Explanation of detail in F215, 26th July 2017, valid 0800-1700 UTC

1. Basic Principles

The basic principle of the F215 chart is to provide as detailed a forecast as possible in the space available. This gives rise to the use of abbreviations. It is appreciated that there are many abbreviations, and there are also many qualifications.

Whilst all endeavours are made to make the forecast clear, when forecasting for such a large area, and covering a period of 9 hours, some recourse to bracketed sections is also necessary.

To assist in determining the meaning of the F215, the following broad guidance may be helpful:

a. The meteorological conditions are listed in a specific order. In the weather section, the best visibility is given first. Any mountain wave activity would come towards the bottom, followed by turbulence information, and finally hill fog.

b. Cloud information is given such that cloud with the highest base is listed at the top.

c. Some additional information needs to be conveyed to add detail to the expected weather within a zone. An example of how these 'qualifications' are conveyed is shown as follows:

   Area E
   Weather:
   30 KM NIL
   4000 M (ISOL 2500 M **E1**) RADZ
   ISOL (OCNL **E1**) 3000 M +RA
   HILL FG

   In this case, bracketed qualifications are used to save space and convey additional information for zone E.

d. The use of ellipses '...' are used to demonstrate a continuation of a met condition onto the following line.

e. All fronts and area boundaries in the chart will be accompanied by a movement arrow or "SLOW" label

In addition, it is good practice to consult the F215 in combination with F214, AIRMETs, synoptic charts and relevant TAFs and METARs to obtain the fullest picture of the existing and predicted weather.

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Very often, it is useful to highlight the parts of the F215 that are relevant to your flight. One way is to use a highlighter pen to draw attention to parts of the forecast that would be below your operating minima.

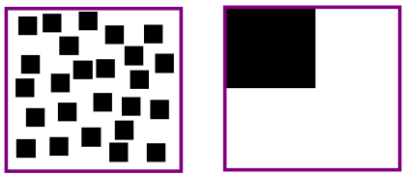
Finally, please remember that the forecasts convey the most likely meteorological conditions for the period under review and account for a range of potential values. The forecast is subject to amendment if the weather significantly deviates from that forecast.

2. Definition of some of the terms used

As indicated, extensive use of abbreviations is made throughout these forecasts. These are used consistently and ensure that often complex weather forecasts are conveyed as succinctly as possible.

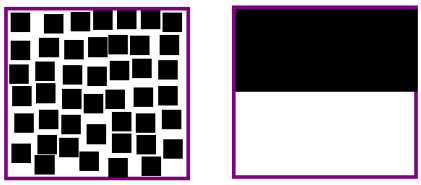
The following abbreviations are commonly used, and a brief definition of these are provided:

ISOL (isolated) – implies isolated conditions occurring randomly and which can easily be avoided. Used to describe convective and non-convective types. <25% of the area affected.



LCA (local or locally) – implies conditions clustered into small areas which can easily be avoided. Used to describe non-convective types only and is normally qualified geographically. <25% of the graphical area (or whole area if unspecified) affected.

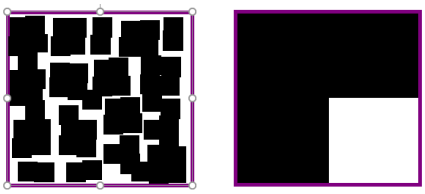
OCNL (occasional) – implies infrequent conditions which can be avoided. Used to describe convective and non-convective types. 25-50% of the area affected.



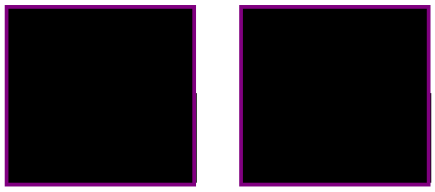
AREAS – implies infrequent conditions clustered into areas which may be difficult to avoid. Places in between will be largely unaffected. Used to describe non-convective types only. 25-50% of the area affected.

FRQ (frequent) – implies conditions affecting many places which will be difficult to avoid. Used to describe convective types only. >50% of the area affected.

WDSPR (widespread) – implies conditions affecting many places which will be difficult to avoid. >50% of the area affected.

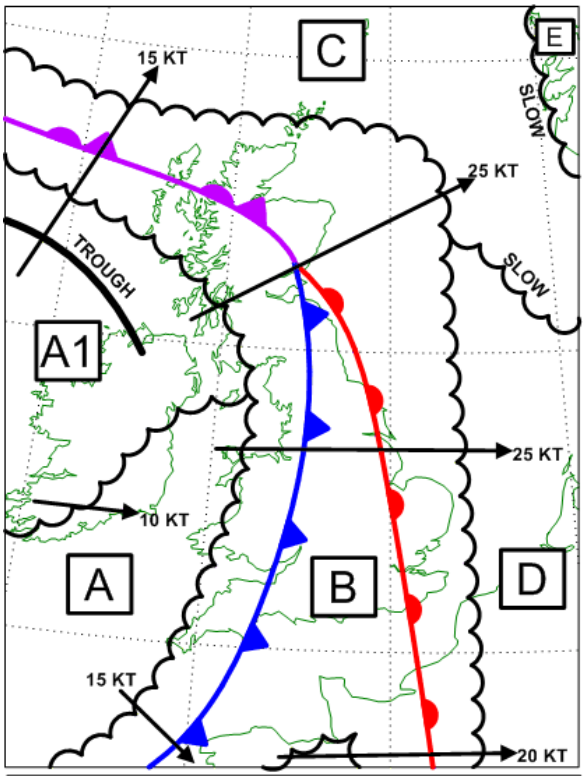


GEN (general) – implies the condition generally expected within the zone. >75% of the area affected.



3. Worked Example

To understand more fully the F215, it is useful to consider a worked example. The F215 below was issued on 26th July 2017, and valid between 0800 and 1700 UTC. A decode of this chart is given below in plain language.



All heights in 100s of feet above mean sea level

XXX means above chart upper limit
Speed of movement in KT
Hill FG implies VIS <200 M

Cloud amount (Oktas)
FEW: 1-2 SCT: 3-4
BKN: 5-7 OVC: 8

MOD / SEV ICE
MOD / SEV TURB
TS / CB implies GR
FZ precipitation implies

This forecast may be amended at any time.
Issued by Met Office Exeter at 260300 Z
Contact telephone 0370 900 0100 F215
Forecaster: Duty Forecaster

Forecast Weather below 10000 FT

Met Office Valid 260800 to 261700 Z JUL 17 Fronts/zones valid at 261200 Z

AREA	SURFACE VIS AND WX	CLOUD	0 C
A	25 KM NIL ISOL (OCNL TROUGH) 7 KM SHRA ... ... MAINLY **A1** ISOL 4000 M +TSRA **A1** NW FM 13 Z MTW MAX VSP 500 FPM AT 060 OCNL ⅄ **A1** ... ISOL HILL FG	OCNL SCT/BKN AC Ψ ⅄ 080 / XXX **A1** N ISOL CB 015-025 / XXX **A1** NW FM 13 Z BKN CU SC (Ψ **A1**) ⅄ ... ... 015-025 / 060-090 (XXX **A1**) ISOL SCT/BKN ST 010-012 / 015 **A1** N	XXX BUT ... ... 060- 080 **A1**
B	15 KM NIL/-RA OCNL (WDSPR FRONTS) 7 KM RA/-RADZ ISOL 3500 M +RA/RADZ FRONTS N ISOL (OCNL SEA WINDWARD COT AND ... ... FRONTS S) 3000 M BR/-DZ LCA MTW MAX VSP 500 FPM AT 070 N OCNL ⅄ (ISOL ⅄ FAR NE) ... OCNL HILL FG	WDSPR (ISOL COLD FRONT) BKN/OVC ... ... AC AS (Ψ FAR N) ⅄ 080 / XXX BKN/OVC CU SC ⅄ 015-030 / 050-080 OCNL (WDSPR SEA WINDWARD COT) ... ... BKN ST 005-010 / 015 (OCNL BASE ... 002-004 MAINLY SEA WINDWARD COT)	XXX BUT ... ... 080 ... ... FAR N
C	20 KM NIL ISOL 7 KM SHRA MAINLY NE ISOL 3000 M BR/-DZ OCNL HILL FG	LCA BKN AC Ψ ⅄ 080 / XXX NE OCNL SCT/BKN CU SC Ψ ⅄ ... ... 015-040 / 050-070 (XXX NE) OCNL SCT/BKN ST 005-010 / 015 ... ... (OCNL BASE 002-004 N AND FAR E)	060-090
D	30 KM NIL ISOL 4000 M BR SEA WINDWARD ... ... COT W (AND LAN TL 09 Z) ISOL HILL FG	LCA SCT/BKN AC Ψ ⅄ 080 / XXX W OCNL SCT/BKN CU SC ⅄ ... ... 015-040 / 050-080 ISOL SCT/BKN ST 005-010 / 015 SEA ... ... WINDWARD COT (AND LAN TL 10 Z)	090-XXX
E	30 KM NIL OCNL 7 KM SHRA ISOL 4000 M +SHRA/+TSRA ISOL HILL FG	OCNL SCT/BKN AC Ψ ⅄ 080 / XXX ISOL EMBD CB 020-030 / XXX AREAS BKN/OVC CU SC ... ... Ψ ⅄ 015-040 / 070-XXX	080

Outlook Until 270000 Z: Similar.

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Zone A

This broadly covers the area behind the cold front.

Surface Visibility & Weather

- The conditions in this area are generally expected to be fine with 25km visibility.
- Isolated showers are forecast however, which would bring the visibility down to 7km, mainly within sub-zone A1. This risk is slightly more prevalent near the trough.
- Isolated thunderstorms with heavy rain within the north-western part of sub-zone A1 are expected from 1300 UTC. The visibility is expected to reduce to 4000m within any thunderstorms.
- Mountain waves are likely to occur in Zone A, giving a vertical wind speed of 500 feet per minute at 6000ft.
- Occasional moderate turbulence is expected in sub-zone A1.
- Isolated hill fog is likely in any cloud that reaches the surface.

Cloud

- Occasional areas of scattered or broken altocumulus cloud with a base of 8000ft and tops above 10000ft are forecast over the northern part of sub-zone A1. Moderate icing and turbulence are forecast within this cloud.
- Isolated cumulonimbus clouds with a base of 1500-2500ft and tops above 10000ft are forecast in the north-west of sub-zone A1 from 1300 UTC.
- A broken cumulus or stratocumulus layer with base 1500-2500ft and tops 6000-9000ft is expected over zone A, with moderate turbulence in this layer. Cloud tops are expected to reach above 10000ft within sub-zone A1 and so moderate icing is also expected in cloud in this area.
- Isolated scattered or broken stratus cloud with a base of 1000-1200ft and tops 1500ft are also forecast in the most northern part of sub-zone A1.

Freezing Level

- Above 10000ft, but 6000-8000ft within sub-zone A1

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Zone B

This broadly covers the area close to the warm and cold fronts and occlusion and the warm sector

Surface Visibility & Weather

- Generally, the visibility is expected to be 15km with either no weather or slight rain and drizzle.
- Occasionally (but extensively near the fronts) moderate rain or rain & drizzle will occur bringing the visibility down to 7km.
- Isolated areas of heavier rain and/or drizzle near to the fronts in the north of the zone are expected – this heavier rain is expected to reduce the visibility down to 3500m in these areas.
- Isolated areas of mist and light drizzle are expected to reduce the visibility to 3000m. The extent of these areas is slightly greater over the sea, windward coasts and near the fronts in the south.
- Localised Mountain waves are likely to occur in zone B, giving a vertical wind speed of 500 feet per minute at 7000ft in the north of the zone.
- Occasional moderate turbulence is expected, with isolated areas of severe turbulence in the far north east of the zone.
- Occasional hill fog is likely in any cloud that reaches the surface.

Cloud

- Widespread areas of broken or overcast altocumulus cloud with base 8000ft and tops above 10000ft is forecast, with moderate turbulence within this cloud. This cloud becomes less extensive on the cold front. Moderate icing is expected within this cloud in the far north of the zone.
- A broken or overcast cumulus or stratocumulus cloud layer is forecast with a base of 1500-3000ft, and tops 5000-8000ft, with moderate turbulence expected within this cloud.
- Occasionally, (though widespread over the sea and windward facing coasts) a broken layer of stratus cloud with base 500-1000ft and tops 1500ft are forecast. The cloud over the sea and windward facing coast may occasionally lower further to 200-400ft.

Freezing Level

- Above 10000ft, but 8000ft towards the far north of this zone.

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Zone C

This broadly covers the area to the north and east of the occlusion

Surface Visibility & Weather

- Generally good visibility of 20km and no weather in this zone.
- However, isolated moderate rain showers are forecast, mainly in the northeast of this zone. These showers are forecast to reduce the visibility to 7km.
- Isolated mist or light drizzle are also forecast, reducing the visibility to 3000m in these areas.
- Occasional hill fog is likely in any cloud that reaches the surface.

Cloud

- Locally broken altocumulus cloud with a base of 8000ft and tops above 10000ft are forecast in north east parts of this zone. Moderate icing and turbulence are forecast within these clouds.
- Occasional areas of scattered or broken cumulus or stratocumulus with base 1500-4000ft and tops 5000-7000ft are expected. Moderate icing and turbulence are expected within this cloud.
- Occasional areas of scattered or broken stratus cloud with base 500-1000ft and tops 1500ft are expected in this zone. This base may occasionally lower to 200-400ft in the north and far eastern part of this zone.

Freezing Level

- 6000-9000ft.

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Zone D

This broadly covers the area well ahead of the frontal system

Surface Visibility & Weather

- Generally good visibility of 30km and no weather in this zone.
- However, isolated mist is forecast to bring the visibility down to 4000m over the sea and windward coasts in the west, and over land until 0900 UTC.
- Isolated areas of hill fog are likely in any cloud that reaches the surface.

Cloud

- Localised areas of scattered or broken altocumulus with a base of 8000ft and tops above 10000ft are expected towards the west of this zone. Moderate icing and turbulence are forecast within these clouds.
- Occasional scattered or broken cumulus or stratocumulus cloud with base 1500-4000ft and tops 5000-8000ft are expected, with moderate turbulence expected within this cloud.
- Isolated scattered or broken stratus cloud with base 500-1000ft and tops 1500ft are forecast over the sea and windward coasts, as well as over land until 1000 UTC.

Freezing Level

- 9000 to above 10000ft.

Zone E

A small area on the coastal tip of Norway
This area will not be decoded since it is irrelevant to pilots' normal requirements.

4. Practical planning

Consider a flight operating from Blackbushe to Dunkeswell planned for the afternoon of 26th July 2017, flying at 3000ft AMSL. This flight commences in Zone B and might expect to end in Zone A (accounting for the speed of the front).

What parts of this forecast are relevant to this flight and what are the weather risks along the route?

We can make the forecast information clearer by focussing on the weather the parts of the forecasts that are relevant to this flight, and those that may present a hazard.

Area B

Weather element	Relevant, but no significant weather hazards expected	*Be aware, potential hazard!*
Surface Visibility & Weather	Generally, the visibility is expected to be 15km with either no weather or slight rain and drizzle.	• *Visibility reduced to 7km in OCASIONAL (but WIDESPREAD near the fronts) moderate rain and/or drizzle.* • *Visibility further reduced to 3000m in ISOLATED areas of mist and light drizzle (the extent of these areas is OCCASIONAL over the sea, windward coasts and near the fronts in the south).* • *OCCASIONAL moderate turbulence expected.* • *OCCASIONAL hill fog is likely in any cloud that reaches the surface*
Cloud	WIDESPREAD areas of broken or overcast altocumulus cloud with base 8000ft, with moderate turbulence within this cloud.	• *Broken or overcast cumulus or stratocumulus cloud is forecast with a base of 1500-3000ft, and tops 5000f-8000ft, with moderate turbulence expected within this cloud.* • *OCCASIONAL (though widespread over the sea and windward facing coasts) broken layer of stratus cloud with base 500-1000ft and tops 1500ft. The cloud over the sea and windward facing coast may occasionally lower further to 200-400ft.*
Freezing Level	Above 10000ft, but 8000ft towards the far north of this zone	

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Area A

Weather element	Relevant, but no significant weather hazards expected	*Be aware! Potential hazard*
Surface Visibility & Weather	• The conditions in this area are generally expected to be fine with 25km visibility. • Mountain waves are likely to occur in Zone A, giving a vertical wind speed of 500 feet per minute at 6000ft. Consider the effect of Mountain Wave activity on the approach to Dunkeswell. Although the speed given (500 FPM) is for 6000ft, there could certainly be some effect from Dartmoor on an approach to Dunkeswell.	*ISOLATED moderate showers of rain will reduce visibility to 7 KM.*
Cloud		*A broken cumulus or stratocumulus layer with base 1500-2500ft and tops 6000-9000ft is expected with moderate turbulence in this layer (the larger CU will be the source of the ISOL SHRA).* *Think about how this cloud (and the possibility of showers) will affect your plans for arriving at Dunkeswell, which is 850ft AMSL and has a circuit height of 800ft above airfield level.* *What about the height of nearby Stockland mast (1475ft AMSL) and your safety altitude?*
Freezing Level	Above 10000ft	