

Sistema Central revisited



Steve Ham, here seen tandem with Diane Hedges somewhere over the Corneja valley last August

Back in 1996 Skywings and XC magazine published my Sistema Central article on convergence in the Spanish central mountain chain [reprinted here in September]. The ideas came from observations since my move to Piedrahita in 1991, during free flying and from the laboratory of competition: setting hundreds of the world's best pilots upon tasks to test the theory.

The latter is a little like throwing handfuls of coloured confetti into the air to watch the wind patterns. Since 1996 we have had three more PWCs, the European Championships and countless more national events at Piedrahita, and with the bones of the convergence idea we have been able to set more effective tasks. Likewise, on a daily basis I am able to investigate the phenomenon with my XC groups, helping to build up a more accurate picture.

The '96 article gives the feeling of those days gone by when we wore pink and purple. It was a time when the world open distance record would still have been possible on the Spanish mainland and my focus was very much upon that. The convergence across central Spain is perhaps singular in the world because of the great length of a relatively narrow range of mountains with limited lateral ramifications, separating ample high plains which often have different climatic conditions.

Its length, from Plasencia to Moncayo, is about 400km, and it's one of the few places in the world where sailplanes regularly make yo-yo circuit flights of over 1,000km. As well as the principle convergence line, there are other convergence effects running at right angles to it which, although much smaller, give us important lines of lift allowing us to run perpendicular to the mountain chain.

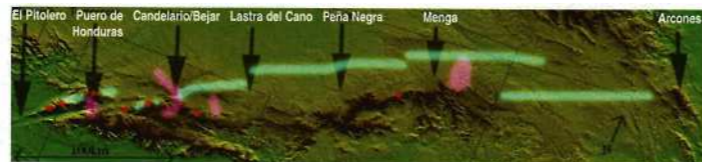
If this central chain were completely straight and uniform in altitude and width, on any particular day the convergence would run neatly parallel to it and we could trim our glider to fly in a straight line for 400km from one end to another and back again (if we had enough speed) with little need to circle. However the geography of the landscape is far more complex, with the airmass moving through and over passes, and the irregularities and changing levels of the plains. This shifts the convergence further north or south and sometimes inhibits it. So the real picture, although near to the ideal, is actually one of undulating lines of lift broken by gaps and lateral shifts.

The convergence effect is generally found on the mountains and the northern plains. Fuentemilanos is the principal site for sailplane activity on the north side (100km east along the chain from Piedrahita). Their main area activity is the Guadarrama range -the central section of the chain to the north of Madrid. A recent book by glider pilot Carlos Gómez-Mira García (*Volando a*

Steve Ham updates his understanding of central Spain's magical convergence

vela por la Sierra Central) covers in much detail flying around that area and further east to the limits of the chain at Moncayo. His descriptions of flying the range fill in a lot of detail which I have been unable to observe regarding flying conditions after Riaza (200km along from Piedrahita), where I seldom get to fly.

If you are limited to foot launching there are a number of sites along the chain: El Pitolero(SE/NW) some 50km east of Piedrahita, Lastra (S,SW) Chia (S, SE) and Peña Negra (NW) close to Piedrahita, and Arcones (NW) and el Nevero(S) some 150km to the east. Take-offs on the southern side of the Gredos (Pedro Bernardo, Piedraslaves) tend not to be effective sites for accessing the convergence.



Map 1: The Central Chain

It is best if we divide up the range into sections, both for clarity, and also since conditions often change dramatically from area to area. Map 1 shows the whole length of the central system (rotated 20 degrees from north). The turquoise shading shows an approximate idea of the convergence on a south-west wind day. The purple shading marks some lateral convergence effects we can also use during north to south-easterly days. The purple shading east of Riaza shows the Cb gust front convergence on a south-west day. Red spots mark foot launch sites. We will start in the west and move eastwards examining each area in detail.

Plasencia to Tornavacas

From Plasencia our main retrieve highway, the N-110, runs up the Jerte Valley enclosed by high mountains on either side, with those to the north tending work better. This valley usually has poor conditions and few landing fields (terraced mountain slopes full of cherry trees). If clouds are present, they are often only present beyond our first possible take-off point (El Pitolero), becoming better formed towards the Bejar/Candelario range. The latter are often the first to form cloud on the whole of the western part of the chain, and often the first to form Cbs. With a north or north-easterly wind, flying towards the west from Peña Negra (Piedrahita), it is common to find a convergence at the Tornavacas pass. This is from the westerly valley breeze in the Jerte valley and the valley breeze coming along the valley from Barco de Avila. This is shown on Map 2.



Map 2: Convergence at Tornavacas

The geostrophic wind is shown with large green arrows, and the lower breezes shown with red arrows. The turquoise area is the convergence area. This section of lift can be used to fly up the lee side of the Sierra de Bejar from TP19, the Tornavacas pass. Convergence neatly follows the frontier of the province of Avila and Caceres and then, once on the Bejar range, you can fly eastwards again along the Avila/Salamanca frontier. The Tornavacas pass marks the beginning/end of the high plains and you will generally see a marked difference in the air quality when you look down in to the Jerte valley: haze and much reduced Cu's. If this is the case your best option is to run north along the convergence to the Bejar range and either continue west or east from there.



Looking west from the Tornavacas convergence



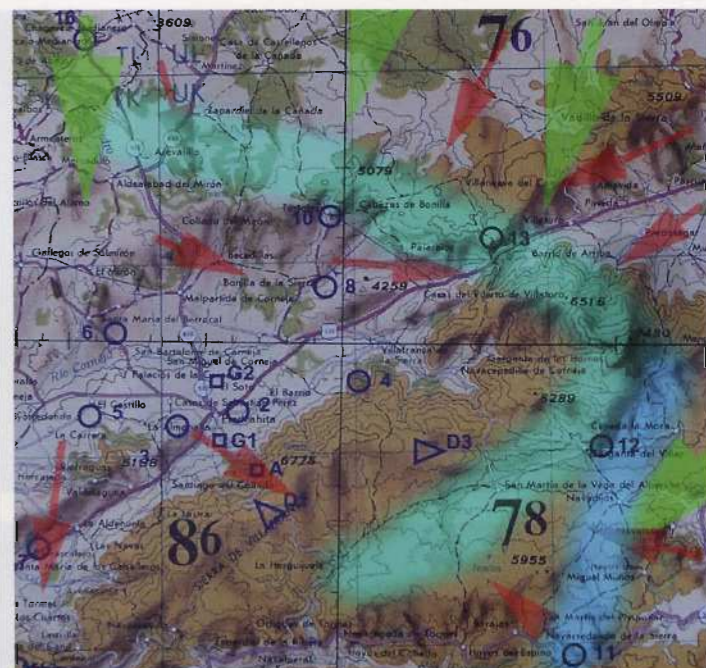
Looking east from the Tornavacas convergence

Tornavacas to Villatoro

Map 3 centres on the Corneja (Piedrahita) valley and the Villatoro pass which separates it from the Ambles (Avila) valley. The Villatoro pass has achieved a mythical status in the free flying world and is often wrongly considered a difficult spot. The Villatoro pass is often the last and only contact of the mighty south-westerly convergence with the high mountain range. From here it runs along the shallow hills of the Sierra de Avila and then stays well to the north of the mountain range. Likewise, on a north wind day, when the convergence follows the Paramera range to the south of the Ambles valley, the convergence arcs across Serrota mountain to the pass. For a foot-launched glider this is a key position, allowing our transition from the mountains to this aerial highway irrespective of the wind direction.

The air mass in the Corneja and Ambles valley is often different. Commonly, on the good open-distance days with a south-westerly or north-westerly wind, Cu's will form along the Ambles Valley (along the Sierra de Avila or Paramera) well before the first Cu pops on the Piedrahita ridge. With north to south-east winds, the first Cu's tend to form in the Corneja valley and at the pass, and with a south-easterly wind it is often the only spot in western section of the chain to show Cu's throughout the day.

On our perfect forecast day with light south-westerly winds, instability and flattened Cu's at 10,000ft+ , we will be able to climb out from Peña Negra (earlier from Lastra del Cano), follow a well-formed cloud street along the mountains, or a little further out, make an easy crossing from the end of the Piedrahita chain across to the spines running up to the Villatoro pass (perhaps



Map 3: The Piedrahita valley and Villatoro

the most critical transition of the day with the chance of a bomb-out before the pass around Villafranca). You will then climb at the pass and probably cross to the convergence running north of the N-110 highway for the next 300km (allowing for some breaks and north or south shifts along the way).

With a light northerly through to south-easterly it is seldom worth continuing east of the pass, and even on a light north-westerly day the wind beyond Muñogalindo (about 25km before Avila) will become east low down. With these conditions (except in a north-westerly) we can plan on returning back over the pass after going into the Ambles valley, or use the line of convergence to run to the north-west from the pass for triangle flights. The convergence area is marked in turquoise on Map 3, and the blue area indicates the convergence earlier in the day, which often moves north during the afternoon. Depending upon where the clouds are during the morning, we can choose turnpoints 11,12 or 13. If you get to 11 or 12 too late you may find the convergence has already moved north, leaving you with a headwind. The classic route is next to TP16, then a tailwind return to TPs in the Piedrahita valley. An 80km triangle can be easily achieved with two legs of convergence and a tailwind final leg.

Villatoro to Avila

This section is normally run along the south side of the Sierra de Avila on a classic south-westerly day, but works well right across the valley to the higher mountains (Sierra de Paramera). However, if you are looking to go a long way, stick north of the N-110 towards Avila.

With light north-westerly wind there will be a low-level wind change at Muñogalindo to north-east, east or sometimes south-east. This provides us with a line of convergence running roughly north-south from Muñogalindo towards Solosancho (see Map 4). On north wind days any Cu formation will normally stop just short of Avila in the Ambles Valley (though there will be a line of cloud further back on the mountain chain further on towards the Guadarrama range near Madrid).



Map 4: From Villatoro towards Avila GOES HERE