OUTLANDING

The Taupo Gliding Club's Newsletter

Inside this Issue....

May - June 2023

Welcome everyone to another edition of Outlanding.

It has been a very quiet time at the club over the last couple of months as the weather has led to only 13 flights being achieved during the month of May and 20 flights during June thus far.

The days are noticeable shorter as winter is upon us and the soarable conditions are non-existent, but that doesn't mean that we cannot fly. We will have good breezes and the opportunity to hone those skills flying around Mt Tauhara. So please make the most of the current conditions.

As we entry another club year, I would like your feedback on what you would like to see in the newsletter, so please email me with any ideas etc to traceaustin@hotmail.com

If anyone has an article or notification to be included into the next newsletter, please have it to Trace by 20 August 2023.

Fly well and have fun!

Cheers, Trace

CFI Report *by CFI Colin McGrath*

I think it's again worth everyone refreshing their use of the check lists. In particular the aerotow eventualities, especially number TWO (listed below) when towing out behind the Robin. There has been a couple of occasions when the tow combination has become close enough to the trees to cause concern, and with the benefit of hindsight it would have been better to have aborted the take off.

I'M SAFE

I = Illness

M = Medication

S = Stress

A = Alcohol

F = Fatigue

E = Eating

Pre-Boarding = ABCDE

Airworthy

Ballast

Controls

Dollies (as per our club rules, if it is your first flight in the glider for the day, check the DI book)

Expectations

Pre-Takeoff = CB-SIFT-BEC,

Controls

Ballast

Straps

Instruments

Flaps

Trim

Brakes

Eventualities

Canopy

Pre-Landing = SUFB,

Straps

Undercarriage

Flaps

Brakes

Aerobatic/stall = HASELL

Height

Airframe

Security

Engine

Locality

Lookout

Aerotow Launch "Eventualities"

1. **Recite: Keep Straight on ground roll - or release.**

   Action: Stay directly behind the tug, and level with or below it at all times. If you drift sideways beyond the wingtip of the towplane on the ground roll then you must release. If one wing tip drops to the ground and doesn't come up quickly then release and start the launch again.

   Reason: Being laterally out of position on the ground roll increases drag and results in slow acceleration. It can also can pull the tow plane sideways. Slow acceleration means that you may not clear the upwind boundary at a safe height and speed.

2. **Recite: Accelerate to 60 knots by hump midway down the field or release**!

   Action: Decide in advance a point on the runway ahead at which you must reach a specified speed (eg. 60 knots) during the takeoff roll. If the tug-and-glider combination is not above that speed by that point then release, land ahead and apply airbrake and wheel brake.

   Reason: If the combination is not accelerating normally then you might not clear the boundary fence ahead. Don't wait for the towplane to wave you off - abandon the launch and steer to one side to avoid running into the tug. Fly the glider as smoothly as possible during takeoff to minimise drag.

3. **Recite: <u>Signals</u> from Tug: Rudder Waggle = lock air brakes, Rock Wings = release immediately.**

   Action: Both signals require immediate action from the glider pilot, so you need to be ready to receive them and know what they mean. You may receive a radio call from the tow pilot if a radio is fitted. If you release at low level beyond the runway then the best action is to land straight ahead in any available space, even if the glider gets damaged. Making a turn back to the airfield at low level can result in a spin - especially at low speed - and a nose-first impact which is usually fatal!

   Reason: The tow pilot is very vulnerable if the combination doesn't climb properly. Sometimes the airbrakes on the glider don't open until flying speed is reached (so make sure you do your checks properly). If you don't release when the wings are rocked you could cause the towplane to crash. With a deliberate signal you will see

the ailerons move before the wings rock - that's how you know it isn't turbulence tossing the towplane around.

4. **Recite: <u>Out of Position</u> beyond the wingtip or above the tug = I must release!**

   Action: Any position except directly behind the tow plane can present a hazard to the tow pilot. The lateral limit is the wingtip of the towplane. If you get beyond this - or if the towplane disappears from sight - you must release. If the rope goes slack and looks like it will tighten with a jerk then you must release before it does. Be gentle when "boxing the wake" and only practice this above 1,000 feet AGL.

   Reason: If you get out to one side, and the rope becomes slack then suddenly tightens, this can jerk the tug laterally into a spin from which it will need 500 - 700 feet to recover. If you get too high the tail of the tug can be lifted up and the rope tension and extra drag could cause the tug to lose speed and stall. Again, 500 - 700 feet to recover. This is how tow pilots can be killed.

5. **Recite: Break in Rope before Wings Level, Speed, Land Ahead**

   Action: If the rope breaks or the tug waves you off in the first few hundred feet after takeoff then maintain approach speed and land in the best available space in front of you. Don't try and turn back to the airfield at low level - it's too risky. Think about what you would do on every takeoff.

   Reason: An aerotow launch will often mean flying over unlandable terrain at a fairly low height until the glider is high enough (and has enough speed) to turn around and land back on the airfield. Landing straight ahead (or almost straight ahead) usually permits a horizontal landing, which is survivable even if the glider is damaged. Trying to turn at a very low level can result in the wing tip hitting the ground, or a low-level spin. In both cases the glider hits the ground vertically nose-down, and pilot survival is far less likely.

SASOB = Straight - Accelerate - Signals - Out of Position - Break

1. I will keep **<u>Straight</u>** on ground roll - otherwise release and apply wheel brake.
2. **<u>Accelerate</u>** to **<u>60</u>** kts by the **<u>Hump midway</u>** down the field - otherwise release, land ahead
3. **<u>Signals from tug</u>**: rudder waggle = lock air brakes, rock wings = I must release!
4. **<u>Out of position</u>** = I must release!
5. **<u>Break</u>** in rope low to the ground - keep wings level - approach speed - land ahead.

Tobie

A number of club members will remember Tobie and there are some club members that have never met Tobie. Tobie used to live across the road from the club, before his owner's moved into town. Tobie would be at the club every day from opening time until the gate was closed for day. Well, we have it on good authority that Tobie is living the life of Raleigh. He has had his cataracts removed, has a dog sitter to look after him and spoil him everyday and he is enjoying his later doggie years.

Report from GNZ AGM *by President Hugh de Lautour*

Colin McGrath as CFI and myself as president recently attended the GNZ AGM. It was largely routine, with no issues which would have a major effect on our Club.

The president advised that after a drop in overall club memberships over the three years affected by Covid, there is now once again an upward trend, and members are staying longer - especially those who get XCP (Cross-Country) qualified; an average of 22 years, as opposed to those not XCP qualified, who stay an average of six years.

Challenges to increased membership have been identified as

- Less structured time
- More red tape
- Changing weather patterns
- Higher energy costs
- More competing interests
- Glider technology
- Less discretionary income and most clubs could identify with almost all of those!

Annual fees were left unchanged. Much of the benefit of attending the AGM was simply getting together with the other club representatives, sharing ideas and concerns, and renewing contacts which will undoubtedly lead to benefits to our club and gliding in general.

On Saturday evening there was an interesting address by Dr. Philipp Sueltrop, a rocket scientist and Director of Kea Aerospace - a New Zealand company which has developed a solar-powered, remotely piloted stratospheric aircraft which will fly continuously for months to collect aerial imagery for security and surveillance purposes. Not strictly a glider, but it is launched from the roof of a car, and weighs only a couple of kilograms! Well worth a look online.

Hugh.

An Idiot's Guide to Tephigrams: Part 1 *– by David Hirst*

Warning: The following article contains graphs. If dizziness, blurred vision or spots-before-the-ankles are encountered when viewing these, lie down in a dark room or read something written by Paris Hilton. If you can manage to do both, you must have the night vision of a possum. Well done.

Most sane types, when presented with a typical tephigram (or sounding) know not what to make of the seemingly-random groupings of lines and numbers. This is because the people who decided on this particular graph format were Scientists and they like to make the conveyance of information difficult or arcane to the average glider-pilot-in-the-street. In the case of tephigrams, depicting the information this way is done for Very Good Reasons which escape me. I'll try saying "potential temperature" a few times and see if the feeling goes away.

Basically, a tephigram is two graphs in one. The first shows how the air temperature changes with height, and allows you to predict how pockets of warm air (like thermals) will behave. The second, overlaid on the first, shows how the humidity (or, more accurately, the Dew Point) changes with height, and allows you to predict how pockets of air with a fixed water content (like thermals – see a pattern emerging?) will behave as they rise.

You can use a tephigram to determine:

- the presence or absence of any temperature inversions
- how hot the day will need to get before thermals start to form
- how high the thermals will rise
- (roughly) how strong the thermals will be
- (roughly) whether the day will be blue or not
- the height of cloud base
- the stability of the air (i.e. dead, slight convection, showers or thunderstorms)
- the price of a curry

OK, I'm lying about the curry but you get the idea. To a glider pilot, tephigrams are useful beasties, so long as you know how to read them and know how large a grain of salt to apply to the resulting prediction. Enough pre-amble; let's get cracking.

Figure 1 shows a typical tephigram and, for the sake of clarity, I've removed all references to dew point or humidity – we'll deal with that later. The first thing the Scientists have done to make things difficult is to use pressure (in mbar) for the vertical scale when they could just as easily have used height in feet. I ask you! Just remember that (if sea-level pressure is 1013.2mbar) 5000' is about 850mbar, 10000' is about 700mbar and 18000' is about 500mbar. If the sea-level pressure changes, you'll have to adjust things up or down accordingly.

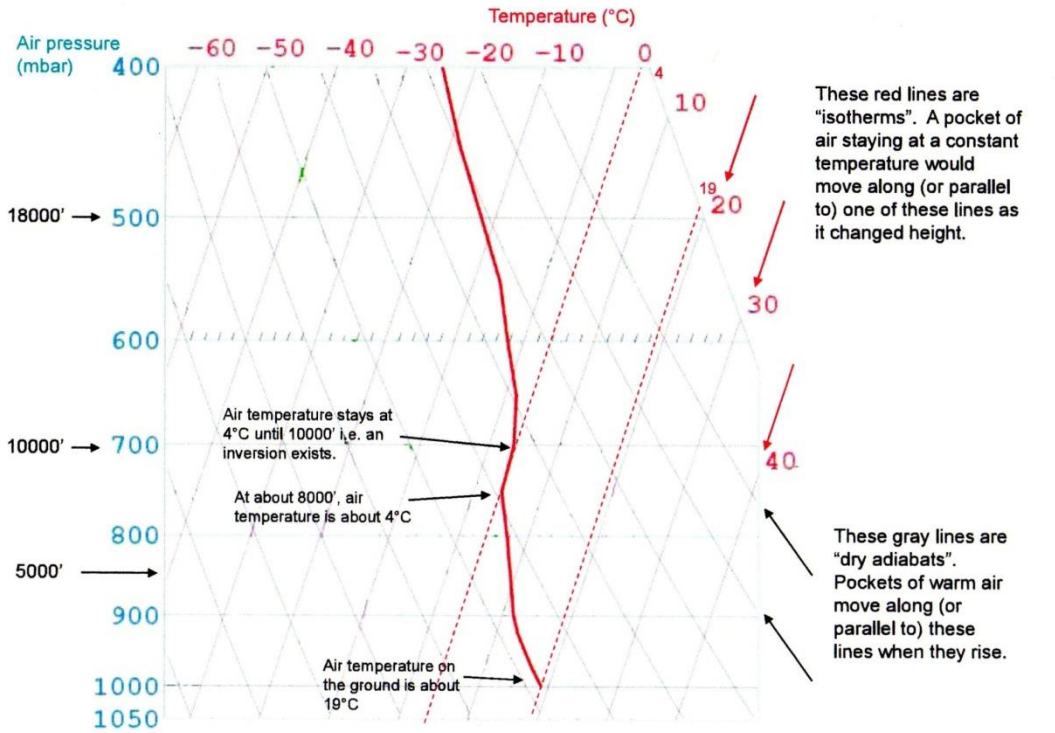

Figure 1

Now look at the red numbers lining the edge of the sounding. These are temperatures in °C and the red lines tilted to the right on the sounding are the corresponding "isotherms".

Any pocket of air that moves along one of these isotherms as it changes height is staying at the same temperature. The big red line shows the actual change of air temperature with height. At the bottom of the tephigram (sea level), it's about 19°C. At 850mbar (5000') it's 9°C. At 10000' (700mbar) it's about 4°C. Note that between 750 and 700mbar, the air temperature stays fairly constant at about 4°C – this is an "inversion" and it's very good at stopping convection, for reasons which will become apparent later. You must develop the faculty of patient expectancy.

Notice also the grey lines tilted to the left. These are the "dry adiabats" (remember your QGP theory?). Any pocket of un-saturated air will expand and cool as it rises according to Bayle's Law, and these dry adiabats show how a pocket of air at any given temperature will change temperature with height. Remember that a pocket of air will only rise if it's warmer (and therefore less dense) than the air around it. If it's surrounded by air at the same temperature, it isn't going anywhere.

Now look at **figure 2** and imagine that you're a mass of hot air – a windbag, if you will. You start off near the ground at 25°C and, because you're hotter than the air around you (at 19°C), you begin to rise. Your temperature changes as you rise, according to Bole's Law, and your own plot of temperature against height follows the dry adiabats (look at the dry adiabat that started at 27°C at the ground).

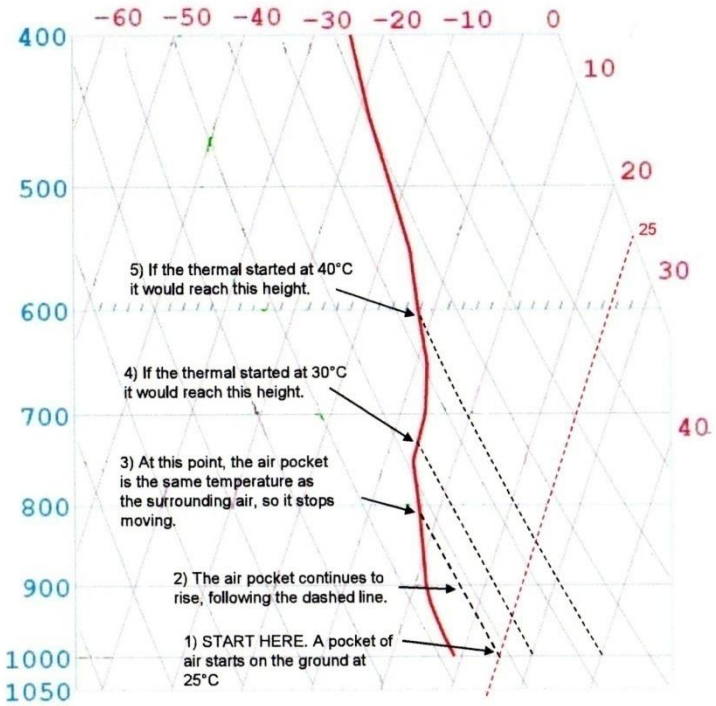

Figure 2

As a windbag, you're not afraid of heights, which is just as well. You keep rising and expanding, and your temperature keeps following the dry adiabats until you're the same temperature as the air around you. How high? Follow your imaginary dry adiabat until it crosses the air temperature line, and look at the height (pressure) where this meeting occurs – in your case about 6000' (810mbar). Well done, you old windbag.

Now imagine that you were at 30°C when you left the ground and draw another imaginary dry adiabat to where it crosses the air temperature line. You'd now stop at about 9000', about where the inversion is happening. To get above this, you'd need to start off at about 40°C which, if the air temperature on the ground is 19°C, is not very likely unless you're on fire. The inversion is therefore fairly good at "capping" any rising thermals.

What about if you started off at 20°C? Wouldn't get very high, would you now. In actual fact your chances of leaving the ground at this temperature are not very high anyway – a general rule of thumb is that air pockets need to be at least 2°C warmer than the surrounding air to get going. Once they're rising, the closer they are to the surrounding air temperature, the slower they'll move. Windbags at 21°C will raise a lot slower than windbags at 25°C. How much slower? Difficult to say. All sorts of factors begin to come into play here when trying to predict thermal velocity, so your best bet is just to take a guess based on experience. On the day this sounding was taken, the thermals were about 3-4 kts up to 4500'.

Now, have a look at the tephigrams (or soundings) from

http://www.arl.noaa.gov/ready/cmet.html

Start by entering in your latitude and longitude, click “Continue” then choose one of the options next to “Sounding”. Pick a date and time, type in the access code (I also select “Only to 400mb” and “120dpi”), then gaze in wonder at some real forecast soundings. Except they call them “Skew-T Log-P” plots. Scientists!

Alternatively, to see what actually happened in your neck of the woods, go to:

http://www.metvuw.com/upperair/

Note that the tephigrams here are of a slightly different format. **Figure 3** should explain the essentials.

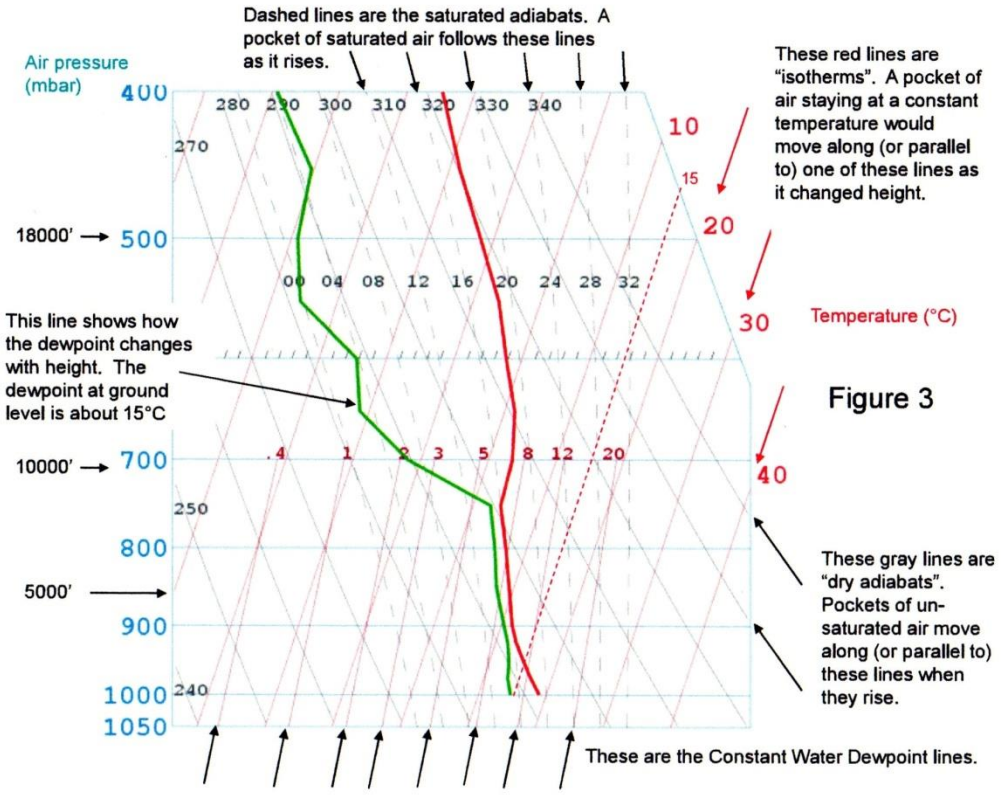

Figure 3

OK, that’s enough blathering about dry (un-saturated) air. Next time, I’ll introduce humidity into the picture and watch as everything gets very messy very quickly. Re: “isotherms”. A pocket of air staying at a constant temperature would move along (or parallel to) one of these lines as it changed height

Achievements

CONGRATULATIONS! John Rika for going Solo. Well done John. Now you start to learn to soar ☺

TGC AGM

To assist our out of town Club Members' it was decided to hold our AGM and Dinner Awards Night on the same day, being the 24th of June. The AGM was held at 1030 with the Dinner kicking off around 1800.

There was a reasonable turnout for this year's AGM. Hugh reported to the member's what had occurred at the GNZ AGM which was held a couple of weeks beforehand. It was generally accepted that all clubs around the country have suffered due to the inclement weather over the summer. Hugh then presented the President's report which was followed by the reports from the CFI and Club Manager. It was noted that due to flying days being drastically reduced and with the loss of contest flying there had been a reduction on club finances. However, the club is still above water and doing better than some other clubs.

After the general business the nomination of office bearers were accepted and elected with the following:

Incoming Committee for 2022/23

Patron:	Richard Izard
President:	Hugh de Lautour
Vice President:	Craig Hunter
Manager:	Tom Anderson
Treasurer / Secretary:	Tom Anderson
Club Captain:	Trace Austin
C.F.I :	Colin McGrath

Committee: John Chittenden – Mathieu Turquier – Geoff Thompson – Rob Lyon –Neil Harker and Peter Bergman.

Dinner and Awards Night

As noted, the club's annual dinner and awards night was held at the club on the same day. There was a good turnout of members, partners and friends and apologies from those that were unable to attend.

The night kicked off with drinks and a meet & greet in the front room of the club before heading out to the back room for the main event. Once seated, we were informed that the caterer was running late, so another change to the previous format of the weekend was to have the Awards presented before the meal.

Following the presentations, Tom, our trusty manager, informed us the way in which we would be selected to go to get our meals. There was a letter under the candle on each table and when your number was drawn out of the bowl you would proceed to get your meal. Of course everyone wanted to be first. As the evening was catered for, the ultimate part of the dinner service was that club members could relax as there were no dishes to be washed, everything was provided for and taken away by the caterers.

Awards for 22/23:

Due to the poor weather, the Airmanship and Bombing competition was cancelled this year. The remaining awards were presented with the following results:

Most Improved Student: (Taupo Gliding Club)
Peter Lynch – Always turns up and is progressing well

Most Improved Pilot: (Taupo Gliding Club)
John Rika – 1st Solo in a glider after 20,000 hrs top dressing

Height Gain: (Taupo Gliding Club)
Peter Cook – 2825ft

Most Meritorious Flight: (Trev Terry Challenge Cup)
Peter Cook – 249.9km

***task*Pilot:** (Trace Austin Trophy)
John Chittenden – 168pts

Landouts: (Norman Marsh Trophy)
Peter Cook – Most landouts during competitions

Tail End Charlie: (Radio Lakeland Trophy)
Hugh de Lautour – For his work obtaining grants for the club

Club Member Trophy: (Tom Anderson Trophy)
Craig Hunter – For his time and effort working on TPO

Toilet Seat:
Neil Harker – As discussed at the dinner

Wooden Spoon:
Tom Anderson – As voted on the night


NEW ZEALAND AIRSPACE


WOODEN


DON'T BE TEMPTED

Upcoming Events

Just a quick reminder about the following events.

- Hobby Expo – 8th and 9th July
- Training nights will be announced in the near future.
- Central Plateau Soaring Competition – 4th to 12th November.

Humour