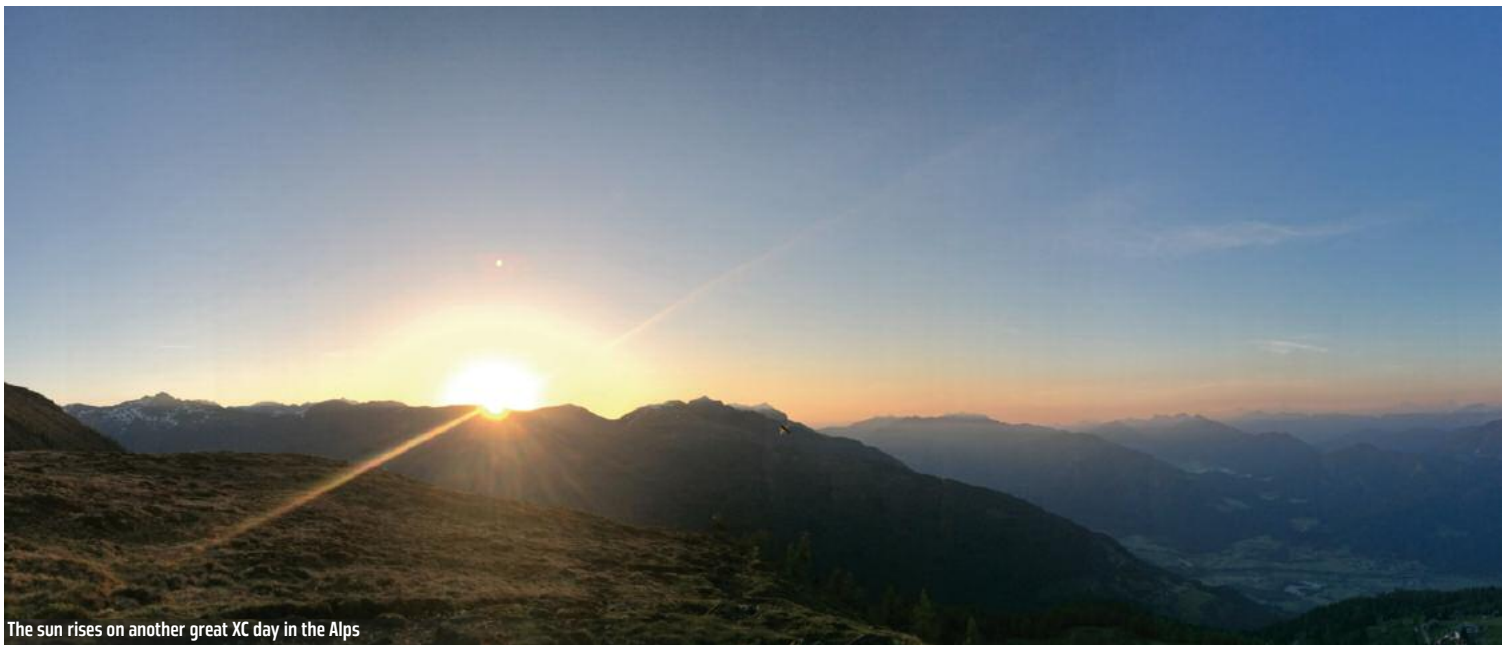


# A day in the life of the Alps

Kelly Farina explains the Alps as a living, breathing organism ...

IT'S 5AM. MIST HOVERS OVER THE MELT-WATER RIVER AS IT MAKES IT'S WAY TO ITS FINAL DESTINATION, THE OPEN OCEANS. On a dimly-lit valley floor a cold, dense katabatic wind runs downhill towards the flatlands. The Alps exhale.





The sun rises on another great XC day in the Alps

The sun appears as a glint over the horizon and the highest peaks are the first to share its yellow glow. From the valley below, the earth's daily rotation is visible. Shadows creep ever so slowly down the rocky face. Lower still the shady slopes conduct cool air to the valley's depths.

7am. The easterly slopes receive their first dose of spring sunshine. A light, shallow breeze flows over the higher pastures, stirring the longer grasses. Flags outside the empty mountain hut flap slowly in the morning light, as do any birds passing by. It is still early on the sun's procession across the sky.

Ducks swim downstream, using the free ride to feed along the entire valley. We will check in with these little guys again later.

10am. The sun's rays now beat down on the valley floor, warming villages and lower pastures. These important land features will be just as vital to the day's thermal development as the mighty slopes that soar around them. East-facing terrain is heated; air journeys ever higher towards its trigger point. There it leaves the mountain's clutches, free to rise and cool at last.

A light breeze pulses towards the sunny slope below, Replacing the air sent skyward by the mountain. This flow, dubbed the magnet effect, will receive more warmth as it climbs until eventually forced to leave the terrain.

The airmass is cool, unstable. Pressure is low enough to allow convective columns to leave the ground on their own terms, yet high enough to prevent clouds forming too early, suppressing thunderstorms.

Here on launch the tear-away point is obvious: the rounded edge of the plateau. On the higher peaks the snow-line wedges under this warm blanket of air, allowing it to accelerate into the cool surrounding air.



Long-haul pilot follows the sun's procession across the sky

12pm. Most pilots who are on long-haul flights left launch hours ago, needed their soft-skills to climb in the light, narrow mid-morning thermals. Leaving the hill early was vital; the sun's procession across the blue is unrelenting and their goals far away.

In the valley floor the magnet effect is becoming less apparent, hidden by the shallow flow feeding the thermals on the sunny south faces. The temperature below is slowly rising. The west-facing slopes are no longer cool, but not yet warm enough to compete with the deepening blanket of warm air slowly being drawn towards the center of the Alps. The respiratory system of this mighty mountain range is stirring.



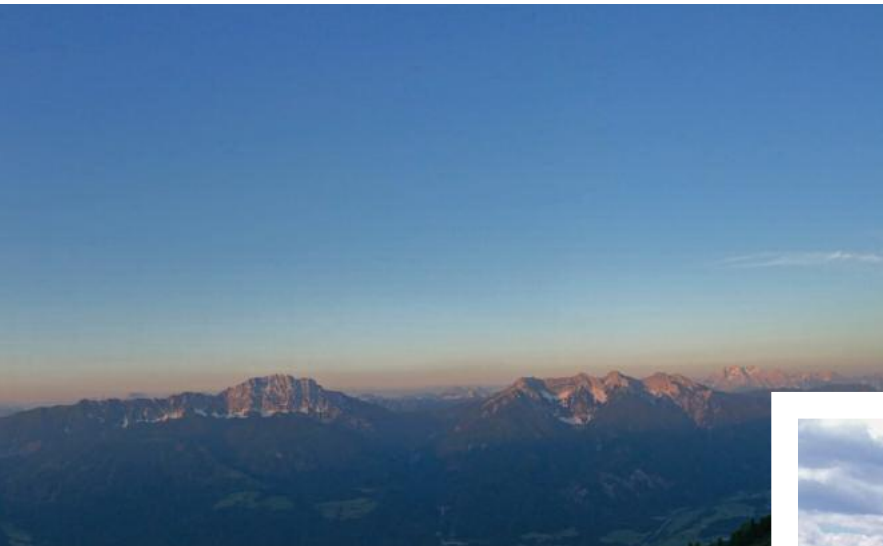
Superheated Dolomitic rock drawing vast quantities of hot air skyward - giant magnets!

2pm. There is still very little cloud development, only over the high peaks. An inversion formed as the sun rose, warming the air unequally. A humid layer absorbed more of the sun's rays. Lesser thermals are prevented from penetrating it's layered stability. These weaker climbs roll and tumble underneath, creating turbulence and slowing down our long-haul pilots.

Colossal amounts of rock are heated, air expands, density lowers. This causes the pressure to drop over a massive area. What was just a local chain-reaction of rise-and-draw is turning into an unstoppable force.

Thermals have been smashing the inversion above and it's now mixed with the surrounding instability. Humid air rises, condenses. All southerly faces are attracting large volumes of air up their hot faces. Good development shows the way around the chessboard which is the Alps.

4pm. The south-west slopes start to really fire up. Clouds dissipate on cooler eastern faces. Still the odd climb leaves a protected south face, the sun's warmth allowed to excite the air residing there one last time before the shadows start to slide over.



Pilots on the other side of the main ridge were not so lucky. Identical events happened there with one major difference: the humidity of the air, pulled in from the Mediterranean, was higher. Clouds formed earlier and thunderstorms are clearly visible.

And our ducks? Their day's hunting is also over. They were last seen running with the valley flow behind them, catching an easy ride home. They understand that fighting the valley flow is futile. While they might not use the heating effect of the flow-of-the-day theory like the eagles and soaring raptors do, they certainly understand the valley flow effect.



In orbit - no need to worry about the valley winds below Greifenburg



Clouds still active after a long XC flight in the Drautal

8pm. Clouds are dissipating over the west faces and the shadows slowly move over the high peaks as the sun's last reddish rays weaken. The breeze in the valley has switched to a light outflow, feeling cool and heavy, its origin the glaciers and lofty peaks of the Main Alpine Divide. Held back all day by strong thermals triggering at the end of these valleys; now free to crash and flow. Wedging, undermining the unstoppable force of the valley breeze, now a few hundred meters above our heads.

A strengthening valley flow is guided by ancient glacial architecture. Large direction changes in terrain will see air forced up, bringing with it warm, buoyant air from the flatlands. Embedded in this flow are huge parcels of heated air needing no encouragement to trigger, even on cooler, windward slopes.

Nearby, other slopes become twisted areas of rotor, where the warm air is tormented as its volume grows. Once it starts to gather momentum here, any air dragged into this system will stay inertially hazardous to our long-haul heroes. If they wish to make their goals it's important to recognize these turbulent pitfalls.

6pm. Our pilots start to reappear after their eight-hour Alpine Odyssey. Crossing many valleys and some even the Main Divide. Some congestus builds over hot protected sources, but no thunderstorms form as the valley flows remained relatively dry, the air drawn from the surrounding plains.



Early afternoon and a lone glider climbs on a hot, sunny south face



Sunset soaring with friends

10pm. The Alps continue to inhale until way past sunset, its cold outflow becoming stronger and pushing the day's last breaths ever higher until the system collapses. The Heat Low is filled.

The cycle complete, the ducks rest. Darkness falls on the valley and a cold, dense katabatic wind flows out of the Alps once more.

*This piece is from Kelly Farina's forthcoming book, Carving the Line, a collection of concepts to enable pilots to fly longer, further and safer than ever before. It's a snapshot of the syllabus he's passed on to pilots who come to fly with him from around the globe.*

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