



## Flying in an Unbelievably Blue Winter Sky



For many years, model airplanes have been flown in wintertime on the frozen lake in Davos in the Swiss alps. The conditions may be a bit special but are not nearly as nasty as aeromodellers in warmer hemispheres may think.

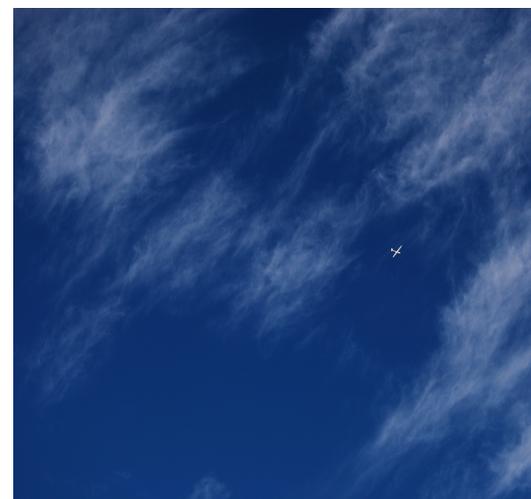
### Thermals when flying in Winter?

"These are less likely in midwinter – but ridge and wave soaring from the bottom of the valley are possible," says a local model pilot, "but the stable weather conditions bring high-altitude winds in which we can sometimes – keeping a safe distance from the mountain – fly to very high altitudes with lift continuously increasing with altitude". A variometer is useful for these flights but not essential, as visibility is excellent. The pilots of large model gliders point out that visibility depends more on wing width than span and give an approximate value for an altitude that still allows for good visibility of 4000 times the wing width. Thus, a glider with a wing width of 20 cm can be easily controlled at altitudes of up to 800 m. Sometimes it can be dead calm on the lake while snow is blowing off the summit ridges. Such snow banners are not to be feared –

on the contrary – the glider has to get there first! Thermals over the continuous covering of snow usually start occurring in March. They often become detached over the first snow-free wooded areas and become more powerful with increasing altitude. Local model glider pilots say a big weather risk that has to be taken seriously is presented by cirrus clouds (altostratus). "Locally, they can develop with tremendous speed and if you are flying at 800 m with a purely white glider, you will very suddenly have a visibility problem", explains one of the pilots; "...and that caused me to lose a large glider last year," sighs his friend. But this is clearly outweighed by the advantages: for one, there is the soft blanket of snow which has saved any number of models. It covers the entire landscape like a single foam carpet and if you're lucky it will absorb even vertical impacts to a degree that no or only little damage occurs.

### The effect of the cold

Local model flyers comment that many can't understand how surprisingly warm it sometimes feels. They explain that body heat is not dissipated by air but only by moisture in the air. "One winter, the air in our high mountain valley had only 4% relative humidity at a temperature of -16 °C – this corresponds to a water vapour content of 0.02% RH (!) at +25 °C. Such dry air can hardly be generated technically" claims one of them and adds, "on that day, we were flying without gloves". At other times, it can also be remarkably warm as long as winds remain light (which, in winter, is often the case in the valleys) as the surrounding walls of snow additionally reflect the sunlight. However, standing in the snow for hours on end does lead to cold feet. Fur-lined waterproof boots are recommended.



**Altostratus can develop with tremendous speed**



***Snow is blowing off the summit ridges***

## **Preparation on the model aircraft**

Taking off and landing with floats works well in deep powder. On a compacted snow surface or even ice, floats with a hard surface must be used. Balsawood with foil is immediately abraded and EPP also suffers. Two variants are recommended for skis: Shorter ones with poorer directional stability for scale models and long narrow skis for the remaining models. The latter can be the tips of downhill or cross-country skis. A large model with a 200 cm<sup>3</sup> engine has even been equipped with complete downhill skis. Towing on snow is like flying on water. Snow will enter the fuselage through unbelievably small gaps and pool on the bottom of the fuselage, which is why moisture-sensitive components such as receivers or controllers should not be mounted on the

bottom of the glider fuselage body. On gliders with retractable landing gear, the landing gear openings must be sealed off with fabric tape. Tail wheels must also be well taped off, otherwise they can act like small shovels that soon fill the tail tube with snow. Experienced alpine pilots also advise against using nickel metal hydride (NiMH) batteries for powering receivers and instead recommend lithium polymer (LiPo) or lithium iron phosphate (LiFePO) batteries, with the latter causing no problems. Batteries for the propulsion unit are brought along in an insulated box equipped with hot water bottles.

## **There's nothing quite like it**

"After seeing your snow-white glider being towed up into the deeply blue sky for the first time, you'll be hooked", says one of the pilots and adds, "For us alpine aeromodellers, flying in wintertime has become almost more important than ridge soaring, although we are surrounded by locations with excellent ridge soaring conditions".



***Cold and dry air -16 ° C flying without gloves***



***Flying with skis***

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