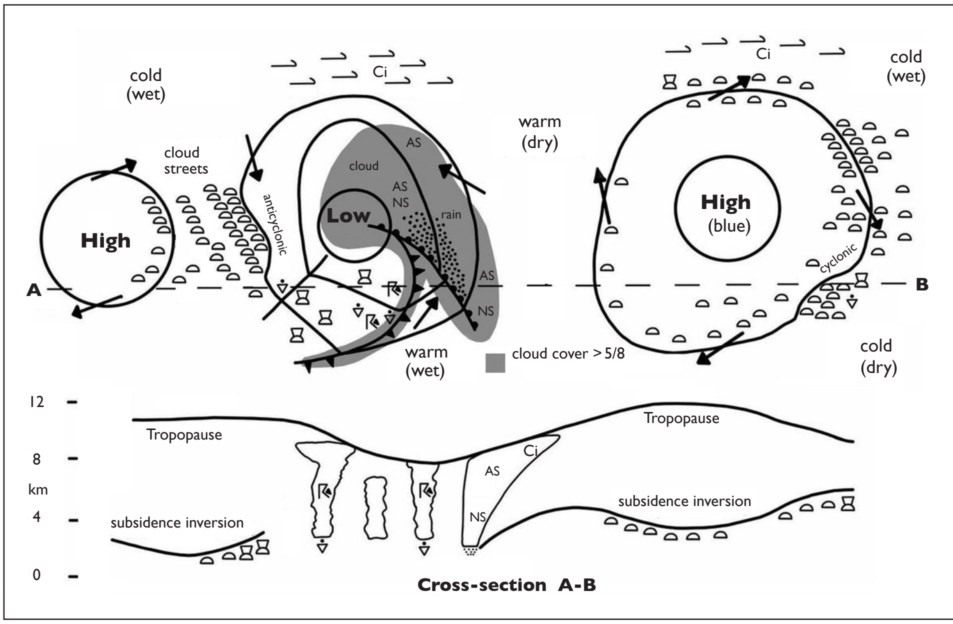

Figure 107

Likely areas of streeting

experience, the trained eye of glider pilots can spot from a distance where these updrafts occur.

Most likely locations for meteorological streeting

The most favourable locations are those between the high pressure and low pressure centers (Figure 107). When the winds are from the same direction throughout the convection layer, then cumulus and thermals tend to align themselves as described above. This is particularly true in the southeast to northeast trade wind belt associated with subtropical highs and ridges. They form under a subsidence inversion associated with the proximity of a high pressure system. The closer cloud streets are to an active low pressure system, then the more likely

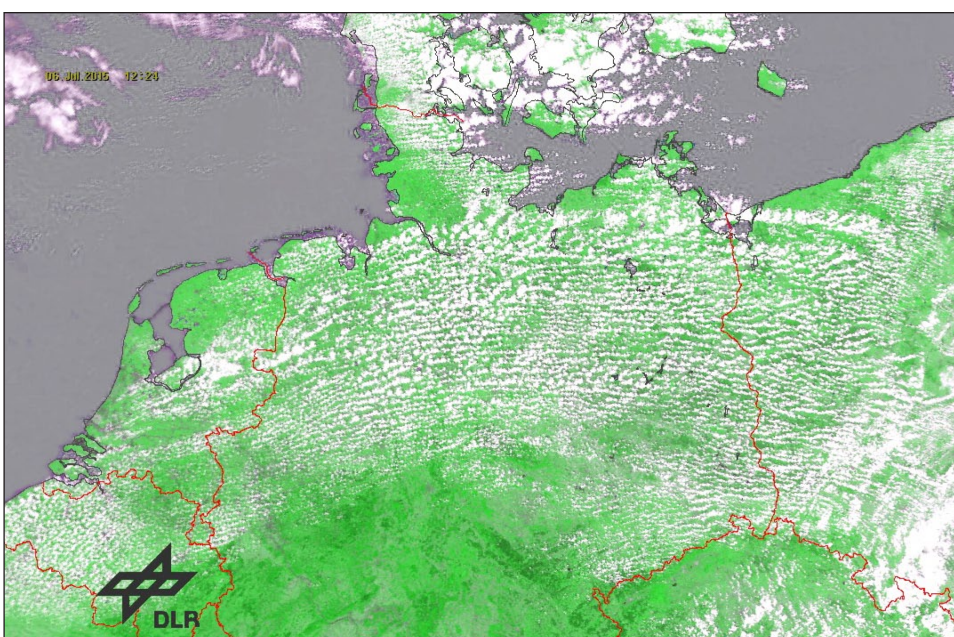

Figure 108

6 Jul 2015 12:24 pm Cloud streets across the full width of northern Germany they are to also form crosswind bands. These are associated with wave formations under an inversion in moderate to strong wind conditions. They typically occur following the passage of cold fronts, in southwest airstreams (refer to section 11.17). The lateral movement of crosswind bands can cause alternate periods of enhanced and depressed lift due to wave activity. These conditions are said to be "cycling". The time period for one complete cycle varies with the strength of the wind and the height of the inversion. It is usually of the order of 10 to 20 minutes. Crosswind bands also occur with thermals on blue days. They have been referred to as cold front shear streets, so called because they are associated with a frontal inversion. The crosswind bands are more dominant than downwind cloud streets under these conditions.

Figure 109a

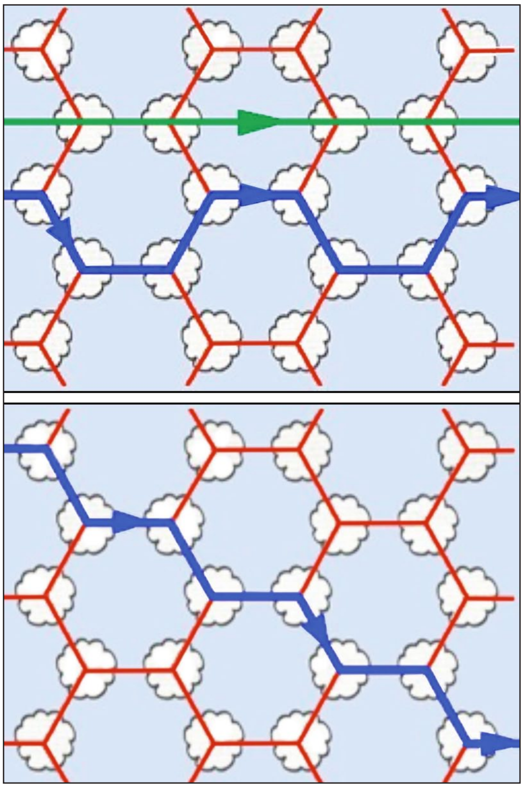

Figure 109b

Hexagonal lift patterns In section 1.19 we touched on the subject but now we will look at it more closely with a focus on the detours involved. When thermals organise themselves in generally hexagonal patterns, it can be advantageous to follow these energy highways in the sky. That's difficult in blue conditions but not too difficult on cumulus days. However, in both cases we have an increase in flying distance, which greatly depends on the orientation of our track to the lift pattern in the sky.

Obviously, following the blue lift pattern in Figure 109a involves 60° off-track deviations resulting in a 33% increase in the total distance flown. We might contact thermals on a more regular basis but it is unlikely our most obvious choice if flying competitively. However, while low, and while in desperate need of lift, it might well be the smartest option. It could also be the better choice in a very low performance aircraft, especially on a day with a low cloudbase and a headwind.

Following the green lift pattern involves no deviation at all but it requires the crossing of "blue sink holes" and it gives the pilot less opportunity to extract energy in cruise. Despite this, it is the better choice if speed is of the essence. The situation is quite different if the orientation of the track is broadly in line with the lift pattern as in Figure 109b. Now there are only 30° deviations required which adds just over 15% to the total flying distance. By extracting a bit of energy from every thermal along the flight path it might be possible to avoid any thermalling, and compared to the unfavourable flight path in Figure 109a, it is likely to increase the achieved cross-country speed considerably.

6.14 Dolphin flying

There are good reasons why pilots often achieve average speeds of 150 km/h and claim afterwards that there was hardly any need for thermalling. These pilots have aligned their track through the air with the path of maximum atmospheric energy. In addition they have slowed down in particularly strong patches