

Coaching Corner...

Weather watch...

Keep a weather eye post-lockdown flying, reports PCS Head of Training, **David Cockburn**



Hopefully, the Government Covid rules and guidance will now be allowing us to fly, and even take passengers. We can hope that the advice to minimise travel will also shortly be removed, so perhaps those of us with families at the other end of the country will be able to visit them, which I know from personal experience will be most welcome. If things have gone to plan, we should be looking forward to being allowed even more 'freedom' from 17 May, and I'm sure several Clubs and Struts will have organised fly-outs or fly-ins to take advantage of the increased flexibility.

I don't want to dampen enthusiasm, but human factors suggest that having an opportunity to fly after a long period of restrictions is liable to colour our judgement. There is a strong temptation to exercise our freedom, and that can easily lead to 'press-on-itis'.

Even those of us who pride ourselves on careful pre-flight planning can be caught out by the pressure, from ourselves probably more than from others, to finally achieve what we've been looking forward to for

Above What's the back-up plan?

such a long time. It would be a dreadful shame if that long anticipated event was spoiled by a damaged aircraft or worse, so it's a good idea to avoid challenging situations, at least until we have got back into full currency.

One of the major factors affecting flight safety is the weather. According to the Met Office, UK weather forecasts are a lot more reliable than they were in previous decades, and that may indeed be quite true, especially for forecasts issued a few days in advance.

However, one has to question whether there has been any particular improvement in meeting the needs of light aircraft pilots, many of whom certainly believe that it is now more difficult to obtain suitable weather information than in the past.

One possible reason for this perception is the reduction in reporting weather stations. For example, there used to be a network of RAF aerodromes offering TAFs and METARS throughout the year, but many of these have now closed. And those that are still open frequently only provide meteorological

information for limited periods, and very few open at weekends. Plus, the consequence of recent travel restrictions due to Covid has seen a considerable reduction in the operating hours of many civilian aerodromes, with a resulting loss of even more weather information.

TAF and METAR reliance

The general forecast charts (Met Forms 214 and 215) provide the basic needs for planning, but by their nature provide limited guidance. Winds at 1,000ft are available from the 214, but what will the surface wind be? They also tend to warn of what the forecaster considers the worst case scenario, so as a result, we pilots have become used to studying aerodrome TAFs close to our route and destination for more detail and have confirmed their accuracy with METARs.

The reduction in reporting stations means we are less able to refine our own expectations of what the weather may hold.

Limited updates

Another concern about weather information is that once a forecast is produced, it remains as the official view until the next routine forecast is produced, unless a pretty major change is required. AIP Gen 3.5 describes at para 4.11 the criteria needed for a TAF to be amended. For example, if it becomes obvious that the wind is stronger than the original forecast, an amendment to the TAF need not be issued unless the new mean speed expected differs by at least 10kt from the original figure. That means that, if the forecast wind at an aerodrome with a runway 27/09 is 180/12, the expectation has to be that it will increase to over 22kt before an amendment is issued. Reports suggest that crosswind speed increases of close to 10kt have been experienced at UK aerodromes quite frequently in recent years. Unfortunately, the change criteria are internationally agreed and are aimed at commercial operations.

So, weather forecasting, despite continued improvements, is still far from easy, and small changes in pressure patterns can produce apparently disproportionately large changes in specific items such as crosswinds.

Therefore we should be alert to the fact that published forecasts may not reflect the actual situation, and we must always compare actual reports (METAR and SPECI) with the forecast to make our own decisions about the amount of faith we place in the TAFs.

Note the TREND and call

Also, note any TREND – the little bit of forecast at the end of the report – it is actually a more accurate and recent forecast than the TAF. However, less information available means such decisions are less well informed. Not, of course, that most pilots rely solely on official information.

Even if there is no requirement for PPR, it is always a good idea to telephone an intended destination before take-off for updated information on local procedures, runway state, and of course the current weather.

However, we must beware the natural optimism of an aerodrome operator or whoever is on the other end of the telephone – their perception of the weather conditions may not completely reflect reality!

Haze

It's not just the wind which can cause us problems. If we are fortunate to experience what to the public is 'glorious summer weather', for example if high pressure dominates, visibility may deteriorate during the day. We are often advised to fly above a haze layer in order to improve air-to-air visibility, but haze tops have been known to turn into cloud banks.

Even if the surface is still in sight from above, if the visibility has reduced below that layer, we can find ourselves with navigational problems. Hopefully GNSS can tell us where we are and help us avoid notified airspace but landing into a late sun when the haze has thickened close to the ground has caused accidents in the past, and no doubt will continue to do so.

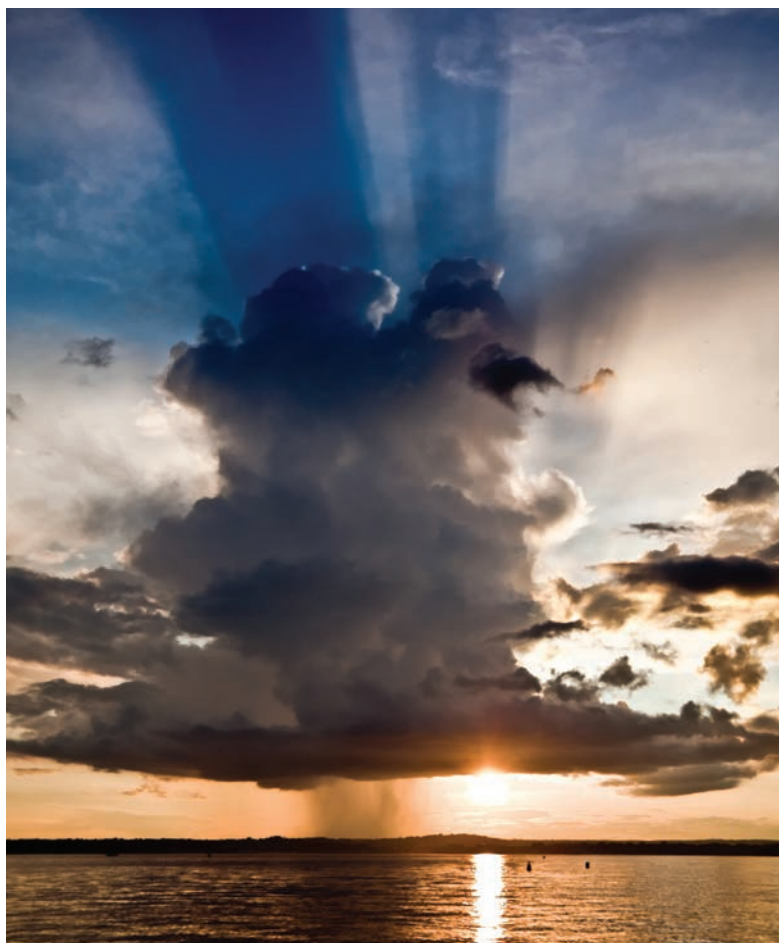
Cunim build up

On the other hand, April may have passed, but the weather does not restrict itself to traditional patterns. A clear morning may encourage us to set off on a long-awaited flight, but as convection builds during the day, heavy showers, and even thunderstorms can sneak up and trap us in the afternoon. The hazards associated with cumulonimbus clouds ought to be well known to pilots, but if we are looking forward to a long anticipated visit it is easy to overlook that 'ISOL' or even 'OCNL' threat of severe icing and turbulence.

Not that I should expect any of us to fly in, or even close to, a Cunim, but rain, hail and suddenly forming stratus under what may have seemed quite high cloud, can be disconcerting, as well as an indication of potential carburettor icing. It is important to remember that if a CB is within 10 or even 20 miles of our airfield, wind direction and strength can change

Below

Cumulonimbus is often easy to see and avoid. Keep well clear, if it's blocking your progress, talk to ATC to seek entry into controlled airspace or turn back.



dramatically on the approach. Even if we have a good indication of that wind, are we as competent at crosswind landings as we used to be before the lockdown?

Have a back-up plan

I'm not suggesting we don't fly if the forecast isn't perfect, but we do need to consider what we can do to minimise the risk from whatever possible hazards we might encounter. We don't ever want to find ourselves 'out of options' and forced to accept damage, or worse, as a result of being unprepared.

Always have a back-up plan in case things go wrong, which in the case of avoiding bad weather means an available safe diversion airfield, which we can reach with the fuel we are carrying. Airline pilots are used to planning such potential diversions.

Don't leave the divert too late

That back-up plan can often be to turn back to the better weather through which we have just flown, although we must keep an eye out behind us to make sure that cloud isn't thickening.

However, our diversion doesn't have to be behind us and there are quite a few airfields marked on UK charts, so if we are still flying in clear weather and can see wide gaps between the showers, we may be able to continue safely – but only if we know the gap we fly through leads to a usable runway.

The problem which has caught out many accident pilots is that they did not realise they needed to adopt their back-up plan until it was too late – either fuel ran low, or the gaps in the weather closed, or both.

Below Low Stratus is the most likely cloud that will catch you out in the UK. It can deteriorate rapidly so don't get suckered into the situation you see here, decide early to divert.



En route weather updates

Anticipating problems can reduce that risk. It goes without saying that we should always check the likely weather around our intended route before take-off, but as already described, conditions change. VOLMET (you remember VOLMET, don't you?) can provide recent METARs or SPECIs from major airfields, but we can obtain reports (including any TRENDS) from these and any airfields which provide them from an air traffic

basic service if we ask. Most of us have access to other available sources of weather information, including rainfall radar pictures on a mobile phone, which it would be silly to ignore (although we need to look out, so I suggest a passenger checks that if possible).

Even our normal lookout/listen out procedures can help us during our flight, we don't have to make calls on the radio to glean information from it. Reports of weather conditions from other pilots should obviously alert us to them, but if we hear someone changing their route plans, or going around from an approach, that should cause us to consider whether the cause of their action might affect us. A ground speed different from that expected, or an increase in drift, can indicate a change in gradient wind which we can expect to be reflected in the surface wind at our destination. If we know what information our nav aids and personal devices can give us, we can be ready to change our plans while we still have enough time and fuel to do so.

A good lookout scan does not just help us avoid other aircraft, it can also provide warning of unexpected weather deterioration. Smoke or wind turbine orientation provide an indication of local surface wind direction and, to some extent, speed... although convection can cause considerable local variations, several similar indications are likely to indicate a general trend.

Patches of low cloud may indicate thicker cloud ahead, and a darkening horizon, or an apparent reduction in visibility in one area, can indicate precipitation in that direction. Puffy little cumulus clouds which seem to grow upwards rapidly may be the harbingers of storms to come. However, Cumulus can expand rapidly and even a well-prepared pilot may find themselves unable to reach a diversion airfield safely.

When all else fails...

And at this point a really well-prepared pilot will enter the circuit around a large flat field oriented into the current wind for a precautionary approach and subsequent landing. Earlier, I suggested that we only fly through gaps between showers if we knew the gap leads to a usable runway. At the same time, because such a gap may well close suddenly, we should be constantly choosing potential landing fields ahead of us and considering how best to make an approach into them. While a field landing may cause inconvenience and possible aircraft damage, if our original and back-up plans have all come unstuck, at least we and our passengers should be safe.

This may sound like doom and gloom, and there will actually be very few occasions when unexpected weather changes prevent us from carrying out a planned flight. However, having well prepared back-up plans 'just in case' not only reduces the risk of an accident, but can actually improve our enjoyment of the flight. If, for example, halfway along a homeward flight we detect that things may not be quite as good as we expected, we can concentrate on the flying rather than considering possible courses of action. Provided we have checked that the back-up plan is still achievable, we can continue as planned for as long as it is safe to do so. If it does appear unsafe to carry on, we just have to concentrate on carrying out that plan. ■