



SOARING IN THE CONTROLLED AIRSPACE OF SLOVENIA

*Prepared by: ALEŠ FINK
FEBRUARY 2023*

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5. GLIDER PILOT RECOMMENDATIONS FOR ENTERING CONTROLLED AIRSPACE
6. HOW ENTRY OF THE GLIDER AFFECTS AIR TRAFFIC CONTROLLER WORK

AIRSPACE STRUCTURE IN SLOVENIA



AIRSPACE STRUCTURE IN SLOVENIA

- VOLUMES OF THE AIRSPACE ARE DIVIDED IN DIFFERENT CLASSES
- EACH CLASS HAS DIFFERENT DEMANDS AND CONDITIONS: IN SLOVENIA THERE ARE C, D, E, AND G CLASS OF AIRSPACE
- ADDITIONALLY THERE ARE VOLUMES OF THE AIRSPACE WITH RESTRICTIONS LIKE RESTRICTED, DANGER AND PROHIBITED AREAS
- TEMPORARY RESTRICTED AREA FOR VFR TRAFFIC
- RESERVED AREAS FOR VFR TRAFFIC
- TMZ - TRANSPONDER MANDATORY ZONES

CLASS C

- IFR IN VFR FLIGHTS ARE PERMITTED.
- IFR FLIGHTS ARE SEPARATED FROM OTHER IFR FLIGHTS AND FROM VFR FLIGHTS.
- VFR FLIGHTS ARE SEPARATED FROM IFR FLIGHTS AND RECEIVE TRAFFIC INFORMATION IN RESPECT OF OTHER VFR FLIGHTS AND TRAFFIC AVOIDANCE ADVICE ON REQUEST.
- PILOT MUST OBTAIN ATC CLEARANCE AT LEAST 5 MINUTES BEFORE ENTERING C CLASS AIRSPACE
- IN USE FOR TERMINAL AREAS –TMA IN THE VICINITY OF THE CONTROLLED AIRPORTS
- TRANSPONDER IS MANDATORY

CLASS D

- IFR AND VFR FLIGHTS ARE PERMITTED.
- IFR FLIGHTS ARE SEPARATED FROM OTHER IFR FLIGHTS, RECEIVE TRAFFIC INFORMATION IN RESPECT OF VFR FLIGHTS AND TRAFFIC AVOIDANCE ADVICE ON REQUEST.
- VFR FLIGHTS RECEIVE TRAFFIC INFORMATION IN RESPECT OF ALL OTHER FLIGHTS AND TRAFFIC AVOIDANCE ADVICE ON REQUEST.
- PILOT MUST OBTAIN ATC CLEARANCE AT LEAST 5 MINUTES BEFORE ENTERING C CLASS AIRSPACE
- IN USE FOR CONTROLLED AREAS – CTR AT THE CONTROLLED AIRPORTS
- TRANSPONDER IS MANDATORY

CLASS E

- IFR AND VFR FLIGHTS ARE PERMITTED
- IFR FLIGHTS ARE PROVIDED WITH AIR TRAFFIC CONTROL SERVICE AND ARE SEPARATED FROM OTHER IFR FLIGHT.
- ALL FLIGHTS RECEIVE TRAFFIC INFORMATION, AS FAR AS PRACTICAL.
- CONTINUOUS AIR-GROUND VOICE COMMUNICATIONS ARE REQUIRED FOR IFR FLIGHTS, FOR OTHER FLIGHTS IS RECOMMENDED.
- USED IN THE AIRSPACE BELOW MINIMUM SECTOR ALTITUDES AND TERMINAL AREAS FOR VFR TRAFFIC

CLASS G

- IFR AND VFR FLIGHTS ARE PERMITTED AND RECEIVE FLIGHT INFORMATION SERVICE IF REQUESTED.
- ALL IFR FLIGHTS SHALL BE CAPABLE OF ESTABLISHING AIR-GROUND VOICE COMMUNICATIONS.
- VFR FLIGHTS DON'T NEED TO ESTABLISH AIR-GROUND VOICE COMMUNICATION.
- FREE FLIGHT AIRSPACE

AIRSPACE CLASSIFICATION FOR VFR

RAZVRSTITEV SLOVENSKEGA ZRAČNEGA PROSTORA ZA VFR AIRSPACE CLASSIFICATION IN SLOVENIA FOR VFR

Razred Class	Tip leta Type of flight	Zagotovljeno razdvajanje Separation provided	Zagotovljena storitev Service provided	Omejitev hitrosti (*) Speed limitation (*)	Zahteva za zmožnost radijske komunikacije Radio communication capability requirement	Zahtevana neprekinjena dvosmerna komunikacija zrak-zemlja Continuous two-way air-ground voice communication required	Potrebno dovoljenje ATC Subject to an ATC clearance
C	VFR	VFR od IFR	1. Storitve kontrole zračnega prometa za razdvajanje od IFR 2. Prometne informacije VFR/VFR (in na zahtevo nasveti za izogibanje prometu)	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Da	Da	Da
		VFR from IFR	1. Air traffic control service for separation from IFR 2. VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes
D	VFR	Brez	Prometne informacije IFR/VFR in VFR/VFR (in na zahtevo nasveti za izogibanje prometu).	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Da	Da	Da
		Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes
E	VFR	Brez	Po možnosti prometne informacije	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Ne (**)	Ne (**)	Ne
		Nil	Traffic information as far as practical	250 kts IAS below 3 050 m (10 000 ft) AMSL	No (**)	No (**)	No
G	VFR	Brez	Na zahtevo letalske informacije	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Ne (***)	Ne (***)	Ne
		Nil	Flight information service if requested	250 kts IAS below 3 050 m (10 000 ft) AMSL	No (***)	No (***)	No

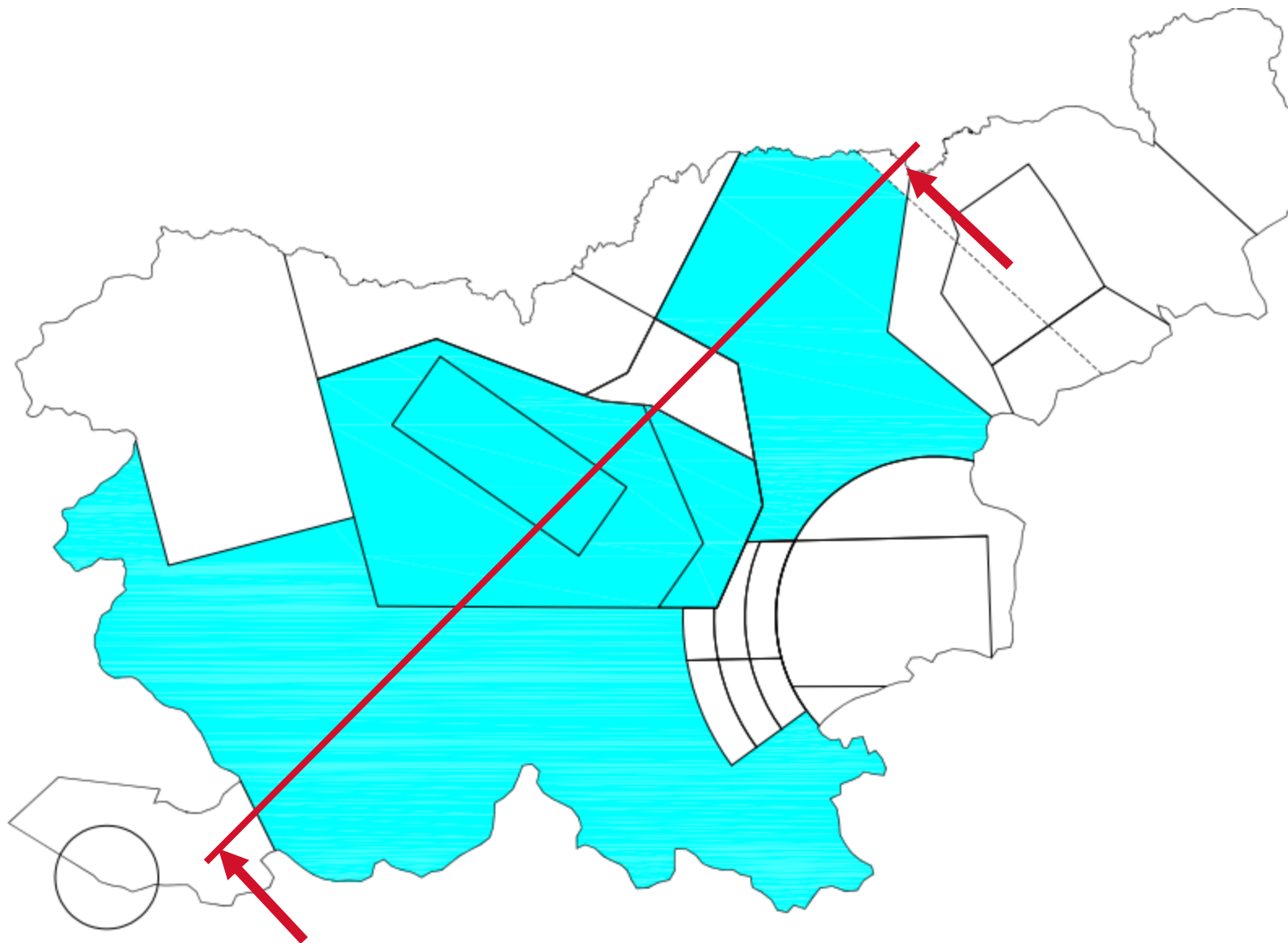


(*) Če je nivo absolutne višine prehoda nižji od 3 050 m (10 000 čevljev) AMSL, je treba uporabiti FL 100 namesto 10 000 čevljev. Pristojni organ lahko izvzame tipe zrakoplovov, ki zaradi tehničnih ali varnostnih razlogov ne morejo vzdrževati te hitrosti.

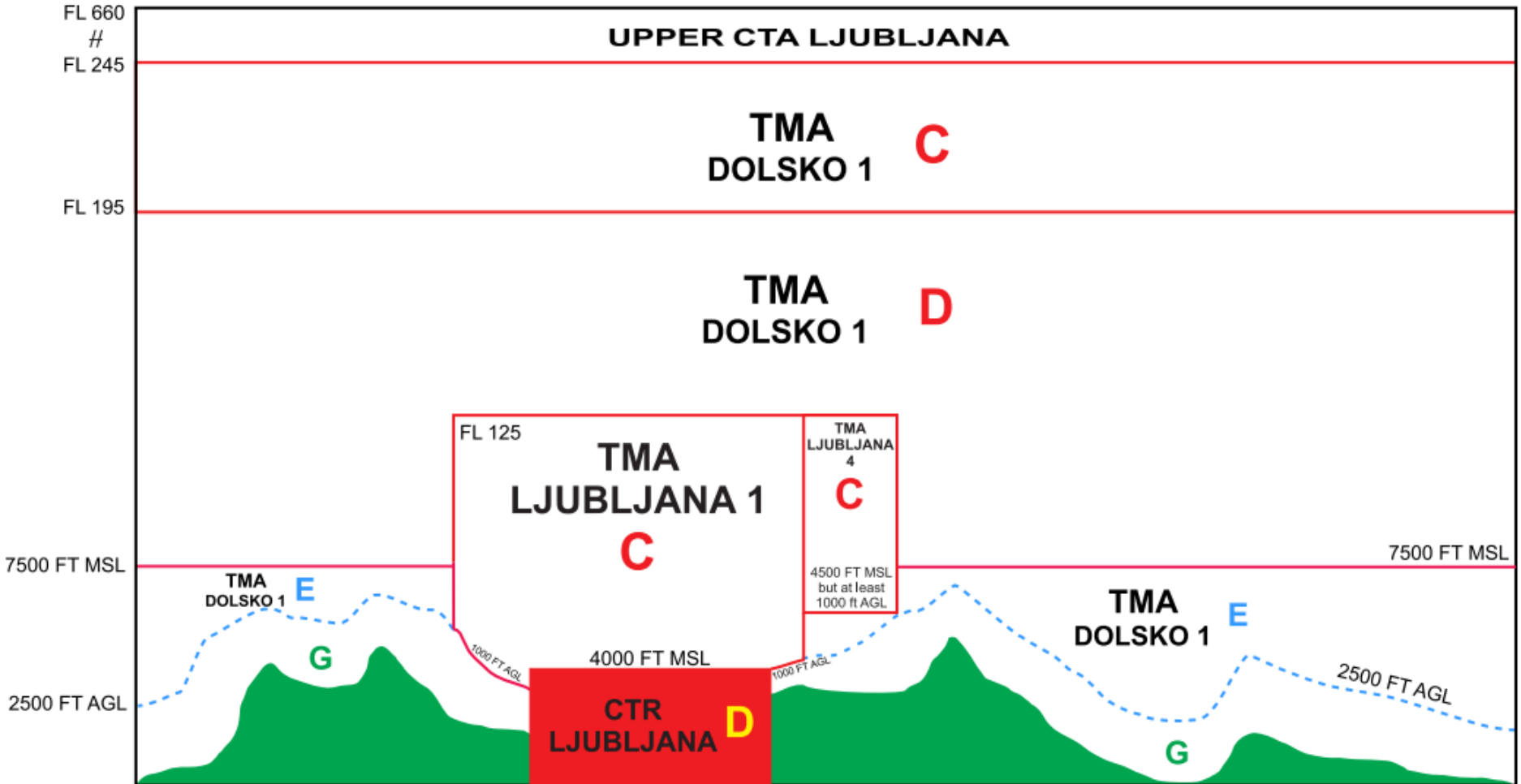
(**) Piloti vzdržujejo neprekinjeno zvočno komunikacijo zrak-zemlja in po potrebi vzpostavijo dvosmerno komunikacijo na ustreznem komunikacijskem kanalu v območju RMZ.

(***) Zvočna komunikacija zrak-zemlja je obvezna za lete, vključene v svetovanje. Piloti vzdržujejo neprekinjeno zvočno komunikacijo zrak-zemlja in po potrebi vzpostavijo dvosmerno komunikacijo na ustreznem komunikacijskem kanalu v območju RMZ.

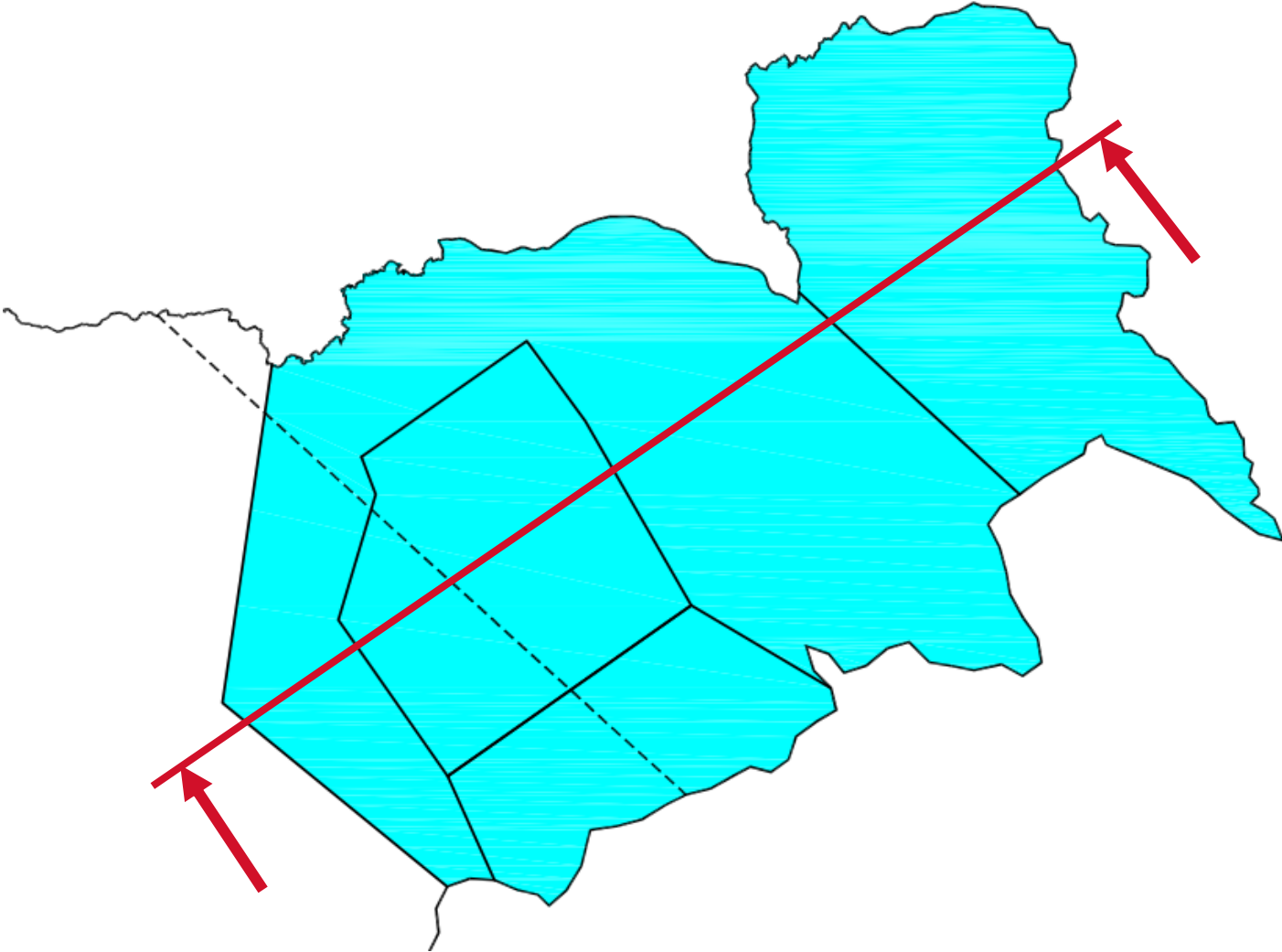
DISTRIBUTION AND VERTICAL CROSS-SECTION OF AIR SPACE DURING LJJ OPERATIONAL HOURS



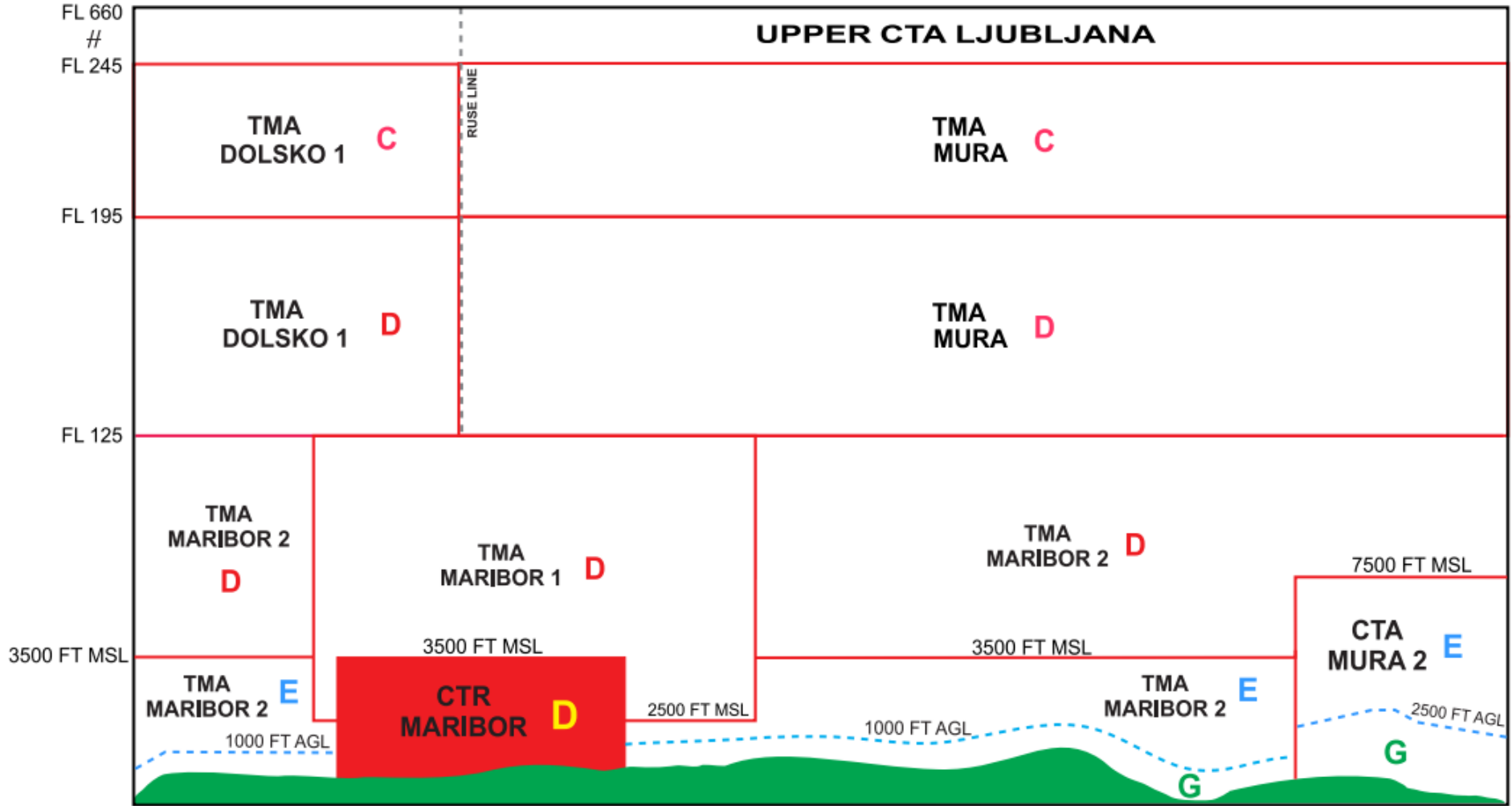
WITHIN LJUBLJANA AIRPORT OPERATIONAL HOURS



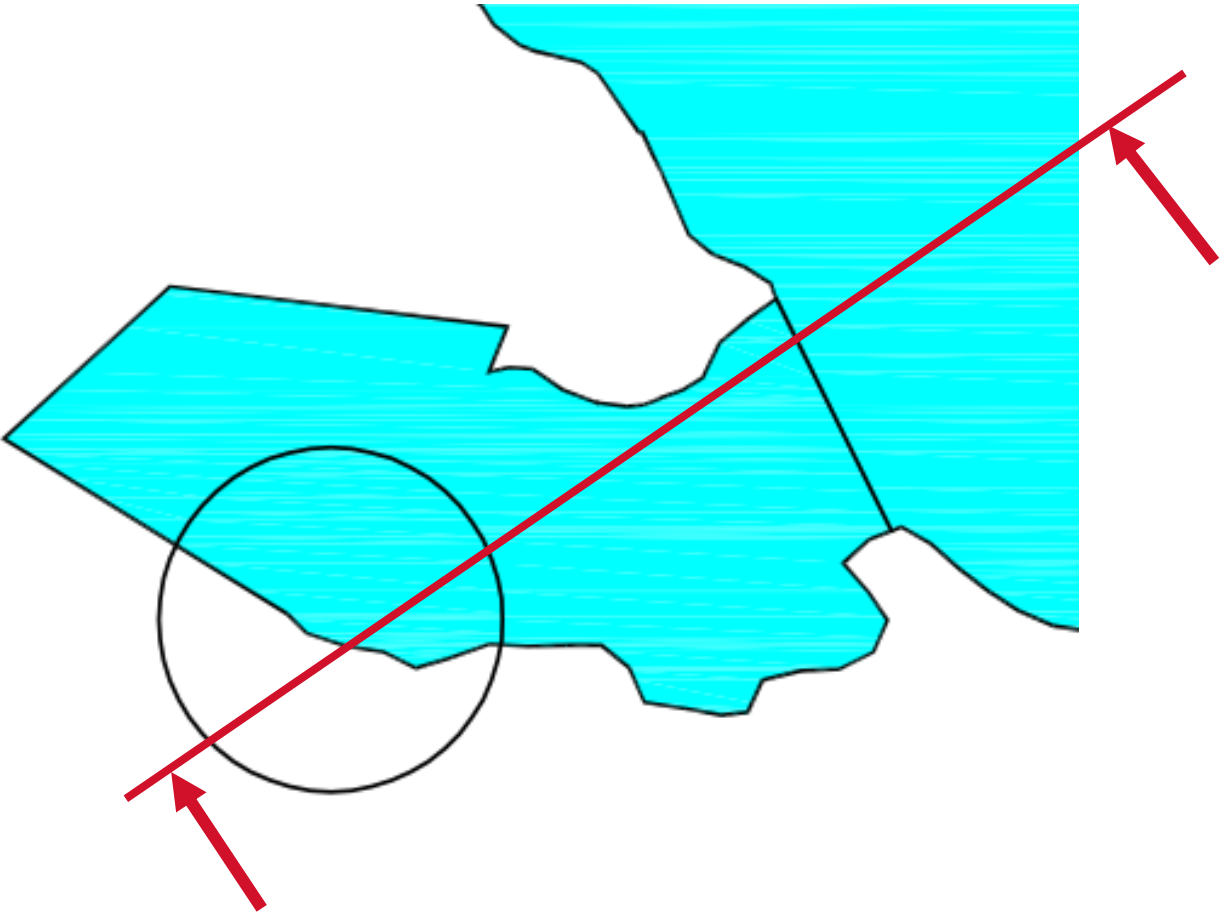
DISTRIBUTION AND VERTICAL CROSS-SECTION OF AIR SPACE DURING LJMB OPERATIONAL HOURS



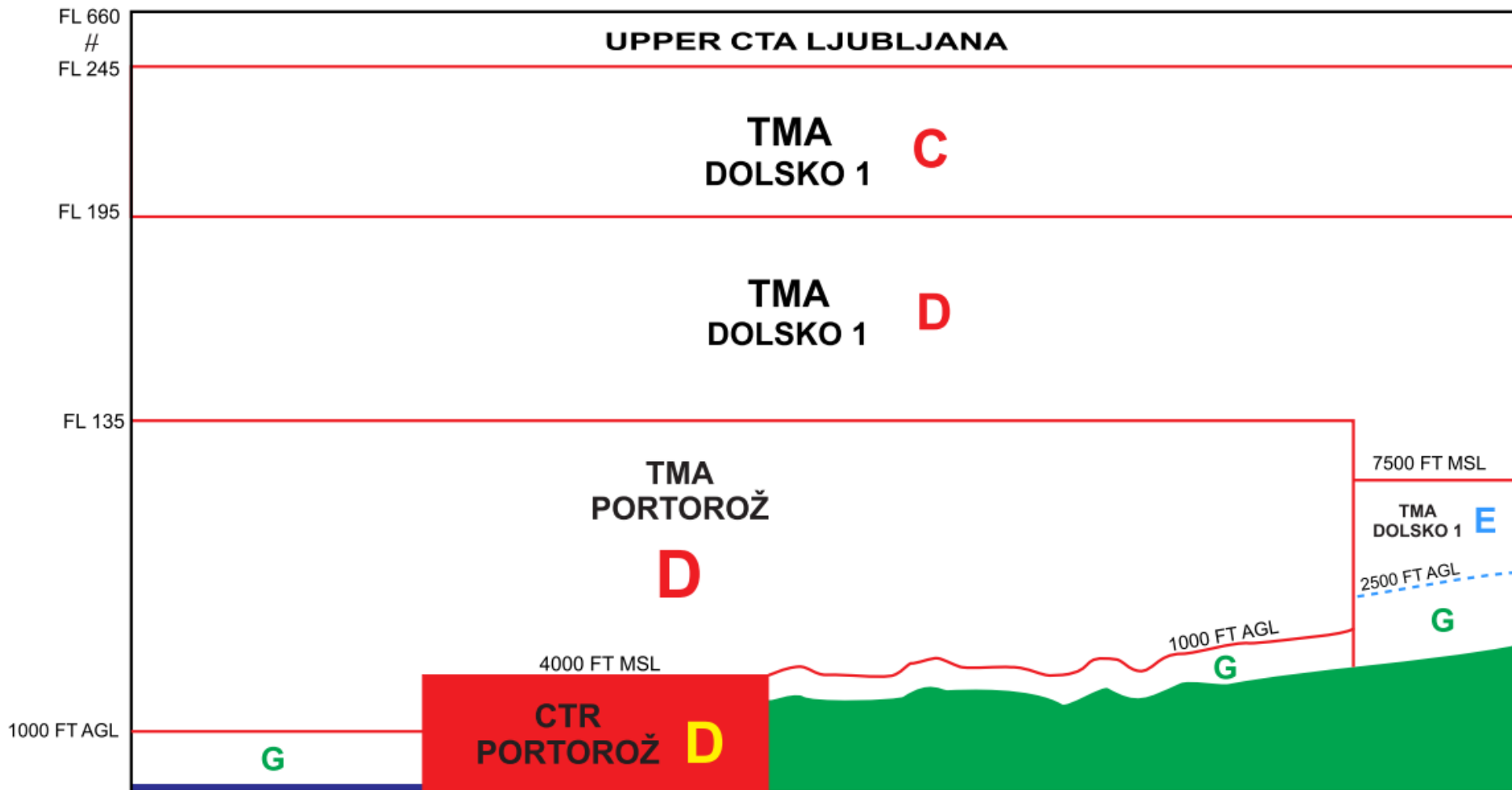
WITHIN MARIBOR AIRPORT OPERATIONAL HOURS



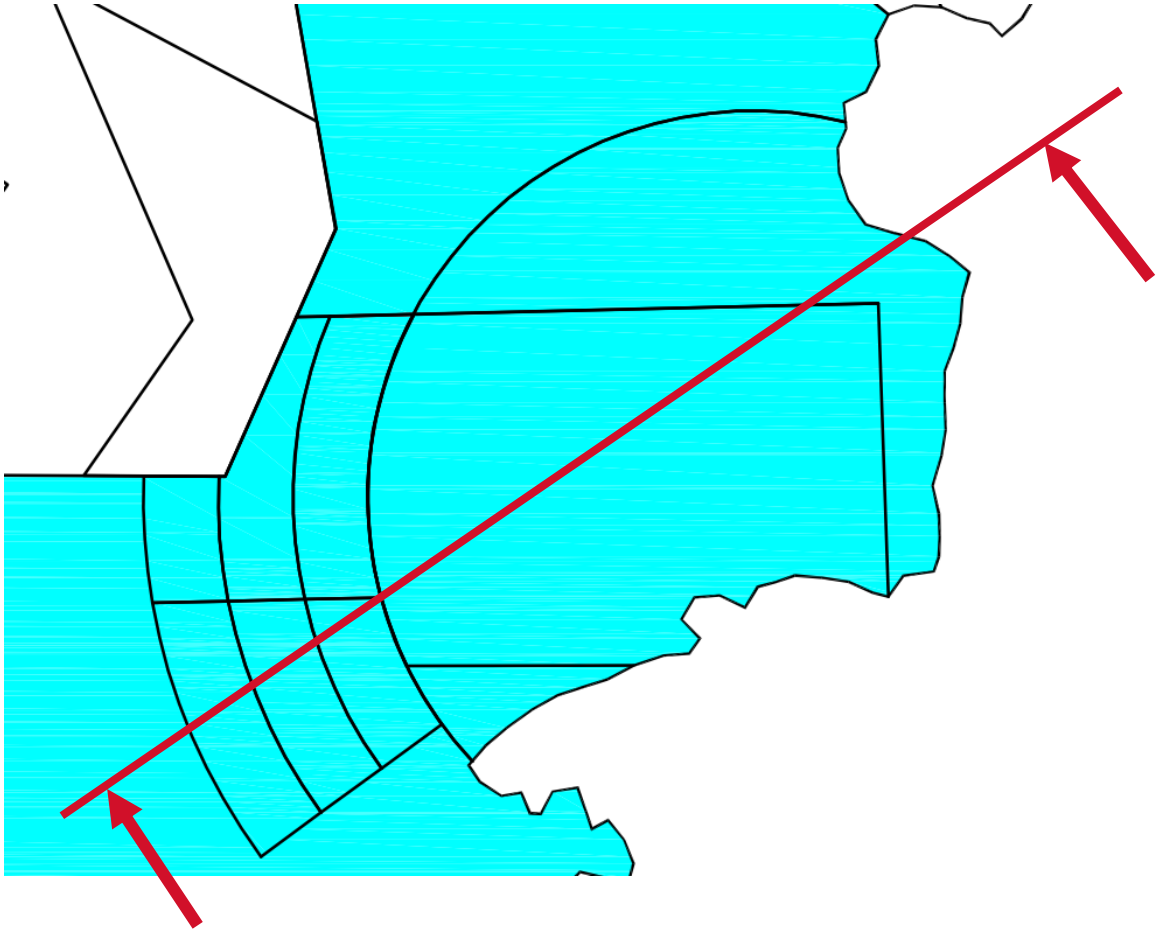
DISTRIBUTION AND VERTICAL CROSS-SECTION OF AIR SPACE DURING LJPZ OPERATIONAL HOURS



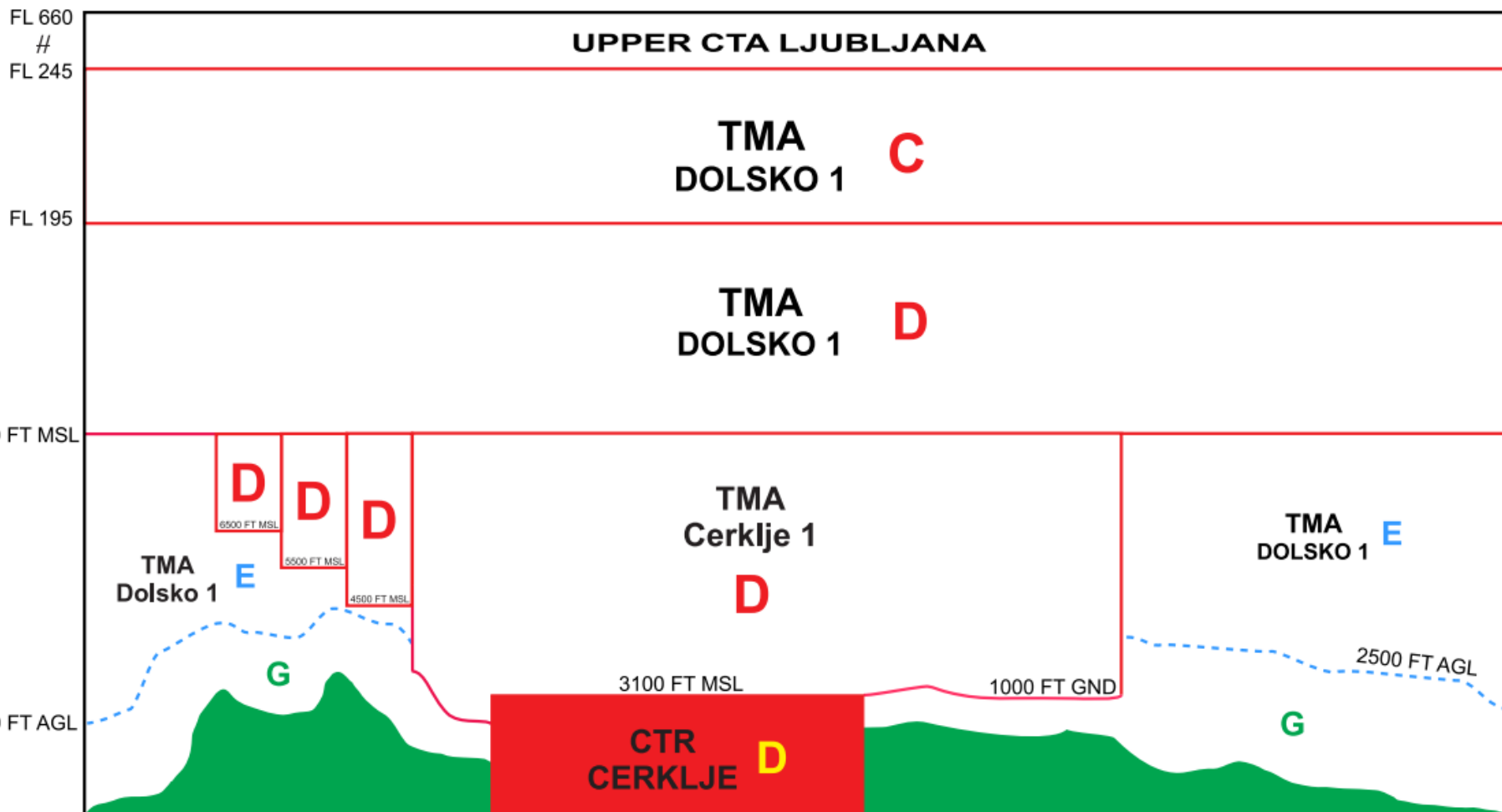
WITHIN PORTOROZ AIRPORT OPERATIONAL HOURS



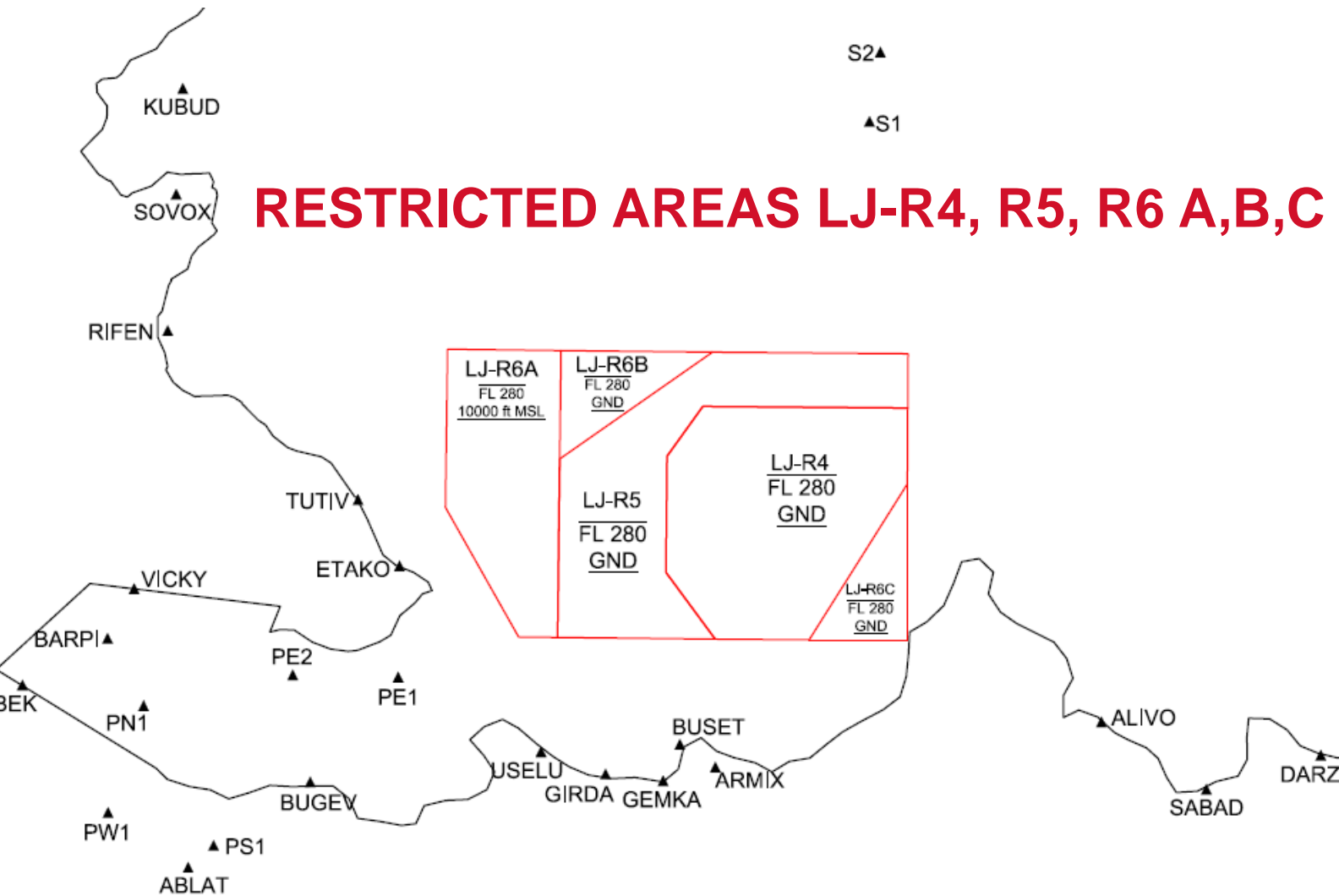
DISTRIBUTION AND VERTICAL CROSS-SECTION OF AIR SPACE DURING LJCE OPERATIONAL HOURS



WITHIN CERKLJE AIRPORT OPERATIONAL HOURS

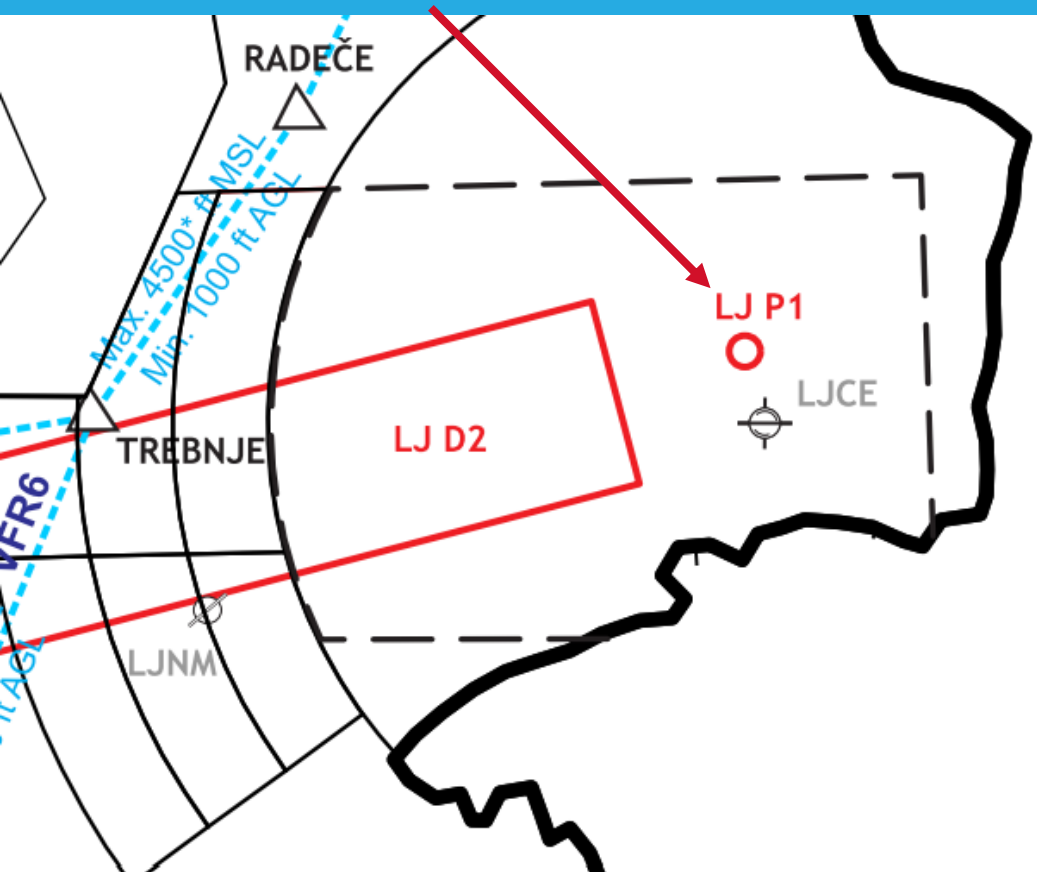


AIRSPACE WITH RESTRICTIONS



AIRSPACE WITH RESTRICTIONS

PROHIBITED AREA

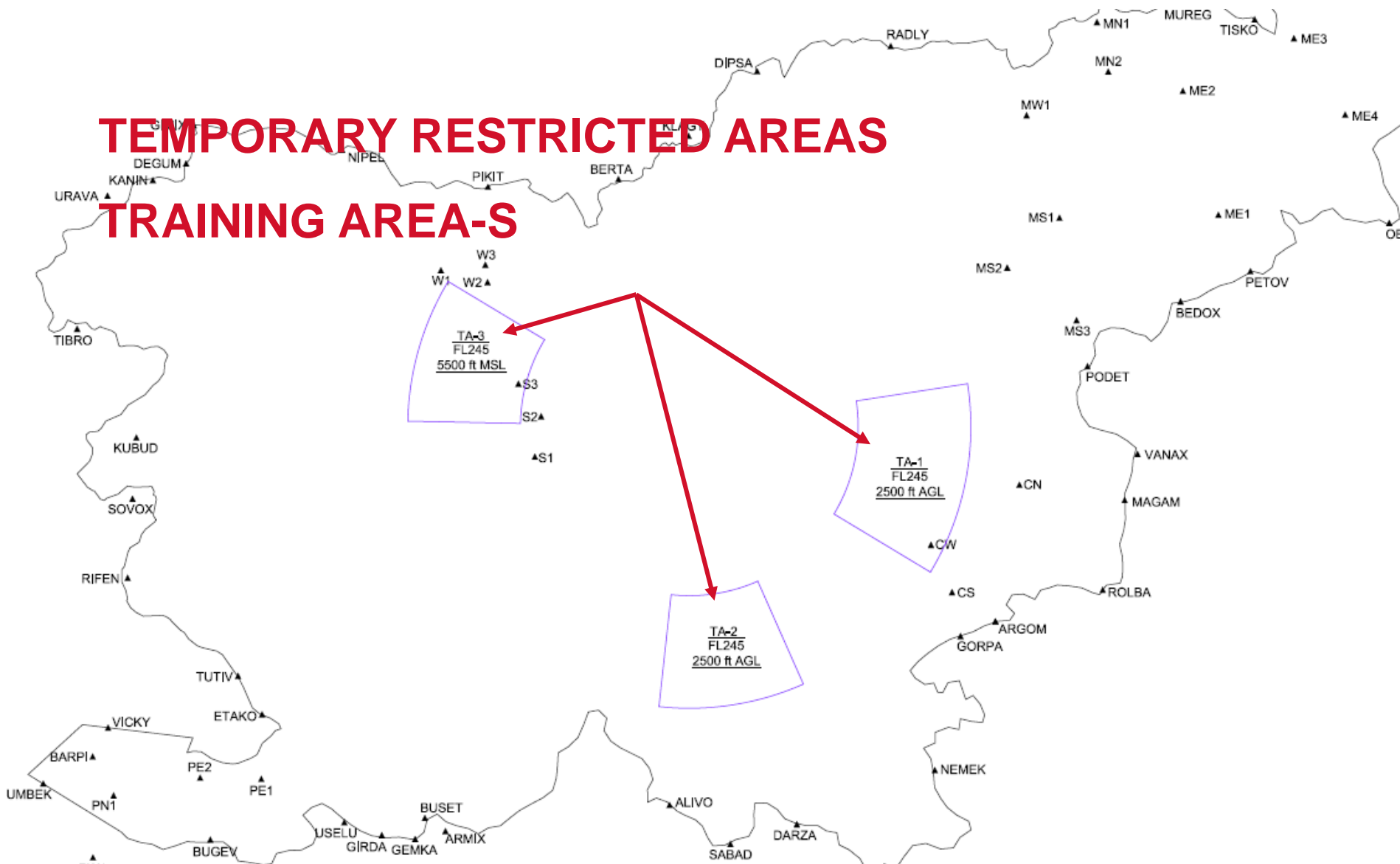


PROHIBITED AREA

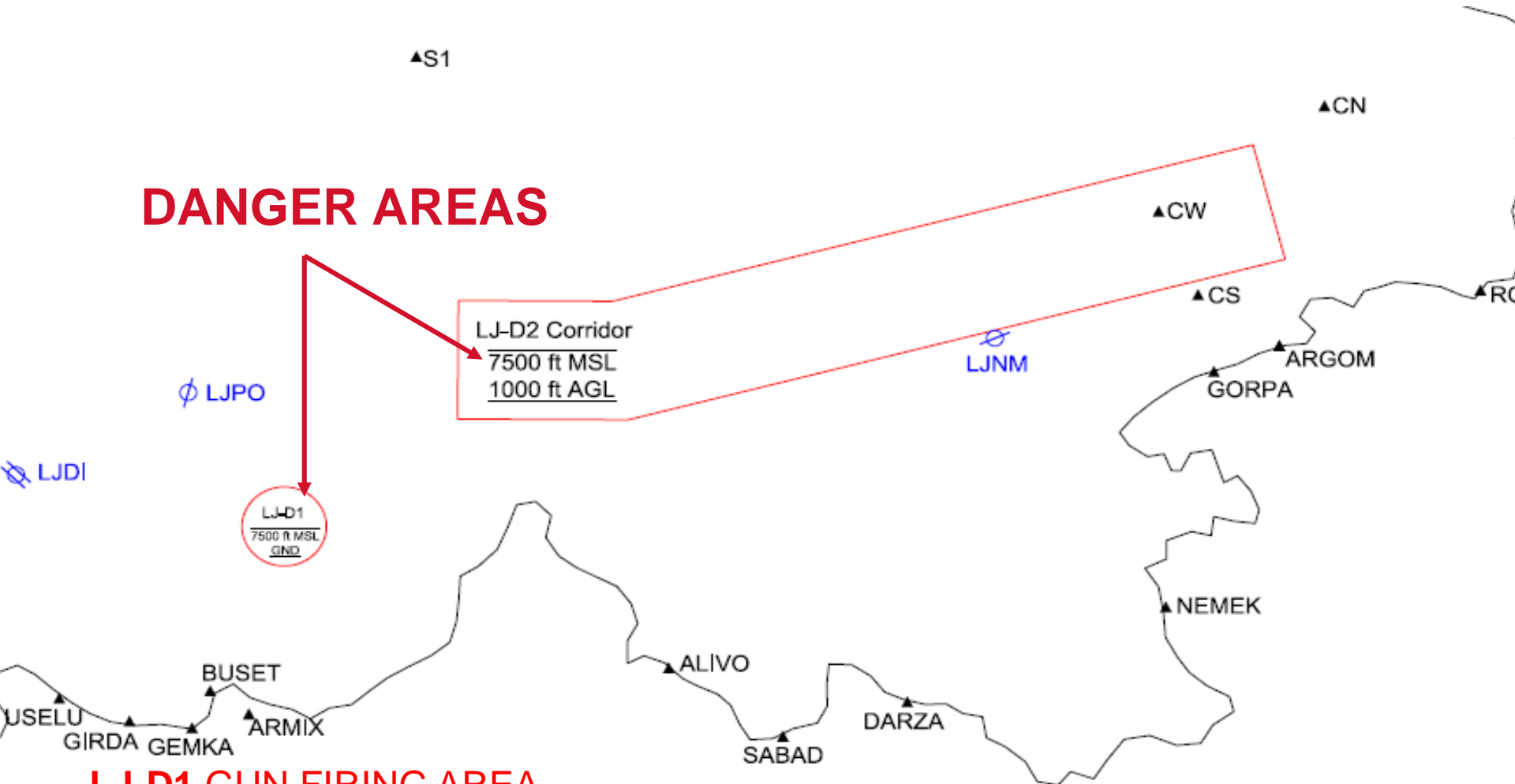
LJ-P1

AIRSPACE WITH RESTRICTIONS

TEMPORARY RESTRICTED AREAS TRAINING AREA-S



AIRSPACE WITH RESTRICTIONS



DANGER AREAS

LJ-D2 Corridor
7500 ft MSL
1000 ft AGL

LJ-D1
7500 ft MSL
GND

LJ-D1 GUN FIRING AREA

LJ-D2 AIR EXERCISE; ACTIVATION AND RELEVANT UPPER LIMIT WILL BE ANNOUNCED BY NOTAM

INFORMATION SOURCES

WWW.SLOVENIACONTROL.SI

AIP - AERONAUTICAL INFORMATION PUBLICATION

ENR 1.4 ATS airspace classification and description

ENR 5.1 Prohibited, restricted and danger areas

VFR ASSISTANT – PDF APPLICATION

VFR CHART

PPT PRESENTATION - SOARING IN THE CONTROLLED
AIRSPACE OF SLOVENIA



HOME

PUBLIC NOTIFICATIONS ▾

TRAFFIC STATISTICS

ABOUT THE COMPANY ▾

SAFETY

CONTACT



eARO ENTRY →

e- ARO

Safety, quality and efficiency

For all users of Slovenian airspace

MEET US →



LAST NEWS • 05. 12. 2022

BHANSA and Slovenia Control sign the Letter of Agreement

READ MORE →

NOTAM

Electronic AIP

AIRAC AMDT 121/01 DEC 2022 →

AIRAC AMDT 122/26 JAN 2023 →

AIRAC AMDT 123/23 FEB 2023 →

AIP SUP 005/2022 →

AIC A001/2022 →

E -AIP

NOTAM messages

NOTAM Summary A →

NOTAM Summary B →

NOTAM Summary C →

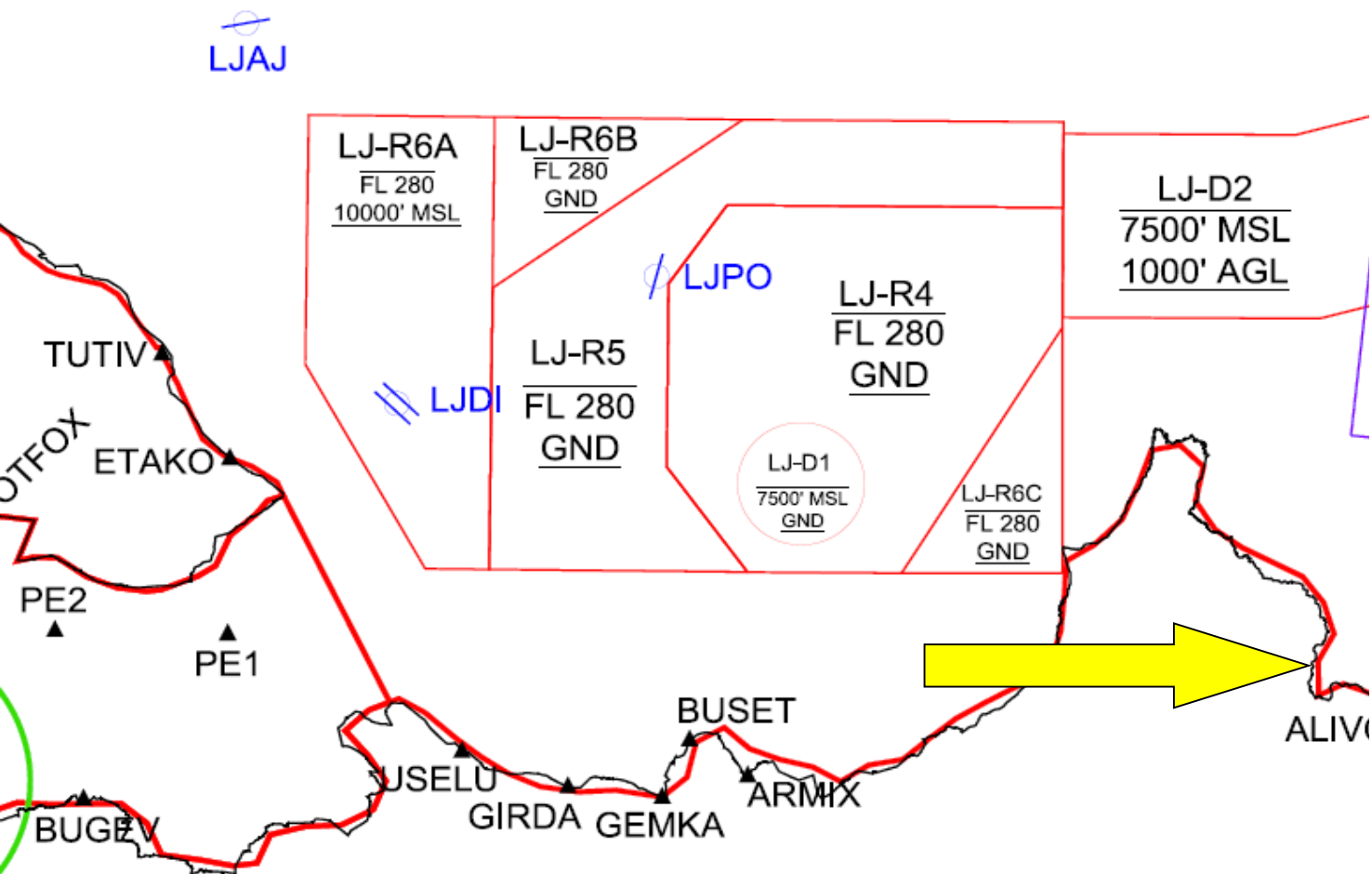
NOTAM – NOTICE TO AIRMAN

SUMMARY A – IFR TRAFFIC

SUMMARY B – VFR TRAFFIC

**SUMMARY C – ALL NOTAM-s ARE ISSUED IN SERIES
A AND B TRANSLATED INTO
SLOVENIAN LANGUAGE**

RESTRICTED AREAS LJ-R4, R5, R6 A,B,C



Notifications

Show Year: **ALL** 2021 2020

4/28/2021 12:00:00 AM

VFR Chart

[READ MORE](#)

9/25/2020 12:00:00 AM

VFR assistant

[READ MORE](#)

3/22/2021 2:30:00 PM

Implementation of 8.33kHz spacing between voice channels

[READ MORE](#)

9/25/2020 12:00:00 AM

Restricted area LJD2, LJR4, LJR5, LJR6 A, B and C

[READ MORE](#)

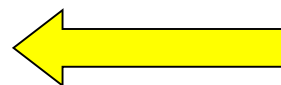
9/25/2020 12:00:00 AM

Other Restrictions

[READ MORE](#)

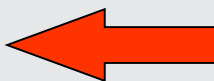
**VFR letalska navigacijska karta
Republike Slovenije
1:250 000**

VFR aeronautical chart of the
Republic of Slovenia
1:250,000



VFR AERONAUTICAL CHART

izdaja 2022
edition 2022



USING THE TRANSPONDER



AIP - AERONAUTICAL INFORMATION PUBLICATION

ENR 1.6 ATS surveillance services and procedures, 2.1 General (SSR)

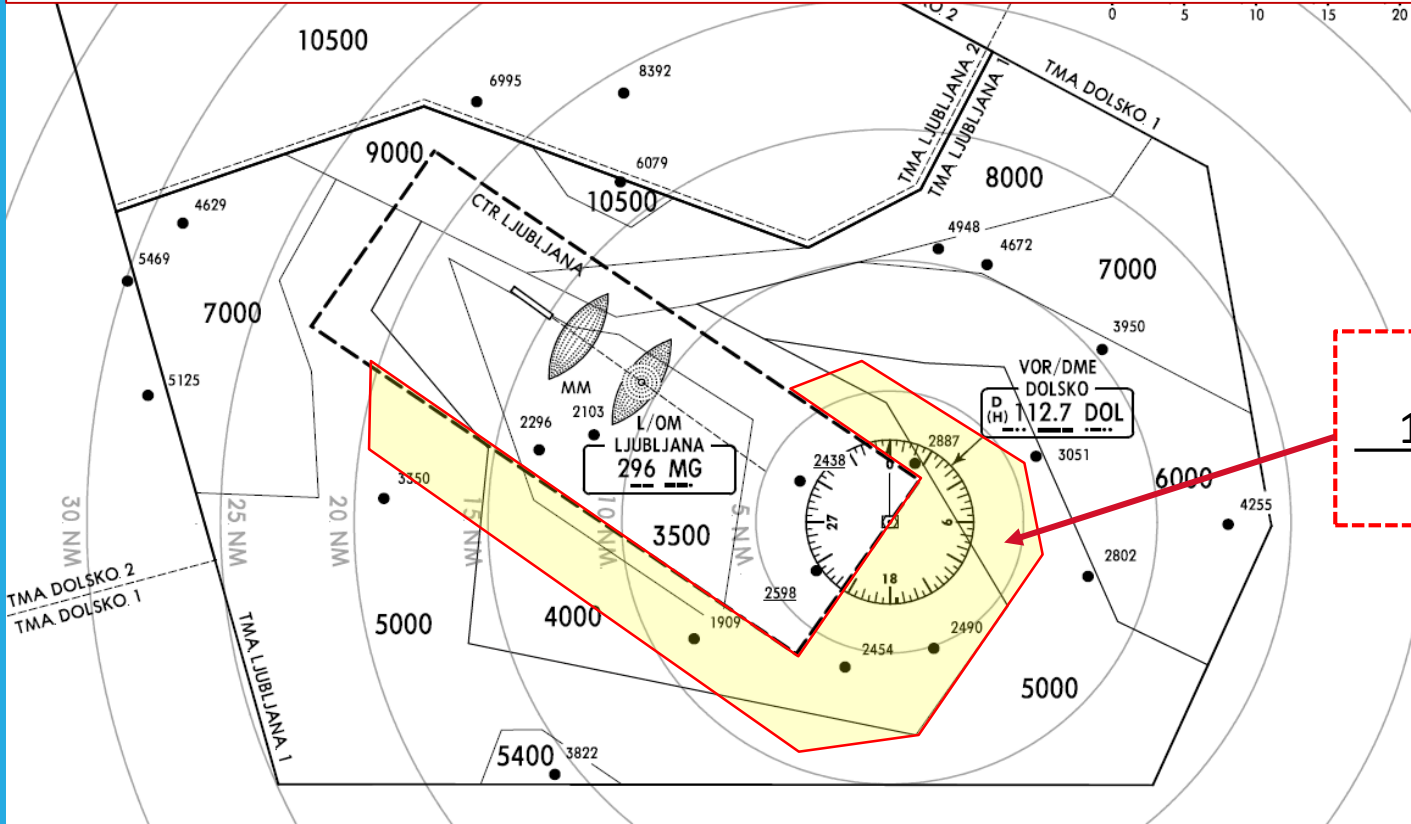
- WHEN AN AIRCRAFT CARRIES A SERVICEABLE SSR TRANSPONDER, THE PILOT **SHALL OPERATE** THE TRANSPONDER AT ALL TIMES DURING FLIGHT, REGARDLESS OF WHETHER THE AIRCRAFT IS WITHIN OR OUTSIDE AIRSPACE WHERE SSR IS USED FOR ATS PURPOSES (SERA.13001(A)).

USING THE TRANSPONDER

THE CARRIAGE AND OPERATION OF SSR TRANSPONDER CAPABLE OF OPERATING ON MODES A AND C OR ON MODE S IS WITHIN LJUBLJANA FIR COMPULSORY FOR ALL AIRCRAFT OPERATING IN:

- CLASS C AND D AIRSPACE
- AND WITHIN TRANSPONDER MANDATORY ZONES LJLJ IN LJPZ (TMZs),

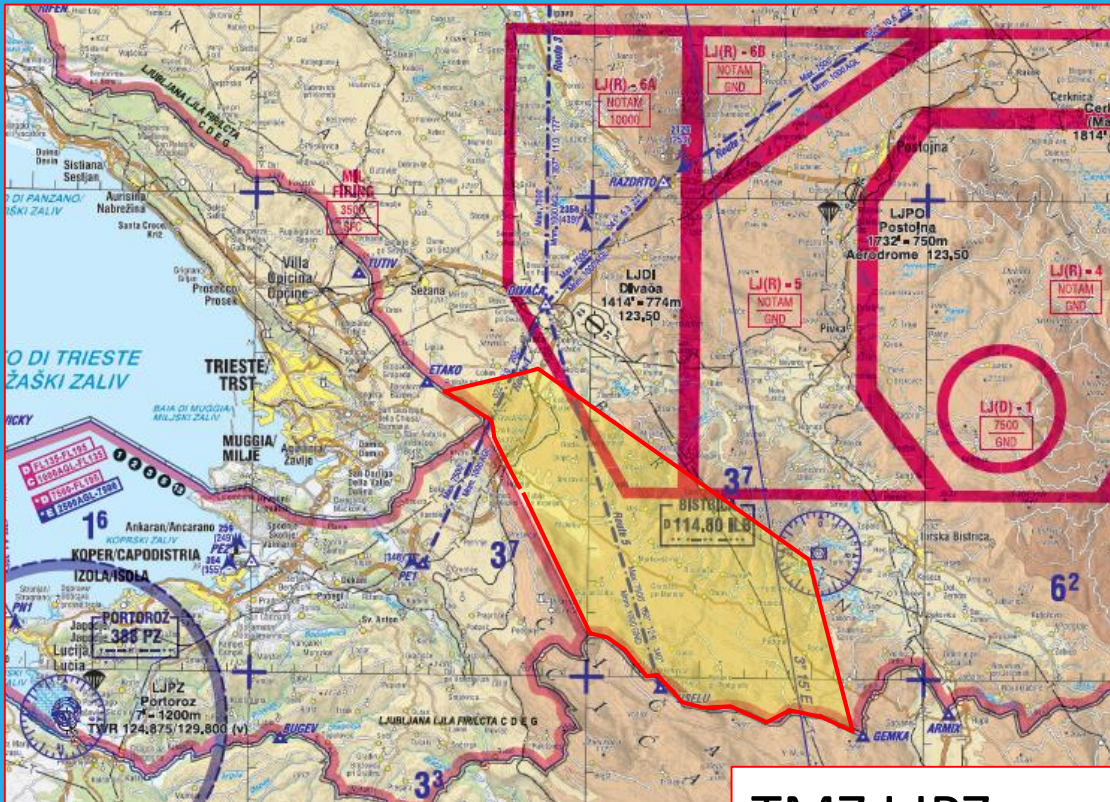
TMZ LJJ protects IFR traffic from possible VFR traffic, below TMA Ljubljana 1 in the area, where surveillance air traffic control is performed for the traffic inbound and outbound of the airport LJJ.



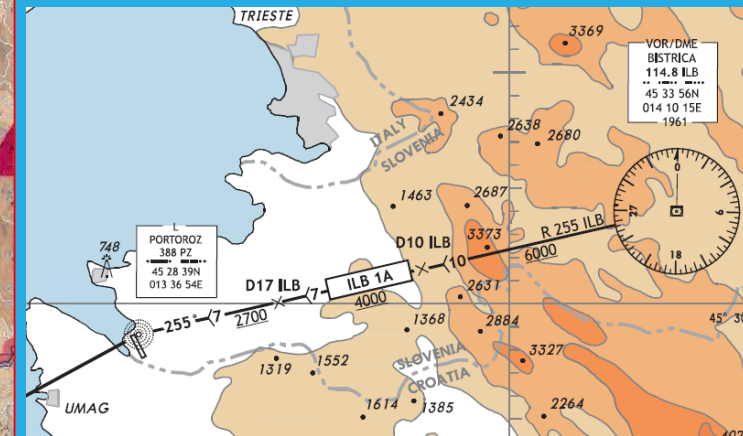
TMZ LJJ
1.000 FT GND

GND

TMZ LJPZ



TMZ LJPZ protects IFR traffic from possible VFR traffic, which is flying between VOR/DME ILB towards LJPZ VIA STAR ILB 1A



TMZ LJPZ

5.500 FT – 7.500 FT MSL

USING THE TRANSPONDER

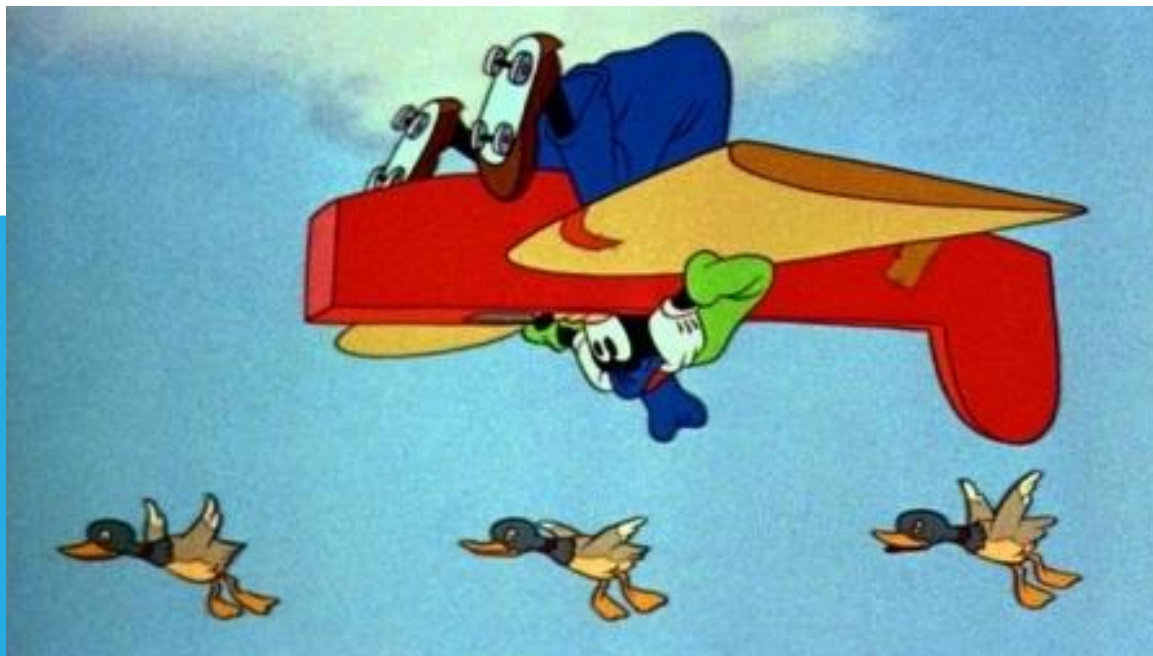
ADVANTAGES:

- AIRCRAFT IDENTIFICATION AND VERTICAL/LATERAL SEPARATION BETWEEN CONCERNED TRAFFIC WITH AIR TRAFFIC SURVEILANCE SYSTEMS (RADARS, MULTIRATERATION) ON ATC POSITION
- AIRCRAFT IDENTIFICATION AND OBSERVATION OF THE POSITION WITH AIR TRAFFIC SURVEILANCE SYSTEMS (RADARS, MULTIRATERATION) ON THE FIS POSITION

USING THE TRANSPONDER

ADVANTAGES:

- OBTAINING CLEARANCE FOR THE ENTRY IN THE CONTROLLED AIRSPACE
- AIRCRAFT EQUIPED WITH TCAS - TRAFFIC COLLISION AVOIDANCE SYSTEM, ARE AWARE OF THE TRAFFIC SITUATION AND IF NEEDED ENSURE THE APPROPRIATE REACTION OF THE CREW ACCORDING TO TRAFFIC OR RESOLUTION ADVISORY
- AIR TRAFFIC CONTROLLERS GET WARNING ON THE SURVEILLANCE DISPLAY WITH THE STCA - SHORT TERM CONFLICT ALERT



ANALYSIS OF POTENTIAL **CONFLICTS** ON THE TASK

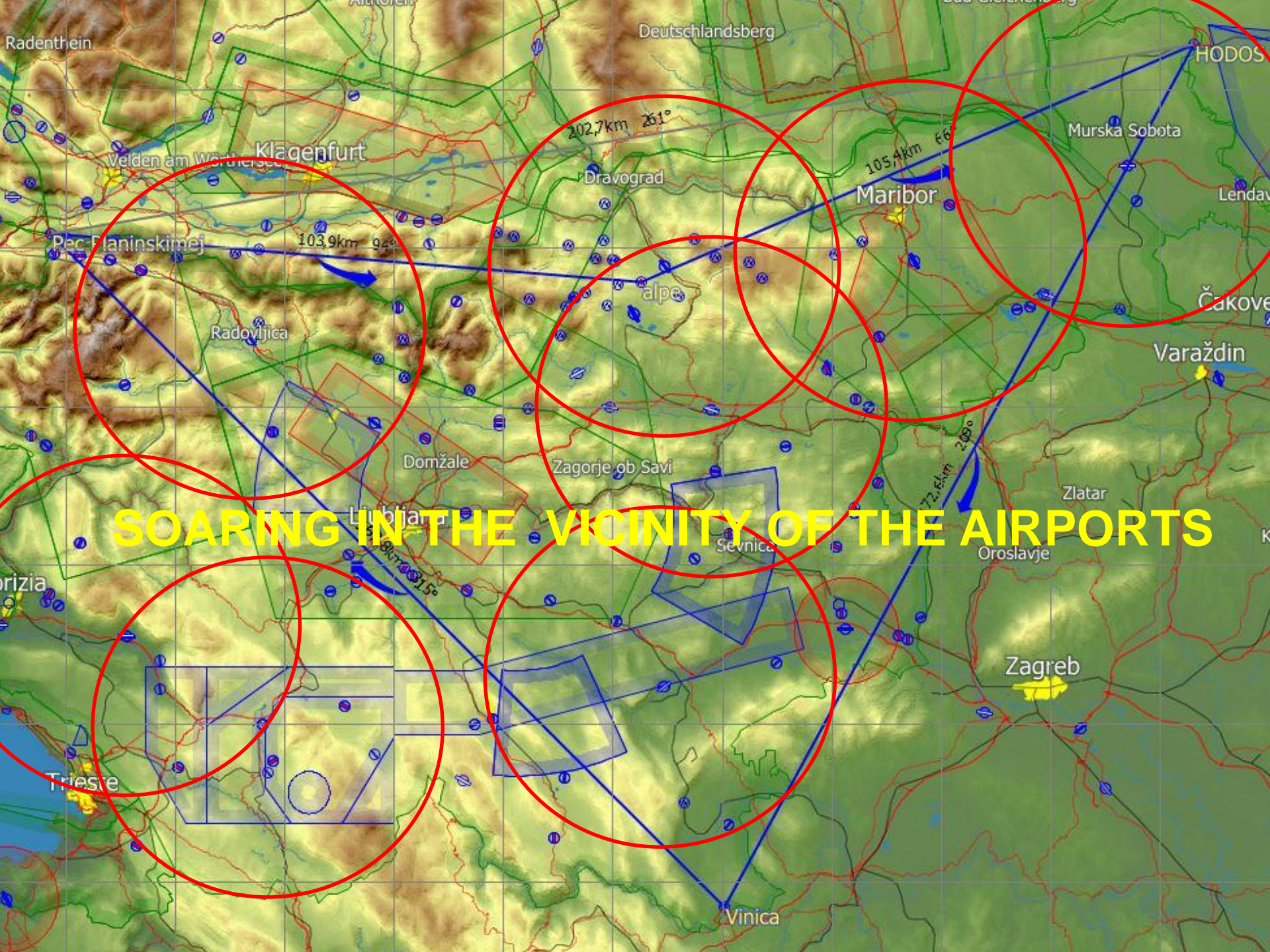
TASK PREPARATION



**SOARING IN THE
VICINITY OF THE
AIRPORT**

**CROSS COUNTRY
SOARING**

SOARING IN THE VICINITY OF THE AIRPORTS



AIRSPACE ANALYSIS

1. STEP: DIVIDING THE TASK INTO INDIVIDUAL SEGMENTS
2. STEP: CHECK AIRSPACE SEGMENTS (VFR CHART, VFR ASSISTANT, NAVIGATIONAL SOFTWARE,...)
3. STEP: REVIEW OF THE AIRSPACE SCHEME AND ATC SECTORIZATION – AIP, LOWER CHARTS ENR 6.1-1
4. STEP: CHECKING THE PROXIMITY OF THE CONTROLLED AIRPORTS ON THE TASK - AIP, Part 3 AERODROMES, AD2
5. STEP: DAILY REVIEW OF NOTAMS AND OTHER AIRSPACE RESTRICTIONS

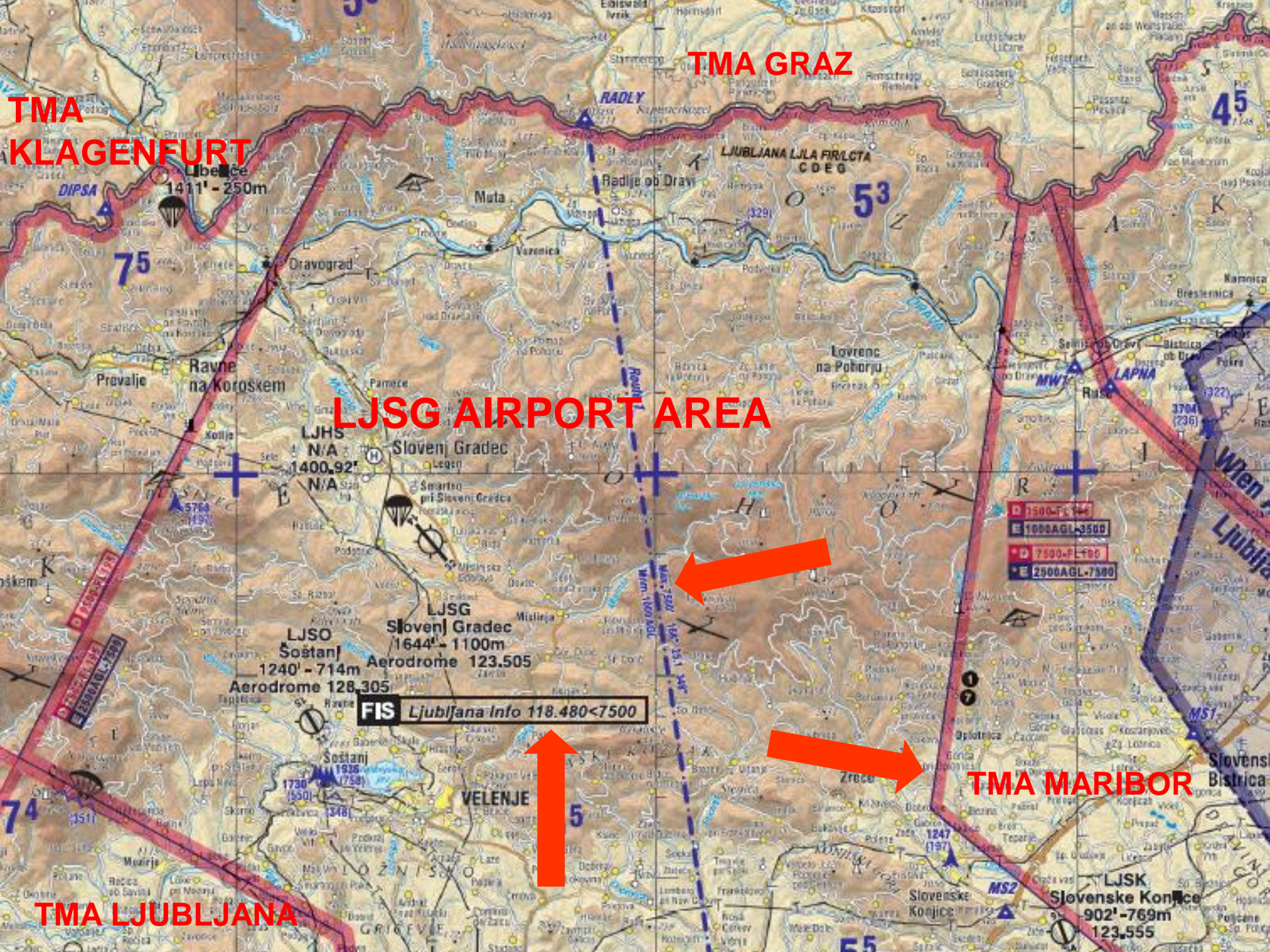
**TMA
KLAGENFURT**

TMA GRAZ

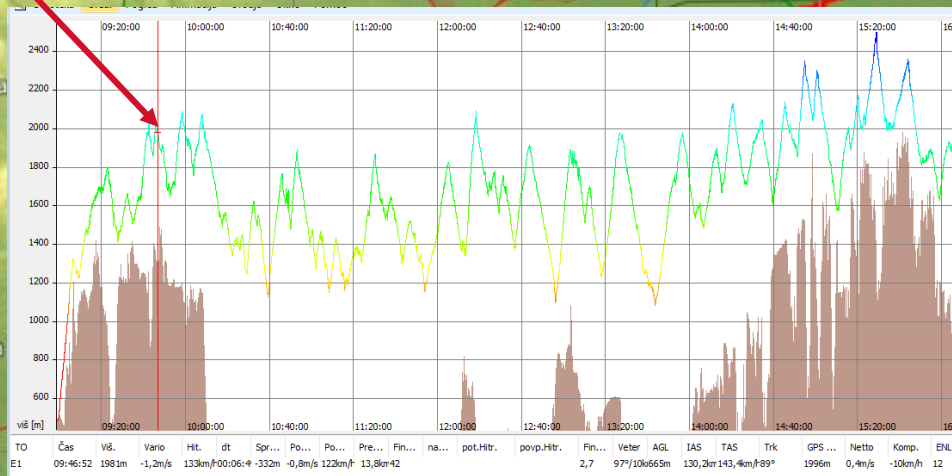
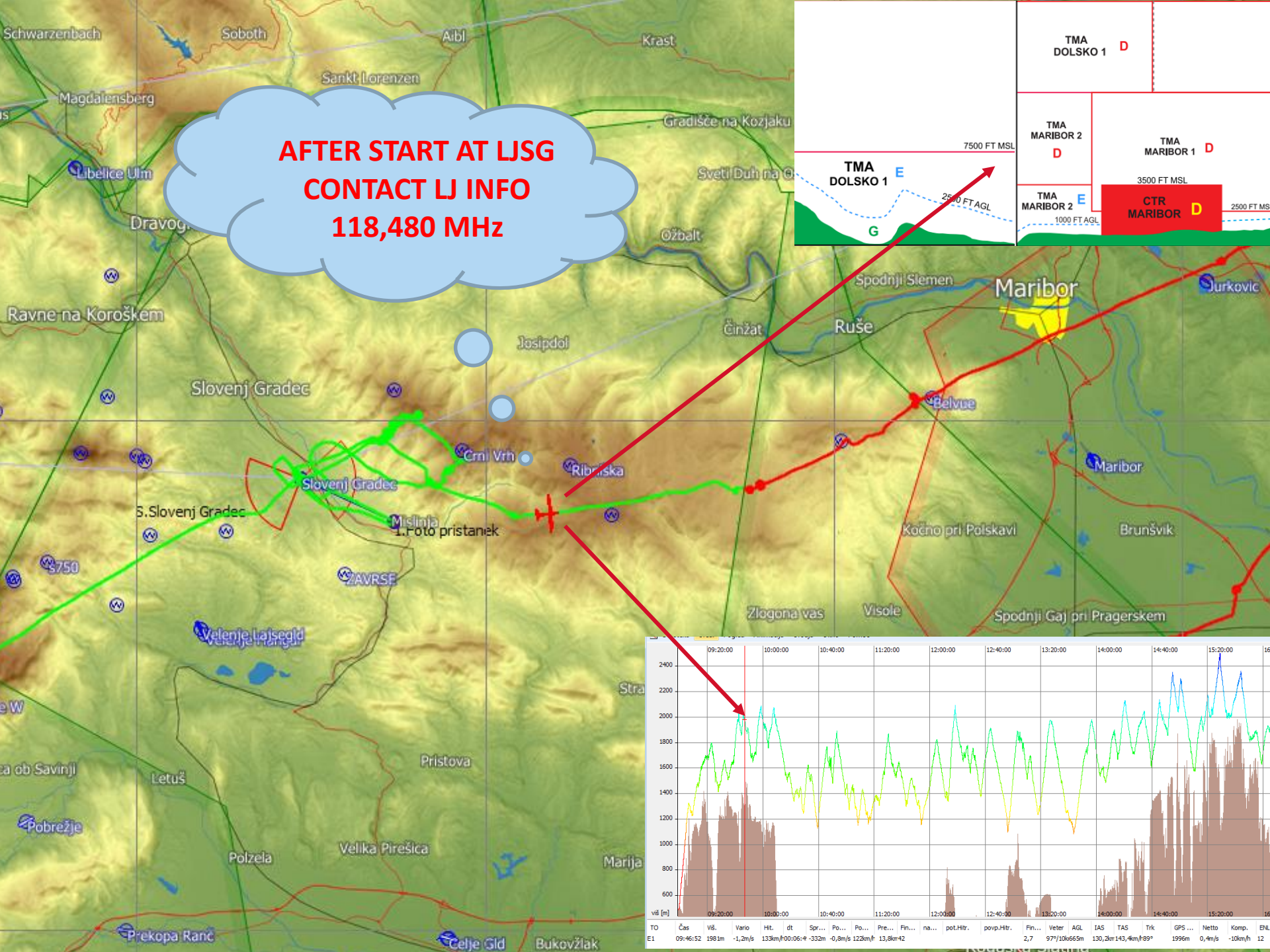
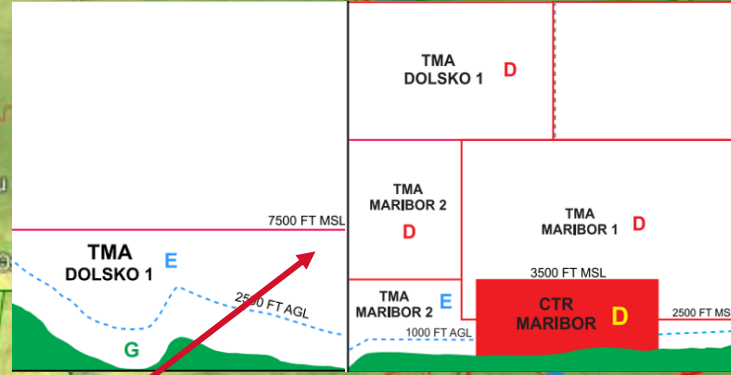
LJSG AIRPORT AREA

TMA MARIBOR

TMA LJUBLJANA



**AFTER START AT LJSG
CONTACT LJ INFO
118,480 MHz**

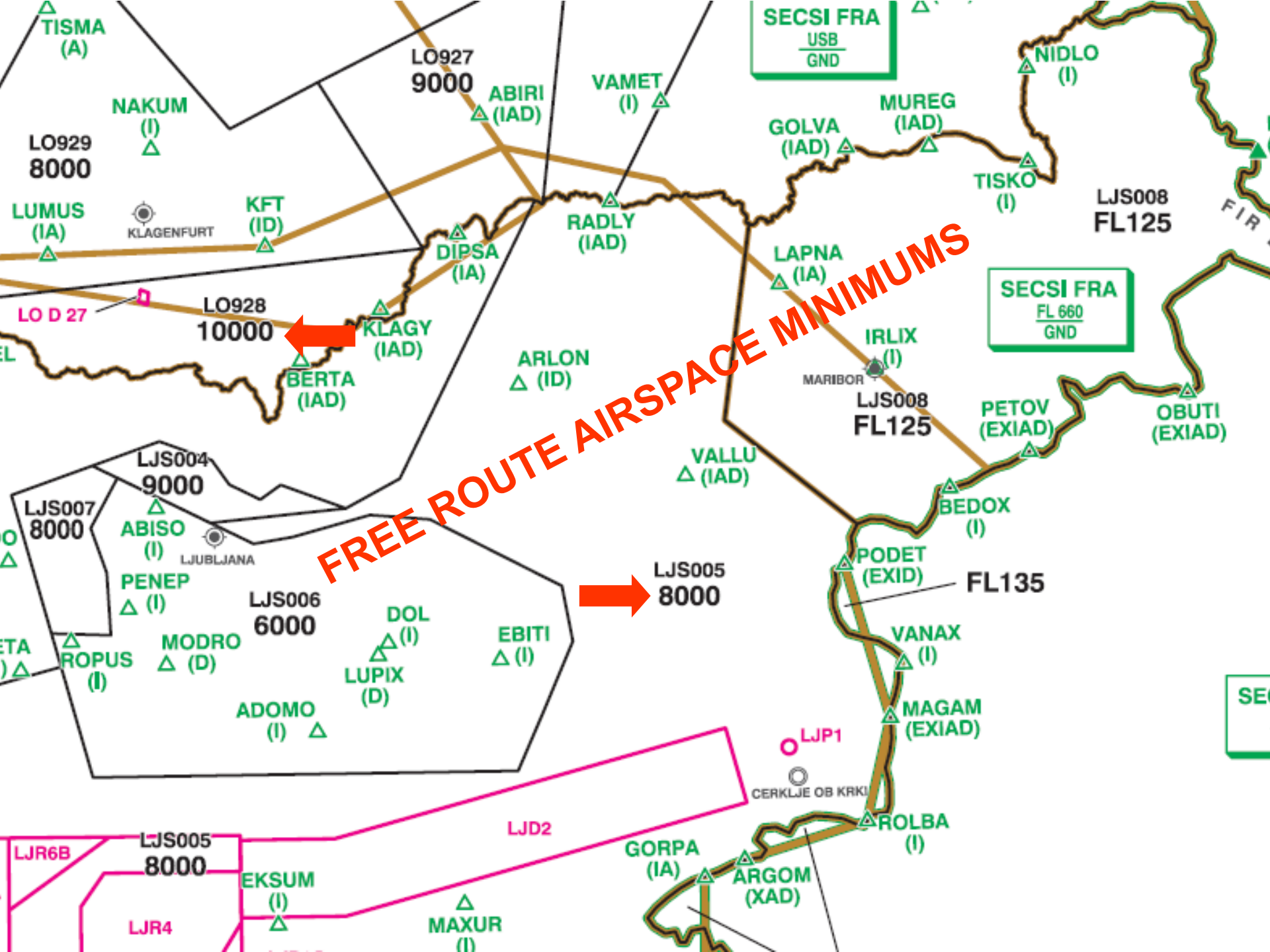


The map shows the Maribor region in Slovenia, including areas like Maribor, Slovenj Gradec, and the surrounding hills. A red line indicates a flight path from the east towards Slovenj Gradec, and a green line shows a path around Slovenj Gradec. Several blue circles are scattered across the terrain. Three callout boxes provide specific information: one at the top center, one at the bottom left, and one at the bottom right.

TMA DOL1
ABOVE 2286m (D)
FIS LJ: 118,480 MHz

TRANSPONDER
2000/7000

ENTRY
CLEARANCE FOR
TMA DOL1 - ?



FREE ROUTE AIRSPACE MINIMUMS



LO928
10000



LJS005
8000

SECSI FRA
USB
GND

SECSI FRA
FL 660
GND

SECSI FRA
GND

LO929
8000

LO D 27

LJS007
8000

LJR6B

LJR4

KLAGENFURT

LJUBLJANA

CERKLJE OB KRKI

LO927
9000

LJS004
9000

LJS006
6000

LJS005
8000

LJS008
FL125

LJS008
FL125

FL135

LJD2

FIR

LUMUS
(IA)

ETA
(I)

ETA
(I)

LJR6B

LJR4

NAKUM
(I)

KFT
(ID)

ABISO
(I)

PENEP
(I)

MODRO
(D)

ADOMO
(I)

EKSUM
(I)

DIPSA
(IA)

KLAGY
(IAD)

BERTA
(IAD)

ABISO
(I)

PENEP
(I)

MODRO
(D)

ADOMO
(I)

EKSUM
(I)

DIPSA
(IA)

KLAGY
(IAD)

BERTA
(IAD)

ARLON
(ID)

DOL
(I)

LUPIX
(D)

EBITI
(I)

MAXUR
(I)

ABIRI
(IAD)

VAMET
(I)

RADLY
(IAD)

VALLU
(IAD)

GORPA
(IA)

ARGOM
(XAD)

GOLVA
(IAD)

MUREG
(IAD)

LAPNA
(IA)

IRLIX
(I)

LJS008
FL125

PODET
(EXID)

VANAX
(I)

MAGAM
(EXIAD)

ROLBA
(I)

TISKO
(I)

PETOV
(EXIAD)

BEDOX
(I)

VANAX
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MAGAM
(EXIAD)

ROLBA
(I)

NIDLO
(I)

OBUTI
(EXIAD)

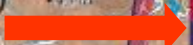
FIR

SECSI FRA

TMA GRAZ

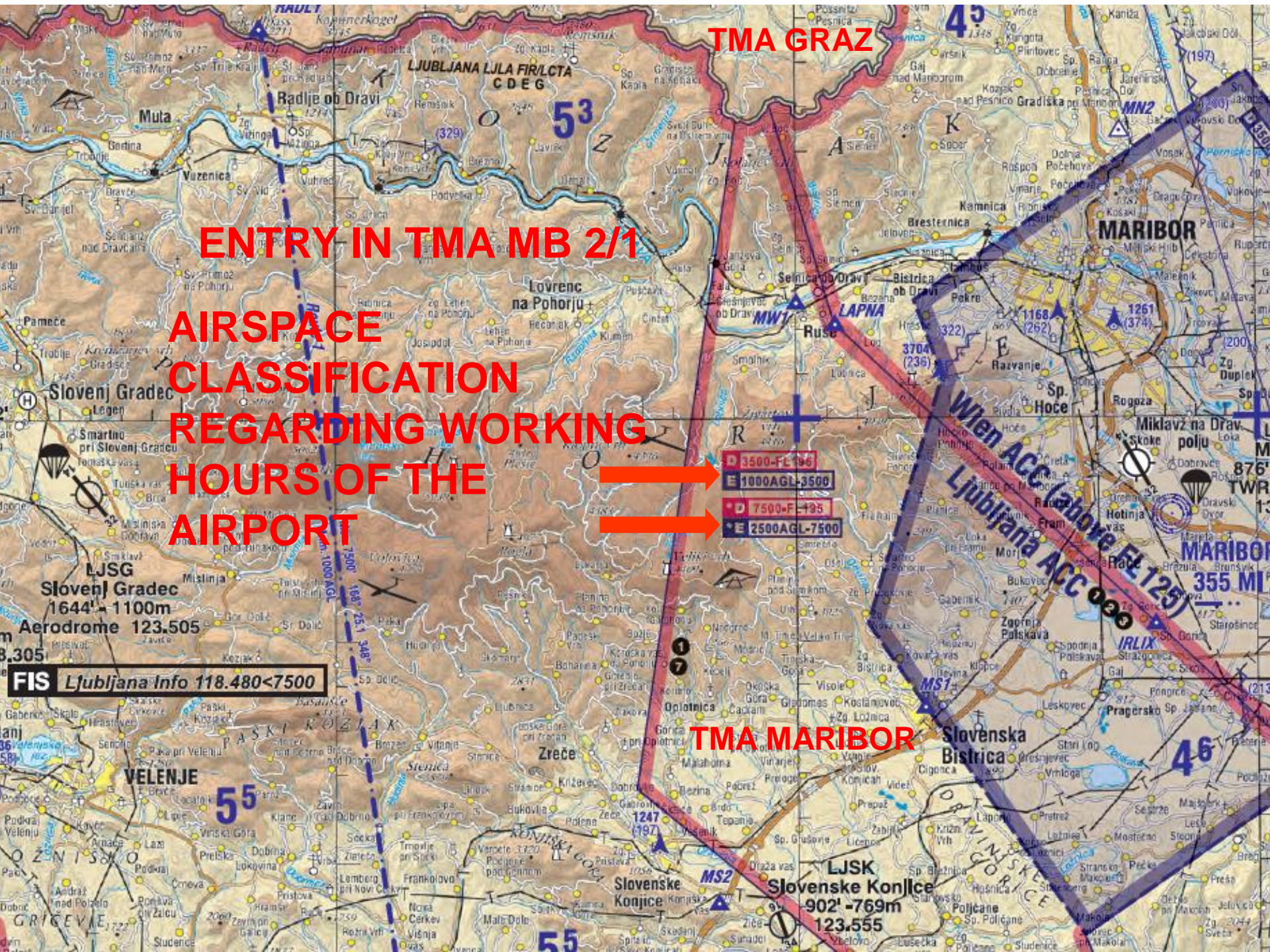
ENTRY IN TMA MB 2/1

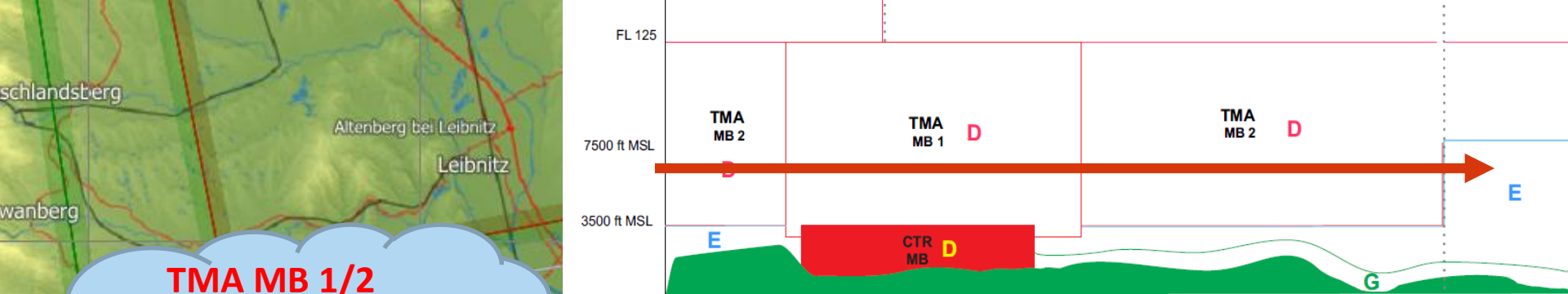
**AIRSPACE
CLASSIFICATION
REGARDING WORKING
HOURS OF THE
AIRPORT**



TMA MARIBOR

FIS Ljubljana Info 118.480<7500

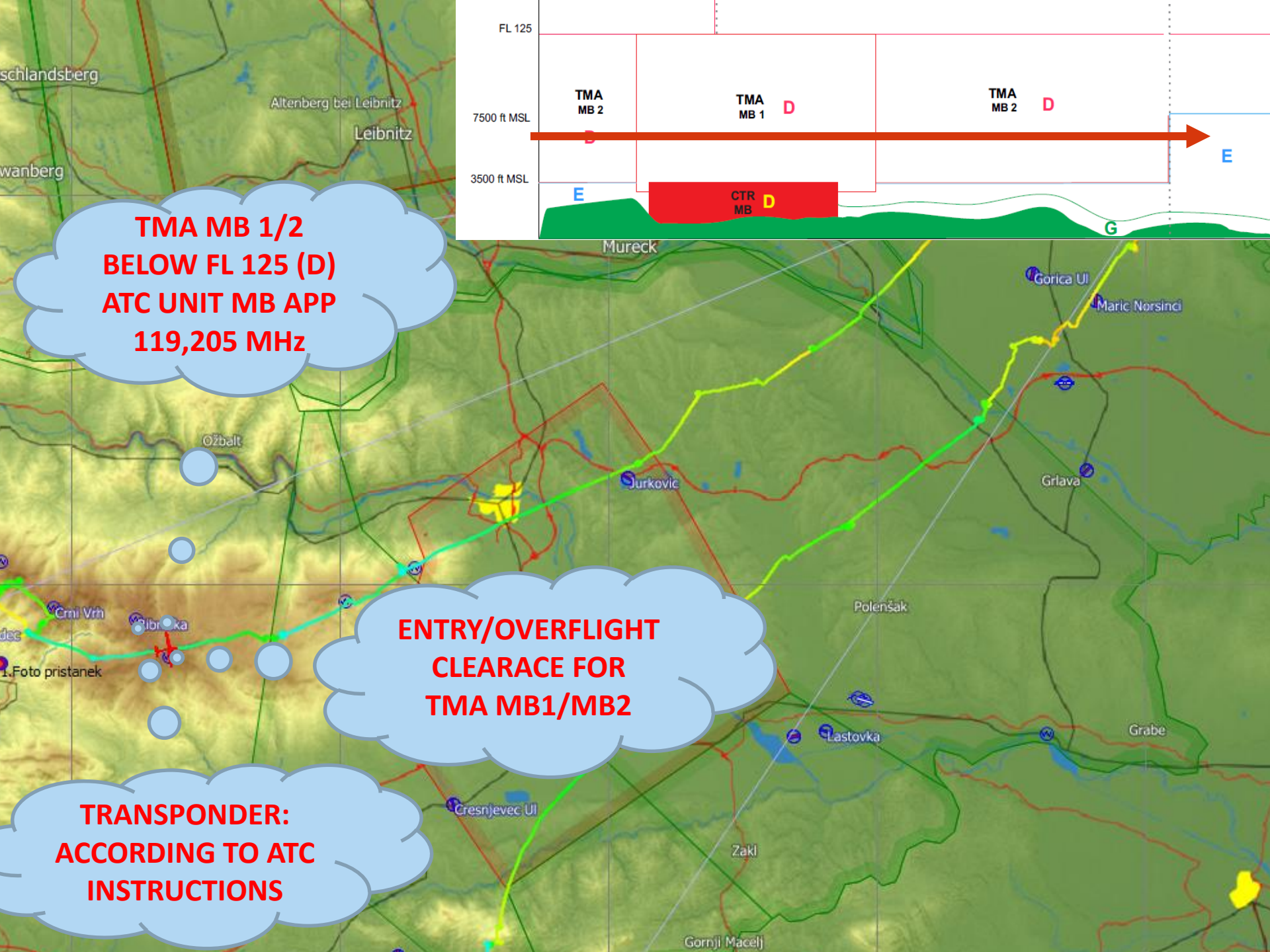




**TMA MB 1/2
BELOW FL 125 (D)
ATC UNIT MB APP
119,205 MHz**

**ENTRY/OVERFLIGHT
CLEARANCE FOR
TMA MB1/MB2**

**TRANSPONDER:
ACCORDING TO ATC
INSTRUCTIONS**



AIR TRAFFIC CONTROLLERS LIMITATIONS

PROCEDURAL SEPARATION:

- USING BY APPROACH CONTROLERS AT LJMB, LJPZ AND LJCE AIRPORTS
- PUBLISHED ARRIVAL PROCEDURES ARE USED FOR ARRIVAL TO THE AIRPORT - AIP/AD/LJMB, LJPZ, LJCE
- AIR TRAFFIC CONTROLLERS ARE USING LATERAL AND LONGITUDINAL SEPARATION WITH THE USE OF THE RADIONAVIGATION AIDS AND SEPRATION BASED ON TIME

AIR TRAFFIC CONTROLLERS LIMITATIONS

VERTICAL SEPARATION:

- USED BY ALL ATC UNITS
- MINIMAL VERTICAL SEPARATION IN THE AIRSPACE CLASS C,D IN E IS

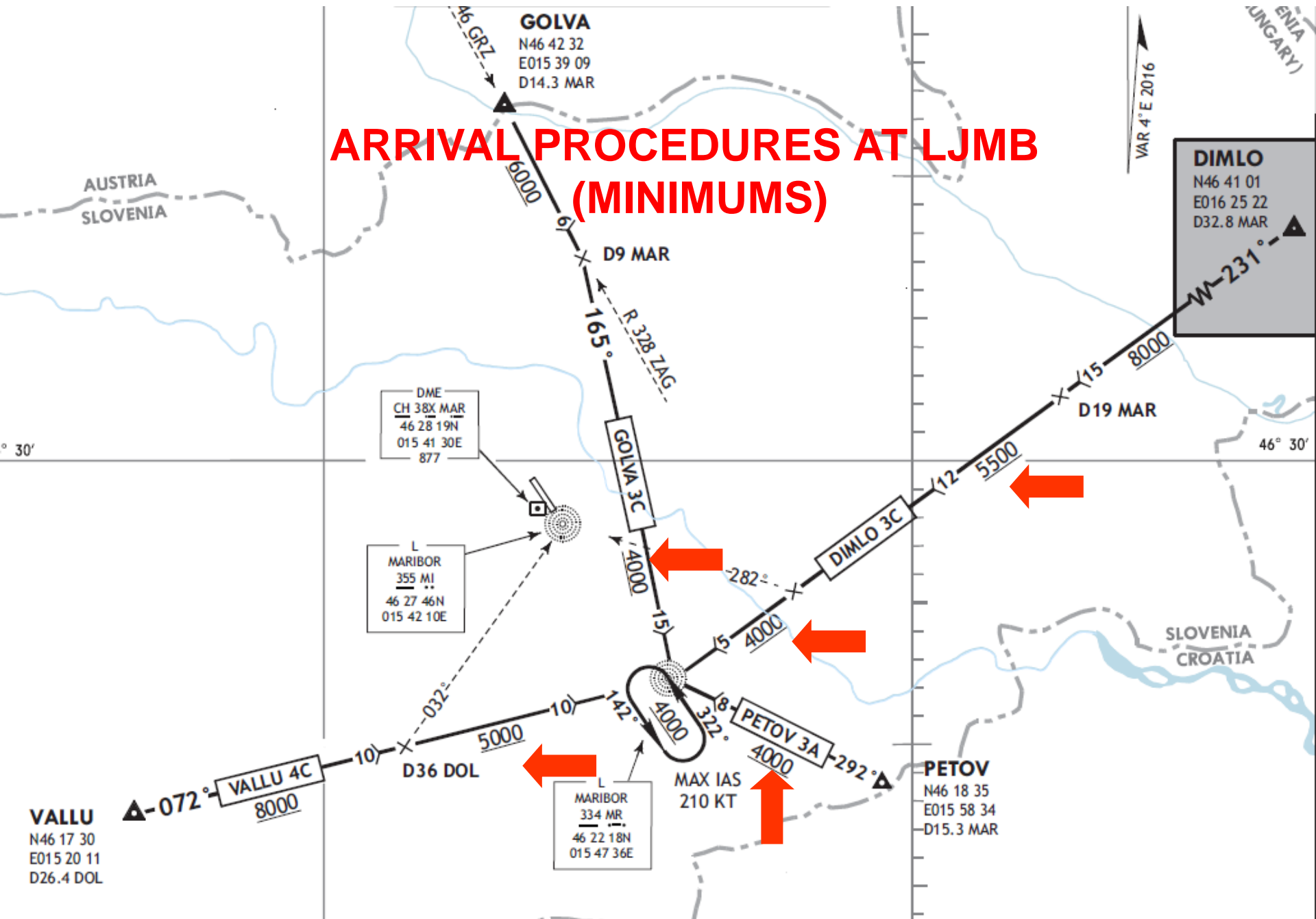
1000 FT

AIR TRAFFIC CONTROLLERS LIMITATIONS

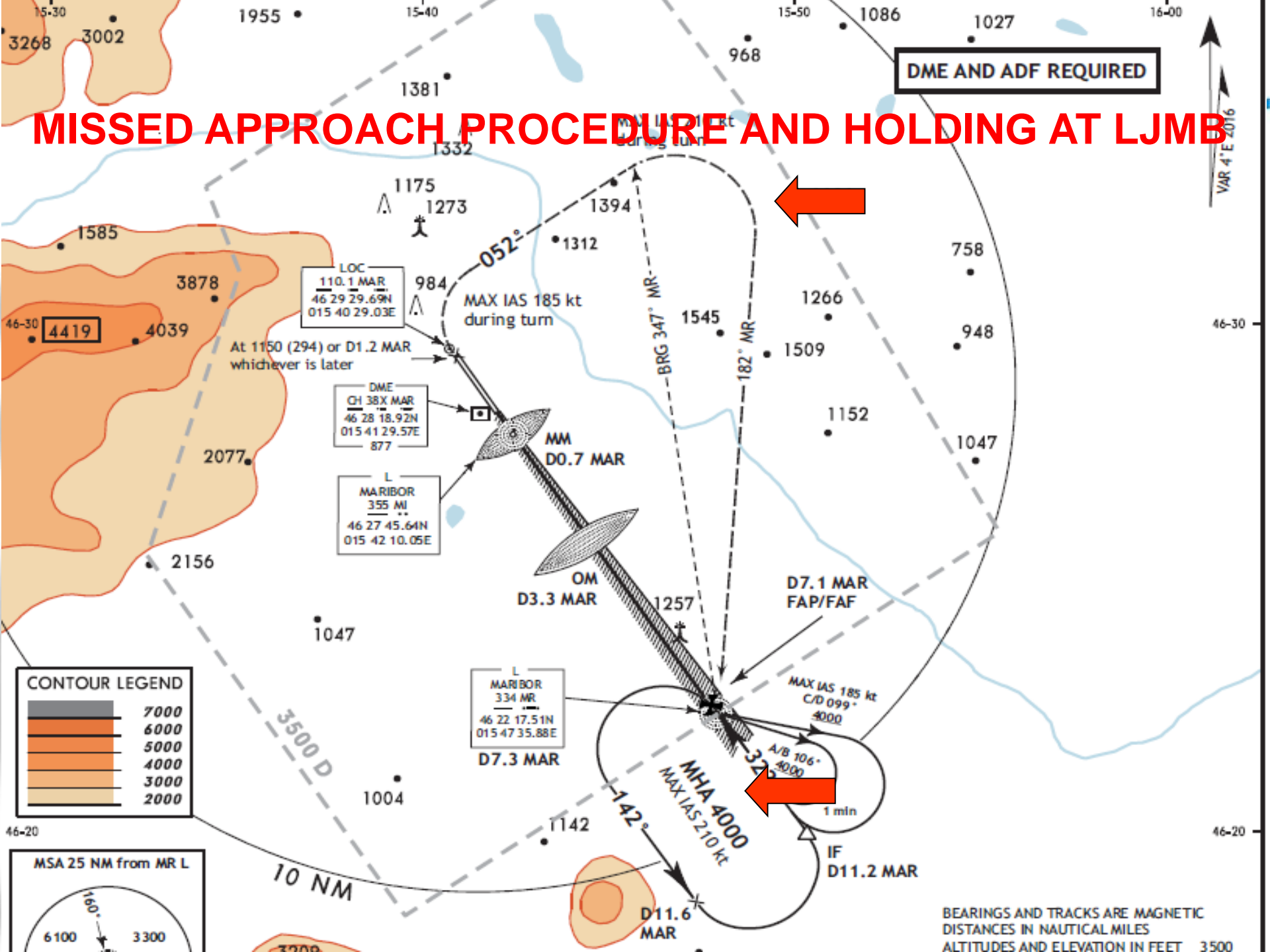
VISUAL SEPARATION:

- USING BY TWR LJ, MB, PZ, CE WITH PURPOSE OF PREVENTING COLLISIONS IN THE CONTROLLED ZONES AND ON THE MANEUVERING AREAS
- FOR VISUAL SEPARATION AIR TRAFFIC CONTROLLER MUST ESTABLISHED VISUAL CONTACT WITH THE AIRCRAFT CONCERNED

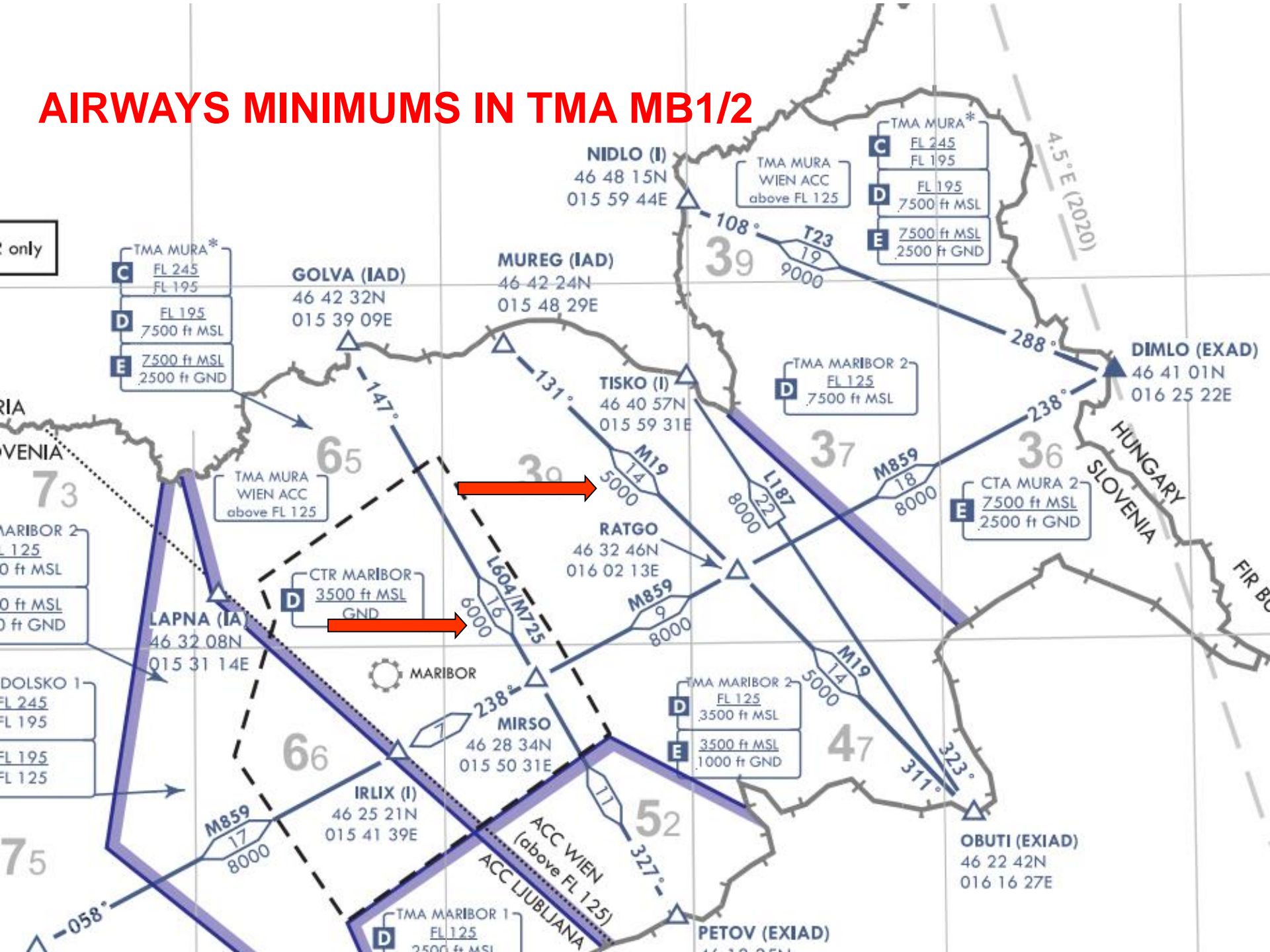
ARRIVAL PROCEDURES AT LJMB (MINIMUMS)



MISSED APPROACH PROCEDURE AND HOLDING AT LJMB



AIRWAYS MINIMUMS IN TMA MB1/2



Oberauersbach

Bad Gleichenberg

Őriszentspéter

**TMA GRAZ
GRAZ APP
119,3 MHz**

TMA GRAZ PROXIMITY!!!

Halbenrain

Szentgyörgyvölgy

Gorica Ul

Maric Norsinci

Mostje Lencava

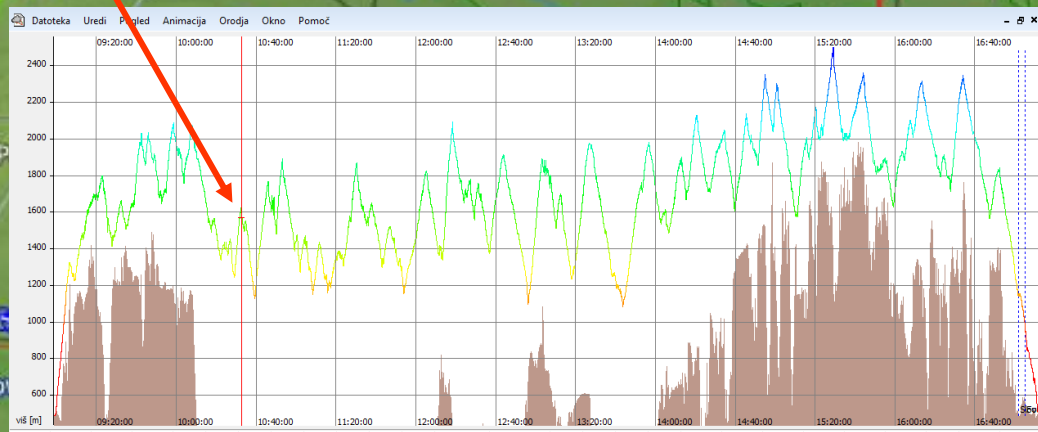
Jurkovic

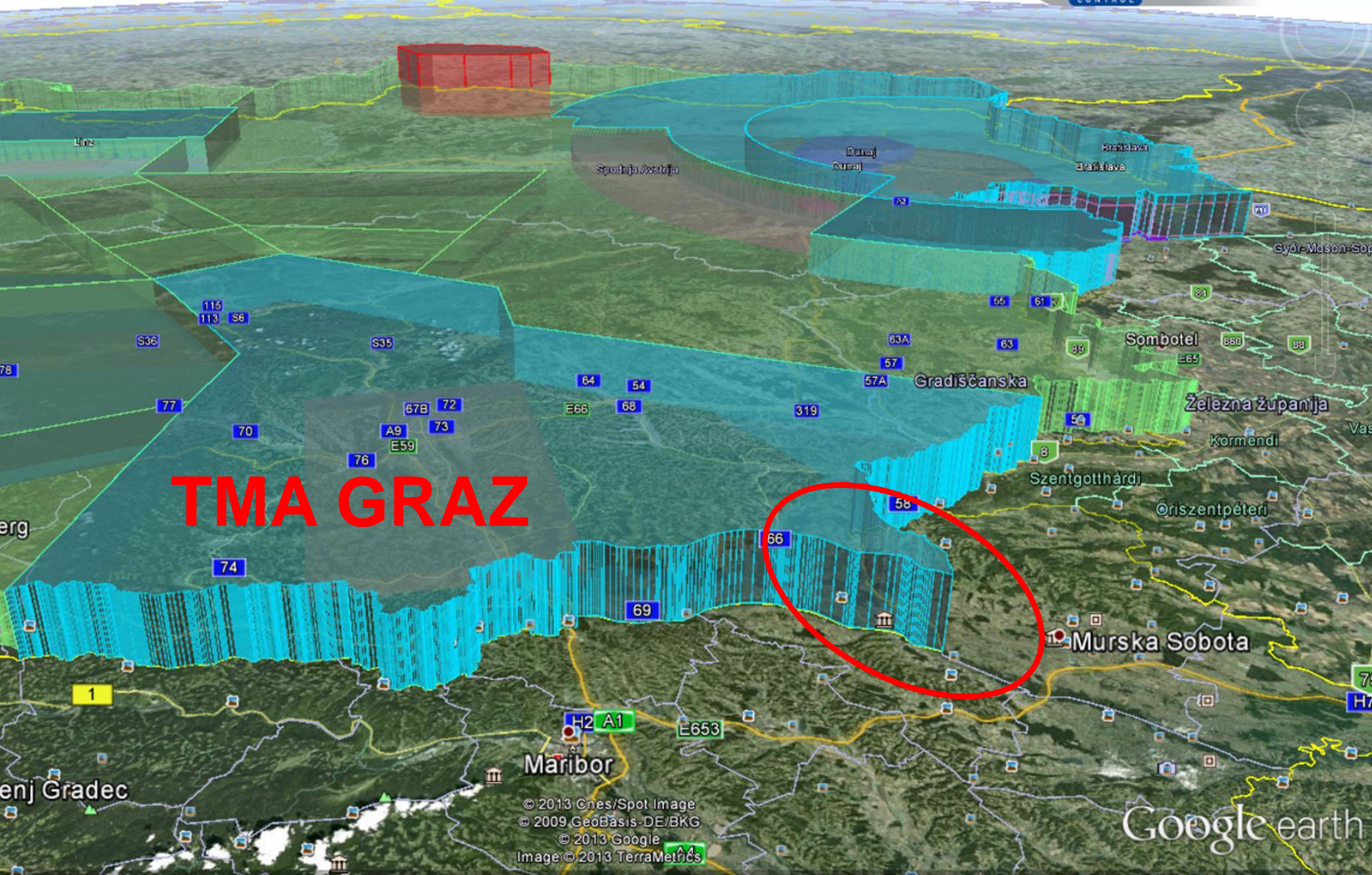
Grlava

Maribor

Spodnji Gaj pri Pragerskem

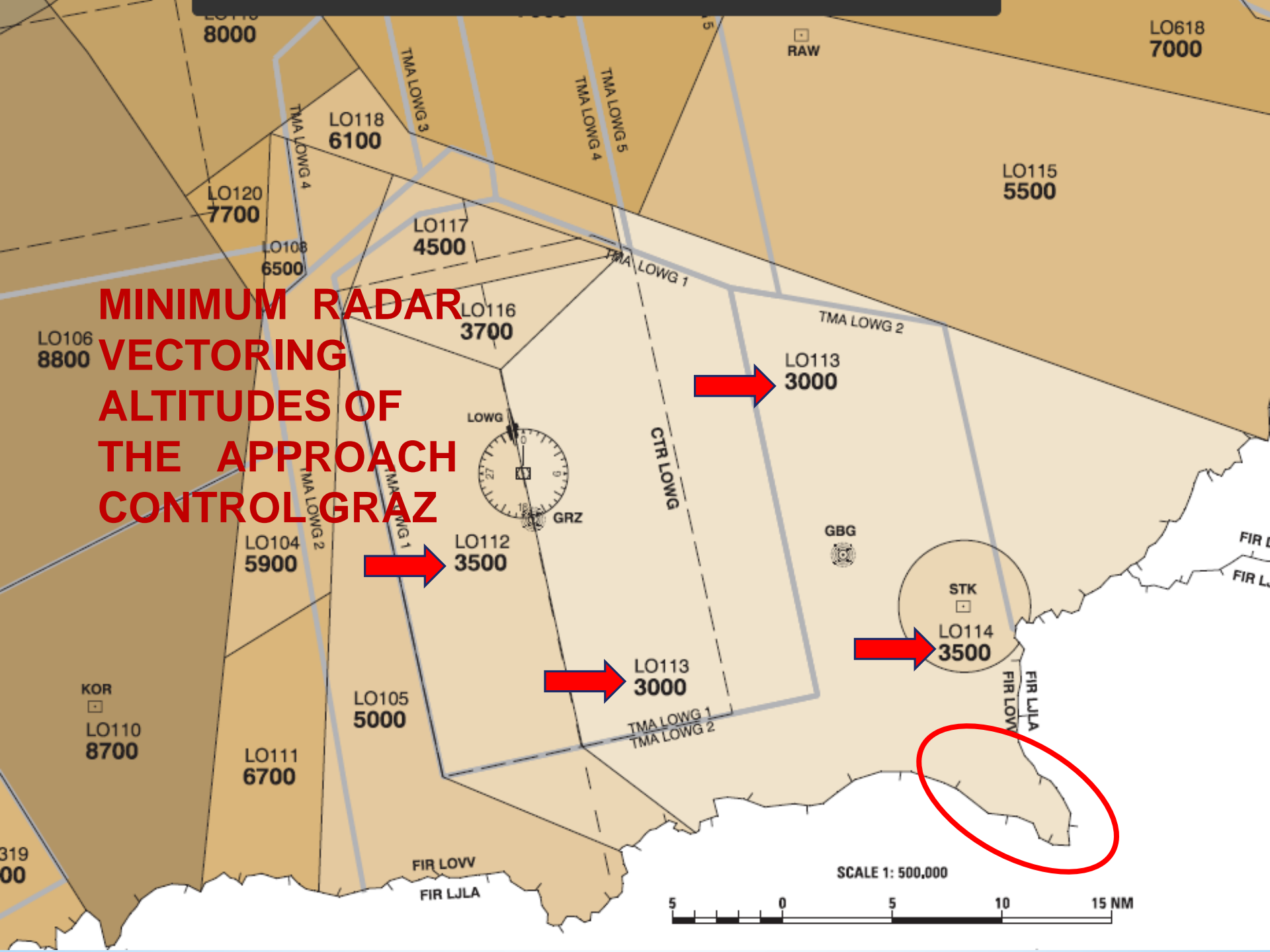
Lasto

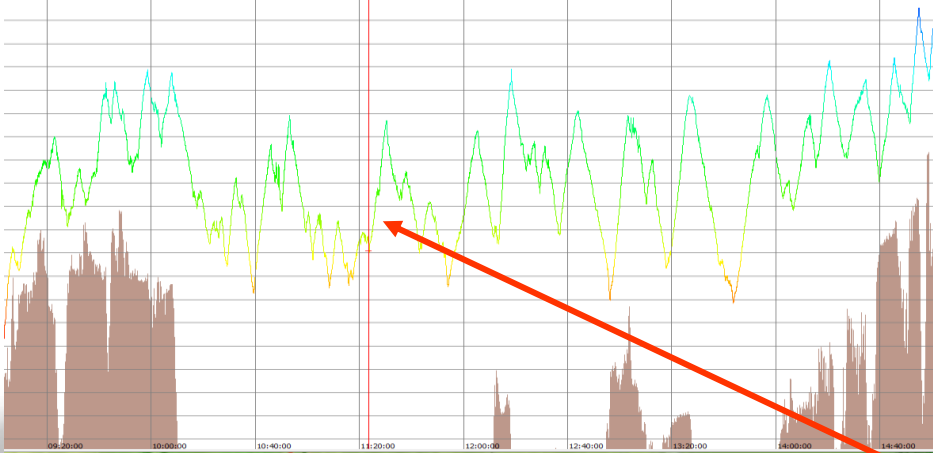




TMA GRAZ

**MINIMUM RADAR
VECTORING
ALTITUDES OF
THE APPROACH
CONTROL GRAZ**

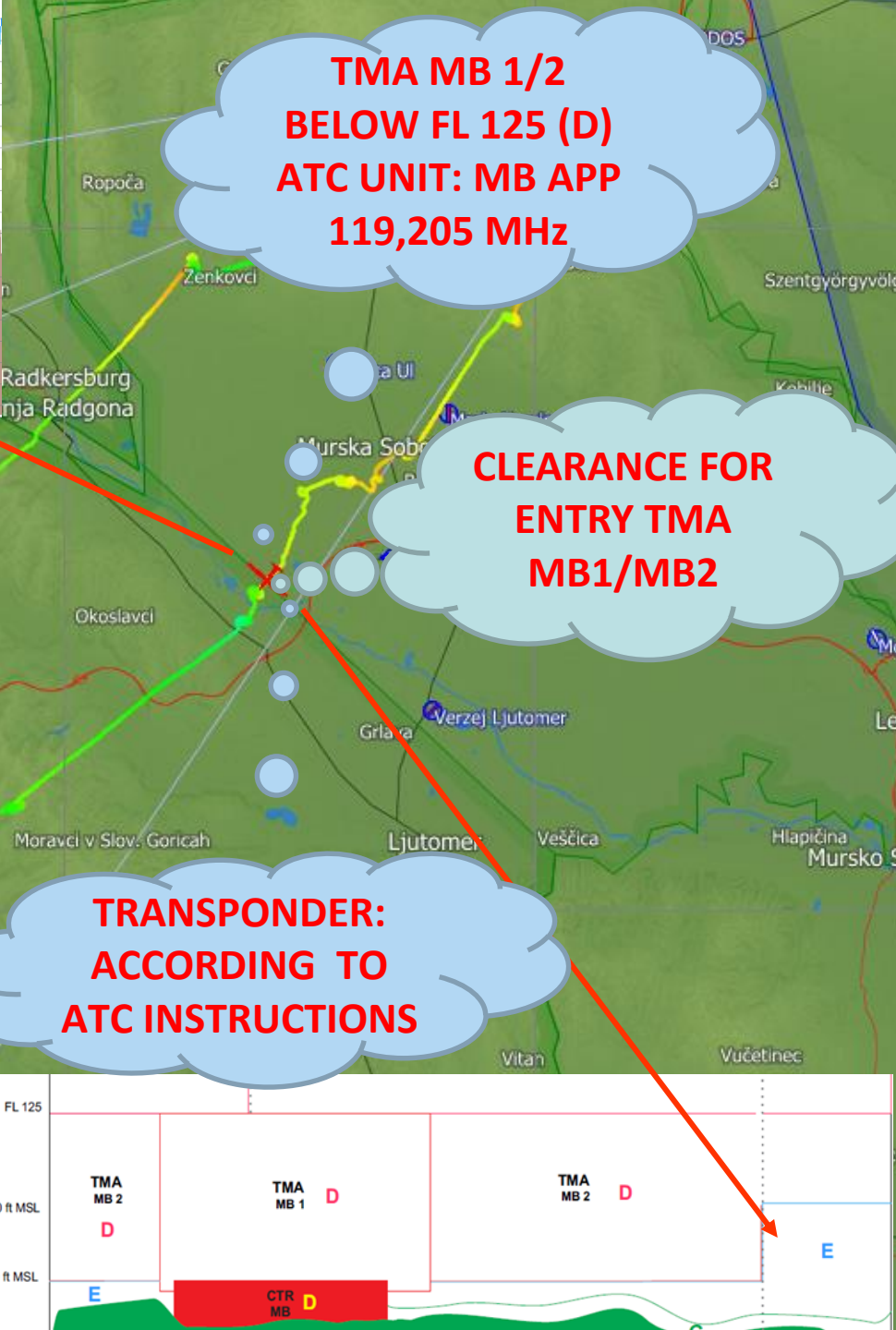
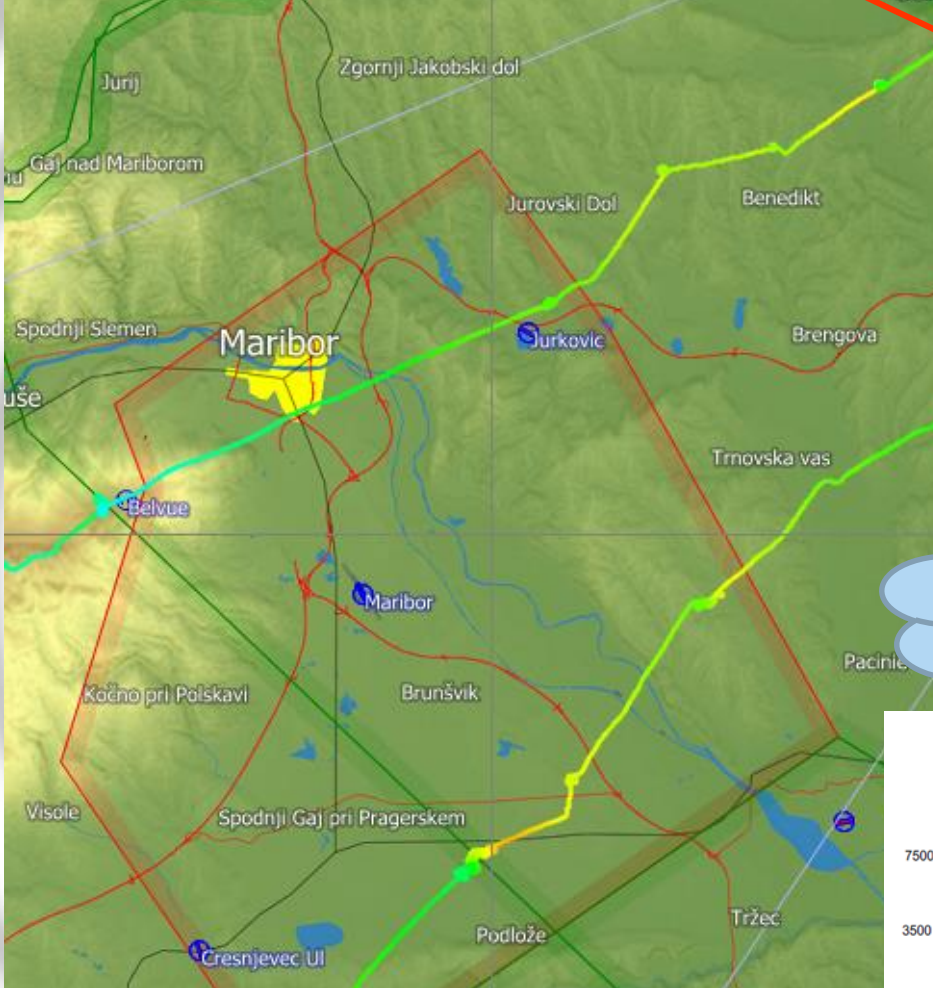




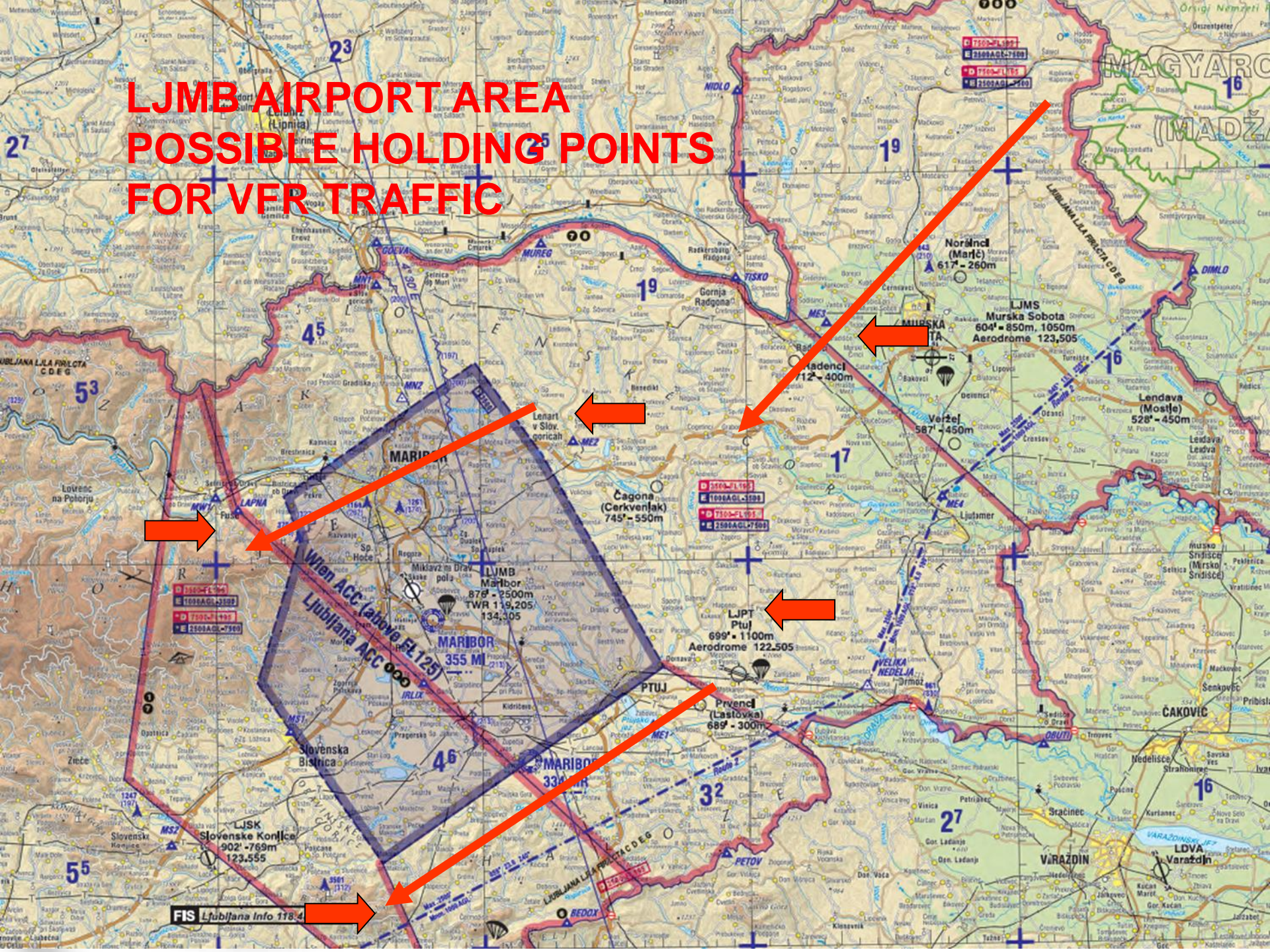
**TMA MB 1/2
BELOW FL 125 (D)
ATC UNIT: MB APP
119,205 MHz**

**CLEARANCE FOR
ENTRY TMA
MB1/MB2**

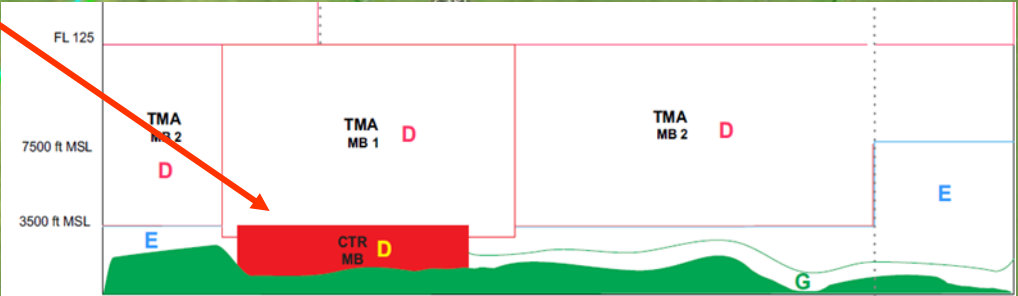
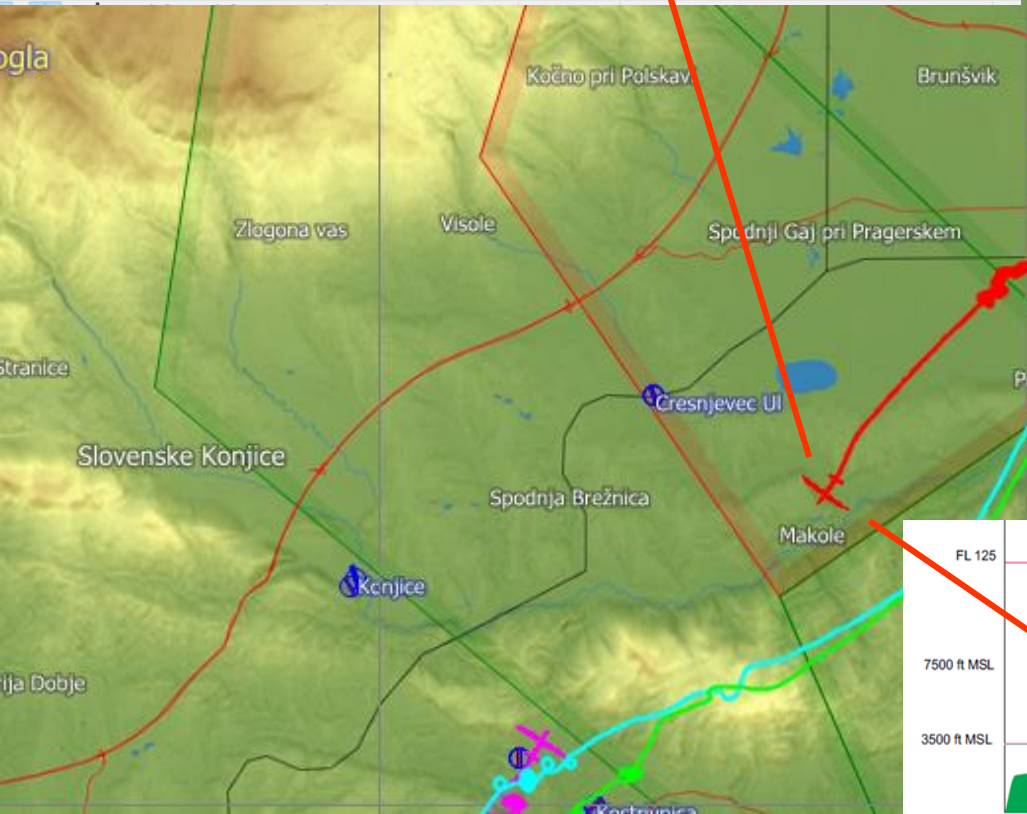
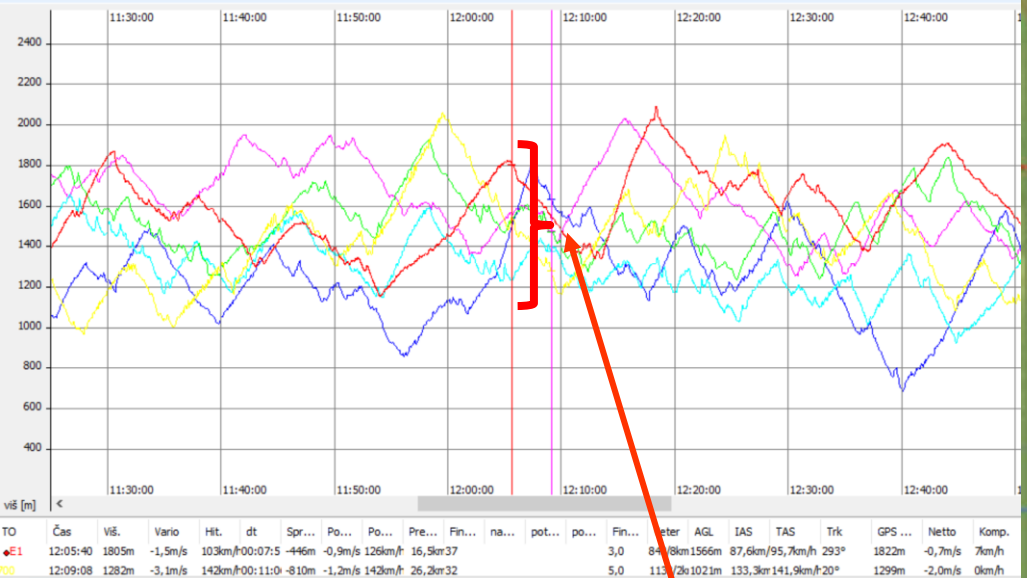
**TRANSPONDER:
ACCORDING TO
ATC INSTRUCTIONS**

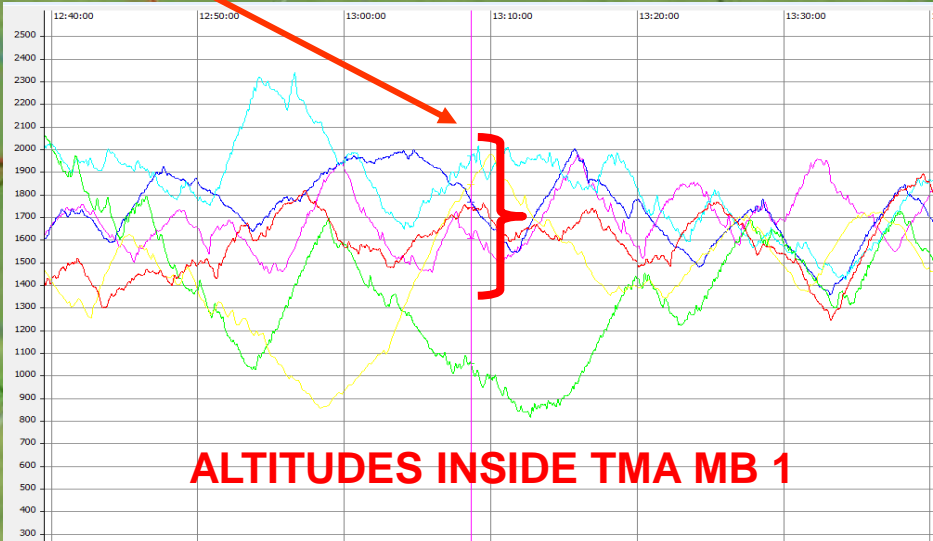
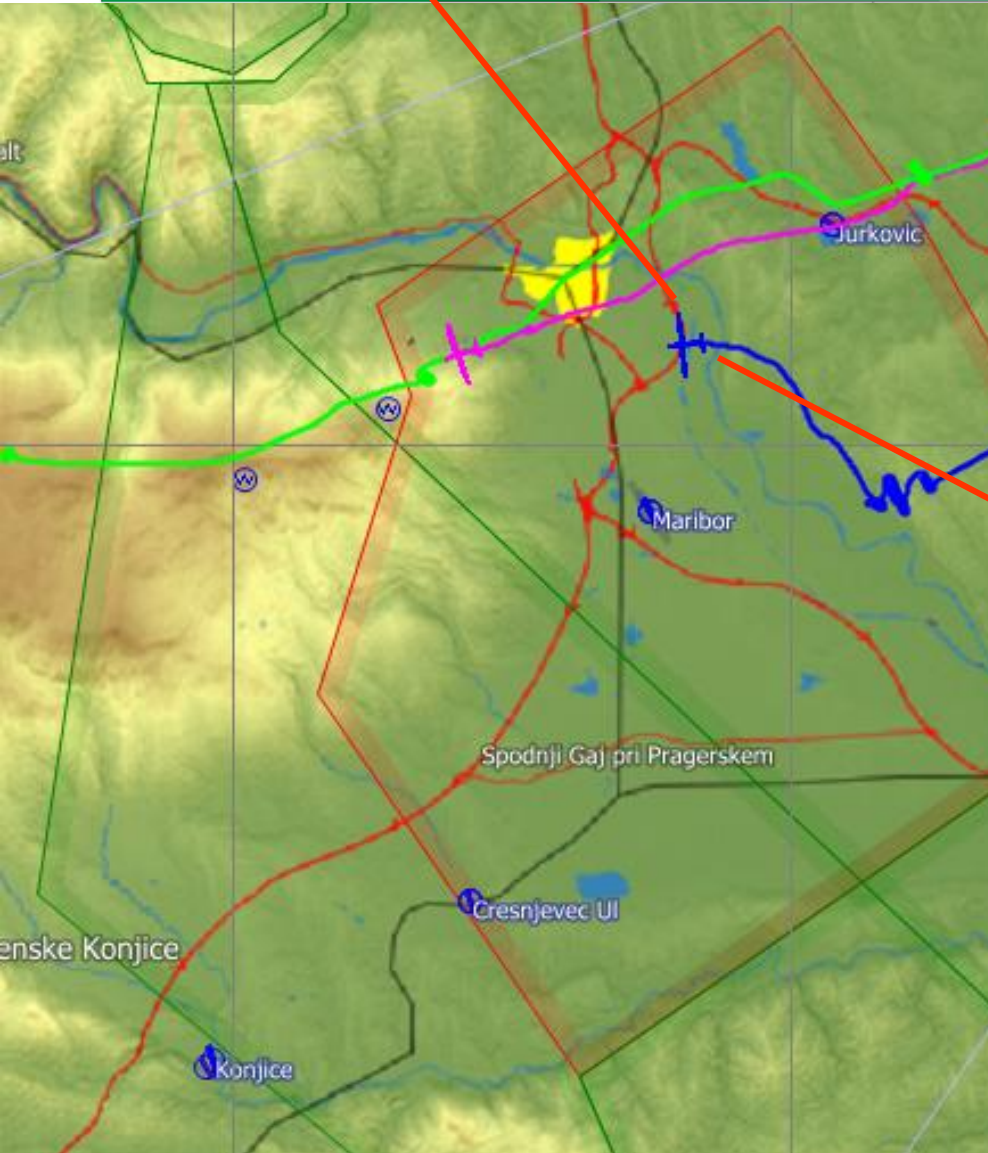


LJMB AIRPORT AREA POSSIBLE HOLDING POINTS FOR VFR TRAFFIC



ALTITUDES INSIDE TMA MB 1





MILITARY ACTIVITIES



MILITARY ACTIVITIES

DOLSKO
D 112.70 DOL

LJ(TA) - 1
FL245
2500AGL

Podbeltek (Imeno)
390' - 600m

Hude Ravne (Dole pri Litiji)
1706' - 220m

FIS Ljubljana Info 118.480-7500

RAKA
359.RK

LJCE
Cerklje ob Krki
503' - 3000m
118,555, 120,630, 125,805

CERKLJE
D 108.25 COK
463 CL

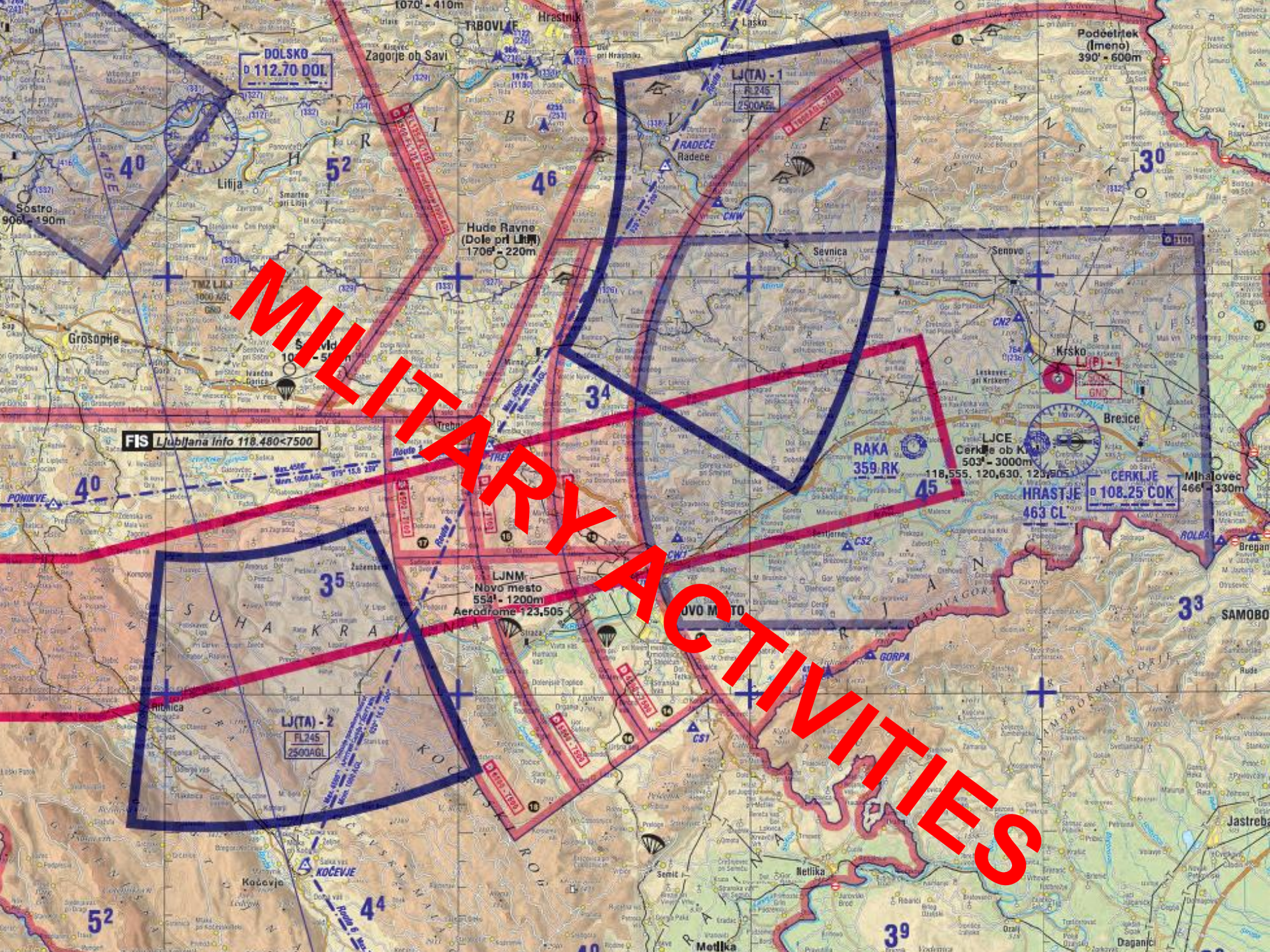
LJNM
Novo mesto
554' - 1200m
Aerodrome 123,505

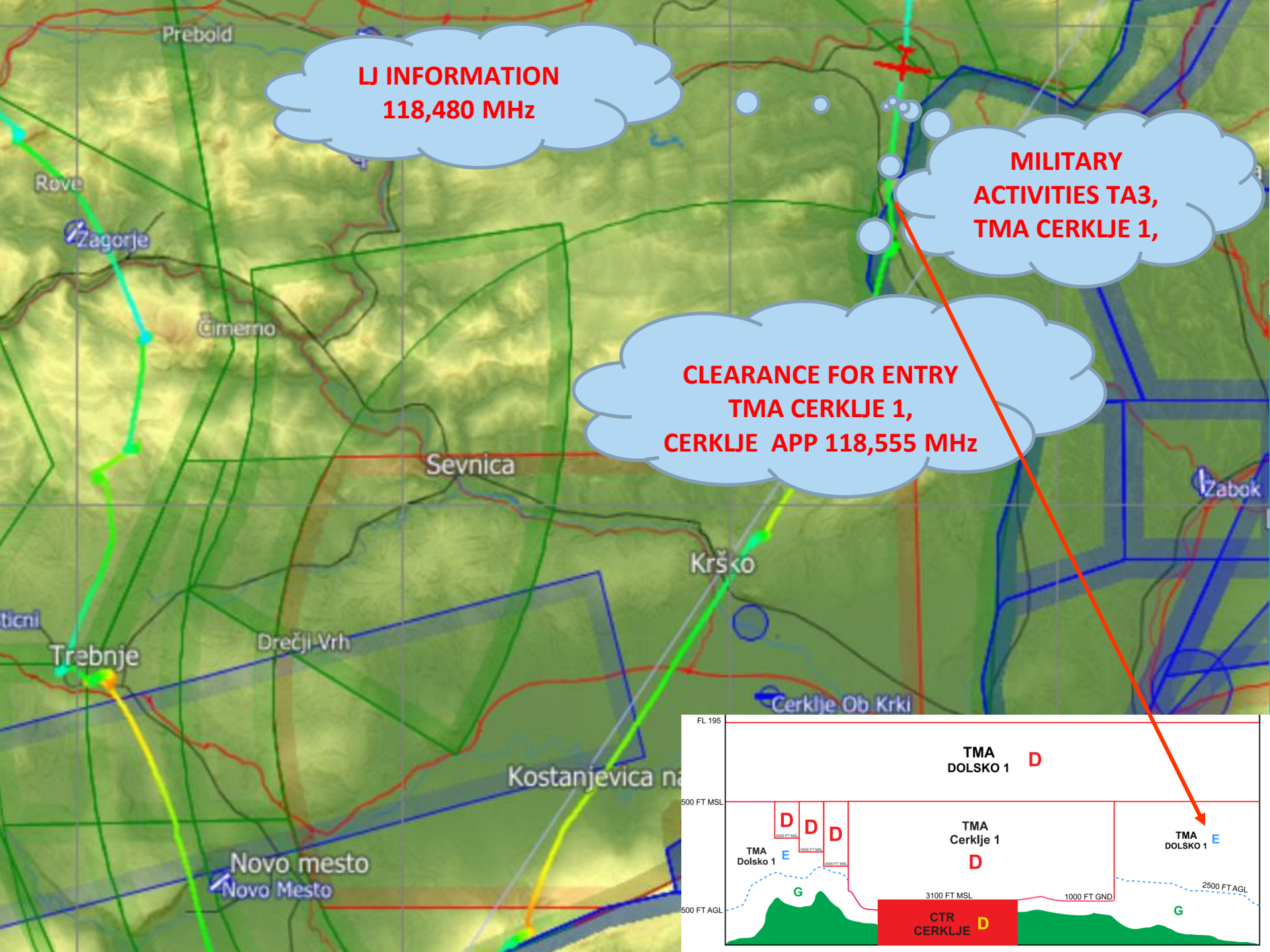
LJ(TA) - 2
FL245
2500AGL

Sostro
906' - 190m

SAMOBO

Jastreba

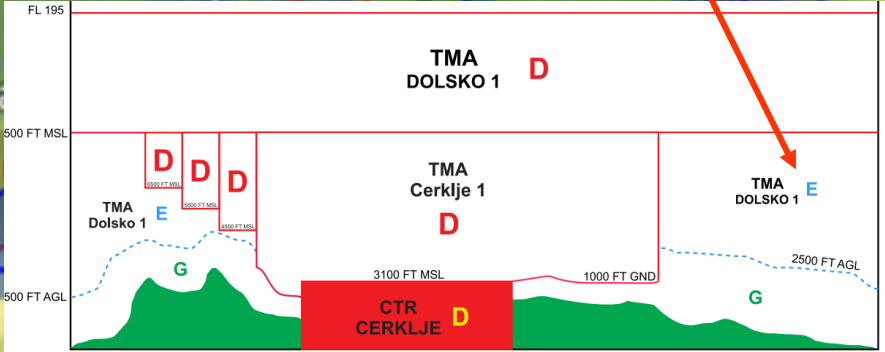


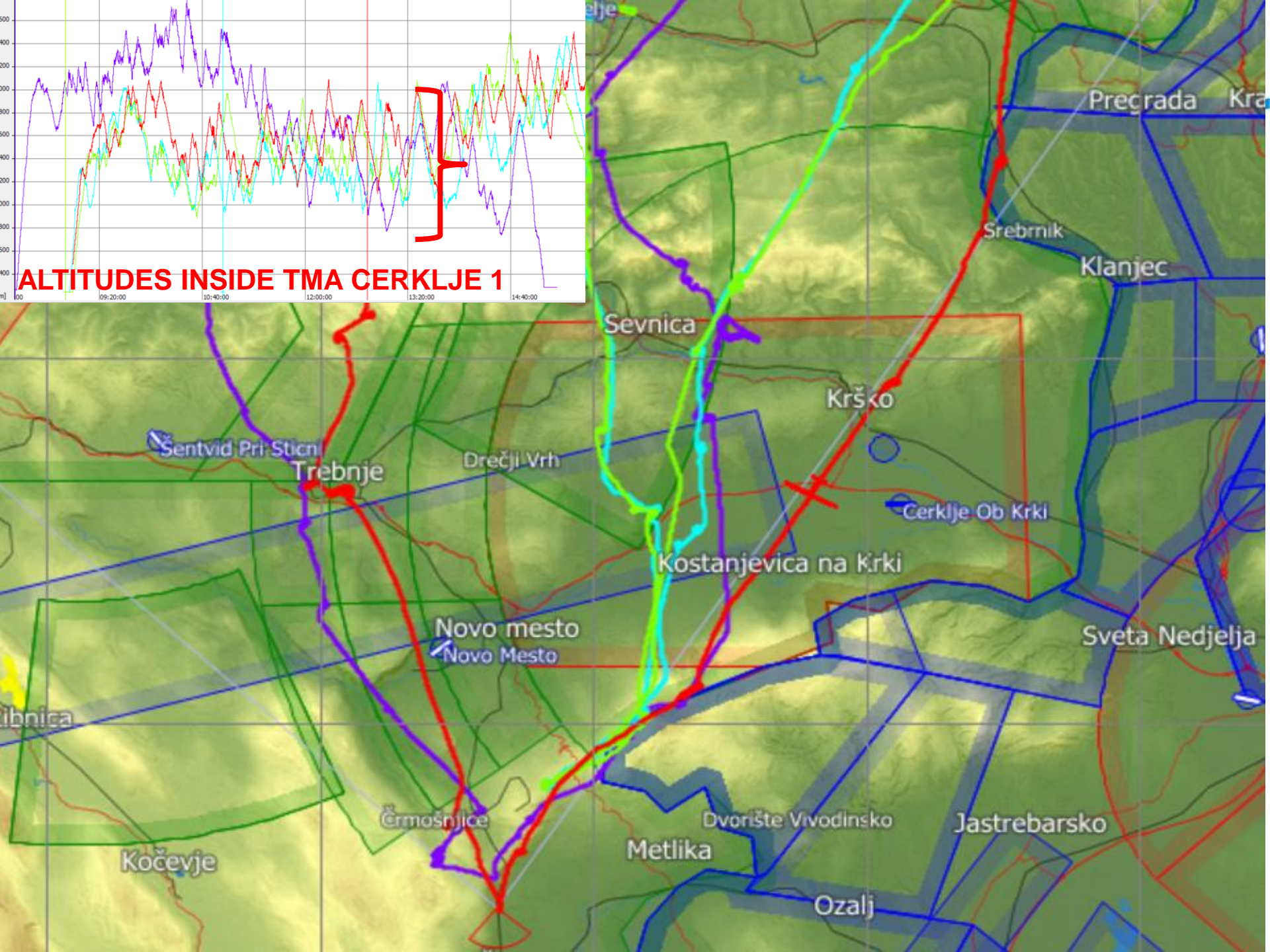
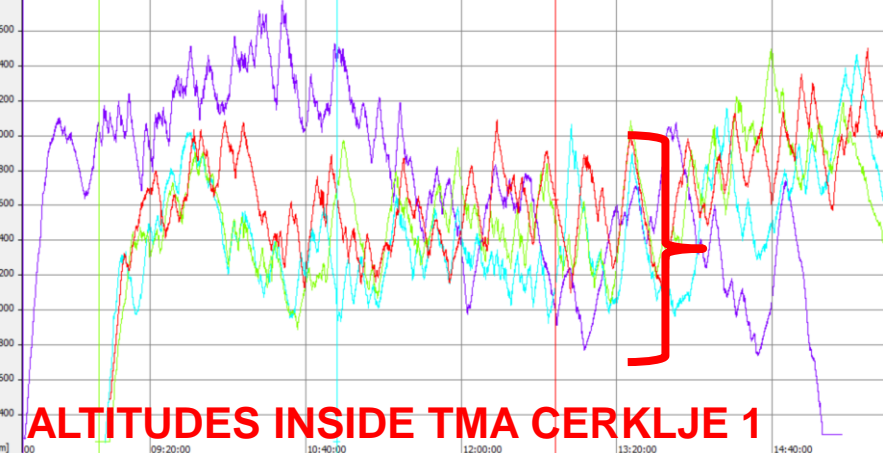


**LJ INFORMATION
118,480 MHz**

**MILITARY
ACTIVITIES TA3,
TMA CERKLJE 1,**

**CLEARANCE FOR ENTRY
TMA CERKLJE 1,
CERKLJE APP 118,555 MHz**





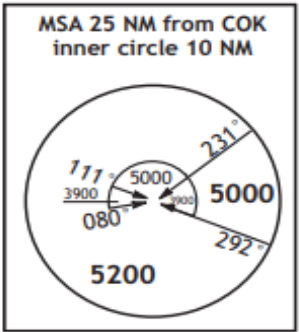
109

AIP SLOVENIA

LJCE AD 2.24.12 - 1

24 FEB 2022

Cerklje ob Krki / CERKLJE



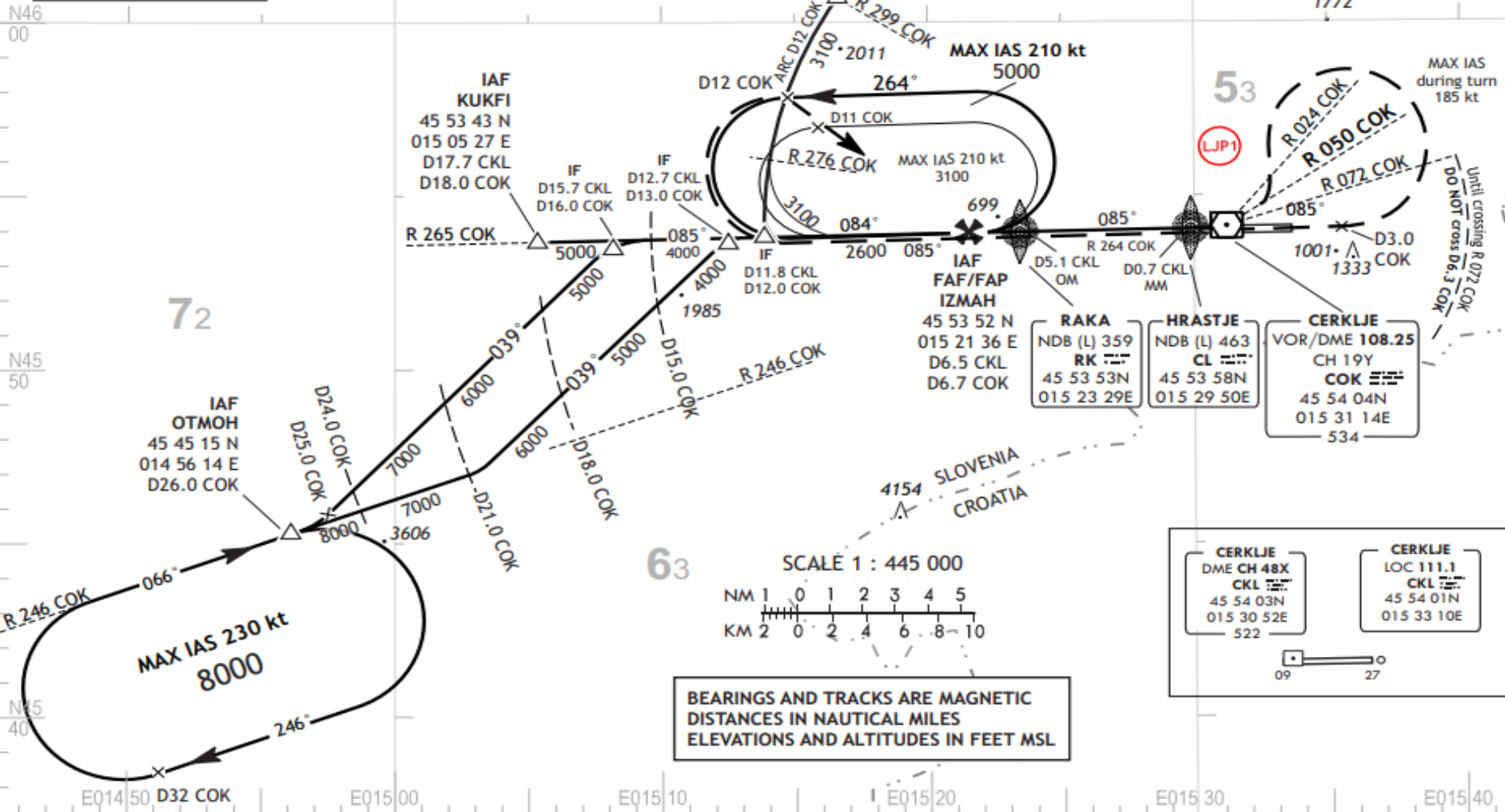
INSTRUMENT APPROACH CHART



AD ELEV 503 ft
HEIGHTS RELATED TO
THR RWY 09 - ELEV 509 ft
HIGHEST ELEV TDZ 505 ft

CERKLJE TOWER	118.555
CERKLJE TOWER	127.230
CERKLJE APPROACH	118.555
CERKLJE APPROACH	127.230

ILS Z RWY 09 CROATIA
SLOVENIA



53
LJP1

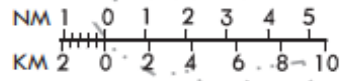
RAKA
NDB (L) 359
RK
45 53 53N
015 23 29E

HRASTJE
NDB (L) 463
CL
45 53 58N
015 29 50E

CERKLJE
VOR/DME 108.25
CH 19Y
COK
45 54 04N
015 31 14E
534

63

SCALE 1 : 445 000

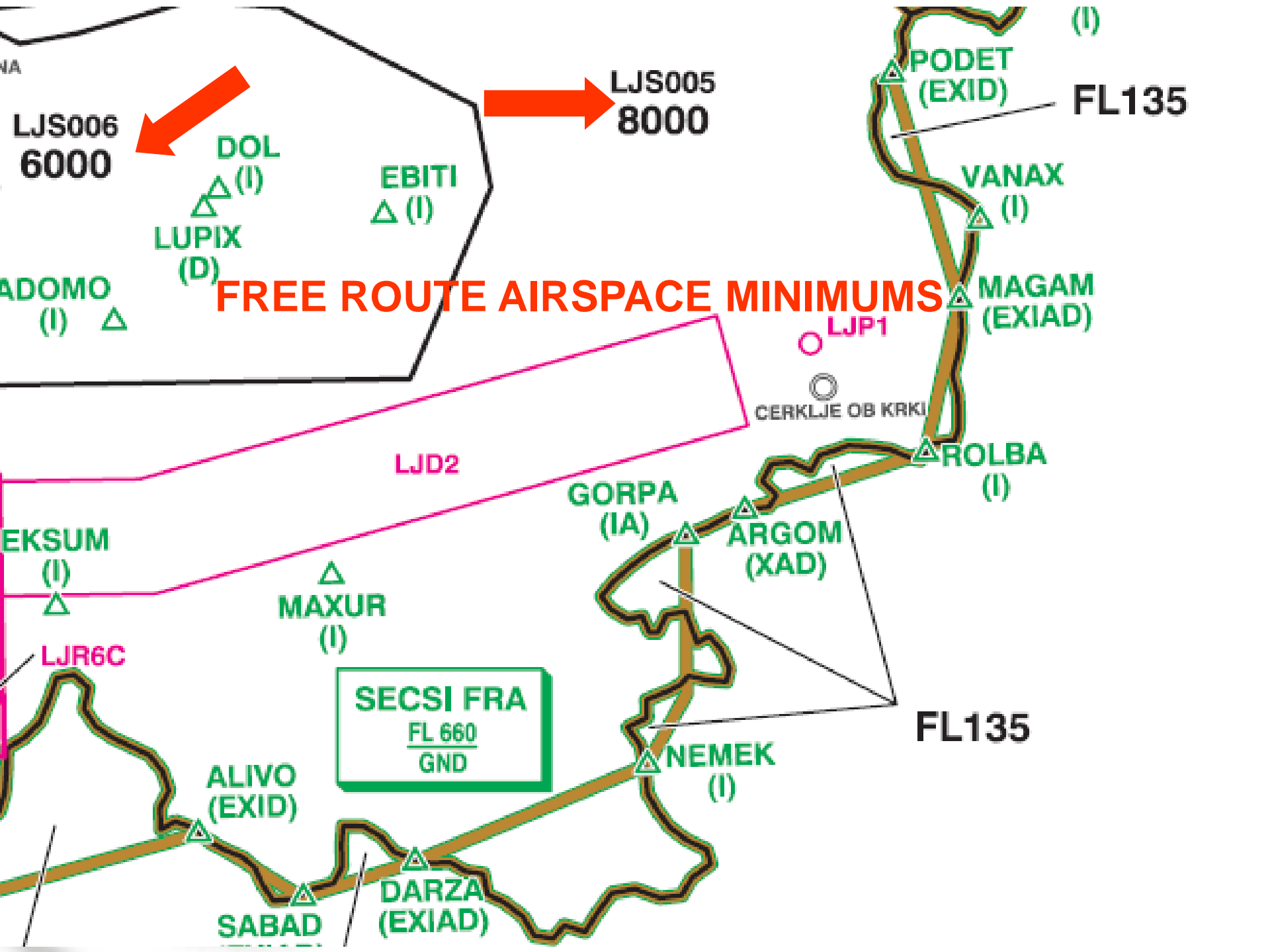


BEARINGS AND TRACKS ARE MAGNETIC
DISTANCES IN NAUTICAL MILES
ELEVATIONS AND ALTITUDES IN FEET MSL

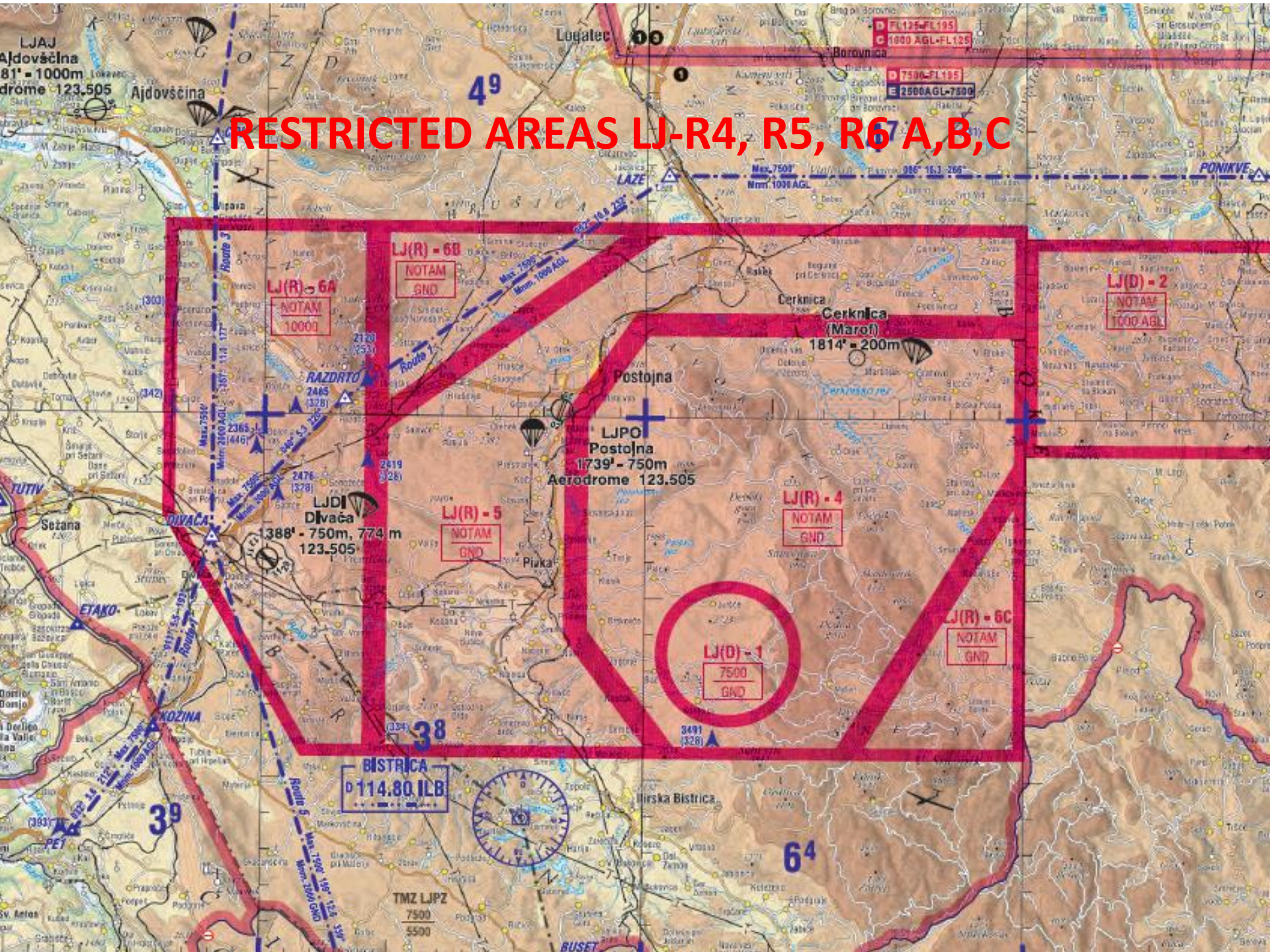
CERKLJE
DME CH 48X
CKL
45 54 03N
015 30 52E
522

CERKLJE
LOC 111.1
CKL
45 54 01N
015 33 10E



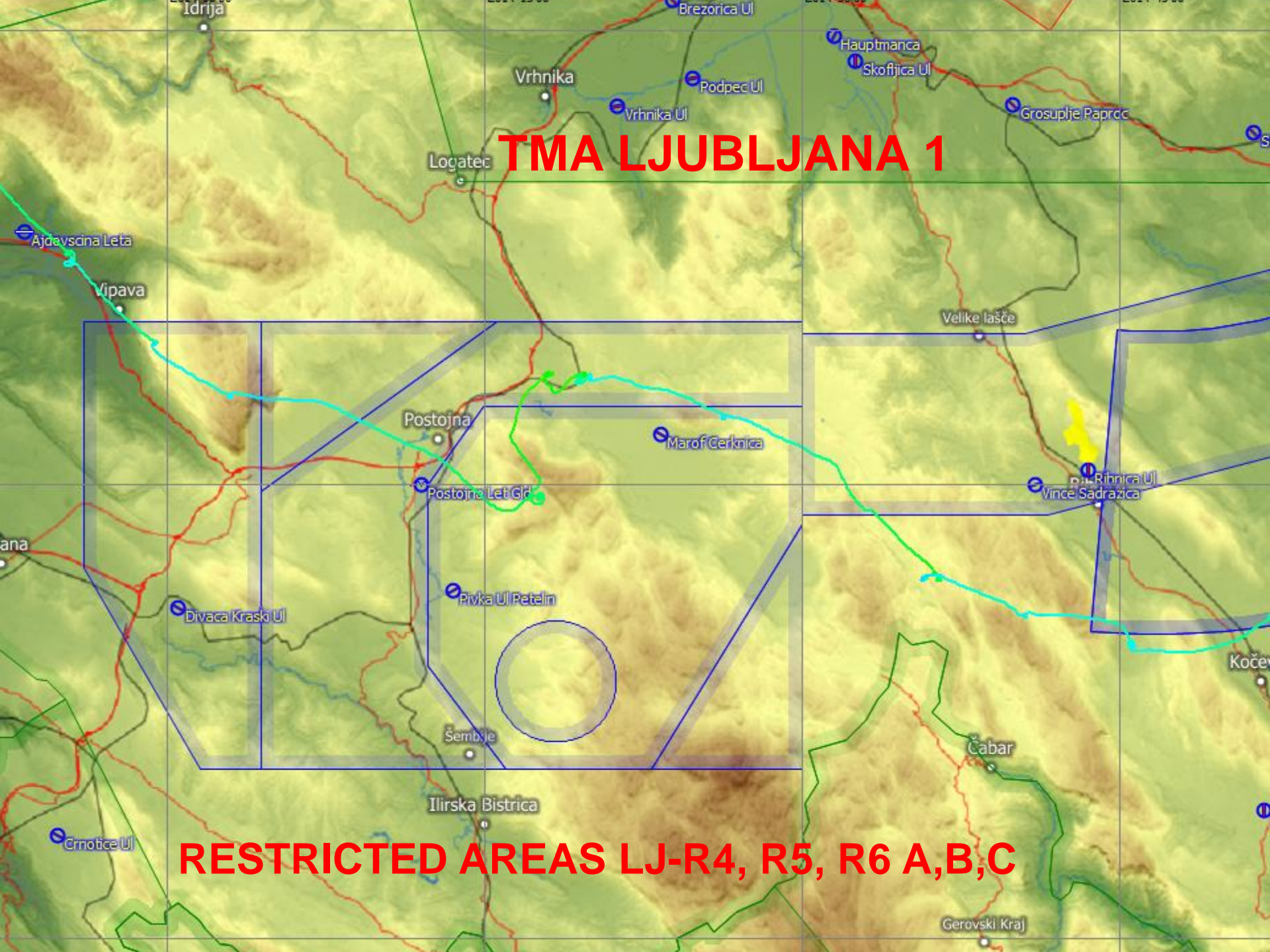


RESTRICTED AREAS LJ-R4, R5, R6 A,B,C

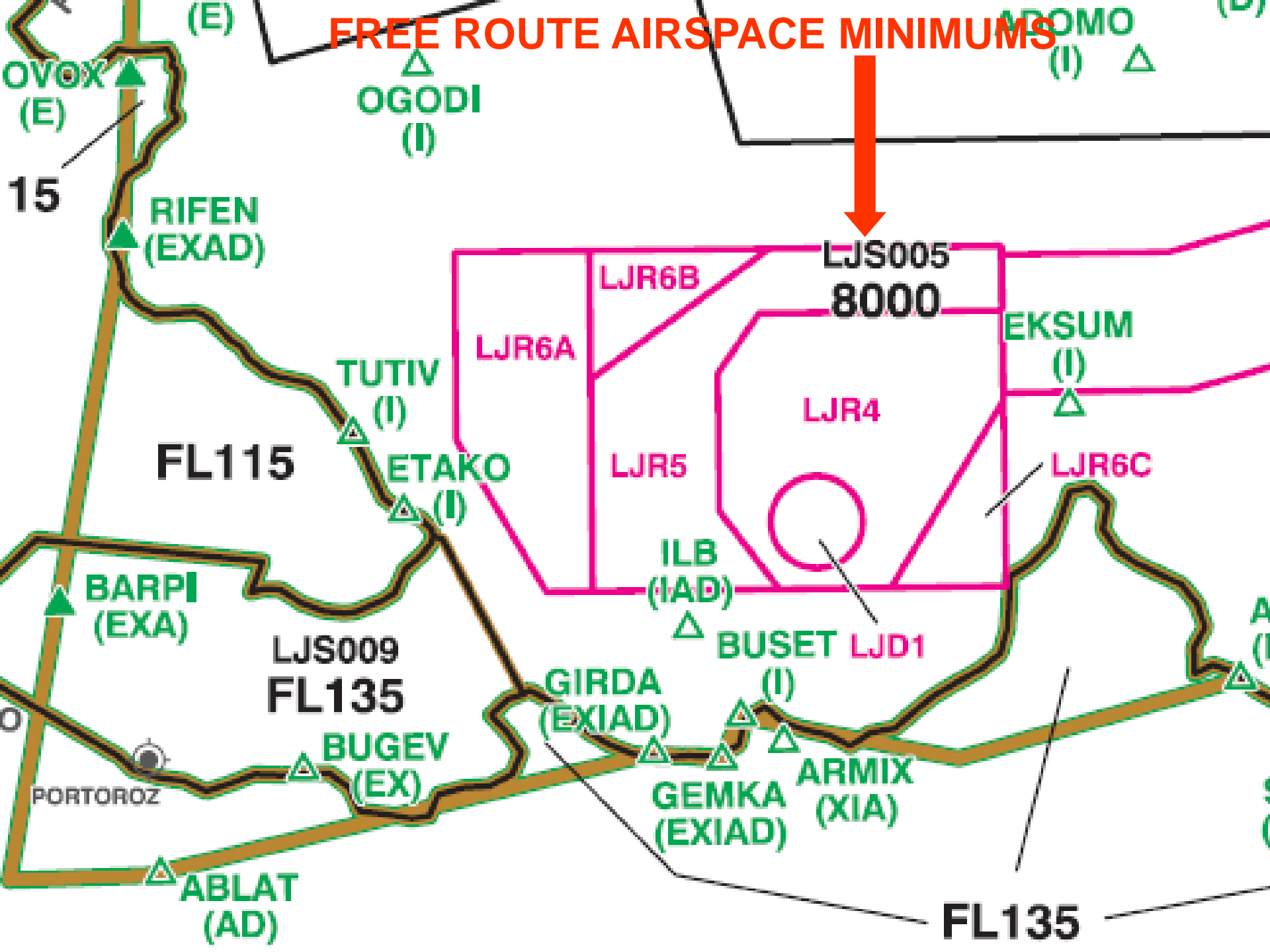


TMA LJUBLJANA 1

RESTRICTED AREAS LJ-R4, R5, R6 A,B,C

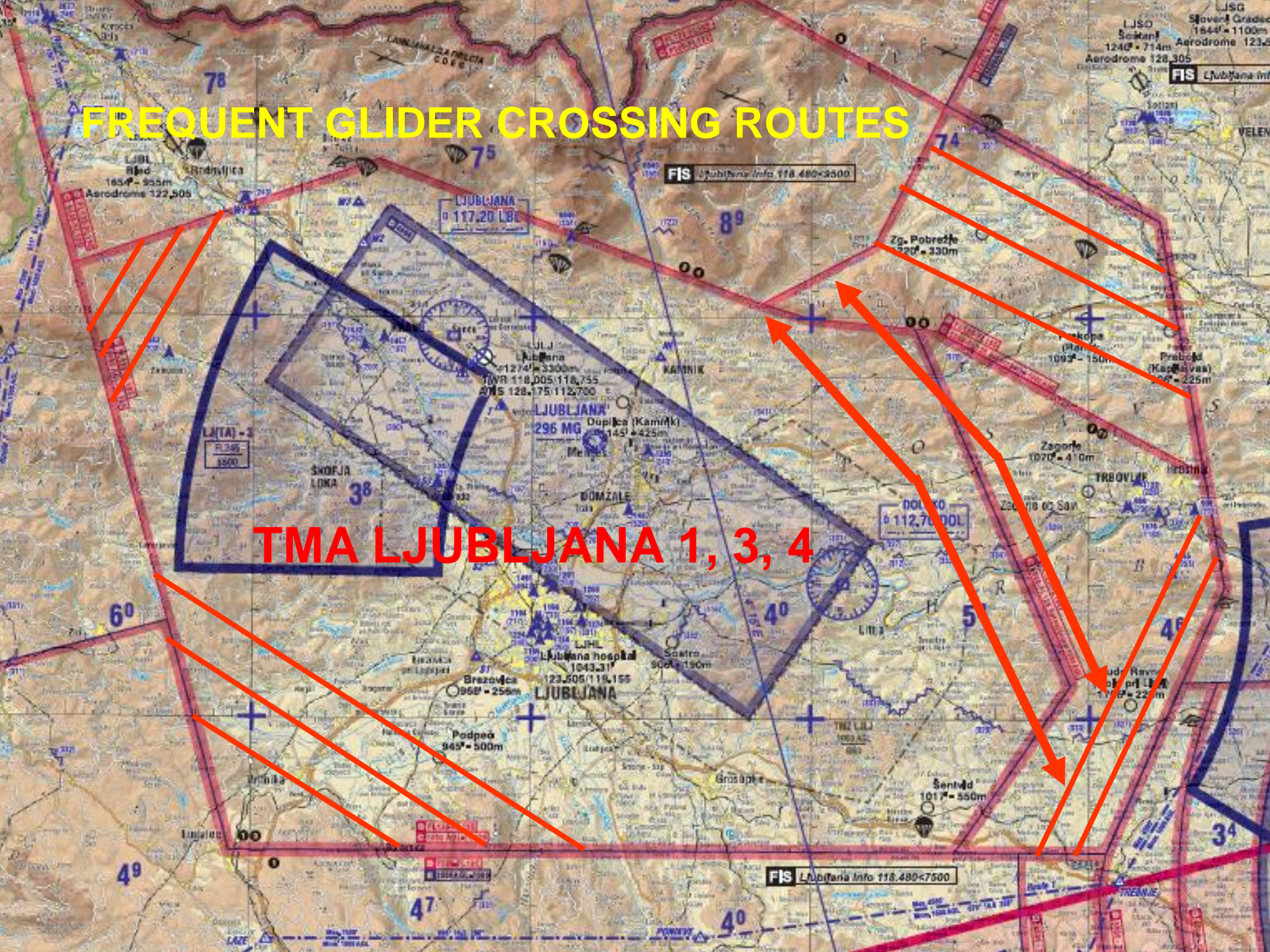


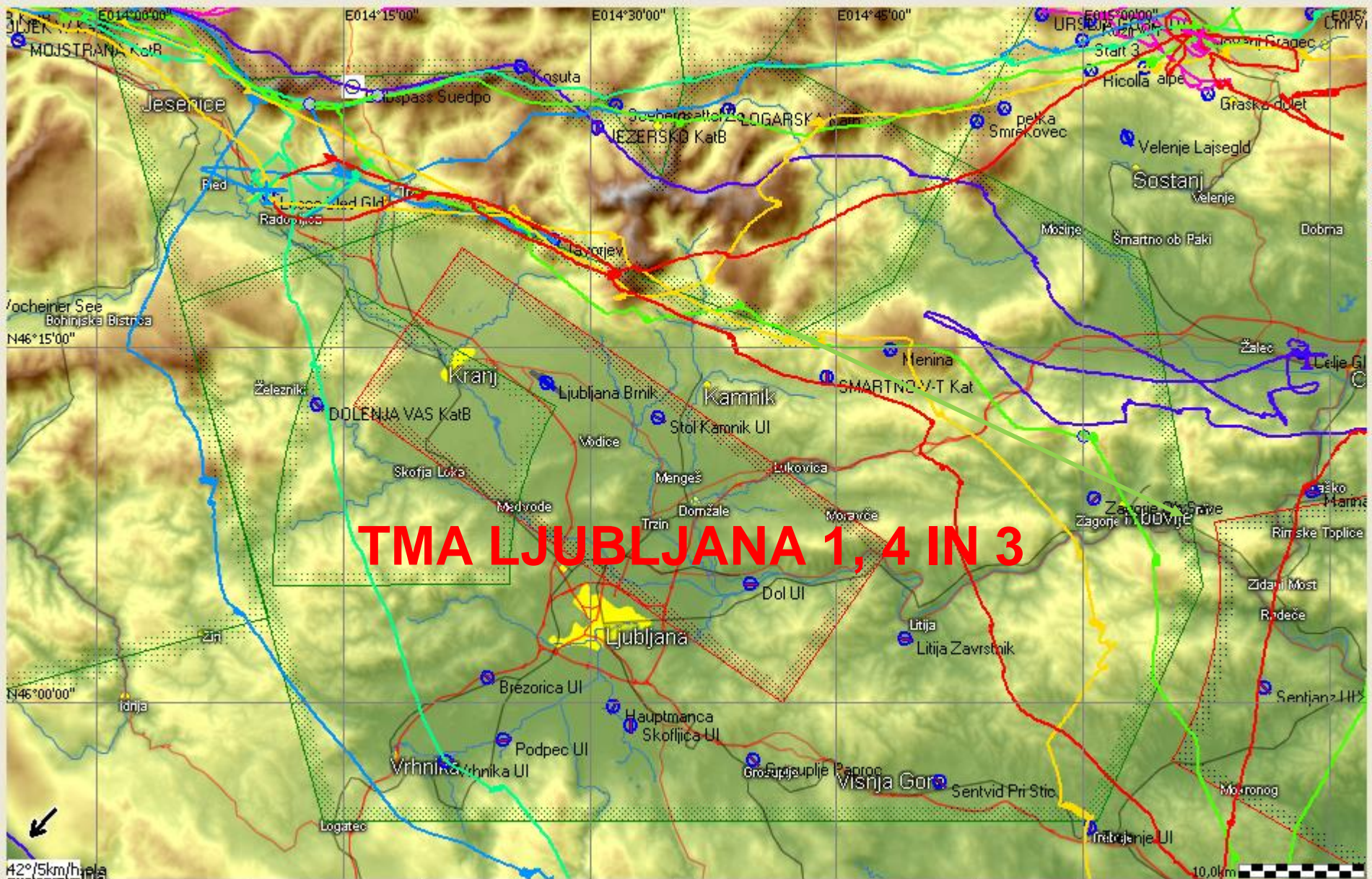
FREE ROUTE AIRSPACE MINIMUMS



FREQUENT GLIDER CROSSING ROUTES

TMA LJUBLJANA 1, 3, 4



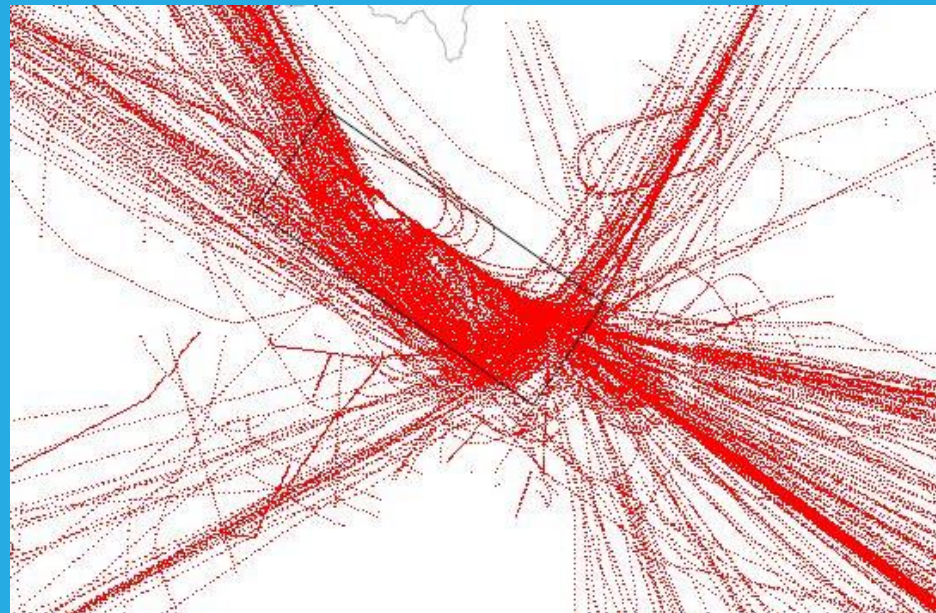
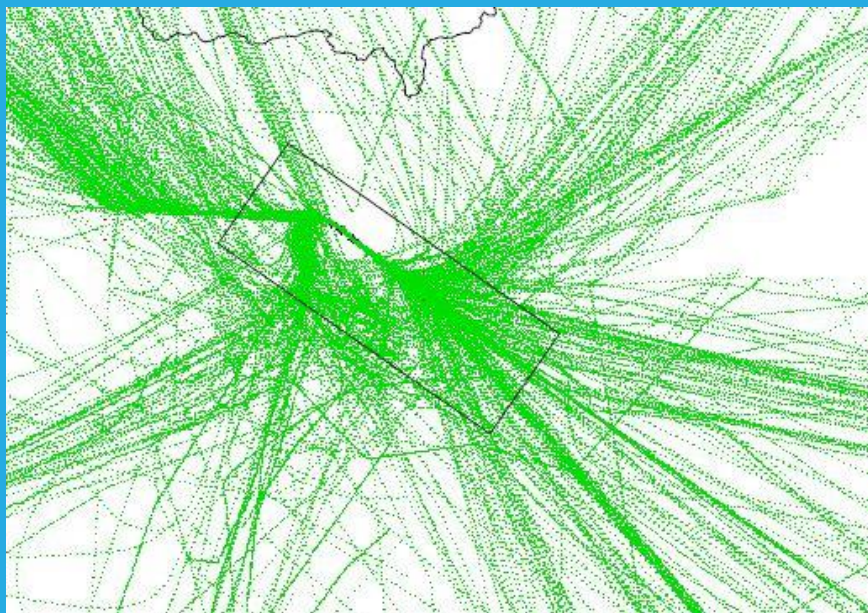


SID AND STAR PROJECTIONS

DEPARTURE TRACKS

JUNE 2017

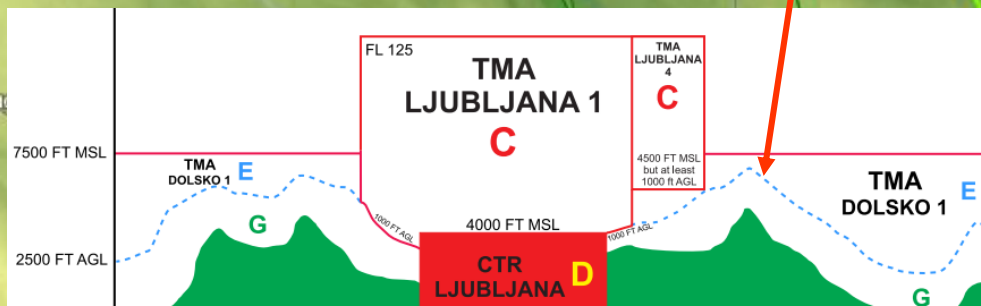
ARRIVAL TRACKS



**TRANSPONDER:
ACCORDING TO
ATC INSTRUCTIONS**

**CLEARANCE FOR
ENTRY/OVERFLIGHT OF
THE TMA LJUBLJANA 1
AND 4**

**LJ INFO 118,480
MHz OR LJ RDR
135,280 MHz**



AIR TRAFFIC CONTROL LIMITATIONS

SURVEILLANCE SEPARATION:

- USED BY LJUBLJANA RADAR
- SEPARATION IS PERFORMED WITH THE SURVEILLANCE DISPLAY WHERE RADAR DATA – RDPS AND WIDE AREA MULTIRATERATION SLOWAM ARE DISPLAYED WITH COLERATION WITH FLIGHT DATA PROCESSING SYSTEM - FDPS

AIR TRAFFIC CONTROL LIMITATIONS

- ATC CAN SEPARATE ONLY POSITIVE IDENTIFIED AIRCRAFT.
- IDENTIFICATION IS ESTABLISHED WITH INFORMATION ABOUT IDENTITY, A-MODE AND ALTITUDE, C-MODE DATA FROM THE AIRCRAFT TRANSPONDER
- MINIMUM LATERAL DISTANCE:

3NM

IN THE LJLA FIR BELOW FL195

- USE OF THE MINIMUM RADAR VECTOR ALTITUDES- MRVA

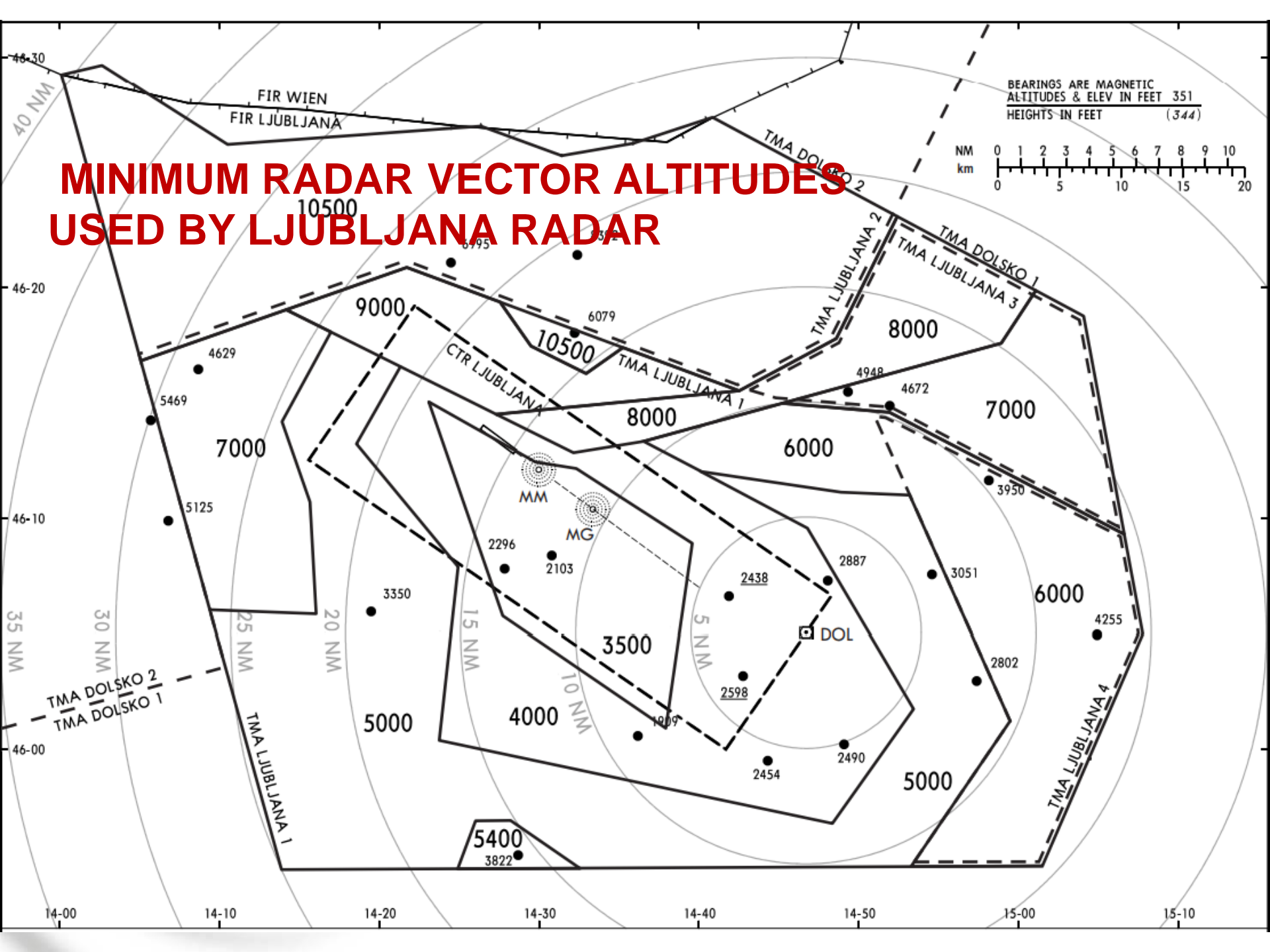
AIR TRAFFIC CONTROL LIMITATIONS

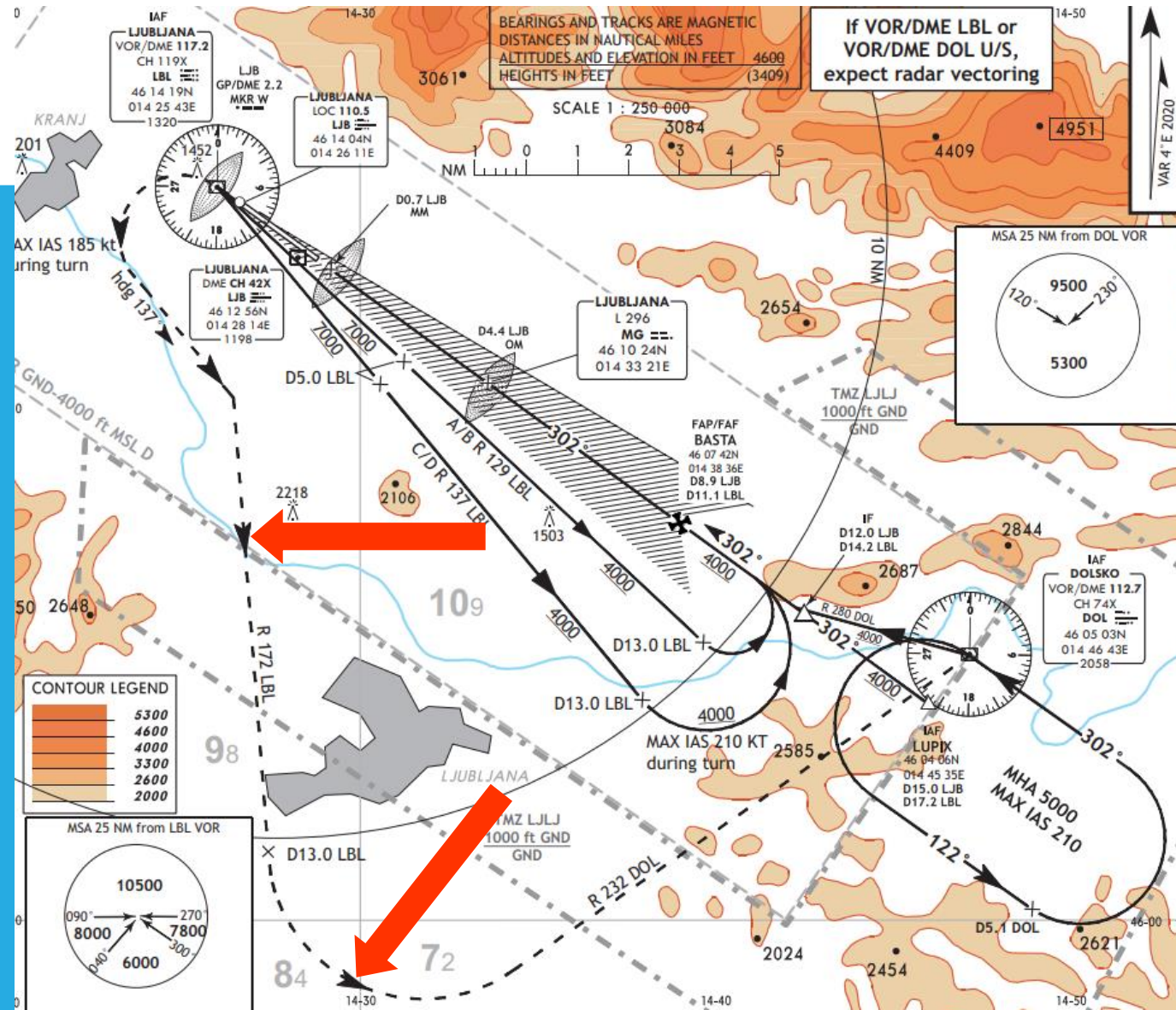
VERTICAL SEPARATION:

- IN USE AT ALL ATC UNITS IN FIR LJLA
- MINIMUM VERTICAL SEPARATION DISTANCE IN THE AIRSPACE CLASS C,D, AND E IS:

1000 FT

MINIMUM RADAR VECTOR ALTITUDES USED BY LJUBLJANA RADAR





MISSED APPROACH PROCEDURE AT LJLJ

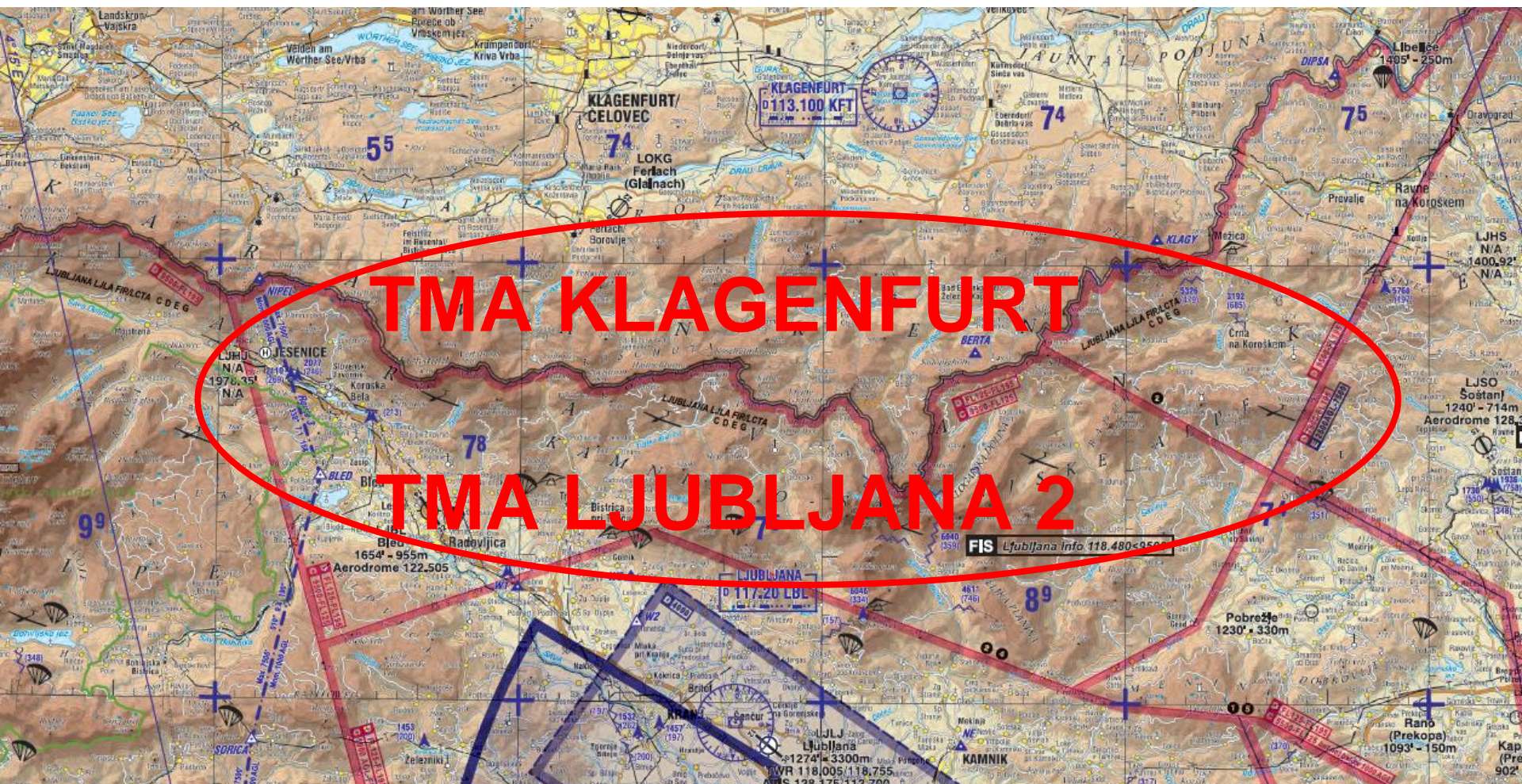
The image shows a topographic map of a mountainous region in Slovenia. A flight path is depicted with a blue line that turns into a green line. A red cross marks a specific location on the path. Three blue callout boxes with red text provide instructions. The map includes labels for various locations such as Jezersko, Logarska, Golte W, Krvavec Zgornjaja, Tunjice, Menina, Jajce, Mengeš, Srednje Jarše, and Limbarska gora. A red line representing a boundary or route is also visible in the lower-left quadrant.

**REPORT CONTINUATION OF
THE FLIGHT IN
UNCONTROLLED AIRSPACE**

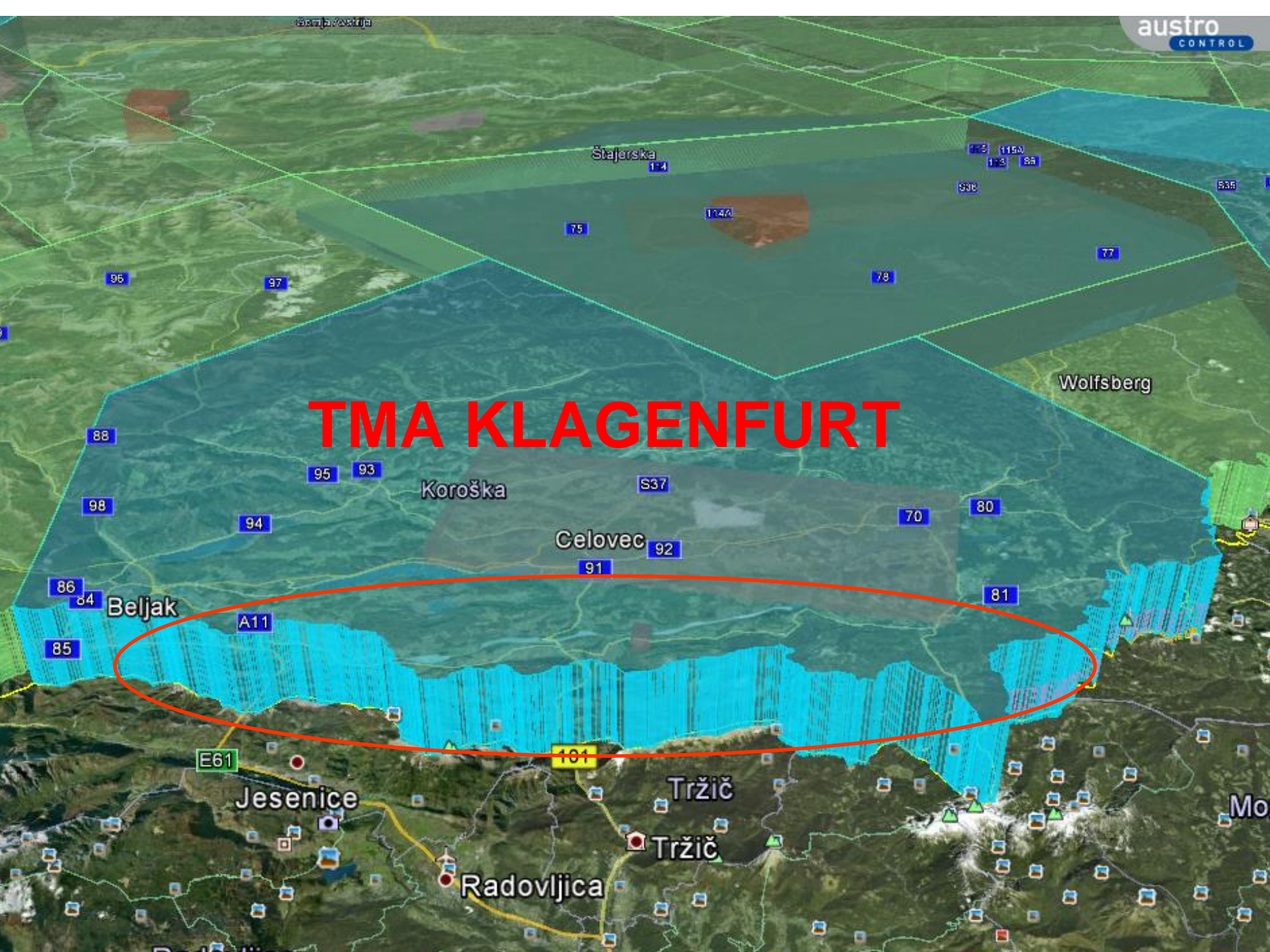
**REPORT LEAVING
TMA LJ1 OR LJ3**

**RECOMENDED TO
MAINTAIN
FREQUENCY LJ INFO
118,480 MHz**

TMA LJUBLJANA 2 AREA



TMA KLAGENFURT



Štajerska 114

113 115A 113 8A

75

114A

93B

83B

96

97

78

77

Wolfsberg

88

95

93

Koroška

S37

98

94

70

80

Celovec

91

92

81

86

84

Beljak

A11

85

E61

Jesenice

101

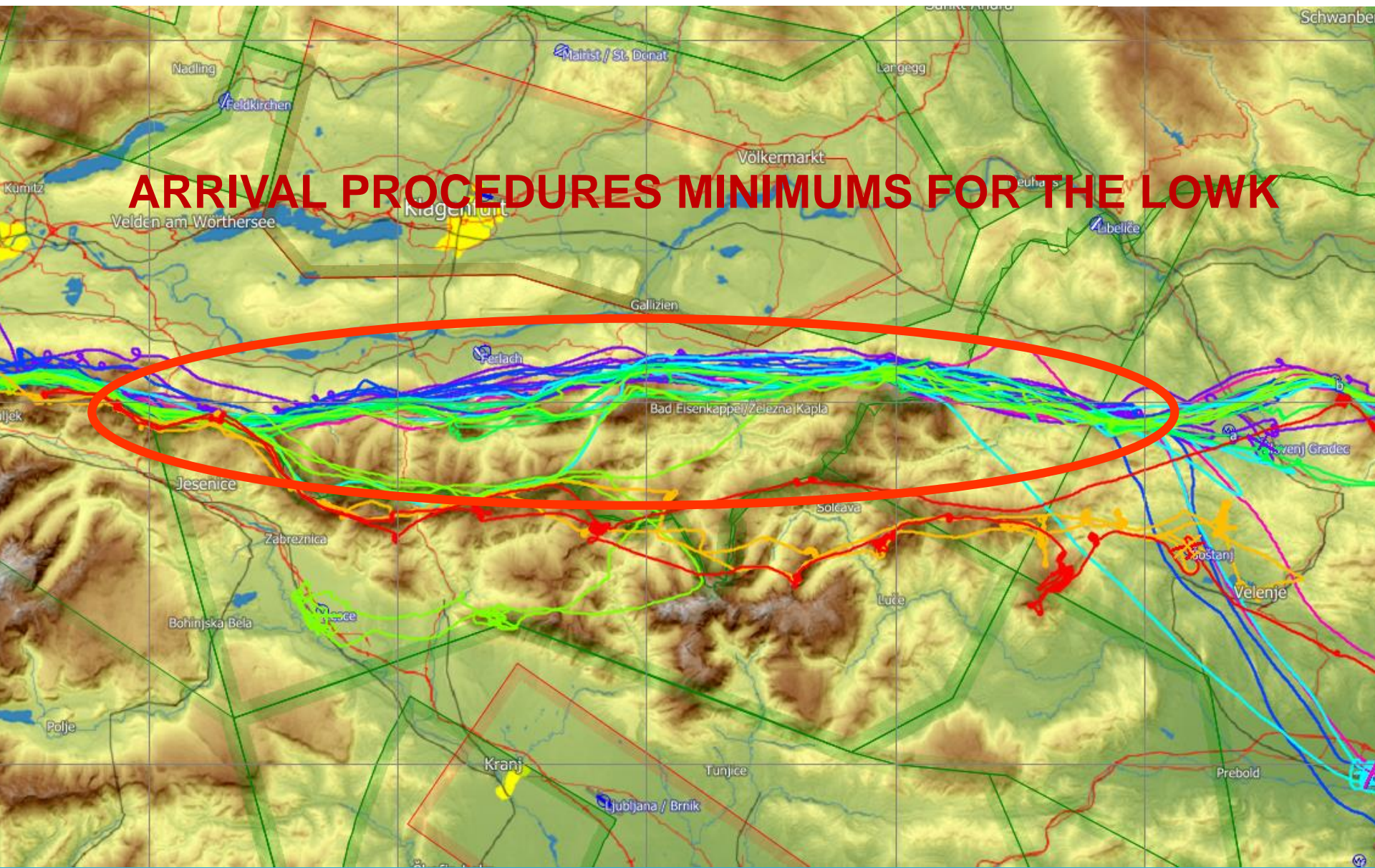
Tržič

Tržič

Radovljica

Mo

ARRIVAL PROCEDURES MINIMUMS FOR THE LOWK

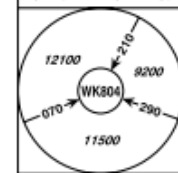


ARRIVAL PROCEDURES MINIMUMS FOR THE LOWK

RNAV REMARKS

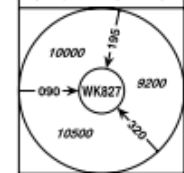
- expect RNAV-Transition to IAP
- Non-RNAV aircraft expect radar vectors to IAP

MSA 25 NM FROM WK804



Austrian territory only

MSA 25 NM FROM WK827



Austrian territory only

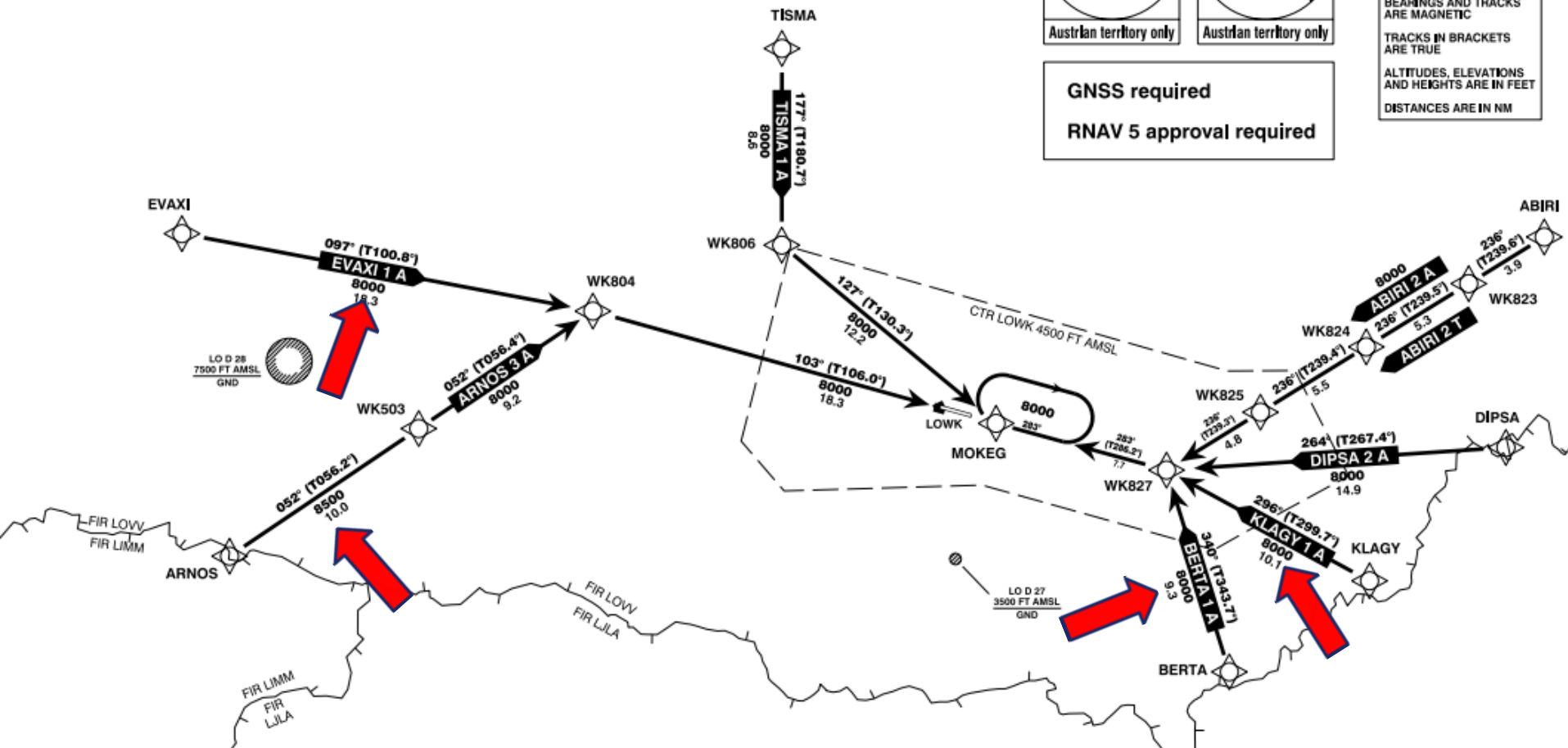
RADAR	123,325
TOWER	118,100
ATIS	126,330

TRANSITION ALTITUDE
10000

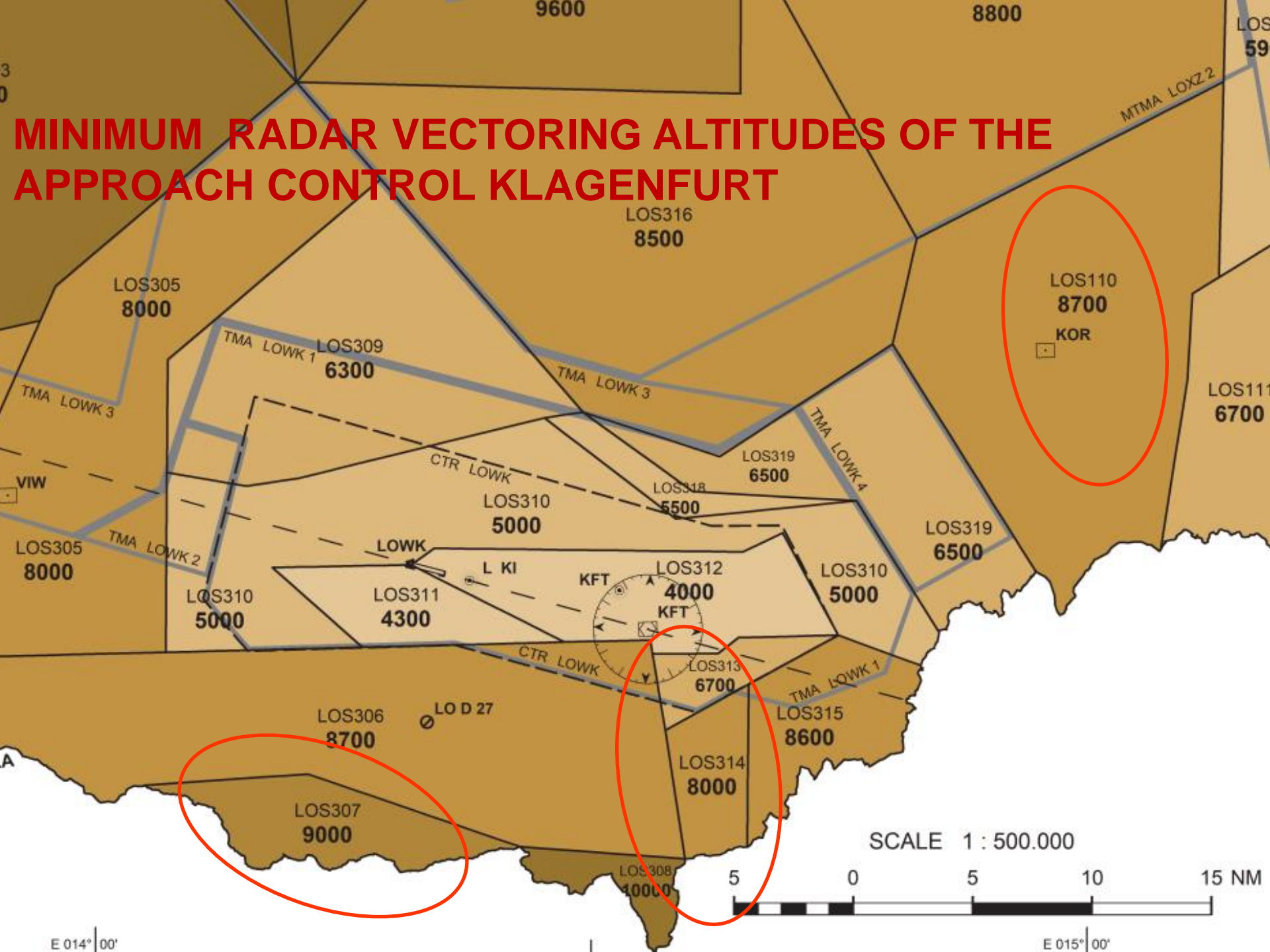
BEARINGS AND TRACKS
ARE MAGNETIC
TRACKS IN BRACKETS
ARE TRUE
ALTITUDES, ELEVATIONS
AND HEIGHTS ARE IN FEET
DISTANCES ARE IN NM

GNSS required

RNAV 5 approval required



MINIMUM RADAR VECTORING ALTITUDES OF THE APPROACH CONTROL KLAGENFURT

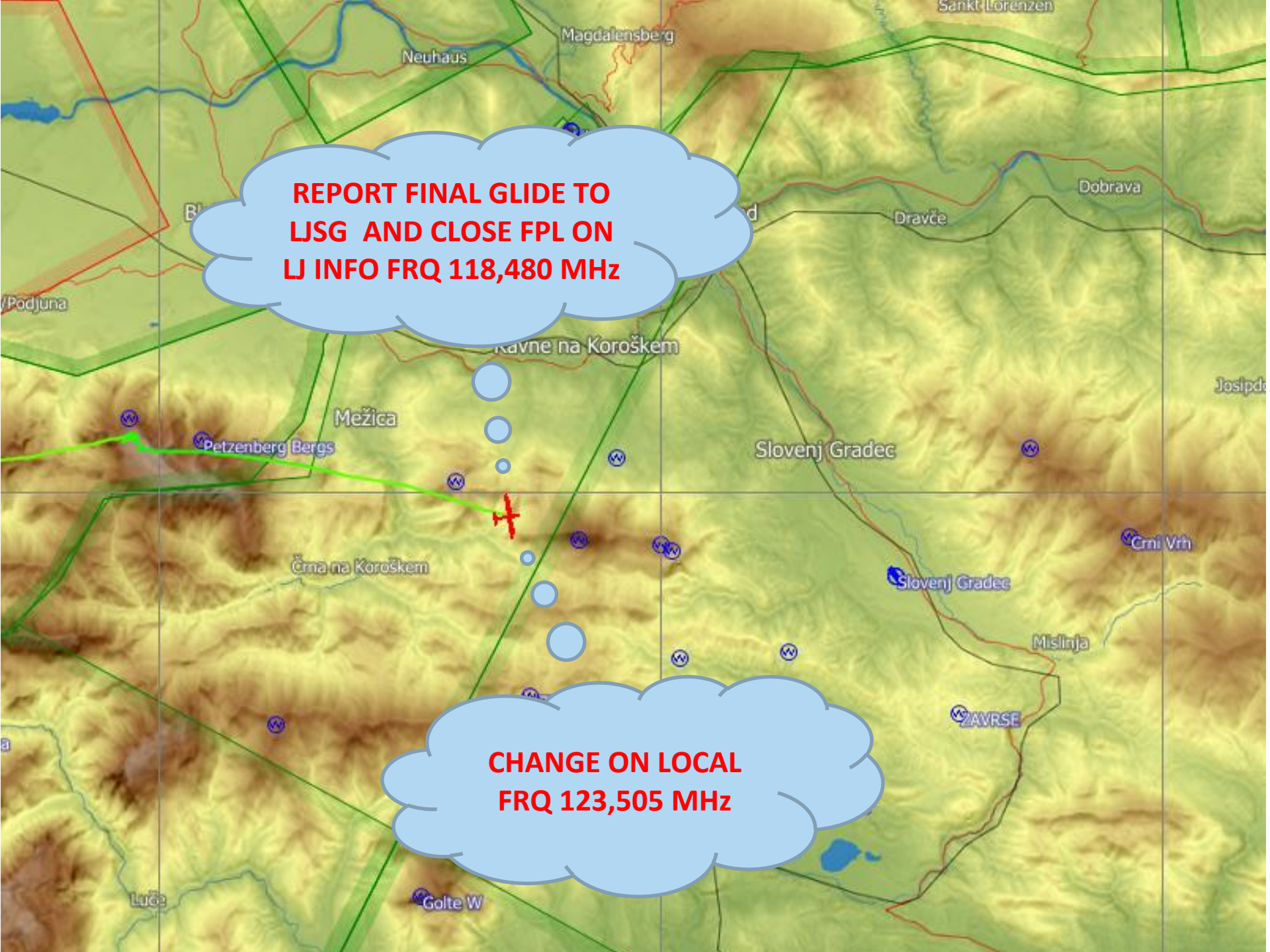


The image shows a topographic map of the Karavanke mountain range. A green line represents a flight path starting from the west, passing through the Karavanke area, and heading east. A red 'X' is marked on the path near the Karavanke. Several blue circles of varying sizes are scattered across the map, likely representing airports or navigation points. Callout boxes provide specific instructions related to transponder use and frequency changes.

**TRANSPONDER:
ACCORDING TO
ATC INSTRUCTIONS**

**REPORT
INTENTIONS ON
THE LJ INFO
118,480 MHz**

**IF NECESSARY
ACCORDING TO
INSTRUCTIONS CHANGE
FRQ ON THE KFT APP
123,325 MHz**

A topographic map of the Slovenian Alps region, showing terrain contours, roads, and rivers. A green line represents a flight path starting from the left and ending at a red airplane icon near Črna na Koroškem. Several blue circular icons with 'W' are scattered across the map. Two blue callout boxes with red text provide flight instructions. The map includes labels for various locations such as Neuhaus, Magdalensberg, Mežica, and Slovenj Gradec.

**REPORT FINAL GLIDE TO
LJSG AND CLOSE FPL ON
LJ INFO FRQ 118,480 MHz**

**CHANGE ON LOCAL
FRQ 123,505 MHz**

CLOSING FLIGHT PLAN



HAVE YOU
CLOSED
YOUR
FLIGHT PLAN
?





GLIDER PILOT COMMUNICATION WITH AIR TRAFFIC CONTROLLERS

COMMUNICATION

ENGLISH AND SLOVENIAN FRAZEOLGY

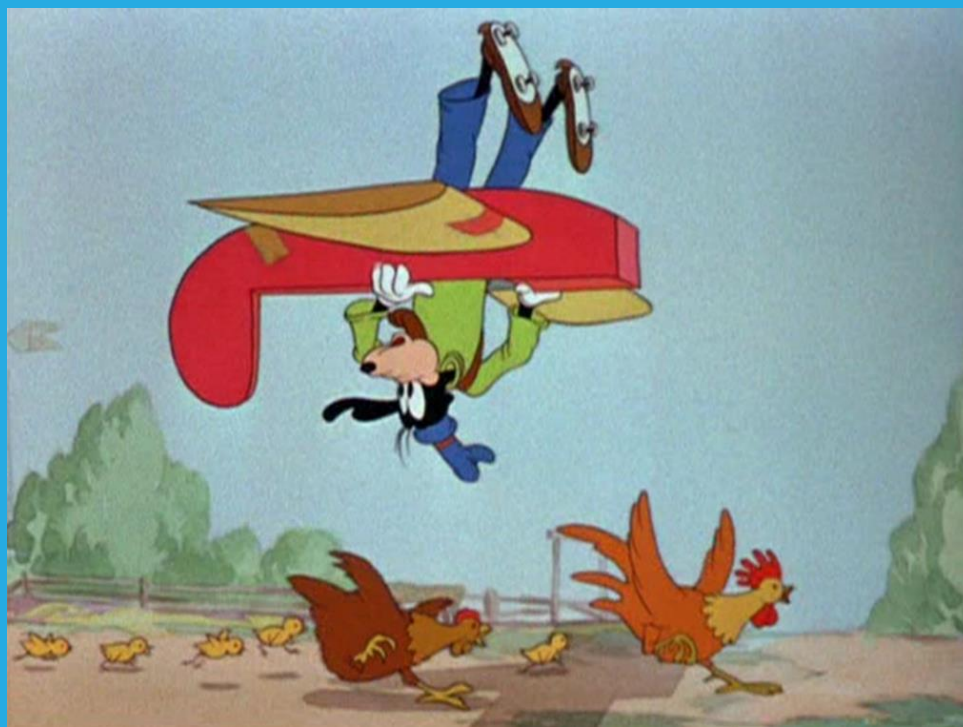
IN SLOVENIAN AIRSPACE IS USED PHRASEOLOGY IN
BOTH LANGUAGES

COMMUNICATION

COMMUNICATION DIFFERENCES BETWEEN GLIDER PILOT AND AIR TRAFFIC CONTROLLERS

COMMUNICATION – POSITION REPORTING

GLIDER PILOT: *DETERMING THE POSITION OF THE AIRCRAFT*



COMMUNICATION – POSITION REPORTING

GLIDER PILOT:

- USES THE METRIC MEASUREMENT SYSTEM IN GLIDER INSTRUMENTS (METERS, KM/H, KILOMETERS)
- LOOKING FOR UPDRAFTS OVER DIFFERENT OROGRAPHY (SEVERAL KM LONG RIDGES, SETTLEMENTS, VALLEYS,.....)
- REPORTS POSITION WITH RESPECT TO OROGRAPHY (HILL , TOWN, CITY.....)

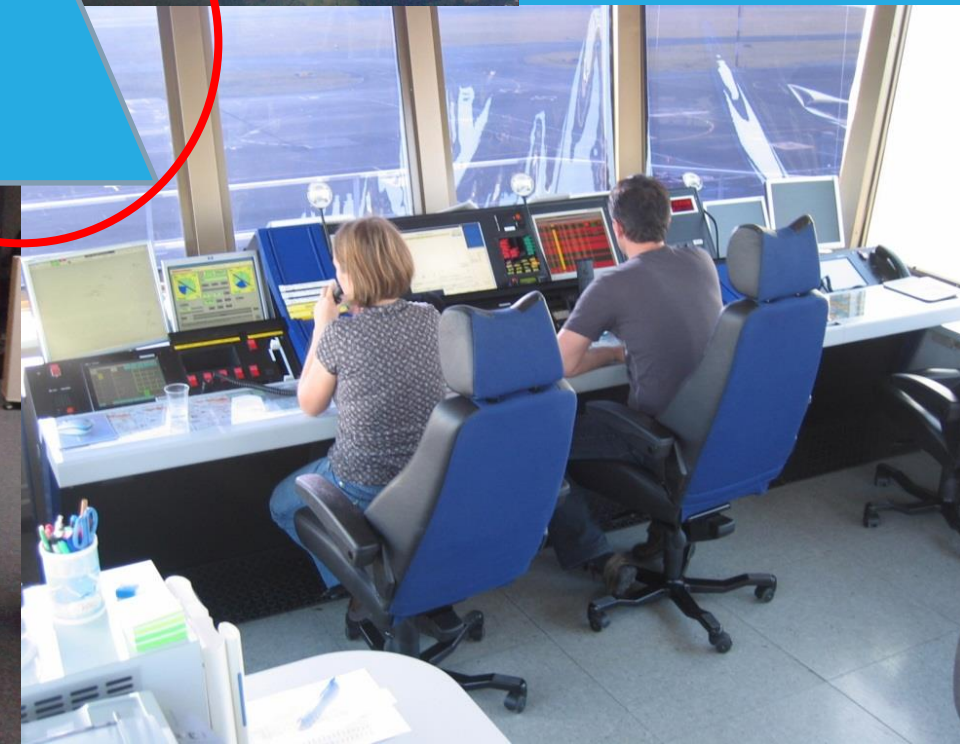
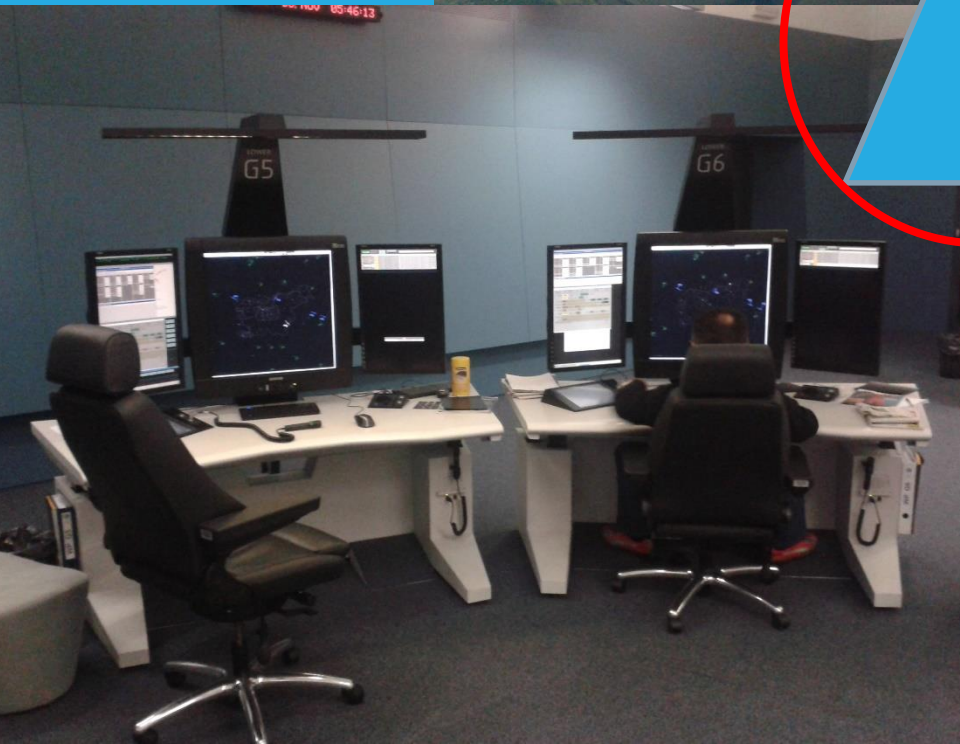
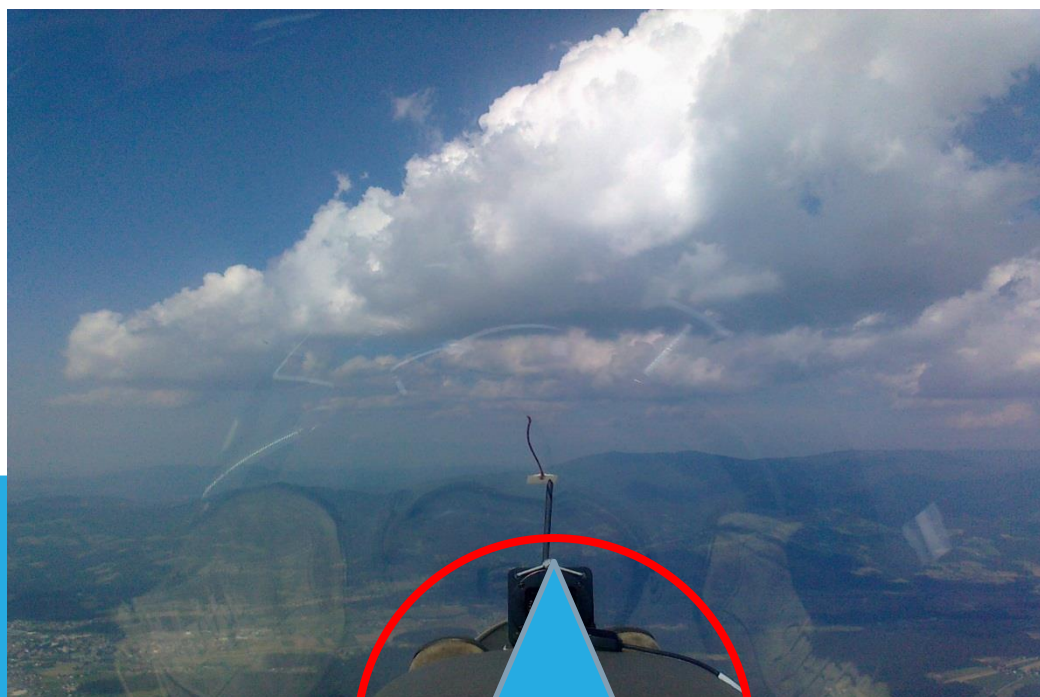
COMMUNICATION – POSITION REPORTING

AIR TRAFFIC CONTROLLER:

- USES IMPERIAL MEASUREMENT SYSTEM ON FLIGHT PROGRESS STRIPS, RADAR DISPLAYS, IN COMMUNICATION WITH CREWS (NAUTICAL MILES, KNOTS, FEET, FLIGHT LEVEL)
- WORKING IN THE TOWER UNDER THE GLASSED DOME OR IN FRONT OF THE RADAR SCREENS IN THE AIR TRAFFIC CONTROL CENTER

COMMUNICATION – POSITION REPORTING

- TOWER CONTROLLER KNOWS WELL THE OROGRAPHY AND SURROUNDINGS OF CTR, TMA (TOWNS, PEAKS, REPORTING POINTS,...)
- SURVEILLANCE CONTROLLER WORKS IN A "VIRTUAL" ENVIRONMENT WHERE POSITION IS REPORTED IN RELATION TO NAVIGATION AIDS (VOR, NDB, DME,...) OR NAVIGATION REPORTING POINTS PUBLISHED IN AIP
- HUMAN FACTOR



COMMUNICATION – POSITION REPORTING

HOW TO PREPARE TO PREVENT
MISUNDERSTANDING BETWEEN GLIDER
PILOT AND AIR TRAFFIC CONTROLLER

?

COMMUNICATION – POSITION REPORTING

POSITION REPORT WITH TRANSPONDER:

- BEFORE ENTERING CONTROLLED AIRSPACE, IT IS RECOMMENDED TO SET TRANSPONDER TO 2000 OR 7000
- VIA RADIO COMMUNICATION, THE PILOT OBTAINS A SPECIFIC CODE FOR THE TRANSPONDER ON THE BASIS OF WHICH THE CONTROLLER POSITIVELY IDENTIFIES HIM AND IN THIS WAY EXECUTES SEPARATION WITH THE OTHER TRAFFIC.
- THE CONTROLLER CHECKS HIS POSITION AND ALTITUDE, THEN ASSESSES POTENTIAL CONFLICTS WITH OTHER TRAFFIC AND ISSUES APPROPRIATE INSTRUCTIONS AND CLEARANCES

COMMUNICATION – POSITION REPORTING

- PILOT ARRANGE THE DISPLAY ON THE NAVIGATIONAL INSTRUMENT SO, THAT HE WILL READ THE PARAMETERS WHICH WILL MAKE IT EASY FOR THE CONTROLLER TO DETERMINE HIS POSITION:
 - DISTANCE (DIS) FROM POINT IN NAUTICAL MILES,
 - ALTITUDE (ALT) IN FEET OR FLIGHT LEVEL,
 - BEARING (BRG) FROM REPORTING POINT
 - USE OF THE FUNCTION RADIAL

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE



RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

SUBMITTING THE FLIGHT PLAN:

- BY SUBMITTING THE FPL BEFORE THE FLIGHT, THE DATA IS PROCESSED AND ENTERED INTO THE FLIGHT DATA PROCESSING SYSTEM – FDPS.
- YOU CAN USE THE E-ARO APPLICATION FOR SUBMISSION, WHICH IS POSSIBLE TO USE WITH A MOBILE PHONE.
- BY SUBMITTING FPL ON FREQUENCY, THE CONTROLLER WILL REQUEST ADDITIONAL INFORMATION TO BE ENTERED INTO THE SYSTEM.

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

SUBMITTING THE FLIGHT PLAN:

- THE FPL IS ACTIVATED AT THE FIRST RADIO CONTACT WITH THE CONTROLLER.
- IF IT IS NECESSARY TO LAND AT ALTERNATE AIRPORT OR MAKE AN OUTLANDING DUE TO WEATHER CONDITIONS, THE FPL CAN BE CLOSED BY MOBILE PHONE OR IN THE E-ARO APPLICATION.
- FOR INTERNATIONAL VFR FLIGHTS SUBMISSION OF FPL IS MANDATORY (BY PHONE, E-ARO, BY FREQUENCY).

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

ENTERING CONTROLLED AIRSPACE:

- CONTROLLED AIRSPACE MUST NOT BE ENTERED UNTIL PILOT RECEIVE ATC CLEARANCE FROM THE CONTROLLER
- THE PILOT'S INFORMATION ABOUT HIS REQUEST IS NOT ENOUGH, HE MUST WAIT FOR ATC CLEARANCE
- THE AIRCRAFT MUST REMAIN OUTSIDE THE CONTROLLED AIRSPACE WHILE WAITING FOR THE CLEARANCE

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

ENTERING CONTROLLED AIRSPACE:

- ATC CLEARANCE MUST BE REQUESTED ON FREQUENCY LJ INFORMATION 118.480 MHz OR LJ RDR 135.280 MHz,

**AT LEAST 5 MINUTES BEFORE ENTERING CLASS D OR C
CONTROLLED AIRSPACE**

- ENTRY FOR A GLIDER PILOT WILL BE APPROVED INDIVIDUALLY FOR EACH GLIDER DEPENDING ON TRAFFIC SITUATION

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

**IN CASE OF SAFETY ISSUES, THE GLIDER HAS
PRIORITY OVER THE OTHER AIR TRAFFIC!**

**IN THESE CASES, THE GLIDER (EVEN WITHOUT A
TRANSPONDER) WILL BE ALLOWED TO APPROACH
ANY CONTROLLED AIRPORT.**

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

**AFTER INITIAL CONTACT WITH AIR TRAFFIC
CONTROL UNIT, GLIDER PILOTS MUST REMAIN ON
THE FREQUENCY AT ALL TIMES AND LISTEN AND
FOLLOW THE INSTRUCTIONS ISSUED!**

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

AWARENESS OF SPEED DIFFERENCES



*WHEN THE GLIDER IS CIRCLING IT IS ALMOST
MAINTAINING POSITION*

*AIRCRAFT IN DESCENT CAN REACH SPEEDS OF 250 KTS
OR MORE*

RECOMMENDATIONS FOR THE GLIDER PILOT WHEN ENTERING CONTROLLED AIRSPACE

*AWARNESS OF THE DIFFERENCES IN AIRCRAFT
PERFORMANCE*



GLIDER IS UNABLE TO MAINTAIN ALTITUDE

*LARGER AIRCRAFT NEEDS MORE TIME TO CHANGE THE
FLIGHT DIRECTION OR REDUCE/INCREASE SPEED*



**HOW ENTRY OF THE GLIDER INTO
CONTROLLED AIRSPACE
INFLUENCES ON WORKLOAD OF THE
AIR TRAFFIC CONTROLLER ?**

AIR TRAFFIC CONTROLLER WORKLOAD

- THE DUTY OF THE CONTROLLER IS TO ENSURE THE SAFE, ORDERLY AND EXPEDITIOUS FLOW OF AIR TRAFFIC.
- THE CONTROLLER CREATES A MENTAL PICTURE OF THE CURRENT TRAFFIC SITUATION AND DETERMINES PRIORITIES FOR RESOLVING CONFLICTS.
- WHEN RESOLVING CONFLICTS, AIRCRAFT PERFORMANCE, AIRCRAFT PRIORITIES, WEATHER SITUATION, AIRSPACE RESTRICTIONS, HANDOVER CONDITIONS TO NEIGHBORING ATC SECTORS MUST BE TAKEN INTO ACCOUNT.

AIR TRAFFIC CONTROLLER RESPONSIBILITY

RESPONSIBILITY OF THE AIR TRAFFIC CONTROLLER:

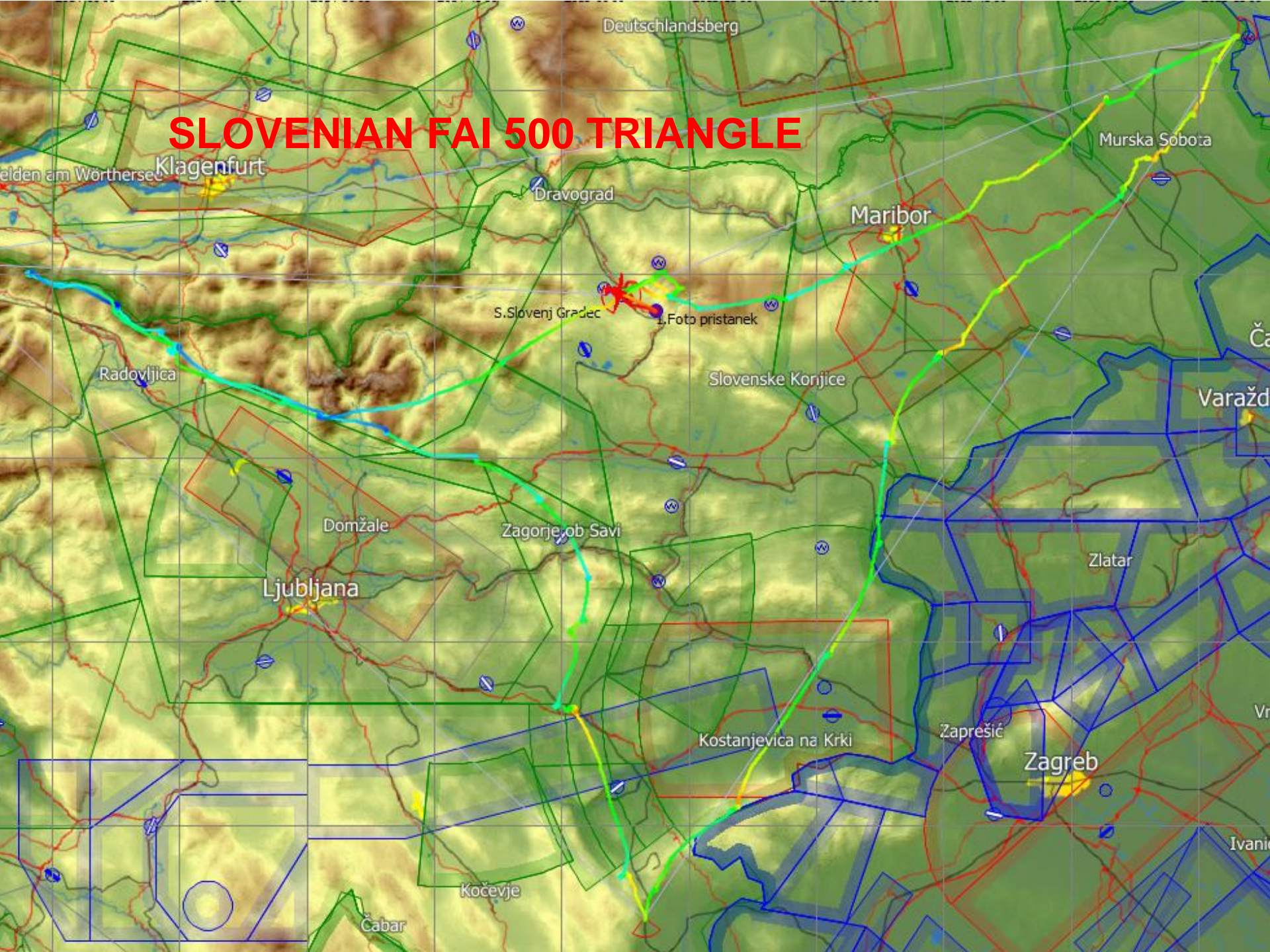


THE CONTROLLER HAS THE RESPONSIBILITY OF SEPARATING ALL KNOWN AND UNKNOWN AIR TRAFFIC

CONTROLLERS ARE AWARE OF THE POSSIBILITY OF LOSS OF WORK LICENSE AND ITS CONSEQUENCES,...

CROSS COUNTRY FLIGHT EXAMPLE

SLOVENIAN FAI 500 TRIANGLE



Deutschlandsberg

Murska Sobota

Klagenfurt

Dravograd

Maribor

S.Slovenj Gradec

L. Foto pristanek

Radovljica

Slovenske Konjice

Varaždin

Domžale

Zagorje ob Savi

Zlatar

Ljubljana

Kostanjevica na Krki

Zaprešić

Zagreb

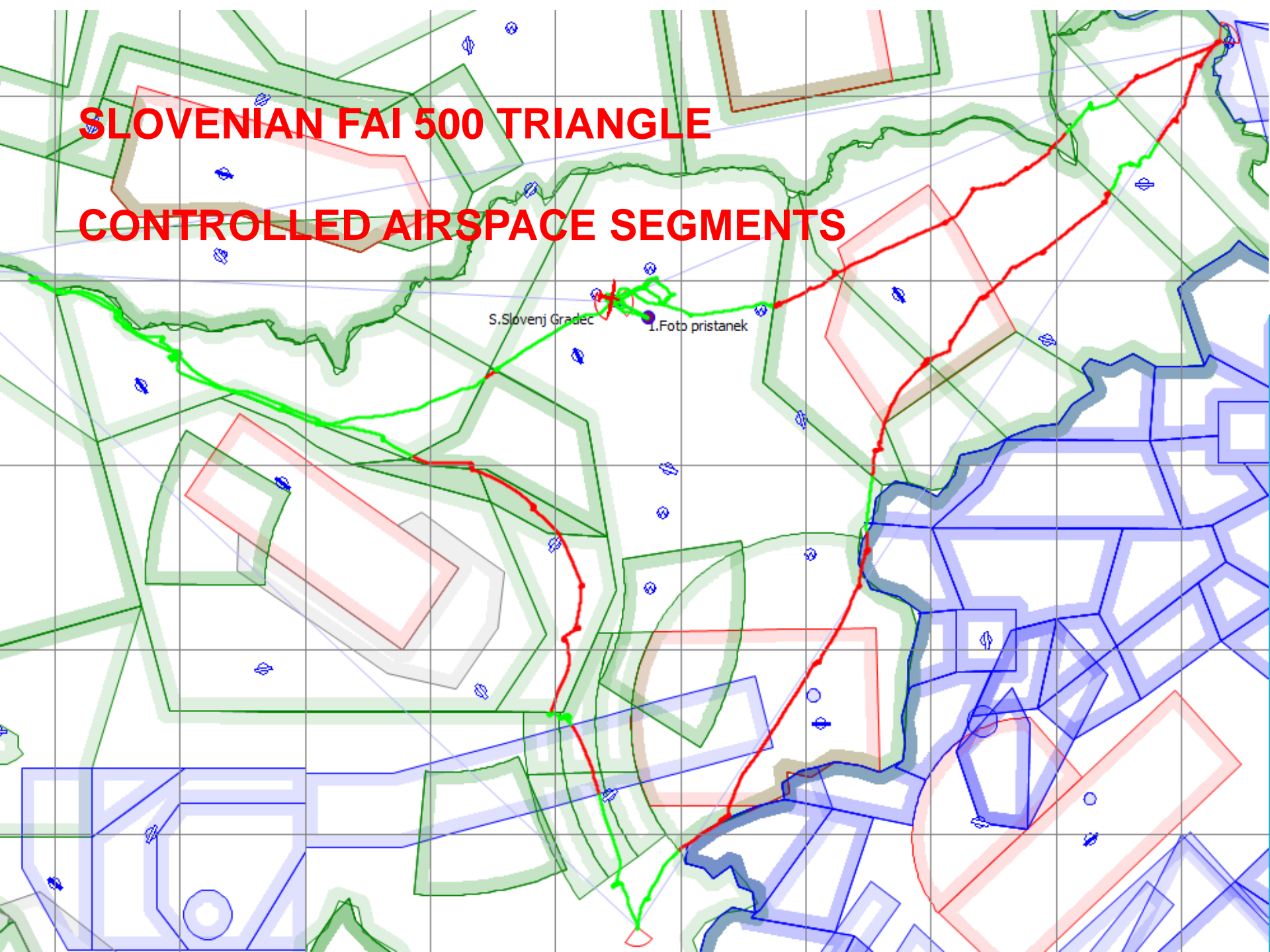
Kočevje

Čabar

Ivanic

SLOVENIAN FAI 500 TRIANGLE

CONTROLLED AIRSPACE SEGMENTS





**SLOVENIAN AIR TRAFFIC CONTROLERS
WISH YOU SAFE AND PLEASANT
FLIGHTS!**