

Updates to CAP 437 Standards for Offshore Helicopter Landing Areas - New Requirements to Monitor Lightning

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We have conducted a technical review of the latest CAP 437 version 8.1 (Amendment 01/2018 September 2018) guidance for helipads. The following sections have recently been updated and now include the need for the monitoring and reporting of the threat (or presence) of thunderstorms and lightning. To be able to meet these new requirements an in-situ lightning detection system could be required by all accredited helidecks.

We are highlighting these significant changes because all our BTDs satisfy these requirements, although the BTD-350 is especially designed for offshore use. The BTD-300 thunderstorm (lightning) detection system meets and / or exceeds these requirements and could be added to all existing helipad operations.

CAP 437:

Chapter 6:

Subsection 6.15:

"The latest weather report from each installation should be made available to the helicopter operator one hour before take-off. These reports should contain:"

....
present weather (including presence of lightning);
....

Similarly, thunderstorm and its attributes are required to be included in present weather (inc. in the vicinity – within 8 km for CAA):

2.4 Present Weather

2.4.1 Only the following weather phenomena are required to be reported:
Thunderstorm (No Precipitation)
Now in Appendix E section E.7

Thunderstorm with Rain
Thunderstorm with Rain and Snow

Thunderstorm with Snow
Thunderstorm with Hail
Thunderstorm with Heavy Rain
Thunderstorm with Heavy Rain and Snow
Thunderstorm with Heavy Snow
Thunderstorm with Heavy Hail
Thunderstorm in the Vicinity

Subsection 2.3:

"When lightning is observed, it should be included in the [weather] report".
This is now in the appendix E, section E.6

Section 3:

Pre-flight weather report form has a box specifically for "Lightning present: yes/no"
Now Appendix E, section E.21

Chapter 83: Aircraft refuelling

8.55 Refuelling during thunderstorms and significant lightning activity poses significant risks and should therefore be avoided.

Incidence of lightning induced accidents

In addition to the changes to CAP 437, there are recent reports of helicopter accident statistics mentioning lightning. For example in Oil & Gas UK Health and Safety Report 2013 (for period 1992-2012):

"For accidents caused by external factors, **86 per cent** of them were because of weather related events, including **five lightning strikes** and an encounter with a water spout. The final accident accounts for the remaining 14 per cent and was due to a very heavy helideck landing caused by adverse helideck environmental effects (caused by hot turbine exhaust plume)."

"Eighteen reportable non-fatal accidents have also occurred since 1992. These include major component failures, pilot error, **lightning strikes**, major airframe damage, and main and tail rotor damage."

Report can be found at:

http://irata.associationhouse.org.uk/show_doc.php?doc_id=4056

The helipad Met Observer training course has the following relevant parts in their latest training syllabus:

<http://www.stormgeo.com/assets/ArticleFiles/CAP-437-Offshore-Meteorological-Observer-Training.pdf>

- Identification of convective clouds and the operational significance of TCU/CB clouds
- Observing and reporting lightning and thunderstorms

The BTD-300 would be an ideal instrument for monitoring / warning of both of these situations.

Conclusion:

CAP 437 now highlights the monitoring of thunderstorm and lightning activity. If that monitoring is to be conducted in-situ on the platform / helideck, then the BTD-300 is an ideal solution.

In addition to the essential requirement of reporting thunderstorms provided by our BTD Thunderstorm warning systems, all our VPF Visibility and Present Weather sensors comply with CAP 746, as required for visibility sensors under CAP 437. This is detailed in CAP 437 Appendix E, section E.52. Visibility sensor performance is detailed in section E.53-E5.55, and the VPF exceeds all of these criteria. Additionally, the present weather requirements of CAP 437 Appendix E sections E.58-E.62 are all exceeded by our VPF.

Please see www.biral.com for more technical information.

About the Author

Dr Bennett is the Meteorological Products Manager for Biral, UK. He has a PhD in Atmospheric Electricity and 15 years' experience in research and development of lightning detection systems, including working at the UK Met Office and is a visiting Research Fellow at the University of Bath. He has written over 30 papers in atmospheric electricity, which have been published in peer-reviewed international journals.