



## COL station grading scheme - 2009

Your site name: \_\_\_\_\_

COL station no (if known): \_\_\_\_\_

Your name: \_\_\_\_\_

E-mail address: \_\_\_\_\_

Date: \_\_\_\_\_

*Please read the sectional notes on the following pages and identify which category in each best applies to your site, then transfer the derived category for each element to the boxes below:*

T	R	S	H	E	U	N
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Where site photographs are required, please send them to The Editor (email [r.brugge@rdg.ac.uk](mailto:r.brugge@rdg.ac.uk)).

This top sheet should be returned to Roger Brugge, 16 Wootton Way, Maidenhead, Berkshire SL6 4QU.  
Remaining sheets can be kept for reference - also useful in case your station changes at a later date.

The information can also be supplied via the web - go to <http://www.met.rdg.ac.uk/~brugge/col/grade.html>

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<b>T MEASUREMENTS OF AIR TEMPERATURE</b>		Your entry for T:
A	Standard instruments in Stevenson Screen or approved AWS radiation screen, calibration within last 5 yr, site exposure minimum = 3	
B	Standard instruments in Stevenson Screen or approved AWS radiation screen, calibration within last 5 yr, site exposure = 2 or 3	
C	Standard instruments in Stevenson Screen or approved AWS radiation screen, site exposure 1 or less	
C2	Non-standard instruments and/or no or non-standard radiation screen and/or sheltered site, site exposure 1 or less	
U	Instruments unknown or not stated	
-	No air temperature measurements made at this site	
<p><i>STANDARD INSTRUMENTS in this context means -            Calibrated mercury-in-glass thermometers or electronic sensors exposed in a standard pattern of Stevenson Screen, or a model of AWS screen which has been trialled alongside a Stevenson screen and been shown to provide similar or better performance than the Stevenson screen</i></p>		

<b>R MEASUREMENTS OF RAINFALL</b>		Your entry for R:
A	Standard 'five inch' manually-read raingauge, at standard height above ground (30 cm), site exposure minimum = 3	
B	Standard 'five inch' manually-read raingauge <i>or</i> calibrated 0.1 mm or 0.2 mm capacity tipping-bucket raingauge, the rim mounted at standard height above ground (30 cm), exposure = 2 or 3	
C	Standard 'five inch' manually-read raingauge <i>or</i> calibrated 0.1 mm or 0.2 mm capacity tipping-bucket raingauge, the rim mounted at standard height above ground (30 cm), exposure 1 or less	
C2	Non-standard raingauge and/or tipping-bucket raingauge with capacity > 0.2 mm, and/or raingauge rim mounted higher than 30 cm above ground (30 cm), and/or sheltered site, exposure 1 or less	
U	Instruments unknown or not stated	
-	No rainfall measurements made at this site	
<p><i>STANDARD INSTRUMENTS in this context means -            Standard-pattern (Snowdon or Met Office Mk II pattern) 'five-inch' copper raingauge, with deep funnel, the rim of the gauge level and mounted at 30 cm above ground level, meeting the minimum 'twice the height' exposure requirement</i></p>		

<b>S MEASUREMENTS OF SUNSHINE</b>		Your entry for S:
A	Standard sunshine recorder, nil or very slight exposure obstruction (average obstruction 5% or less across the year, maximum 10% at any time of year)	
B	Standard sunshine recorder, partially obstructed exposure (average obstruction 10% or less across the year, maximum 20% at any time of year)	
C	Non-standard sunshine recorder <i>or</i> sunshine estimated from pyranometer/solarimeter record <i>and/or</i> very obstructed exposure	
U	Instruments unknown or not stated	
-	No sunshine measurements made at this site	
<p><i>STANDARD INSTRUMENTS in this context means -            Campbell-Stokes sunshine recorder or electronic sunshine recorder (R&amp;D Electronics model, or the Met Office standard Kipp &amp; Zonen CSD sensor). The instrument should be mounted in a location where it has the best possible view of the sky at all seasons.</i></p>		

H TERMINAL HOURS		<i>Your entry for H:</i>
A	Morning terminal hours. Air temperature and rainfall terminal hour is between 0600 and 0900 GMT, daily temperature and rainfall values relate to standard 24 hour period morning to morning	
B	Midnight terminal hours. Air temperature and rainfall terminal hour is 0000 GMT daily. (This is the default on most AWS.)	
C	Other terminal hours. Air temperature and rainfall terminal hour is other than A or B above, or extremes do not relate to 24 hour periods	
U	Terminal hours unknown or not stated	

E EXPOSURE		<i>Your entry for E:</i>
5	Very open exposure; no obstructions within 10h or more of temperature or rainfall instruments	
4	Open exposure; most obstructions/heated buildings 5h or from temperature or rainfall instruments, none within 2h	
3	Standard exposure; no significant obstructions or heated buildings within 2h of temperature or rainfall instruments	
2	Restricted exposure; most obstructions/heated buildings $\geq 2$ h from temperature or rainfall instruments, none within 1h	
1	Sheltered exposure; significant obstructions or heated buildings within 1h of temperature or rainfall instruments	
0	Very sheltered exposure; site obstructions or sensor exposure severely limit exposure to sunshine, wind, rainfall	
R	Rooftop site. <i>Rooftop sites for temperature and rainfall sensors should be avoided where possible.</i>	
U	Exposure unstated or unknown	
<ul style="list-style-type: none"> <li>○ <i>Exposure ratings relate to the site of the temperature and rainfall instruments only, which should normally be at ground level. Sensors for sunshine, wind speed etc are best exposed as freely as possible and rooftop or mast mountings are often preferable.</i></li> <li>○ <i>Exposure guidelines are based on a multiple of the height h of the obstruction above the sensor height; the standard is a minimum distance of twice the height (2h). Thus for a raingauge at 30 cm above ground, a building 5 m high should be at least 9.4 m distant (5 m less 0.3 m, x 2), and a 10 m building should be at least 17 m from a thermometer screen (10 m less 1.5 m, x2)</i></li> <li>○ <i>If the temperature and rainfall sensors are not on the same site, code for the most limited sensor exposure.</i></li> </ul>		

<b>U OKE'S URBAN CLIMATE ZONE INDEX</b>		<i>Your entry for U:</i>
1	Intensely developed urban zone with detached close-set high-rise buildings with cladding, e.g. downtown towers	
2	Intensely developed high density urban with 2 - 5 storey, attached or very close-set buildings often of brick or stone, e.g. old city core	
3	Highly developed, medium density urban with row or detached but close-set houses, stores & apartments e.g. urban housing	
4	Highly developed, low density urban with large low buildings & paved parking, e.g. shopping mall, warehouses	
5	Medium development, low density suburban with 1 or 2 storey houses, e.g. suburban housing	
6	Mixed use with large buildings in open landscape, e.g. institutions such as hospital, university, airport	
7	Semi-rural development with scattered houses in natural or agricultural area, e.g. farms, estates	
U	Urban Climate Zone unstated or unknown	
<p><i>These are taken from Oke, T.R., 2007: "Siting and exposure of meteorological instruments at urban sites". In: Air Pollution Modeling and its Application XVII, Borrego, C. and A.-L. Norman, (eds.), Springer, 615-632. There is a copy of the paper at <a href="http://www.urban-climate.org/">http://www.urban-climate.org/</a> &gt; Urban Climate Resources which includes more details and graphical examples of the 'skyline' which may help you to assign the correct rating</i></p>		

<b>N NETWORK</b>		<i>Your entry for N:</i>
S	Synoptic site. Contributes one or more daily observations in real-time to the WMO synoptic network	
C	Climatological site. Contributes daily climatological data to the national climatological network (Met Office/Met Eireann), normally monthly	
R	Rainfall site. Contributes daily rainfall data to the national raingauge network (Met Office/Environment Agency/Met Eireann), normally monthly	
-	Station data not provided to other national networks apart from COL	

When completed, please transfer the entry from each box into the relevant boxes in the grid at the top of this sheet, then return this form to Roger Brugge.