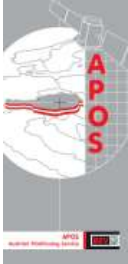


# APOS GNSS 2017

**BEV - Bundesamt für Eich- und Vermessungswesen**





## GNSS network infrastructure

### GNSS HW/SW

- **Trimble TPP 3.10.3** since 1.10.2017
- APOS for CZEPOS, SKPOS, GNSSnet.hu, SIGNAL - scheduled changes at:
  - FRST, GMUE, HOR2, MSTB, ROHR, FLDB, OBWT, DLBG
  - > **Leica GR30 (FW 4.10.488), Leica AR25.R3, LEIT**
  
  - BLE2, KLA2, LAN2 (KELAG – end 10/2018)
  - > **Leica GR10 (FW 2.62), Leica LEIAR10**
- new/optional by 10/2018 (after KELAG termination):
  - VLKM: > **Septentrio POLARx5 (FW 5.1.2), Leica AR25.R4, LEIT**
  - SPDR: > **Leica GR30 FW (4.11.606), Leica AR25.R4, LEIT**
  - SPD2: > **Septentrio POLARx5 (FW 5.1.2), Leica AR25.R4, LEIT**  
(SPDR/SPD2 via antenna-splitting)
- Currently **5 RTK-Monitoring – Stations**: Innsbruck, Völkermarkt, Oberwart, Heiligenblut, Spittal/Drau

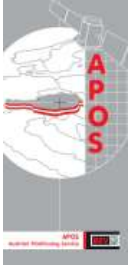


## GNSS network infrastructure

### APOS – permanent stations

- currently **44** stations in operation (Austria)
- 1<sup>th</sup> Jan. 2018: takeover of APOS / **IGS – Station GRAZ**
- **Sept. 2018: 36** BEV's own APOS – stations mit Multi-GNSS equipment





## Multi - GNSS Upgrade – **main problems so far:**

### TPP 3.10.3 <> CORS Topcon / NetR5 <> Rover Trimble R6, R4

- CORS „Clock steering“ must be activated otherwise **horizontal deviations 0,1m - 2,5m !**

Therapy: e.g. CORS change to Leica 1200+GNSS (or GR30 in the future)

### TPP 3.10.3 <> CORS Leica GR30

- Leica GR30 FW (4.11.606) > **problems in general**
- Leica GR30 FW (FW 4.10.488) > **problems by tracking of more than 15 GPS – sat. > complete failure ...**

Therapy: e.g. Reduction of elevation mask up to 2° (or more)



## **GNSS – Metrology:**

Antennas are calibrated by Geo++/Chamber, Code Bias Calibration (station depended) for RTX via Trimble Cloud service activated...

Procedure with partner stations – (RINEX-) data exchange to Trimble allowed?

## **User Guidelines:**

none; only by means of the APOS Product-information in general

## **GNSS – permanent station protection:**

APOS reference stations basically operate in a secure environment, mostly on the basis of licence agreements. Otherwise an APOS reference station has the same status as a federal control point and therefore is protected by the Austrian Surveying Law § 51 (1); at location: closed HW-rack