AIRPORT BRIEFING

LSZM

For aircraft with turning speed >110 kts

Version 3.0

ENGLISH

LSZM Mollis Airport

Foreword

Due to its topography, Mollis Airfield places high demands on the crews of aircraft with high turning and approach speeds. Likewise, the composition of air traffic from private and training aircraft as well as helicopters requires increased attention during arrivals and departures.

In this airport briefing, the operational aspects, the possible crossing points of the different aircraft, as well as the typical weather conditions and their influence on flight operations are discussed.

The AIP and official aviation publications will always take precedence over this briefing in the event of any disagreement.

The briefing is mandatory for all crews approaching LSZM with fixed-wing aircraft that have a turning speed greater than 110 kts.

We wish you happy landings in Mollis!

Mollis Airport AG

Inhaltsverzeichnis

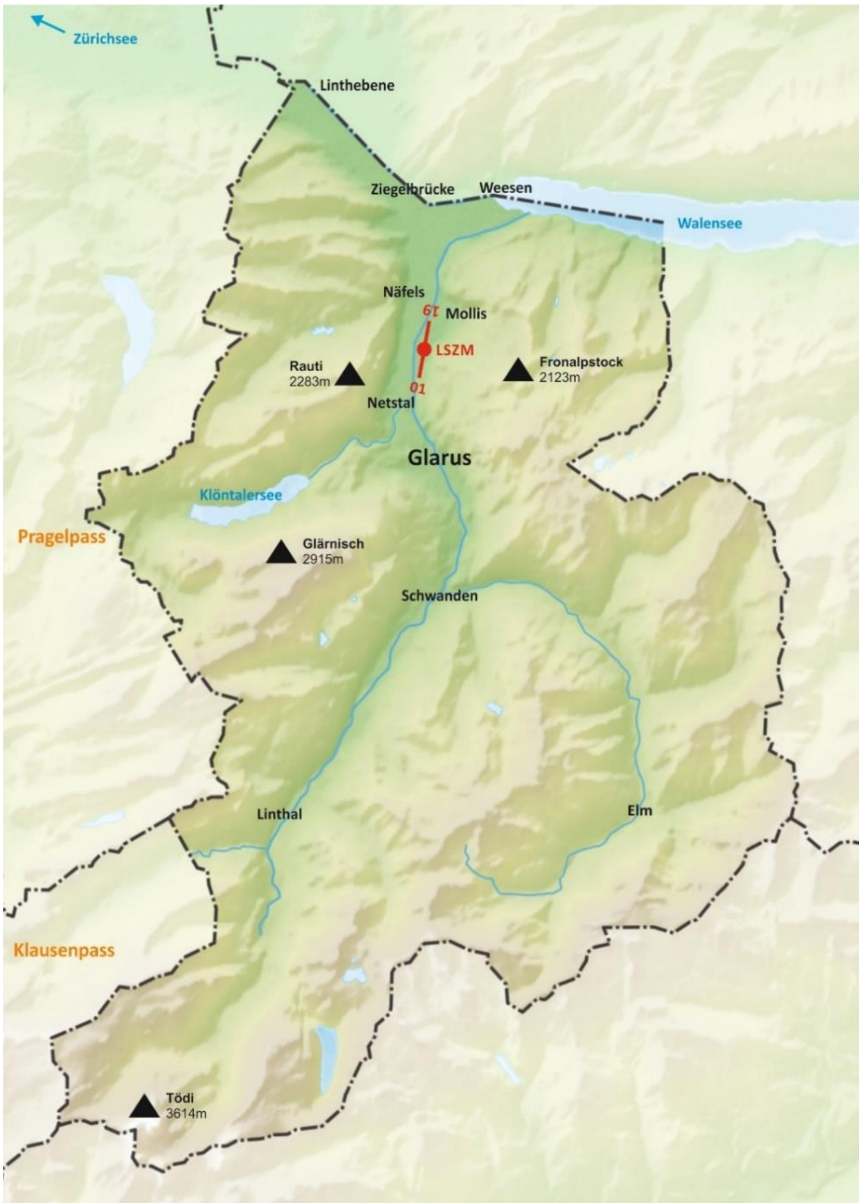
1. Topography

The Mollis airfield is embedded in the narrow valley of the canton of Glarus. The main valley has a north-south orientation. In the village of Schwanden, south of Glarus, the valley branches with an extension towards the southeast to the village of Elm. Towards the south, the western-facing Klausen Pass is the lowest pass.

North of the Mollis airfield, the valley opens up and also branches in the region of Ziegelbrücke. To the east is the Walensee, to the north-west the Linth plain with Lake Zurich

The mountains generate an MSA of 10100ft in the immediate vicinity of the airfield, in the southern part in the region of Mount Tödi up to 12400ft.

To the north and east towards Walensee, the terrain offers better options than south of Mollis airfield. Depending on the weather (*Staulage*), it may be closed to the south and make turning maneuvers impossible.



2. Typical weather and wind conditions

2.1. Weather from the north

- Often deep clouds and large amounts of precipitation over several days on the main Alpine ridge and the Glarner Pre-Alps. Difficult IFR canceling and joining due to limited visibility.
- Constant north wind. RWY 01 in operation.

2.2. Approaching weather fronts from the west

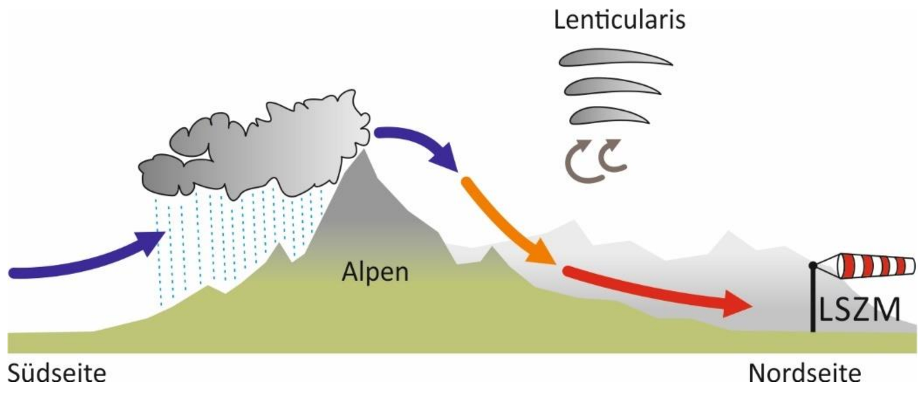
- First still good visibility with high cloud base in Glarnerland.
- Freshening winds from the north, accompanied by low cloud layers that can quickly envelop the surrounding mountains.
- Mostly gusty north winds at the airport, locally gusty west winds from the Klöntal in the Glarus region are also possible.

2.3. Stable high pressure

- Often light winds at the airfield, with good visibility and only light clouds. Direct approaches to RWY19 are also possible with a slight tailwind (acc. AFM).
- Generally problem-free VFR operation for canceling and joining.

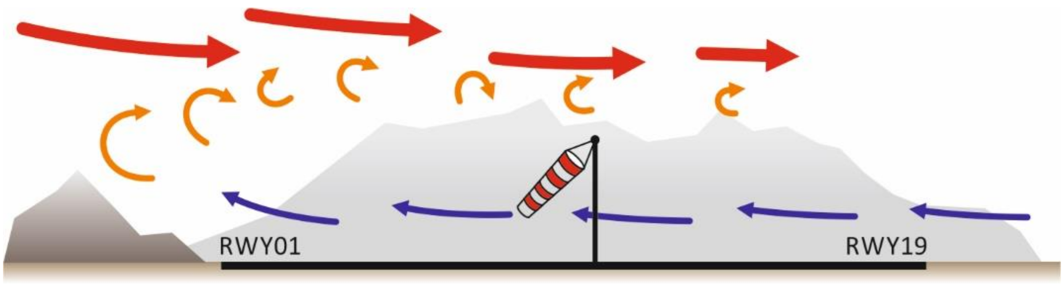
2.4. Southern foehn

- Warm and dry southerly winds in the northern Alpine valleys.
- Good visibility on the north side of the Alps. High clouds (Lenticularis) or no clouds north of the Alps, depending on the strength of the foehn.
- On the southern main ridge of the Alps, stagnation with heavy clouds and large amounts of precipitation. A so-called “foehn wall” is usually visible from the north.
- From a pressure difference of about 4 hPa between Lugano LSZA (south of the Alps) and Zurich LSZH (north of the Alps), experience has shown that the foehn can penetrate into the Alpine valleys. From 8 hPa, the gusty foehn winds can also penetrate into the adjacent flat land.

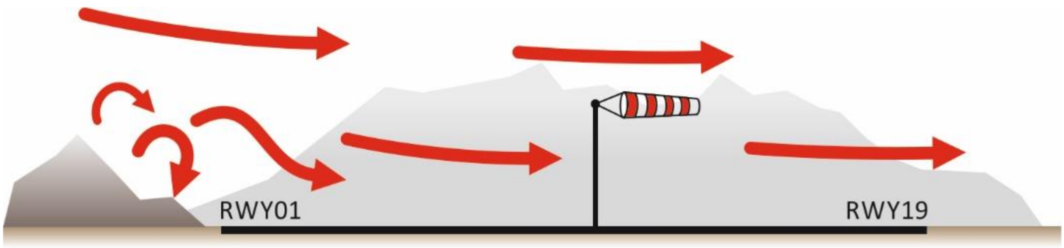


ATTENTION: When the foehn wind develops, a northerly wind can still prevail at Mollis Airport. A bit higher, however, gusty foehn winds are to be expected. These can suddenly reach the valley floor and lead to strong lee waves and rotors, especially in the southern end of the airfield area. This means that when taking off from RWY19, there is a risk of strong lee waves during the initial climb, which can severely impair climb performance.

Graphic: **Developing strong foehn situation** with still weak north wind on the airfield



Graphic: **Strong foehn situation** with sweeping, gusty foehn down to the valley floor



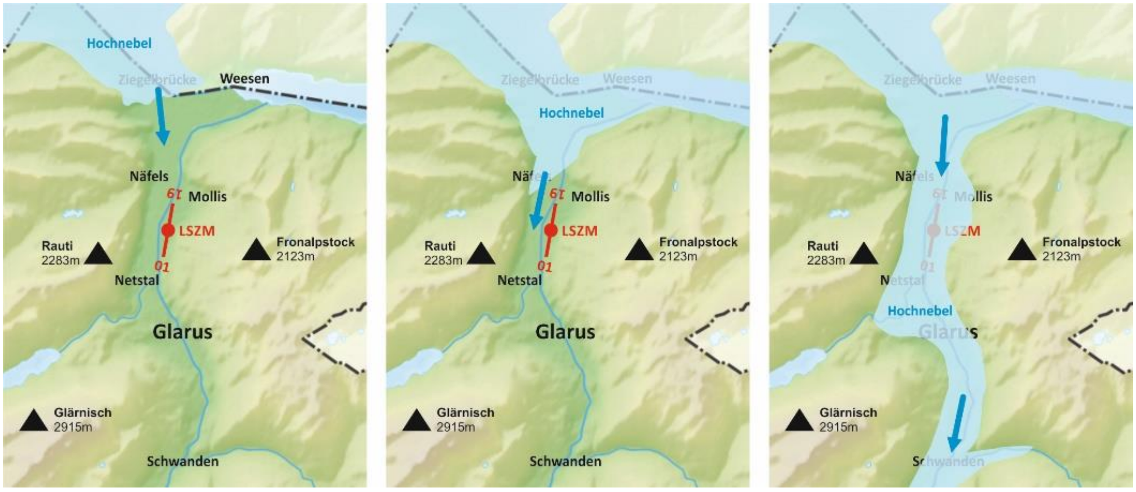
2.5. Standard wind situations

- The following wind situations can be expected in the summer months without a foehn wind or rising fronts:
  - In the morning no wind or light southerly wind from the Pre-Alps. More like RWY19.
  - Valley winds starting in the morning due to thermals in the Alps. RWY01.
  - From late afternoon or in the evening: South wind/mountain wind due to coincident thermals in the Alps. RWY19.

  Caution: In midsummer, in connection with thunderstorms, these winds can also be unpredictable and gusty. Heavy rain in connection with thunderstorms often comes quickly from the Klöntal (from the Klöntalersee region).

- In the winter months, flat areas of high pressure or tide zones often occur. North wind with the effect of damming high fog in the foothills of the Alps.Glarnerland is often fog-free. Depending on the upper limit of the winter high fog in the Swiss Mittelland, the fog dissolves in the region of Ziegelbrücke. This is due to local effects.

CAUTION: Since the solar radiation is generally short in the winter months and around the winter solstice there is already no more solar radiation on the airfield at around 1400 LT, the fog cover can move quickly into the valley with a north wind and form a closed cover up to the southern Glarnerland.



3. Air traffic at the airport and in the region

3.1 Mixed Air Traffic

The following categories of aircraft can be found at Mollis Airport:

- Small and medium business aircraft
- Training aircraft
- Private aircraft
- Gliders
- Helicopter
- Paragliding and Delta
- Model airplanes

This mix of different aircraft, speeds and flight routes requires increased attention from all pilots. A clear and distinct communication of all actors on the flight frequency 134.830 MHz is essential !

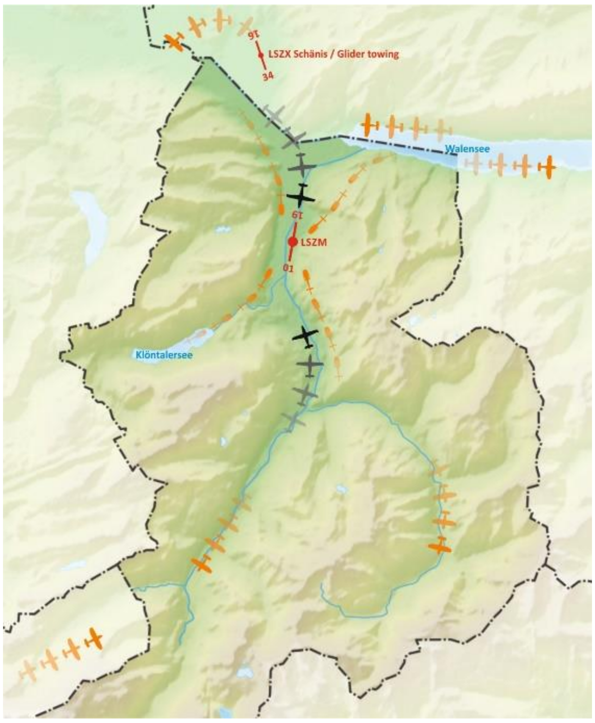
3.2 Schänis Airport

The Schänis airfield is around 8km south of Mollis. This has mainly gliding operations with aerotow. The towing routes often lead in the direction of Wägitalersee, Walensee, in Glarnerland or in eastern Switzerland in the direction of Säntis. Increased attention is mandatory, especially in the region from the approach from Sector North and East.

3.1 Crossing Traffic Walensee, Klausenpass, Klöntalersee

- Air traffic by small aircraft and helicopters is to be expected in Sector North and East. The Walensee is a frequently flown transit route.
- The area surrounding Mollis Airport is also used for transit from north to south or vice versa. Aircraft climb south along the Glarnerland, towards Tödi, Klausenpass or even to Elm.

- Normally, aircraft in transit are higher than light aircraft approach and departure procedures. For procedures >110kts in LSZM, however, the vertical distances can be reduced!



4. Approach and Departure Procedures

4.1 Key Points

Due to the topography, approaches to RWY 01 and departures to RWY19 are challenging due to the tight curve radii and require crews to have thorough knowledge of the procedures!

Approach procedures

There are **3 approach procedures** **for RWY 01, on 2 different maps** depending on the maximum turning speed:

1. Up to 110kt turning speed -> Mainly for small aircraft: **VAC** «SINGLE ENGINE / LIGHT TWIN / HEL»

2. Up to 120kt turning speed -> final turn in front of the «Vorder Glärnisch» mountain: **VAC** «ARRIVAL FOR AIRCRAFT WITH MORE THAN 110KT TURNING SPEED»

3. Up to 145kt turning speed -> final turn in the Schwanden region, southeast of the «Vorder Glärnisch» mountain: **VAC** «ARRIVAL FOR AIRCRAFT WITH MORE THAN 110KT TURNING SPEED»

Departure procedures

There are **2 departure procedures** depending on the maximum turning speed:

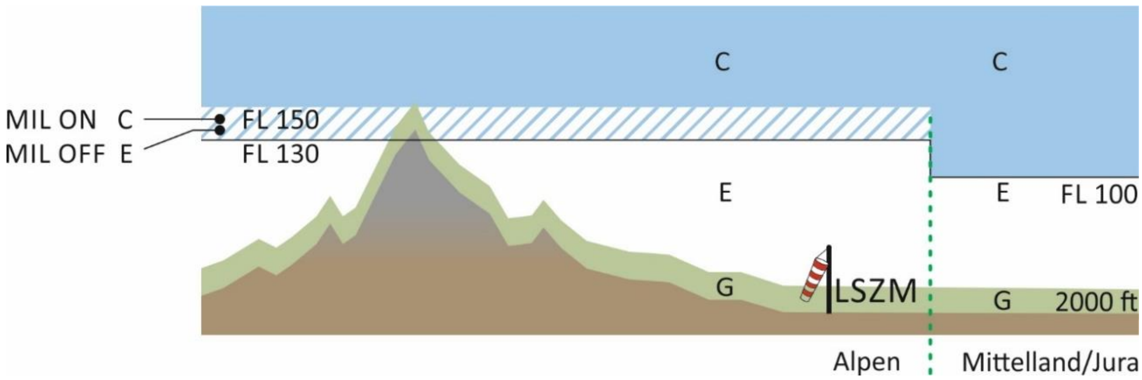
1. Up to 110kt turning speed -> Mainly for small aircraft: **VAC** «SINGLE ENGINE / LIGHT TWIN / HEL»

2. Up to 120kt turning speed -> Departure RWY 19 with a right turn in front of the «Vorder Glärnisch» mountain: **VAC** «DEPARTURE FOR AIRCRAFT WITH MORE THAN 110KT TURNING SPEED»

If the wind conditions permit, direct approaches and departures are to be preferred! LDG RWY 19 often with a tailwind. T/O RWY 01 mostly with headwind.

Important information:

- In LSZM you can only operate according to VFR.
- The topography around Mollis airfield is challenging and thorough preparation of approaches and departures is imperative.
- TAWS (GPWS /EGPWS) will generate alerts.
- LSZM has no control zone and no ATC services. Blind calls must therefore be made early and often. This is the only way aircraft can separate from each other.
- The general wind conditions can be queried on the frequency.
- As a reference for the QNH in LSZM, the QNH should be queried from LSZH (no weather station in LSZM).
- In LSZM there can be a lot of school activity with several aircraft in the traffic pattern.
- LSZM is in airspace G, which extends to 2000 ft above ground. Above that is airspace E and above C.
- The different lower limits of airspace C in the Alps from FL130 to FL150 during military flight duty times must be taken into account. For military flight operations, the lower limit is FL130.



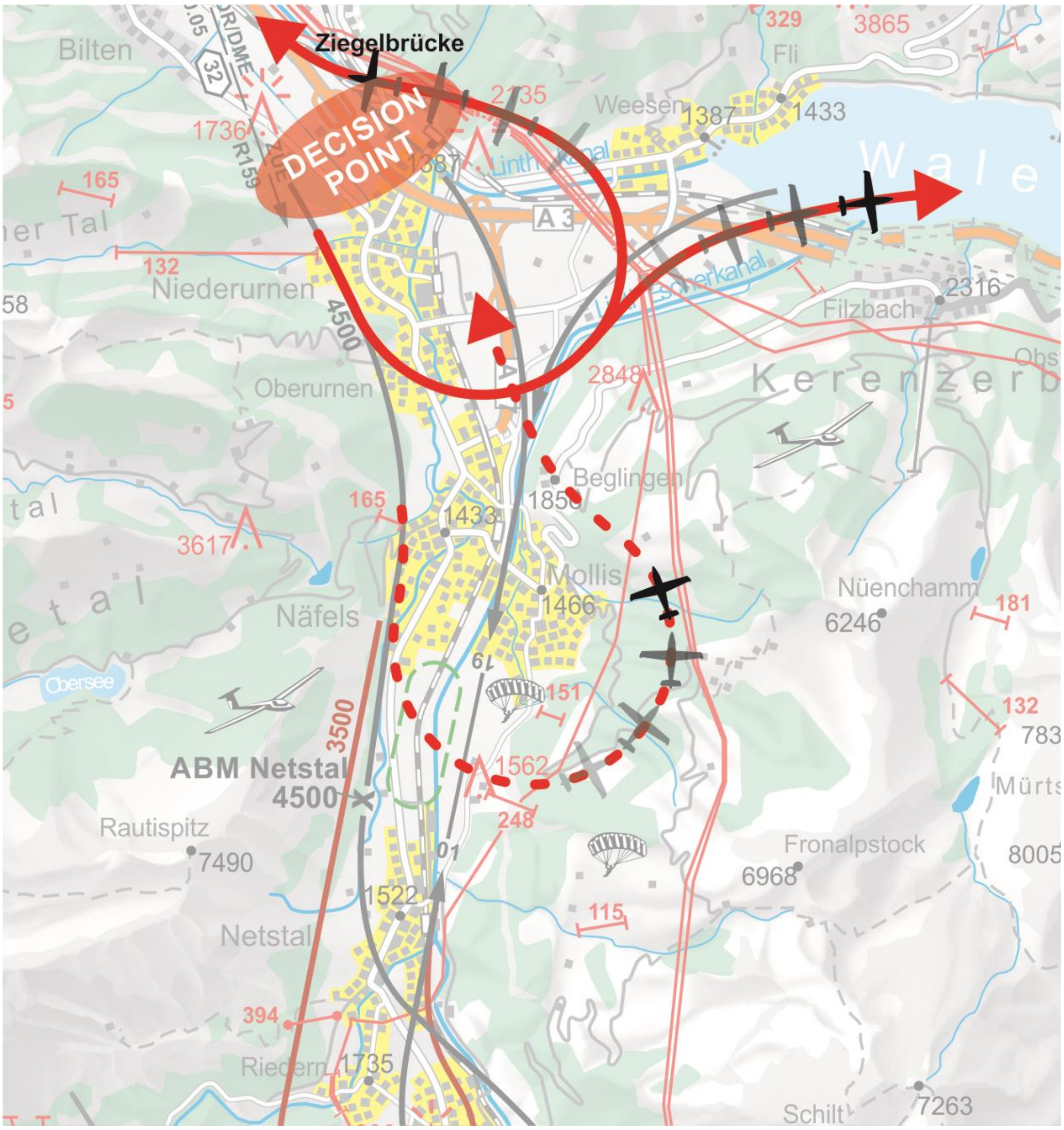
4.2 North sector decision-making and possible reversal procedures

Checking the cloud situation in the Schwanden area for the final approach is essential for safe flight of the procedures. This must be done as early as possible. When approaching the procedure for RWY 01 from the north, it is advisable to make the following assessment in the region of sector north (Ziegelbrücke village):

- Is the zone in front of the «Vorder Glärnisch» mountain clear (max. turning speed 120kts)?
- Is the zone clear at Schwanden (max. turning speed 145kts)?

If the assessment is not clear or the procedure is not applicable, the approach should not be pursued!

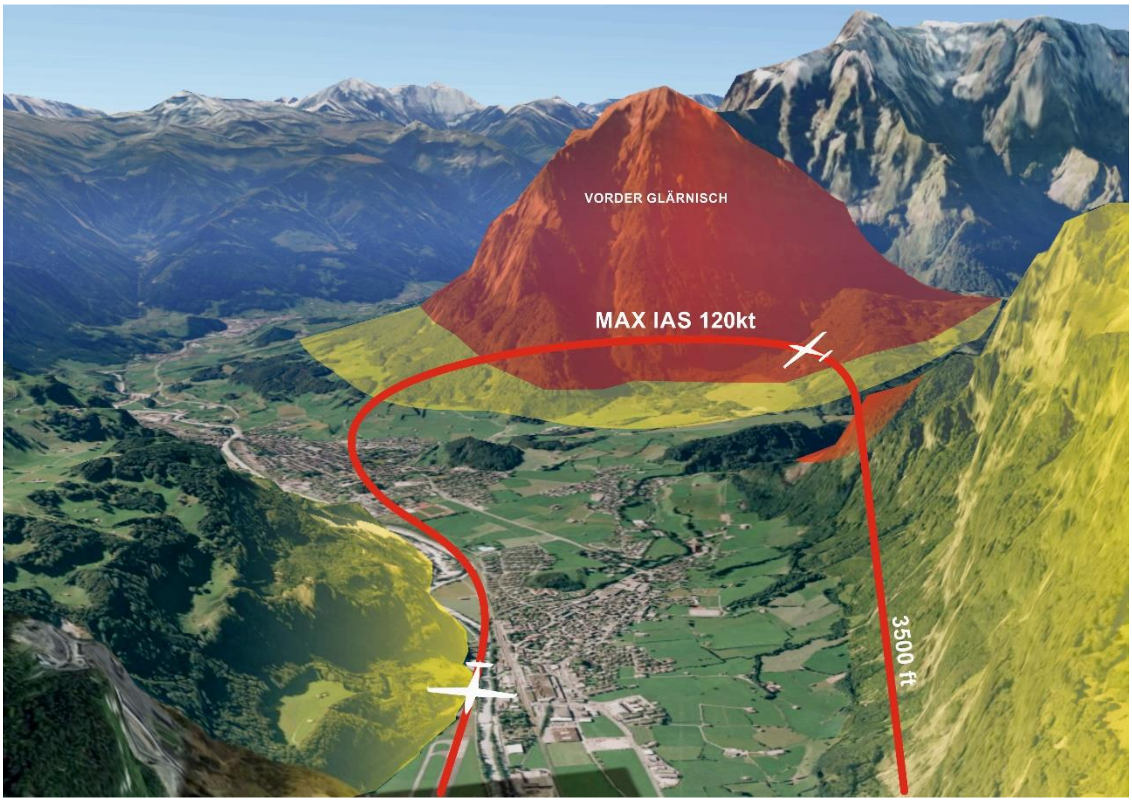
Possible exit procedures:



CAUTION: The speed must be adjusted to avoid terrain approximation!

RECOMMENDED DECISION POINT: Village of Ziegelbrücke (railway station next to the A3 motorway)

4.3 Procedure Turning Speed 120kt



• Before turning into the base, the speed must not be more than 120kt.

• Initiate a turn with a 25° bench to use the available space optimally.

4.4 Procedure Turning Speed 145kt

The following points must be flown over precisely for the "MAX IAS 145kt" procedure (VFR only, there are no IFR points!):

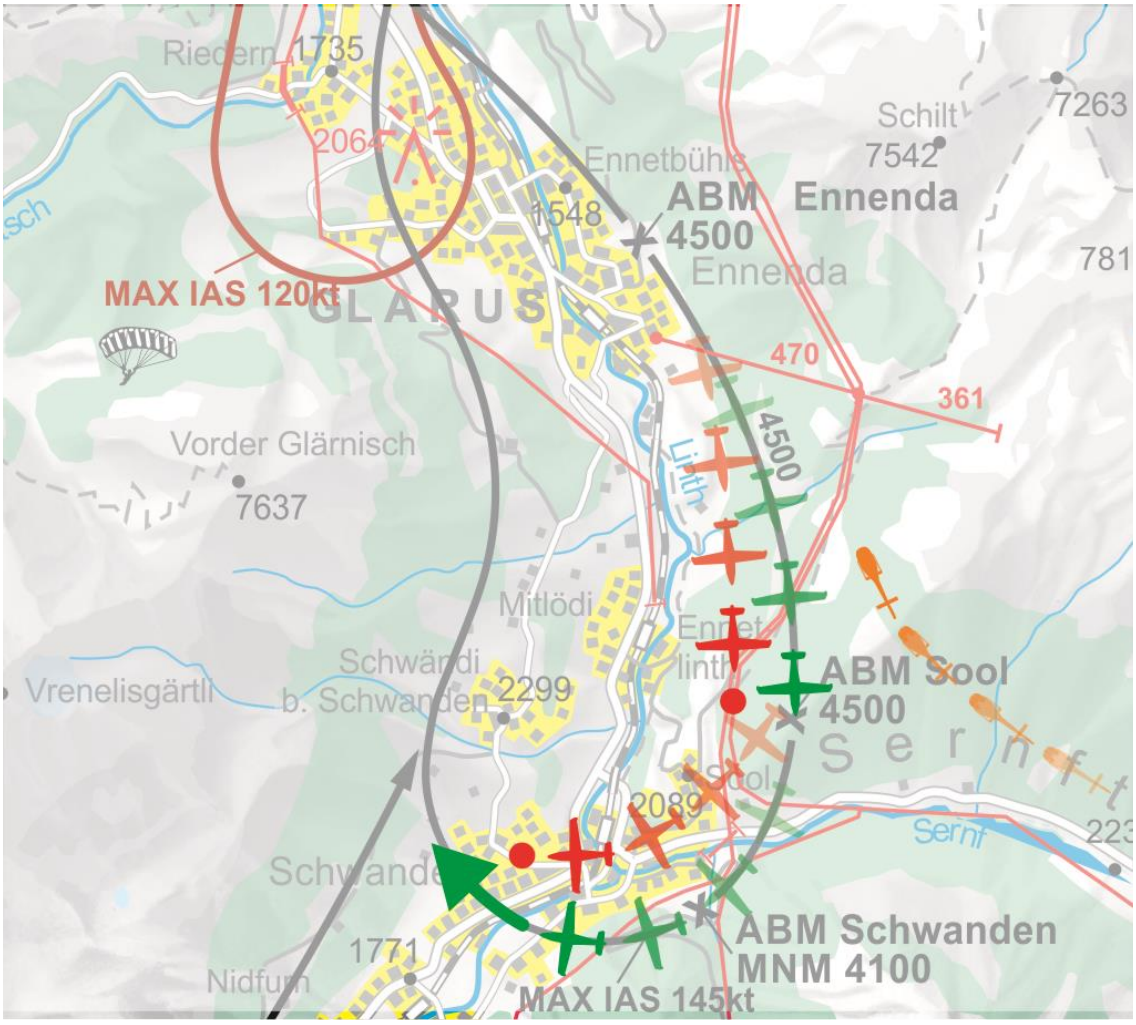
ABM Netstal	47° 04’ 31” N / 009° 03’ 05” E	4500 ft
ABM Ennenda	47° 02’ 16” N / 009° 04’ 55” E	4500 ft
ABM Sool	47° 00’ 17” N / 009° 05’ 46” E	4500 ft
ABM Schwanden	46° 59’ 30” N / 009° 05’ 12” E	MNM 4100 ft

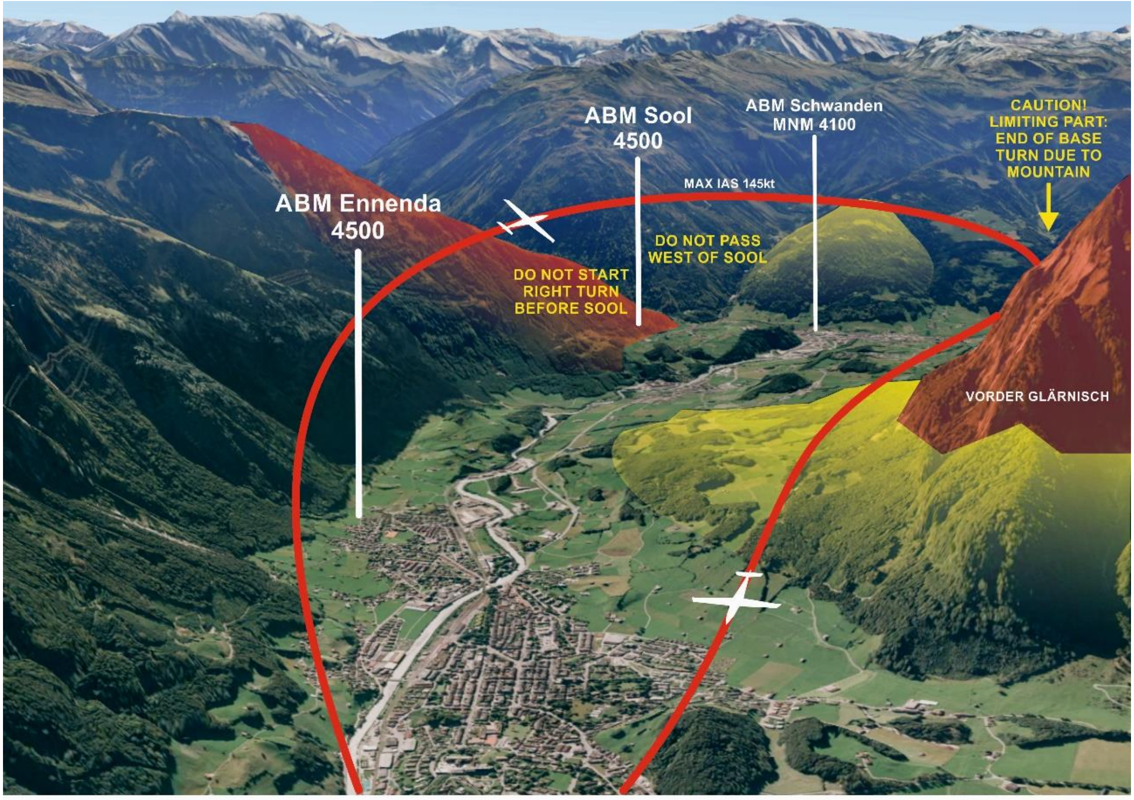
ABM SOOL

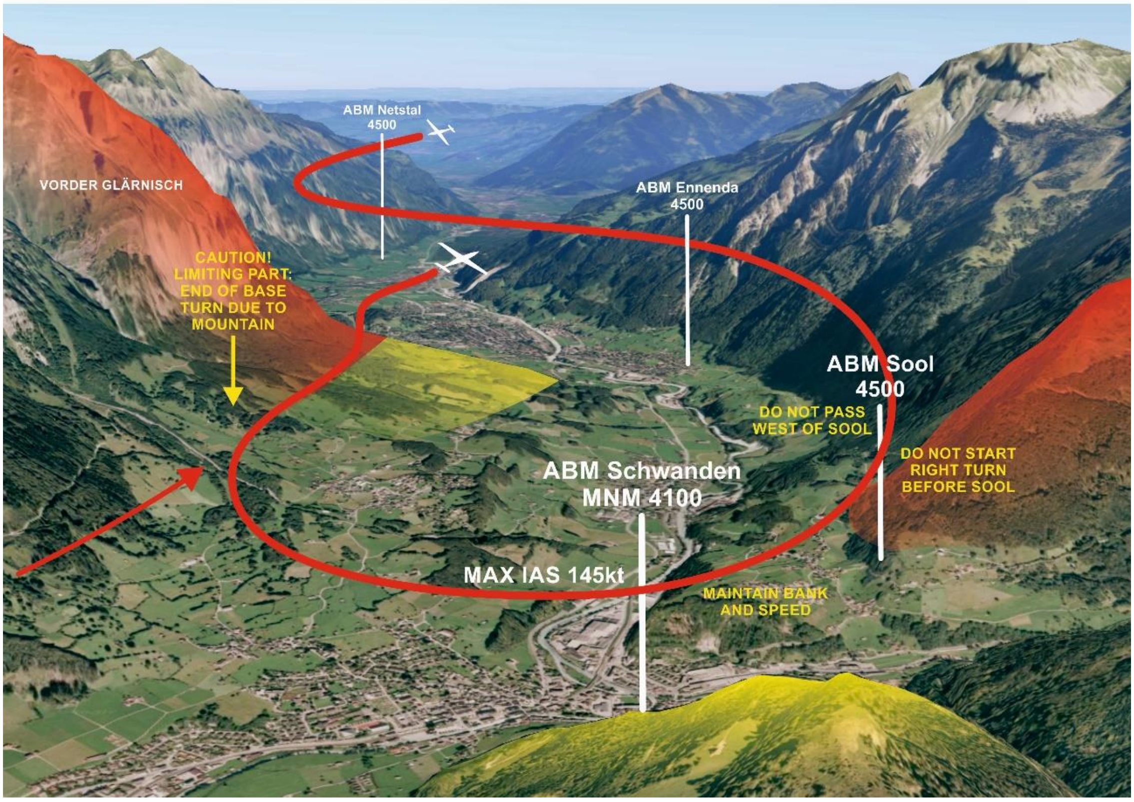
- Do not pass point ABM Sool to the west!
- Don't start the right turn too early! Otherwise, the geometry of the curve does not work out and leads to the "Vorder Glärnisch" mountain.
- Adhere to the geometry of the approach chart as precisely as possible!

ABM SCHWANDEN

- Turn in at the ABM Schwanden point with the correct bank angle and speed, otherwise the geometry with the radius does not work out and the distance to the «Vorder-Glärnisch» mountain is minimized.
- The flank of the "Vorder Glärnisch" mountain is impressive and steep! The process is limited by the position at the end of the turn on the west side of the valley in front of the «Vorder Glärnisch» mountain.
- The procedure is purely a VFR procedure and must be flown in VMC! The points with coordinates are only used for precise orientation in order to have enough space for the curve into the final.
- In cold temperatures, the altitudes above the approach points must be corrected. Otherwise the vertical distances to the site will not match.
- The area around Schwanden is often flown over by small planes and helicopters. A good look out is essential!




ABM Sool
4500
ABM Schwanden
MNM 4100
CAUTION!
LIMITING PART:
END OF BASE
TURN DUE TO
MOUNTAIN
ABM Ennenda
4500
MAX IAS 145kt
DO NOT PASS
WEST OF SOOL
DO NOT START
RIGHT TURN
BEFORE SOOL
VORDER GLÄRNISCH


ABM Netstal
4500
VORDER GLÄRNISCH
ABM Ennenda
4500
CAUTION!
LIMITING PART:
END OF BASE
TURN DUE TO
MOUNTAIN
ABM Sool
4500
DO NOT PASS
WEST OF SOOL
DO NOT START
RIGHT TURN
BEFORE SOOL
ABM Schwanden
MNM 4100
MAX IAS 145kt
MAINTAIN BANK
AND SPEED

4.5 Calculation Density Altitude

Exercise: Density altitude LSZM at 1032 hPa and 30°C OAT

Solution steps

1. Calculation pressure altitude
2. Calculation standard temperature to pressure altitude
3. Calculation density altitude

1. Calculation pressure altitude

QNH	1032 hPa
QNE (Standard)	1013 hPa
Difference	19 hPa

Calculation method: 28 ft per hPa pressure difference

Calculation of height difference	19 x 28 ft = 532 ft

LSZM airport elevation	1467 ft
Height difference	- 532 ft (minus, if QNE lower than QNH)
LSZM Pressure Altitude at 1032 hPa	935 ft

2. Calculation standard temperature to pressure altitude

Calculation method: 2 °C per 1000 ft

Calculation for pressure altitude 935 ft	2 x 0,935 = 1,87 °C

ISA temperature sea level	15 °C
Difference	- 1,87 °C
Standard temperature at press. alt. 935 ft	13,13 °C

3. Calculation density altitude

LSZM OAT	30 °C
Standard temperature at pressure alt. 935	13,13 °C
Difference	16,87 °C

Calculation method height difference: 120 ft per °C

Calculation *height difference*	120 x 16.87 = 2024 ft

Calculation method density altitude: If the OAT is higher than the standard temperature of the pressure altitude, the difference in altitude must be added to the pressure altitude.

Pressure Altitude	935 ft
Height difference	2024 ft
Density Altitude	**2959 ft**

4.6 Turning Radius / Reverse Turn

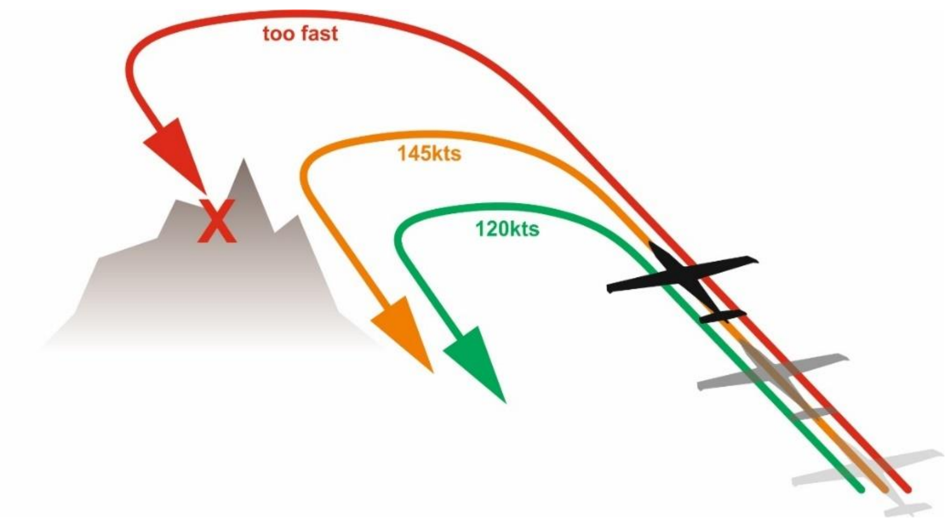
The radius required for a turn or turn into final approach is directly related to airspeed. Compared to the IAS, the TAS increases by around 2% per 1000 ft altitude. This means:

@ Sea level: IAS 120 kts = TAS 120 kts
@ 4500 ft (altitude downwind procedure RWY 01 to 140 kts): IAS 120 kts = TAS 131 kts (~9% more)

This must be taken into account for a possible reversal maneuver as well as for the correct geometry of the approaches (final turn)!

- With a TAS of 120 kts and a bank angle of 30°, a diameter of around 1350 m is required for a 180° reversal turn.
- With a TAS of 140 kts and a bank angle of 30°, a diameter of around 1840 m is required for a 180° reversal turn.

It is therefore crucial that the procedures are flown at the correct speed!



4.7 Runway Dimensionen vs. Wind

RWY	m	AVBL LEN LDG	AVBL LEN TKOF
01	1'707 x 40	1'150	1'500
19		1'500	1'150

- 1500 m are available for landing on RWY 19
- 1150 m are available for landing on RWY 01

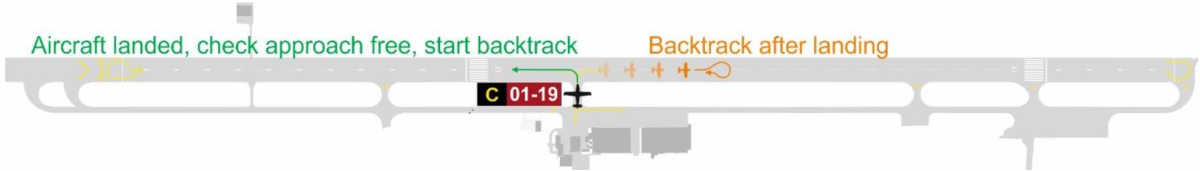
The RWY 19 is therefore often the better option for landings with jet planes, despite a slight tailwind.

• 1500 m are available for the start on the RWY 01
• For the start on the RWY 19 1150 m are available

If the wind is within the limits, LDG RWY 19 and T/O RWY 01 result in the largest reserves, as there is significantly more runway length available.

5. Procedures on the ground

- The former taxiway is no longer usable.
- The runway is only left and driven on via Intersection C.
- As soon as an aircraft is in Intersection C, the exit for a landing aircraft is blocked. This must be taken into account and clear communication on the 134.830 MHz frequency is essential.
- The starting positions are reached via backtrack on the slope. There is a turning pad at both ends of the slope.
- After landing, the runway must also be exited via a backtrack to Intersection C.
- There may be several aircraft in the circuit during school operations. Check the approach sector carefully before entering the runway.



6. IFR joining from LSZM

- Before engine start contact ACC Zurich, TEL +41 (0) 43 931 69 65

7. Ground Handling

PPR for aircraft heavier than 2.5 tons MTOM

- Business days 24 hours before
- Weekend days 48 hours before

Handling obligation:

Linth Air Service
ops@linthairservice.com
+41 55 645 33 33
Zoll Schengen and Non-Schengen via Handling only

8. Validity and Provisions Airport Briefing

8.3 The airport briefing must be completed by each responsible pilot in self-study prior to the first approach to LSZM.

8.4 When requesting the PPR permit, the name of the commander, the commander's license number, version and date of the completed briefing must be submitted to the Linth Air Service for the handling request.

8.5 The briefing is valid for 2 years. After that, an independent refresher must be carried out. The completion of the refresher must be confirmed after the 2 years with the next PPR request.

8.6 The validity of the briefing is checked and documented by the aerodrome operator as of the date of the first PPR request.