

Switzerland NAV/GNSS Strategy and PBN Transition

Switzerland Navigation Strategy (PBN transition plan)

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2023

2025

2027

2029

2035

ATS Routes / Arr. / Dep.

route/procedure

conv. ATS routes

RNAV 5 ATS routes

free route airspace

conv. SID/STAR

RNAV 1 SID/STAR (RNP 1 where beneficial)

navigation sensor

GNSS (primary means of navigation)

DME

DME/DME backup

VOR

VOR MON

NDB

APCH

RNP APCH (EGNOS CAT-I, Baro-VNAV)

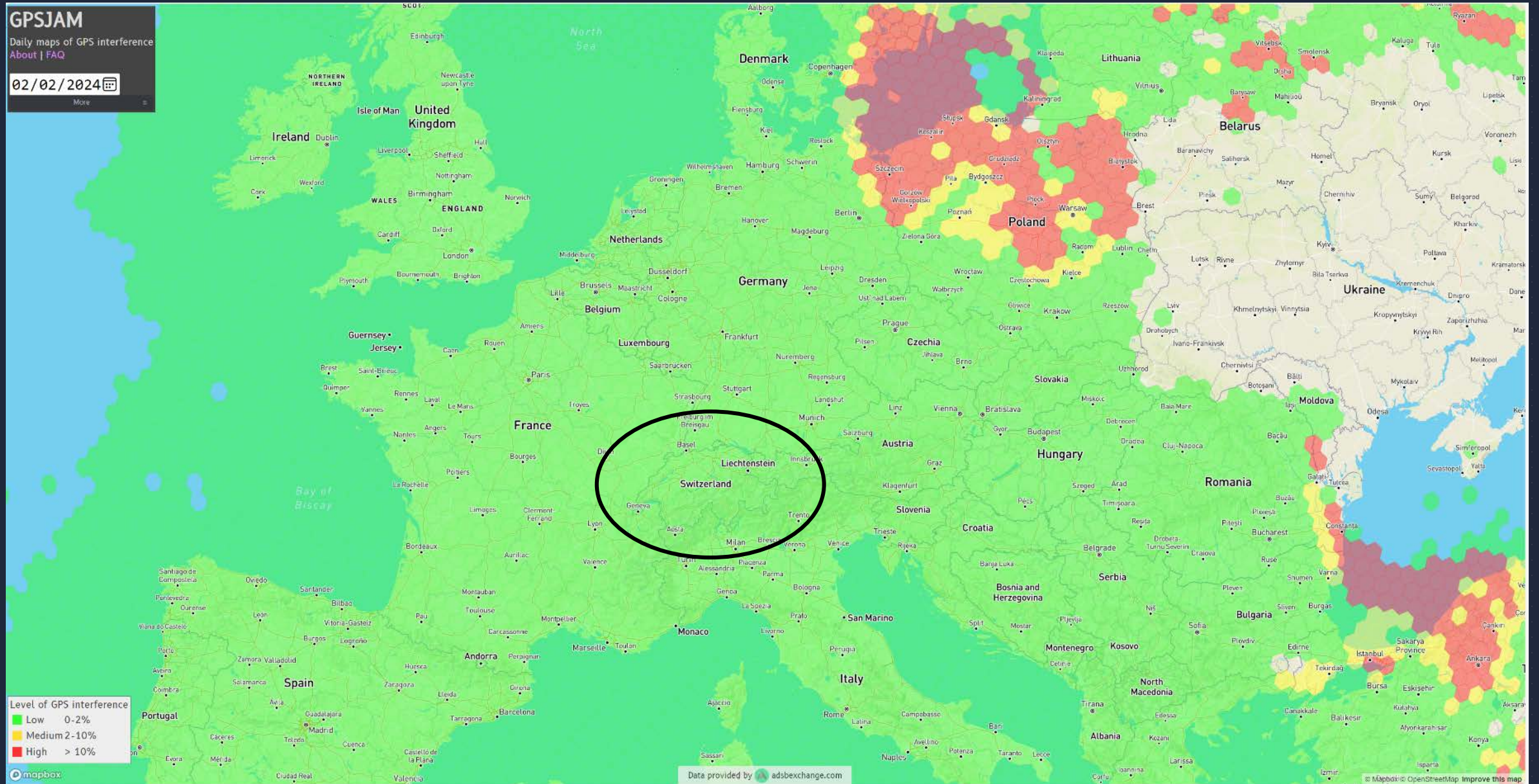
ILS CAT-I

ILS CAT-I MON

ILS CAT-III

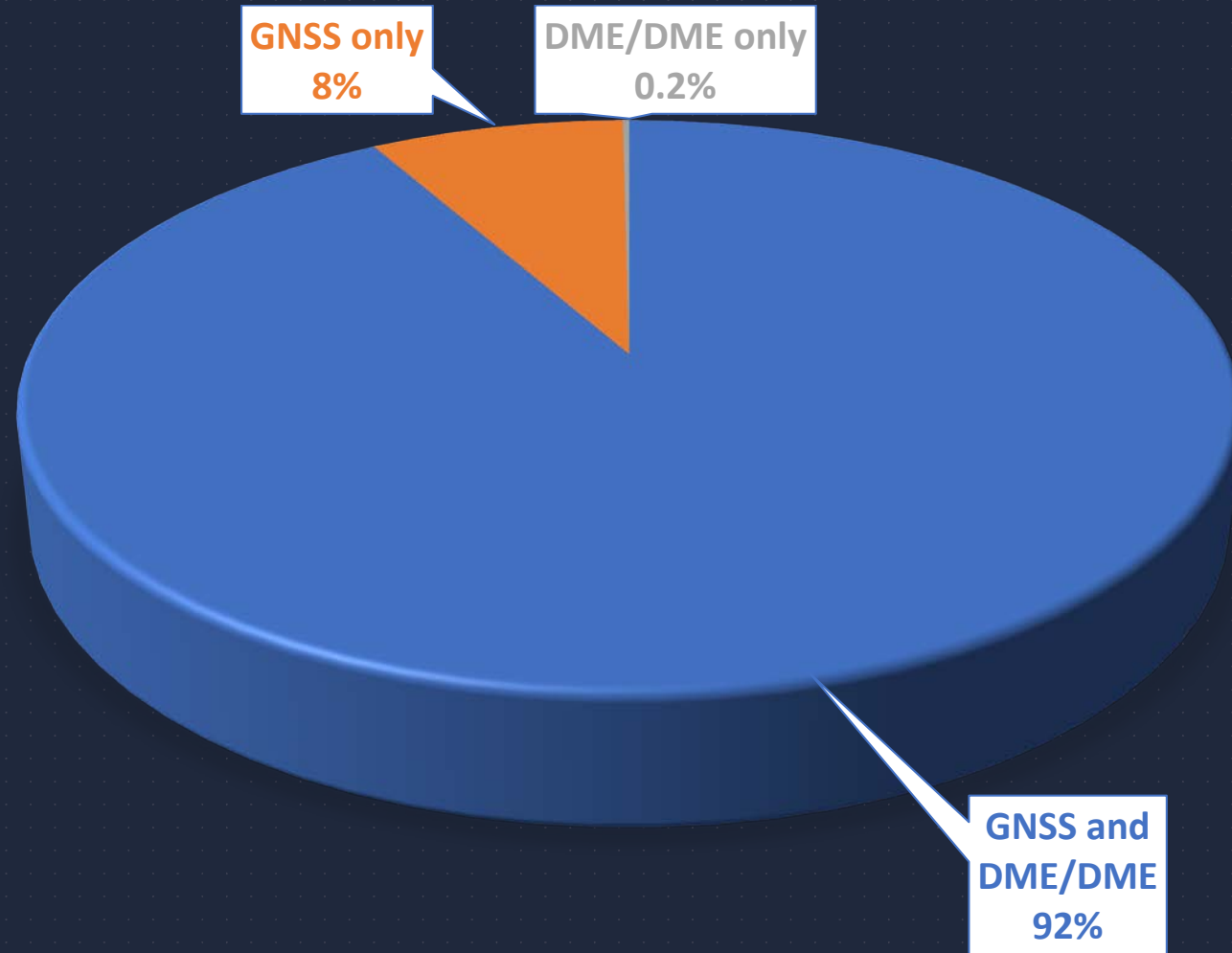
GBAS CAT-I

GBAS CAT-III



Aircraft Capabilities RNAV 1

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RNAV 1 aircraft capabilities today in the Swiss Airspace: > 99%

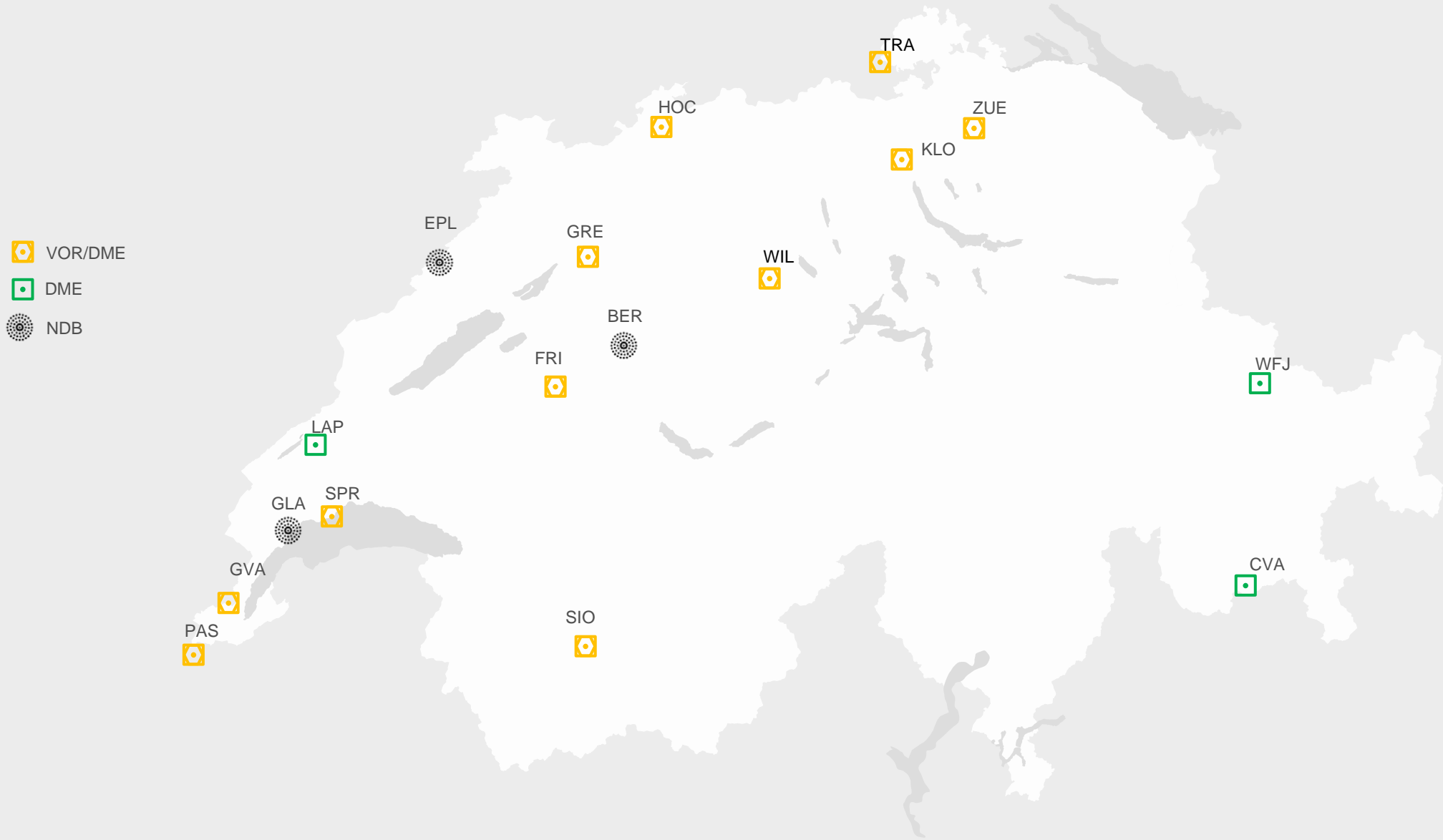
Flight Phase	Navigation Specification	Primary means of navigation	Alternative (in case of GNSS issues)
ATS routes	RNAV 5	GNSS	<ul style="list-style-type: none"> • DME/DME • Radar vectoring
LFN (low-flight netw.)	RNP0.3	GNSS	<ul style="list-style-type: none"> • n/a
SID/STAR (Int. Airports)	RNAV 1	GNSS	<ul style="list-style-type: none"> • DME/DME • Radar vectoring • ODP / SAT ⁽¹⁾
SID / STAR (Regio Airports)	RNAV 1	GNSS	<ul style="list-style-type: none"> • DME/DME partly • Radar vectoring partly
APCH	RNP APCH <ul style="list-style-type: none"> • LNAV • LNAV/VNAV • LPV GLS CAT-I ILS CAT-II/III	GNSS (incl. SBAS) ILS	<ul style="list-style-type: none"> • ILS CAT-I (MON²) – use limited to GNSS contingencies

⁽¹⁾ ODP (omni-directional departures deployed in LSGG)
 SAT ("straight ahead and turn" departures deployed in LSZH)

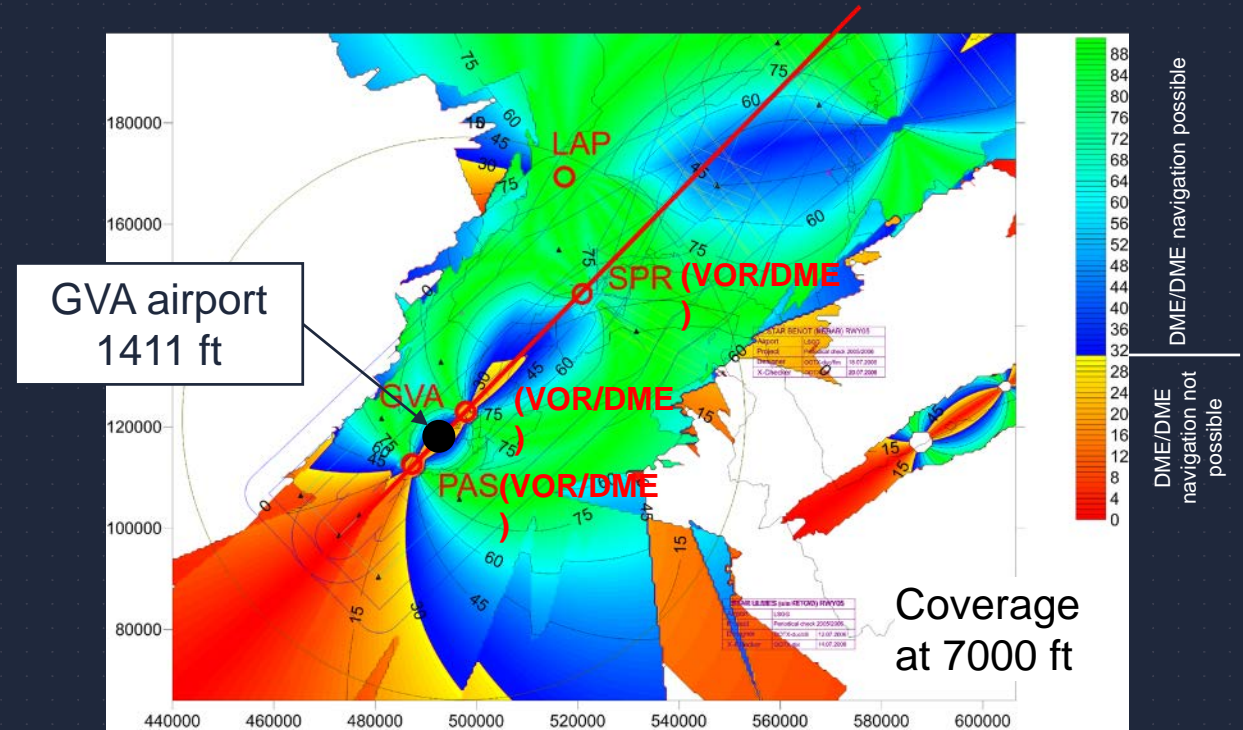
⁽²⁾ MON: Minimum Operational Network

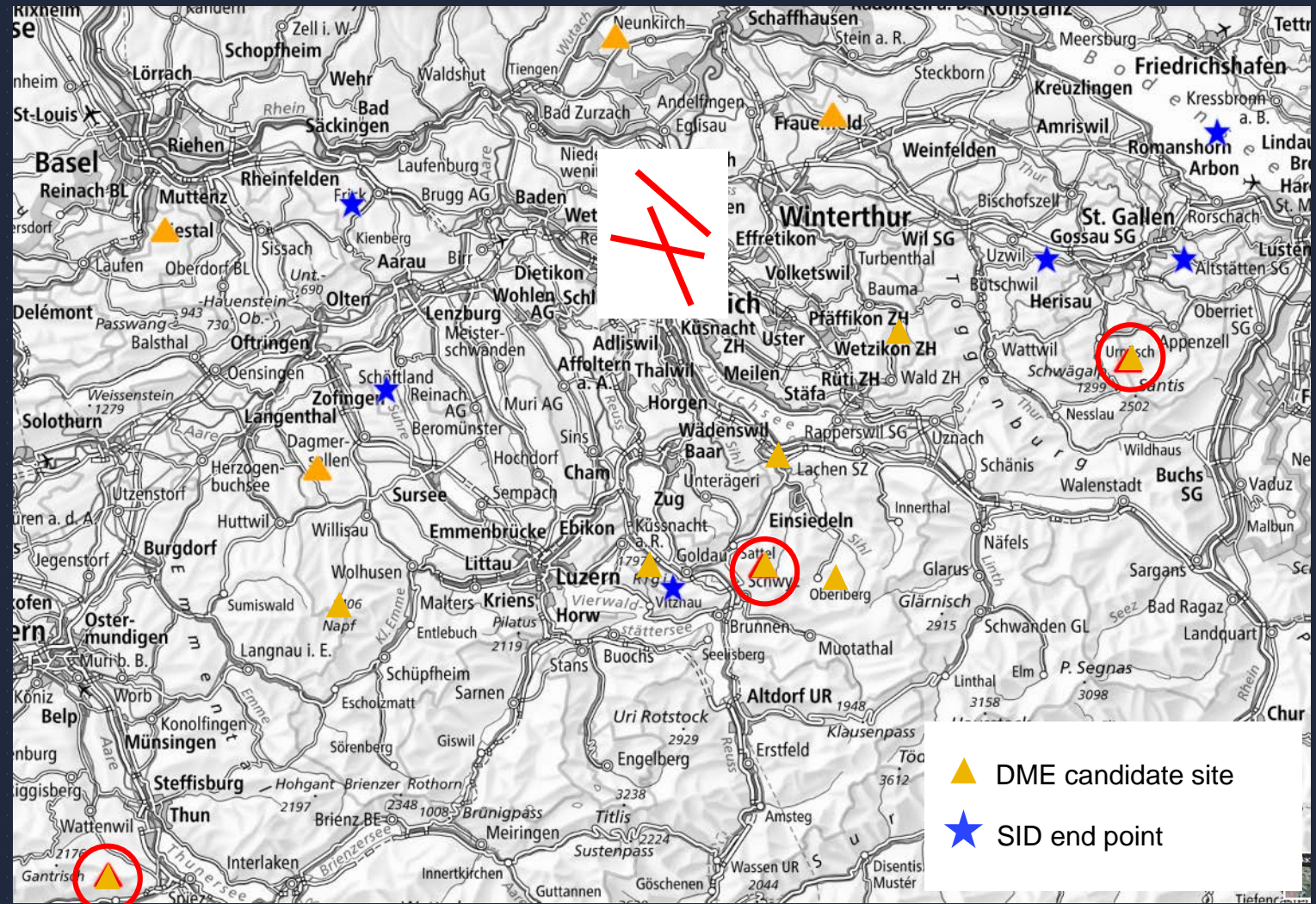
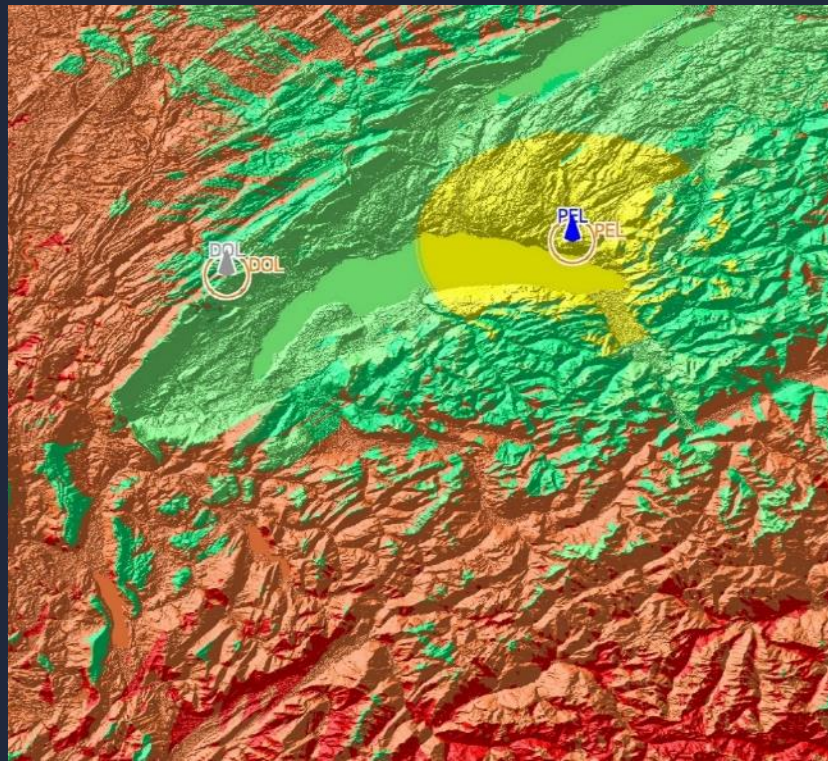
Navigation Facilities in Switzerland prior to PBN transition

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- No coverage down to RWY end
- Inappropriate distribution of DME network









➤ Line of sight from DME to RWY and SID procedure

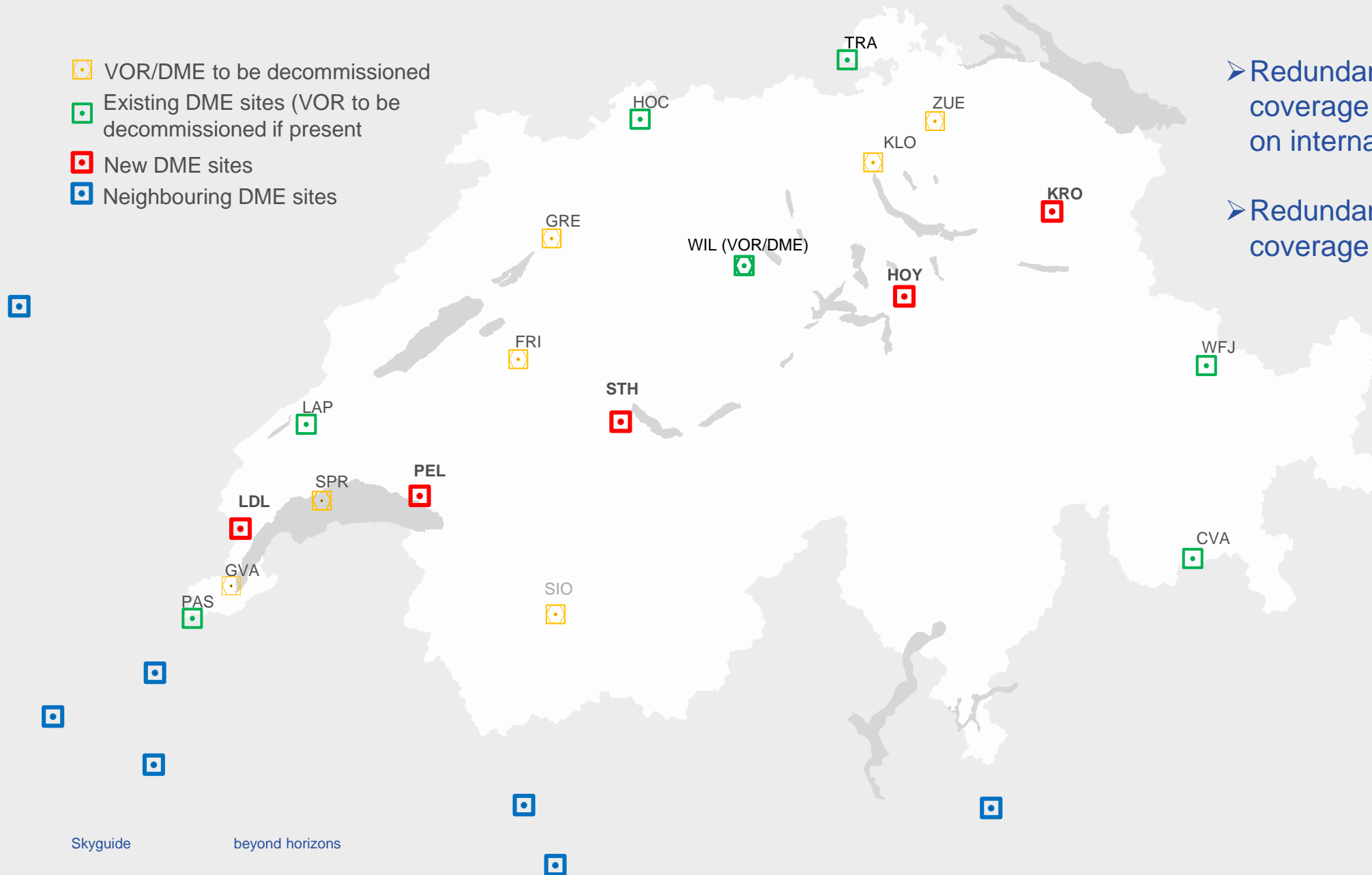
➤ Sufficient geometry
➤ Redundancy

Planned DME Network

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-  VOR/DME to be decommissioned
-  Existing DME sites (VOR to be decommissioned if present)
-  New DME sites
-  Neighbouring DME sites

- Redundant DME/DME coverage down to the RWY on international airports
- Redundant DME/DME coverage for ATS routes



- Complete transition to PBN feasible
- Decommission of all conventional procedures
- GNSS primary means of navigation
- DME network allows operation without capacity reduction for ATS routes and international airports (including ILS for APCH)
- Radar vectoring possible for aircraft without DME/DME capabilities



Thank you for your attention