SKYWORDS

November 2021

Chairman's Chat

The Regional Airspace User Working Group (RAUWG) is a meeting of all types of aviators from balloon pilots to fast jet pilots with everything, including us, in between. Normally there is also representation from both civilian and military Air Traffic Controllers. Some of it isn't very relevant to our activities, but some of it certainly is. We normally meet every 6 months but due to COVID-19 we hadn't met since Nov 19. The most recent meeting was a few weeks ago, I attended along with Ian Henderson from the Cumbria Soaring Club.

The good news (for us) is that 100 (Hawk T1) Sqn will be disbanding by 31 Mar 22. The bad news is that they will be replaced by a Joint Hawk Training Squadron; training members of the Qatar Emiri Air Force in a newer version of the Hawk T2 (Mk 167). Whilst the number of aircraft will remain much the same, their modus operandi will change significantly. The new unit will eventually be called 11 Sqn QEAF.

Instead of some very experienced pilots acting as enemy for the Typhoon fleet, the training syllabus is likely to take place more in the Vale of York (where RAF Linton on Ouse used to be), mostly above 5,000', but with some introductory low flying, possibly along Wensleydale. The Close Air Support exercises that we are familiar with in the Dales ('pilots will be conducting high energy manoeuvres and may not be able to comply with the rules of the air') will either reduce in number or disappear completely. Although the pilots under training will be fairly experienced on propeller aircraft (200 hours) they will not be familiar with local procedures, and inevitably there will be language barriers to overcome. First course starts in Nov 21.

The Hawk T2 Mk 167 will have a major electronic upgrade with a glass cockpit, head up display, and a sensor system able to simulate various threats. The aircraft doesn't look much different to the T1 that we are familiar with - slightly different nose and winglets on the end of each wing.

Hawk T1

Hawk T2 Mk 167

The overall message from RAF Leeming is that whilst their general level of activity has reduced, the peaks (exercises) are busier than they ever have been:

> 8 Nov - 10 Dec 21. Ex YORKNITE. Swiss F18s operating in 4 ship formations. Lots of night flying.
>
> 5 - 11 Feb 22. Ex WILDCAT TEMPEST. 9 x Army Wildcat helicopters. Areas TBC.

Swiss F18

Wildcat

> 7 - 25 Mar 22. Ex COBRA WARRIOR. Swedish Gripen and Belgian F16, plus Chinook, Apache, Puma and Wildcat helicopters. Two weeks of day missions; one week of night missions. 'Super busy.'

Swedish Gripen

Belgian F16

Northumbria and Yorkshire University Air Squadrons also operate out of Leeming. Those of you who have recently invested in a Flarm device will be pleased to know that the Tutor light aircraft that they use is also fitted with Flarm. The operate predominantly to the West of the Airfield, mostly above 3,000', but do some low flying.

Leeming has been operating drones up to 400' and up to 4km to the East of the airfield outside normal operating hours.

The main activity at Topcliffe is gliding, limited to weekends and bank holidays. They currently aerotow up to 5,000' but also have plans to winch launch to 1,500'. Mainly circuit flying. But before you decide to trash the Topcliffe's ATZ on a weekday, be aware that one of the Yorkshire Air Ambulances operates from there 7 days a week.

RAF Viking Sailplane

H-145

There was a general plea to avoid MATZ (although legally you don't have to) or at least talk to them on the radio if you can't. The RAF think that we would be mad to enter a MATZ, or cross an extended centre line. I promised to pass the message on, but pointed out some of our limitations. Enter at your own risk!

Leeming ATC has a screen that displays Flarm. They have another that displays Pilot Aware (which incorporates Flarm). Neither are used (or will be used) for controlling. Both are on trial and the most successful one will remain. I judge that is likely to be Pilot Aware, although that has apparently proved pretty inaccurate in detecting fast jets.

The RAF Safety Centre gave a presentation on AIRPROX. Nothing much to report; suffice to say that if you feel that safety has been compromised then you should submit an AIRPROX. Avoidance of a Mid Air Collision remains the RAF's top priority.

Presentation from Yorkshire Air Ambulance. One Airbus H-145 operating out of Topcliffe, the other out of Nostell (Wakefield). Annual running costs of £5m, or about £1 per person living in Yorkshire.

Presentation from a Principal Airspace Regulator from the CAA. It would be an understatement to say that there is a lot going on:

> The Airspace Classification Review (CAP 1991) was published in Nov 2020 with a view to routinely reviewing controlled airspace to see if it can still be justified. The Cotswold Region has been done first and evaluation is in progress.
>
> Airspace Change Procedure (CAP 1616). Three years old, this document is being reviewed and an amended version is due to be published in Dec 22.
>
> There are about 200 ACPs in the system, mostly at an initial stage (like LBA and MAN). 56 of the permanent changes relate to airspace below 7,000' with 22 above 7,000'. The remainder were either submitted under the old CAP 725 procedure, or relate to temporary restrictions or trials (mostly drones).
>
> Six Space Launch Sites are due to come into operation in the UK in 2022/3. None are in our area.

Over lunch I made a couple of useful contacts. Their Air Safety Manager has done a little paragliding and lives in Leyburn. He happily accepted the porosity of warning NOTAMs. I also met a drone operator (Ex RAF Sea King pilot). We have much in common when it comes to Electronic Conspicuity and avoiding military low flying aircraft. He lives in Stokesley and often sees us flying at Model Ridge. A potential new recruit perhaps?

We were a disappointed that there wasn't any representation from Leeds Bradford Airport, as we were hoping for an update on their ACP.

The next meeting will be in the Spring of next year.

Fly safely,
Martin Baxter
Chairman

General Notices

Next Social Event…

Richard Meek – Thursday 4th Nov at the Horse and Farrier at 7.30pm

Insurance

For those looking to go abroad over the winter (and given the recent weather in the UK, not surprising…), there is a thread on the forum about flying insurance and some of the challenges in finding a suitable provider, the thread is here.

Wild Ingleborough

A larger rewilding project was recently announced for the Ingleborough Natural Nature Reserve, more details are available here, from the article:

- WWF, Yorkshire Wildlife Trust and Natural England among those to partner on visionary new project: 'Wild Ingleborough' in the Yorkshire Dales.
- The landscape-scale restoration covering over 1,200 hectares (3,000 acres) demonstrates how UK nature can help fight climate change by capturing carbon here at home.
- Local wildlife to benefit, including black grouse and red squirrel, with over 40 hectares of new native woodland to be created.

AGM NOTICE

Annual General Meeting

The Annual General Meeting will take place on Thursday 2nd December 2021. Due to the continued uncertainty regarding Covid restrictions and how these might develop, no decision has been taken on whether this will be a face-to-face meeting (at the Horse and Farrier, Otley. LS21 1BQ 7.30 for 8pm), or an online discussion as per last year. The final decision on the venue will be published in the November edition of Skywords.

In any event, all members of the Dales Hang Gliding and Paragliding Club are invited to the AGM. If any member wishes to submit a formal proposal, please ensure that it reaches the Secretary (contacts@dhpc.org.uk) by 1 November 2021. All proposals will be published in the November edition of Skywords which will be published later than is usual in order to include any proposals from members. If it is to be an online meeting, the proposals will then be published on the members' forum on the website with a discussion and voting facility for each. There is no opportunity to raise new issues for voting after the 1st November, or on the night at the AGM.

As well as setting membership subscriptions and contributions to the Flying Fund for the coming year, all committee posts are up for re-election, as per the Constitution. Members are free to stand for any post - none of the incumbents will be offended if you wish to have a go at their role. Committee membership simply requires a little spare time and a willingness to put something back into the club. If you want to have a non-committal conversation about a role, then please contact the Chairman, Martin Baxter, at chairman@dhpc.org.uk.

Registering for a forum account

If you don't already have an forum account, you can register for one by emailing membership@dhpc.org.uk, with your name, email address and BHPA number. Once the Administrator has reviewed your request and activated your account, you'll receive a confirmation email and you'll be able to login. If you are having problems logging into the forum, please contact the Membership Secretary on the above email address.

We look forward to seeing you at the AGM.
DHPC Committee

AGM Agenda

The AGM will take place on Thursday 2nd December, as per the club email circulated on 30th September. A decision will be taken shortly on the venue for the meeting. The preferred option would be a physical meeting at the Horse and Farrier in Otley (7.30 for 8.00pm start), however the Covid situation means we may revert to an online meeting as last year, which proved a viable alternative. If a remote meeting is held, each agenda item below will be a topic for discussion on the club forum, with voting facilities if appropriate.

No proposals were received from members in response to the AGM notice circulated on 30th September.

AGENDA

1. **Actions from previous AGM**
   Committee to consider proposal for installation of a weather station on Wether Fell at its next meeting.
2. **Adoption of reports from committee members**
   Reports from committee members will be published on the website by the end of November and in the December edition of Skywords.
   Members will be able to raise any questions regarding these at the AGM.
3. **Approval of financial statement**
   The Treasurer's report for 2020/21 will be published on the website by 21st November, including proposed expenditure for 2022/23
4. **Appointment of Auditors**
5. **Approval of Subscriptions 2022/23**
   Proposals:
   i. *Membership fees remain the same (£25/£22.50 for prompt payment).*
   ii. *Contributions to the Flying Fund remain at 15% (approx. £3.75 per member or £600 in total*)
6. **Revision of Club Rules/Constitution**
7. **Proposals from members**
8. **Election of Committee**
   All committee posts are up for re-election. You are welcome to stand for any post. All you need is a little spare time and a willingness to put something back into the club. No current committee member is going to be insulted if you want to put your name forward. In the absence of any new volunteers, all current committee members will remain.
9. **AOB**
   Not for voting on

Mark Morrison (Tam)
Secretary
2nd November 2021

Club Coach Course

Call out to anyone looking to become a club coach or any existing club coaches feeling the need to refresh. I'll be organising a club coaching course somewhere in the Dales, near a pub (and definitely with un-flyable weather of course!). It'll be the weekend of the 19th & 20th February.

I'll be inviting other clubs too so it's an opportunity to get to know a few folks from around us and make some more contacts. The course itself is two days and is pretty interactive with the BHPA technical officers. You'll learn a lot for your own flying, as well as for others.

Contact me at coaching@dhpc.org.uk to take part.

For our existing coaches, the BHPA advise the following - basically refresh every five years.

In recent years the BHPA has made several major improvements to the way it ensures that Instructors and certain other licence holders are fully current.

One of these improvements made by the Flying and Safety Committee (FSC) is the introduction of a coach revalidation system to ensure that all licensed Club Coaches and Senior Coaches are fully current and active. This should minimise the chances of any accidents occurring during coaching activity, and it should also help minimise the legal exposure of any coach if the worst came to the worst.

The BHPA coach revalidation system simply requires all Club Coaches and Senior Coaches to have a declaration of support signed by the Club's Chief Coach at membership renewal time. e.g. As the licence holder's Chief Coach, I can confirm that he/she continues to be a valuable active member of the club's coaching team.

In the unlikely event of the club having no nominated Chief Coach, the club Chairman should sign this declaration.

The FSC also recommends that coaches should re-attend the Coach Course at least every five years to ensure that nothing gets forgotten and that they are fully up-to-date with current thinking. The club coach course fee is currently £30 per participant, but this is reduced to £20 for a retake.

An additional box has also been added to BHPA membership renewal forms for current coach licence holders. This box can be ticked if the member no longer wishes hold a Coach Licence.

Pete Logan
Chief Coach

Friday 15th October

Site: Gragareth

A stunning day and very much a day of two distinct halves. For an hour around midday amazingly smooth thermals to almost 4000'. After that the wind fell away, alternating between flat calm and light SSE to SSW. The clouds remained good, but getting to them more problematic. Over Great Coum I reached almost to base without any drift .... almost zero wind showing on my Skytraxx/xctrack. Then I thought the sky owed me a living ... that never works out well.

Ed

... rather nice on Hawkswick late this afternoon. What I expected to be a swift top to bottom was a very lovely boat about.

Pete

Light and variable in the Dales so I chose Model Ridge which promised quite strong northerlies in the morning, reducing in the afternoon. I arrived about 11am and was surprised to find in on the light side, but with a very XC looking sky.

A few did fly, mostly soaring with a few slope landings; but there were about 20 pilots in attendance so there was an ever present risk of overcrowding. Jake and Joseph walked up Cringle and probably had the best of it, although Jonathan Greenwood beat the odds by managing to fly from Model up to Cringle - good skills.

By mid afternood it had died to nothing. A few pilots flew down from Carlton Bank. Trev, with his hang glider, very sensibly drove down. A couple of pilots walked up Cringle for a fly down, but I think walked down in the end. Simon, Trev and I took a walk up Cringle (without wings) in the late afternoon sunshine.

Martin

Thermals… (Part 1)

About this article

Will Gadd, in a series of three articles, shares his thoughts on thermals and thermalling. This first part deals with the way thermals form and how they're released from the ground.

Pilot profile

Expert. Has held many site, state and national records.
Has also held one world record. Paragliding straight distance XC.
In 2002, 423.4 km - Zapata, Texas, USA.

Vol bivvied 800km across the North Amerian Rockies with Gavin McClurg over 35 days. National Geographic 'Adventurer of the year 2014/15'

Will Gadd summarises his three articles

The crux of cross-country flying often lies in correctly answering the question, "Where's the next thermal?" If you could answer that question correctly even 90 percent of the time then life would be very, very good. I think it's key for every XC pilot to develop his or her own system for understanding thermals, then continuously refine it. Only in this way will the pilot actually learn something with each "success" or "failure." I often hear students in clinics I teach say, "Ah, I sort of knew that, but this simplifies things a lot." That's the goal: To have a simple, clear system that you can refine each season to produce better results.

I broadly split my thermal-prediction model into two parts: ground-based thermal prediction ideas, and sky-based thermal clues. This article is my attempt to explain to myself and anyone who finds it interesting how thermals form on the ground and how to find them efficiently, part two will deal with the sky, part three with staying in and flying thermals.

Part 1 - Collectors, Wicks and Triggers, on the ground
Part 2 - Thermals and Clouds, deals with the sky
Part 3 - Thermalling technique, staying in and flying thermals

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Thermals Part 1 - Collectors, Wicks and Triggers

Collectors

I call potential thermal generating areas, "collectors" because they collect the sun's energy and release it as warm air or thermals, a process any successful XC pilot should be very interested in. I think the air in collectors tends to warm up as the sun heats the ground, first releasing relatively slowly and steadily (early morning mountain thermals are the best example of this), followed later in the day by more

violent "sets" or cycles in much the same way waves hit a beach. Imagine small waves coming in continually, then a big set ripping through, followed by small waves again. If you find a good collector, you can often maintain in a zero over it and wait for a good set to go through; if you're low, this may be your only chance.

Collectors are all about sun. If there's no sun, then there's probably not much air leaving the ground (cold fronts and other very unstable air masses are exceptions). When looking at any potential thermal collector, I first ask, "How long and at what angle has the sun been shining on the collector?" A perfect collector would be at right angles to the sun for hours. I first learned this lesson flying in the '96 US nationals when all the top pilots flew to the sunny but lee side of the ridge and I went to the windward side where the sun was just starting to hit. I sunk out, they didn't. At the time I thought this experience was bad luck; luck had nothing to do with it, the slopes simply hadn't been in the sun long enough.

The next factor that determines how much the air heats up is the surface the sun is striking. For an excellent analysis of surface thermal theory, read Reichman's Cross-Country Soaring. Basically, dry surfaces with a lot of trapped or sheltered air will produce the best thermals. Late-season cereal (wheat, oats, etc) crops are dry, hold a lot of still air, and consequently release some of the best thermals. Dry shrubbery also works well; rocky terrain with a lot of dead airspace between the rocks works well, but takes longer to heat up. Moist ground cover absorbs the sun's energy and uses it to evaporate water, a cooling process that kills thermals.

Wind tends to destroy thermals by continuously mixing the air in potential collectors, preventing it from either reaching the temperature at which it will leave the ground or turning what could have been a decent thermal into a ragged mess, especially close to the ground. A large line of hedges or trees around a very dry but bushy field will often hold a nice still "pocket" of air. You can experience thermals on the ground by just walking around; sunny, dry spots protected from the wind will be warmer. As odd as it might sound, I've learned a lot by simply walking in the mountains and feeling the cool air in the pines, contrasted with the warm air on avalanche slopes or other treeless areas.

The more protected and sunny a collection area is, the warmer it will be and the better chance you as a pilot will have of going up. This means that the best thermals are often found in sunny lee areas; this is no problem if you're high and fly above them, but you have to make your own decisions about how much rotor you want to play with if you're lower. This isn't an article about safety.

Many pilots believe black pavement such as that found in big parking lots or roads will be a good thermal source; although pavement is black and absorbs tremendous amounts of energy, it often doesn't work very well because there is nothing to "hold" the air in place; if you watch birds soaring above a parking lot or freeway, they will almost always be turning very small circles and not gaining much altitude. The thermals are frequent, sort of like grease popping off a skillet, but frequently unusable. Interestingly, a parking lot filled with cars generally works better than one without cars because the cars hold dead air nicely. A road can be good "wick," but more on that below.

The aspect angle of the terrain is critical. For example, dry ploughed fields almost always work better than dry flat fields. I think this is because the sides of the furrows tend to face into the sun like little solar collectors, while the actual furrows protect the warm pockets of air from the wind and allow them to develop. If you're mountain flying, then look for the slopes that have been at right angles to the sun

the longest. Lee slopes often work better than windward slopes because the air in the lee is protected, but a windy slope in the sun will beat a shaded slope in the lee every time. Really massive, South-West facing slopes in the mountains may offer continual strong thermals from mid-day through early evening, but east and due-west facing slopes will only work in the morning and evening respectively.

The anti-collector is of course a lake. Cool, reflective, moist, often windy. You will almost never find a thermal that comes from a lake. That is not to say you won't find thermals over lakes, but they aren't coming from the lake itself very often. One exception may be very late in the day when the relatively warm water releases heat, but I've very seldom seen this happen in a strong enough manner to produce usable thermals. Long glides over lakes in the evening are often quite buoyant, but don't count on "magic" air too often or you may be swimming.

Passive Triggers (and wicks)

I believe thermals have some form of surface tension, and tend to track along the ground before releasing, sort of like oil up a wick. I call the point at which the thermal leaves the wick a Passive Trigger. The most PT is the top of a sharp peak; there will often be a cloud over it from 9:00 in the morning until sunset, even as the sun rotates from east to west. First the east facing slopes warm, wick up the hill and release, then the south-east facing slopes, then the south slopes, followed by the west-facing slopes at the end of the day. However, the thermal comes up the wick to the same passive trigger.

Think about the "House thermals" at your local site; what's really happening with each one as the sun rotates? If you're high then you can fly straight to the wicking top of the peak, but if you're low then you need to fly to the sunny side of the peak and then climb out. Ridges often work the same way, with convergences happening if both sides of the ridge release at the same time.

When mountain flying I look for PTs where I think bubbles might break their tension and lift off; ridges above protected slopes in the sun and places where a ridge forms a mini-summit for thermals to break off at (like water running down your arm and falling off at the elbow) seem to work best. Two or more ridges coming together are better than one, each ridge increases the chance that you've picked the right wick. If you're bored, take a spoon and stick it into a glass pot of boiling water some time, it nicely illustrates how all this works.

Passive triggers can be very, very small when flatland flying. For example, a road on the downwind edge of a large, dry ploughed field will often have a small ditch between the road and the field; this is a passive trigger for sure. Just the edge of a dry field against a more vegetated field may be enough to lift the air off; I almost invariably find my best thermals in downwind corners of large, dry fields, places with maybe a hedge or even simply grass instead of ploughed dirt. A group of houses in the middle of a barren section or even a lone oil well breaking the monotony of flat ground will often wick thermals skyward. Some people believe strongly in powerlines as passive triggers, but I think the thermals found above powerlines generally have more to do with the terrain. The exception is that really big high-tension towers may be wicking thermals skyward, but this is suspect. Thermalling over power lines does impose a bonus hazard as well.

Large rocks are often good wicks and passive triggers, as they tend to pierce the surface tension and also release "bullet-style" thermals, allowing larger pockets of air to also leave the ground.

Finally, contrasts in surface temperature may affect lapse rates and also act as triggers. I often find thermals at the junction of two disparate surface types; miles of dry fields leading up to a large lake will often have a reliable thermal at the boundary between the two (if the wind is coming from the fields, this thermal will slope out over the lake). However, wet fields or lakes will often shut down all activity in their immediate area, especially on the downwind side. These surface temperature differences can be quite small, but thousands of examples have taught me that they matter.

Active Triggers

Active Triggers are triggers that move. For example, a tractor harvesting dry wheat field will almost invariably be a thermal source. Cars driving back and forth on a road next to a big dry field will also act as triggers. Any type of motion, be it from people, farm equipment, cars, even other glider pilots landing, will often cause a collector to release. How many times have you landed in a likely field only to watch someone climb out above you?

I am starting to believe that cloud shadows will often act as active triggers also; I have flown enough sites now where the forward edge of a cloud shadow will produce dust devils as the shadow advances across the ground, something like a mini cold front lifting the warm air up. It's a theory, but it does seem to work some of the time.

How to apply all of this

On any given day thermals reach a certain height before stopping, a distance between the ground and cloudbase or the top of the usable climbs. I call anything below half this distance "low," and anything above it "high."

For example, if cloudbase is 6,000 feet above ground level, then I think I'm high over 3,000 agl and low below this point. This article deals with making decisions while in the "low" zone. If you're low, head for collectors that are in the sun and have been for a long time. Be very careful flying into cloud shadows; if you're low, it's very rare to climb up out of a cloud shadow.

Connect the collectors with the potential wicks and triggers; sunny meadows below a sunny ridge in a light lee with puffy clouds directly above are perfect. If you're on the shady side of a ridge then you're in the wrong place and need to find some sun in a hurry. A big brown field with a small knoll on the downwind edge could be good, or a big dry grassy field that meets a busy Interstate. I try to fly over as many potential collector/wick/trigger combinations as possible. If I get even a consistent "zero" on my vario while low, I'll stop and circle until a thermal "set" comes through. Of course, if you see a hawk going up like mad or a big dust devil spinning off the back of a tractor, well then things get simpler. I won't mess with weak thermals if I've just topped out a climb and am starting a glide, there's no point as they will probably end soon anyhow. I will stop for anything solid once I get into my "low" zone.

It's important to understand that the lift and sink generally balance each other out, especially in relatively small areas. If your climb rate is 1,000 fpm, expect at least 1000fpm+ sinking air when leaving the thermal. If the thermals are large, expect big areas of sink. If you're in an area of violent sink, then somewhere close by is probably a violent thermal. You should ask, "where's the collector, where's the wick, where's the trigger, attack!" Collectors also tend to draw air into them as they release; you will often notice an increase in your ground speed as you're near a thermal. Your glider will also often pitch ahead by a few degrees as the air accelerates toward the thermal, and your heavier body lags.

Older gliders will generally fall slightly behind you as they hit a strong thermal but be very pressurized (you can feel this in the brakes). Wind gusts or turbulence may cause an glider to fall back behind you as well, but the pressure will not be as high in the glider. This is a great way to tell if you're entering a thermal or have just found a wind gust. If the glider is pressurized harder, then you've found a thermal. No pressure, no thermal. Newer ('99 and on) or higher performance gliders usually surge forward into a thermal, no matter how strong it is, but the feeling of increasing brake/glider pressure is the same.

Finally, remember that the wind slopes thermals; if you're relatively low and coming into a collector then it won't matter much, but the higher you are the more downwind of their source you'll need to be to intercept the column.

The system above may be largely wrong, but it's the best one I've developed yet. Each year it seems to get a bit better, and each year I look back and think, "Oops, was I ever wrong about that!" I try to honestly look at each flight and think, "What worked? What didn't?" Why did I sink out and someone else succeed? Good pilots create their own thermal luck remarkably consistently. So good luck developing your own system, that's the one that matters!

Part 2 next month