Version: 8.1

Briefing Familiarization LSZS

Foreword

The Airport of Samedan is a VFR / IFR airport open to private and commercial operators. It is situated in a particular geographical area. Located in the Engadin Valley, the airport is surrounded by a mountainous region wherein the flight procedures and aircraft performances are very strongly affected by its natural obstacles. For this reason, the approach to and the departure from LSZS are limited to flight crews fulfilling the requirements of the concept for mandatory familiarization and AIP LSZS AD 2.22 Flight Procedures.

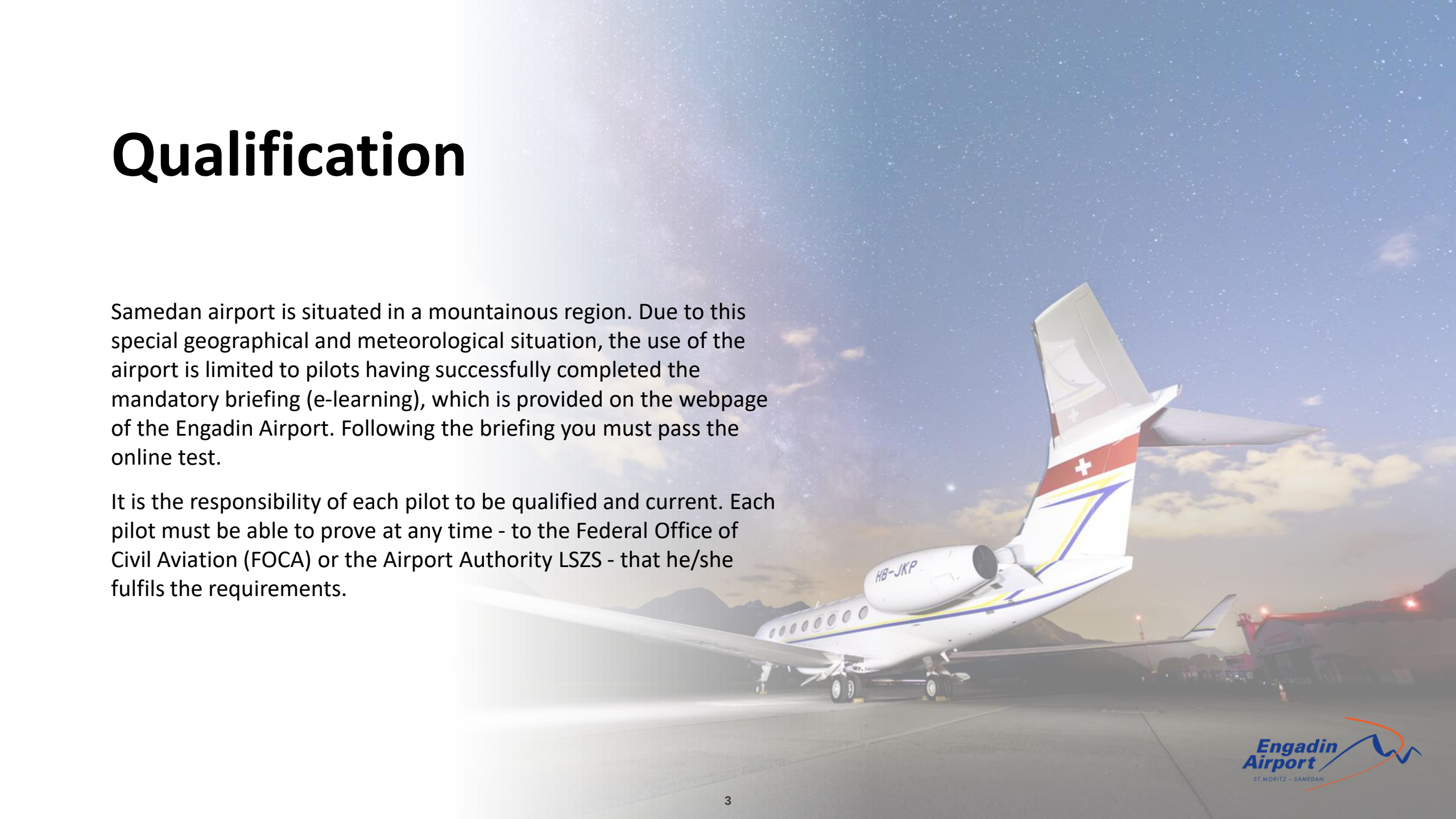
Legal notice

Engadin Airport
ST.MORITZ – SAMEDAN

Qualification

Samedan airport is situated in a mountainous region. Due to this special geographical and meteorological situation, the use of the airport is limited to pilots having successfully completed the mandatory briefing (e-learning), which is provided on the webpage of the Engadin Airport. Following the briefing you must pass the online test.

It is the responsibility of each pilot to be qualified and current. Each pilot must be able to prove at any time - to the Federal Office of Civil Aviation (FOCA) or the Airport Authority LSZS - that he/she fulfils the requirements.



Qualification / Currency / Requalification

mandatory Qualification	**Aeroplanes ICAO App. Cat. A**	**Aeroplanes ICAO App. Cat. B and higher**	**Helicopters**
Briefing	**LSZS Familiarization-Briefing and Test** for all Pilots not older than 24 months		
Introduction flight	Introduction flight with mountainous experienced FI/CRI(Introduction flight with FI/CRI can be done after first landing at LSZS)	NIL	NIL
no LDG at LSZS more than 24 months ago	Refresher flight with mountainous experienced FI/CRI	Flight into LSZS IFR or with MET COND FEW or CAVOK or supervised by LSZS current Pilot “for App. Cat B and higher”.	NIL
LDG within 24 months	NIL	NIL	NIL

mandatory Qualification	**Gliders**
Briefing	**LSZS Glider-Briefing** annually, before first flight at LSZS
● MNM 50 flight HRS since licensing **or** released by LSZS approved FI **and** ● MNM 3 winch TKOF within the last 3 months **or** Winch TKOF training at LSZS passed **and** ● MNM 1 flight from LSZS within the last 5 years **or** Alpine flying introduction at LSZS passed	

General Information

LSZS is a civil, category B airport and is open to all private, commercial and business flights as well as to unscheduled VFR / IFR flights.

Reminder

LSZS is the highest elevated airport in Europe

Elevation 5‘600 ft AMSL

The information in this document serves to increase the safety of operation to and from LSZS. For flight preparation use only the official documentation published in the AIP / VFR manual.

General Information

LSZS has a Flight Information Zone (FIZ).

Airport opening hours summer: **0600Z to 1700Z**

Airport opening hours winter: **0700Z to SS+30min**

PPR for IFR APCH with piston engine aircraft.

PPR for multiple IFR APCH (training).

Availability of the IFR procedures depending on the military activity in the temporary reserved areas (TRA) REF: AIP SWITZERLAND ENR 5.2.

During military activity, IFR flight plans might be rejected.

NO NIGHT OPERATION!

Runway information / Airport overview

Runway 03 / 21	1‘840m x 40m asphalt / concrete
Slope Runway 03	0.4% down slope
Slope Runway 21	0.4% up slope

No runway and approach lighting available.

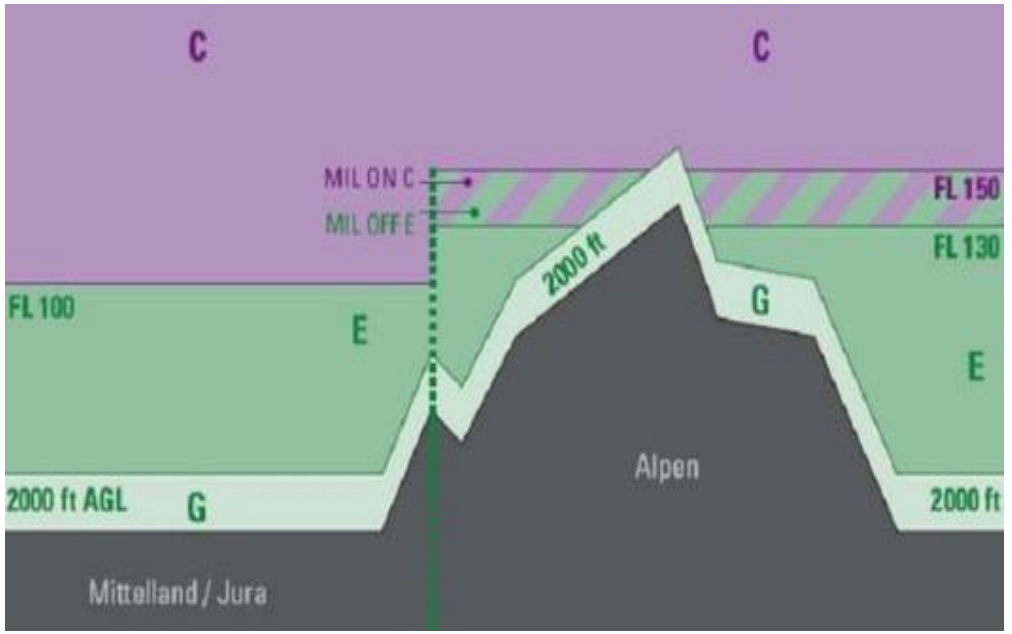
For further information refer to AIP / VFR-Manual Switzerland.

Airspace & weather minima for VFR traffic

WX minima for VFR traffic:

≥ FL 100	VIS: 8 KM
Distance from cloud:	Vertical 1‘000 ft Horizontal 1‘500 m
> 2000 ft/AGL - < FL 100	VIS: 5 KM
Distance from cloud:	Vertical 1‘000 ft Horizontal 1‘500 m
1’000 ft/AGL – 2’000 ft / AGL	VIS: 5km*, Surface in sight
Distance from cloud:	Vertical 1‘000 ft Horizontal 1‘500 m (clear of clouds, if transponder operated)
Below 1‘000 ft / AGL	Vis: 5km*, surface in sight
Distance from cloud:	clear of clouds

*flight visibility ≥ 1‘500 m if flight speed ≤ 140 kts IAS



No separation will be provided between IFR / VFR and VFR / VFR in airspace E/G

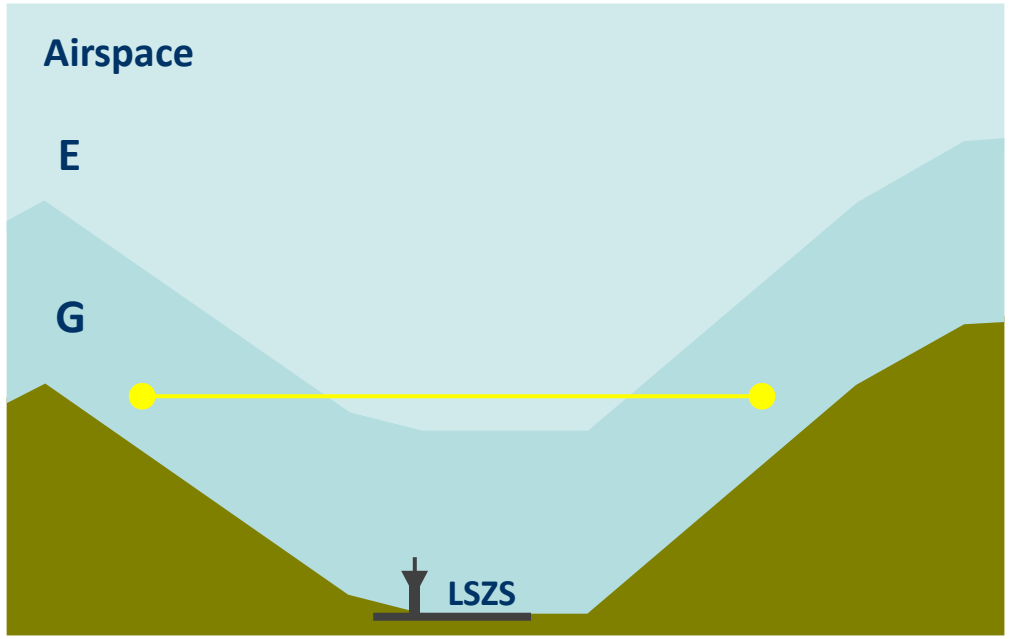
Airspace Echo / Golf

Airspace E & G

No separation will be provided between IFR / VFR and VFR / VFR.

Be aware of turning radius:

Refer to IAS-TAS / Reverse turn: page 60

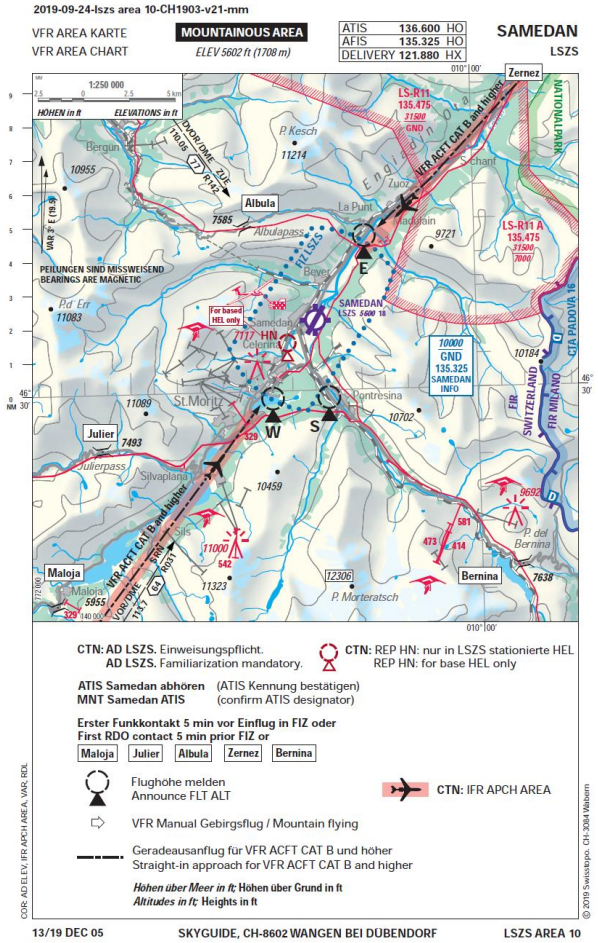


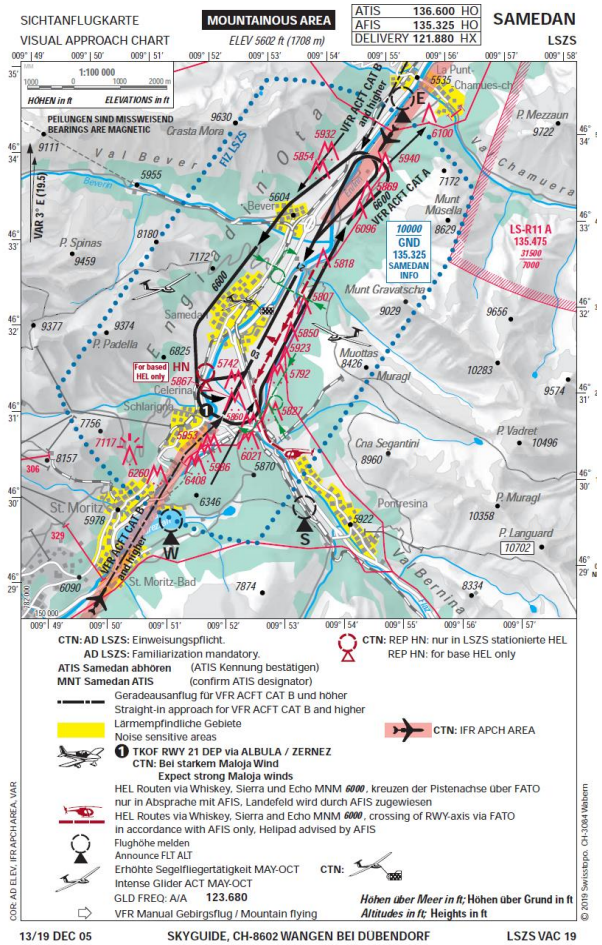
G: VIS 5 km (minimum 1,5 km if turning is possible)

ATS

- Samedan airport has an aerodrome flight information service (AFIS) / no traffic display available.
- Aerodrome Flight Information Service Officer is not authorized to give ATC instructions or clearances. However, they are allowed to relay clearances from an ATC Unit.
- Aerodrome Flight Information Service Officer is authorized to give ATC instructions on the maneuvering area (taxi, backtrack, line up, runway crossing).
- Aerodrome Flight Information Service Officer is not allowed to do sequencing. Therefore, tell your intentions when the traffic is in sight (e.g: «*Joining behind the traffic*», «*one orbit for separation*», «*extending downwind for separation*»).
- It is highly recommended to maintain listening watch of Samedan AFIS in the region from Maloja to Zernez to be informed about IFR traffic in the valley.
- Check the appropriate NOTAMs for special regulations, for example during the World Economic Forum (WEF) in Davos, usually at the end of January.

VFR Charts



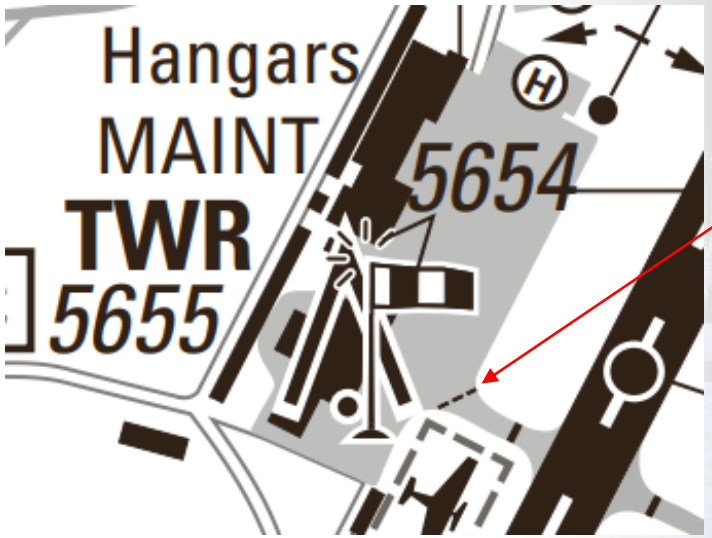


Seasonal traffic density - winter

Winter is the peak-traffic season. Expect a high traffic density. This requires special attention at the airport and in the vicinity of the airport (traffic circuit).

Parking at LSZS

Due to the limited space on the tarmac, please follow the instructions of the marshaller exactly. Taxi with minimum possible engine power due to jet blast on tarmac and use the intermediate holding position when leaving the tarmac.

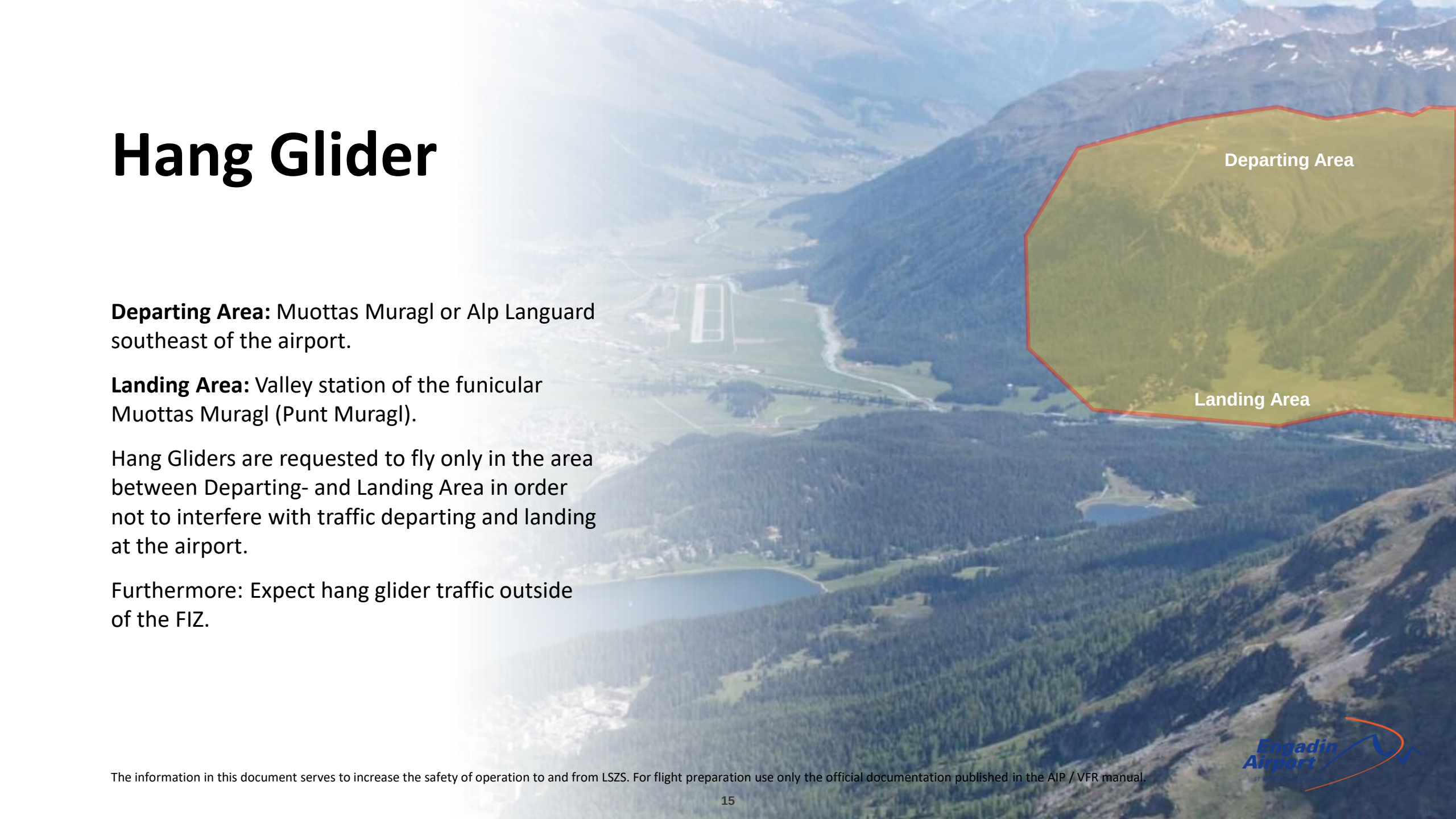


Seasonal traffic density - summer

The mountains near the airport are attractive to gliders. Expect intense **glider activities** between May and September in the valley, within the FIZ and in the traffic circuit.

The information in this document serves to increase the safety of operation to and from LSZS. For flight preparation use only the official documentation published in the AIP / VFR manual.

Hang Glider



Departing Area: Muottas Muragl or Alp Languard southeast of the airport.

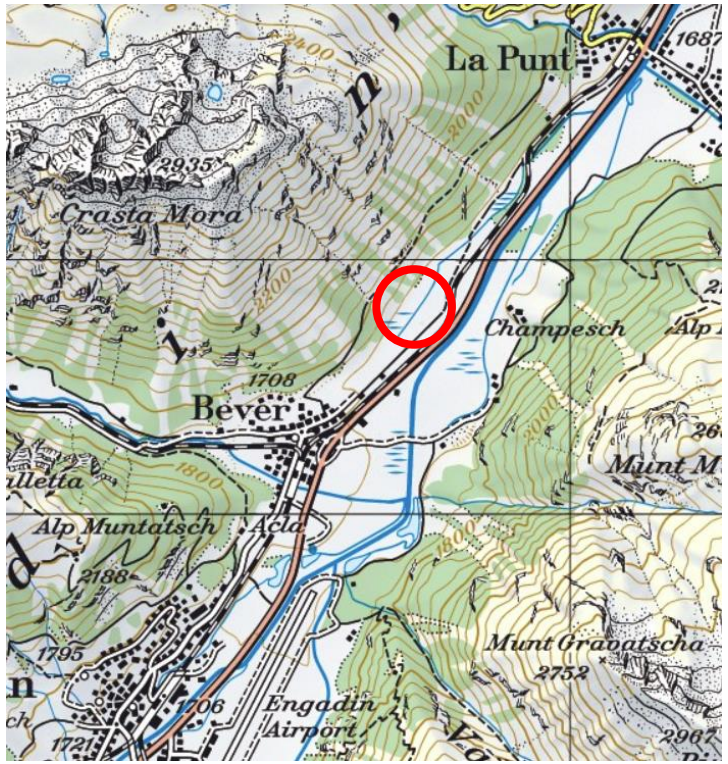
Landing Area: Valley station of the funicular Muottas Muragl (Punt Muragl).

Hang Gliders are requested to fly only in the area between Departing- and Landing Area in order not to interfere with traffic departing and landing at the airport.

Furthermore: Expect hang glider traffic outside of the FIZ.

Model scale flying Bever

Caution for model scale flying between the cities Bever and La Punt. They remain clear of the final approach track.



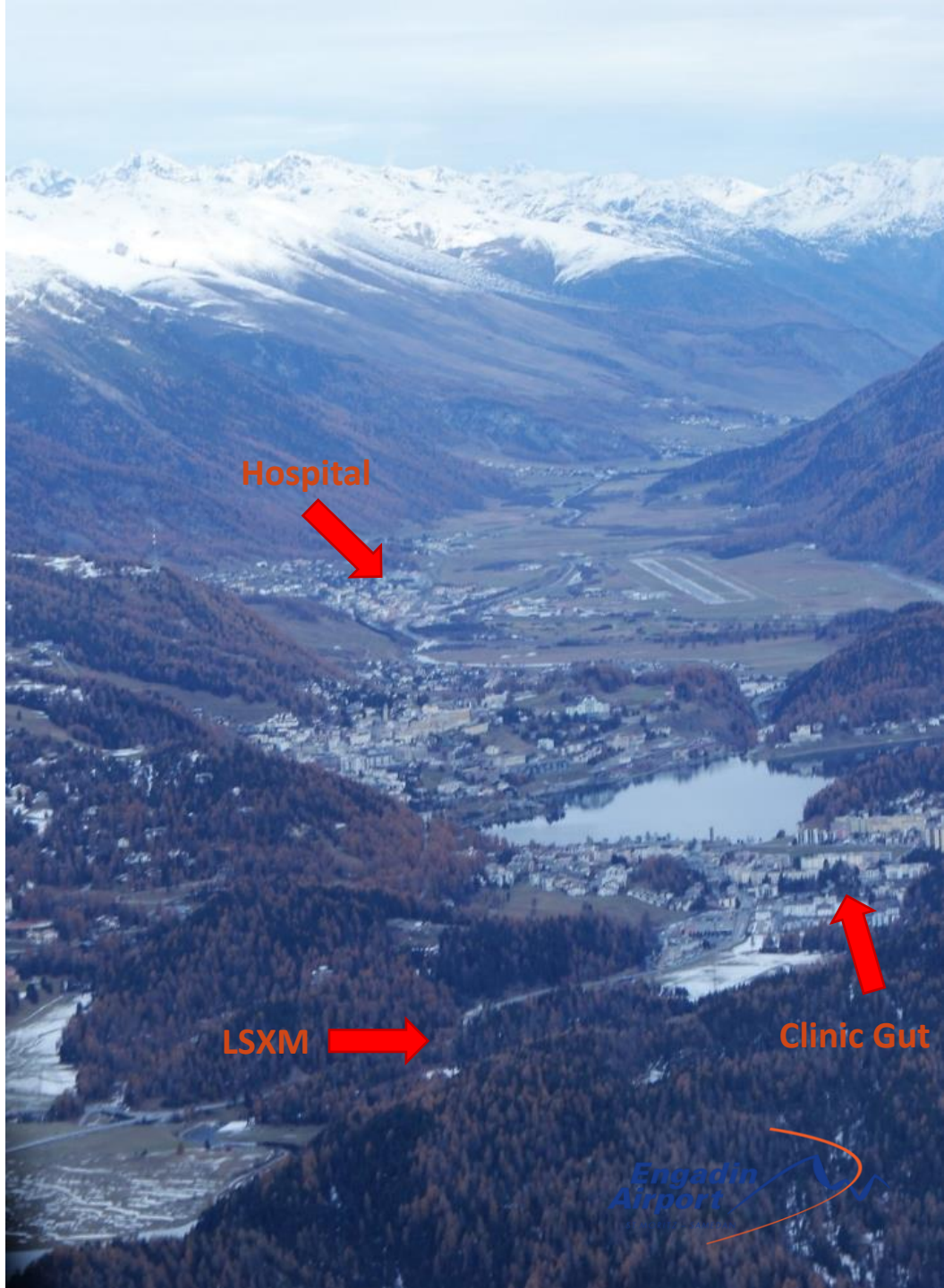
Helicopter operations

There is intense helicopter traffic in the region, carrying out rescue-, transport- and scenic flights.

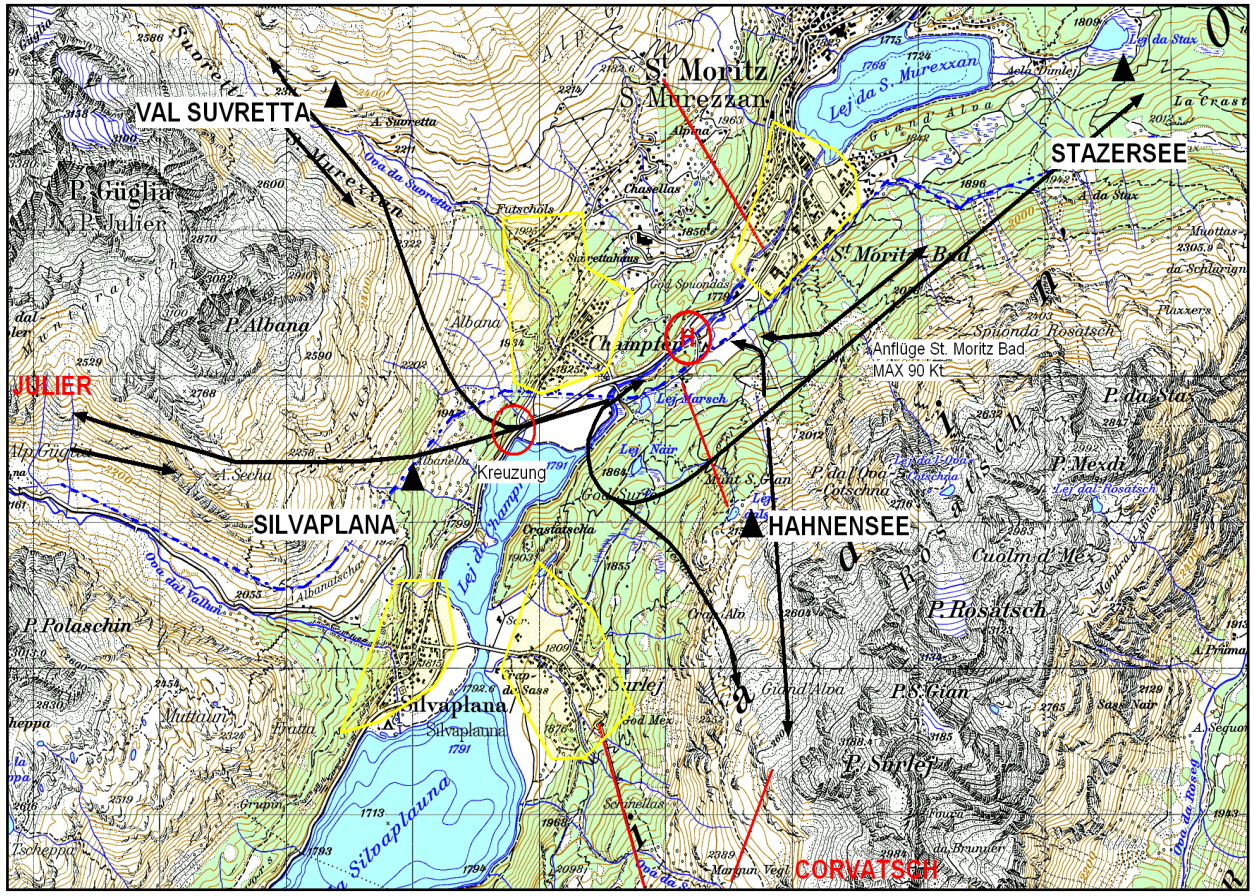
Three of the main helicopter landing areas outside the airport:

- the **Hospital Samedan**, located west of THR runway 21
- the **Clinic Gut**, located St. Moritz Bad
- the TEMP heliport **LSXM** (December 15th to Mai 15th), located southwest of St. Moritz

Be aware that helicopter operations may cause TCAS alerts!



Helicopter operations



During winter season (December 15th and Mai 15th) Heliport LSXM is established at St. Moritz-Bad, approximately 3.6 NM form THR RWY 03.

Main routing from LSXM via HAHNENSEE to Corvatsch and / or via VAL SUVRETTA to Piz Nair.

Helicopters will mainly follow the terrain.

Weather

General

Because of its special location, the weather can be unpredictable. Significant changes of weather conditions within a short time are frequent in the mountains.

Wind

During winter calm winds predominate throughout the whole day.

In summer a special local wind (Maloja Wind) dominates the wind patterns in the Engadin. This valley wind can be quite strong (up to 20 knots or more). It normally starts at noon, coming from the south-west.

Take care also of north-easterly winds aligned with the runway axis and expect moderate and severe turbulences in approach sector when RWY 03 is in use.

Visibility

In winter, visibility may be reduced temporarily due to snow showers. Fog can occur all year round in the morning. The fog normally dissipates as soon as the sun rises behind the mountains.

Weather

Current meteorological information

Current meteorological information can be found on the Skybriefing site: www.skybriefing.com.
For ATIS, refer to the AIP. Furthermore, different webcams are available in the Engadin valley.

CAVOK

For LSZS the ICAO MET term CAVOK means rather nice weather conditions. Due to high MSA, there are no clouds below 15’600 ft AMSL when LSZS reports CAVOK.

Weather minima (runway closing):

The runway will be closed for arriving aircraft with APCH Cat. B and higher if visibility is less than 5 KM and / or ceiling (bkn or ovc) below 2’200 ft AGL.

The runway will be closed for arriving and departing aircraft if visibility is less than 2’000 m.

Geographical and topographical situation

General view

Samedan airport is situated north-east of St. Moritz and east of Samedan.

The airport is surrounded by high mountains.

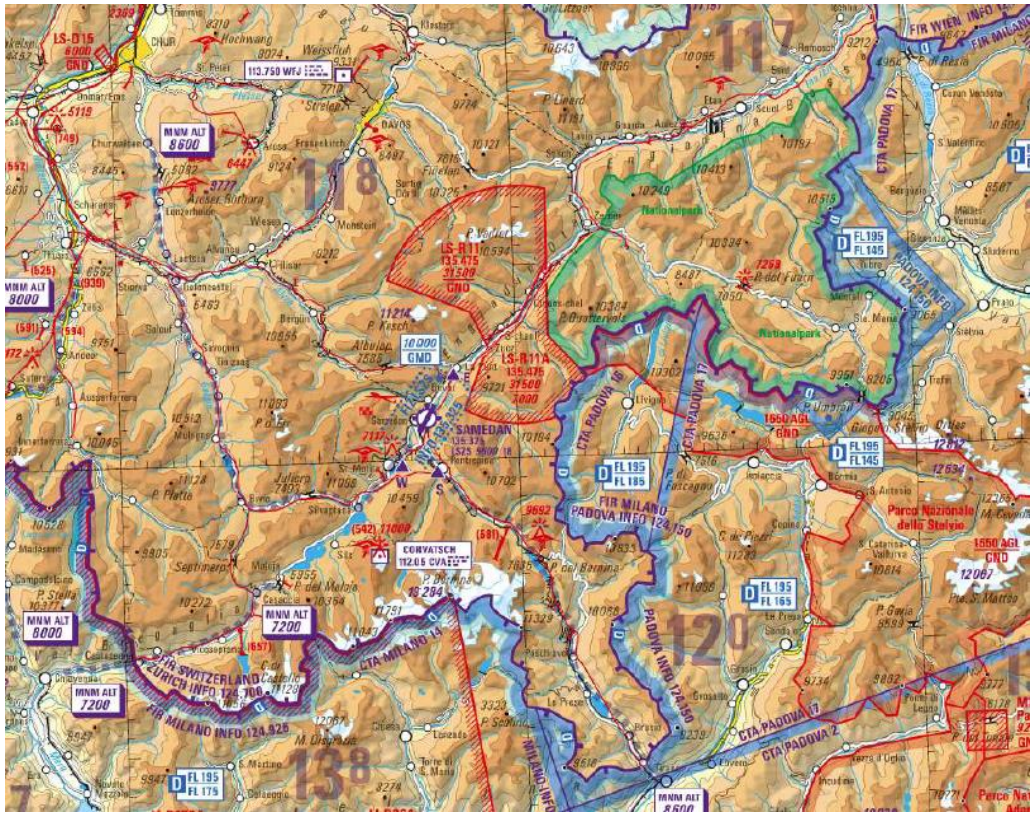
Geographical and topographical situation

Airspace

Samedan airport is close to the Italian border. Study the surrounding airspace carefully.

Obstacles

Aerodrome obstacle charts are available to identify critical obstacles in both runway directions (refer to AIP).



Communication

Samedan ATIS:	Freq.: 136.600	Tel.: +41 (0)81 834 93 24
Samedan INFO:	Freq.: 135.325	Tel.: +41 (0)81 851 08 51
Samedan Delivery	Freq.: 121.880	
Alps Radar:	Freq.: 119.225	**Below 10’000 ft AMSL radio contact unlikely or difficult**
Swiss Radar:	Freq.: 128.050	
Zurich Information:	Freq.: 124.700	

VFR Approach

General

Refer to AIP or to official route documentation for exact location and for technical information. Study the requirements and conditions for the execution of the flight procedures carefully and be aware of GPWS indications due to the topography of the valley.

Study all official charts carefully

For VFR Area Chart and Visual Approach Chart refer to AIP Switzerland (VFR-manual). It is recommended to maintain listening watch of Samedan AFIS in the region from Maloja to Zernez to be informed about IFR traffic in the valley.

Note:

- Expect unknown VFR activity inside and outside of the FIZ (airspace class E & G).
- Be aware that in airspace E & G no separation between IFR / VFR and VFR / VFR traffic will be provided.

VFR Approach

Additional information

- Expect general information by ATIS and traffic information by Aerodrome Flight Information Service Officer (AFISO).
- Observe the surroundings! Look out for unknown VFR traffic in the vicinity of the airport.
- During winter, expect helicopter traffic at the St. Moritz Bad Heliport LSXM near the approach sector RWY 03 close to terrain (3.6 NM from THR RWY 03). Their standard procedure avoid the approach and departure sector of Samedan airport.
- Expect intense glider activity from May to September. Gliders have landing priority.
- Be aware of straight-in approach of jets from Maloja or Zernez.
- **Approach RWY 21 / Departure RWY 03**: Restricted area LSR11/R11A can be active. Please check ATIS. For crossing coordination, you may contact Samedan Information as early as possible (min. 15 minutes before ETA).

VFR Approach

Entering points

Available for APCH Cat. A and helicopter only:

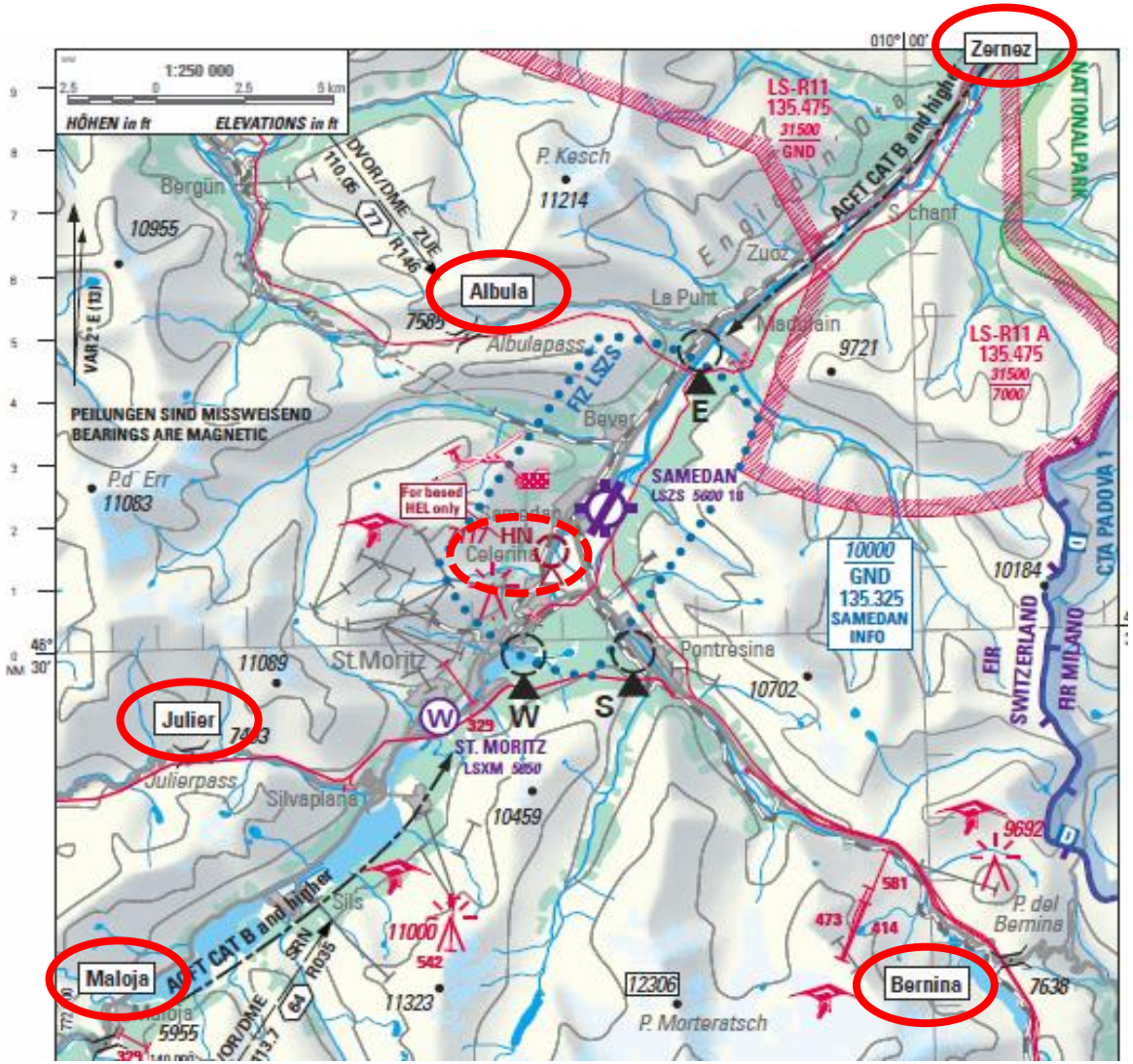
- **ALBULA**
- **BERNINA**
- **JULIER**

Available for all planes and helicopter:

- **ZERNEZ**
- **MALOJA**

Available for homebased helicopters only:

- **CELERINA (HN)**



VFR Approach for Cat. A and helicopter

General Information:

AFIS 135.325 MHz
ATIS 136.600 MHz

Establish radio contact 5 minutes before entering the FIZ (Flight Information Zone) or at entering points (Zernez, Albula, Julier, Maloja, Bernina).

It is highly recommended to maintain listening watch of Samedan AFIS in the region from Maloja to Zernez to be informed about IFR traffic in the valley.

After Albula and Julier enter the valley carefully as there might be jet traffic on a straight-in approach from Maloja / Zernez. If possible, give way to jet aircraft on final and tell AFISO about your intentions.

NOTE: The PIC has the full responsibility to conduct a safe flight and to maintain VMC. The AFISO can only provide information regarding known traffic as there is no traffic display available.

VFR Approach via ALBULA

ALBULA
Min. suggested altitude 8’700 ft AMSL

ECHO Point / La Punt
Min. suggested altitude 7’000 ft AMSL

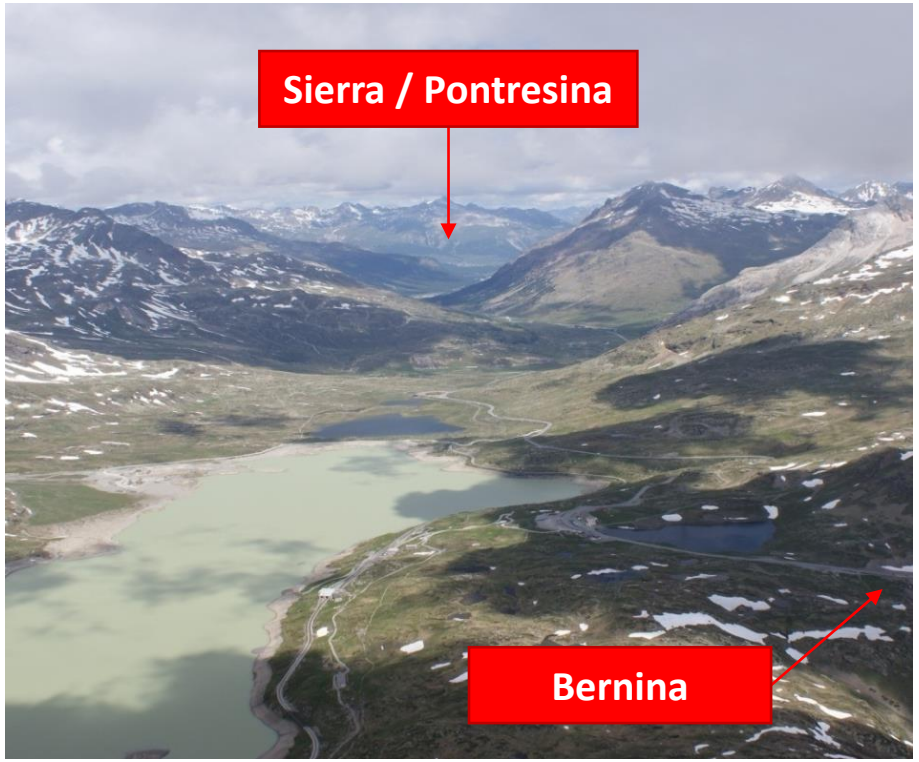
VFR Approach via ZERNEZ

ZERNEZ
Min. suggested altitude 7’200 ft AMSL

ECHO Point / La Punt
Min. suggested altitude 7’000 ft AMSL

VFR Approach via BERNINA

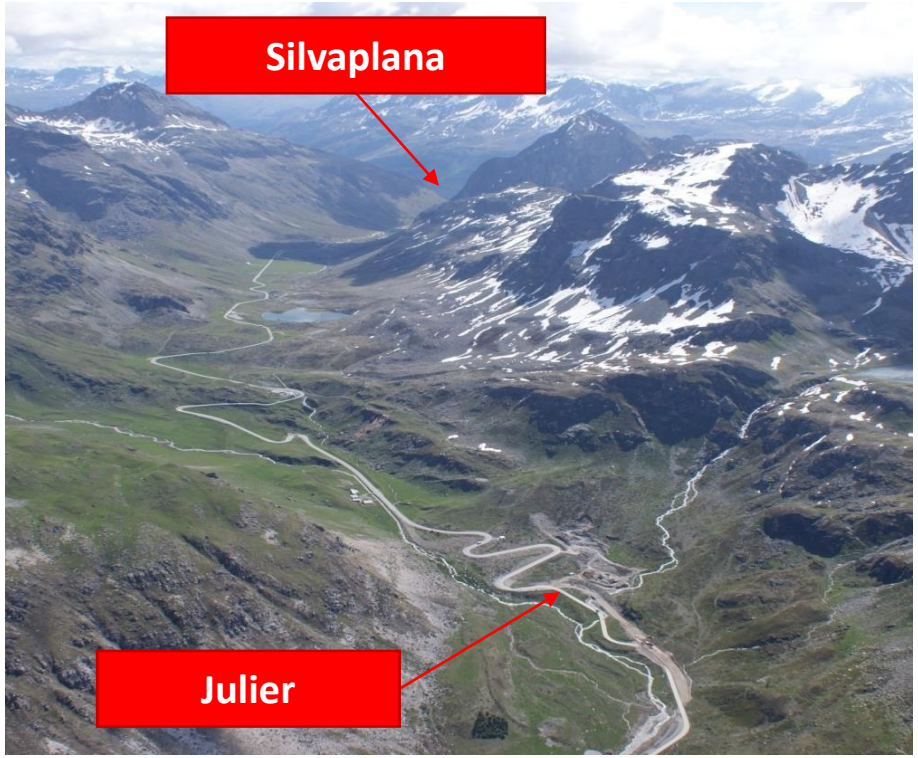
BERNINA
Min. suggested altitude 8’600 ft AMSL



SIERRA Point / Pontresina
Min. suggested altitude 7’000 ft AMSL

VFR Approach via JULIER

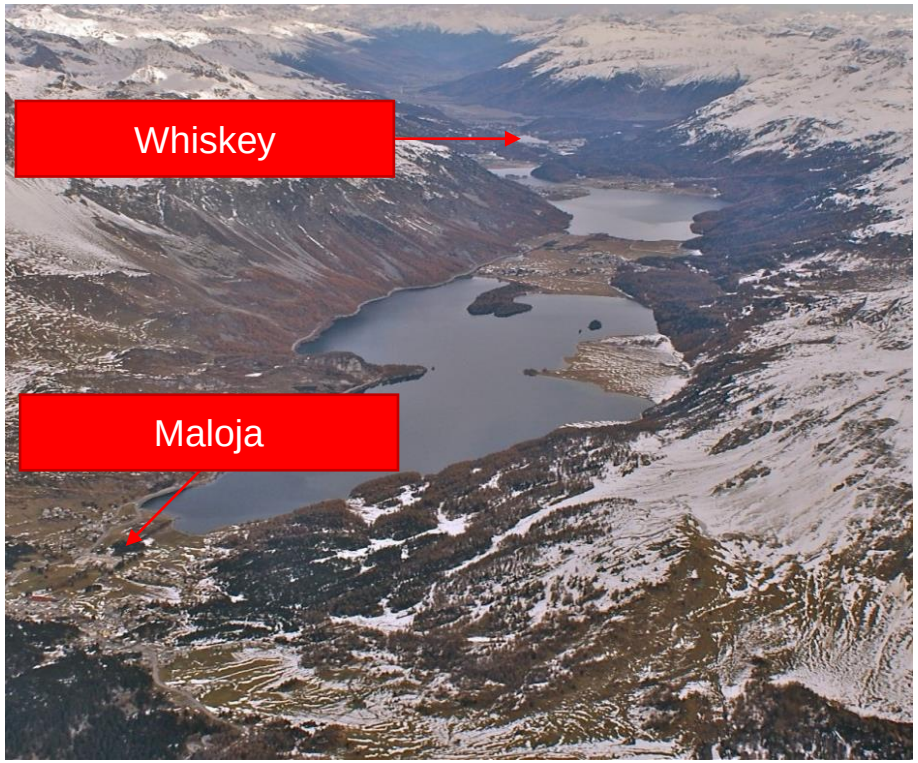
JULIER
Min. suggested altitude 8’600 ft AMSL



WHISKEY
Min. suggested altitude 7’000 ft AMSL

VFR Approach via MALOJA

MALOJA
Min. suggested altitude 7’200 ft AMSL



WHISKEY
Min. suggested altitude 7’000 ft AMSL

Entering traffic pattern

Runway 03 in use

Sierra: via right base for final 03

Whiskey: straight-in for final 03

Echo: via downwind for final 03

Unless instructed otherwise: vacate via the first possible exit to the right and taxi via taxiway to the main apron.

Runway 21 in use

Sierra: via downwind for final 21

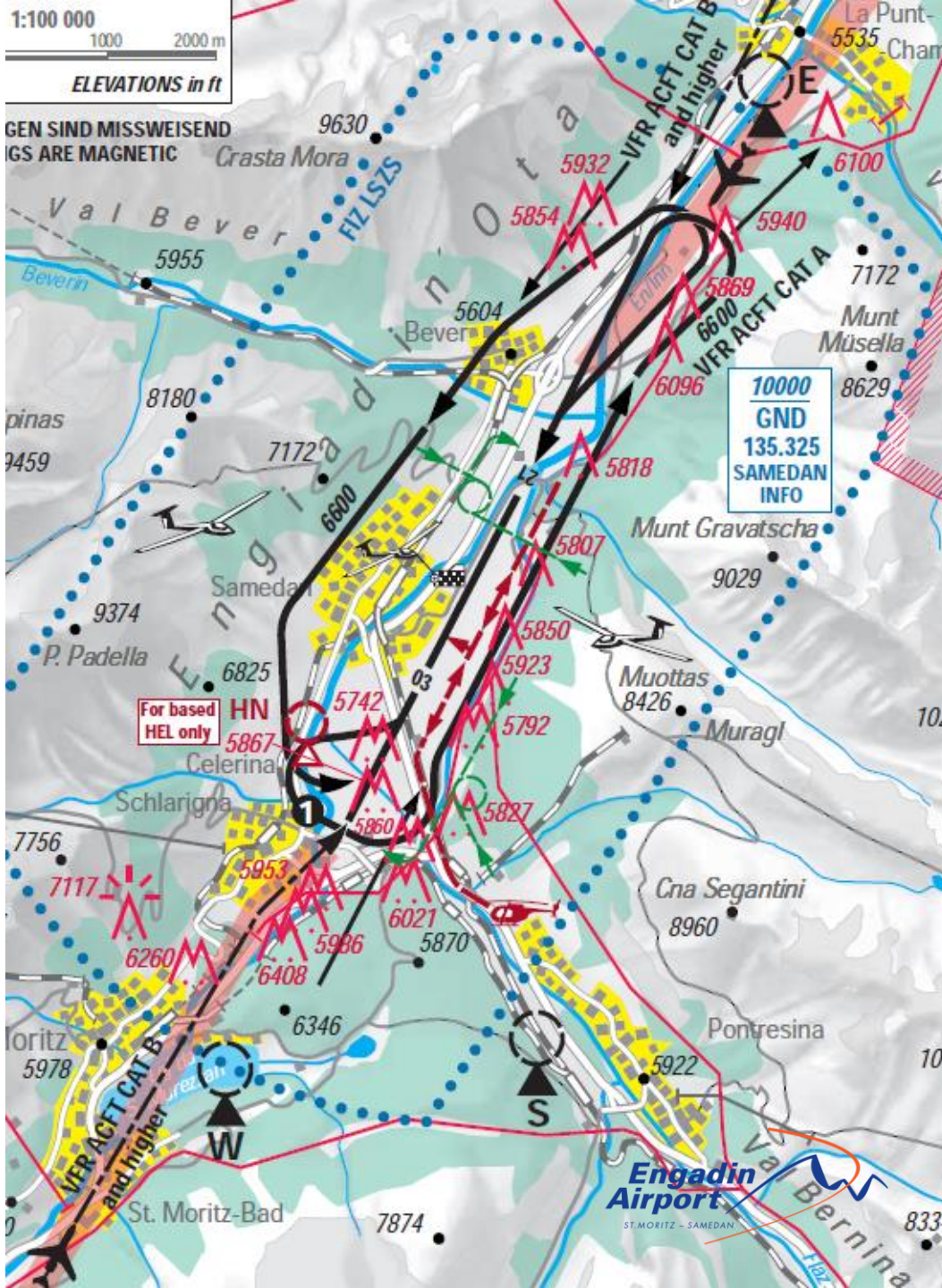
Whiskey: via downwind for final 21

Echo: straight-in final 21

Unless instructed otherwise: vacate via the first possible exit to the left and taxi via taxiway to the main apron.

Missed Approach

Proceed via circuit and restart the approach.



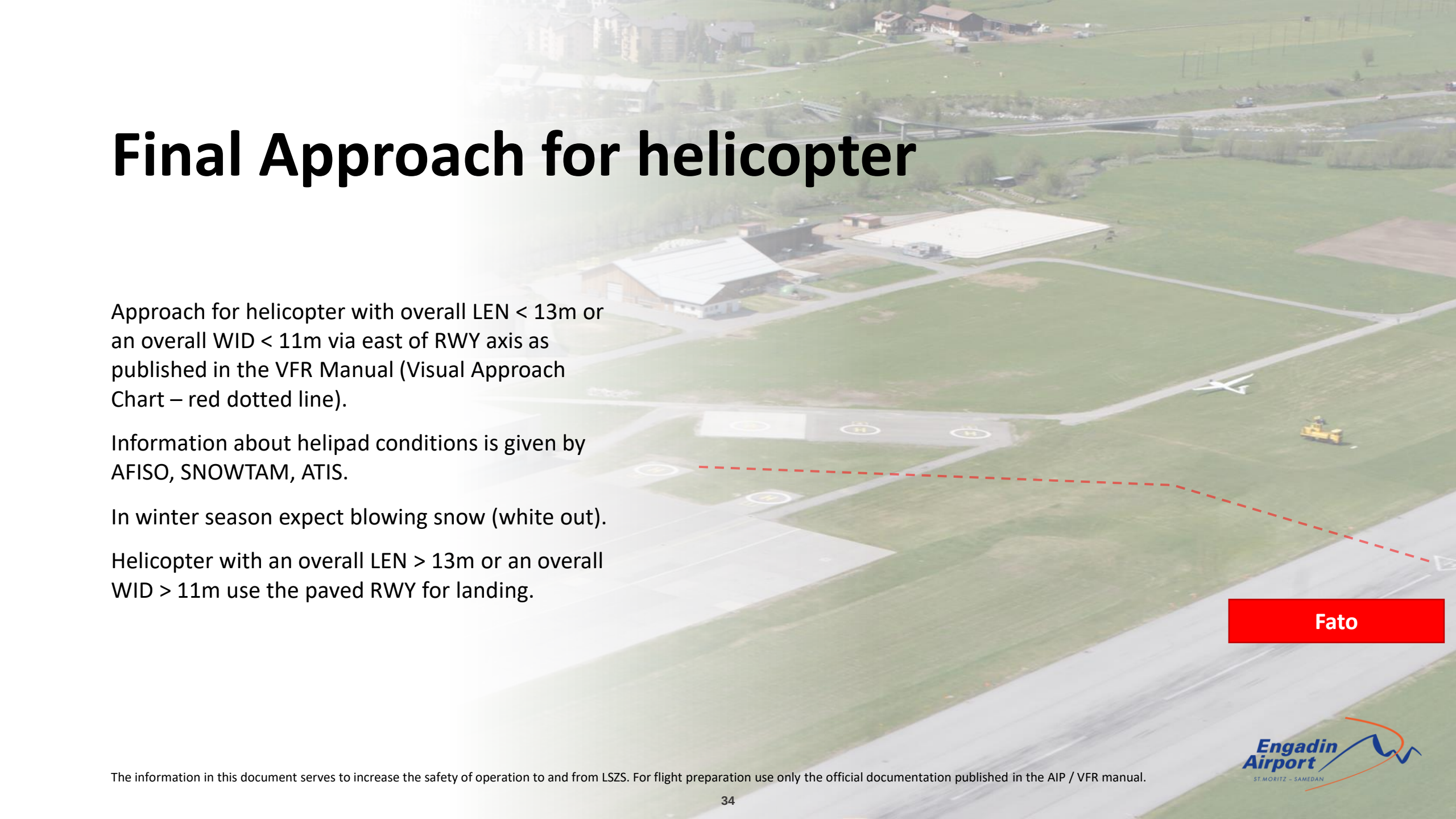
Final Approach for helicopter

Approach for helicopter with overall LEN < 13m or an overall WID < 11m via east of RWY axis as published in the VFR Manual (Visual Approach Chart – red dotted line).

Information about helipad conditions is given by AFISO, SNOWTAM, ATIS.

In winter season expect blowing snow (white out).

Helicopter with an overall LEN > 13m or an overall WID > 11m use the paved RWY for landing.



VFR Approach for Cat. B and higher

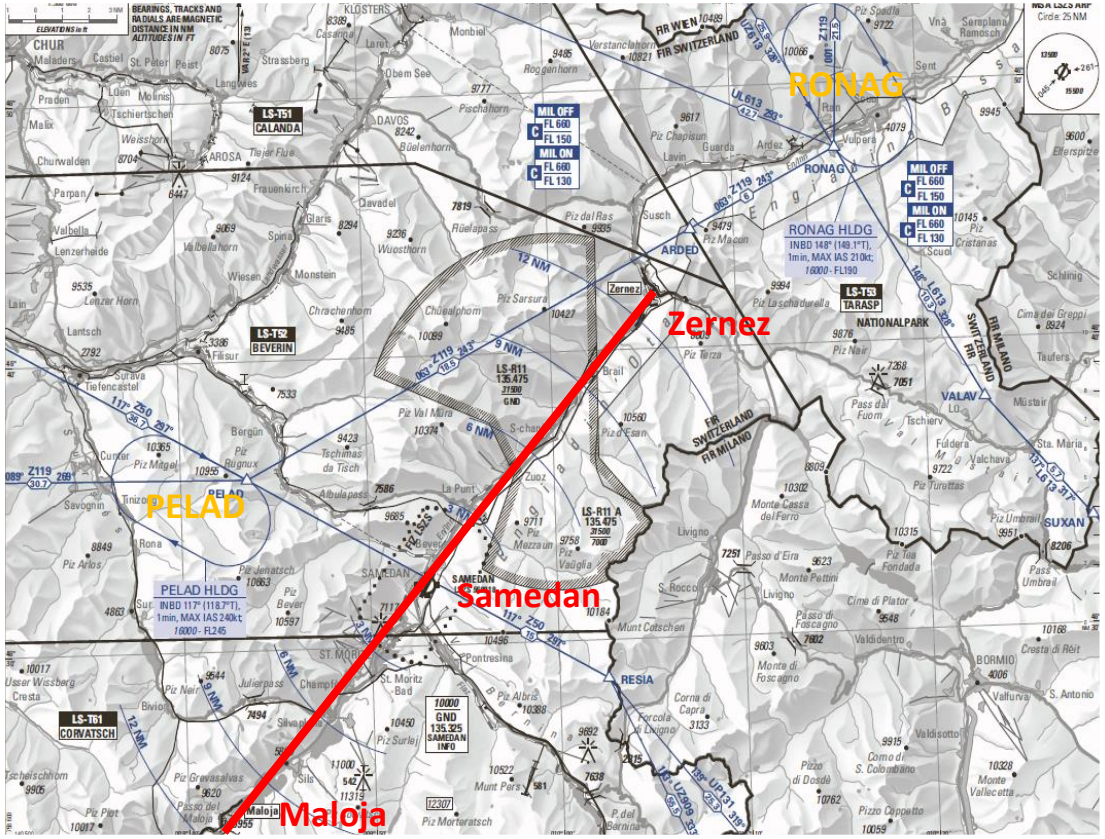
VFR arrivals after cancelling IFR with Alps Radar:

Maintain strictly VMC

In case of poor weather conditions or traffic congestion over the valley, you may contact Alps Radar again and request to rejoin IFR and hold over PELAD or RONAG.
If unable to land in Samedan in VMC condition, request for IFR Approach.

To get familiar with the location of the airport and the valley, do not hesitate to request permission from Alps Radar - only when in IFR - to fly over the valley first.

When you have the airport in sight, cancel IFR with Alps Radar / Swiss Radar, contact Samedan Information and proceed to Maloja or Zernez.



VFR Approach for Cat. B and higher

General Information:

AFIS	135.325 MHz
ATIS	136.600 MHz
ZRH Info	124.700 MHz
Alps Radar	119.225 MHz
Swiss Radar	128.050 MHz

For the approach, it is suggested to proceed in the direction of Maloja / Zernez and then turn inbound to LSZS at 10NM.

Establish radio contact with Samedan Information when released by radar or latest at Maloja / Zernez.

NOTE: The PIC has the full responsibility to conduct a safe flight and to maintain VMC. The Aerodrome Flight Information Service Officer (AFISO) can only provide information regarding known traffic as there is no traffic display available.

Airspace E & G no separation between IFR / VFR and VFR / VFR traffic will be provided.

VFR Approach (Cat. B and higher) via Maloja for RWY 03

VFR go around (Cat. B and higher)

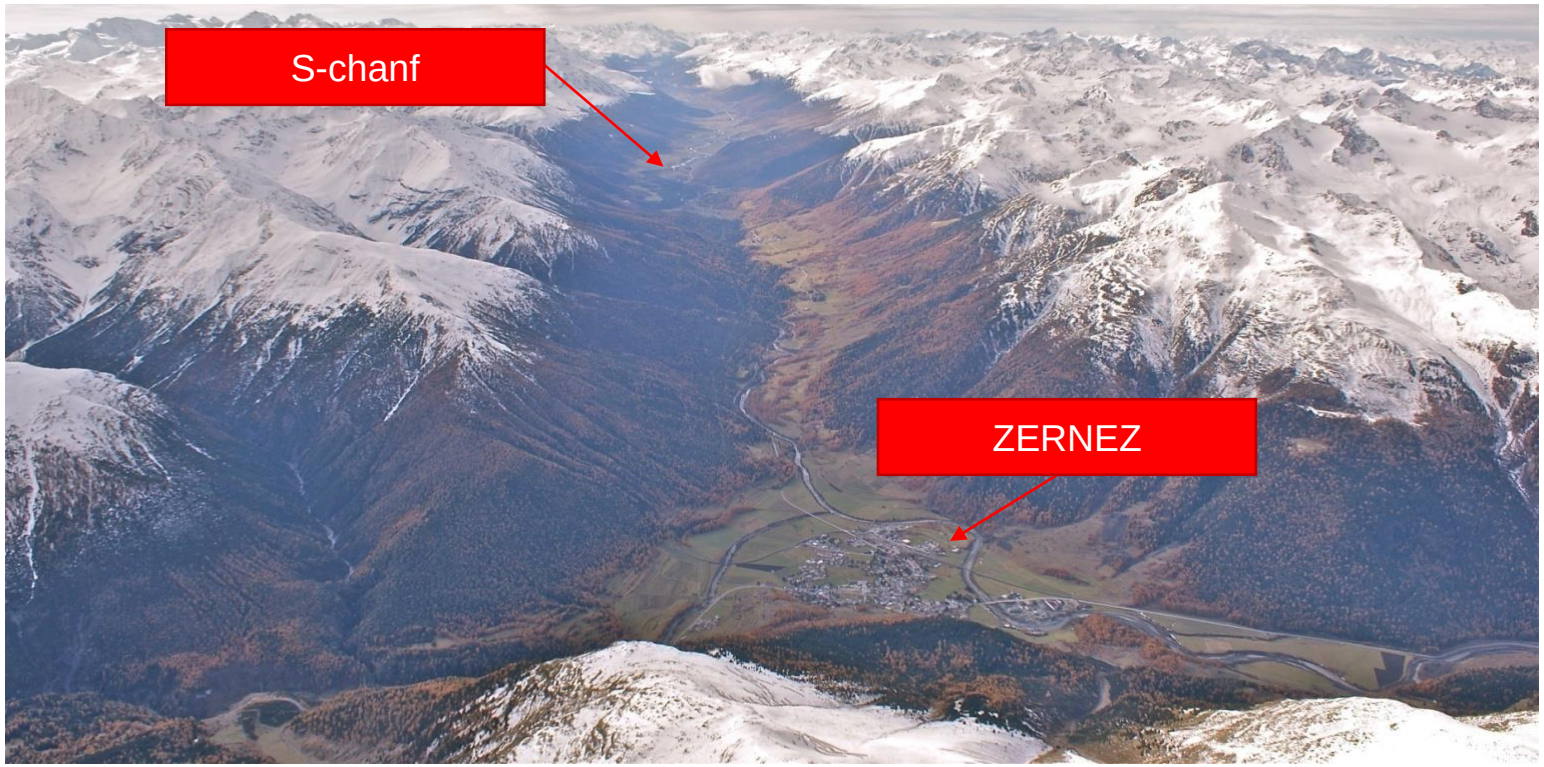
SHORT FINAL RWY 03

When clear of terrain proceed back to Maloja and restart the VFR approach.

NOTE: Be aware of the space needed for maneuvering. Climb to a sufficient altitude first before starting reverse turn.

VFR Approach (Cat. B and higher) via Zernez for RWY 21

ZERNEZ
Min. suggested altitude 10’000 ft AMSL (10NM FINAL)



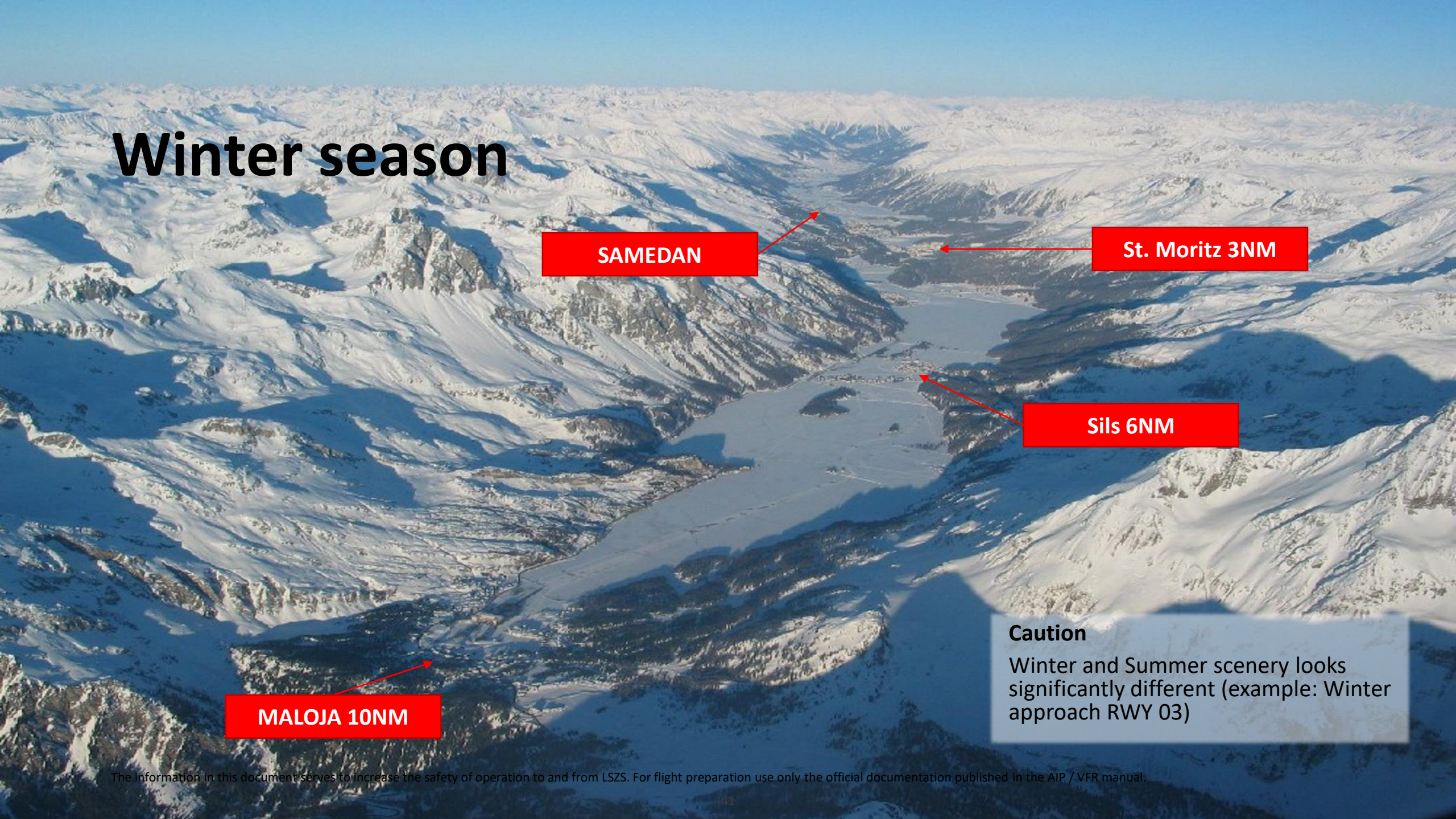
VFR go around (Cat. B and higher)

SHORT FINAL RWY 21

When clear of terrain proceed back to Zernez and restart the VFR approach.

NOTE: Be aware of the space needed for maneuvering. Climb to a sufficient altitude first before starting reverse turn.

Winter season



Caution

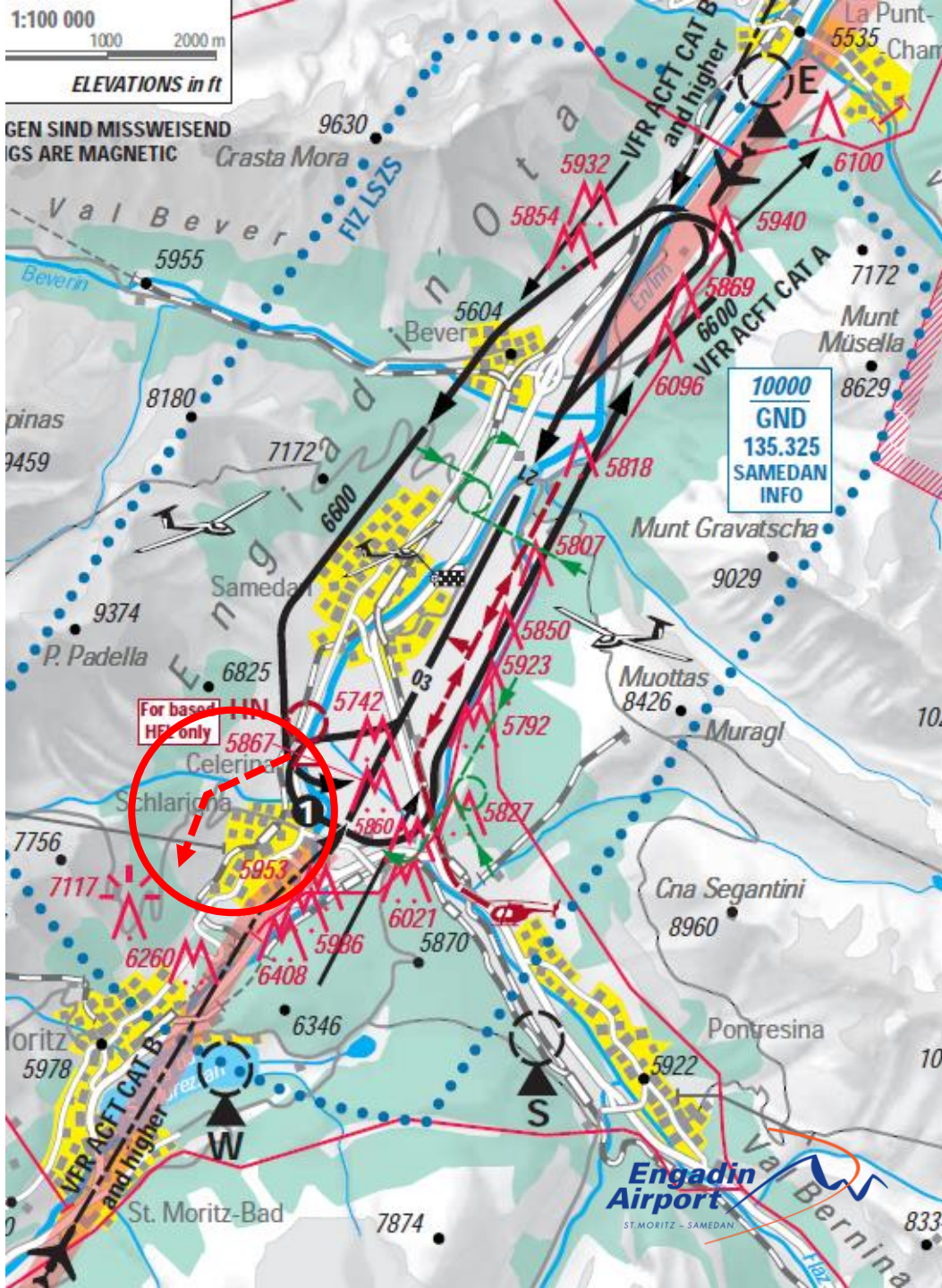
Winter and Summer scenery looks significantly different (example: Winter approach RWY 03)

VFR Departure

APCH Cat. A

- Be aware of high-density altitude, which may affect the aircraft performance negatively (see page 61-67).
- Be aware of downdrafts caused by local winds (see page 68-69).
- When required follow the circuit to gain height.
- When departing on RWY 21 and if performance permits, make a right turn as published. It is recommended to proceed north-west of whiskey (see red circle on the chart) to stay clear of inbound traffic on route whiskey.

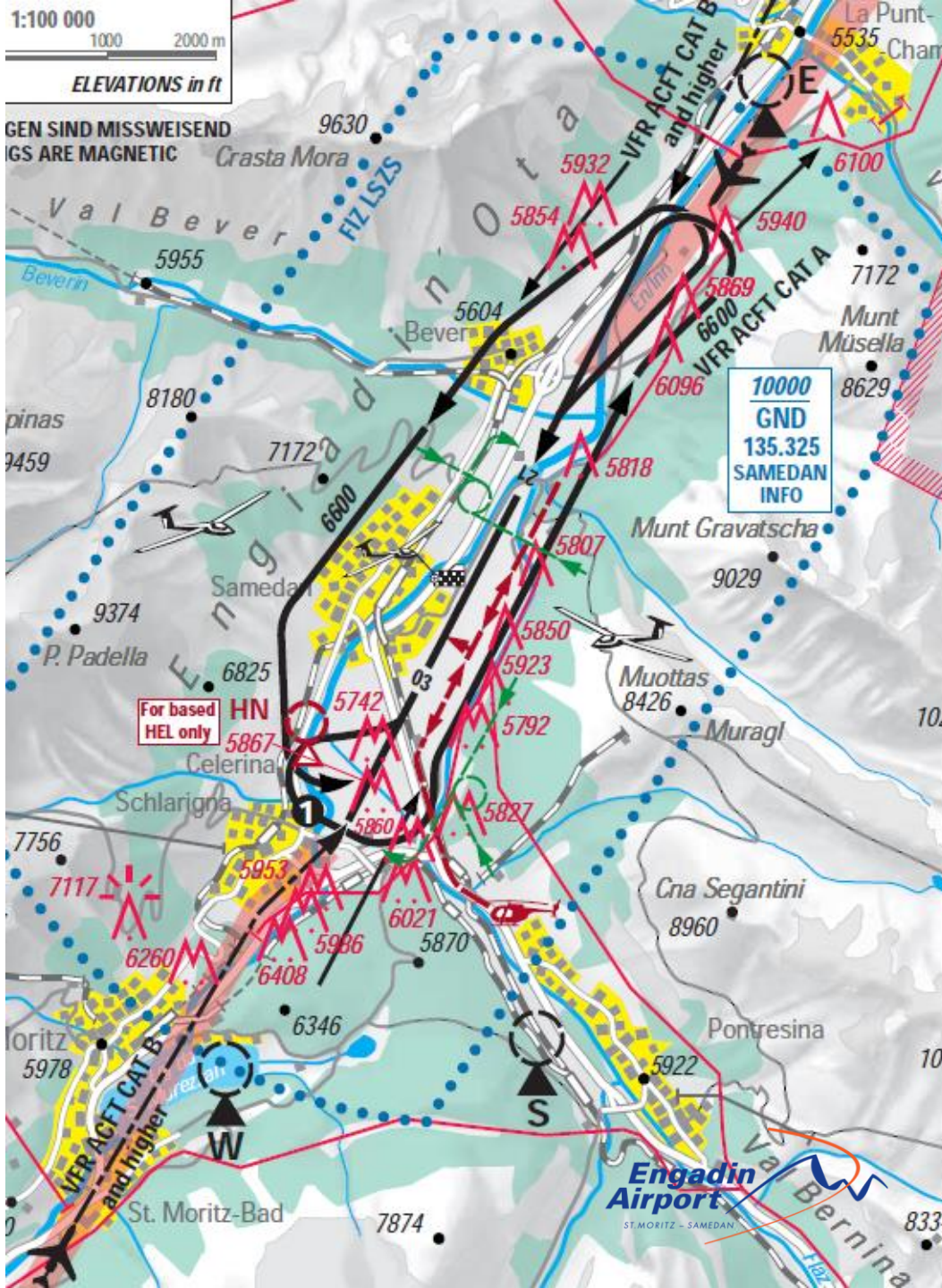
  → same procedure also recommended for departing RWY 03. Proceed south-east of Echo.



VFR Departure

APCH Cat. B and higher

- Joining instructions (Joining point, max. level, squawk, next frequency) given by AFISO before departure.
- Perform a straight-out departure towards Maloja or Zernez.
- Expect initial climb to FL130 due to military activity above.
- Report passing 10‘000 ft for frequency change.
- Expect unknown VFR activity inside and outside of the FIZ (Airspace Class E & G).
- Be aware, that in airspace E & G no separation between IFR / VFR and VFR / VFR traffic will be provided. Expect traffic information as far as practicable.
- For VFR departure no transition altitude given.



Flight plan filing guidelines to LSZS (IFR/Y)

General Notes:

The flight plan must contain one of the following points: DETRI, GERSA, PELAD, PIXOS, RONAG, SOPER, SOSON, UTAVO (except for piston aircraft and helicopter).

The availability of routings to LSZS is dependent on the military activity in the temporary reserved areas (TRA) above the eastern part of Switzerland. This is handled by CDR1 routes and FUA (Flexible use of airspace) restrictions. The CDR1 routes and / or the airspace are closed when the respective TRA is active.

Following TRAs are concerned:

- LS-T 51 CALANDA
- LS-T 52 BEVERIN
- LS-T 53 TARASP
- LS-T 61 CORVATSCH

In addition, the activity of LS-R11 / R11A S-chanf has an influence on the availability of ATS routes.

The status of the CDR1 routes and the FUA restrictions can be found in the European AUP / UUP on the NOP Portal.

Flight plan filing guidelines to LSZS (IFR/Y)

1. FPL filing when TRAs and LS-R11 / R11A are not active:

- It is possible to file both IFR- or Y-FPL.
- Waypoints PELAD or RONAG are mandatory (except for piston aircraft and helicopter).

2. FPL filing when TRAs are active:

- No IFR FPLs can be filed. Only Y-FPLs are accepted.
- Alternate routing via N871 GAMSA Z209 KUSAM Z119 RONAG VFR is available.
- Waypoint RONAG is available from the north-east and south-east.
- Waypoint PELAD is not available.

3. FPL filing when only LS-R11/R11A is active

- No IFR FPLs can be filed. Only Y-FPLs are accepted.
- ATS Route Z119 between PELAD and RONAG is not available.

More Information under www.engadin-airport.ch / for pilots / Flight plan filing guidelines to Samedan (LSZS)

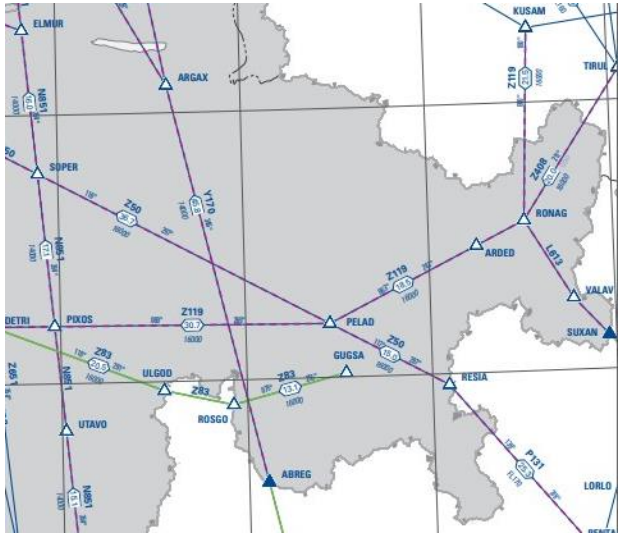
IFR Approach

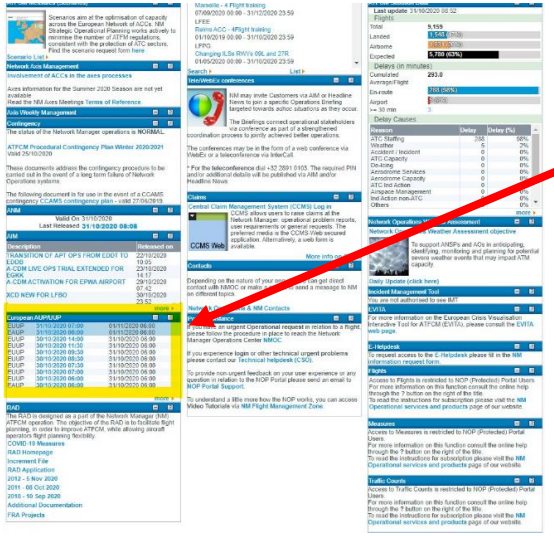
- The procedures refer to normal operations (all engines running).
- Contingency procedures (e.g. OEI operation) are in the responsibility of the operator.
- The calculations for obstacle clearance do not take into account the effect of cold temperatures, as it is in the responsibility of the pilot to adjust the altitudes in case of cold temperatures.
- Procedures partly within airspace class E and G. Watch out for VFR traffic.
- Be aware, that in Airspace E & G no separation between IFR / VFR and VFR / VFR traffic will be provided.
- For piston engine aircraft and multiple IFR APCH (training) PPR required:
  → ppr.smv@engadin-airport.ch

IFR Approach

The availability of the IFR Procedures is depending on the military activity in the temporary reserved areas (TRA)
REF: AIP SWITZERLAND ENR 5.2 (During military activity IFR flightplans might be rejected*)

On days with very high traffic and good weather conditions (CAVOK or FEW **) the IFR procedures can be suspended due to operational reasons by NOTAM ***. The flight plan will also be rejected in this case.





* The non-availability of the ATS Route can be checked under “European AUP/UUP” on https://www.public.nm.eurocontrol.int/PUBPORTAL/

** CAVOK MSA LSZS 10’000 ft AAL or FEW with Vis. 10 km or more

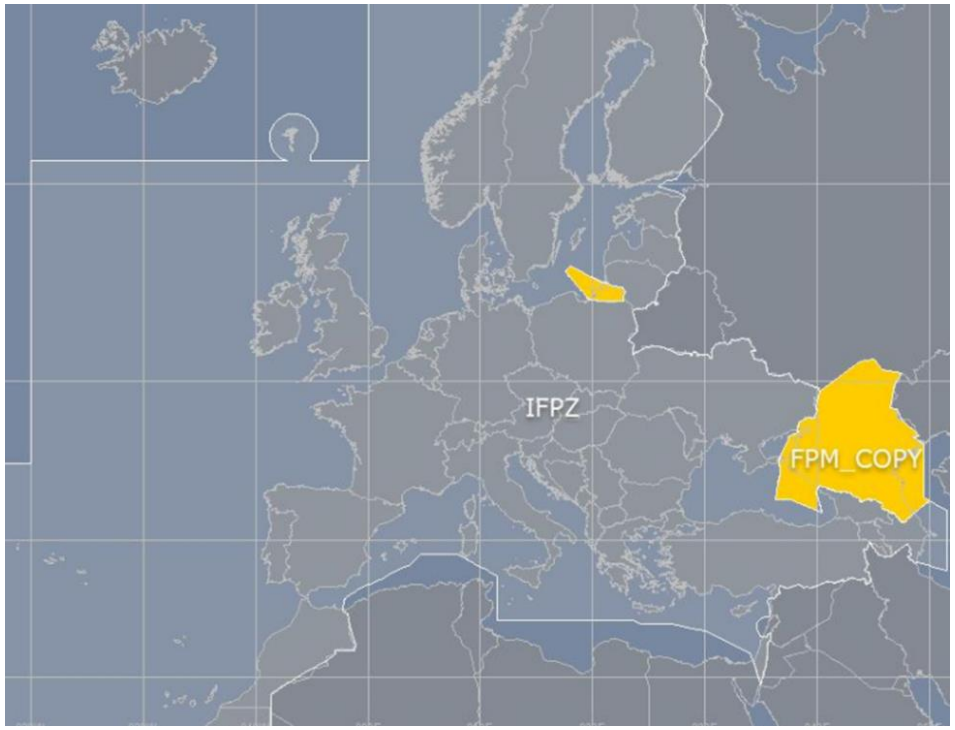
*** NOTAMs are created with the following lead time:

min. 12H for the time between 08:00LT – 12:00 LT

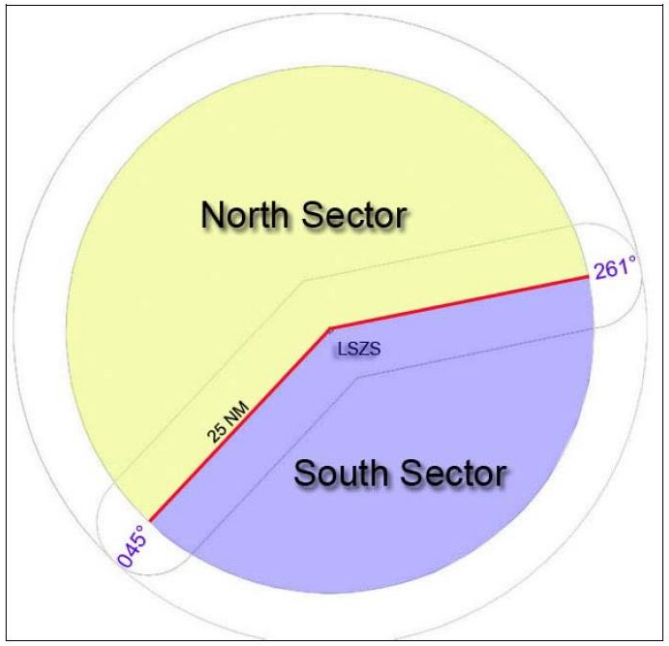
min. 4H for the time between 12:00 LT – SS+30

IFR Approach

For Flights outside the IFMPZ (IFMPZ = IFPS Zone) be aware, that your IFR flight plan will not be rejected, but you may still have to cancel your IFR – Approach at PELAD or RONAG and fly VFR to Samedan or IFR to the alternate.



- South sector (Sector 1) whose MNM is 15'500ft.
- North sector (Sector 2) whose MNM is 13'500ft.



IFR Approach 03

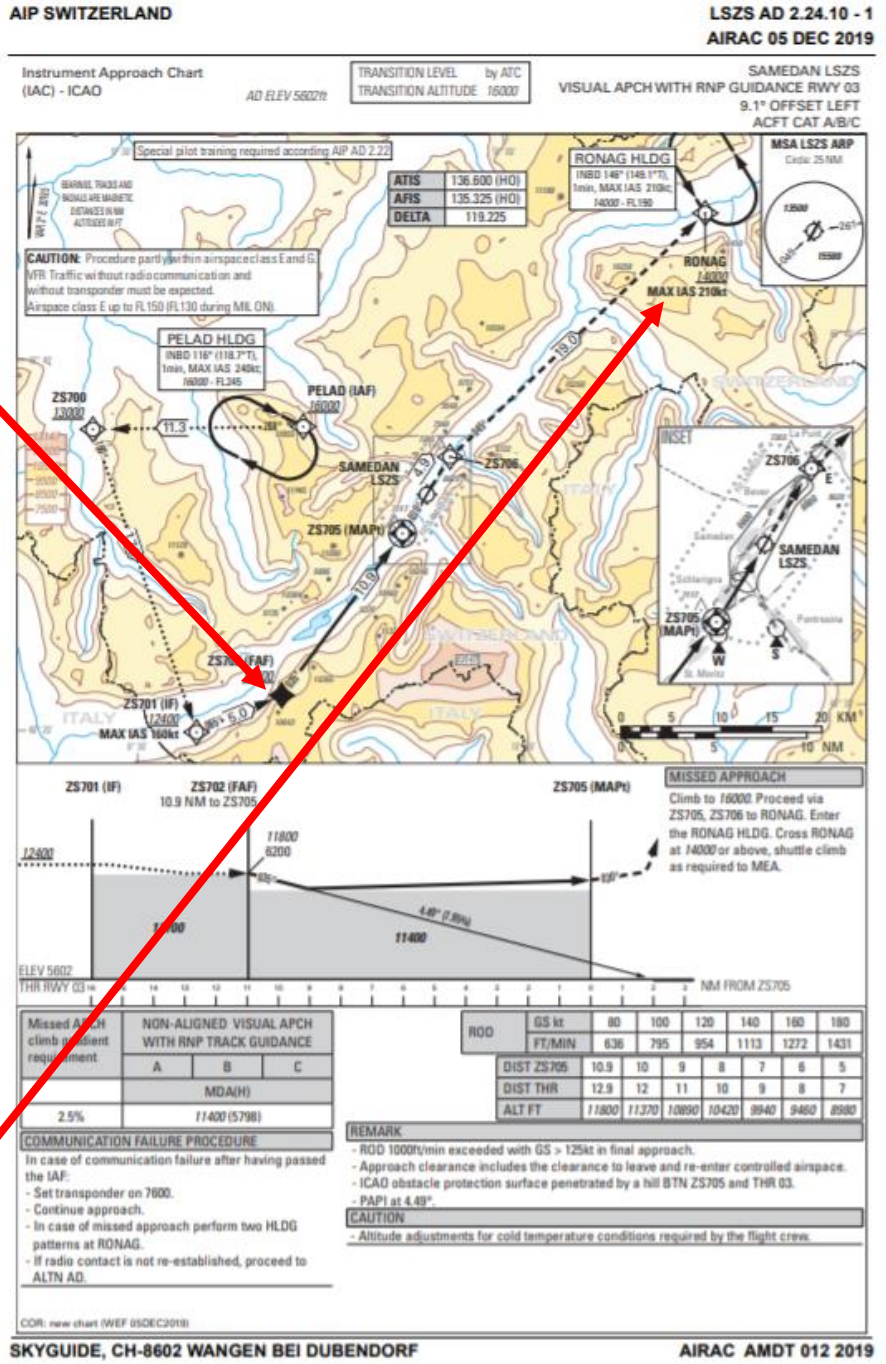
Mandatory reporting point **ZS702**

Altitude adjustments for cold temperature conditions required by the flight crew.

Approach clearance includes the clearance to leave and re-enter controlled airspace.

- Approach has a very high MDA of 11400ft.
- After that altitude, the APCH is a visual maneuver.
- Visual contact especially to the mountains right and left of track must be assured at all time.
- The high terrain might trigger aircraft Ground Proximity Warning System (GPWS). Speed constraints and temperature corrected altitudes have to be strictly respected to assure terrain clearance.
- **In case airport not in sight at MDA, initiate a missed approach immediately.**

Expect GLD activity: **Hot Spot Piz Nuna**



IFR Approach 21

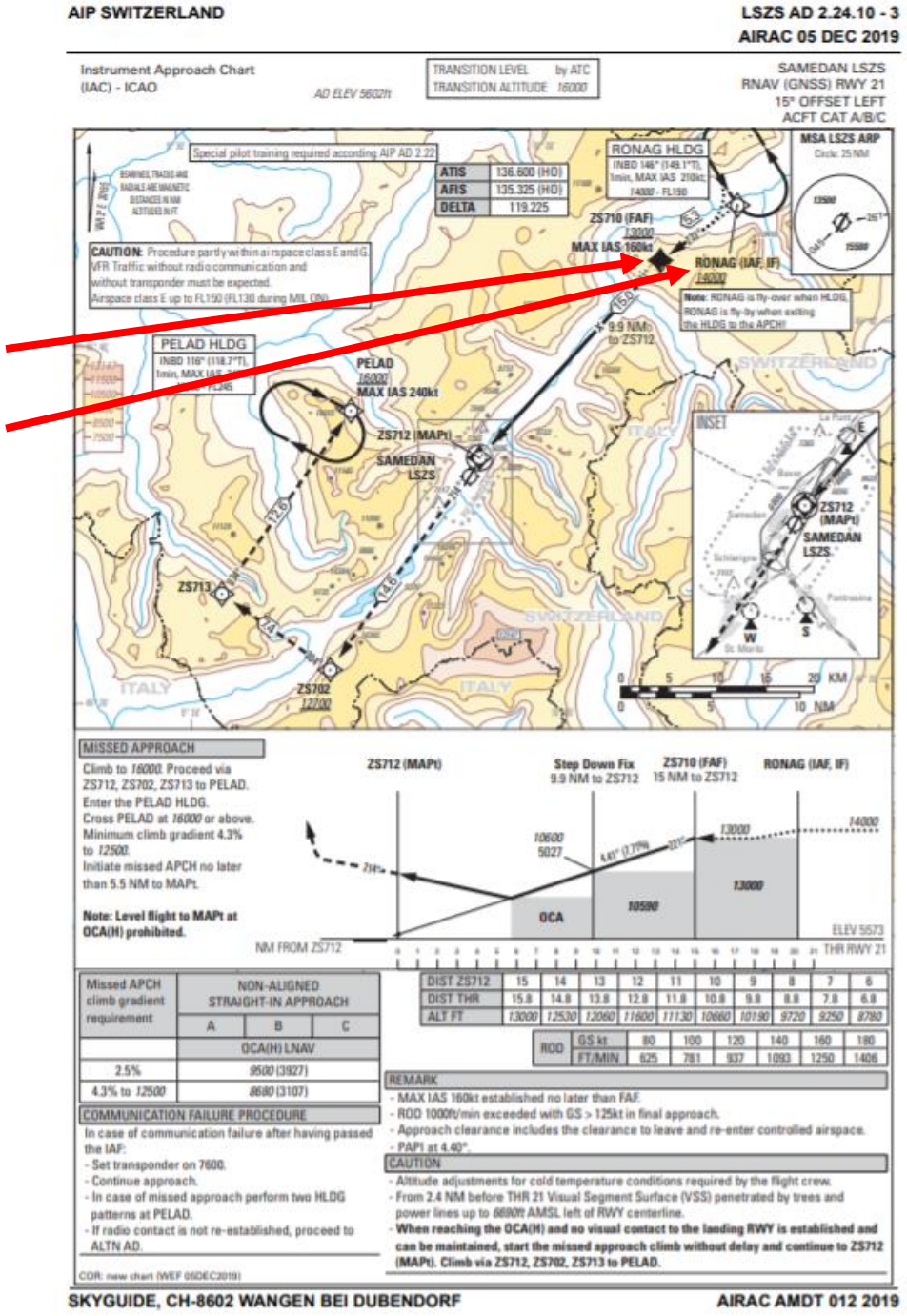
Mandatory reporting point **ZS710**

Expect GLD activity: **Hot Spot Piz Nuna**

Altitude adjustments for cold temperature conditions required by the flight crew.

Approach clearance includes the clearance to leave and re-enter controlled airspace.

When reaching the OCA(H) and no visual contact to the landing RWY is established and can be maintained, start the missed approach climb without delay.
The need to navigate very precisely (RNP 0.3) in the first part of the missed approach due to non-standard RNP value from the point were OCA is reached and the MAPt. After MAPt standard RNP values apply (RNP 1.0).



SIDs 03/21

There are four «RNAV 1 SIDs» available at LSZS.

Since a fully IMC SID from runway 03 / 21 is limited to aircraft with high climb performance, it was decided to introduce SID's with an initial visual segment. The pilot will have to maintain visual ground contact to a specific altitude to stay clear of obstacles.

- The procedures refer to normal operations (all engines running).
- Engine-out procedures are the responsibility of the operator.
- The calculations for obstacle clearance do not take into account the effect of cold temperatures, as it is in the responsibility of the pilot to adjust the altitudes in case of cold temperatures.
- Procedures partly within airspace class E and G. Watch out for VFR traffic.
- Be aware, that in Airspace E & G no separation between IFR / VFR and VFR / VFR traffic will be provided.

SIDs 03/21

SIDs are named as follows:

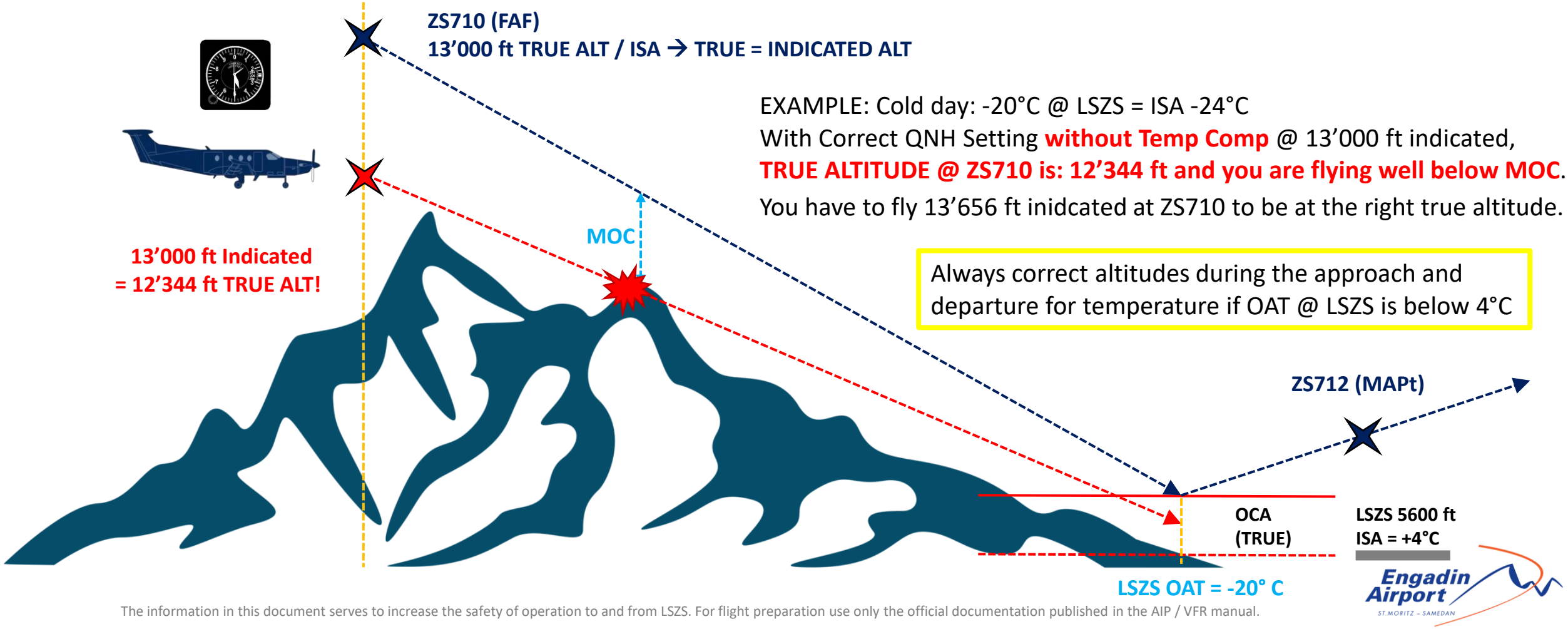
SIDs RWY 03: RONAG 1E (full IMC, direction east)
RONAG 1V (containing a visual segment)

SIDs RWY 21: PELAD 1W (full IMC, direction west)
PELAD 1 V (containing a visual segment)

The Runway will be closed for IFR departure procedures as follows:

RWY	SID	VIS (m) / Ceiling (ft AGL)	RMK
03	RONAG 1E	2000 / ---	Ceiling means BKN or OVC. VMC must be maintained up to the ALT stated in the table.
	RONAG 1V	5000 / 4400	
21	PELAD 1W	2000 / ---	
	PELAD 1V	5000 / 5100	

Temperature / pressure correction



Temperature / pressure correction

Examples for temperature correction:

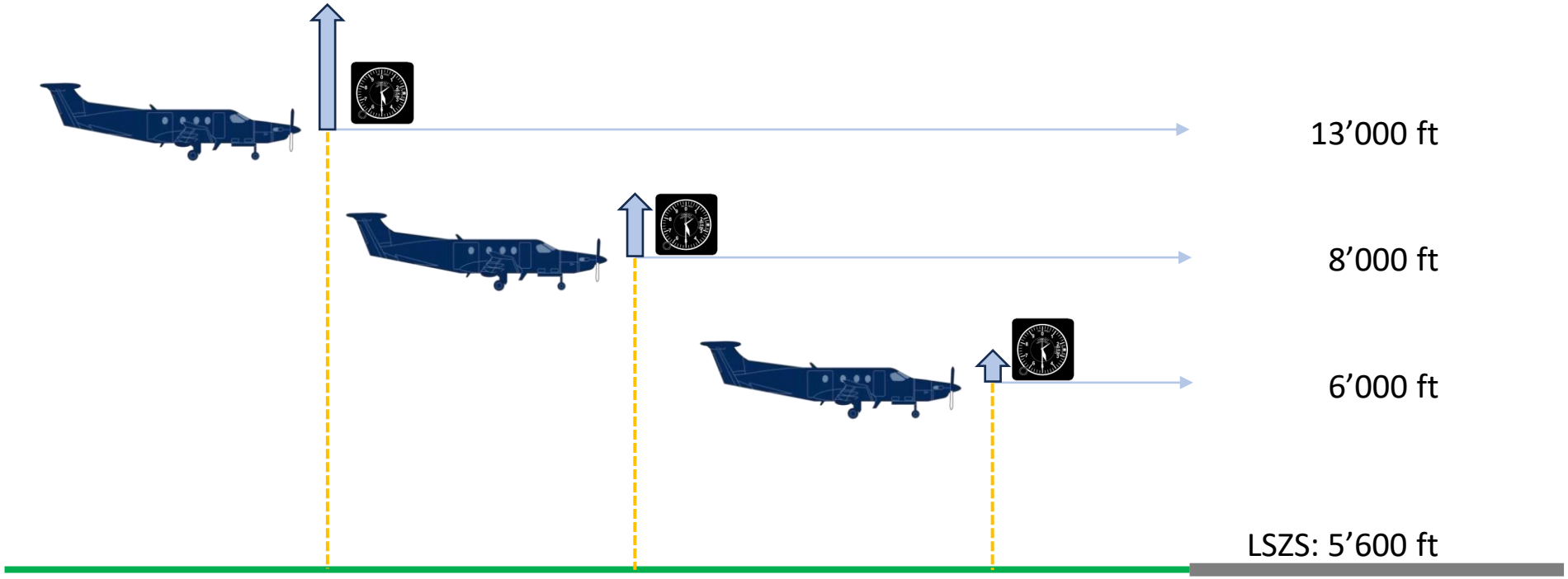
Temp on GND in LSZS (ISA = +4°C)	Target (true) altitude	Temp correction to be applied	Indicated altitude to fly target (true) altitude
OAT = -10°C ISA = -14°C	13’000 ft (Interm. Alt.)	+382 ft	13’382 ft
OAT = -20°C ISA = -24°C	13’000 ft (Interm. Alt.)	+656 ft	13’656 ft
OAT = -10°C ISA = -14°C	8’680 ft (OCA 4.3% MACG)	+157 ft	8’837 ft (= temp. corrected OCA)
OAT = -20°C ISA = -24°C	8’680 ft (OCA 4.3% MACG)	+269 ft	8’949 ft (=temp. corrected OCA)

Aerodrome Temperature LSZS							
Altitude ft	0° C	-5° C	-10° C	-15° C	-20° C	-25° C	-30° C
16000	+153 ft	+348 ft	+543 ft	+738 ft	+933 ft	+1128 ft	+1323 ft
14000	+122 ft	+279 ft	+435 ft	+591 ft	+748 ft	+904 ft	+1060 ft
13000	+107 ft	+245 ft	+382 ft	+519 ft	+656 ft	+793 ft	+931 ft
12700	+103 ft	+234 ft	+366 ft	+497 ft	+629 ft	+760 ft	+892 ft
12400	+99 ft	+224 ft	+350 ft	+476 ft	+602 ft	+727 ft	+853 ft
11800	+90 ft	+204 ft	+319 ft	+433 ft	+547 ft	+662 ft	+776 ft
11400	+84 ft	+191 ft	+298 ft	+404 ft	+511 ft	+618 ft	+725 ft
10600	+72 ft	+164 ft	+256 ft	+348 ft	+440 ft	+531 ft	+623 ft
9500	+56 ft	+127 ft	+199 ft	+270 ft	+342 ft	+413 ft	+484 ft
8680	+44 ft	+100 ft	+157 ft	+213 ft	+269 ft	+325 ft	+381 ft

For the correction please use the table in the AIP

Temperature / pressure correction

Temperature and pressure correction depends on air column between airport and aircraft



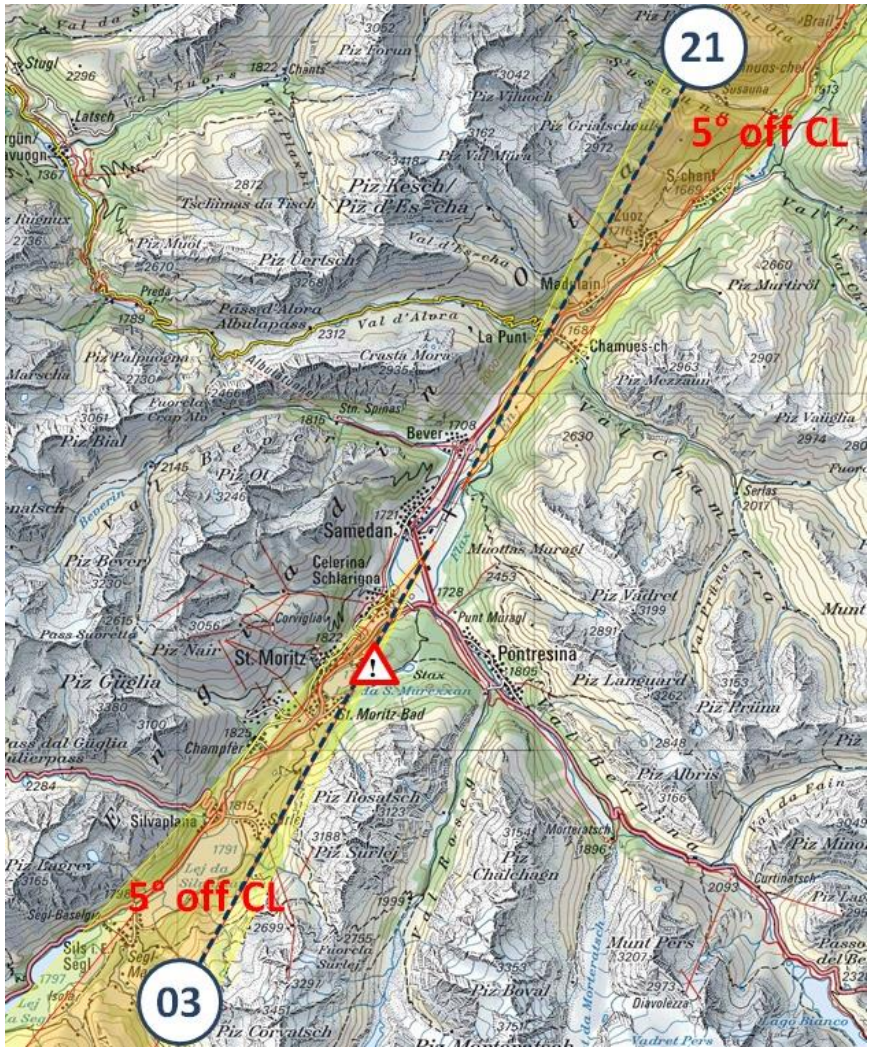
= Temp Comp (TC)

Large air column = large deviation to be corrected

Non-STD PAPI

The PAPI is not alligned with the RWY axis, but 5° left of it.

- **The PAPI does not grant obstacle clearance according to ICAO standard. Hence, the PAPI can be used as a reference only.**
- **Avoid critical terrain visually.**
- **The PIC has the full responsibility to keep clear of terrain and obstacles.**



Runway condition

Information on runway condition is given by AFISO, SNOWTAM, METAR, ATIS.

The Runway Condition Code (RWYCC) is assessed and reported based on the Runway Condition Assessment Matrix (RCAM) defined by ICAO.

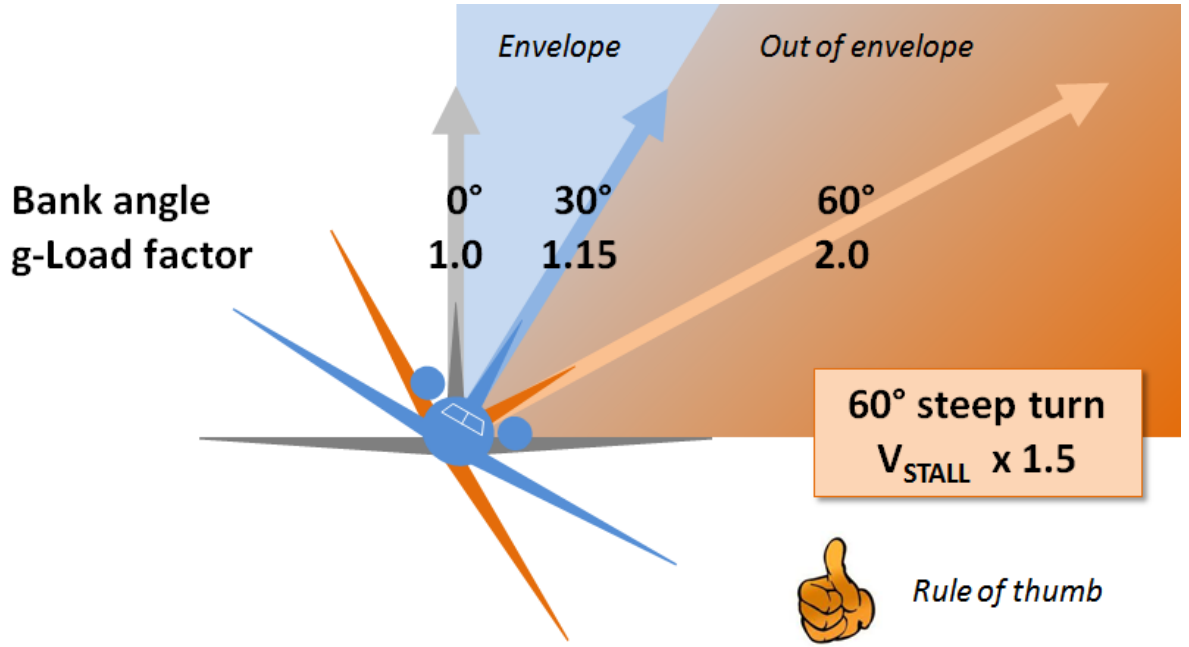
Noise abatement

- Make sure that the type of aircraft (noise class) is allowed to operate at Samedan airport.
- More than idle reverse shall be used for safety reason only (Jet).
- APU shall be started at the earliest 30 minutes before EOBT and shall be shut off at latest 15 minutes after reaching the park position (Jet).
- Avoid flying over towns and villages and noise sensitive areas when operationally possible (see VFR chart).
- Helicopter: Reduce speed when approaching airport.
- For further information refer to AIP / VFR Manual LSZS.

Bank angle / g-force / stall speed

Aircraft manoeuvring is assumed to be conducted at minimum defined pattern speed according to AFM. This covers adequate safety margin above stall speed. Using higher bank angles to avoid obstacles or for any reason may bring the aircraft close to or into stall conditions.

Stall speed: As weight doubles (60° bank), stall speed increases by √2 or 1.414



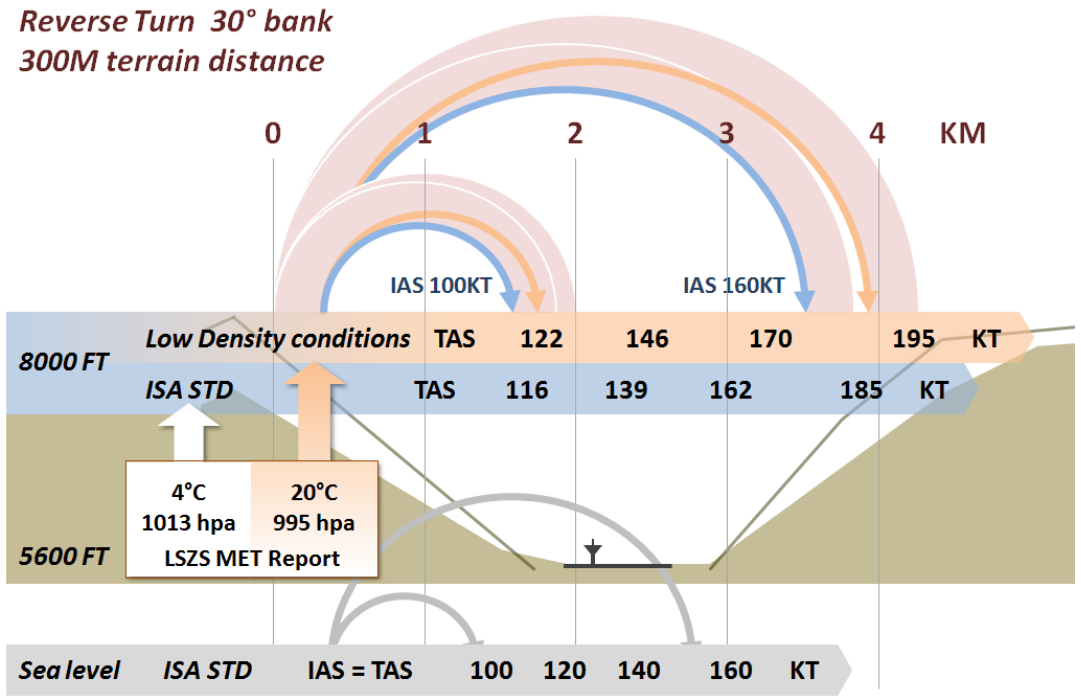
IAS – TAS / Reverse turn

Aircraft operation under VFR and in mountainous terrain requires solid knowledge of the atmosphere theory. Density altitude and therefore true airspeed (TAS) can be considerably higher than aerodrome altitude (AD ELEV) or indicated air speed (IAS). Thus, pilots may be surprised by the area needed to maneuver the aircraft (reverse turn).

True airspeed (TAS): Add 2% to indicated airspeed (IAS) for every 1'000 ft increase in altitude

Standard temperature (ISA): 15°C (59°F) at sea level. ISA decreases 2°C (3.5°F) per 1'000 ft increase in altitude.

Density altitude: Increases or decreases 120 ft for each 1°C that the temperature varies from standard temperature **and** increases or decreases 27 ft for each hPa that the QNH varies from STD (1013.25 hPa).



Calculation density altitude

Example: Density Altitude Samedan at 1030 hPa and 22°C OAT

Solution steps:

1. Calculation Pressure Altitude
2. Calculation Standard temperature on Pressure Altitude
3. Calculation Density Altitude

Calculation Pressure Altitude

QNH	1030 hPa
Standard pressure	1013 hPa
Difference	17 hPa (lower)
Calculation altitude differential	459 ft (17 x 27 ft per hPa difference of pressure)
Elevation Engadin Airport	5’600 ft
Altitude differential	- 459 ft (Minus if QNH is higher then 1013 hPa)
Samedan Pressure Altitude at 1030 hPA	**5’141 ft**

Calculation density altitude

Example: Density Altitude Samedan at 1030 hPa and 22°C OAT

Solution steps:

1. Calculation Pressure Altitude
2. Calculation Standard temperature on Pressure Altitude
3. Calculation Density Altitude

Calculation Standard Temperature on Pressure Altitude

ISA Temperature Sea level	15°C
Pressure Altitude 5’141 ft	10.28°C (2°C pro 1’000 ft → 2 x 5.141)
Standard temperature on Pressure Altitude 5’141 ft	**4.72°C**

Calculation density altitude

Example: Density Altitude Samedan at 1030 hPa and 22°C OAT

Solution steps:

1. Calculation Pressure Altitude
2. Calculation Standard temperature on Pressure Altitude
3. Calculation Density Altitude

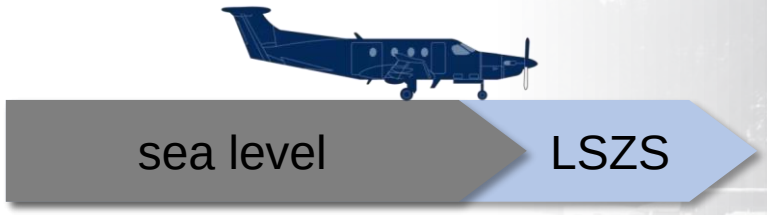
Calculation Density Altitude

Samedan OAT	22°C
Standard temperature on Pressure Altitude 5’141 ft	4.72°C
Difference	17.28°C
Altitude difference	2’073.6 ft (120 ft pro °C → 120 x 17.28)
Pressure Altitude	5’141 ft
Density Altitude	**7’214.6 ft**

IAS – TAS / Landing distance

Density altitude affects the landing performance of an aeroplane as greatly as it affects takeoff performance.

High temperature and high elevation will cause an increase in the landing roll because the true airspeed is higher than the indicated airspeed. Remind the higher touchdown speed and check the landing performance data according to the AFM of your aircraft rather than assuming the available runway being sufficient.



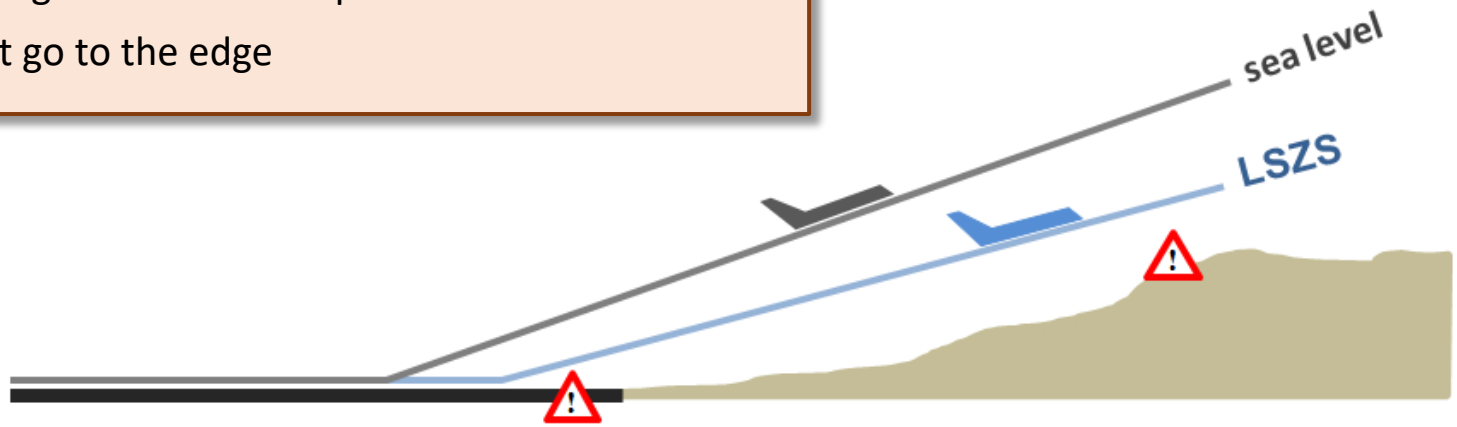
True airspeed (TAS):
Add 2% to indicated airspeed (IAS) for every 1’000 ft increase in altitude

Engine performance

Your engine may get a shortage of breathing at high altitude!

Remember the essentials:

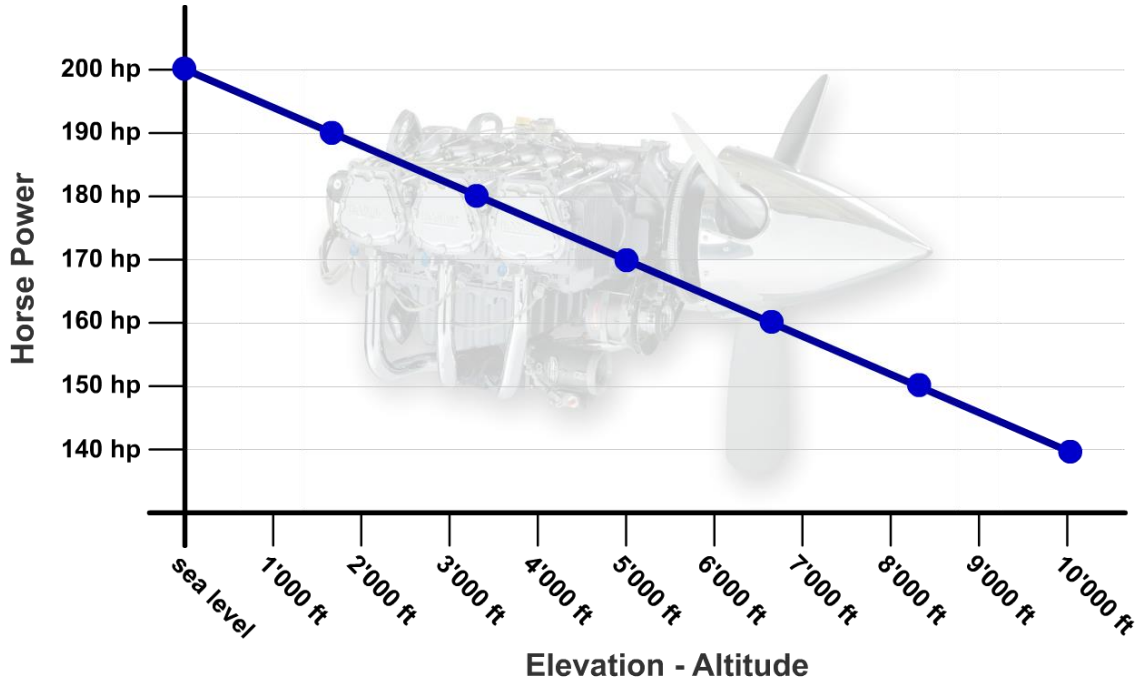
- Proper adjustment of piston engine parameters (leaning) according to AFM
- Proper assessment of runway length and climbout profile
- Keep sufficient margins – don’t go to the edge



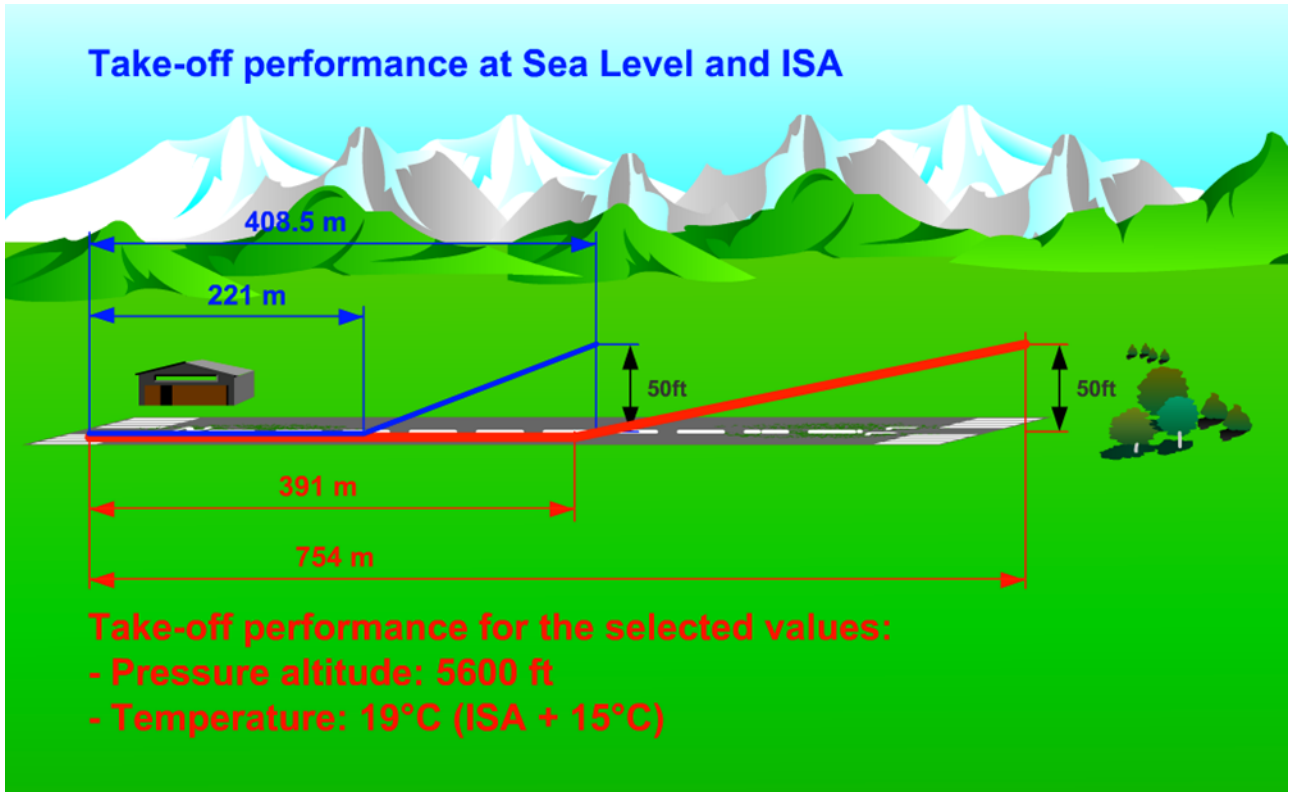
Typical engine power loss with altitude

A normally aspirated engine (without a turbocharger) routinely loses about 3 % of its power for every 1000 ft increase in altitude.

This means that a non turbocharged Piper Arrow rated at 200 hp at sea level will generate only about 165 hp at Samedan.



Take-off and climb performance

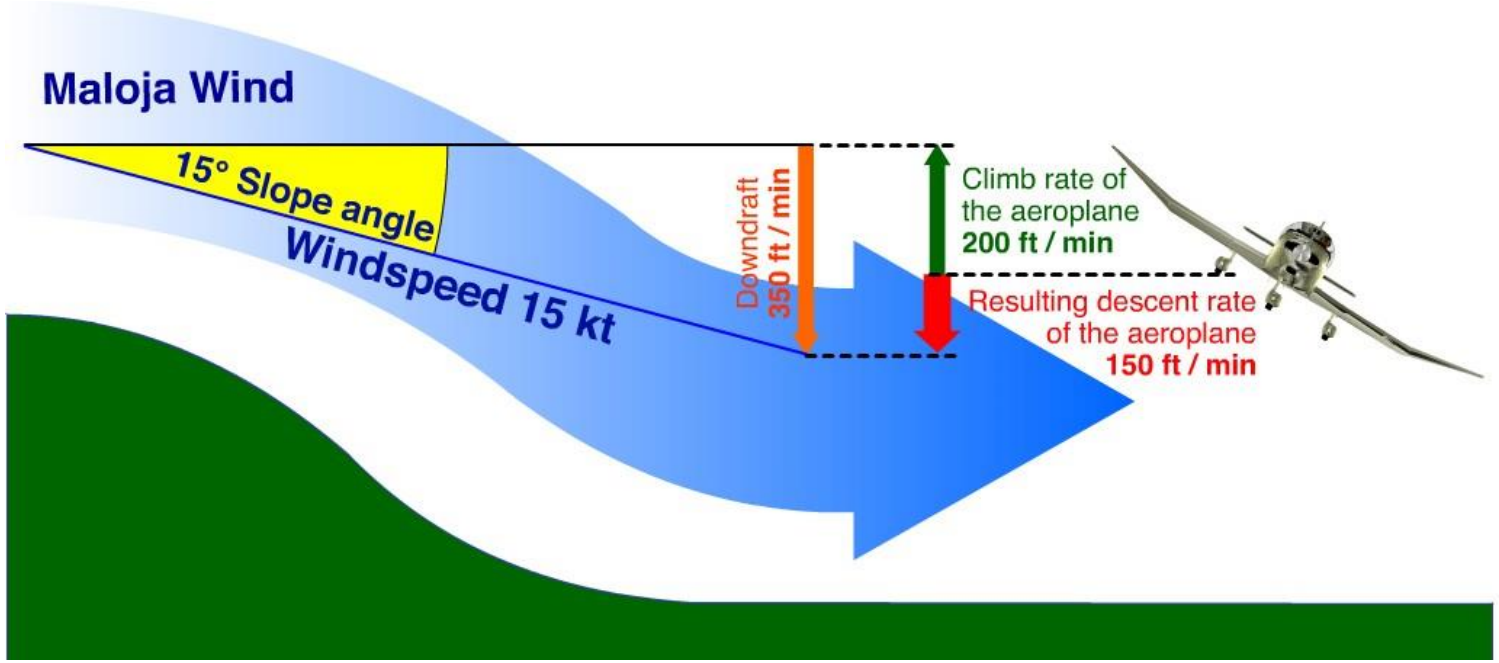


Higher density altitude means thinner air which seriously degrades aircraft performance.

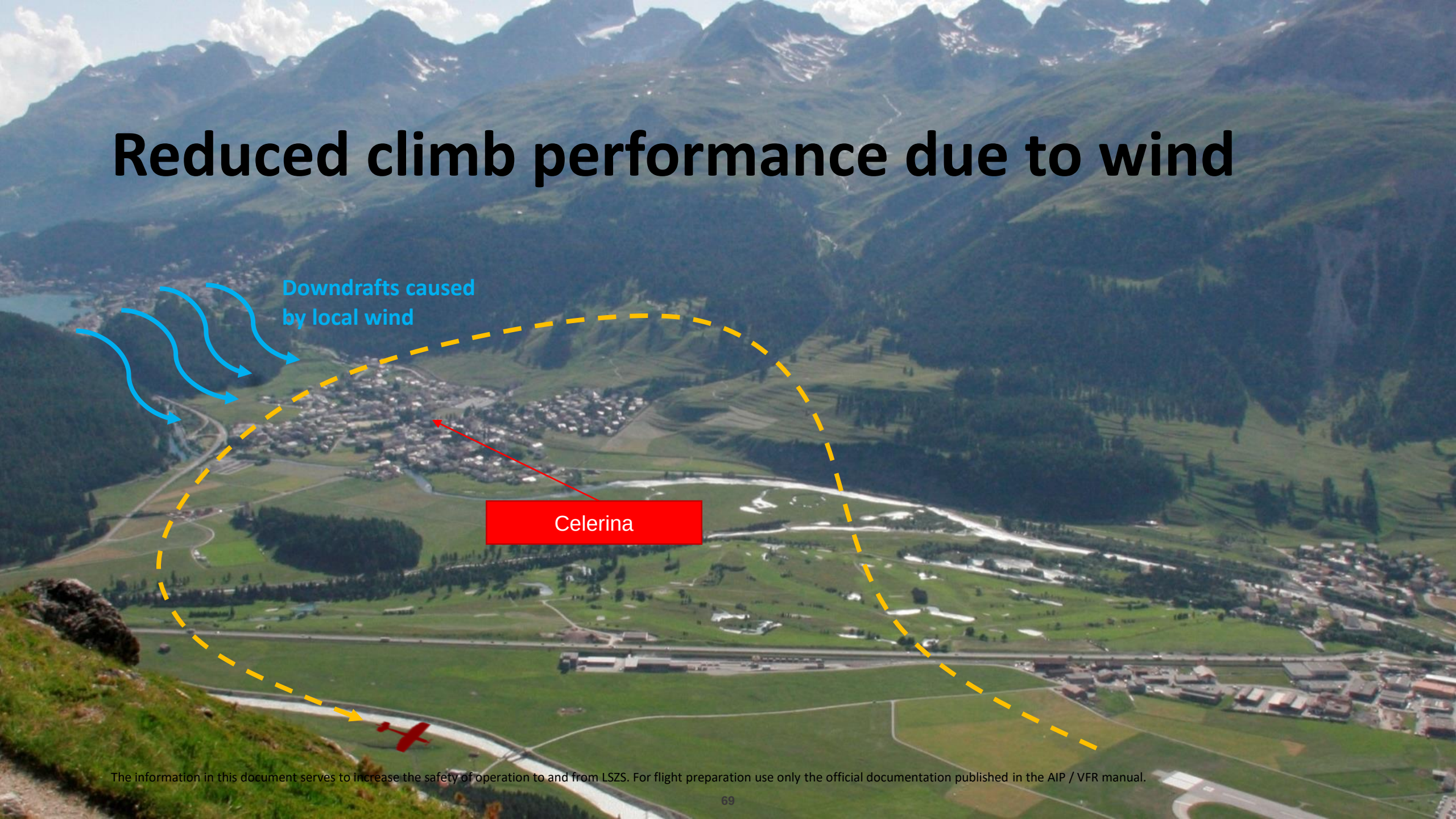
Higher density altitudes also require a longer take-off roll. For safety reasons, add a margin of 30-50% to the values you retrieve from the POH / AFM.

Reduced climb performance due to wind

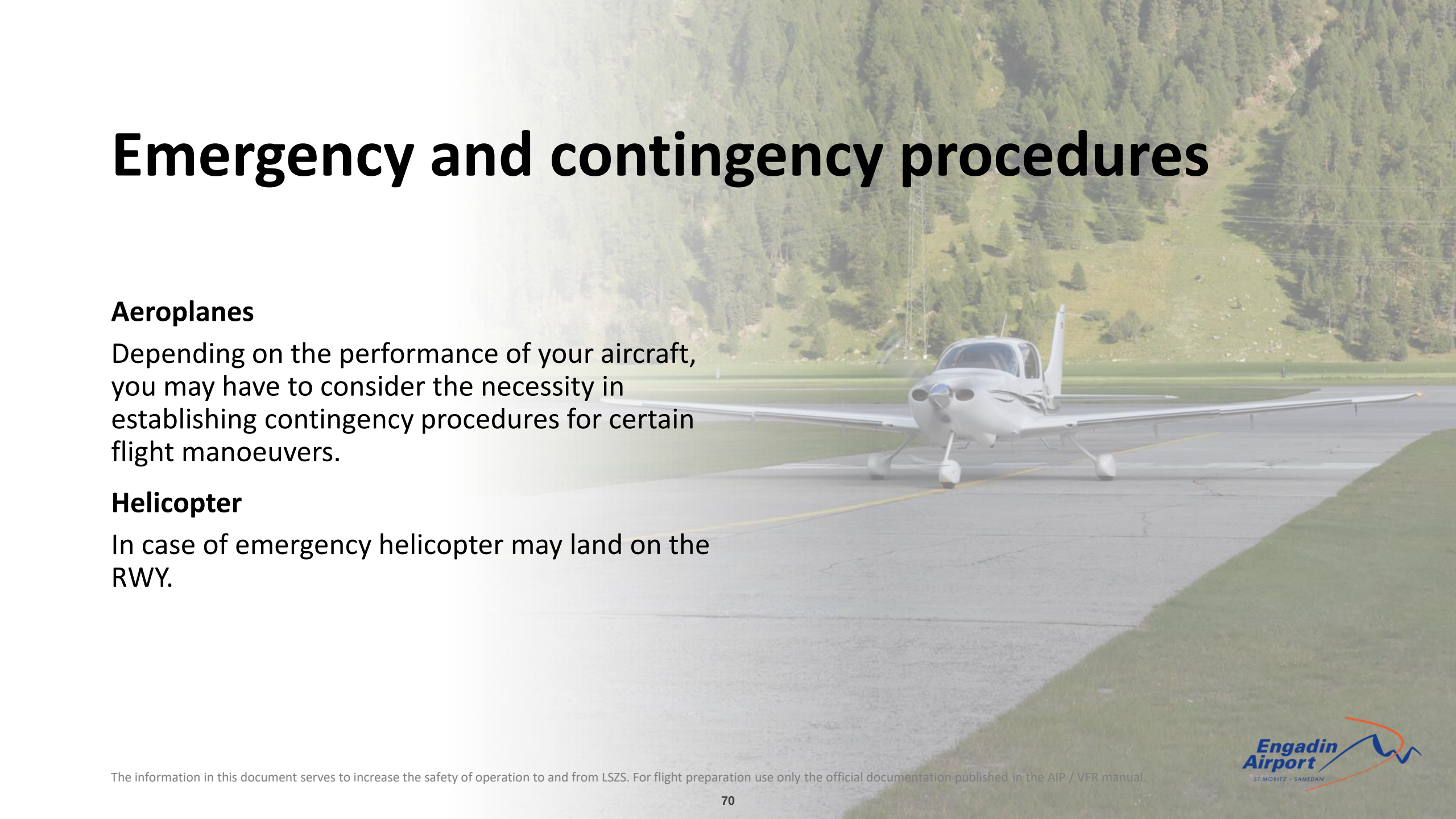
Always consider downdrafts caused by local winds. These downdrafts may exceed your climb performance and result in a descent, therefore the published departure circuit RWY 21 has to be observed. This situation has to be expected especially after departure on runway 21 in the region of the village Celerina.



Reduced climb performance due to wind



Emergency and contingency procedures



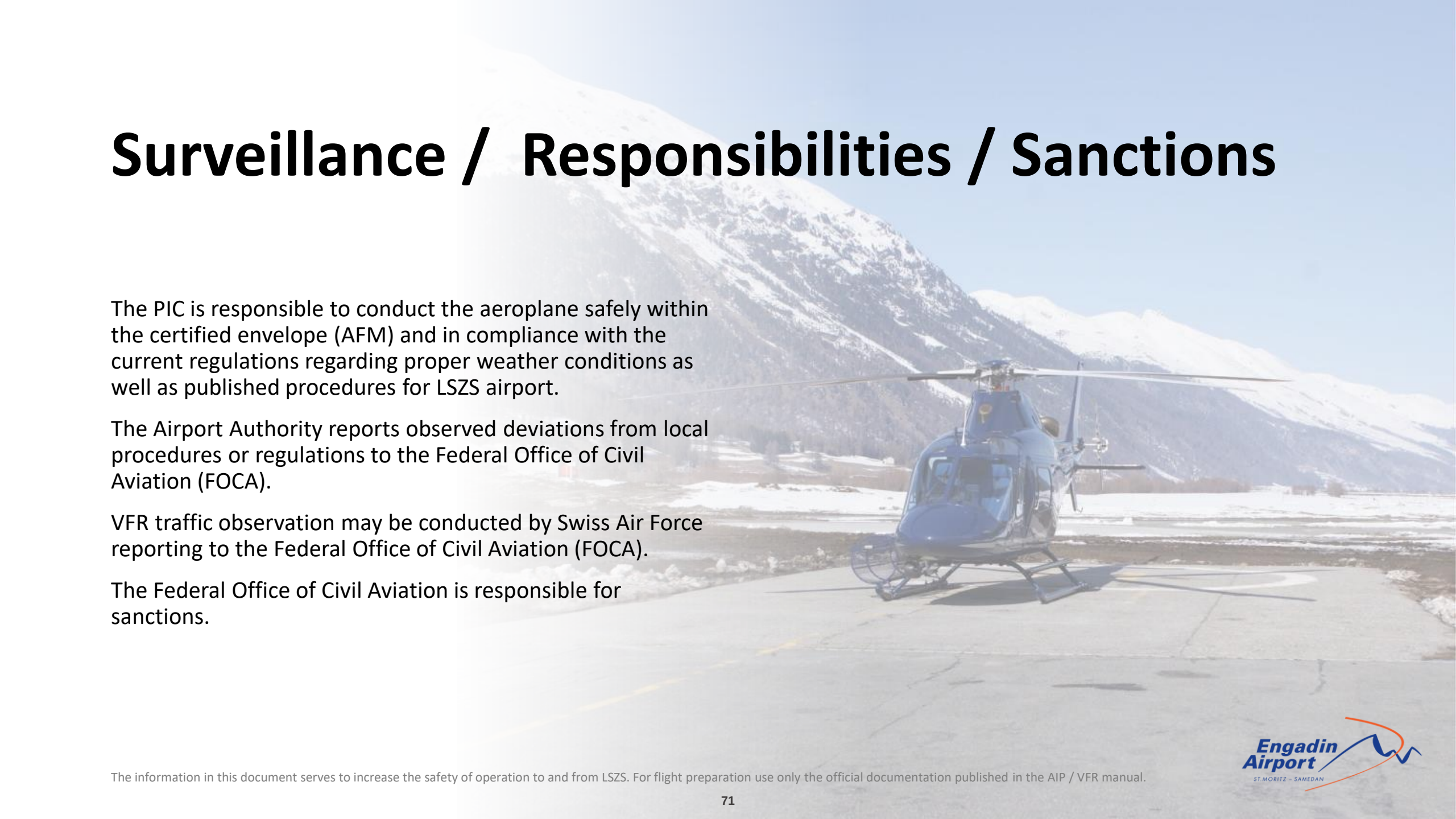
Aeroplanes

Depending on the performance of your aircraft, you may have to consider the necessity in establishing contingency procedures for certain flight manoeuvers.

Helicopter

In case of emergency helicopter may land on the RWY.

Surveillance / Responsibilities / Sanctions



The PIC is responsible to conduct the aeroplane safely within the certified envelope (AFM) and in compliance with the current regulations regarding proper weather conditions as well as published procedures for LSZS airport.

The Airport Authority reports observed deviations from local procedures or regulations to the Federal Office of Civil Aviation (FOCA).

VFR traffic observation may be conducted by Swiss Air Force reporting to the Federal Office of Civil Aviation (FOCA).

The Federal Office of Civil Aviation is responsible for sanctions.

Pre-flight briefing

NOTE:

- ✓ Check the weather situation over the Alps
- ✓ Check the density altitude
- ✓ Check the aircraft performance, for helicopters HOGE
- ✓ Check OEI performance
- ✓ Check contingency procedures
- ✓ Check procedures in case of loss of GNSS signal (IFR)
- ✓ Check runway condition
- ✓ Check NOTAM
- ✓ On departure, observe the speed and maintain a good rate of climb, especially for high performance jet aircraft
- ✓ External lighting must be used (navigation lights, strobe lights, etc.)

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