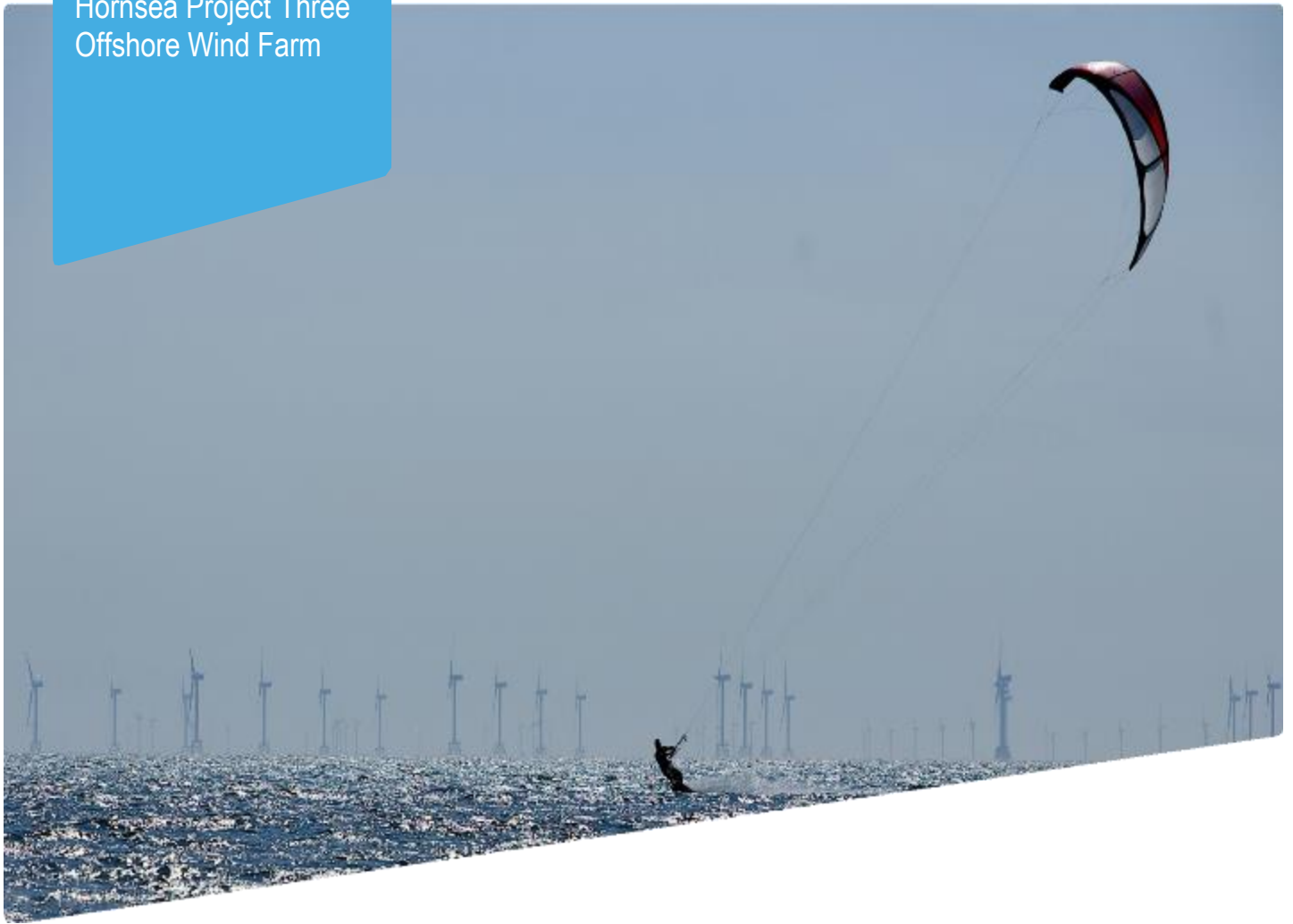


Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three Offshore Wind Farm

Appendix 21 to Deadline 7 submission - Assessment of
Airborne Radar Approaches to Spirit Energy operated
platforms potentially restricted by Hornsea Three using J6A
and Met Office data

Date: 14th March 2019

Hornsea 3
Offshore Wind Farm

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Acronyms

Acronym	Description
ARA	Airborne Radar Approach
CAA	Civil Aviation Authority
EIA	Environmental Impact Assessment
Ex.A	Examining Authority
IMC	Instrument Meteorological Conditions
NUI	Normally Unmanned Installation
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

1. Executive Summary

- 1.1 This technical note provides a validation of the assessment on Airborne Radar Approaches (ARA) to Spirit Energy platforms considered in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (APP-113) with meteorological data from the J6A platforms (J6A data) provided by Spirit Energy (email 18 January 2019)
- 1.2 The J6A data set has been used to provide:
- A calculation of the percentage of days that Visual Flight Rules (VFR), en route and shuttle flights are available to the Chiswick and Grove platforms;
 - A calculation of the percentage of days ARAs are required to be flown to the Chiswick and Grove platforms;
 - The percentage of days that, at the current time, flights are restricted due to cloud base, visibility, wave height, wind speed and icing conditions; and
 - The percentage of days that ARAs could be restricted by the presence of Hornsea Three.
- 1.3 The analysis has also enabled:
- The Instrument Meteorological Conditions (IMC) assumption of 5% used by the Applicant in within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement to be tested against the J6A data set; and
 - The IMC values obtained in the J6A data set to be used to test the results of the number of days flights are restricted to the Chiswick and Grove platforms presented in Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement (APP-068).
- 1.4 It should be noted that since the drafting of this report the Applicant has had a consultation meeting with Spirit Energy (13 March 2019) in order to reach agreement on the analysis and methodology applied to the J6A data. The meeting has been able to deliver a joint position on the assumptions used and methodology applied (Appendix 45 of Deadline 7 submission). Broad agreement has been reached on the weather criteria and the availability of flights. The meeting has identified why there remain differences between the number of days affected by Hornsea Three presented by the Applicant and Spirit Energy. As an outcome of the meeting the Applicant is intending to refine their analysis of the J6A data, including the addition of circling ARA and the icing criteria of the CHC helicopters. The Applicant notes that some of the results presented in the following sections may therefore potentially be modified by these adjustments however the adjustments are not anticipated to be significant nor to result in any substantial change to the number of days affected by Hornsea Three.
- 1.5 It should be noted that the Applicant does not consider the J6A dataset provided to be robust, primarily as it is taken at 3 hourly intervals for a one-year period, however it has used it to facilitate agreement with Spirit Energy as this has been used by Spirit Energy in their submissions to the ExA. The Applicant has used one event to dictate whether IMC criteria are met (i.e. it assumes the worst weather conditions for the day).

- 1.6 The Applicant has also analysed the IMC weather minima requiring ARA approaches using an 18 year Met Office data set for the closest Met Office monitoring station (Platform 62145 at location 53.1°N 02.8°E) in the southern North Sea. The analysis has been used as a further test of the IMC assumption of 5% used by the Applicant within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement.
- 1.7 The meteorological criteria which have been applied to determine flight operations is illustrated schematically in Figure 1.1 for day time flights.
- 1.8 IMC conditions requiring an ARA is considered by the Applicant as the weather minima when VFR, en route and shuttle flights are not available, and outside of the current restrictions due to weather (cloud base and visibility), sea state, wind speed and icing conditions.
- 1.9 Figure 1.1 illustrates the relatively small amount of time when only ARA are is required and can be flown, when weather conditions restrict other flight approaches (e.g., en route and shuttling) or preclude flying altogether.

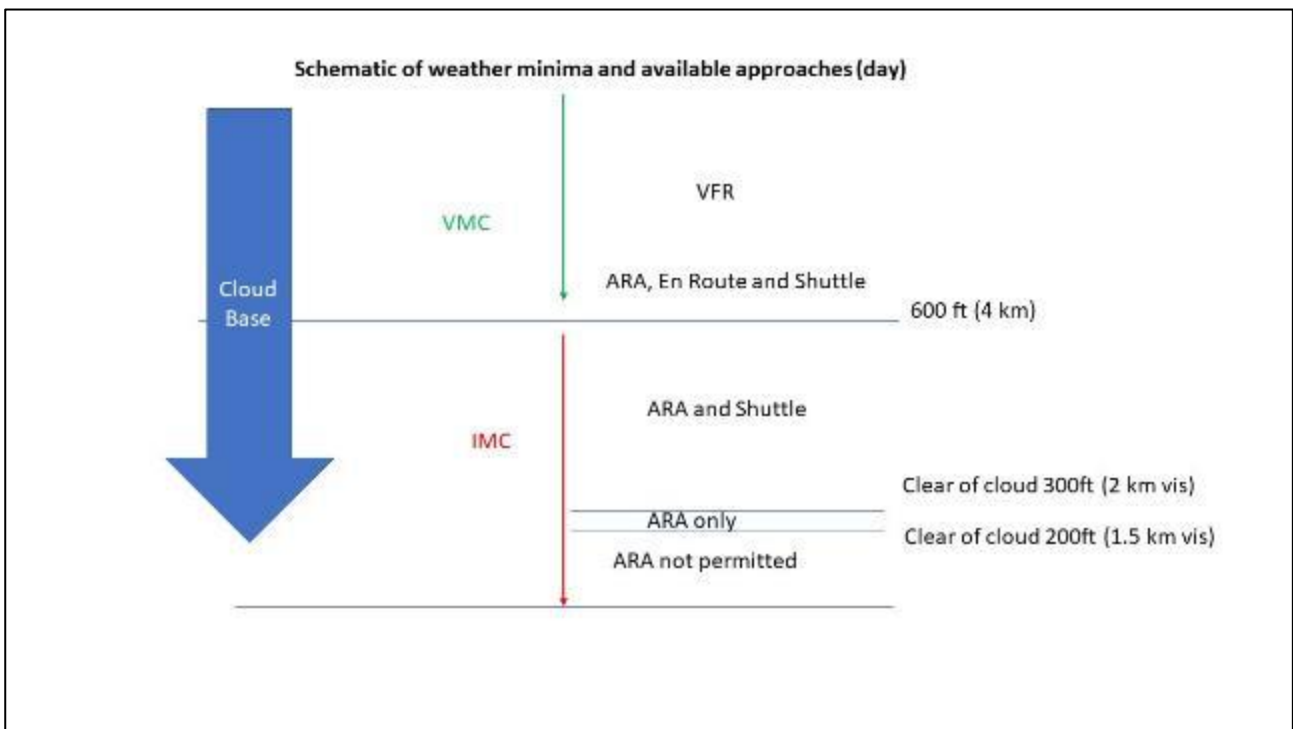


Figure 1.1: Schematic of weather minima and available approaches (day) (not to scale).

- 1.10 The results of the analysis using the J6A data are summarised below in Table 1.1 for day and Table 1.2 for night, with the weather criteria used.

Table 1.1: Summary Annual percentage flight availability (day)

Scenario	Criteria required (day)	Annual average day (%)	Monthly range day (%) minimum	Monthly range (%) maximum
VFR, en route and shuttle (and ARA) available	Cloud base greater than or equal to 600ft and Visibility greater than or equal to 4 km	82.6	58 (April)	95.7 (August)
Shuttle (and ARA) available	Clear of Cloud at 300 ft and visibility greater than or equal to 2km	10.4	0 (February)	20.3 (April)
ARA available	Cloud base greater than or equal to 200ft and visibility greater than or equal to 1.5 km)	0.3	0 (February / March)	9.4 (April)
Flight restricted due to weather	Sea state greater than or equal to 6 m SWH (significant wave height) and/or wind speed greater than or equal to 60 knots and icing conditions. ARA lower limits are set in accordance with requirement to descend to 200 ft day and being able to see platform from MAP 3/4 nm.	6.7	0 (August)	29.5 (February)
Flight restricted due to Hornsea Three	All easterlie wind directions considered to result in restricted approaches due to Hornse Three	1.1	0 (February, June, July August)	4 (May)

Table 1.2: Summary Annual percentage flight availability (night)

Topic	Criteria required (night)	Annual average night (%)	Monthly range (%) minimum	Monthly range (%) maximum
VFR, en route and shuttle (and ARA) available	VMC Night: Cloud base greater than or equal to 1200ft and visibility greater than or equal to 5 km	85	67.9 (April)	93.7 (July)
Shuttle (and ARA) available	VMC (shuttle) Night: Clear of Cloud at 500 ft and visibility greater than or equal to 5 km	4.1	0 (February)	10.8 (December)
ARA available	Cloud base greater than or equal to 300ft and visibility greater than or equal to 1.5 km)	5.8	0 (February)	18.2 (April)

Flight restricted due to weather*	Sea state greater than or equal to 6 m SWH (significant wave height) and/or wind speed greater than or equal to 60 knots and icing conditions. ARA lower limits are set in accordance with requirement to descend to 200 ft day and 300 ft night and being able to see platform from MAP (3/4 nm).	5.1	0 (August and November)	21.1 (March)
Flight restricted due to Hornsea Three**	All easterlie wind directions considered to result in restricted approaches due to Hornse Three	2.1	0 (August and November)	8.88 (April)

- 1.11 The results of the annual average percentage of days that ARAs are restricted (to either the Grove or Chiswick platform) by the presence of Hornsea Three is 1.1% (day) and 2.1% (night).
- 1.12 The analysis using the J6A data has demonstrated that the IMC criteria of 5% as used by the Applicant in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement is comparable to the IMC annual average criteria derived from the J6A data set (one year) and from the Met Office data set (18 years). There is a greater range in IMC conditions when monthly data is analysed.
- 1.13 The analysis has demonstrated that by applying the J6A data IMC criteria, the revised results for the analysis in Volume 5, Annex 8.1: Aviation, Military and Communications Technical Report of the Environmental Statement provide a comparable total number of day that ARA flights may be restricted to the Chiswick and Grove platforms as a result of Hornsea Three.
- 1.14 The results from the J6A data show that ARA flights to the Chiswick platform are restricted by the presence of Hornsea Three (for day) for approximately 0 to 0.76 days per month (up to 2.17 days per year) which is less than the value reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (i.e. up to 3.49 days per year) and so this restriction is considered to remain a low occurrence.
- 1.15 The results from the J6A data show that ARA flights to the Chiswick platform are restricted by the presence of Hornsea Three (for night) for approximately 0 to 1.47 days per month (up to 4.13 days per year). A night value was not reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement as flights were not authorised to the Chiswick or Grove platforms at the time of submission of the Environmental Statement. This value is considered a low occurrence.
- 1.16 The results from the J6A data show that ARA flights to the Grove platform are restricted by the presence of Hornsea Three (for day) for approximately 0 to 0.47 days per month (up to 1.31 days per year) which is less than the value reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (up to 2.14 days per year) and so this restriction is considered to remain a low occurrence.

- 1.17 The results from the J6A data show that ARA flights to the Grove platform are restricted by the presence of Hornsea Three (for night) for approximately 0 to 0.9 days per month (up to 2.29 days per year). A night value was not reported in the Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement as flights were not authorised to the Chiswick or Grove platforms at the time of submission of the Environmental Statement. This value is considered a low occurrence.

2. Introduction

- 2.1 Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (APP-113) considered the effect of Hornsea Three operation on Airborne Radar Approaches (ARA) to Spirit Energy platforms, using ten year wind data from the Schooner platform southern North Sea. This note provides a validation of the assessment within the Environmental Statement using meteorological data from the J6A platforms (J6A data) provided by Spirit Energy (email 18 January 2019) to assess the percentage of ARA flights to the Chiswick and Grove platforms, potentially restricted by Hornsea Three.
- 2.2 The J6A data set was used with the aim of reaching agreement with Spirit Energy on the results presented in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement. The J6A data set has enabled:
- A calculation of the percentage of days that Visual Flight Rules (VFR), en route and shuttle flights are available to the Chiswick and Grove platforms;
 - A calculation of the percentage of days ARA's are required to be flown to the Chiswick and Grove platforms;
 - The percentage of days (current) flights are restricted due to cloud base, visibility, wave height, wind speed and icing conditions; and
 - The percentage of days that ARA's could be restricted by the presence of Hornsea Three.
- 2.3 The analysis has also enabled:
- The Instrument Meteorological Conditions (IMC) assumption of 5% used by the Applicant in within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement to be tested against the J6A data set; and
 - The IMC values obtained in the J6A data set to be used to test the results of the number of days flights are restricted to the Chiswick and Grove platforms presented in Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement (APP-068).
- 2.4 It should be noted that since the drafting of this report the Applicant has had a consultation meeting with Spirit Energy (13 March 2019) in order to reach agreement on the analysis and methodology applied to the J6A data. The meeting has been able to deliver a joint position on the assumptions used and methodology applied (Appendix 45 of Deadline 7 submission). Broad agreement has been reached on the weather criteria and the availability of flights. The meeting has identified why there remain differences between the number of days affected by Hornsea Three presented by the Applicant and Spirit Energy. As an outcome of the meeting the Applicant is intending to refine their analysis of the J6A data, including the addition of circling ARA and the icing criteria of the CHC helicopters. The Applicant notes that some of the results presented in the following sections may therefore potentially be modified by these adjustments however the adjustments are not anticipated to be significant nor to result in any substantial change to the number of days affected by Hornsea Three.

- 2.5 It should be noted that the Applicant does not consider the J6A dataset provided to be robust (see Appendix A data quality) primarily as it is taken at 3 hourly intervals for a one-year period, however has used it to facilitate agreement with Spirit Energy as this has been used by Spirit Energy in their submissions to the ExA.
- 2.6 The Applicant has also analysed the IMC weather minima requiring ARA approaches using an 18 year Met Office data set for the most adjacent Met Office monitoring station (Platform 62145 at location 53.1°N, 02.8°E) in the southern North Sea. The analysis has been used as a further test of the IMC assumption of 5% used by the applicant within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement.
- 2.7 It should be noted that the analysis has been conducted using the assumptions held by the Applicant as submitted to the ExA at Deadline 4 (REP4-074).
- 2.8 A summary of the findings is presented in Section 4 of the report.

3. J6A Data Analysis

- 3.1 The J6A data set has been provided as discrete events at three hourly intervals, day and night for one year from the J6A platform. The data analysis undertaken by the Applicant is provided as Appendix B. The data has been averaged as an annual average and as monthly averages. As the data was provided in three-hour intervals, day was assumed to be from 06:00 to 18:00 hours across the year.
- 3.2 The meteorological criteria which have been applied to determine flight operations are presented in Table 3.1 below and illustrated schematically in Figure 3.1 (day) and Figure 3.2 (night) below.
- 3.3 IMC conditions requiring an ARA is considered by the Applicant as the weather minima when VFR, en route and shuttle flights are not available, and outside of the current restrictions due to weather (cloud base and visibility), sea state, wind speed and icing conditions.
- 3.4 Figures 2.1 and 2.2 illustrate the relatively small amount of time when only ARA is required and can be flown, when weather conditions restrict other flight approaches (e.g., en route and shuttling) or preclude flying altogether.
- 3.5 The presence of Hornsea Three will restrict ARAs to be made from over the wind farm (in easterly winds). The percentage of time that the wind is from an easterly direction (NE, ENE, E, ESE and SE) was used to assess the percentage of time that ARA could be restricted.

Table 3.1: Criteria used in assessment

Number	Topic	Criteria Required
1	Flight restricted	Sea state greater than or equal to 6 m SWH (significant wave height) and/or wind speed greater than or equal to 60 knots, and icing conditions.
2a	VMC +en route descent (day)	VMC Day: Cloud base greater than or equal to 600ft and Visibility greater than or equal to 4 km

Number	Topic	Criteria Required
2b	VMC +en route descent (night)	VMC Night: Cloud base greater than or equal to 1200ft and visibility greater than or equal to 5 km
3a	VMC (shuttle) (day)	VMC (shuttle) Day: Clear of cloud at 300 ft and visibility greater than or equal to 2km
3b	VMC (shuttle) (night)	VMC (shuttle) Night: Clear of cloud at 500 ft and visibility greater than or equal to 5 km
4a	IMC day	IMC conditions are defined as when it is not VMC.IMC Day (not VMC day)
4b	IMC night	IMC Night (not VMC night)
5a	IMC (ARA)	IMC (ARA) Day (not VMC day and cloud base greater than or equal to 200ft and visibility greater than or equal to 1.5 km)
5b	IMC (ARA)	IMC (ARA) night (not VMC night and cloud base greater than or equal to 300ft and visibility greater than or equal to 1.5 km)
7	ARA restricted	ARA lower limits are set in accordance with requirement to descend to 200 ft day (clear of cloud) and 300 ft night (clear of cloud) and being able to see platform from Missed Approach Procedure (MAP) (0.75 nm).

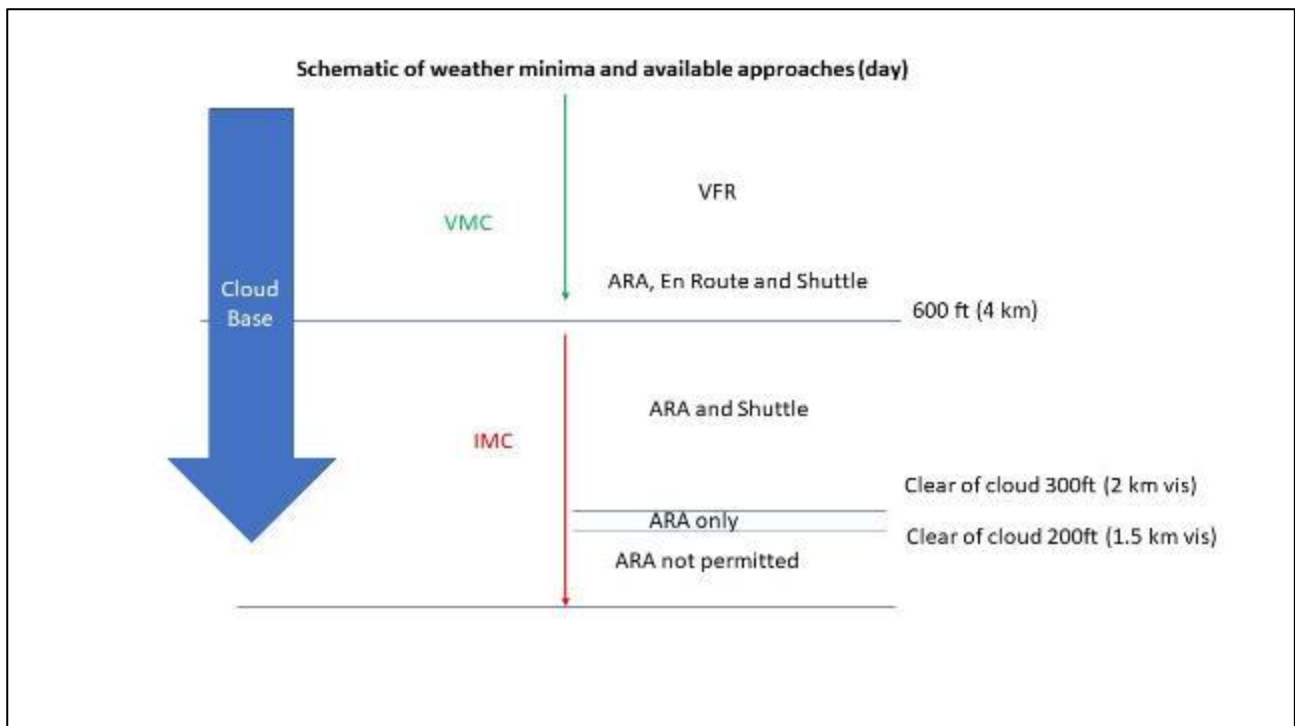


Figure 3.1: Schematic of weather minima and available approaches (day).

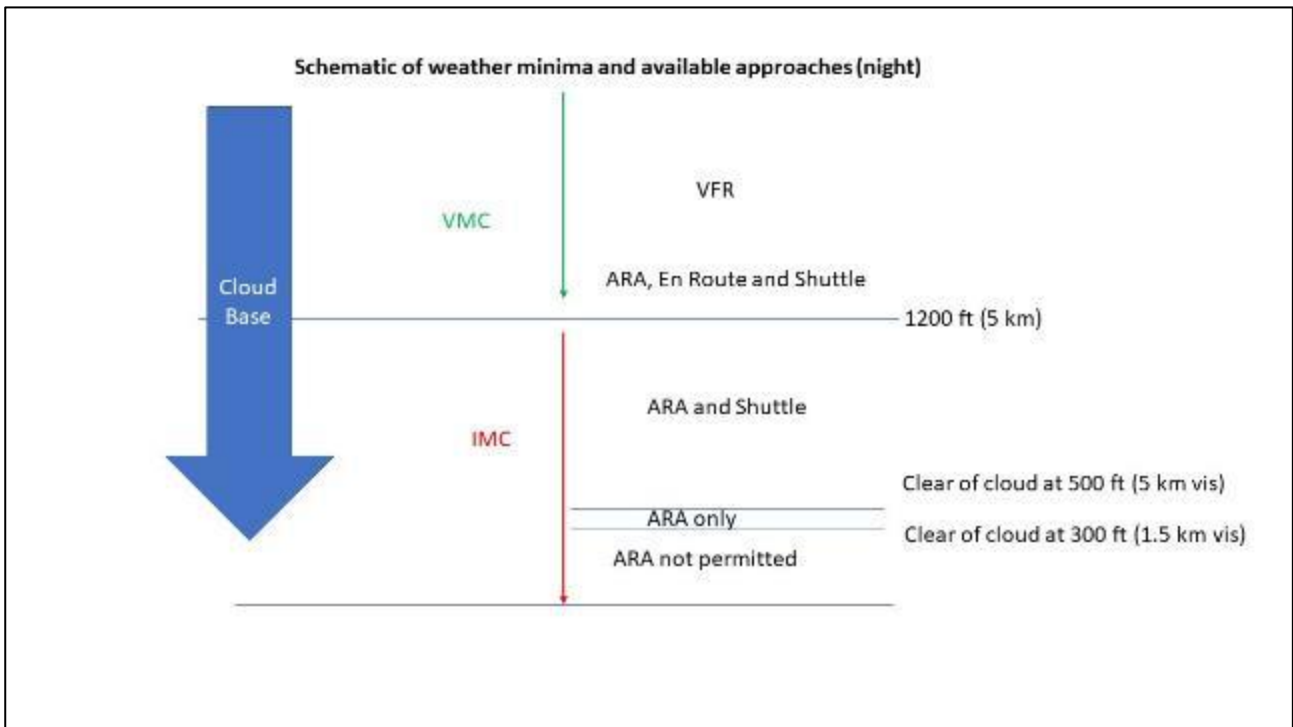


Figure 3.2: Schematic of weather minima and available approaches (night)

Results of Assessment

Annual Average

- 3.6 The percentage of weather minima dictating helicopter flight options is presented as an annual average for day in Table 3.2. The data is presented schematically in Figure 3.3.
- 3.7 The results show that for an annual average, 6.7% of the time all helicopter flights are currently restricted due to weather (including, wind speed, wave height, cloud base, visibility and icing conditions). 82.6% of flights can be flown VFR, En Route and Shuttle (or ARA). An additional 10.4% can be flown shuttle or ARA and the remaining 0.3% can only be flown ARA.
- 3.8 The annual average percentage of time that ARA flights (day) are potentially restricted to the Chiswick platform due to the presence of Hornsea Three (i.e. approaches being required from an easterly direction) is 1.1%.
- 3.9 Table 3.2 also presents the percentage of weather minima as an annual average for night for different flight approaches. The data is presented schematically in Figure 3.4.
- 3.10 The results show that as an annual average 5.1% of the time all flights are currently restricted due to weather (including, wind speed, wave height, cloud base, visibility and icing conditions). 85% can be flown VFR, En Route and Shuttle (or ARA). An additional 4.1% can be flown Shuttle (or ARA) and the remaining 5.8% can only be flown ARA.
- 3.11 The annual average percentage of time that ARA flights (night) are restricted due to the presence of Hornsea Three (i.e. approaches being required from an easterly direction) is 2.1%.

Table 3.2: Annual percentage flight availability Day and Night

	Annual (%) average day	Annual (%) average night
VFR, en route and shuttle (and ARA) available	82.6	85
Shuttle (and ARA) available	10.4	4.1
ARA available	0.3	5.8
Flight restricted due to weather*	6.7	5.1
Flight restricted due to Hornsea Three**	1.1	2.1
<p>*Weather restrictions include wind speed/icing/wave height/visibility and cloud base (Table 2.1).</p> <p>** All easterly wind directions considered to result in restricted approaches due to Hornsea Three</p>		

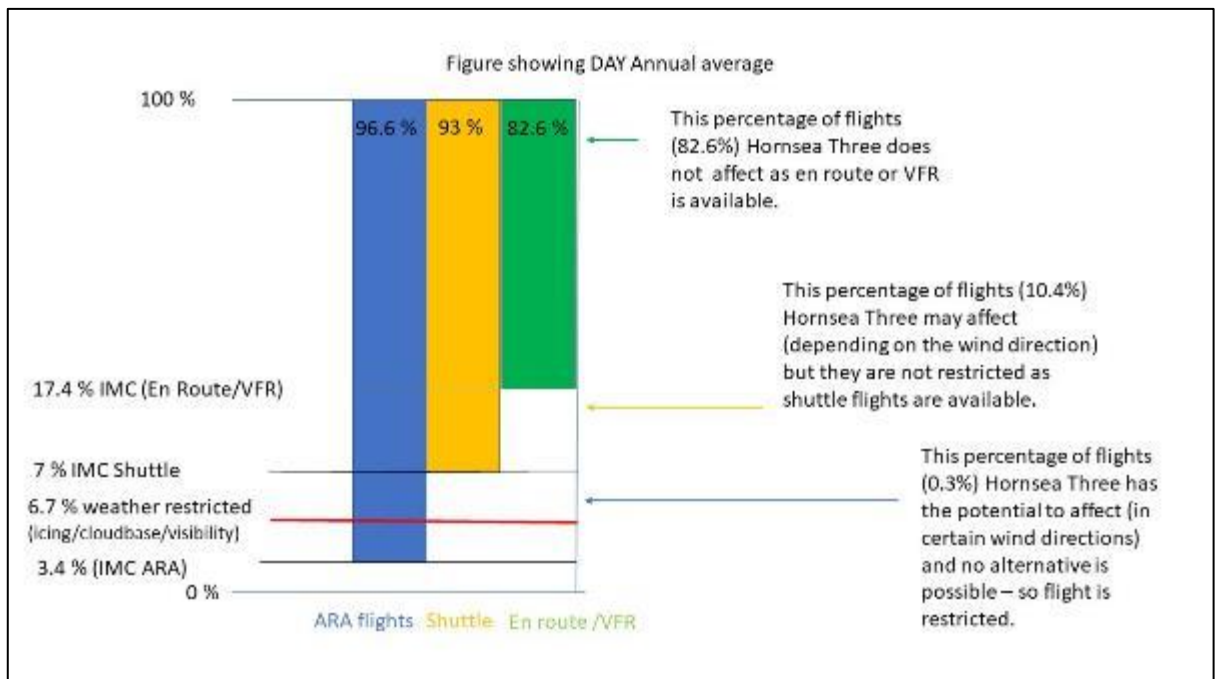


Figure 3.3: Percentage weather minima and flight availability annual average daily

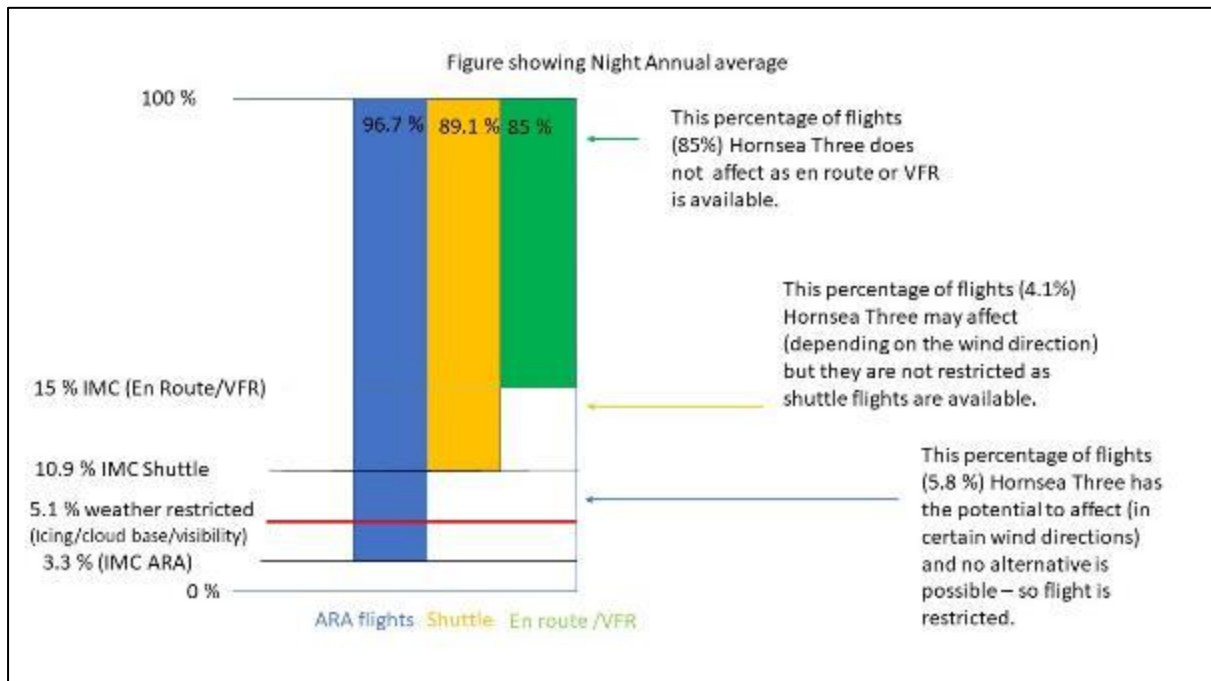


Figure 3.4: Percentage weather minima and flight availability annual average night

Monthly Data

- 3.12 The percentage of weather minima for flight options is presented for each month for daytime flights in Table 3.3.
- 3.13 The range in IMC conditions which restrict flights to ARA only is 0% (February/March) to 9.4% (April). The percentage of time flights may be restricted due to Hornsea Three (considering all easterly winds) range from 0% (February, June, July and August) to 3.99% in May.
- 3.14 Table 3.4 presents the percentage weather minima for each month for night flights. The range in IMC conditions which restrict flight to ARA only is 0% (Feb) to 18.2% (April). The percentage of time flights may be restricted due to Hornsea Three (considering all easterly winds) range from 0% (August and November) to 8.88 % in April.

Table 3.3: Weather minima and flight availability Day operations

Criteria	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	%	%	%	%	%	%	%	%	%	%	%	%
VFR, en route and shuttle (and ARA) available	85.7	70.5	67.5	58	74	77.9	92.7	95.7	89.4	88.4	86.8	80
Shuttle (and ARA) available	9	0	7.9	20.3	12	13.7	5.6	3.9	7	7.5	8.8	14.3
ARA only available	4	0	0	9.4	4.8	3.4	0.8	0.4	1.4	2.9	3.7	2.7
Flight restricted due to weather*	1.3	29.5	24.6	12.3	9.2	5	0.9	0	2.2	1.2	0.9	3
ARA available flights restricted by Hornsea Three**	1.82	0	0.89	3.91	3.99	0	0	0	0.01	0.42	0.92	1.33

* Weather restriction includes wind speed/icing/wave height/visibility and cloud base.
** All easterly wind directions considered to result in restricted approaches due to Hornsea Three.

Table 3.4: Weather minima and flight availability Night operations

Criteria	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	%	%	%	%	%	%	%	%	%	%	%	%
VFR, en route and shuttle (and ARA) available	83.5	83.7	73.5	67.9	81.7	88.5	93.7	92	91	89.9	86.6	81.2
Shuttle (and ARA) available	5.4	0	4.9	4.1	2.2	2.6	2.8	2.8	2.5	5.5	9.8	10.8
ARA only available	9	0	0.5	18.2	9.8	5.8	3.1	5.2	5.6	4.2	3.6	0.9

Criteria	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flight restricted due to weather*	2.1	16.3	21.1	9.8	6.3	3.1	0.4	0	0.9	0.4	0	4.8
ARA available flights restricted by Hornsea Three**	1.51	0.9	0.98	8.88	6.88	1.45	0.88	0	0.49	0.84	0	2.92

* Weather restriction includes wind speed/icing/wave height/visibility and cloud base.
** All easterly wind directions considered to result in restricted approaches due to Hornsea Three.

Comparison of ARA and restricted flights using the J6A data with that presented in the Environmental Statement

- 3.15 The Applicant used a value of 5% IMC in the calculations of restricted flight access within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement.
- 3.16 The IMC conditions (when only ARA is available) for day, calculated from the J6A data is 0.3% annual average day with a range of 0% (Feb/March) to 9.4% (April).
- 3.17 The IMC conditions (when only ARA is available) for night, calculated from the J6A data is 5.8% annual average night with a range of 0 % (Feb) to 18.2% (April).
- 3.18 The Applicant notes that the calculated IMC annual average for day from the J6A data is less than that used in the Environmental Statement.
- 3.19 The Applicant did not assess IMC annual average for night in the Environmental Statement as flights were not available at night to the Chiswick and Grove platforms at the time of submission of the Environmental Statement.
- 3.20 The Applicant notes that the monthly range in IMC is greater than the 5% used by the Applicant and has therefore recalculated the flight restrictions presented in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement based on the revised IMC figures from the J6A data. The results are presented in Table 3.5 Chiswick day, Table 3.6 Chiswick night, Table 3.7 Grove day and Table 3.8 Grove night.

Table 3.5: ARA procedures to Chiswick Platform that would be affected by Hornsea Three array area (day operations)

Description of calculation for Chiswick Platform DAY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of days per year (apportioned per month) that the wind direction would require flight into wind to be over the constrained sector*.	A	5.27	6.20	6.47	8.09	7.73	5.94	4.74	3.49	4.67	5.90	4.32	6.14
Assumed percentage of time that instrument approaches are conducted (IMC when only ARA available)**.	B	4%	0%	0%	9.4%	4.8%	3.4%	0.8%	0.4%	1.4%	2.9%	3.7%	2.7%
Number of days per year (apportioned per month) that both the wind direction requires flight into wind to be over constrained sector and an instrument approach is required (A x B).	C	0.21	0	0	0.76	0.37	0.2	0.24	0.02	0.07	0.17	0.16	0.17
<p>* Value derived from Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement</p> <p>** Value derived from J6A data (see Appendix B).</p>													

Table 3.6: ARA procedures to Chiswick Platform that would be affected by Hornsea Three array area (night operations)

Description of calculation for Chiswick Platform DAY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of days per year (apportioned by month) that the wind direction would require flight into wind to be over the constrained sector*.	A	5.27	6.20	6.47	8.09	7.73	5.94	4.74	3.49	4.67	5.90	4.32	6.14
Assumed percentage of time that instrument approaches are conducted (IMC when only ARA available)**.	B	9%	0%	0.5%	18.2%	9.8%	5.8%	3.1%	5.2%	5.6%	4.2%	3.6%	0.9%
Number of days per year (apportioned per month) that both the wind direction requires flight into wind to be over constrained sector and an instrument approach is required (A x B).	C	0.47	0	0.03	1.47	0.76	0.34	0.15	0.18	0.26	0.25	0.16	0.06
* Value derived from Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement													
** Value derived from J6A data (see Appendix B)													

Table 3.7: ARA procedures to Grove Platform that would be affected by Hornsea Three Array area (day)

Description of calculation for Chiswick Platform DAY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of days per year (apportioned per month) that the wind direction would require flight into wind to be over the constrained sector*.	A	2.96	3.96	4.11	4.97	4.11	3.48	3.39	2.42	2.75	4.28	2.41	3.92
Assumed percentage of time that instrument approaches are conducted (IMC when only ARA available)**.	B	4%	0%	0%	9.4%	4.8%	3.4%	0.8%	0.4%	1.4%	2.9%	3.7%	2.7%
Number of days per year (apportioned per month) that both the wind direction requires flight into wind to be over constrained sector and an instrument approach is required (A x B).	C	0.12	0	0	0.47	0.2	0.12	0.03	0.01	0.04	0.12	0.09	0.11
* Value derived from Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement													
** Value derived from J6A data (see Appendix B).													

Table 3.8: ARA procedures to Grove Platform that would be affected by Hornsea Three Array Area (night)

Description of calculation for Chiswick Platform DAY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of days per year (apportioned per month) that the wind direction would require flight into wind to be over the constrained sector*.	A	2.96	3.96	4.11	4.97	4.11	3.48	3.39	2.42	2.75	4.28	2.41	3.92
Assumed percentage of time that instrument approaches are conducted (IMC when only ARA available)**.	B	9%	0%	0.5%	18.2%	9.8%	5.8%	3.1%	5.2%	5.6%	4.2%	3.6%	0.9%
Number of days per year (apportioned per month) that both the wind direction requires flight into wind to be over constrained sector and an instrument approach is required (A x B).	C	0.27	0	0.02	0.9	0.4	0.2	0.11	0.13	0.15	0.18	0.1	0.03
* Value derived from Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement													
** Value derived from J6A data (see Appendix B)													

- 3.21 The results show that ARA flights to the Chiswick platform may be restricted by the presence of Hornsea Three (for day operations) for approximately 0 to 0.76 days per month (up to 2.17 days per year) with the greatest impact seen in April when 0.76 days (2.53%) of flights may be precluded and the lowest impact seen in February and March when 0% of flights may be precluded.
- 3.22 The results show that ARA flights to the Chiswick platform may be restricted by the presence of Hornsea Three (for night operations) for approximately 0 to 1.47 days per month (up to 4.13 days per year) with the greatest impact seen in April when 1.47 days (4.9%) of flights may be precluded and the lowest impact seen in February when 0% of flights may be precluded.
- 3.23 The results show that ARA flights to the Grove platform may be restricted by the presence of Hornsea Three (for day operations) for approximately 0 to 0.47 days per month (up to 1.31 days per year) with the greatest impact seen in April when 0.47 days (1.57%) of flights may be precluded and the lowest impact seen in February and March when 0% of flights may be precluded.
- 3.24 The results show that ARA flights to the Grove platform may be restricted by the presence of Hornsea Three (for night) for approximately 0 to 0.9 days per month (up to 2.29 days per year) with the greatest impact seen in April when 0.9 days (3% of flights) may be precluded and the lowest impact seen in February when 0% of flights may be precluded.
- 3.25 A comparison of the results presented in the Environmental Statement and using the revised analysis for the restricted ARA to the Chiswick and Grove platforms due the presence of Hornsea Three is presented in Table 3.9 for Chiswick platform and Table 3.10 for Grove platforms.

Table 3.9: Restricted ARA to Chiswick platform due to the presence of Hornsea Three

Data source	Monthly minimum (days/month)	Monthly maximum (days/month)	Annual Average (days/year)
Environmental Statement data	August 0.17	April 0.4	3.49
Revised analysis J6A data (day)	Feb/March 0	April 0.76	2.37
Revised analysis J6A data (night)	Feb 0	April 1.47	4.13

- 3.26 The results show that using the revised analysis for the Chiswick platform there is a reduction in the monthly minimum of 0.17 days (day). There is an increase in the monthly maximum of 0.36 days (day) for April. There is an increase in the annual average number of days per year restricted by Hornsea Three of 0.51 days (day).
- 3.27 A night value was not reported in the Environmental Statement as flights were not authorised to the Chiswick platform at the time of submission of the Environmental Statement.

Table 3.10: Restricted ARA to Grove platform due to presence of Hornsea Three

Data source	Monthly minimum (days/month)	Monthly maximum (days/month)	Annual average (days/year)
Environmental Statement data	August 0.12	April 0.25	2.18
Revised analysis J6A data (day)	Feb/March 0	April 0.47	1.78
Revised analysis J6A data (night)	Feb 0	April 0.9	2.49

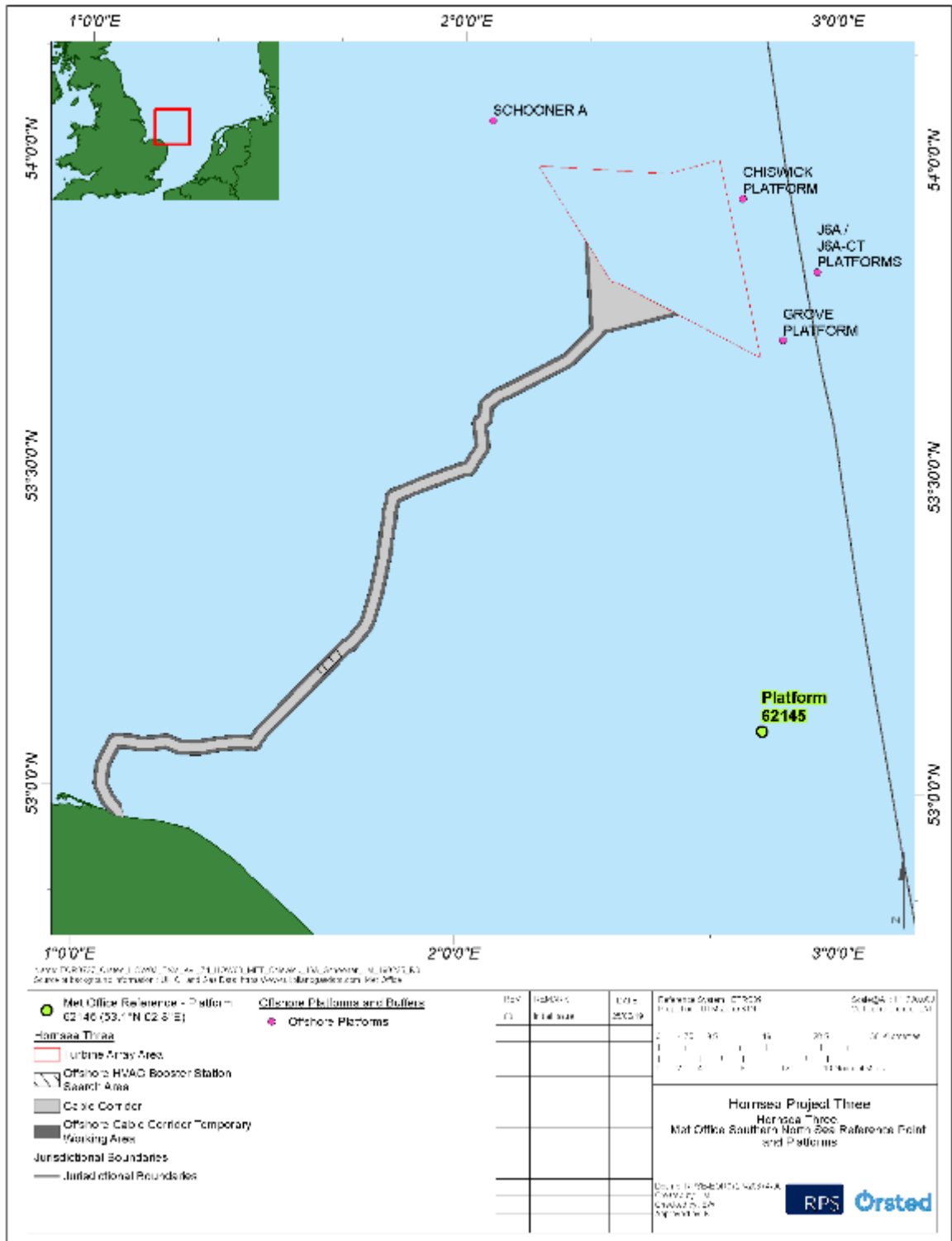
3.28 The results show that using the revised analysis for the Grove platform there is a reduction in the monthly minimum of 0.12 days (day). There is an increase in the monthly maximum of 0.22 days (day) for April. There is decrease in the annual average number of days per year restricted by Hornsea Three of 0.4 days (day).

3.29 A night value was not reported in the Environmental Statement as flights were not authorised to the Grove platform at the time of submission of the Environmental Statement.

4. IMC weather minima using Met office 18-year data set.

4.1 The Applicant tested the IMC weather minima used to inform the ES against a MET Office 18-year data set for cloud base and visibility obtained to inform Hornsea Three (see Appendix C). The data is presented as hourly data from Platform 62145 at location 53.1°N 02.8°E in the southern North Sea. The location of the Met Office platform is provided in Figure 2.5 below. Frequency tables of low cloud height versus visibility from September 2001 to January 2019 were analysed.

4.2 Figure 2.5 Location of Met Office platform in relation to Hornsea Three.



4.3

Results of Analysis

4.4

The results of the analysis show that for an annual average, VFR and en route flights can be flown 92.6 % of the time (day). IMC weather minima when ARA and shuttle flights are available is 7.4 % (day). The IMC weather minima when only ARA flights are available is 3.4 % (day).

- 4.5 The results of the analysis show that for an annual average, VFR and en route flights can be flown 89.1 % of the time (night). IMC weather minima when ARA and shuttle flights are available is 10.9 % (night). The IMC weather minima when only ARA flights are available is 7.4 % (night).
- 4.6 The percentage time for weather minima as a monthly average is presented in Table 4.1. The range of the IMC weather minima when only ARA flights are available is 1 % (November) to 6.1 % (March) for day and 4.3% (October) to 11.9 % (March) for night.

Table 4.1: Monthly weather minima (percentage) using the Met data set

Description of calculation for Chiswick Platform DAY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	%	%	%	%	%	%	%	%	%	%	%	%
Shuttle and ARA available (day)	6.1	5.7	11.9	11.0	8.2	8.4	7.7	4.7	4.4	4.3	4.8	5.9
Shuttle and ARA available (night)	11.8	12.1	15	13.2	10.2	11	11.2	7.3	7.2	7.6	9.3	11.5
ARA available (day)	2.3	3.3	6.1	5.8	5.1	5.3	4.3	2.1	1.5	1.1	1	2.1
ARA available (night)	6.1	5.7	11.9	11.0	8.2	8.4	7.7	4.7	4.4	4.3	4.8	5.9

Comparison of IMC weather minima using the Met data with that presented in the Environmental Statement

- 4.7 The Applicant used a value of 5% IMC in the calculations of restricted flight access within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement.
- 4.8 The IMC conditions (when only ARA is available) for day, calculated from the Met data is 3.4% annual average day with a range of 1% (November) to 6.1 (March). The annual average day is less than the value used in the Environmental Statement. The monthly range is greater than the 5 % used by the Applicant.
- 4.9 The IMC conditions (when only ARA is available) for night, calculated from the Met data is 7.4% annual average night with a range of 4.3 (October) to 11.9 (March).
- 4.10 The Applicant did not assess IMC values for night in the Environmental Statement as flights were not available at night to the Chiswick and Grove platforms at the time of submission of the Environmental Statement.

5. Summary of Findings

- 5.1 The Applicant has analysed the percentage of time that flights may be restricted to the Chiswick and Grove platforms as a result of Hornsea Three using the J6A data set provided by Spirit Energy.
- 5.2 The annual average percentage of days that ARAs (day) are restricted by the presence of Hornsea Three is calculated to be 1.1% and the annual average percentage of days that ARAs (night) are restricted by the presence of Hornsea Three is calculated to be 2.1%
- 5.3 The analysis has demonstrated that the IMC criteria of 5% as used by the Applicant in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement is comparable to the IMC annual average criteria derived from the J6A data set (one year) and from the Met Office data set (18 years; Appendix C). There is a greater range in IMC conditions when monthly data is analysed.
- 5.4 The analysis has demonstrated that by applying the J6A data IMC criteria, the revised results for the analysis in Volume 5, Annex 8.1: Aviation, Military and Communications Technical Report of the Environmental Statement provide a comparable total number of day that ARA flights may be restricted to the Chiswick and Grove platforms as a result of Hornsea Three.
- 5.5 The results from the J6A data show that ARA flights to the Chiswick platform are restricted by the presence of Hornsea Three (for day) for approximately 0 to 0.76 days per month (up to 2.17 days per year) which is less than the value reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (i.e. up to 3.49 days per year) and so this restriction is considered to remain a low occurrence.
- 5.6 The results from the J6A data show that ARA flights to the Chiswick platform are restricted by the presence of Hornsea Three (for night) for approximately 0 to 1.47 days per month (up to 4.13 days per year). A night value was not reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement as flights were not authorised to the Chiswick or Grove platforms at the time of submission of the Environmental Statement. This value is considered a low occurrence.

- 5.7 The results from the J6A data show that ARA flights to the Grove platform are restricted by the presence of Hornsea Three (for day) for approximately 0 to 0.47 days per month (up to 1.31 days per year) which is less than the value reported in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (up to 2.14 days per year) and so this restriction is considered to remain a low occurrence.
- 5.8 The results from the J6A data show that ARA flights to the Grove platform are restricted by the presence of Hornsea Three (for night) for approximately 0 to 0.9 days per month (up to 2.29 days per year). A night value was not reported in the Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement as flights were not authorised to the Chisiwck or Grove platforms at the time of submission of the Environmental Statement. This value is considered a low occurrence.

Appendix A Data Quality

The data set is for one year only. Generally, a 10-year data set should be used.

The data appears to be a combination of two years data sets merged together - January to September 2018, followed by October to December 2017.

Data is typically collected at 10-minute intervals. This data has been provided at 3 hourly intervals.

There are lines of the data set which appear to be corrupted as they have "Weather" where number should be,

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Mon,Jul,9,21:00,NNW,12,14,19,Overcast,>9000,15,1000,0,,,,2018,9/07/2018, ,#VALUE!,0,#VALUE!
Mon,May,14,12:00,NNE,12,14,19,Sunny/fair,>9000,16,>5000,0,,,,2018,14/05/2018, ,#VALUE!,0,#VALUE!
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The following date/times have duplicate records with incompatible data -

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2018-02-20T00:00:00Z
2018-02-20T03:00:00Z
2018-03-28T00:00:00Z
2018-03-28T03:00:00Z
2018-03-28T06:00:00Z
2018-03-28T09:00:00Z
2018-03-31T21:00:00Z
2018-04-01T00:00:00Z
2018-04-01T03:00:00Z
2018-04-01T06:00:00Z
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2018-06-17T03:00:00Z
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2018-09-17T12:00:00Z

2018-09-17T15:00:00Z

Appendix B Applicant's data analysis of J6A meteorological dataset

Appendix C Met office 18-year data set for cloud base and visibility



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1.0 Terms of engagement

To provide frequency tables based on hourly data from Platform 62145 at location 53.1°N 02.8°E in the southern North Sea. Frequency tables of low cloud height versus visibility and cloud height against air temperature September 2001 to January 2019. The analysis was requested by Emily Wood of RPS Energy Ltd in her email dated 21/02/2019.

2.0 Data and information sources

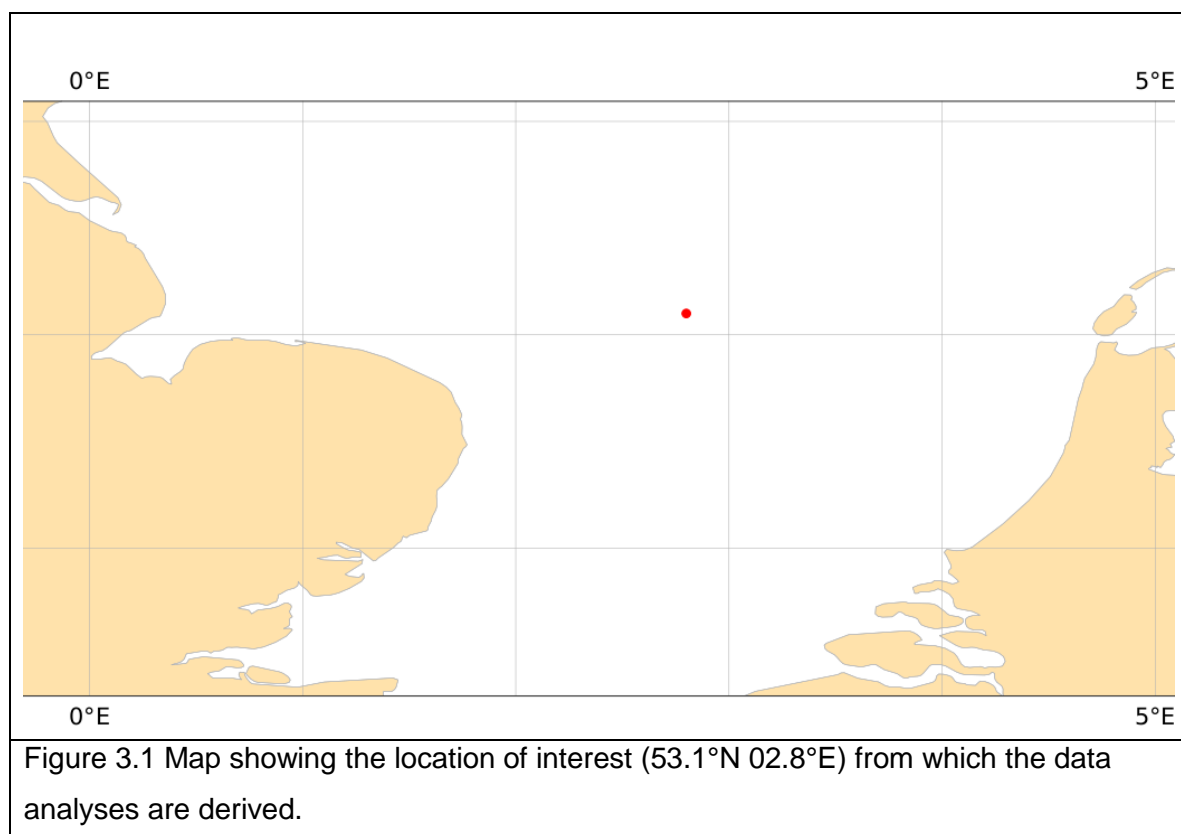
2.1 Platform data was obtained for the Met Office MIDAS data base.

3.0 Points to note

3.1 Weather data are collected and exchanged internationally according to universal Time Coordinated (UTC) convention. Unless otherwise stated, the times referred to in this report are UTC, which is Greenwich Mean Time (GMT).

3.2 In the Cloud and visibility tables, the units of visibility and cloud heights are in decametres. Fog is defined as visibility below 100 decametres or 1000 metres. Air temperature is measured in 10th degrees Celsius.

Map showing location of interest



4.0 Frequency Tables of Low Cloud and Visibility [46 metres]

PERCENTAGE FREQUENCIES REQUESTED
 OF FREQUENCIES OF HEIGHT OF LOW CLOUD, VISIBILITY (DECAMETRES)
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FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JANUARY

LOWER LIMIT	HEIGHT OF LOW CLOUD		TOTAL
	0	47	
UPPER LIMIT			
VISIBILITY (DECAMETRES)			
0 TO 4			
5 TO 19	13		13
20 TO 49	36	3	39
50 TO 99	23		23
100 TO 199	40	3	43
200 TO 399	160	13	173
400 TO 999	1333	1068	2401
1000 TO 1999	1346	3650	4996
2000 TO 4999	759	2797	3556
5000 OR MORE	97	428	525
TOTAL	3807	7962	11769

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JANUARY

LOWER LIMIT	HEIGHT OF LOW CLOUD		TOTAL
	0	47	
UPPER LIMIT			
VISIBILITY (DECAMETRES)			
0 TO 4			
5 TO 19	0.1		0.1
20 TO 49	0.3	0.0	0.3
50 TO 99	0.2		0.2
100 TO 199	0.3	0.0	0.4
200 TO 399	1.4	0.1	1.5
400 TO 999	11.3	9.1	20.4
1000 TO 1999	11.4	31.0	42.5
2000 TO 4999	6.4	23.8	30.2
5000 OR MORE	0.8	3.6	4.5
TOTAL	32.3	67.7	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11769

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: FEBRUARY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	1
5 TO 19	20	2	22
20 TO 49	63	7	70
50 TO 99	19	7	26
100 TO 199	60	3	63
200 TO 399	180	67	247
400 TO 999	1123	1493	2616
1000 TO 1999	843	2737	3580
2000 TO 4999	580	2448	3028
5000 OR MORE	62	451	513
TOTAL	2950	7216	10166

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: FEBRUARY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0.0	0.0	0.0
5 TO 19	0.2	0.0	0.2
20 TO 49	0.6	0.1	0.7
50 TO 99	0.2	0.1	0.3
100 TO 199	0.6	0.0	0.6
200 TO 399	1.8	0.7	2.4
400 TO 999	11.0	14.7	25.7
1000 TO 1999	8.3	26.9	35.2
2000 TO 4999	5.7	24.1	29.8
5000 OR MORE	0.6	4.4	5.0
TOTAL	29.0	71.0	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10166

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MARCH

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	1
5 TO 19	36	3	39
20 TO 49	118	9	127
50 TO 99	76	13	89
100 TO 199	96	21	117
200 TO 399	205	279	484
400 TO 999	888	1977	2865
1000 TO 1999	707	3237	3944
2000 TO 4999	487	2739	3226
5000 OR MORE	58	364	422
TOTAL	2671	8643	11314

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MARCH

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0.0	0.0	0.0
5 TO 19	0.3	0.0	0.3
20 TO 49	1.0	0.1	1.1
50 TO 99	0.7	0.1	0.8
100 TO 199	0.8	0.2	1.0
200 TO 399	1.8	2.5	4.3
400 TO 999	7.8	17.5	25.3
1000 TO 1999	6.2	28.6	34.9
2000 TO 4999	4.3	24.2	28.5
5000 OR MORE	0.5	3.2	3.7
TOTAL	23.6	76.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11314

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	93	1	94
20 TO 49	119	5	124
50 TO 99	91	9	100
100 TO 199	89	28	117
200 TO 399	133	289	422
400 TO 999	475	2343	2818
1000 TO 1999	582	4235	4817
2000 TO 4999	286	2121	2407
5000 OR MORE	7	205	212
TOTAL	1875	9236	11111

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.8	0.0	0.8
20 TO 49	1.1	0.0	1.1
50 TO 99	0.8	0.1	0.9
100 TO 199	0.8	0.3	1.1
200 TO 399	1.2	2.6	3.8
400 TO 999	4.3	21.1	25.4
1000 TO 1999	5.2	38.1	43.4
2000 TO 4999	2.6	19.1	21.7
5000 OR MORE	0.1	1.8	1.9
TOTAL	16.9	83.1	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11111

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MAY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	39		39
20 TO 49	66	3	69
50 TO 99	52	3	55
100 TO 199	81	2	83
200 TO 399	142	55	197
400 TO 999	692	1877	2569
1000 TO 1999	717	5063	5780
2000 TO 4999	148	2262	2410
5000 OR MORE	4	352	356
TOTAL	1941	9617	11558

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MAY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.3		0.3
20 TO 49	0.6	0.0	0.6
50 TO 99	0.4	0.0	0.5
100 TO 199	0.7	0.0	0.7
200 TO 399	1.2	0.5	1.7
400 TO 999	6.0	16.2	22.2
1000 TO 1999	6.2	43.8	50.0
2000 TO 4999	1.3	19.6	20.9
5000 OR MORE	0.0	3.0	3.1
TOTAL	16.8	83.2	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11558

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JUNE

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	52	3	55
20 TO 49	90	4	94
50 TO 99	74	6	80
100 TO 199	65	13	78
200 TO 399	118	80	198
400 TO 999	473	1596	2069
1000 TO 1999	859	4637	5496
2000 TO 4999	211	2246	2457
5000 OR MORE	14	266	280
TOTAL	1956	8851	10807

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JUNE

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.5	0.0	0.5
20 TO 49	0.8	0.0	0.9
50 TO 99	0.7	0.1	0.7
100 TO 199	0.6	0.1	0.7
200 TO 399	1.1	0.7	1.8
400 TO 999	4.4	14.8	19.1
1000 TO 1999	7.9	42.9	50.9
2000 TO 4999	2.0	20.8	22.7
5000 OR MORE	0.1	2.5	2.6
TOTAL	18.1	81.9	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10807

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FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JULY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	37		37
20 TO 49	48		48
50 TO 99	34	1	35
100 TO 199	34	9	43
200 TO 399	83	51	134
400 TO 999	534	1308	1842
1000 TO 1999	1058	4924	5982
2000 TO 4999	243	1995	2238
5000 OR MORE	30	135	165
TOTAL	2101	8423	10524

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JULY

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.4		0.4
20 TO 49	0.5		0.5
50 TO 99	0.3	0.0	0.3
100 TO 199	0.3	0.1	0.4
200 TO 399	0.8	0.5	1.3
400 TO 999	5.1	12.4	17.5
1000 TO 1999	10.1	46.8	56.8
2000 TO 4999	2.3	19.0	21.3
5000 OR MORE	0.3	1.3	1.6
TOTAL	20.0	80.0	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10524

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: AUGUST

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		
	LOWER LIMIT		TOTAL
0 TO 4	0	47	
5 TO 19	33	1	34
20 TO 49	29	1	30
50 TO 99	20		20
100 TO 199	22	8	30
200 TO 399	73	50	123
400 TO 999	464	1351	1815
1000 TO 1999	1092	5653	6745
2000 TO 4999	252	2014	2266
5000 OR MORE	6	102	108
TOTAL	1991	9180	11171

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: AUGUST

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		
	LOWER LIMIT		TOTAL
0 TO 4	0	47	
5 TO 19	0.3	0.0	0.3
20 TO 49	0.3	0.0	0.3
50 TO 99	0.2		0.2
100 TO 199	0.2	0.1	0.3
200 TO 399	0.7	0.4	1.1
400 TO 999	4.2	12.1	16.2
1000 TO 1999	9.8	50.6	60.4
2000 TO 4999	2.3	18.0	20.3
5000 OR MORE	0.1	0.9	1.0
TOTAL	17.8	82.2	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11171

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: SEPTEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	8		8
20 TO 49	3	2	5
50 TO 99	1	1	2
100 TO 199	6	6	12
200 TO 399	85	96	181
400 TO 999	460	1271	1731
1000 TO 1999	1047	4356	5403
2000 TO 4999	190	2407	2597
5000 OR MORE	11	130	141
TOTAL	1811	8269	10080

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: SEPTEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.1		0.1
20 TO 49	0.0	0.0	0.0
50 TO 99	0.0	0.0	0.0
100 TO 199	0.1	0.1	0.1
200 TO 399	0.8	1.0	1.8
400 TO 999	4.6	12.6	17.2
1000 TO 1999	10.4	43.2	53.6
2000 TO 4999	1.9	23.9	25.8
5000 OR MORE	0.1	1.3	1.4
TOTAL	18.0	82.0	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10080

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: OCTOBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19			
20 TO 49	6		6
50 TO 99	5		5
100 TO 199	17	1	18
200 TO 399	97	43	140
400 TO 999	665	961	1626
1000 TO 1999	1175	3888	5063
2000 TO 4999	437	3286	3723
5000 OR MORE	38	488	526
TOTAL	2440	8667	11107

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: OCTOBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4			
5 TO 19			
20 TO 49	0.1		0.1
50 TO 99	0.0		0.0
100 TO 199	0.2	0.0	0.2
200 TO 399	0.9	0.4	1.3
400 TO 999	6.0	8.7	14.6
1000 TO 1999	10.6	35.0	45.6
2000 TO 4999	3.9	29.6	33.5
5000 OR MORE	0.3	4.4	4.7
TOTAL	22.0	78.0	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11107

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FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: NOVEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	2		2
20 TO 49	5	1	6
50 TO 99	1		1
100 TO 199	9	2	11
200 TO 399	136	14	150
400 TO 999	960	557	1517
1000 TO 1999	1141	2905	4046
2000 TO 4999	698	4010	4708
5000 OR MORE	35	607	642
TOTAL	2987	8096	11083

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: NOVEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.0		0.0
20 TO 49	0.0	0.0	0.1
50 TO 99	0.0		0.0
100 TO 199	0.1	0.0	0.1
200 TO 399	1.2	0.1	1.4
400 TO 999	8.7	5.0	13.7
1000 TO 1999	10.3	26.2	36.5
2000 TO 4999	6.3	36.2	42.5
5000 OR MORE	0.3	5.5	5.8
TOTAL	27.0	73.0	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11083

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: DECEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	7		7
20 TO 49	25		25
50 TO 99	13		13
100 TO 199	35		35
200 TO 399	162	8	170
400 TO 999	1176	946	2122
1000 TO 1999	1196	3043	4239
2000 TO 4999	732	3443	4175
5000 OR MORE	46	780	826
TOTAL	3392	8220	11612

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: DECEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	
5 TO 19	0.1		0.1
20 TO 49	0.2		0.2
50 TO 99	0.1		0.1
100 TO 199	0.3		0.3
200 TO 399	1.4	0.1	1.5
400 TO 999	10.1	8.1	18.3
1000 TO 1999	10.3	26.2	36.5
2000 TO 4999	6.3	29.7	36.0
5000 OR MORE	0.4	6.7	7.1
TOTAL	29.2	70.8	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11612

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTHS: JANUARY TO DECEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	2
5 TO 19	340	10	350
20 TO 49	608	35	643
50 TO 99	409	40	449
100 TO 199	554	96	650
200 TO 399	1574	1045	2619
400 TO 999	9243	16748	25991
1000 TO 1999	11763	48328	60091
2000 TO 4999	5023	31768	36791
5000 OR MORE	408	4308	4716
TOTAL	29922	102380	132302

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTHS: JANUARY TO DECEMBER

VISIBILITY (DECAMETRES)	HEIGHT OF LOW CLOUD		TOTAL
	LOWER LIMIT	UPPER LIMIT	
0 TO 4	0	47	0.0
5 TO 19	340	10	0.3
20 TO 49	608	35	0.5
50 TO 99	409	40	0.3
100 TO 199	554	96	0.5
200 TO 399	1574	1045	2.0
400 TO 999	9243	16748	19.6
1000 TO 1999	11763	48328	45.4
2000 TO 4999	5023	31768	27.8
5000 OR MORE	408	4308	3.6
TOTAL	22.6	77.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 132302

5.0 Frequency Tables of low cloud and visibility [all default bands]

PERCENTAGE FREQUENCIES REQUESTED

FREQUENCIES OF HEIGHT OF LOW CLOUD, VISIBILITY (DECAMETRES) PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 1)

FREQUENCIES FOR: 1 62145

PERIOD OF DATA: 9/2001 TO 1/2019

MONTH: JANUARY

		HEIGHT OF LOW CLOUD										
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250		TOTAL
UPPER LIMIT	4	9	19	29	59	99	149	199	249			
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	8	5										13
20 TO 49	16	18		2			2				1	39
50 TO 99	4	16	1		2							23
100 TO 199	2	29	4	3	2	1		1			1	43
200 TO 399	2	42	59	36	21	7	3	1			2	173
400 TO 999	2	69	218	359	685	257	191	85	49	486		2401
1000 TO 1999	3	19	85	219	1020	937	579	227	106	1801		4996
2000 TO 4999	3	6	12	66	672	817	471	122	72	1315		3556
5000 OR MORE				9	88	109	99	37	9	174		525
TOTAL	40	204	379	694	2490	2128	1345	473	236	3780		11769

		HEIGHT OF LOW CLOUD										
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250		TOTAL
UPPER LIMIT	4	9	19	29	59	99	149	199	249			
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.1	0.0										0.1
20 TO 49	0.1	0.2		0.0			0.0			0.0		0.3
50 TO 99	0.0	0.1	0.0		0.0							0.2
100 TO 199	0.0	0.2	0.0	0.0	0.0	0.0		0.0		0.0		0.4
200 TO 399	0.0	0.4	0.5	0.3	0.2	0.1	0.0	0.0		0.0		1.5
400 TO 999	0.0	0.6	1.9	3.1	5.8	2.2	1.6	0.7	0.4	4.1		20.4
1000 TO 1999	0.0	0.2	0.7	1.9	8.7	8.0	4.9	1.9	0.9	15.3		42.5
2000 TO 4999	0.0	0.1	0.1	0.6	5.7	6.9	4.0	1.0	0.6	11.2		30.2
5000 OR MORE				0.1	0.7	0.9	0.8	0.3	0.1	1.5		4.5
TOTAL	0.3	1.7	3.2	5.9	21.2	18.1	11.4	4.0	2.0	32.1		100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT

TABLE TOTAL NUMBER OF OBSERVATIONS IS 11769

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 2)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: FEBRUARY

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4											1	1
5 TO 19		8	12								2	22
20 TO 49		15	43	4	1						7	70
50 TO 99		3	13	1	1	1			1		6	26
100 TO 199		3	45	7	3	2			1		2	63
200 TO 399		6	60	61	26	27	6	15	4	8	34	247
400 TO 999		23	54	183	262	601	316	298	111	56	712	2616
1000 TO 1999		14	5	74	115	635	709	499	183	100	1246	3580
2000 TO 4999			5	18	60	497	634	378	156	69	1211	3028
5000 OR MORE					8	54	131	93	27	11	189	513
TOTAL		72	237	348	476	1817	1796	1283	483	244	3410	10166

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4											0.0	0.0
5 TO 19		0.1	0.1								0.0	0.2
20 TO 49		0.1	0.4	0.0	0.0						0.1	0.7
50 TO 99		0.0	0.1	0.0	0.0	0.0			0.0		0.1	0.3
100 TO 199		0.0	0.4	0.1	0.0	0.0			0.0		0.0	0.6
200 TO 399		0.1	0.6	0.6	0.3	0.3	0.1	0.1	0.0	0.1	0.3	2.4
400 TO 999		0.2	0.5	1.8	2.6	5.9	3.1	2.9	1.1	0.6	7.0	25.7
1000 TO 1999		0.1	0.0	0.7	1.1	6.2	7.0	4.9	1.8	1.0	12.3	35.2
2000 TO 4999			0.0	0.2	0.6	4.9	6.2	3.7	1.5	0.7	11.9	29.8
5000 OR MORE					0.1	0.5	1.3	0.9	0.3	0.1	1.9	5.0
TOTAL		0.7	2.3	3.4	4.7	17.9	17.7	12.6	4.8	2.4	33.5	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10166

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 3)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MARCH

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4											1	1
5 TO 19		18	18								3	39
20 TO 49		55	58	2	1	2			1		8	127
50 TO 99		31	40	3	1	1	3		2		8	89
100 TO 199		28	43	13	9	3	4	3	1		13	117
200 TO 399		25	61	62	22	35	35	29	30	18	167	484
400 TO 999		30	88	174	219	377	213	324	158	107	1175	2865
1000 TO 1999		42	21	60	118	466	523	504	225	126	1859	3944
2000 TO 4999		35	16	35	42	359	389	477	192	125	1556	3226
5000 OR MORE				4	6	48	42	44	23	25	230	422
TOTAL		264	345	353	418	1291	1209	1381	632	401	5020	11314

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4											0.0	0.0
5 TO 19		0.2	0.2								0.0	0.3
20 TO 49		0.5	0.5	0.0	0.0	0.0			0.0		0.1	1.1
50 TO 99		0.3	0.4	0.0	0.0	0.0	0.0		0.0		0.1	0.8
100 TO 199		0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0		0.1	1.0
200 TO 399		0.2	0.5	0.5	0.2	0.3	0.3	0.3	0.3	0.2	1.5	4.3
400 TO 999		0.3	0.8	1.5	1.9	3.3	1.9	2.9	1.4	0.9	10.4	25.3
1000 TO 1999		0.4	0.2	0.5	1.0	4.1	4.6	4.5	2.0	1.1	16.4	34.9
2000 TO 4999		0.3	0.1	0.3	0.4	3.2	3.4	4.2	1.7	1.1	13.8	28.5
5000 OR MORE				0.0	0.1	0.4	0.4	0.4	0.2	0.2	2.0	3.7
TOTAL		2.3	3.0	3.1	3.7	11.4	10.7	12.2	5.6	3.5	44.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11314

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 4)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	55	38								1	94	
20 TO 49	69	48	1		1						5	
50 TO 99	41	46		1	3	2		1			6	
100 TO 199	29	51	3	2	4	3	1	5	3	16	117	
200 TO 399	18	68	20	9	18	21	26	39	23	180	422	
400 TO 999	13	97	112	91	162	117	235	148	151	1692	2818	
1000 TO 1999	3	23	88	106	362	570	545	396	216	2508	4817	
2000 TO 4999	1	8	19	42	216	200	261	156	103	1401	2407	
5000 OR MORE			1	1	5	12	21	24	10	138	212	
TOTAL	229	379	244	252	771	925	1089	769	506	5947	11111	

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.5	0.3								0.0	0.8	
20 TO 49	0.6	0.4	0.0		0.0					0.0	1.1	
50 TO 99	0.4	0.4		0.0	0.0	0.0		0.0		0.1	0.9	
100 TO 199	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	
200 TO 399	0.2	0.6	0.2	0.1	0.2	0.2	0.2	0.4	0.2	1.6	3.8	
400 TO 999	0.1	0.9	1.0	0.8	1.5	1.1	2.1	1.3	1.4	15.2	25.4	
1000 TO 1999	0.0	0.2	0.8	1.0	3.3	5.1	4.9	3.6	1.9	22.6	43.4	
2000 TO 4999	0.0	0.1	0.2	0.4	1.9	1.8	2.3	1.4	0.9	12.6	21.7	
5000 OR MORE			0.0	0.0	0.0	0.1	0.2	0.2	0.1	1.2	1.9	
TOTAL	2.1	3.4	2.2	2.3	6.9	8.3	9.8	6.9	4.6	53.5	100.0	

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11111

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 5)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MAY

	HEIGHT OF LOW CLOUD										TOTAL	
	LOWER LIMIT	0	5	10	20	30	60	100	150	200		250
UPPER LIMIT	4	9	19	29	59	99	149	199	249			
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	29	8	1	1								39
20 TO 49	33	30	2	1								69
50 TO 99	22	26	2	1	1						3	55
100 TO 199	41	38	1	1							2	83
200 TO 399	40	75	14	8	5	5	5	8	8	29	197	
400 TO 999	40	155	190	99	208	132	198	163	149	1235	2569	
1000 TO 1999	11	47	83	104	472	449	519	429	347	3319	5780	
2000 TO 4999	1	2	4	22	119	125	247	129	97	1664	2410	
5000 OR MORE					4	12	42	42	19	237	356	
TOTAL	217	381	297	237	809	723	1011	771	620	6492	11558	

	HEIGHT OF LOW CLOUD										TOTAL	
	LOWER LIMIT	0	5	10	20	30	60	100	150	200		250
UPPER LIMIT	4	9	19	29	59	99	149	199	249			
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.3	0.1	0.0	0.0								0.3
20 TO 49	0.3	0.3	0.0	0.0								0.6
50 TO 99	0.2	0.2	0.0	0.0	0.0						0.0	0.5
100 TO 199	0.4	0.3	0.0	0.0							0.0	0.7
200 TO 399	0.3	0.6	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.3	1.7	
400 TO 999	0.3	1.3	1.6	0.9	1.8	1.1	1.7	1.4	1.3	10.7	22.2	
1000 TO 1999	0.1	0.4	0.7	0.9	4.1	3.9	4.5	3.7	3.0	28.7	50.0	
2000 TO 4999	0.0	0.0	0.0	0.2	1.0	1.1	2.1	1.1	0.8	14.4	20.9	
5000 OR MORE					0.0	0.1	0.4	0.4	0.2	2.1	3.1	
TOTAL	1.9	3.3	2.6	2.1	7.0	6.3	8.7	6.7	5.4	56.2	100.0	

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11558

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 6)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JUNE

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	16	36								3	55	
20 TO 49	20	65	1	2	2	1				3	94	
50 TO 99	12	60	1		1	3				3	80	
100 TO 199	15	39	5		6	1	1	3	1	7	78	
200 TO 399	22	54	17	7	18	11	11	7	4	47	198	
400 TO 999	34	109	121	69	140	153	209	152	102	980	2069	
1000 TO 1999	8	48	80	157	566	504	510	462	300	2861	5496	
2000 TO 4999		1	18	53	139	164	258	243	163	1418	2457	
5000 OR MORE					14	17	11	13	9	216	280	
TOTAL	127	412	243	288	886	854	1000	880	579	5538	10807	

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.1	0.3								0.0	0.5	
20 TO 49	0.2	0.6	0.0	0.0	0.0	0.0				0.0	0.9	
50 TO 99	0.1	0.6	0.0		0.0	0.0				0.0	0.7	
100 TO 199	0.1	0.4	0.0		0.1	0.0	0.0	0.0	0.0	0.1	0.7	
200 TO 399	0.2	0.5	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.4	1.8	
400 TO 999	0.3	1.0	1.1	0.6	1.3	1.4	1.9	1.4	0.9	9.1	19.1	
1000 TO 1999	0.1	0.4	0.7	1.5	5.2	4.7	4.7	4.3	2.8	26.5	50.9	
2000 TO 4999		0.0	0.2	0.5	1.3	1.5	2.4	2.2	1.5	13.1	22.7	
5000 OR MORE					0.1	0.2	0.1	0.1	0.1	2.0	2.6	
TOTAL	1.2	3.8	2.2	2.7	8.2	7.9	9.3	8.1	5.4	51.2	100.0	

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10807

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 7)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JULY

		HEIGHT OF LOW CLOUD										
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19		23	14									37
20 TO 49		38	10									48
50 TO 99		13	21						1			35
100 TO 199		13	18	3			1	1			7	43
200 TO 399		25	26	13	8	11	12	6	3	3	27	134
400 TO 999		45	110	120	115	144	94	137	94	83	900	1842
1000 TO 1999		13	88	130	204	623	441	462	420	383	3218	5982
2000 TO 4999		2	5	24	37	175	113	167	163	147	1405	2238
5000 OR MORE				2	7	21	5	19	13	7	91	165
TOTAL		172	292	292	371	974	666	792	694	623	5648	10524

		HEIGHT OF LOW CLOUD										
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19		0.2	0.1									0.4
20 TO 49		0.4	0.1									0.5
50 TO 99		0.1	0.2						0.0			0.3
100 TO 199		0.1	0.2	0.0			0.0	0.0			0.1	0.4
200 TO 399		0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	1.3
400 TO 999		0.4	1.0	1.1	1.1	1.4	0.9	1.3	0.9	0.8	8.6	17.5
1000 TO 1999		0.1	0.8	1.2	1.9	5.9	4.2	4.4	4.0	3.6	30.6	56.8
2000 TO 4999		0.0	0.0	0.2	0.4	1.7	1.1	1.6	1.5	1.4	13.4	21.3
5000 OR MORE				0.0	0.1	0.2	0.0	0.2	0.1	0.1	0.9	1.6
TOTAL		1.6	2.8	2.8	3.5	9.3	6.3	7.5	6.6	5.9	53.7	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10524

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 8)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: AUGUST

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	30	3					1					34
20 TO 49	19	10								1	30	
50 TO 99	12	8									20	
100 TO 199	10	10			2	1	1		1	5	30	
200 TO 399	8	26	21	6	12	3	4	6	1	36	123	
400 TO 999	9	37	124	139	155	90	130	91	79	961	1815	
1000 TO 1999	4	21	64	181	822	709	623	493	360	3468	6745	
2000 TO 4999		10	6	37	199	272	279	162	124	1177	2266	
5000 OR MORE					6	7	10	8	7	70	108	
TOTAL	92	125	215	363	1196	1083	1047	760	572	5718	11171	

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.3	0.0					0.0				0.3	
20 TO 49	0.2	0.1								0.0	0.3	
50 TO 99	0.1	0.1									0.2	
100 TO 199	0.1	0.1			0.0	0.0	0.0		0.0	0.0	0.3	
200 TO 399	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.1	
400 TO 999	0.1	0.3	1.1	1.2	1.4	0.8	1.2	0.8	0.7	8.6	16.2	
1000 TO 1999	0.0	0.2	0.6	1.6	7.4	6.3	5.6	4.4	3.2	31.0	60.4	
2000 TO 4999		0.1	0.1	0.3	1.8	2.4	2.5	1.5	1.1	10.5	20.3	
5000 OR MORE					0.1	0.1	0.1	0.1	0.1	0.6	1.0	
TOTAL	0.8	1.1	1.9	3.2	10.7	9.7	9.4	6.8	5.1	51.2	100.0	

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11171

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 9)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: SEPTEMBER

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19		8										8
20 TO 49		2	1								2	5
50 TO 99		1									1	2
100 TO 199		2	1		1	2	2			1	3	12
200 TO 399		11	27	21	12	14	7	10	3	4	72	181
400 TO 999		9	50	85	121	195	153	147	50	55	866	1731
1000 TO 1999		3	31	63	144	806	967	562	308	203	2316	5403
2000 TO 4999			5	11	19	155	334	326	208	107	1432	2597
5000 OR MORE						11	17	21	9	4	79	141
TOTAL		36	115	180	297	1183	1480	1066	578	374	4771	10080

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19		0.1										0.1
20 TO 49		0.0	0.0							0.0	0.0	0.0
50 TO 99		0.0								0.0	0.0	0.0
100 TO 199		0.0	0.0		0.0	0.0	0.0			0.0	0.0	0.1
200 TO 399		0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.7	1.8
400 TO 999		0.1	0.5	0.8	1.2	1.9	1.5	1.5	0.5	0.5	8.6	17.2
1000 TO 1999		0.0	0.3	0.6	1.4	8.0	9.6	5.6	3.1	2.0	23.0	53.6
2000 TO 4999			0.0	0.1	0.2	1.5	3.3	3.2	2.1	1.1	14.2	25.8
5000 OR MORE						0.1	0.2	0.2	0.1	0.0	0.8	1.4
TOTAL		0.4	1.1	1.8	2.9	11.7	14.7	10.6	5.7	3.7	47.3	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10080

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 10)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: OCTOBER

		HEIGHT OF LOW CLOUD										
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19												
20 TO 49		1	5								6	
50 TO 99		2	3								5	
100 TO 199		3	12	2				1			18	
200 TO 399		9	10	36	24	18	3	6	3	1	30	140
400 TO 999		3	23	154	156	329	151	121	61	37	591	1626
1000 TO 1999		17	14	60	166	918	1114	603	242	153	1776	5063
2000 TO 4999		6		17	42	372	616	607	256	103	1704	3723
5000 OR MORE					1	37	77	139	33	14	225	526
TOTAL		41	67	269	389	1674	1961	1477	595	308	4326	11107

		HEIGHT OF LOW CLOUD										
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19												
20 TO 49		0.0	0.0								0.1	
50 TO 99		0.0	0.0								0.0	
100 TO 199		0.0	0.1	0.0				0.0			0.2	
200 TO 399		0.1	0.1	0.3	0.2	0.2	0.0	0.1	0.0	0.0	0.3	1.3
400 TO 999		0.0	0.2	1.4	1.4	3.0	1.4	1.1	0.5	0.3	5.3	14.6
1000 TO 1999		0.2	0.1	0.5	1.5	8.3	10.0	5.4	2.2	1.4	16.0	45.6
2000 TO 4999		0.1		0.2	0.4	3.3	5.5	5.5	2.3	0.9	15.3	33.5
5000 OR MORE					0.0	0.3	0.7	1.3	0.3	0.1	2.0	4.7
TOTAL		0.4	0.6	2.4	3.5	15.1	17.7	13.3	5.4	2.8	38.9	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11107

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 11)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: NOVEMBER

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19			2									2
20 TO 49			4	1			1					6
50 TO 99			1									1
100 TO 199		1	7			1	1	1				11
200 TO 399		1	33	41	33	28	5				9	150
400 TO 999		2	39	222	265	432	142	127	49	21	218	1517
1000 TO 1999			16	61	168	896	867	474	223	134	1207	4046
2000 TO 4999			3	13	63	619	1101	777	277	119	1736	4708
5000 OR MORE					3	32	107	157	65	21	257	642
TOTAL		4	105	338	532	2008	2224	1536	614	295	3427	11083

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19			0.0									0.0
20 TO 49			0.0	0.0			0.0					0.1
50 TO 99			0.0									0.0
100 TO 199		0.0	0.1			0.0	0.0	0.0				0.1
200 TO 399		0.0	0.3	0.4	0.3	0.3	0.0				0.1	1.4
400 TO 999		0.0	0.4	2.0	2.4	3.9	1.3	1.1	0.4	0.2	2.0	13.7
1000 TO 1999			0.1	0.6	1.5	8.1	7.8	4.3	2.0	1.2	10.9	36.5
2000 TO 4999			0.0	0.1	0.6	5.6	9.9	7.0	2.5	1.1	15.7	42.5
5000 OR MORE					0.0	0.3	1.0	1.4	0.6	0.2	2.3	5.8
TOTAL		0.0	0.9	3.0	4.8	18.1	20.1	13.9	5.5	2.7	30.9	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11083

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 12)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: DECEMBER

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	4	3									7	
20 TO 49	3	21	1								25	
50 TO 99	1	11	1								13	
100 TO 199		31	2	2							35	
200 TO 399	4	58	47	28	25	5	2			1	170	
400 TO 999	5	84	222	370	495	203	166	69	33	475	2122	
1000 TO 1999		21	94	212	869	797	553	171	87	1435	4239	
2000 TO 4999	1	5	9	74	643	1005	676	178	76	1508	4175	
5000 OR MORE			1	2	43	173	193	46	25	343	826	
TOTAL	18	234	377	688	2075	2183	1590	464	222	3761	11612	

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249	TOTAL	
VISIBILITY (DECAMETRES)												
0 TO 4												
5 TO 19	0.0	0.0									0.1	
20 TO 49	0.0	0.2	0.0								0.2	
50 TO 99	0.0	0.1	0.0								0.1	
100 TO 199		0.3	0.0	0.0							0.3	
200 TO 399	0.0	0.5	0.4	0.2	0.2	0.0	0.0		0.0		1.5	
400 TO 999	0.0	0.7	1.9	3.2	4.3	1.7	1.4	0.6	0.3	4.1	18.3	
1000 TO 1999		0.2	0.8	1.8	7.5	6.9	4.8	1.5	0.7	12.4	36.5	
2000 TO 4999	0.0	0.0	0.1	0.6	5.5	8.7	5.8	1.5	0.7	13.0	36.0	
5000 OR MORE			0.0	0.0	0.4	1.5	1.7	0.4	0.2	3.0	7.1	
TOTAL	0.2	2.0	3.2	5.9	17.9	18.8	13.7	4.0	1.9	32.4	100.0	

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11612

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 13)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTHS: JANUARY TO DECEMBER

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4											2	2
5 TO 19		199	139	1	1		1				9	350
20 TO 49		271	313	12	7	5	2	2	1		30	643
50 TO 99		142	245	9	4	9	8		5		27	449
100 TO 199		147	324	40	21	22	14	9	11	6	56	650
200 TO 399		171	540	412	219	232	120	117	104	71	633	2619
400 TO 999		215	915	1925	2265	3923	2021	2283	1231	922	10291	25991
1000 TO 1999		118	354	942	1894	8455	8587	6433	3779	2515	27014	60091
2000 TO 4999		49	66	186	557	4165	5770	4924	2242	1305	17527	36791
5000 OR MORE				8	37	363	709	849	340	161	2249	4716
TOTAL		1312	2896	3535	5005	17174	17232	14617	7713	4980	57838	132302

		HEIGHT OF LOW CLOUD										
		0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT		0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT		4	9	19	29	59	99	149	199	249		TOTAL
VISIBILITY (DECAMETRES)												
0 TO 4											0.0	0.0
5 TO 19		0.2	0.1	0.0	0.0		0.0				0.0	0.3
20 TO 49		0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.5
50 TO 99		0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.3
100 TO 199		0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
200 TO 399		0.1	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.5	2.0
400 TO 999		0.2	0.7	1.5	1.7	3.0	1.5	1.7	0.9	0.7	7.8	19.6
1000 TO 1999		0.1	0.3	0.7	1.4	6.4	6.5	4.9	2.9	1.9	20.4	45.4
2000 TO 4999		0.0	0.0	0.1	0.4	3.1	4.4	3.7	1.7	1.0	13.2	27.8
5000 OR MORE				0.0	0.0	0.3	0.5	0.6	0.3	0.1	1.7	3.6
TOTAL		1.0	2.2	2.7	3.8	13.0	13.0	11.0	5.8	3.8	43.7	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 132302

6.0 Frequency analysis of low cloud against air temperature

OPPERCENTAGE FREQUENCIES REQUESTED
 OF FREQUENCIES OF HEIGHT OF LOW CLOUD, AIR TEMPERATURE (DEGREES CELSIUS)
 PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 1)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JANUARY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT											
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0								2			2
-0.9 TO 0.0		1	3		35	8	1		1	1	50
0.1 TO 1.0		4	10	8	59	15	7	1	1	35	140
1.1 TO 2.0			11	17	117	53	36	11	5	80	331
2.1 TO 3.0			5	43	153	125	85	28	15	89	544
3.1 TO 4.0	9	13	14	64	230	210	107	31	15	239	932
4.1 TO 5.0		11	26	72	381	307	169	50	31	516	1563
5.1 TO 6.0	2	32	51	77	443	437	206	68	34	603	1953
6.1 TO 7.0	7	47	66	133	399	399	249	91	41	896	2328
7.1 TO 8.0	18	56	110	117	287	300	293	101	48	801	2131
8.1 TO 9.0	3	23	57	66	204	176	152	69	32	522	1304
9.1 TO 10.0	2	10	20	59	160	100	98	41	29	214	733
10.1 TO 11.0		1	7	25	30	43	45	21	15	134	321
11.1 TO 12.0			2		1	13	12	3		7	38
12.1 TO 13.0											
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	41	200	382	681	2499	2186	1460	517	267	4137	12370

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JANUARY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0								0.0			0.0
-0.9 TO 0.0		0.0	0.0		0.3	0.1	0.0		0.0	0.0	0.4
0.1 TO 1.0		0.0	0.1	0.1	0.5	0.1	0.1	0.0	0.0	0.3	1.1
1.1 TO 2.0		0.0	0.1	0.1	0.9	0.4	0.3	0.1	0.0	0.6	2.7
2.1 TO 3.0		0.0	0.0	0.3	1.2	1.0	0.7	0.2	0.1	0.7	4.4
3.1 TO 4.0	0.1	0.1	0.1	0.5	1.9	1.7	0.9	0.3	0.1	1.9	7.5
4.1 TO 5.0		0.1	0.2	0.6	3.1	2.5	1.4	0.4	0.3	4.2	12.6
5.1 TO 6.0	0.0	0.3	0.4	0.6	3.6	3.5	1.7	0.5	0.3	4.9	15.8
6.1 TO 7.0	0.1	0.4	0.5	1.1	3.2	3.2	2.0	0.7	0.3	7.2	18.8
7.1 TO 8.0	0.1	0.5	0.9	0.9	2.3	2.4	2.4	0.8	0.4	6.5	17.2
8.1 TO 9.0	0.0	0.2	0.5	0.5	1.6	1.4	1.2	0.6	0.3	4.2	10.5
9.1 TO 10.0	0.0	0.1	0.2	0.5	1.3	0.8	0.8	0.3	0.2	1.7	5.9
10.1 TO 11.0		0.0	0.1	0.2	0.2	0.3	0.4	0.2	0.1	1.1	2.6
11.1 TO 12.0			0.0		0.0	0.1	0.1	0.0		0.1	0.3
12.1 TO 13.0											
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	0.3	1.6	3.1	5.5	20.2	17.7	11.8	4.2	2.2	33.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 12370

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 3)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: FEBRUARY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											8
-6.9 TO -6.0											7
-5.9 TO -5.0											
-4.9 TO -4.0						8					8
-3.9 TO -3.0		1	1			4	1				7
-2.9 TO -2.0		1	3	1	3	5	2			4	19
-1.9 TO -1.0		1		3	5	12	3		1	13	38
-0.9 TO 0.0			2	2	31	57	20	5	1	18	136
0.1 TO 1.0			2	1	6	96	74	20	7	1	52
1.1 TO 2.0	3	2	8	22	130	131	41	14	9	96	456
2.1 TO 3.0		14	18	54	242	153	74	34	9	171	769
3.1 TO 4.0	4	22	42	90	315	257	138	52	35	372	1327
4.1 TO 5.0	7	33	55	103	284	287	150	65	19	553	1556
5.1 TO 6.0	17	75	94	88	305	312	225	89	40	700	1945
6.1 TO 7.0	15	59	69	68	229	205	282	107	49	620	1703
7.1 TO 8.0	22	31	41	32	137	168	177	60	39	448	1155
8.1 TO 9.0	2	5	21	31	94	125	125	62	28	325	818
9.1 TO 10.0		4	11	25	29	42	58	21	23	227	440
10.1 TO 11.0					2	15	35	7	6	76	141
11.1 TO 12.0						1	1			11	13
12.1 TO 13.0										2	2
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	70	250	366	525	1902	1856	1352	523	260	3688	10792

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: FEBRUARY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											0.1
-6.9 TO -6.0											0.1
-5.9 TO -5.0											0.1
-4.9 TO -4.0						0.1					0.1
-3.9 TO -3.0		0.0	0.0			0.0	0.0				0.2
-2.9 TO -2.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.4
-1.9 TO -1.0		0.0		0.0	0.0	0.1	0.0		0.0	0.1	1.3
-0.9 TO 0.0			0.0	0.0	0.3	0.5	0.2	0.0	0.0	0.2	2.4
0.1 TO 1.0		0.0	0.0	0.1	0.9	0.7	0.2	0.1	0.0	0.5	4.2
1.1 TO 2.0	0.0	0.0	0.1	0.2	1.2	1.2	0.4	0.1	0.1	0.9	7.1
2.1 TO 3.0		0.1	0.2	0.5	2.2	1.4	0.7	0.3	0.1	1.6	12.3
3.1 TO 4.0	0.0	0.2	0.4	0.8	2.9	2.4	1.3	0.5	0.3	3.4	14.4
4.1 TO 5.0	0.1	0.3	0.5	1.0	2.6	2.7	1.4	0.6	0.2	5.1	18.0
5.1 TO 6.0	0.2	0.7	0.9	0.8	2.8	2.9	2.1	0.8	0.4	6.5	15.8
6.1 TO 7.0	0.1	0.5	0.6	0.6	2.1	1.9	2.6	1.0	0.5	5.7	10.7
7.1 TO 8.0	0.2	0.3	0.4	0.3	1.3	1.6	1.6	0.6	0.4	4.2	7.6
8.1 TO 9.0	0.0	0.0	0.2	0.3	0.9	1.2	1.2	0.6	0.3	3.0	4.1
9.1 TO 10.0		0.0	0.1	0.2	0.3	0.4	0.5	0.2	0.2	2.1	1.3
10.1 TO 11.0					0.0	0.1	0.3	0.1	0.1	0.7	0.1
11.1 TO 12.0						0.0	0.0			0.1	0.0
12.1 TO 13.0										0.0	0.0
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	0.6	2.3	3.4	4.9	17.6	17.2	12.5	4.8	2.4	34.2	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10792

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 5)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MARCH

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0					1	1					2
-3.9 TO -3.0					5	1					6
-2.9 TO -2.0						9				11	20
-1.9 TO -1.0					13	17	1			12	43
-0.9 TO 0.0			2		15	37	20			11	85
0.1 TO 1.0				8	18	48	24	5	1	47	151
1.1 TO 2.0		8	10	18	79	70	51	13	10	96	355
2.1 TO 3.0		1	15	32	100	60	47	7	12	147	421
3.1 TO 4.0	29	20	45	69	144	123	94	41	24	256	845
4.1 TO 5.0	67	66	70	75	191	166	160	53	40	464	1352
5.1 TO 6.0	86	67	91	100	291	228	224	108	54	786	2035
6.1 TO 7.0	50	70	48	77	260	196	278	138	86	964	2167
7.1 TO 8.0	27	88	42	27	108	138	250	143	76	1088	1987
8.1 TO 9.0	10	23	27	16	60	82	207	108	68	889	1490
9.1 TO 10.0	1	10	10	4	18	38	65	38	49	432	665
10.1 TO 11.0					3	4	14	9	9	176	215
11.1 TO 12.0					1		1	2	4	72	80
12.1 TO 13.0								1	1	32	34
13.1 TO 14.0										9	9
14.1 TO 15.0										3	3
15.1 TO 16.0										3	3
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	270	353	360	426	1307	1218	1436	666	434	5498	11968

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MARCH

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0					0.0	0.0					0.0
-3.9 TO -3.0					0.0	0.0					0.1
-2.9 TO -2.0						0.1				0.1	0.2
-1.9 TO -1.0					0.1	0.1	0.0			0.1	0.4
-0.9 TO 0.0			0.0		0.1	0.3	0.2			0.1	0.7
0.1 TO 1.0				0.1	0.2	0.4	0.2	0.0	0.0	0.4	1.3
1.1 TO 2.0		0.1	0.1	0.2	0.7	0.6	0.4	0.1	0.1	0.8	3.0
2.1 TO 3.0		0.0	0.1	0.3	0.8	0.5	0.4	0.1	0.1	1.2	3.5
3.1 TO 4.0	0.2	0.2	0.4	0.6	1.2	1.0	0.8	0.3	0.2	2.1	7.1
4.1 TO 5.0	0.6	0.6	0.6	0.6	1.6	1.4	1.3	0.4	0.3	3.9	11.3
5.1 TO 6.0	0.7	0.6	0.8	0.8	2.4	1.9	1.9	0.9	0.5	6.6	17.0
6.1 TO 7.0	0.4	0.6	0.4	0.6	2.2	1.6	2.3	1.2	0.7	8.1	18.1
7.1 TO 8.0	0.2	0.7	0.4	0.2	0.9	1.2	2.1	1.2	0.6	9.1	16.6
8.1 TO 9.0	0.1	0.2	0.2	0.1	0.5	0.7	1.7	0.9	0.6	7.4	12.4
9.1 TO 10.0	0.0	0.1	0.1	0.0	0.2	0.3	0.5	0.3	0.4	3.6	5.6
10.1 TO 11.0					0.0	0.0	0.1	0.1	0.1	1.5	1.8
11.1 TO 12.0					0.0		0.0	0.0	0.0	0.6	0.7
12.1 TO 13.0								0.0	0.0	0.3	0.3
13.1 TO 14.0										0.1	0.1
14.1 TO 15.0										0.0	0.0
15.1 TO 16.0										0.0	0.0
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	2.3	2.9	3.0	3.6	10.9	10.2	12.0	5.6	3.6	45.9	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11968

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 7)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	LOWER LIMIT	0	5	10	20	30	60	100	150	200	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0					3	1				1	5
2.1 TO 3.0				1	11	7	10	3	1	47	80
3.1 TO 4.0	5	2		7	26	10	15	10	8	144	227
4.1 TO 5.0	7	28	12	9	70	61	56	26	12	154	435
5.1 TO 6.0	32	58	41	43	131	171	91	33	20	356	976
6.1 TO 7.0	30	103	68	79	206	280	205	97	60	795	1923
7.1 TO 8.0	59	67	59	58	158	210	254	169	86	1015	2135
8.1 TO 9.0	51	69	35	36	85	89	189	167	96	1028	1845
9.1 TO 10.0	26	20	15	12	47	68	125	120	78	862	1373
10.1 TO 11.0	15	25	8	7	26	23	74	76	53	602	909
11.1 TO 12.0	2	6			3	6	35	29	39	336	456
12.1 TO 13.0	2		1		1	2	8	9	19	152	194
13.1 TO 14.0							3	2	2	68	75
14.1 TO 15.0										51	51
15.1 TO 16.0										21	21
16.1 TO 17.0										14	14
17.1 TO 18.0										7	7
18.1 TO 19.0										2	2
19.1 TO 20.0										1	1
20.1 TO 21.0											
21.1 TO 22.0										1	1
22.1 OR MORE											
TOTAL	229	378	239	252	767	928	1065	741	474	5657	10730

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 8)

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: APRIL

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0					0.0	0.0				0.0	0.0
2.1 TO 3.0				0.0	0.1	0.1	0.1	0.0	0.0	0.4	0.7
3.1 TO 4.0	0.0	0.0		0.1	0.2	0.1	0.1	0.1	0.1	1.3	2.1
4.1 TO 5.0	0.1	0.3	0.1	0.1	0.7	0.6	0.5	0.2	0.1	1.4	4.1
5.1 TO 6.0	0.3	0.5	0.4	0.4	1.2	1.6	0.8	0.3	0.2	3.3	9.1
6.1 TO 7.0	0.3	1.0	0.6	0.7	1.9	2.6	1.9	0.9	0.6	7.4	17.9
7.1 TO 8.0	0.5	0.6	0.5	0.5	1.5	2.0	2.4	1.6	0.8	9.5	19.9
8.1 TO 9.0	0.5	0.6	0.3	0.3	0.8	0.8	1.8	1.6	0.9	9.6	17.2
9.1 TO 10.0	0.2	0.2	0.1	0.1	0.4	0.6	1.2	1.1	0.7	8.0	12.8
10.1 TO 11.0	0.1	0.2	0.1	0.1	0.2	0.2	0.7	0.7	0.5	5.6	8.5
11.1 TO 12.0	0.0	0.1			0.0	0.1	0.3	0.3	0.4	3.1	4.2
12.1 TO 13.0	0.0		0.0		0.0	0.0	0.1	0.1	0.2	1.4	1.8
13.1 TO 14.0							0.0	0.0	0.0	0.6	0.7
14.1 TO 15.0										0.5	0.5
15.1 TO 16.0										0.2	0.2
16.1 TO 17.0										0.1	0.1
17.1 TO 18.0										0.1	0.1
18.1 TO 19.0										0.0	0.0
19.1 TO 20.0										0.0	0.0
20.1 TO 21.0											
21.1 TO 22.0										0.0	0.0
22.1 OR MORE											
TOTAL	2.1	3.5	2.2	2.3	7.1	8.6	9.9	6.9	4.4	52.7	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10730

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MAY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0				2	5						7
5.1 TO 6.0				1	16	3	2	3	2	22	49
6.1 TO 7.0		5	3	9	32	53	38	19	6	145	310
7.1 TO 8.0	19	48	35	33	130	157	123	23	14	286	868
8.1 TO 9.0	53	89	39	53	216	105	105	58	41	514	1273
9.1 TO 10.0	38	70	70	43	188	134	168	145	91	776	1723
10.1 TO 11.0	22	62	49	40	97	106	203	161	127	1090	1957
11.1 TO 12.0	42	58	61	30	60	64	155	162	138	1136	1906
12.1 TO 13.0	16	37	21	15	36	51	107	108	101	930	1422
13.1 TO 14.0	15	16	10	6	16	31	55	47	49	544	789
14.1 TO 15.0	2	2	1		4	2	17	16	20	296	360
15.1 TO 16.0		1			1		6	4	4	144	160
16.1 TO 17.0							1	2	1	83	87
17.1 TO 18.0								2	1	46	49
18.1 TO 19.0								1		16	17
19.1 TO 20.0										6	6
20.1 TO 21.0										1	1
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	207	388	289	232	801	706	980	751	595	6035	10984

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: MAY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	LOWER LIMIT	0	5	10	20	30	60	100	150	200	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0				0.0	0.0						0.1
5.1 TO 6.0				0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.4
6.1 TO 7.0		0.0	0.0	0.1	0.3	0.5	0.3	0.2	0.1	1.3	2.8
7.1 TO 8.0	0.2	0.4	0.3	0.3	1.2	1.4	1.1	0.2	0.1	2.6	7.9
8.1 TO 9.0	0.5	0.8	0.4	0.5	2.0	1.0	1.0	0.5	0.4	4.7	11.6
9.1 TO 10.0	0.3	0.6	0.6	0.4	1.7	1.2	1.5	1.3	0.8	7.1	15.7
10.1 TO 11.0	0.2	0.6	0.4	0.4	0.9	1.0	1.8	1.5	1.2	9.9	17.8
11.1 TO 12.0	0.4	0.5	0.6	0.3	0.5	0.6	1.4	1.5	1.3	10.3	17.4
12.1 TO 13.0	0.1	0.3	0.2	0.1	0.3	0.5	1.0	1.0	0.9	8.5	12.9
13.1 TO 14.0	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.4	5.0	7.2
14.1 TO 15.0	0.0	0.0	0.0		0.0	0.0	0.2	0.1	0.2	2.7	3.3
15.1 TO 16.0		0.0			0.0		0.1	0.0	0.0	1.3	1.5
16.1 TO 17.0							0.0	0.0	0.0	0.8	0.8
17.1 TO 18.0								0.0	0.0	0.4	0.4
18.1 TO 19.0								0.0		0.1	0.2
19.1 TO 20.0										0.1	0.1
20.1 TO 21.0										0.0	0.0
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	1.9	3.5	2.6	2.1	7.3	6.4	8.9	6.8	5.4	54.9	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10984

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JUNE

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0		4	4							1	9
8.1 TO 9.0		3	5	11	6	12	7	2	2	17	65
9.1 TO 10.0	1	8	14	18	56	63	42	18	5	123	348
10.1 TO 11.0	28	50	14	25	99	125	91	50	18	220	720
11.1 TO 12.0	25	104	58	66	209	161	145	88	64	533	1453
12.1 TO 13.0	18	86	55	68	212	134	174	168	93	936	1944
13.1 TO 14.0	18	62	48	44	169	160	192	192	137	1142	2164
14.1 TO 15.0	16	41	25	33	74	88	143	150	122	885	1577
15.1 TO 16.0	12	24	10	12	28	52	111	103	74	617	1043
16.1 TO 17.0	4	13	8	3	11	25	38	41	28	369	540
17.1 TO 18.0	2	3			1	4	14	8	7	178	217
18.1 TO 19.0	2					1	3	4	1	63	74
19.1 TO 20.0									1	50	51
20.1 TO 21.0						1		1		11	13
21.1 TO 22.0										6	6
22.1 OR MORE										6	6
TOTAL	126	398	241	280	865	826	960	825	552	5157	10230

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JUNE

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0		0.0	0.0							0.0	0.1
8.1 TO 9.0		0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.6
9.1 TO 10.0	0.0	0.1	0.1	0.2	0.5	0.6	0.4	0.2	0.0	1.2	3.4
10.1 TO 11.0	0.3	0.5	0.1	0.2	1.0	1.2	0.9	0.5	0.2	2.2	7.0
11.1 TO 12.0	0.2	1.0	0.6	0.6	2.0	1.6	1.4	0.9	0.6	5.2	14.2
12.1 TO 13.0	0.2	0.8	0.5	0.7	2.1	1.3	1.7	1.6	0.9	9.1	19.0
13.1 TO 14.0	0.2	0.6	0.5	0.4	1.7	1.6	1.9	1.9	1.3	11.2	21.2
14.1 TO 15.0	0.2	0.4	0.2	0.3	0.7	0.9	1.4	1.5	1.2	8.7	15.4
15.1 TO 16.0	0.1	0.2	0.1	0.1	0.3	0.5	1.1	1.0	0.7	6.0	10.2
16.1 TO 17.0	0.0	0.1	0.1	0.0	0.1	0.2	0.4	0.4	0.3	3.6	5.3
17.1 TO 18.0	0.0	0.0			0.0	0.0	0.1	0.1	0.1	1.7	2.1
18.1 TO 19.0	0.0					0.0	0.0	0.0	0.0	0.6	0.7
19.1 TO 20.0									0.0	0.5	0.5
20.1 TO 21.0						0.0		0.0		0.1	0.1
21.1 TO 22.0										0.1	0.1
22.1 OR MORE										0.1	0.1
TOTAL	1.2	3.9	2.4	2.7	8.5	8.1	9.4	8.1	5.4	50.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10230

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 13)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JULY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0											
10.1 TO 11.0											
11.1 TO 12.0	1	1		1	14	2					19
12.1 TO 13.0	11	12	8	14	61	48	28	17	5	21	225
13.1 TO 14.0	8	33	46	66	249	227	107	52	41	339	1168
14.1 TO 15.0	47	66	101	138	270	161	111	107	98	706	1805
15.1 TO 16.0	44	78	67	81	209	91	187	190	162	1127	2236
16.1 TO 17.0	35	54	50	42	119	87	190	166	167	1231	2141
17.1 TO 18.0	15	27	13	20	39	37	120	114	78	857	1320
18.1 TO 19.0	7	16	5	4	8	10	26	30	36	498	640
19.1 TO 20.0	4	1	2	3	2	1	6	9	11	260	299
20.1 TO 21.0				2	1		1	1	4	120	129
21.1 TO 22.0									2	36	38
22.1 OR MORE										62	62
TOTAL	172	288	292	371	972	664	776	686	604	5257	10082

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: JULY

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0											
10.1 TO 11.0											
11.1 TO 12.0	0.0	0.0		0.0	0.1	0.0					0.2
12.1 TO 13.0	0.1	0.1	0.1	0.1	0.6	0.5	0.3	0.2	0.0	0.2	2.2
13.1 TO 14.0	0.1	0.3	0.5	0.7	2.5	2.3	1.1	0.5	0.4	3.4	11.6
14.1 TO 15.0	0.5	0.7	1.0	1.4	2.7	1.6	1.1	1.1	1.0	7.0	17.9
15.1 TO 16.0	0.4	0.8	0.7	0.8	2.1	0.9	1.9	1.9	1.6	11.2	22.2
16.1 TO 17.0	0.3	0.5	0.5	0.4	1.2	0.9	1.9	1.6	1.7	12.2	21.2
17.1 TO 18.0	0.1	0.3	0.1	0.2	0.4	0.4	1.2	1.1	0.8	8.5	13.1
18.1 TO 19.0	0.1	0.2	0.0	0.0	0.1	0.1	0.3	0.3	0.4	4.9	6.3
19.1 TO 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	2.6	3.0
20.1 TO 21.0				0.0	0.0		0.0	0.0	0.0	1.2	1.3
21.1 TO 22.0									0.0	0.4	0.4
22.1 OR MORE										0.6	0.6
TOTAL	1.7	2.9	2.9	3.7	9.6	6.6	7.7	6.8	6.0	52.1	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10082

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 15)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: AUGUST

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0											
10.1 TO 11.0											
11.1 TO 12.0					6	1	2	1			10
12.1 TO 13.0					5	26	8	4	1	3	47
13.1 TO 14.0			3	5	52	162	55	18	12	77	384
14.1 TO 15.0		1	27	34	202	215	109	64	61	324	1037
15.1 TO 16.0	3	10	57	95	347	252	142	104	98	754	1862
16.1 TO 17.0	31	36	52	110	339	184	244	195	119	1154	2464
17.1 TO 18.0	13	37	49	97	190	155	272	193	122	1359	2487
18.1 TO 19.0	12	25	22	40	68	80	175	127	101	1023	1673
19.1 TO 20.0	5	4	7	11	21	26	57	56	38	545	770
20.1 TO 21.0		2	3	3	2	4	4	11	9	246	284
21.1 TO 22.0					1	1	4	7	7	114	134
22.1 OR MORE								1		47	48
TOTAL	64	115	220	395	1233	1106	1072	781	568	5646	11200

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 16)

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: AUGUST

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0											
10.1 TO 11.0											
11.1 TO 12.0					0.1	0.0	0.0	0.0			0.1
12.1 TO 13.0					0.0	0.2	0.1	0.0	0.0	0.0	0.4
13.1 TO 14.0			0.0	0.0	0.5	1.4	0.5	0.2	0.1	0.7	3.4
14.1 TO 15.0		0.0	0.2	0.3	1.8	1.9	1.0	0.6	0.5	2.9	9.3
15.1 TO 16.0	0.0	0.1	0.5	0.8	3.1	2.3	1.3	0.9	0.9	6.7	16.6
16.1 TO 17.0	0.3	0.3	0.5	1.0	3.0	1.6	2.2	1.7	1.1	10.3	22.0
17.1 TO 18.0	0.1	0.3	0.4	0.9	1.7	1.4	2.4	1.7	1.1	12.1	22.2
18.1 TO 19.0	0.1	0.2	0.2	0.4	0.6	0.7	1.6	1.1	0.9	9.1	14.9
19.1 TO 20.0	0.0	0.0	0.1	0.1	0.2	0.2	0.5	0.5	0.3	4.9	6.9
20.1 TO 21.0		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	2.2	2.5
21.1 TO 22.0					0.0	0.0	0.0	0.1	0.1	1.0	1.2
22.1 OR MORE								0.0		0.4	0.4
TOTAL	0.6	1.0	2.0	3.5	11.0	9.9	9.6	7.0	5.1	50.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11200

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 17)

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: SEPTEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0							1				1
10.1 TO 11.0						2	5	2	1	4	14
11.1 TO 12.0			2	2	14	42	34	9		29	132
12.1 TO 13.0	1		12	14	73	156	108	50	14	146	574
13.1 TO 14.0		4	17	27	219	264	151	56	24	275	1037
14.1 TO 15.0	1	1	15	27	244	444	225	95	69	555	1676
15.1 TO 16.0	5	20	25	54	265	272	239	148	87	888	2003
16.1 TO 17.0	6	26	48	73	225	188	176	112	81	862	1797
17.1 TO 18.0	11	22	41	68	107	68	120	79	79	844	1439
18.1 TO 19.0	7	33	16	27	43	51	81	47	32	694	1031
19.1 TO 20.0	4	7	2		12	11	27	10	15	336	424
20.1 TO 21.0			1				4	2	2	105	114
21.1 TO 22.0										38	38
22.1 OR MORE										11	11
TOTAL	35	113	179	292	1202	1498	1171	610	404	4787	10291

PRODUCED: 6 FEB 2019 (C) CROWN COPYRIGHT. MET OFFICE 2019 (PAGE: 18)

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: SEPTEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0											
5.1 TO 6.0											
6.1 TO 7.0											
7.1 TO 8.0											
8.1 TO 9.0											
9.1 TO 10.0							0.0				0.0
10.1 TO 11.0						0.0	0.0	0.0	0.0	0.0	0.1
11.1 TO 12.0			0.0	0.0	0.1	0.4	0.3	0.1		0.3	1.3
12.1 TO 13.0	0.0		0.1	0.1	0.7	1.5	1.0	0.5	0.1	1.4	5.6
13.1 TO 14.0		0.0	0.2	0.3	2.1	2.6	1.5	0.5	0.2	2.7	10.1
14.1 TO 15.0	0.0	0.0	0.1	0.3	2.4	4.3	2.2	0.9	0.7	5.4	16.3
15.1 TO 16.0	0.0	0.2	0.2	0.5	2.6	2.6	2.3	1.4	0.8	8.6	19.5
16.1 TO 17.0	0.1	0.3	0.5	0.7	2.2	1.8	1.7	1.1	0.8	8.4	17.5
17.1 TO 18.0	0.1	0.2	0.4	0.7	1.0	0.7	1.2	0.8	0.8	8.2	14.0
18.1 TO 19.0	0.1	0.3	0.2	0.3	0.4	0.5	0.8	0.5	0.3	6.7	10.0
19.1 TO 20.0	0.0	0.1	0.0		0.1	0.1	0.3	0.1	0.1	3.3	4.1
20.1 TO 21.0			0.0				0.0	0.0	0.0	1.0	1.1
21.1 TO 22.0										0.4	0.4
22.1 OR MORE										0.1	0.1
TOTAL	0.3	1.1	1.7	2.8	11.7	14.6	11.4	5.9	3.9	46.5	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 10291

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: OCTOBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0											
3.1 TO 4.0											
4.1 TO 5.0					2						2
5.1 TO 6.0					2	2		1			5
6.1 TO 7.0					4	13	3	1	1	1	23
7.1 TO 8.0				1	4	15	14	5		17	56
8.1 TO 9.0				7	38	68	47	15	7	78	260
9.1 TO 10.0	1		3	15	79	116	103	23	14	163	517
10.1 TO 11.0			6	25	143	221	165	33	16	296	905
11.1 TO 12.0	1	1	21	28	175	368	214	77	26	494	1405
12.1 TO 13.0	1	9	27	67	318	391	263	107	31	610	1824
13.1 TO 14.0	16	20	62	76	366	289	262	98	44	777	2010
14.1 TO 15.0	11	20	65	75	296	243	217	100	58	737	1822
15.1 TO 16.0	9	12	74	73	222	186	150	93	73	600	1492
16.1 TO 17.0	2	5	11	14	60	65	65	29	26	396	673
17.1 TO 18.0		1	1		5	22	16	16	15	188	264
18.1 TO 19.0							7	5	5	91	108
19.1 TO 20.0							1			37	38
20.1 TO 21.0									1	8	9
21.1 TO 22.0										2	2
22.1 OR MORE										4	4
TOTAL	41	68	270	381	1714	1999	1527	603	317	4499	11419

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: OCTOBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											0.0
-6.9 TO -6.0											0.0
-5.9 TO -5.0											0.0
-4.9 TO -4.0											0.0
-3.9 TO -3.0											0.0
-2.9 TO -2.0											0.0
-1.9 TO -1.0											0.0
-0.9 TO 0.0											0.0
0.1 TO 1.0											0.0
1.1 TO 2.0											0.0
2.1 TO 3.0											0.0
3.1 TO 4.0											0.0
4.1 TO 5.0					0.0						0.0
5.1 TO 6.0					0.0	0.0		0.0			0.0
6.1 TO 7.0					0.0	0.1	0.0	0.0	0.0	0.0	0.2
7.1 TO 8.0				0.0	0.0	0.1	0.1	0.0		0.1	0.5
8.1 TO 9.0				0.1	0.3	0.6	0.4	0.1	0.1	0.7	2.3
9.1 TO 10.0	0.0		0.0	0.1	0.7	1.0	0.9	0.2	0.1	1.4	4.5
10.1 TO 11.0			0.1	0.2	1.3	1.9	1.4	0.3	0.1	2.6	7.9
11.1 TO 12.0	0.0	0.0	0.2	0.2	1.5	3.2	1.9	0.7	0.2	4.3	12.3
12.1 TO 13.0	0.0	0.1	0.2	0.6	2.8	3.4	2.3	0.9	0.3	5.3	16.0
13.1 TO 14.0	0.1	0.2	0.5	0.7	3.2	2.5	2.3	0.9	0.4	6.8	17.6
14.1 TO 15.0	0.1	0.2	0.6	0.7	2.6	2.1	1.9	0.9	0.5	6.5	16.0
15.1 TO 16.0	0.1	0.1	0.6	0.6	1.9	1.6	1.3	0.8	0.6	5.3	13.1
16.1 TO 17.0	0.0	0.0	0.1	0.1	0.5	0.6	0.6	0.3	0.2	3.5	5.9
17.1 TO 18.0		0.0	0.0		0.0	0.2	0.1	0.1	0.1	1.6	2.3
18.1 TO 19.0							0.1	0.0	0.0	0.8	0.9
19.1 TO 20.0							0.0			0.3	0.3
20.1 TO 21.0									0.0	0.1	0.1
21.1 TO 22.0										0.0	0.0
22.1 OR MORE										0.0	0.0
TOTAL	0.4	0.6	2.4	3.3	15.0	17.5	13.4	5.3	2.8	39.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11419

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: NOVEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0		2	2	5	16	13	4	1	1	1	45
3.1 TO 4.0			2	1	9	18	7	6		2	45
4.1 TO 5.0					20	19	17	11	8	26	101
5.1 TO 6.0			1	2	47	48	35	17	10	44	204
6.1 TO 7.0		1	6	15	101	238	90	36	18	128	633
7.1 TO 8.0		3	12	38	199	322	169	38	19	219	1019
8.1 TO 9.0		8	30	57	313	414	229	65	16	403	1535
9.1 TO 10.0	1	11	36	72	326	428	289	125	50	588	1926
10.1 TO 11.0		11	75	92	290	287	285	115	50	731	1936
11.1 TO 12.0	2	33	70	104	299	185	204	119	48	652	1716
12.1 TO 13.0		20	53	96	277	136	136	53	35	570	1376
13.1 TO 14.0	1	6	32	36	103	79	83	40	20	241	641
14.1 TO 15.0		7	5	13	36	54	34	14	14	91	268
15.1 TO 16.0				1	12	13	5	5	9	45	90
16.1 TO 17.0				2	9	4	9	3	6	17	50
17.1 TO 18.0							2	2	4	2	10
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	4	102	324	534	2057	2258	1598	650	308	3760	11595

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: NOVEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0											
1.1 TO 2.0											
2.1 TO 3.0		0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.4
3.1 TO 4.0			0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.4
4.1 TO 5.0					0.2	0.2	0.1	0.1	0.1	0.2	0.9
5.1 TO 6.0			0.0	0.0	0.4	0.4	0.3	0.1	0.1	0.4	1.8
6.1 TO 7.0		0.0	0.1	0.1	0.9	2.1	0.8	0.3	0.2	1.1	5.5
7.1 TO 8.0		0.0	0.1	0.3	1.7	2.8	1.5	0.3	0.2	1.9	8.8
8.1 TO 9.0		0.1	0.3	0.5	2.7	3.6	2.0	0.6	0.1	3.5	13.2
9.1 TO 10.0	0.0	0.1	0.3	0.6	2.8	3.7	2.5	1.1	0.4	5.1	16.6
10.1 TO 11.0		0.1	0.6	0.8	2.5	2.5	2.5	1.0	0.4	6.3	16.7
11.1 TO 12.0	0.0	0.3	0.6	0.9	2.6	1.6	1.8	1.0	0.4	5.6	14.8
12.1 TO 13.0		0.2	0.5	0.8	2.4	1.2	1.2	0.5	0.3	4.9	11.9
13.1 TO 14.0	0.0	0.1	0.3	0.3	0.9	0.7	0.7	0.3	0.2	2.1	5.5
14.1 TO 15.0		0.1	0.0	0.1	0.3	0.5	0.3	0.1	0.1	0.8	2.3
15.1 TO 16.0				0.0	0.1	0.1	0.0	0.0	0.1	0.4	0.8
16.1 TO 17.0				0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.4
17.1 TO 18.0							0.0	0.0	0.0	0.0	0.1
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	0.0	0.9	2.8	4.6	17.7	19.5	13.8	5.6	2.7	32.4	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 11595

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: DECEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0		1	2	4	3	13	6			10	39
1.1 TO 2.0			5	9	42	32	21	10	1	33	153
2.1 TO 3.0			2	20	44	72	45	12	12	127	334
3.1 TO 4.0			1	32	99	89	53	28	10	227	539
4.1 TO 5.0	3	12	27	60	161	131	87	25	18	227	751
5.1 TO 6.0	4	38	38	79	267	302	159	28	23	312	1250
6.1 TO 7.0	2	44	40	91	311	351	205	50	15	558	1667
7.1 TO 8.0	4	42	80	124	334	386	303	71	28	685	2057
8.1 TO 9.0	2	27	58	126	364	385	331	74	32	733	2132
9.1 TO 10.0		22	40	93	265	257	217	85	36	494	1509
10.1 TO 11.0	3	29	34	48	161	107	107	48	28	322	887
11.1 TO 12.0		7	38	37	84	78	71	40	21	209	585
12.1 TO 13.0		8	7	5	8	23	11	5	4	52	123
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	18	230	372	728	2143	2226	1616	476	228	3989	12026

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PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTH: DECEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
UP TO -7.0											
-6.9 TO -6.0											
-5.9 TO -5.0											
-4.9 TO -4.0											
-3.9 TO -3.0											
-2.9 TO -2.0											
-1.9 TO -1.0											
-0.9 TO 0.0											
0.1 TO 1.0		0.0	0.0	0.0	0.0	0.1	0.0			0.1	0.3
1.1 TO 2.0			0.0	0.1	0.3	0.3	0.2	0.1	0.0	0.3	1.3
2.1 TO 3.0			0.0	0.2	0.4	0.6	0.4	0.1	0.1	1.1	2.8
3.1 TO 4.0			0.0	0.3	0.8	0.7	0.4	0.2	0.1	1.9	4.5
4.1 TO 5.0	0.0	0.1	0.2	0.5	1.3	1.1	0.7	0.2	0.1	1.9	6.2
5.1 TO 6.0	0.0	0.3	0.3	0.7	2.2	2.5	1.3	0.2	0.2	2.6	10.4
6.1 TO 7.0	0.0	0.4	0.3	0.8	2.6	2.9	1.7	0.4	0.1	4.6	13.9
7.1 TO 8.0	0.0	0.3	0.7	1.0	2.8	3.2	2.5	0.6	0.2	5.7	17.1
8.1 TO 9.0	0.0	0.2	0.5	1.0	3.0	3.2	2.8	0.6	0.3	6.1	17.7
9.1 TO 10.0		0.2	0.3	0.8	2.2	2.1	1.8	0.7	0.3	4.1	12.5
10.1 TO 11.0	0.0	0.2	0.3	0.4	1.3	0.9	0.9	0.4	0.2	2.7	7.4
11.1 TO 12.0		0.1	0.3	0.3	0.7	0.6	0.6	0.3	0.2	1.7	4.9
12.1 TO 13.0		0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.4	1.0
13.1 TO 14.0											
14.1 TO 15.0											
15.1 TO 16.0											
16.1 TO 17.0											
17.1 TO 18.0											
18.1 TO 19.0											
19.1 TO 20.0											
20.1 TO 21.0											
21.1 TO 22.0											
22.1 OR MORE											
TOTAL	0.1	1.9	3.1	6.1	17.8	18.5	13.4	4.0	1.9	33.2	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 12026

FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTHS: JANUARY TO DECEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											10
-6.9 TO -6.0											13
-5.9 TO -5.0											
-4.9 TO -4.0					1	9					
-3.9 TO -3.0		1	1		5	5	1				13
-2.9 TO -2.0		1	3	1	3	14	2			15	39
-1.9 TO -1.0		1		3	18	29	4	2	1	25	83
-0.9 TO 0.0		1	7	2	81	102	41	5	2	30	271
0.1 TO 1.0		7	13	26	176	150	57	13	3	144	589
1.1 TO 2.0	3	11	34	66	371	287	149	48	25	306	1300
2.1 TO 3.0		18	42	155	566	430	265	85	50	582	2193
3.1 TO 4.0	47	57	104	263	823	707	414	168	92	1240	3915
4.1 TO 5.0	84	150	190	321	1114	971	639	230	128	1940	5767
5.1 TO 6.0	141	270	316	390	1502	1503	942	347	183	2823	8417
6.1 TO 7.0	104	329	300	472	1542	1735	1350	539	276	4107	10754
7.1 TO 8.0	149	339	383	430	1357	1696	1583	610	310	4560	11417
8.1 TO 9.0	121	247	272	403	1380	1456	1392	620	322	4509	10722
9.1 TO 10.0	70	155	219	341	1168	1246	1166	616	375	3879	9235
10.1 TO 11.0	68	178	193	262	851	933	1024	522	323	3651	8005
11.1 TO 12.0	73	210	252	268	866	921	874	530	340	3479	7813
12.1 TO 13.0	49	172	184	279	991	967	843	522	304	3454	7765
13.1 TO 14.0	58	141	218	260	1174	1212	908	505	329	3472	8277
14.1 TO 15.0	77	138	239	320	1126	1207	856	546	442	3648	8599
15.1 TO 16.0	73	145	233	316	1084	866	840	647	507	4199	8910
16.1 TO 17.0	78	134	169	244	763	553	723	548	428	4126	7766
17.1 TO 18.0	41	90	104	185	342	286	544	414	306	3481	5793
18.1 TO 19.0	28	74	43	71	119	142	292	214	175	2387	3545
19.1 TO 20.0	13	12	11	14	35	38	91	75	65	1235	1589
20.1 TO 21.0		2	4	5	3	5	9	15	16	491	550
21.1 TO 22.0					1	1	4	7	9	197	219
22.1 OR MORE								1		130	131
TOTAL	1277	2883	3534	5097	17462	17471	15013	7829	5011	58110	133687

PERCENTAGE FREQUENCIES FOR: 1 62145
 PERIOD OF DATA: 9/2001 TO 1/2019
 MONTHS: JANUARY TO DECEMBER

AIR TEMPERATURE (DEGREES CELSIUS)	HEIGHT OF LOW CLOUD										TOTAL
	0	5	10	20	30	60	100	150	200	250	
UPPER LIMIT	4	9	19	29	59	99	149	199	249		
LOWER LIMIT	0	5	10	20	30	60	100	150	200	250	
UP TO -7.0											0.0
-6.9 TO -6.0											0.0
-5.9 TO -5.0											0.0
-4.9 TO -4.0					0.0	0.0					0.0
-3.9 TO -3.0		0.0	0.0		0.0	0.0	0.0				0.0
-2.9 TO -2.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
-1.9 TO -1.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
-0.9 TO 0.0		0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2
0.1 TO 1.0		0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.4
1.1 TO 2.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.2	1.0
2.1 TO 3.0		0.0	0.0	0.1	0.4	0.3	0.2	0.1	0.0	0.4	1.6
3.1 TO 4.0	0.0	0.0	0.1	0.2	0.6	0.5	0.3	0.1	0.1	0.9	2.9
4.1 TO 5.0	0.1	0.1	0.1	0.2	0.8	0.7	0.5	0.2	0.1	1.5	4.3
5.1 TO 6.0	0.1	0.2	0.2	0.3	1.1	1.1	0.7	0.3	0.1	2.1	6.3
6.1 TO 7.0	0.1	0.2	0.2	0.4	1.2	1.3	1.0	0.4	0.2	3.1	8.0
7.1 TO 8.0	0.1	0.3	0.3	0.3	1.0	1.3	1.2	0.5	0.2	3.4	8.5
8.1 TO 9.0	0.1	0.2	0.2	0.3	1.0	1.1	1.0	0.5	0.2	3.4	8.0
9.1 TO 10.0	0.1	0.1	0.2	0.3	0.9	0.9	0.9	0.5	0.3	2.9	6.9
10.1 TO 11.0	0.1	0.1	0.1	0.2	0.6	0.7	0.8	0.4	0.2	2.7	6.0
11.1 TO 12.0	0.1	0.2	0.2	0.2	0.6	0.7	0.7	0.4	0.3	2.6	5.8
12.1 TO 13.0	0.0	0.1	0.1	0.2	0.7	0.7	0.6	0.4	0.2	2.6	5.8
13.1 TO 14.0	0.0	0.1	0.2	0.2	0.9	0.9	0.7	0.4	0.2	2.6	6.2
14.1 TO 15.0	0.1	0.1	0.2	0.2	0.8	0.9	0.6	0.4	0.3	2.7	6.4
15.1 TO 16.0	0.1	0.1	0.2	0.2	0.8	0.6	0.6	0.5	0.4	3.1	6.7
16.1 TO 17.0	0.1	0.1	0.1	0.2	0.6	0.4	0.5	0.4	0.3	3.1	5.8
17.1 TO 18.0	0.0	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.2	2.6	4.3
18.1 TO 19.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.1	1.8	2.7
19.1 TO 20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.9	1.2
20.1 TO 21.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
21.1 TO 22.0					0.0	0.0	0.0	0.0	0.0	0.1	0.2
22.1 OR MORE								0.0		0.1	0.1
TOTAL	1.0	2.2	2.6	3.8	13.1	13.1	11.2	5.9	3.7	43.5	100.0

NOTE: 0.0 INDICATES LESS THAN 0.05 PER CENT
 TABLE TOTAL NUMBER OF OBSERVATIONS IS 133687

7.0 Quality Statement

6.1 The Met Office is the national meteorological service for the United Kingdom and is a leading member of the World Meteorological Organisation (WMO), which is an agency of the United Nations. In addition to national responsibilities (such as the issue of Shipping Forecasts for waters around UK), the Met Office also has a wide range of global weather analysis and forecasting commitments, for land applications, aviation and the maritime community.

Karen Barfoot 6th February 2019

APPENDIX A: GLOSSARY OF TERMS

Table A3 BEAUFORT SCALE OF WIND: EQUIVALENT SPEEDS

FORCE	DESCRIPTION	EQUIVALENT SPEED (KNOTS)	
		MEAN	LIMITS
0	CALM	0	Less than 1
1	LIGHT AIR	2	1 – 3
2	LIGHT BREEZE	5	4 – 6
3	GENTLE BREEZE	9	7 – 10
4	MODERATE BREEZE	13	11 – 16
5	FRESH BREEZE	19	17 – 21
6	STRONG BREEZE	24	22 – 27
7	NEAR GALE	30	28 – 33
8	GALE	37	34 – 40
9	STRONG GALE	44	41 – 47
10	STORM	52	48 – 55
11	VIOLENT STORM	60	56 – 63
12	HURRICANE	--	64 and over

FURTHER COMMENT ON THE DEFINITIONS

1 knot = 0.515 metres per second = 1.85 km per hour = 1.16 statute miles per hour

A **Gale (Force 8)** is a mean wind speed in the range 34 to 40 knots. In general, the term 'gale' implies a mean wind speed of 34 knots or above over a period of at least 10 consecutive minutes. The term **Strong Gale (Force 9)** is used when the mean wind speed lies in the range 41 to 47 knots, over a period of at least 10 consecutive minutes.

Visibility	nm	km
Good	>5 nm	>9.3 km
Moderate	2 nm to 5 nm	3.7 to 9.3 km
Poor	0.5 nm to 2 nm	1 km to 3.7 km
Fog	<0.5 nm	< 1 km

Table A4

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