

## Appendix D Summary of the weather conditions (bound separately)

Table D.1 gives a summary of the weather conditions observed by the Met Office during the periods of measurement used in this project. The following weather conditions were used to assist in the interpretation of the results.

Date	Met office comments
1 <sup>st</sup> - 8 <sup>th</sup> March 2005	<p>England and Wales: Cold and wintry with winds blowing from the north to the north east. Significant amount of snow cover throughout the UK and was generally overcast.</p> <p>Scotland: Cold northerly winds with snow falling in most places. There were some sunny periods in the south from the 7<sup>th</sup></p>
9 <sup>th</sup> – 13 <sup>th</sup> March 2005	<p>England and Wales: Milder weather with very little snow fall (overcast with sunny spells).</p> <p>Scotland: Cold winds across the south but remained bright</p>
14 <sup>th</sup> – 20 <sup>th</sup> March 2005	<p>England and Wales: Mild wet weather during first part of the week (over cast with sunny spells) particularly in Wales. On the 18<sup>th</sup> an area of high pressure settled over the south of England bringing sunny and warm weather to many areas except to coastal parts where it was overcast.</p> <p>Scotland: From the 15<sup>th</sup> there was a complete change in the weather with very mild south-westerly winds blowing across Scotland with overcast and sunny spells bringing warmer temperatures. From the 18<sup>th</sup> to the 20<sup>th</sup> an area of high pressure settled bringing brighter and drier weather.</p>
21 <sup>st</sup> – 30 <sup>th</sup> March 2005	<p>England and Wales: Return to more unsettled weather but remained mild. Wet and overcast in most places.</p> <p>Scotland: From the 21<sup>st</sup> to the 25<sup>th</sup> it remained mild and bright with some brief spells of rain and cloud. A spell of low pressure brought dull and gloomy weather over Scotland with any bright weather restricted to the west coast.</p>
1 <sup>st</sup> April - 4 <sup>th</sup> April 2005	<p>England and Wales: High pressure in the south brought dry, warm and sunny weather until the 4<sup>th</sup> where a weather front pushed in bringing dull overcast and wet weather</p> <p>Scotland: Warm southerly winds blew across Scotland with bright sunny weather until the 4<sup>th</sup> where a depression brought cold and showery conditions but remained sunny.</p>

<p>Nov 2005 E&amp;W</p>	<p>The first half of the month was unsettled and warm, while the second half was cold and increasingly wintry with some significant snow, fog and frost. Overall, it was a very sunny month, with sunshine figures exceptionally above average.</p> <p>1st to 12th: The first 12 days were largely dominated by mild west to south-westerly winds as a series of Atlantic depressions crossed the north of the UK. This weather pattern brought some notable wet and windy weather as well as some unseasonably high temperatures. The focus of the heaviest rain and strongest winds was across the west of England and Wales. Capel Curig (Gwynedd) recorded 131 mm (5 inches) of rain during the first five days of the month. On the 6th a cold front spread south across the UK, giving almost 50 mm (2 inches) of rain at Cardinham near Bodmin (Cornwall). Gusts of wind regularly exceeded 50 m.p.h. across exposed western parts, and on the 3rd a gust of almost 70 m.p.h. was recorded at Mumbles (Swansea). Temperatures peaked at 18.9 °C at Preston (Lancashire) on the 2nd. Any overnight frost was very isolated. Thunder was an additional element of the weather, mainly in association with the heavier rain in the west. Despite the unsettled weather, Bognor Regis (West Sussex) and Hunstanton (Norfolk) recorded over eight hours of sunshine on the 4th and 5th respectively.</p> <p>13th to 23rd: The Azores high pressure built across the UK on the 13th to give a brief spell of more settled weather. Along with plenty of sunshine, there was some overnight frost and fog. On the 15th, low pressure running into Scandinavia swept weather fronts south across England and Wales. This allowed a fairly cold and showery northerly to develop, before pressure built from the north to give a prolonged period of settled autumn weather, lasting from the 18th to the 23rd. Fog and penetrating frosts were frequent occurrences, and low daytime temperatures were recorded where any overnight fog was slow to clear. Fog lingered all day in parts of Oxfordshire and Worcestershire on the 19th, and more generally across England and Wales the following day. On the 19th and 20th the temperature remained below freezing all day at Pershore (Worcestershire), and on the 23rd low cloud and fog persisted across central and northern England. Leeming (North Yorkshire) only reached -0.5 °C in the extensive fog on the 23rd, and at the start of that day Redesdale Camp (Northumberland) recorded a sharp frost with a temperature of -8.7 °C. Despite the fog and low cloud, there was plentiful sunshine, with southern England reporting the highest values. Hastings (East Sussex) was sunniest on the 17th and 18th, recording 8.5 hours on both days.</p>
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	<p>24th to 30th: The 24th saw a dramatic change in the weather as two cold fronts swept south across England and Wales, introducing a brisk northerly airstream of Arctic origin. There was a substantial drop in pressure from around 1038 mb on the 23rd to 992 mb by midday on the 25th. The second cold front gave widespread squally winds, with gusts exceeding 50 m.p.h. in places. In the wake of the weather fronts, plenty of blustery showers developed, especially across Wales, East Anglia and the West Country. Some of the showers turned wintry, with sleet or snow, especially over hills where temporary blizzard conditions were observed. 5 to 10 cm of lying snow was reported in west Wales, Devon and Cornwall on the 25th. The snow caused significant traffic disruption along the Bodmin Moor section of the A30. The cold wintry weather continued into the closing stages of the month, with sleet or snow showers widely reported on the 28th. The Gloucestershire area saw some significant snowfall, which once again brought some traffic disruption. As the strong northerly winds eased, penetrating frosts became an increasing feature. Woodford (Greater Manchester) recorded -7.7 °C on the morning of the 29th. The 30th then saw a warm front spreading in from the west, slowly introducing milder air. A consequence of this was a temporary spell of freezing rain across more northern parts of England and Wales.</p>
<p>Nov 2005 Scotland</p>	<p>Mild and unsettled weather off the Atlantic dominated the first part of November with two significant gales. The second half of the month experienced northerly or anticyclonic conditions so that it was much colder with some snow.</p> <p>During the first four days a depression moved slowly north-east across the British Isles bringing a band of rain followed by showers. The main feature of the weather was the mildness with the night-time temperature staying above 10 °C in some places and rising to 16 °C at Edinburgh on the 3rd.</p> <p>From the 5th to the 11th a series of depressions passed to the north of Scotland bringing mild and changeable weather with rain or showers, heavy in the north-west. Notable gales took place on the 8th and 11th, when gusts at South Uist reached 97 m.p.h. and 92 m.p.h. respectively. The first event was associated with a small and rapidly moving depression whose effects were limited to the north-west. The second was caused by a major depression and affected most of the country.</p> <p>Winds turned into the north-west on the 12th after the last depression moved away, bringing much colder weather. This first outbreak of air from the north was soon replaced by mild and humid air from the west, with the temperature rising to 15 °C at Aberdeen.</p> <p>Northerly winds were renewed on the 15th, bringing sun to the south and wintry showers to the north. High pressure gradually built from the west, bringing sunny days and frosty nights with the temperature falling to -9 °C at Tulloch Bridge on the 18th.</p> <p>The anticyclone settled down over England from the 19th to the 23rd bringing milder air and cloud from the west at times. On the 21st the minimum temperature was 11 °C at Rackwick and Barra. Further south and east there were clear skies at times with the temperature falling to -7 °C at Tulloch Bridge on the 22nd.</p>

<p>Nov 2005 Scotland</p>	<p>From the 24th to the 26th a depression developed over Norway and moved south to the Netherlands, bringing a burst of strong northerly winds and bands of precipitation. Snow showers affected the north on the 24th, with 15 cm accumulating at Aviemore. On the 25th the precipitation turned to rain in the north but a band of snow affected some central and southern parts, with 12 cm at Carluke. Winds gusted to 88 m.p.h. at Kirkwall. The next day was less cold and windy with rain in the east dying out.</p> <p>Northerly winds continued from the 27th to 29th, bringing much bright weather but with snow showers in the north-east. Milder weather with cloud and a little rain arrived from the west on the 30th.</p>
<p>Dec 2005 E&amp;W</p>	<p>Unsettled and mild at first. Briefly colder mid-month with some wintry showers in the east. Much colder late in the month with some substantial snowfall in eastern England 27th to 30th.</p> <p>1st to 6th: It was an unsettled first week to the month with temperatures close to normal. Strong southerly winds on the 1st gave a gust of 62 knots at Brixham (Devon) and western parts had some heavy rain. Low pressure dominated the weather through to the 6th. A deep depression moved into the south-west on the 2nd, central pressure 960 hPa at midday and the wind gusted to 69 knots on the Isle of Portland (Dorset) and 63 knots at Brixham (Devon). Bands of rain or showers swept across England and Wales over the next few days with the distribution varying day by day. At Odiham (Hampshire) 36.8 mm of rain was logged in the 24 hours to 1800 on the 2nd. Western and southern coasts were sunny on the 4th with 7.1 hours of sunshine recorded at Falmouth (Cornwall). The wind eased by the 5th as the low centre filled.</p> <p>7th to 10th: A weak ridge of high pressure early on the 7th gave widespread frost and fog, and in parts of Kent and Sussex the fog lingered all day. Heavy rain reached the west later and some rain crossed all parts overnight. Trawscoed (Ceredigion) reported 28.4 mm in the 24 hours to 1800 on the 8th. Slack winds on the 9th allowed patchy fog and frost to develop with some dense and freezing fog in places. It was mild generally but cold in the south-east of England, where fog lingered all day in places. High pressure on the 10th gave a generally dry day with some sunshine in the south. It was exceptionally mild in parts of the west and a maximum of 13.5 °C was reached at Prestatyn (Denbighshire).</p> <p>11th to 15th: High pressure was established to the south on the 11th giving westerly winds for most. Fog lingered all day in parts of the West Country and was loathe to clear in central parts of England. The temperature only reached 2.5 °C at Benson (Oxfordshire). A smoke plume from a big oil depot fire at Buncefield (Hertfordshire) affected London and parts of southern England on the 11th and 12th. A cold front spread south overnight and the next morning, lifting fog and low cloud from southern counties. A few showers followed in its wake over eastern England. High pressure then gave a couple of days of generally dry weather with variable cloud.</p>

<p>Dec 2005 E&amp;W</p>	<p>16th to 17th: A cold front brought some rain southwards on the 16th followed by northerly winds and some showers along western and east coast fringes. There was some hail in the east and a covering of snow in parts of Norfolk by dawn on the 17th. Hail and snow showers were frequent along the east coast of England as far as East Anglia on the 17th but many places were sunny. Wales and south-west England had some light rain. At Warcop Range (Cumbria) the temperature stayed below freezing all day.</p> <p>18th to 20th: There was a weak ridge on the 18th and then a warm front spread into the west giving some heavy rain in places in the evening with this spreading across southern parts overnight but decaying as it did so. The 19th was dry and largely sunny but there were some showers over south-west England. There was some fog early and late. High pressure to the south on the 20th gave a widespread frost with some fog patches across more south-eastern parts. It was mainly dry and cloudy through the day.</p> <p>21st to 24th: This period was typified by mild and mainly cloudy weather. There was some rain in places but more especially in northern parts. There was some sunshine on the 23rd over east Wales, the West Midlands and north-east England where it became very mild. Hawarden (Flintshire) had a maximum temperature of 13.1 °C on the 23rd. Some rain spread south on the 24th clearing the patchy fog in the south that had formed overnight.</p>
<p>Dec 2005 E&amp;W</p>	<p>25th to 29th: An anticyclone became established on the 25th and pressure remained relatively high for the next few days. There was some patchy rain on the 25th and later in the day showers moved into East Anglia. Some rain edged east on the 26th across England but petered out before it reached Wales. Sunny spells and showers followed in its wake and the showers turned wintry over Essex and Kent where the snow settled. It turned colder over the next couple of days with east to north-east winds across England and Wales. Further wintry showers affected eastern England from the Humber to East Sussex and across the Pennines on the 27th. There were reports of 10 cm of snow in Rye (East Sussex), 15 to 18 cm of snow around Folkestone (Kent). The following day, wintry showers continued in eastern coastal counties of England with 8 cm of snow reported in Ipswich (Suffolk), 10 cm in Lincolnshire and 15 cm in Northumberland. Western parts were largely sunny. The mornings of the 28th and 29th brought a locally severe frost with minus 8.2 °C at Benson (Oxfordshire) on the 28th, minus 10.6 °C at Albemarle (Northumberland) and minus 9.2 °C at Hurn Airport (Dorset) on the morning of the 29th. Many places stayed below freezing on the 29th. At Durham the maximum was minus 3.9 °C and in central London the maximum to 2100 was just 0.9 °C. The showers in the east eventually petered out. Outbreaks of rain, sleet and snow spread into western parts in the afternoon and evening.</p>
<p>Dec 2005 E&amp;W</p>	<p>30th to 31st: Rain, sleet and snow spread east overnight and through the day followed by some heavy rain. The snow was last to clear from north-east England and at Redesdale (Northumberland) the maximum was just 0.4 °C, while several places reached 12 °C in south-west England. The snow caused some travel disruption with 200 vehicles stranded on the A1079 in East Yorkshire for a time. Many areas were milder on the 31st. There were showers in the west but some persistent fog in the north-east of England until dusk.</p>

<p>Dec 2005 Scotland</p>	<p>After the first week, a large anticyclone was never far from Scotland, giving a dry month to much of the country. Mild weather from the Atlantic predominated, but cold weather from the east arrived to give a frosty Christmas week.</p> <p>On the first two days low pressure moved south-east from the Atlantic to the English Channel. Mild and humid air of southerly origin covered Scotland and it was cloudy with outbreaks of rain.</p> <p>The low pressure moved slowly across the North Sea between the 3rd and 6th, with light winds over Scotland veering from east to north. The weather was mostly cloudy but outbreaks of rain in the east were replaced by sunny periods in the west and south later.</p> <p>Fronts from the Atlantic approached slowly from the south-west on the 7th and 8th. It was cloudy in the south-west with 30 mm of rain at Port Ellen on Islay on the 7th. It stayed fine in the north-east with the temperature falling to -6 °C at Altnaharra.</p> <p>High pressure developed over Europe from the 9th to the 11th and warm and humid south-westerly winds covered Scotland. Maximum temperatures of 14 °C were reached somewhere on all three days and on the 11th minima of 11 °C were widely reported.</p>
<p>Dec 2005 Scotland</p>	<p>Between the 12th and 15th the anticyclone retreated west to the mid-Atlantic, and a north-westerly airstream affected Scotland. This brought mostly cloudy weather with outbreaks of rain to the north-west but some sunny intervals to the south-east. On the 14th winds gusted to 69 m.p.h. at Sella Ness on Shetland.</p> <p>On the 16th and 17th winds of Arctic origin spread south across Scotland, bringing sunny periods to the south and wintry showers to the north. By the morning of the 18th the temperature had fallen to -9 °C at Aboyne.</p> <p>A large anticyclone was centred over France from the 18th to the 24th and changeable, mostly mild and benign, westerly weather affected Scotland. However, winds gusted to 74 m.p.h. at Sella Ness on the 21st.</p> <p>By Christmas Eve the anticyclone transferred to Scotland and then moved towards Siberia while maintaining a ridge to Scotland. Sunny weather with fog patches and night frost prevailed on Christmas Day. Between the 26th and 29th some snow showers affected the east but it remained fine in most places, although very cold with the temperature falling to -13 °C at Aviemore.</p> <p>An Atlantic depression pushed fronts across the country on the 30th, accompanied by a period of snow and rain and followed by milder, showery conditions.</p>

<p>Jan 2006 E&amp;W</p>	<p>Generally it was a dry month across England and Wales but there was a period of wet and windy weather for Wales and western counties between the 9th and 16th.</p> <p>1st to 4th The first few days of January were changeable with some light rain at times, and on the whole rather cloudy. It was mild over south-west England with Teignmouth (Devon) recording 13.9 °C on the 3rd. Frost was a problem overnight where the cloud broke, Coltishall (Norfolk) reporting a night minimum temperature of -3 °C on the 3rd/4th.</p> <p>5th to 8th A ridge of high pressure built across England and Wales from Scandinavia, keeping many places dry but still on the cloudy side. During the 8th an occluded front pushed into southern counties of England bringing some heavy bursts of rain in places.</p> <p>9th to 16th It became much more unsettled over Wales and western counties of England during this period as a series depressions ran in off the Atlantic. Capel Curig (Gwynedd) recorded 62.3 mm of rain in the 24 hours ending 1800 on the 10th and Shap Fell (Cumbria) 34.4 mm the following day. On the 14th some heavy bursts of rain moved northwards across Devon and Cornwall with Cardinham (Cornwall) receiving 20.4 mm of rain. The very cold air over the near Continent blocked the progress of the rain eastwards, hence eastern counties of England had very little rainfall.</p> <p>17th to 19th Some of the warmest temperatures of the month were recorded during this period as strong and mild south-westerly winds flooding in off the Atlantic. Temperatures reached 13.7 °C at Bognor Regis (West Sussex) on the 18th and 13.9 °C at Great Malvern (Worcestershire) on the 19th. Capel Curig (Gwynedd) reported a gust of 61 knots at 0100 on the 20th.</p> <p>20th to 31st High pressure dominated this period with very little rainfall being recorded, although during the afternoon of the 27th an area of sleet and snow pushed into East Anglia and Kent and spread westwards into the West Country overnight. Slight accumulations were reported in places. It saw also a cold spell of weather with maximum temperatures of 2.2 °C at Credenhill (Herefordshire) on the 22nd and 1.2 °C at Woburn (Bedfordshire) on the 24th. The nights were cold as well with some very sharp frosts, -8.7 °C at Redhill (Surrey) on the 25th and -7.5 °C at Shap Fell (Cumbria) on the 29th.</p>
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<p>Jan 2006 Scotland</p>	<p>Anticylonic and dry at the start and end. Unsettled southwesterly mid-month.</p> <p>1st to 8th: Pressure rose across Europe and high pressure became established near the Baltic, giving southerly winds over Scotland. The weather was dry but cloudy with temperatures falling slowly from a mild start. On the 8th the cloud cleared and the overnight temperature fell to -9 °C at Aboyne.</p> <p>9th to 20th: The high pressure retreated to the south-east and depressions moved north-east from the Atlantic to the Norwegian Sea. Over Scotland the weather was unsettled with fronts and strong south-westerly winds bringing mild and wet conditions on 9th/10th, 12th/13th and 18th/19th. On the 9th/10th 69 mm of rain fell at Sloy, the wind gusted to 85 m.p.h. at Lerwick and the temperature reached 14 °C at Machrihanish. On the 12th 30 mm of rain fell at Tulloch Bridge and gusts reached 78 m.p.h. at South Uist. On the 18th/19th 66 mm of rain fell at Aultbea and temperatures reached 14 °C at Aviemore and some other stations. On other days the weather was more showery and a ridge of high pressure gave a fine day on the 14th.</p> <p>21st to 31st: High pressure re-established itself over Russia until the 24th and then transferred to be near Scotland. The weather was again dry and mostly cloudy with temperatures falling slowly after a mild start. On the 29th the cloud cleared from the south and overnight temperatures fell to -12 °C in Highland Glens. Fog formed in the central lowlands and south-west with a maximum temperature of -3 °C at Eskdalemuir on the 30th. However, most places retained sunny skies by day with temperatures rising to 10 °C on the mountain tops.</p>
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Table D.1