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Mountain Wave

Here in Hawkes Bay, wave lift is normally caused by westerly winds from the Tasman Sea reaching the ranges that run down the centre of the North Island. With suitable conditions, generally the wind speed increasing with altitude and a stable air mass, the wind lifts over the ranges and then comes down the other side and "bounces" off the ground and repeats this movement causing a "standing wave" much like large waves in a river flowing over the rocks. Clouds often form along the lines of lift with higher level wave shown by "lenticulars." Depending on conditions, there can be multiple lines of wave that weaken further from the mountains but can continue well out over the sea. Messy cloud and broken wave can occur if conditions are not ideal.

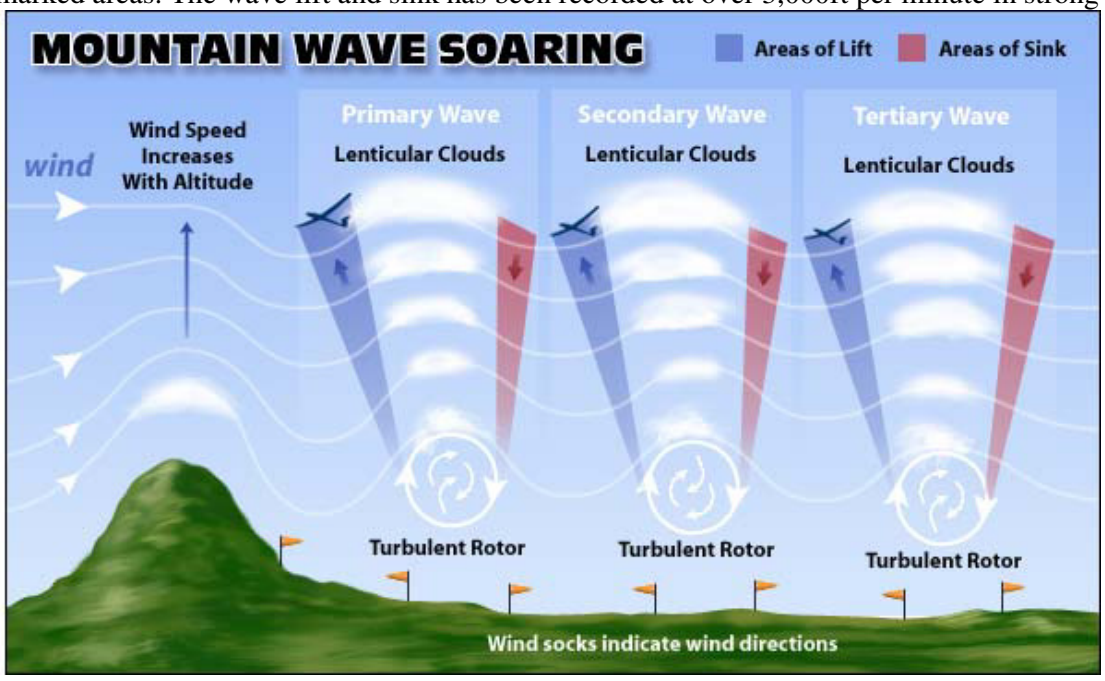
In Hawkes Bay, the wave lift is typically silky smooth on most days. However, when flying, if the wave clouds are not smooth, or "odd" clouds appear, e.g. billowing or strange shaped, be prepared for a rapid change in sink or lift and possibly severe turbulence.

"Blue wave" can also occur when the wind conditions are right to form wave but the air is too dry to form clouds. This occurs in exactly the same way as other wave.

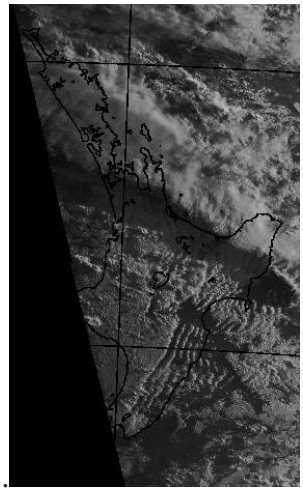
The wave lines (or bars or roll clouds) are typically parallel to their source. Thus, if the source direction changes or wind direction veers, the wave lines can curve and bend.

With the gap in the mountain range for the Manawatu Gorge, it is typical for that area to have 8/8 cloud and or broken wave. However, every day is different and the area is occasionally clear when wave conditions exist.

The diagram below shows how wave sets up in theory in ideal conditions. Where the glider is shown are the areas of lift and where the red arrows are the areas of sink. To get free altitude and generally a silky smooth ride in your plane, stay in the areas of lift. Rough air and sink can be expected in the turbulent rotor areas and sink in the red marked areas. The wave lift and sink has been recorded at over 3,000ft per minute in strong conditions locally.

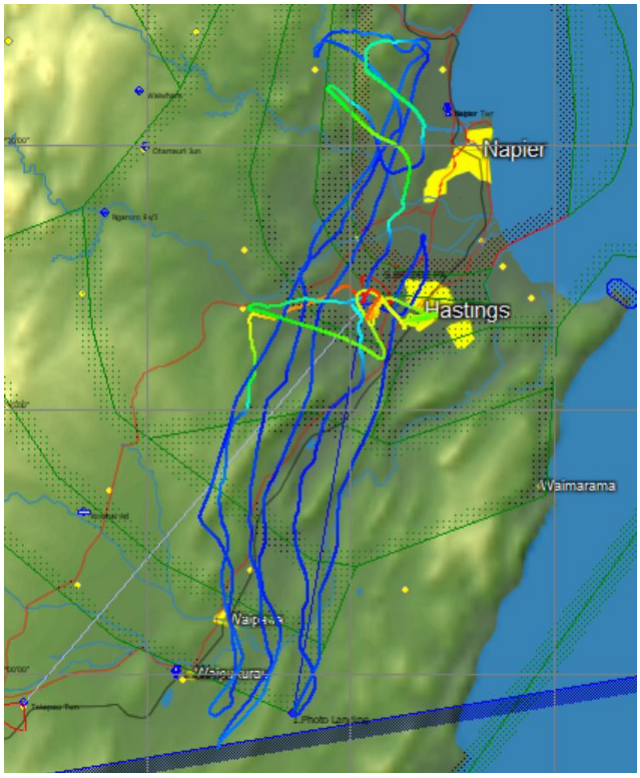


“Classic” Hawkes Bay wave days occur when conditions are ideal and the wave lines can be clearly seen as in the satellite photo below.



To learn more about wave, the “air pockets” and other sources of lift and sink you fly through in powered aircraft, come and visit the gliding club for a soaring flight. As members of the aeroclub, you are entitled to fly with the gliding club at gliding club rates for a trial flight - this is just the cost of the launch which is typically around $80 - $100 for a 2,000ft launch. For youth members, we currently offer free gliding club member subscriptions and discounted tow fees of just $6 per minute for those youth members who want to learn to glide.

Wave flights can be memorable e.g. in one flight, one of our tow pilots Ross Kent and instructor Jason Kelly launched in the club’s Grob 103C III SL (GHB). After release from tow, they quickly climbed using the natural wave lift to 9,500ft while tracking south to past Waipukurau. They flew for over four hours and with strong winds aloft, they recorded a maximum ground speed of almost 300km/h while covering a total distance of over 500km in the flight. They ended the day with a 14m 51s race around the local 33km triangle at an average speed of 134.5km/h. Their route is shown below.



While soaring flights are weather dependent, once you have experienced one, you will want to join us. Further details about the club and learning to glide are on the gliding club website at http://www.glidinghbw.co.nz/