News from Slovakia 2013

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24th conference of EUPOS ISC,
29-30.10.2013, Berlin, Germany

- **SK**POS®
    - status in October 2013
    - control software, services
    - number of users, field of applications, charges
    - statistics

- Applications related to **SK**POS®

- Activities related to **EUPOS®**
  European Position Determination System

- **SK**POS® time series analysis

- Other GNSS news from Slovakia
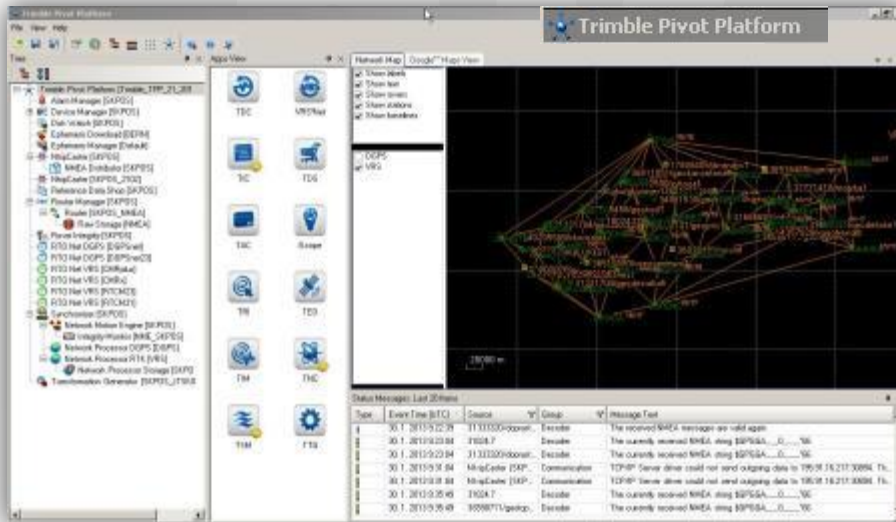
SKPOS® infrastructure October 2013

- **30 slovakian permanent stations (14 individual calibrated)**
  - All stations with TRIMBLE receivers and antennas
  - All stations observe GPS+GLONASS signals (few Galileo)
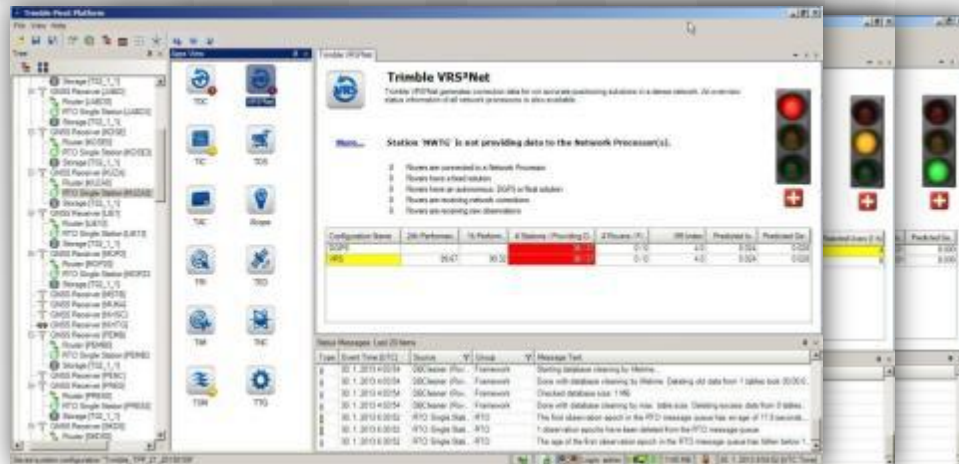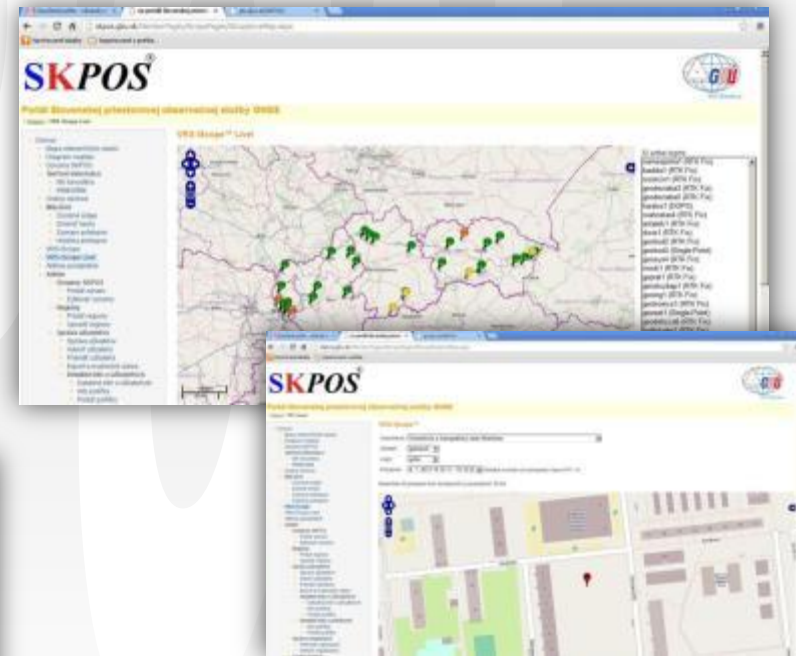- **18 foreign permanent stations - NEW**

- Trimble NetR8 receiver
- Trimble NetR9 receiver
- Individual calibrated antenna
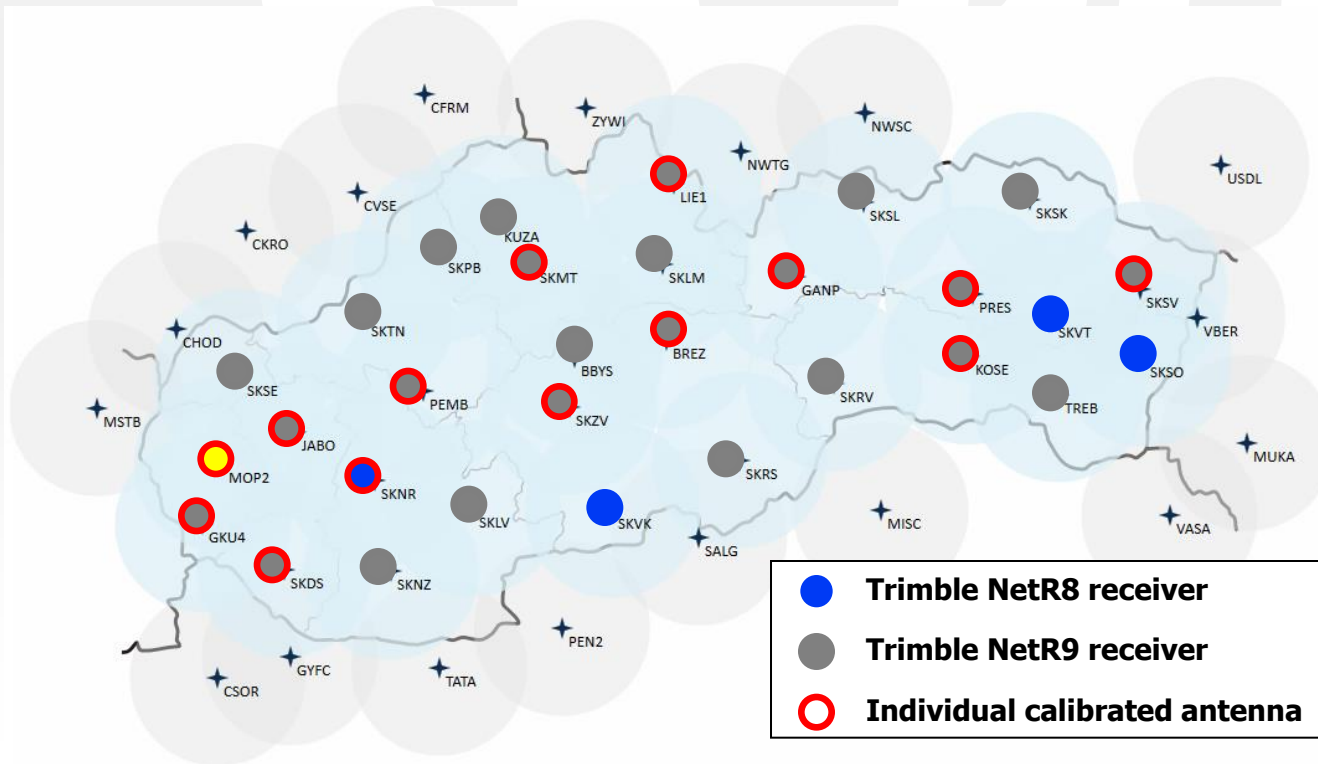
Trimble Pivot Platform ver. 2.5.7


I-Scope module (11.11.2011)

Only network solution (Network RTK) no Single RTK

Service	Accuracy	Data format	Interval
SKPOS_MM post-processing (VRS or permanent station data)	mm - cm	RINEX: 2.10, 2.11, 3.0 DAT, TGD, T01, T02	1 sec. – x sec.
SKPOS_CM_23 **SKPOS_CM_31** **SKPOS_CM_CMRX** **SKPOS_CM_CMR+** RTK (VRS concept)	2 – 4 cm	RTCM 2.3 RTCM 3.1 CMRX CMR+	1 sec.
SKPOS_DM_SVK **SKPOS_DM_SVK_23** RTK (VRS concept)	0,3 – 1 m	RTCM 2.1 RTCM 2.3	1 sec.

- over 860 registrations (October 2013)
- still increasing
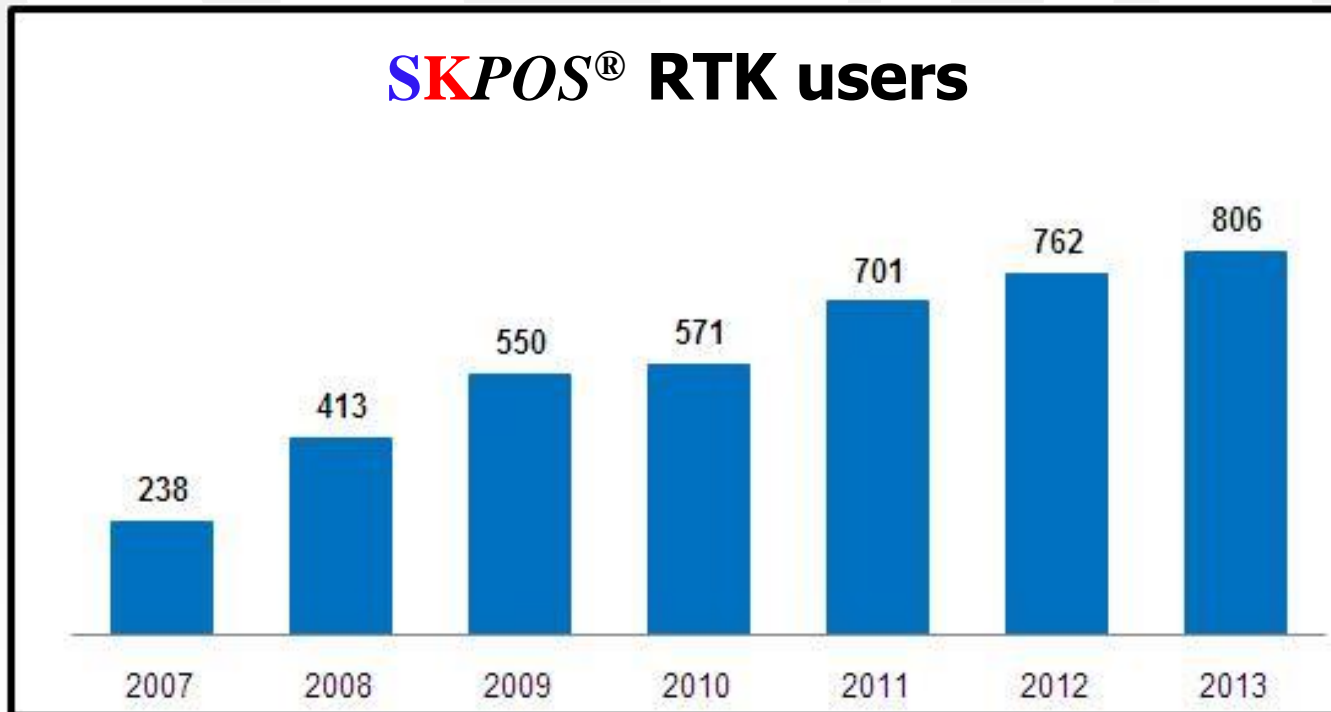
SK*POS*® **RTK users**

- 94% - surveying, cadastral, cartography geodesy and GIS

- 5% (40) users from precise farming,

- 1% forestry, archeology etc.

- **2013 year**
  - the same charge as 2012 and 2011 year
  - flat rate **90 €** per 365 days from the date of registration

- price involve
  - 2000 hours for DGNSS measurement
  - 1000 hours for the RTK measurement
  - 100 hours for the RINEX downloading

- after limit overdraw – additional charges
  - single station RINEX   0,1 EUR/min
  - VRS RINEX   0,05 EUR/min
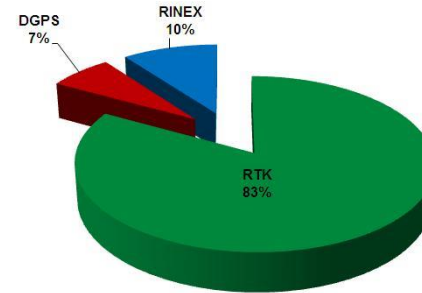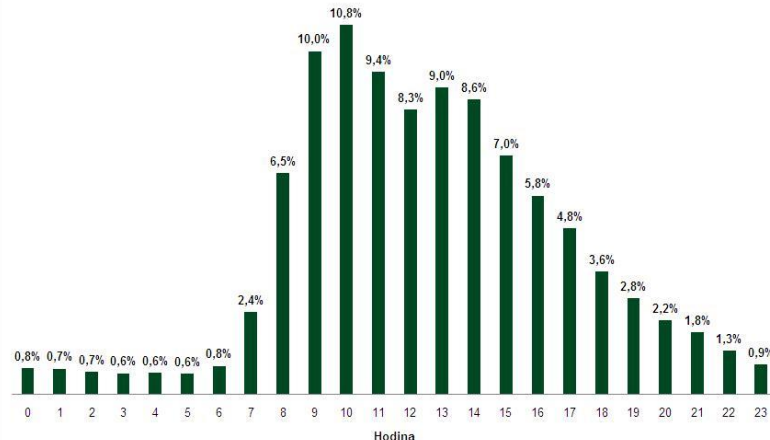 - RTK measurement = new registration   90 EUR
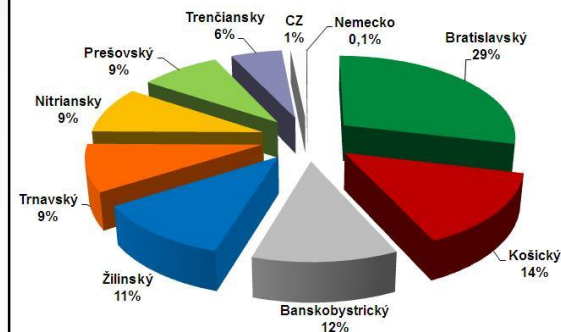
Statistics (Jan – Oct 2013)

SKPOS®

Data format usage
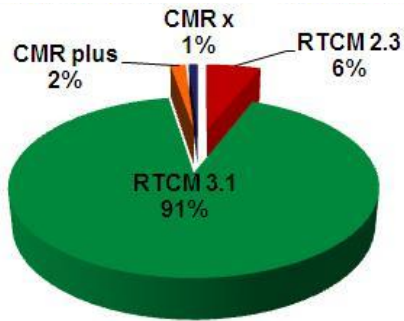
Type os service usage

RTK usage according day time

Service usage acoording region

Application „**Verify user**" for cadastre verificators

- Application for verification of $SKPOS^®$ using in cadastre
- Application is based on NMEA messages received from users

ASMARUP - Application for SKPOS® Monitoring And RTK Users Performance

- application for SKPOS® user initialisation time analysis
- available only for administrators (GKU)

Application „**Monitoring of SKPOS®** network solution quality"

http://monitoringskpos.gku.sk

- virtual principe (no monitoring stations)
- baseline processing – RTKNAVI sw.
- monitoring of whole Slovakia
- random spot testing
- independent from SKPOS control sw.
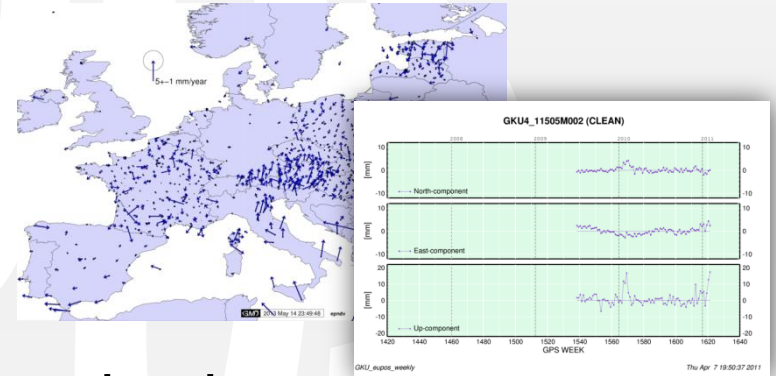- user friendly enviroment
  - Date selection
  - Locality selection
- graphical output
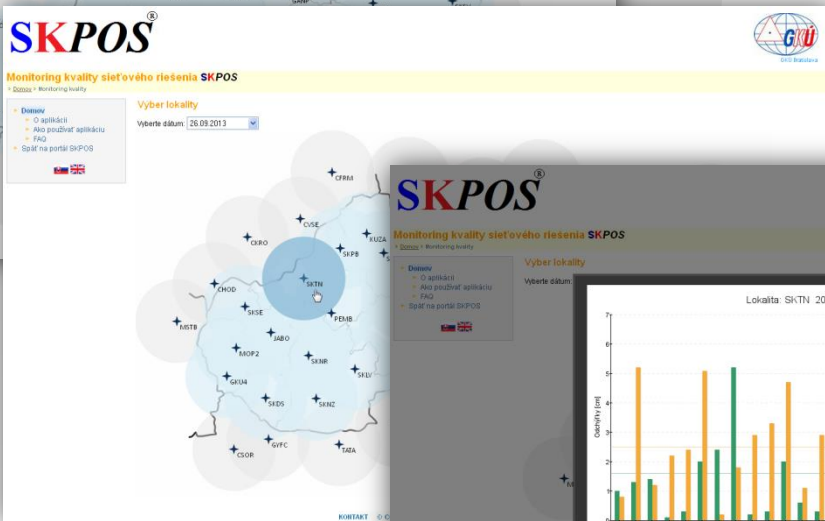
Activities related to EUPOS®

European Position Determination System
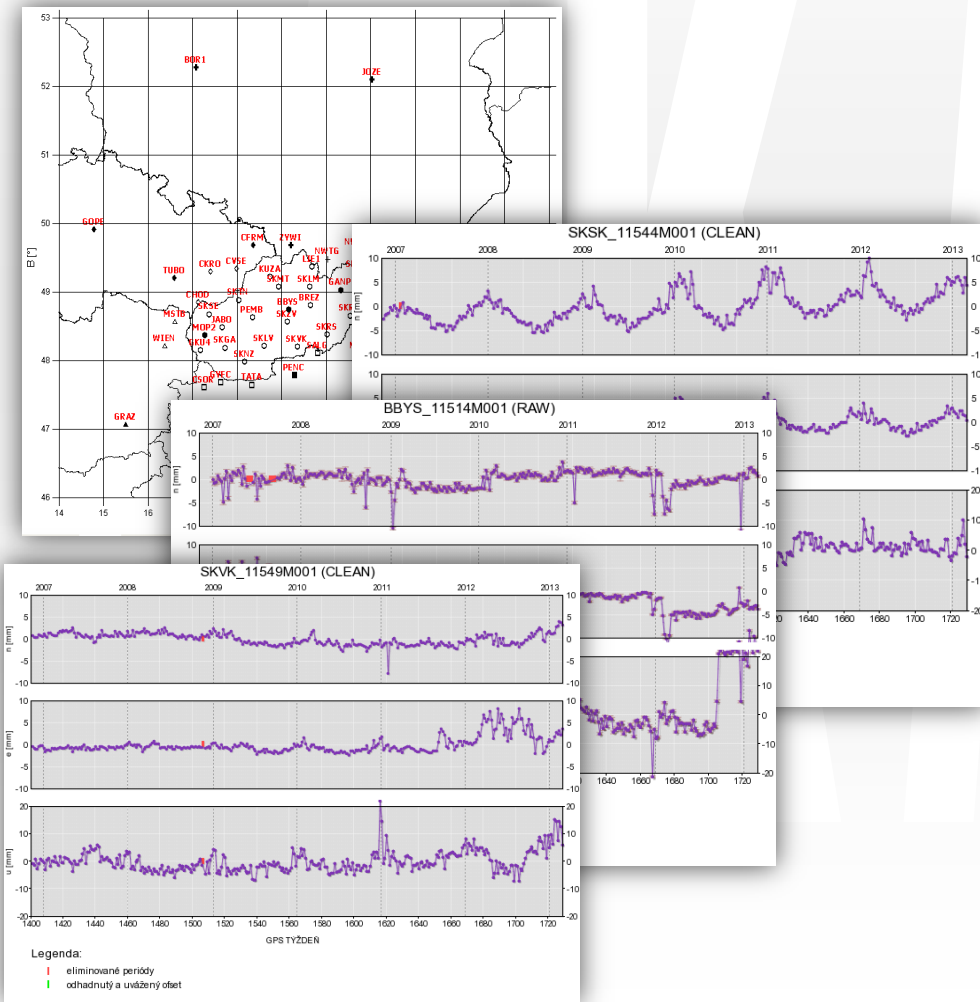
- contribution to **EUPOS**® Combination Center
  - SINEX files (**GKUwwww7.SNX**) - GPS weeks 1408-1729

- Contribution to **EUPOS**® station database
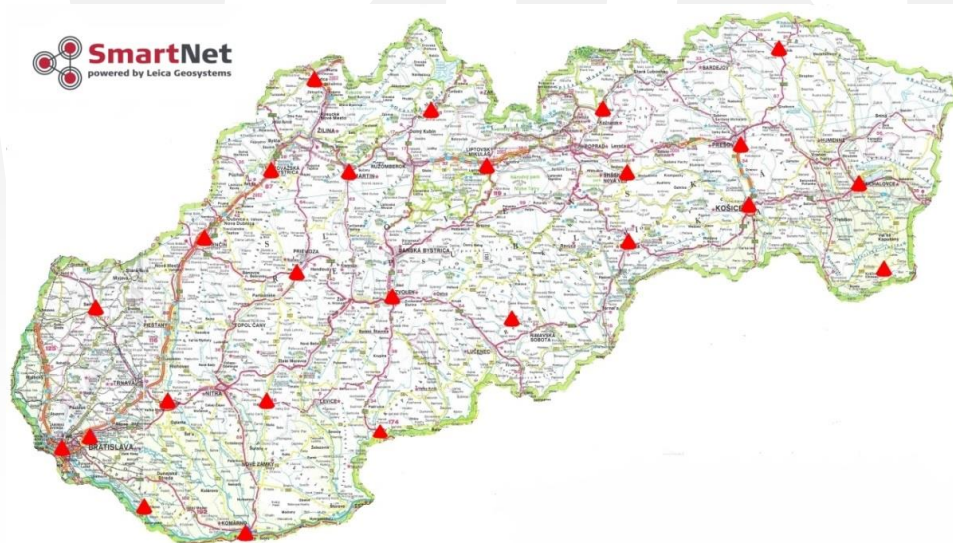 - Slovakian part actualisation
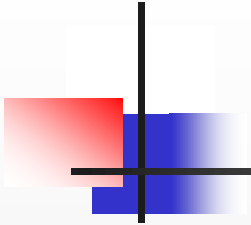
SKPOS®
time series analysis

- **Precise processing**
  - Bernese software 5.0 ($\rightarrow$ 5.2)
  - 2007-2013

- **Times series analysis**
  - jump determination
  - trend & season variation estimation

- **Experience from analysis**
  - jumps
  - unknow jumps
  - seasonal variation
  - anomaly behaviour
  - stabile behaviour

Other news from Slovakia

- private permanent network „Leica SmartNet Slovensko"

- 26 permanent stations

- officially not allowed for "cadastral usage"

- Service is charged (more expensive than **SK***POS*®)

Thank you
for your attention