

**From:** Rebecca Spore, Director of Infrastructure  
**To:** Kent Flood Risk and Water Management Committee – 14<sup>th</sup> March 2024  
**Subject:** Environment Agency and Met Office Alerts and Warnings and KCC severe weather response activity  
**Classification:** Unrestricted

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**Summary:** To update Kent Flood Risk and Water Management Committee on the current water situation, weather statistics, Environment Agency and Met Office Warnings, and flood response activity since the last meeting of the Committee on 14<sup>th</sup> November 2023.

**Recommendation:** The Committee is asked to note the warnings received since the last meeting of the Committee.

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## **1. Background**

- 1.1 This report is the latest of the regular updates to the Committee addressing the current water situation and recent severe weather and associated emergency response activity in Kent.
- 1.2 The KCC Resilience and Emergency Planning Service Duty Emergency Planning Officer (DEPO) and Contact Point receive Environment Agency (EA) and Met Office alerts and warnings regarding severe weather on a 24/7 basis. Any site-specific severe weather impacts are notified to the DEPO by the emergency services and other resilience partners, with reports from the public received by Contact Point and passed on to the DEPO and/or Kent Highways. DEPO further initiates multiagency reporting using the County Council's innovative Severe Weather Impacts System (SWIMS) to capture resources and costs arising from severe weather incidents.
- 1.3 Some 85,500 residential and commercial addresses across Kent are located within areas identified as at risk from fluvial (river) or tidal (coastal) flooding. Where possible, flood vulnerable properties are offered a Flood Warning Service by the EA. Early warning of flood risk to communities (including areas outside of floodplains) is delivered through Flood Guidance Statements, Severe Weather Warnings and mobilisation of the Kent Resilience Forum (KRF) Severe Weather Advisory Group (SWAG).

## **2. Kent water situation and weather statistics**

- 2.1 November 2023 recorded rainfall 161% above the long-term average for Kent, with temperatures +0.1°C average. This trend extended into December, which saw 113% of average rainfall and mean temperatures +2.3°C above average. January was a drier month across the County, with 84% of long-term rainfall average recorded, with mean temperatures -0.1°C below average.

- 2.2 However, February was the standout month for extreme weather, with 242% of the long-term rainfall total falling in Kent and temperatures +3.2°C above the 1990-2020 long-term average. The beginning of March and arrival of meteorological spring has seen the onset of drier conditions, though remaining unseasonably mild.
- 2.3 The latest river flow data available from the Environment Agency, covering January, ranged from notably high in east Kent to normal and above normal in the rest of the Kent and South London region. The highest flows were seen in the River Dour at Crabble Mill, which saw 200% of the long-term average, influenced by the high groundwater levels in the area.
- 2.4 Groundwater levels in the chalk and lower greensand aquifers continued to rise throughout much of January and February, with an alert in place for groundwater flooding in East Kent, encompassing the Alkham and Petham Bournes, and Nailbourne.
- 2.5 Bewl Reservoir was below normal capacity in January, at 67%, which was related to ongoing operational works. Bough Beech is currently at normal level for the time of the year, at 99%.
- 2.6 130 flood alerts and eight warnings were issued by the EA since the last meeting of the Committee (107 fluvial and 31 coastal)<sup>1</sup>. This contrasts with a total of just nine flood alerts across the corresponding period in 2023 (four fluvial and five coastal).
- 2.7 The Met Office issued 28 yellow and five amber weather warnings between November and February (14 for rain, 2 for thunderstorm, 12 for wind, one for snow and ice and four for ice)<sup>2</sup>. This compares with 26 yellow weather warnings between November 2022 and March 2023 (seven for fog, five for snow and ice, five for ice, four for rain, two for wind and rain, two for snow and one for thunderstorm).
- 2.8 The Thames Barrier was closed on ten occasions since the last meeting (all for operational purposes)<sup>3</sup>. The figure for the corresponding period last year was five (two for operational and three for test purposes).

### **3. Recent Incident Response and Exercises**

- 3.1 Named storms Elin and Fergus (9<sup>th</sup> – 10<sup>th</sup> December), Gerrit (27<sup>th</sup> – 28<sup>th</sup> December), Henk (2<sup>nd</sup> January), Isha and Jocelyn (21<sup>st</sup> – 24<sup>th</sup> January) all resulted in localised damage to property and critical infrastructure. This included a scaffolding collapse at Swanley on the evening of 27<sup>th</sup> December and hoardings blown onto parked cars in Maidstone on New Year's Day. Some

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<sup>1</sup> Please see appendix 1

<sup>2</sup> Please see appendix 2

<sup>3</sup> Please see appendix 3

localised disruption to electricity and water supplies also occurred during each of these storm events, most notably during Storm Isha around the 21<sup>st</sup> December. The initiation of multiagency command and control enabled effective co-operation across local planning and response. Latterly, a Severe Weather Advisory Group (SWAG) was mobilised for the heavy rainfall experienced overnight on 25<sup>th</sup> and 26<sup>th</sup> February.

- 3.2 In terms of recent operational flood-response activity, it was surface water and highway flooding that generated the most significant impacts for Kent residents, businesses and responders. For example, November 2023 saw the onset of widespread surface water flooding impacts across Romney Marsh, including at Lydd and New Romney. To ensure the most effective partnership response, KCC Emergency Planning initiated multiagency co-ordination meetings with participation from Southern Water, the Environment Agency, Folkestone and Hythe District Council, Romney Marsh Internal Drainage Board and key KCC services.
- 3.3 The exceptionally wet weather experienced through much of the winter<sup>43</sup> also resulted in localised sewage and contaminated run-off incidents, affecting homes, businesses and the natural environment. Notable multiagency pollution control responses were undertaken at locations in Dover, Maidstone and Swale.
- 3.4 In February, technical operations at the Wingham water works, that serves Aylesham and Adisham reservoirs, were impacted by heavy rainfall. As a consequence, Southern Water mobilised their contingency plan, resulting in around 5,000 properties being provided with bottled water, seven farms receiving water bowsers, while some 1,625 priority services customers and 21 care homes received bespoke support. Bottled water stations were also established at Aylesham and Canterbury. In addition, Howletts Wild Animal Park and Wingham Wildlife Park maintained their tapped supply through tankers injecting water into the local supply network.
- 3.5 Heavy rainfall also contributed to landslips, notably affecting a large irrigation pond at Bearsted on 11th January, which saw a Tactical Co-ordinating Group initiated and a multiagency team deployed to knock door-to-door to warn and inform residents living downstream. Cliff and railway embankment collapses have also been observed, likely exacerbated by the prevailing very wet conditions. These included collapses at The Leas in Folkestone during January and Newington in February, with the latter event resulting in some significant local disruption to rail services.
- 3.6 Exercise Dryad took place on 22<sup>nd</sup> November at Folkestone and Hythe District, with a scenario predicated on flooding from the Pent Stream, an urban rapid response catchment. A range of partners participated, including Kent Fire and Rescue Service, KCC, Ashford Borough Council and Dover District Council. A structured debrief for the exercise was facilitated by Kent Resilience Team on 30<sup>th</sup> January to capture learning from the exercise.

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<sup>4</sup> Please see appendix 4

## 4. Outlook

- 4.1 The Met Office three-month outlook summary indicates a 15% chance that March to May will be cooler than average (0.8 times the normal chance), a 60% chance that it will be near average (1.0 times the usual chance) and a 25% chance that it will be warmer than average (1.3 times the usual chance). In terms of rainfall, the summary indicates a 25% chance the season will be drier than average, 55% chance that it will be near average and a 20% chance it will be wetter than average. As regards likely wind speeds, the summary suggests a 25% chance that it will be calmer than average, a 60% chance that they will be near average and 15% chance of windier than average conditions.
- 4.2 The EA continuously runs surge forecasts, informed by astronomical tide calculations. If a risk of coastal flooding is forecast, then this information is communicated to partners. Indeed, we are currently in the midst of notably high equinoctial spring tides, with a corresponding elevated risk of coastal flooding, if in combination with high winds, until 14<sup>th</sup> March at Sheerness and 15<sup>th</sup> March at Rye. However, coastal flooding can still occur outside of high spring tides.
- 4.3 Kent Flood Risk and Water Management Committee will continue to receive regular updates on water resources, flood alerts, weather warnings and response.

## 5. Recommendations

- 5.1 The Committee is asked to note the warnings received since the last meeting of the Committee.

## 6. Contact Details

**Report Author:** Tony Harwood (Resilience and Emergency Planning Manager), Infrastructure, Deputy Chief Executive's Department, tel. 03000 413 386, e-mail [tony.harwood@kent.gov.uk](mailto:tony.harwood@kent.gov.uk)

**Relevant Director:** Rebecca Spore (Director of Infrastructure), Deputy Chief Executive's Department tel. 03000 412 064, email [rebecca.spore@kent.gov.uk](mailto:rebecca.spore@kent.gov.uk)

**Appendix 1: EA Flood Alerts and Warnings issued since 14<sup>th</sup> November 2023**

<b>No.</b>	<b>Date issued</b>	<b>Flood Zone</b>	<b>Status</b>
1	14/11/2023	Upper River Medway Area	Flood Alert
2	14/11/2023	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
3	14/11/2023	Lower River Medway Area	Flood Alert
4	15/11/2023	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
5	16/11/2023	Upper River Stour	Flood Alert
6	24/11/2023	Isle of Sheppey and Coast from Kemsley to Seasalter	Flood Alert
7	24/11/2023	Coast from Whitstable to Margate	Flood Alert
8	24/11/2023	Coast from Dartford to Allhallows	Flood Alert
9	24/11/2023	Tidal Medway, Medway estuary and Isle of Grain	Flood Warning
10	24/11/2023	Coast from Ramsgate to Kingsdown	Flood Alert
11	24/11/2023	Coast from St Margaret's at Cliffe to Sandgate	Flood Alert
12	24/11/2023	Tidal Medway, Medway estuary and Isle of Grain	Flood Alert
13	24/11/2023	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
14	24/11/2023	Lower River Medway Area	Flood Alert
15	24/11/2023	Tidal Stour Area from Fordwich to Stonar Cut	Flood Warning
16	03/12/2023	Rivers Eden and Eden Brook Area	Flood Alert
17	03/12/2023	Upper River Medway Area	Flood Alert
18	03/12/2023	Upper River Stour	Flood Alert
19	03/12/2023	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
20	04/12/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
21	04/12/2024	Lower River Medway Area	Flood Alert
22	09/12/2023	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
23	09/12/2023	Upper River Medway Area	Flood Alert
24	09/12/2023	Upper River Stour	Flood Alert
25	09/12/2023	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
26	12/12/2023	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert

27	12/12/2023	Rivers Eden and Eden Brook Area	Flood Alert
28	12/12/2023	River Darent from Westerham to Dartford	Flood Alert
29	12/12/2023	Plenty, Swalecliffe and West Brooks	Flood Alert
30	12/12/2023	Upper River Medway Area	Flood Alert
31	12/12/2023	Upper River Stour	Flood Alert
32	12/12/2023	River Teise area from Lamberhurst to Goudhurst	Flood Alert
33	12/12/2023	River Bourne from Hadlow to East Peckham	Flood Alert
34	12/12/2023	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
35	12/12/2023	Lower River Medway Area	Flood Alert
36	12/12/2023	Middle River Medway Area	Flood Alert
37	13/12/2023	Grove Ferry and Plucks Gutter	Flood Warning
38	19/12/2023	Groundwater flooding in East Kent	Flood Alert
39	20/12/2023	Upper River Stour	Flood Alert
40	21/12/2023	Isle of Sheppey and Coast from Kemsley to Seasalter	Flood Alert
41	22/12/2023	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
42	28/12/2023	Groundwater flooding in East Kent	Flood Alert
43	31/12/2023	Upper River Medway Area	Flood Alert
44	31/12/2023	Lower River Medway Area	Flood Alert
45	01/01/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
46	01/01/2024	Rivers Eden and Eden Brook Area	Flood Alert
47	02/01/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
48	02/01/2024	Upper River Stour	Flood Alert
49	02/01/2024	River Bourne from Hadlow to East Peckham	Flood Alert
50	02/01/2024	Middle River Medway Area	Flood Alert
51	02/01/2024	River Teise area from Lamberhurst to Goudhurst	Flood Alert
52	04/01/2024	River Darent from Westerham to Dartford	Flood Alert
53	04/01/2024	River Bourne from Hadlow to East Peckham	Flood Alert
54	04/01/2024	Rivers Eden and Eden Brook Area	Flood Alert
55	04/01/2024	Upper River Medway Area	Flood Alert
56	04/01/2024	Shuttle and Cray	Flood Alert

<b>57</b>	04/01/2024	River Teise area from Lamberhurst to Goudhurst	Flood Alert
<b>58</b>	04/01/2024	River Teise and Lesser Teise area from Horsmonden to Yalding	Flood Alert
<b>59</b>	04/01/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
<b>60</b>	05/01/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
<b>61</b>	05/01/2024	Nailbourne and Little Stour Area	Flood Alert
<b>62</b>	05/01/2024	Lower River Stour	Flood Alert
<b>63</b>	13/01/2024	Isle of Sheppey and Coast from Kemsley to Seasalter	Flood Alert
<b>64</b>	14/01/2024	Coast from Ramsgate to Kingsdown	Flood Alert
<b>65</b>	14/01/2024	Coast from St Margaret's at Cliffe to Sandgate	Flood Alert
<b>66</b>	14/01/2024	Coast from Dartford to Allhallows	Flood Alert
<b>67</b>	14/01/2024	Coast from Whitstable to Margate	Flood Alert
<b>68</b>	14/01/2024	Tidal Medway, Medway estuary and Isle of Grain	Flood Alert
<b>69</b>	15/01/2024	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
<b>70</b>	15/01/2024	Coast from Dartford to Allhallows	Flood Alert
<b>71</b>	15/01/2024	Tidal Medway, Medway estuary and Isle of Grain	Flood Warning
<b>72</b>	25/01/2024	Groundwater flooding in East Kent	Flood Alert
<b>73</b>	31/01/2024	Isle of Sheppey and Coast from Kemsley to Seasalter	Flood Alert
<b>74</b>	02/02/2024	Groundwater flooding in East Kent	Flood Alert
<b>75</b>	08/02/2024	Rivers Eden and Eden Brook Area	Flood Alert
<b>76</b>	08/02/2024	Upper River Medway Area	Flood Alert
<b>77</b>	08/02/2024	River Bourne from Hadlow to East Peckham	Flood Alert
<b>78</b>	08/02/2024	Upper River Stour	Flood Alert
<b>79</b>	08/02/2024	Lower River Stour	Flood Alert
<b>80</b>	08/02/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
<b>81</b>	08/02/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
<b>82</b>	08/02/2024	Middle River Medway Area	Flood Alert
<b>83</b>	08/02/2024	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert

<b>84</b>	09/02/2024	Nailbourne and Little Stour Area	Flood Alert
<b>85</b>	09/02/2024	Groundwater flooding in East Kent	Flood Alert
<b>86</b>	10/02/2024	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
<b>87</b>	11/02/2024	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
<b>88</b>	12/02/2024	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
<b>89</b>	13/02/2024	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier	Flood Alert
<b>90</b>	18/02/2024	River Bourne from Hadlow to East Peckham	Flood Alert
<b>91</b>	18/02/2024	Rivers Eden and Eden Brook Area	Flood Alert
<b>92</b>	18/02/2024	Upper River Medway Area	Flood Alert
<b>93</b>	18/02/2024	Upper River Stour	Flood Alert
<b>94</b>	18/02/2024	River Darent from Westerham to Dartford	Flood Alert
<b>95</b>	18/02/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
<b>96</b>	18/02/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
<b>97</b>	18/02/2024	Lower River Medway Area	Flood Alert
<b>98</b>	22/02/2024	Upper River Medway Area	Flood Alert
<b>99</b>	22/02/2024	Upper River Stour	Flood Alert
<b>100</b>	22/02/2024	Rivers Eden and Eden Brook Area	Flood Alert
<b>101</b>	22/02/2024	Plenty, Swalecliffe and West Brooks	Flood Alert
<b>102</b>	22/02/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
<b>103</b>	22/02/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
<b>104</b>	22/02/2024	Lower River Medway Area	Flood Alert
<b>105</b>	22/02/2024	River Bourne from Hadlow to East Peckham	Flood Alert
<b>106</b>	23/02/2024	Lower River Stour	Flood Alert
<b>107</b>	23/02/2024	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
<b>108</b>	24/02/2024	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
<b>109</b>	25/02/2024	Rivers on the Isle of Sheppey Area	Flood Alert

110	25/02/2024	River Darent from Westerham to Dartford	Flood Alert
111	25/02/2024	Upper River Medway Area	Flood Alert
112	25/02/2024	Rivers Eden and Eden Brook Area	Flood Alert
113	25/02/2024	Upper River Stour	Flood Alert
114	25/02/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert
115	25/02/2024	River Teise and Lesser Teise area from Horsmonden to Yalding	Flood Alert
116	25/02/2024	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Flood Alert
117	25/02/2024	Plenty, Swalecliffe and West Brooks	Flood Alert
118	25/02/2024	River Bourne from Hadlow to East Peckham	Flood Alert
119	25/02/2024	Middle River Medway Area	Flood Alert
120	25/02/2024	River Teise and Lesser Teise area from Horsmonden to Yalding	Flood Alert
121	25/02/2024	Middle River Medway Area	Flood Alert
122	25/02/2024	Lower River Stour	Flood Alert
123	25/02/2024	Hamstreet Arm Area	Flood Alert
124	26/02/2024	New Romney Sewage Arm Area	Flood Warning
125	26/02/2024	East Stour from Sellinge to East Ashford	Flood Warning
126	26/02/2024	New Romney Sewage Arm Area	Flood Alert
127	28/02/2024	Grove Ferry and Plucks Gutter	Flood Warning
128	28/02/2024	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
129	29/02/2024	Tidal Stour Area from Fordwich to Stonar Cut	Flood Alert
130	29/02/2024	Grove Ferry and Plucks Gutter	Flood Warning
131	01/03/2024	Groundwater flooding in East Kent	Flood Alert
132	01/03/2024	Rivers Eden and Eden Brook Area	Flood Alert
133	01/03/2024	Upper River Medway Area	Flood Alert
134	01/03/2024	Upper River Stour	Flood Alert
135	01/03/2024	Lower River Medway	Flood Alert
136	01/03/2024	Lower River Stour	Flood Alert
137	02/03/2024	River Darent from Westerham to Dartford	Flood Alert
138	02/03/2024	River Rother and its tributaries from Turks Bridge to the Royal Military Canal	Flood Alert

**Appendix 2: Met Office Severe Weather Warnings – 1<sup>st</sup> June to 3<sup>rd</sup> November 2023**

<b>Weather Element</b>	<b>Number of Warnings</b>	<b>No of Different Events</b>	<b>Dates covered by Events</b>
<b>Rain</b>	<b>14</b>	<b>7</b>	<b>3<sup>rd</sup> December, 8<sup>th</sup> January, 8<sup>th</sup> – 9<sup>th</sup> January 17<sup>th</sup> – 18<sup>th</sup> January</b>
<b>Thunderstorm</b>	<b>2</b>	<b>1</b>	<b>14<sup>th</sup> November</b>
<b>Wind</b>	<b>12</b>	<b>5</b>	<b>27<sup>th</sup> December, 30<sup>th</sup> – 31<sup>st</sup> December, 2<sup>nd</sup> January, 21<sup>st</sup> – 22<sup>nd</sup> January, 22<sup>nd</sup> February</b>
<b>Snow and Ice</b>	<b>1</b>	<b>1</b>	<b>1<sup>st</sup> – 2<sup>nd</sup> December</b>
<b>Ice</b>	<b>4</b>	<b>4</b>	<b>3<sup>rd</sup> December, 8<sup>th</sup> January, 8<sup>th</sup> – 9<sup>th</sup> January, 17<sup>th</sup> – 18<sup>th</sup> January</b>

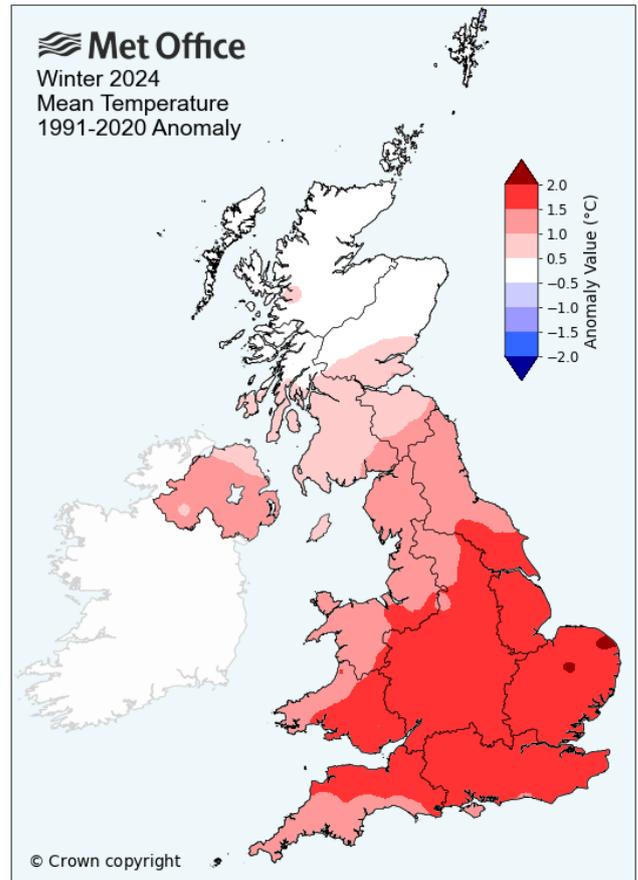
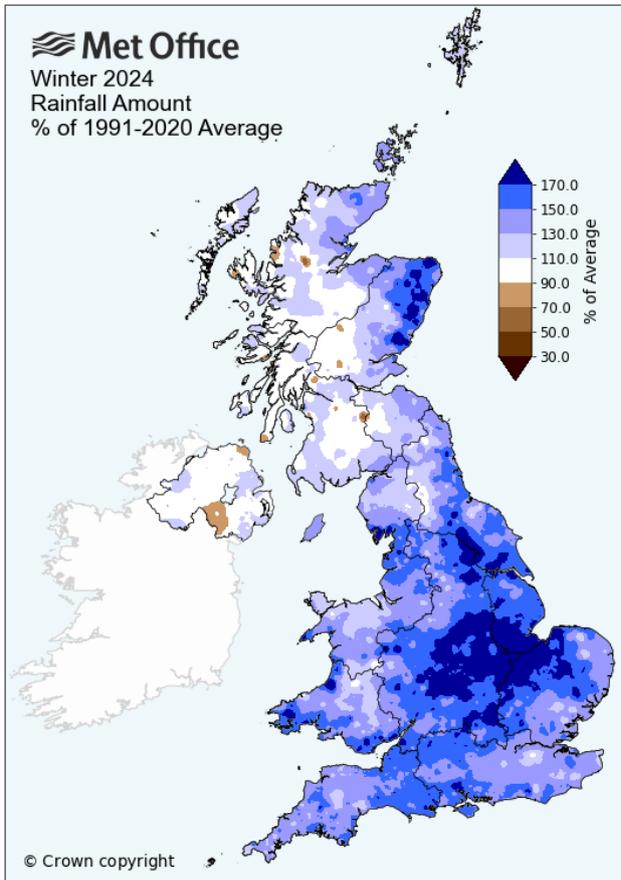
**Appendix 3: Environment Agency Thames Barrier closures since 12<sup>th</sup> July 2023**

<b>No.</b>	<b>Thames Barrier closures</b>	<b>Date</b>	<b>Status</b>
<b>1</b>	Thames Barrier closed	23/11/23	Operational
<b>2</b>	Thames Barrier closed	04/12/23	Operational
<b>3</b>	Thames Barrier closed	13/01/24	Operational
<b>4</b>	Thames Barrier closed	14/01/24	Operational
<b>5</b>	Thames Barrier closed	15/01/24	Operational
<b>6</b>	Thames Barrier closed	10/02/24	Operational
<b>7</b>	Thames Barrier closed	11/02/24	Operational
<b>8</b>	Thames Barrier closed	12/02/24	Operational
<b>9</b>	Thames Barrier closed	13/02/24	Operational
<b>10</b>	Thames Barrier closed	24/02/2024	Operational

## Appendix 4: Met Office Winter Statistics

### England Stats:

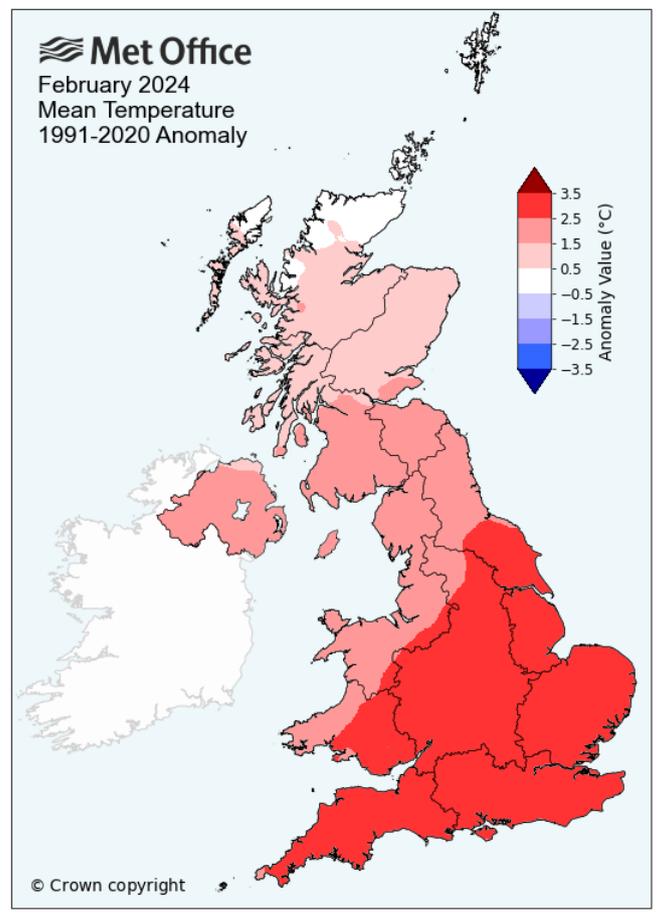
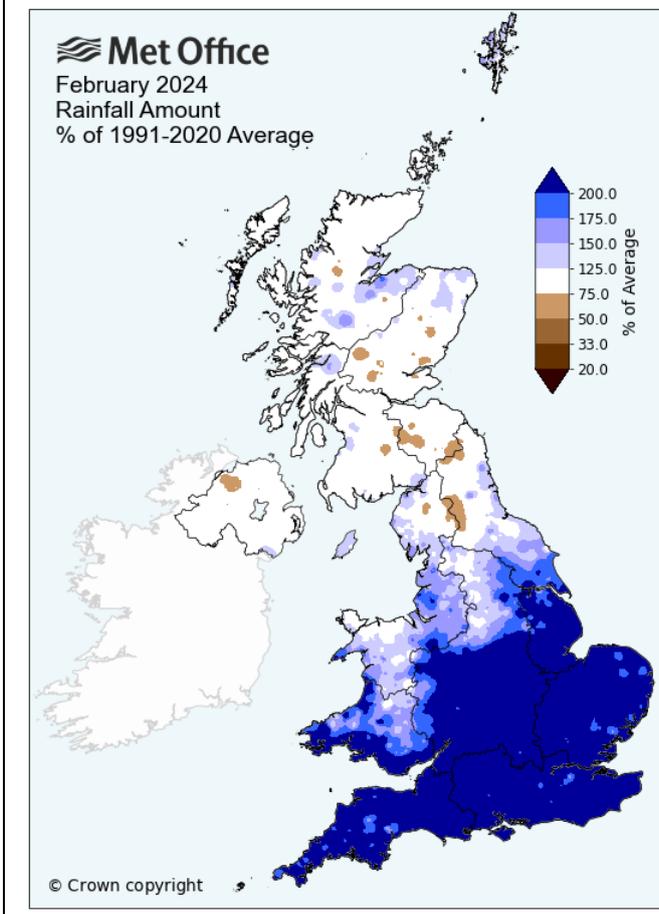
- Winter 2023/24 = Mild and Wet
- Rainfall = 149% of Long-Term Average
- Temperature = +1.7 Celsius



## Appendix 4: Met Office February Statistics

### England Stats:

- February 2024 = Mild and Wet
- Rainfall = 196% of Long-Term Average
- Temperature = +2.9 Celsius



## Appendix 4: Met Office Kent Statistics – November to February

Compared to 1991-2020 Long-Term Average

Month	Rain <sup>1</sup>	Mean Temp <sup>1</sup>
November	161%	+0.1 C
December	113%	+2.3 C
January	84%	-0.1 C
February	242%	+3.2 C

