.

Summary of Performance Measures

Ref	Performance Measure	Delivery Status	Comments
PM1.1	<p>Deliver timely, useful, and accurate warnings to the public and responder community.</p> <p><i>Accuracy of warnings should be 80%, improving to 82% by April 2026, verified by the Met Office and PWSCG (rolling 3-year average). Less than 20% of warnings should provide 'Very Poor' guidance.</i></p>	Met	Warning accuracy scores have remained high across the year at 82% and consistently above the 80% target. Very low numbers of Amber and Red warnings and no named storms in the Winter period have meant that the score is more affected by single events, which has been seen in January and February.
PM1.2	<p>Ensure warnings reach as much of the UK population as possible.</p> <p><i>Reach of amber and red warnings should be at least 70%, based on ad hoc surveys, increasing to 80% for snow.</i></p>	Met	Five warnings were surveyed in 2022/23, one 'Red' and four 'Amber' with two for 'Extreme Heat', one 'Rain' and two 'Snow'. Reach was consistently above the 70% target level for all weather types with average reach for the year at 90%. Average reach for the two snow warnings was 85%, again above the target level (80%).
PM1.3	<p>Increase the usefulness of warnings in order to increase action and drive behaviour change.</p> <p><i>Usefulness of amber and red warnings should be at least 85%, with at least 40% 'very useful' based on ad hoc surveys of the public.</i></p>	Met	Of the five warnings were surveyed in 2022/23 all were above the 85% 'useful' with all but one above the 40% 'very useful', this puts the average score for the year at 91% 'useful' and 47% 'very useful'. Both above target and similar to previous years.
PM1.4	<p>Maintain and develop the Met Office Civil Contingency Services.</p> <p><i>PM1.4a: In biennial responder surveys, achieve >85% satisfaction with CCA team, with >75% very satisfied.</i></p> <p><i>PM1.4b: The Hazard Manager IT system should be available to responders for 99.5% of the time when the system is being used.</i></p>	Met	<p>The responder survey is due to be completed next FY. In the previous survey last FY responder satisfaction was 92% with 76% very satisfied.</p> <p>Hazard Manager uptime for the year has been very good, with average uptime for the year 99.7% above the 99.5% target.</p>
PM2.1	<p>Ensure availability of products and services, including digital channels, scripts, forecasts, observations, and the Public Weather Media Service (PWMS).</p>	Met	<p>Digital channel availability has remained consistently high with website, app (consumer digital platform) and mountain web pages uptime above 99.7% each month and with an annual average score of 100%.</p> <p>The availability of products by the specified publication time >98.5% has also been met with five out of the six annual average product availability scores above the 98.5% target with generally good performance seen across products each month.</p>

PM2.2	The Met Office should be in the top 3 of reported weather providers, based on results from an independent provider averaged over a calendar year (Dec-Dec).	Not Met	The Met Office has had between 5 and 7 out of 16 forecast metrics ranked in the top 3 relative to other providers, therefore this measure has not been met.
PM3.1	Action taken by the public after seeing or hearing a Met Office forecast. <i>Reported annually as measured via the Public Perception Survey and compared to previous years. Ensure public action levels do not drop below 85%.</i>	Met	Action taken scores after seeing or hearing a Met Office forecast (measured by the Public Perception Survey) continued to be high this year, with a score of 91%, the highest seen and well above the 85% target.
PM3.2	Trust held by the public in the Met Office. <i>Measured quarterly via the Corporate Trust Tracker; reported quarterly within the year, and as an average across the year-to-date and compared to previous years (21/22 CSA PM3.1b). Achieve an end of year 80% combined trust score, with 50% trust a lot score.</i>	Partially Met	Average combined trust for the year is 81.3%, above the 80% target. Trust a lot scores have remained below the 50% target for each quarter, giving an annual average score of 46.8%. This measure has been rated 'Amber' as one sub-metric is above the target level (combined trust) and one sub-metric is below the target level (trust a lot).
PM3.3	Public Perceptions of forecast accuracy (direct channels). <i>Measured and reported quarterly per year using the Consumer Accuracy Index (CAI). Improve CAI composite scores to 79% from year two of the CSA period (2023) and 82% by the end of the CSA period (2026).</i>	Not Met	The average Consumer Accuracy Index score for the year is 77%, below the 79% target. Met Office scores have remained below target across the year.
PM3.4	Public Perceptions of forecast accuracy (UK weather market). <i>Measured annually via the Public Perception Survey. Weather forecasts should be viewed as "Very accurate" by 13% of the UK public and be viewed as "Fairly accurate" or "Very accurate" by at least 80% of the UK public.</i>	Partially Met	Public Perceptions of forecast accuracy, measured in the Public Perception Survey, saw forecast viewed as 'Very accurate' by 15% of respondents, above the 13% target, and 78% combined 'very' and 'fairly' accurate, below the 80% target. This measure has been rated as 'Amber' due to one sub-metric below target and one above.
PM3.5	Public Perceptions of forecast usefulness (UK weather market). <i>Measured annually via the Public Perception Survey. 40%</i>	Partially Met	Public Perceptions of forecast usefulness, measured in the Public Perception Survey, saw respondents score forecasts as 88% useful, above the 87% target, and 38% very useful, just below the 40% target. This measure has been rated as 'Amber' due to one sub-metric below target and one above.

	<i>of the public should rate the usefulness of forecasts as 'very useful' and more than 87% should rate forecasts as 'fairly useful' or 'very useful';</i>		
PM3.6	Increase awareness of the Met Office as the source of weather in the UK. <i>From 38% on the Met Office Trust Tracker. Reported annually.</i>	Met	Awareness of the Met Office as the source of weather in the UK is at 42% for the year, above the target of 38% with the Met Office just ahead of the BBC in the final quarter of the year (40%).

Summary of Deliverables

Ref	PWS Milestones Overview	Delivery status	Comments
D1.1	Implement strategy developed in year 1 of the CSA ('21-22) to engage with community resilience groups, and the voluntary sector with a report to deliver to PAG1 in April 2023 on progress and changes made so far.	Met	The Met Office has been working with the Cumbria Local Resilience Forum (LRF) to assess how the Met Office can support Community Resilience Groups (CRGs) and Voluntary Organisations (VOs) through information and training.
D1.2	Improve the context and advice in warnings as agreed in year 1 of the CSA ('21-22, MS1.2b). Before PAG1 meeting April 2023.	Met	A randomised, UK representative study showed that including advice on how to respond within warnings service promotes effective behaviour, particularly for red and amber warnings and for certain demographics. Inclusion of advice would be rolled out in stages.
D1.3	Complete a review of how warnings are seen and understood on a national scale.	Met	Activity scheduled for FY23/24.
D1.4	Following the delivery of the Extreme Heat warning in 2021, review the need for, and if required launch a cold weather warning.	Met	Research has been conducted during FY 22/23 to evaluate the need for cold temperature warnings with different audiences. Results from research are being finalised and will be report to the Customer Group at PAG-1 on 26th April 2023.
D1.5	Review the communication of short notice warnings (heavy rain and thunderstorms) following the implementation of the improved nowcasting services which are being implemented from Spring 2022.	Met	Research undertaken with the public and emergency responder communities to assess how short notice warnings could be communicated to drive action. A review of the current communication of short notice warnings highlighted that a minority of responders were aware of the Met Office's capability to produce short notice, high impact weather warnings, whilst there is a high appetite to use these. A key finding being that a lead time of 2 to 6 hours is the most useful, though information up to 30 minutes before an extreme weather event could still allow the public to be alerted via responders' social media or texts.
D1.6	Develop the PWS offer for safety forecasts – including a	Met	To make beach forecast information easier to find on the website, beach safety tips (developed by the RNLI) were introduced to the Met Office

	definition of what is a safety forecast and implement recommendations to improve safety forecasts agreed in year 1 of the CSA		website in February 2023. Usability has been improved through identifying when a chosen location is a beach, or close to a beach and by providing a link to tide times. Views of beach safety information on Met Office forecasts have increased by 170% since last year suggesting the improvements are already having a positive impact on discoverability.
D2.1	Develop new measures of actual accuracy for probabilistic forecasts	Met	An update was provided to PAG-2 in March 2023 on the use of potential metrics that would be appropriate to apply to forecasts displayed probabilistically on public facing channels. For the purposes of the report an assumption was made that site specific forecasts on the website and app will be the means through which forecast uncertainty is provided to the public.
D2.2	Investigate ways to pull through the science and information relating to health, including forecasts of UV, pollen & air quality	Met	Cost to pull-through new science capabilities and provide improved messaging for forecasts of air quality, pollen and ultra-violet (UV) on the public website and mobile apps have been evaluated. Costs have been discussed with key Government agencies. Options will be presented to the PWSCG in April.
D2.3	Make data up to day 14 available for use on web, app and Hazard Manager by August 2024.	Not Met	Delays in the timescale for implementation of the new supercomputer have resulted in uncertainty on when a data driven solution to this deliverable will be available. A timeline for science releases on the new capability will be available in May 2023, from which a date for provision of week 2 forecasts can be discussed with the PWSCG.
D3.0	Citizen Engagement strategy	Met	Updated strategy presented and approved by the PWSCG in October 2022. Thereafter work has focused on planning for implementation in FY23/24.
D3.1	Direct Reach	Met	Research activities have provided a series of hypotheses that will be tested with the public. A review and prioritisation workshop has been held which provided a steer on the approaches to be tested to ensure alignment to the Citizens Engagement Strategy. Pull through of improvements to spot data on the web & apps have been completed, which will improve consistency of weather forecasts once fully released in FY23/24.
D3.2	Indirect Reach	Met	Strategy developed for reaching people who are not getting weather information, and those who are most vulnerable to the impacts of weather and climate. A new data attribution framework has been created and will be embedded into Met Office business practices.
D3.3	Impact, Building Trust, and Maintaining an Authoritative Voice	Met	A strategy has been developed for increasing awareness of the Met Office as the provider of weather forecasts in the United Kingdom for all members of the population and reaching audiences that are not currently aware.