



News from Slovakia 2014

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25th conference of EUPOS ISC

6-7.5.2014, Riga, Latvia



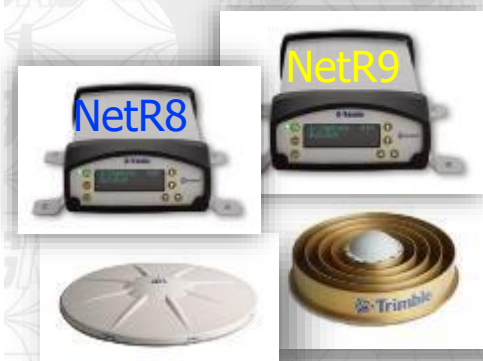
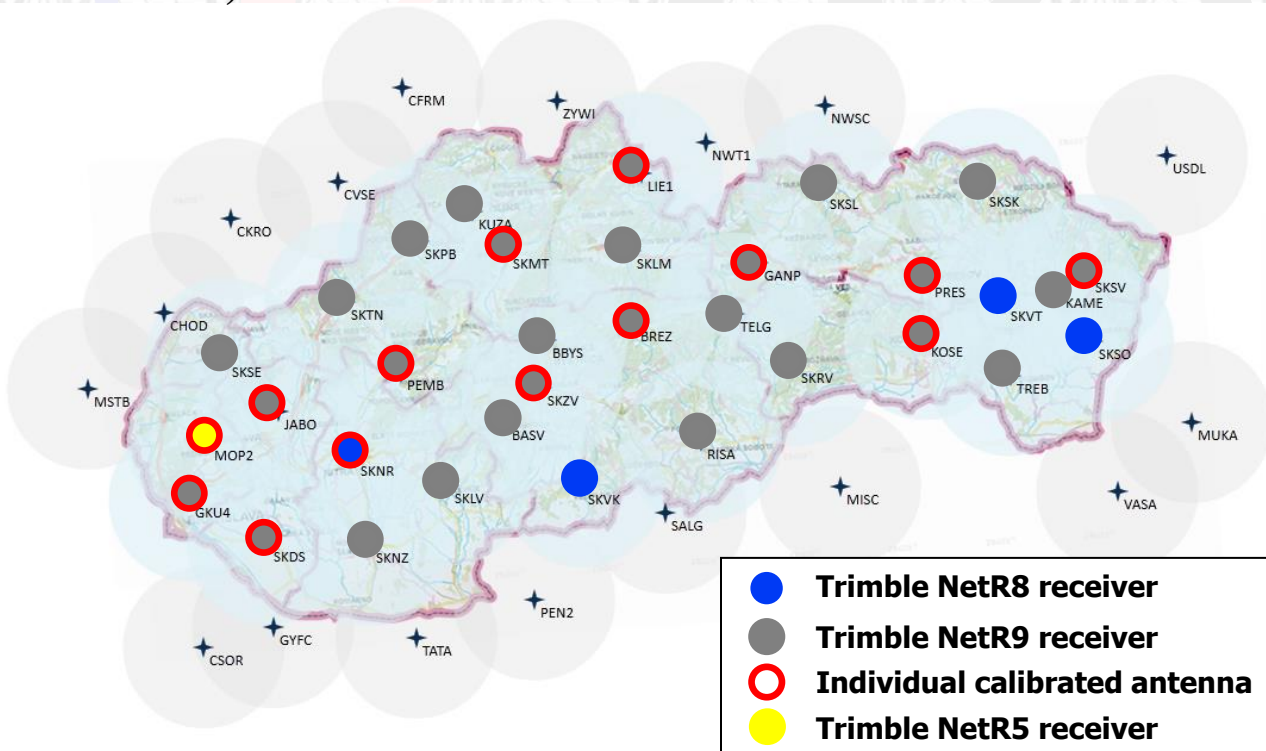
Agenda

- **SKPOS[®]**
 - status in May 2014
 - new type of station monumentation
 - control software, services
 - number of users, field of applications, charges
- Applications related to **SKPOS[®]**
- Activities related to **EUPOS[®]**
European Position Determination System
- **SKPOS[®]** time series analysis
- Other news

SKPOS[®] infrastructure

Status: May 2014

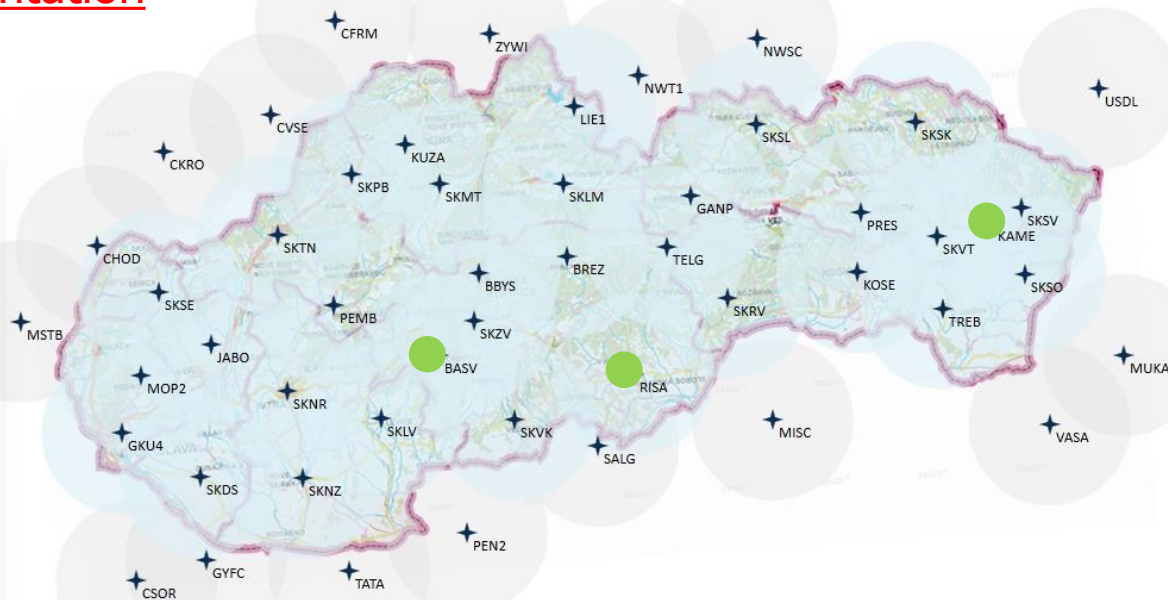
- 33 Slovakian permanent stations (14 individual calibrated)
 - All stations with TRIMBLE receivers and antennas
 - All stations observe GPS+GLONASS signals (few Galileo)
- 17 foreign permanent stations (APOS, gnsnet.hu, CZEPOS, ASG-EUPOS, ZAKPOS)



SKPOS[®] infrastructure

New type of monumentation

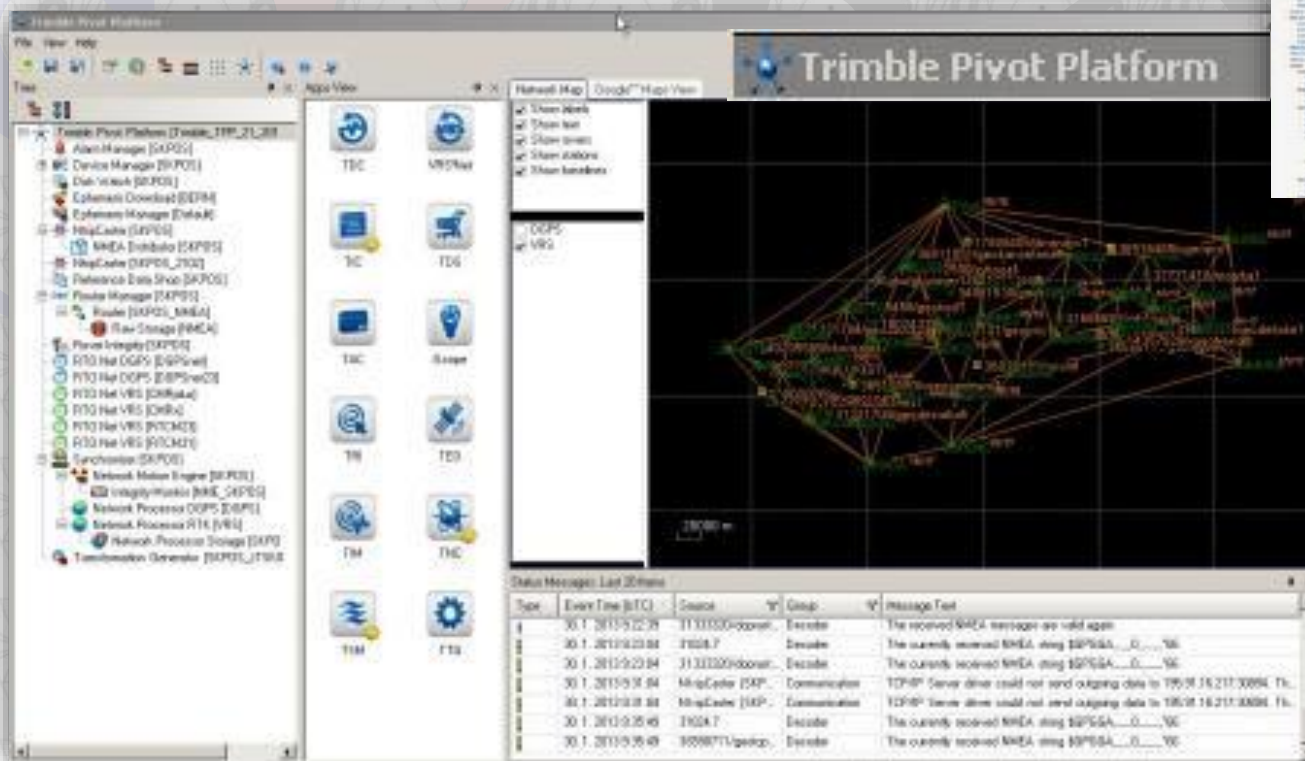
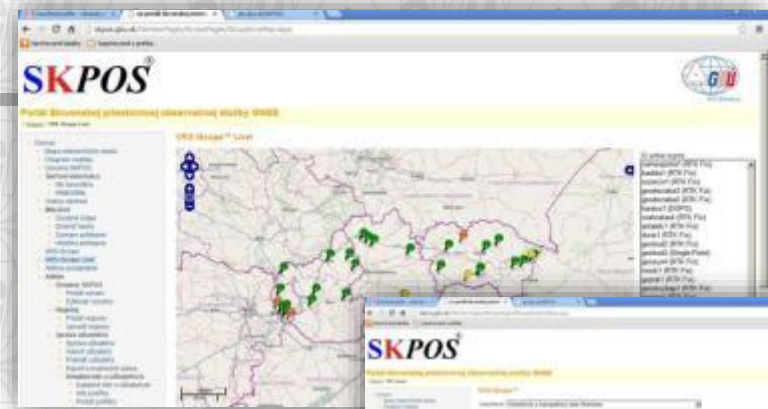
- 3 new SKPOS[®] permanent stations (end of 2013)
 - geodynamic monitoring purpose (Slovak University of Technology geodynamics project)
 - special type of monumentation (Unavco web page = deep drilled braced mark)
 - <http://facility.unavco.org/kb/questions/104/UNAVCO+Resources%3A+GNS+S+Station+Monumentation>
 - 4m deep



SKPOS®

control software

Trimble Pivot Platform ver. 2.5.7



I-Scope module

services (mountpoints)

Only network solution (Network RTK in VRS concept) no
Single RTK is provided!

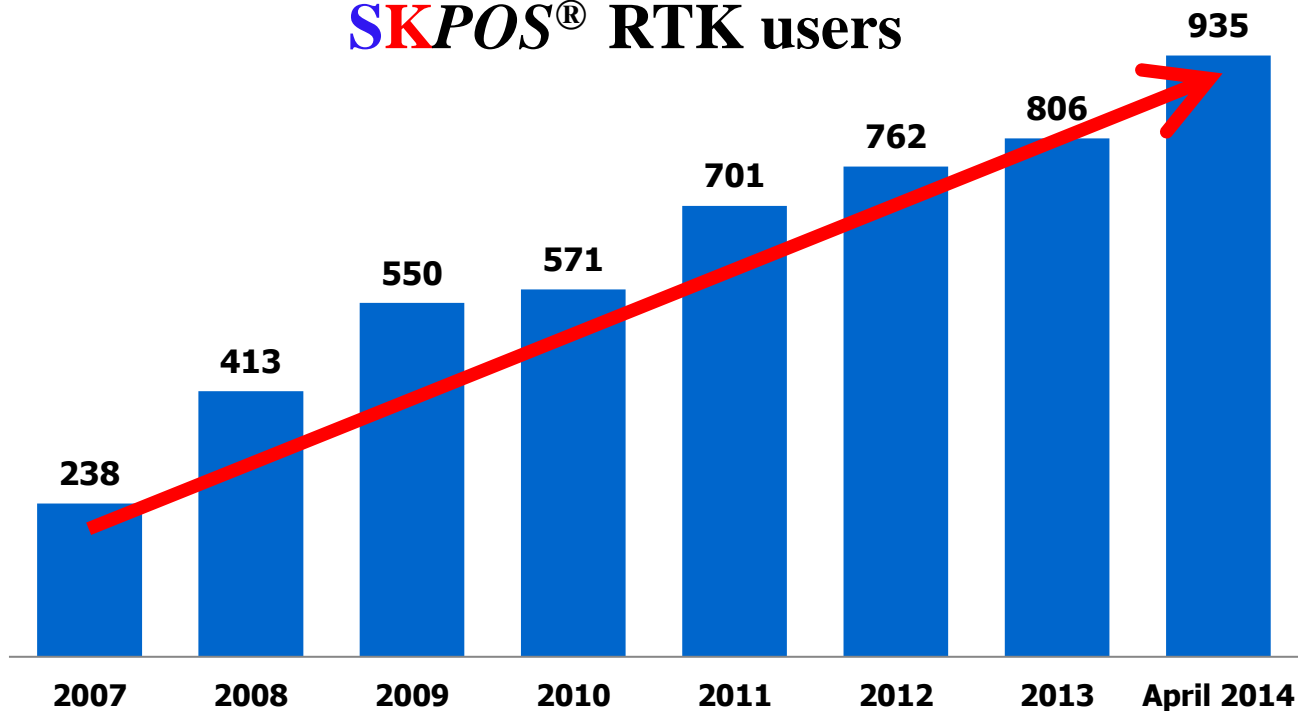
Service (mountpoint)	Accuracy	Data format	Interval
SKPOS_MM post-processing (VRS or permanent station data)	mm - cm	RINEX: 2.10, 2.11, 3.0 DAT, TGD, T01, T02	1 sec. – x sec.
SKPOS_CM_23 SKPOS_CM_31 SKPOS_CM_CMRX SKPOS_CM_CMR+	2 – 4 cm	RTCM 2.3 RTCM 3.1 CMRX CMR+	1 sec.
SKPOS_DM_SVK SKPOS_DM_SVK_23	0,3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

SKPOS®

number of registrations (users)


- over 935 registrations (April 2014)
- number is still increasing

SKPOS® RTK users



- questionnaire about SKPOS usage
- distributed during March 2014
- sent 727 emails
- received 383 responses (53%)
- 3 questions:
 - For what field of application do you use the SKPOS® service?
 - How do you grade the service (1=best – 5=worst)
 - Your comments and suggestions related to service



SKPOS® 

DOTAZNÍK VYUŽÍVANIA SLUŽBY SKPOS®

1. V akej oblasti využívate službu SKPOS®?

Zememeračská, geodetická a fotografická činnosť

Poznámka: Vyberte všetky položky ktoré sa týkajú vašej činnosti.

Kataster nehnuteľností	<input type="checkbox"/>	Mapovanie - tvorba účelových máp	<input type="checkbox"/>
Pozemkové úpravy	<input type="checkbox"/>	Mapovanie - tvorba podkladov pre inú činnosť	<input type="checkbox"/>
Inžinierska geodézia - stavebníctvo	<input type="checkbox"/>	Pozemná fotogrametria a skenovanie	<input type="checkbox"/>
Inžinierska geodézia - dopravné stavby	<input type="checkbox"/>	Letecká fotogrametria a skenovanie	<input type="checkbox"/>
Inžinierska geodézia - kontrolné a detomačné merania	<input type="checkbox"/>	GIS - zber údajov	<input type="checkbox"/>
Iné (prosím špecifikujte)	<input type="text"/>	GIS - tvorba tématických máp	<input type="checkbox"/>

2. Označte službu SKPOS®

1 - spokojní 5 - nespokojní

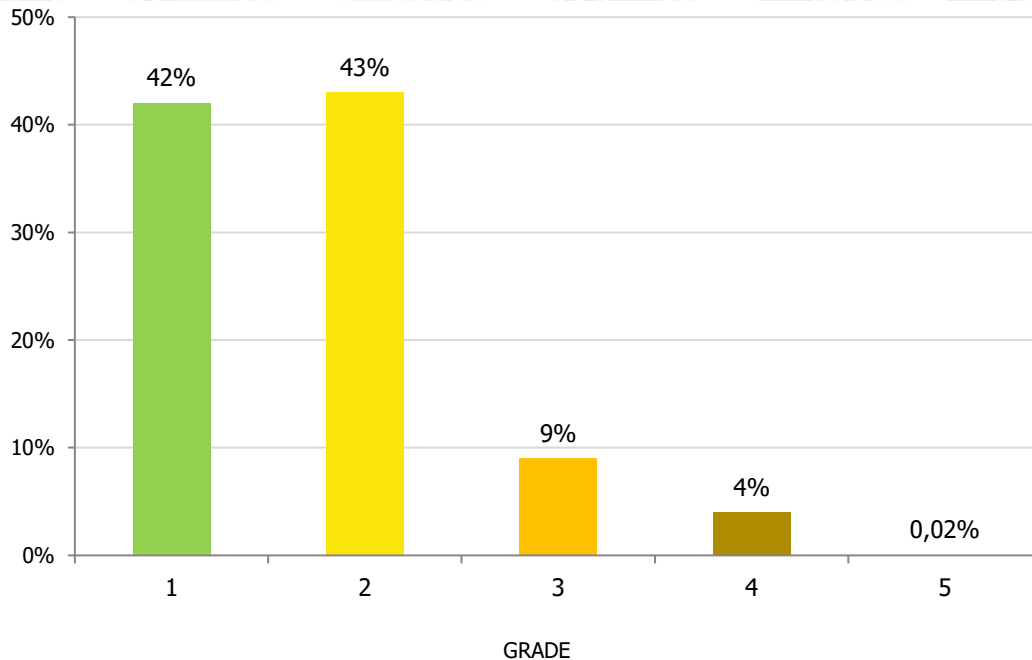
3. Vaše pripomienky a návrhy na zlepšenie činnosti služby SKPOS®:

Odoslať dotazník

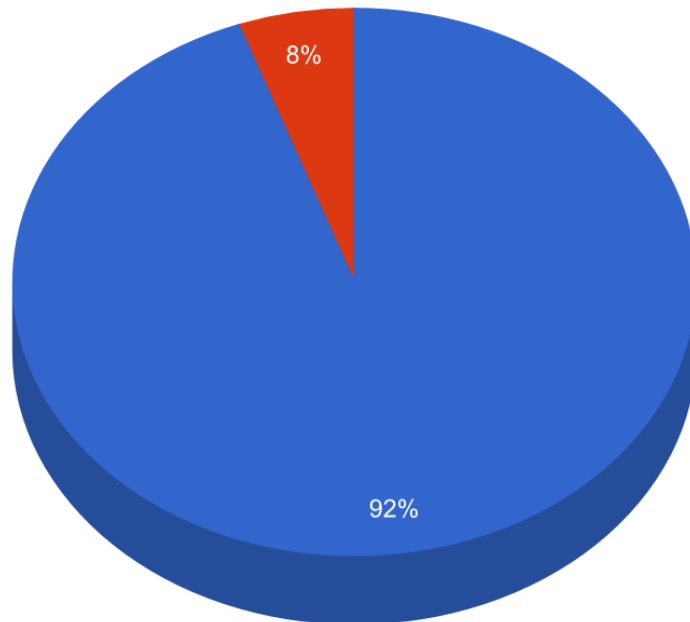
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survey results

- Q: How do you grade the service? (1=best – 5=worst)
- Result: Average grade **1.8 (A-)**



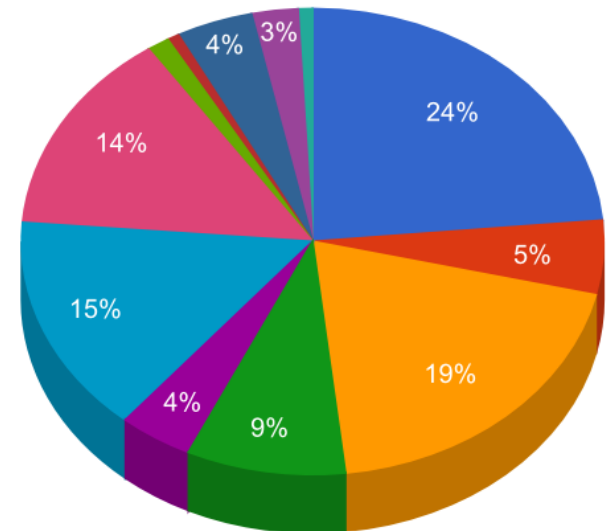
- Q: For what field of applications do you use the SKPOS® service?
 - Surveying fields (cadastre, surveying, mapping, GIS) - **92%**
 - Other fields - **8%**



- surveying, cadastral, cartography geodesy and GIS
- other than surveying, cadastral, cartography geodesy and GIS

- Q: For what field of applications do you use the SKPOS® service?
 - Surveying fields (cadastre, surveying, mapping, GIS) - **92%**

■ Cadastre	24%
■ Engineering - construction	19%
■ Mapping – thematic maps	15%
■ Mapping – different activity	14%
■ Engineering – road construction	9%
■ Land consolidation	5%
■ GIS – data collection	4%
■ Engineering – control and deformation measurements	4%
■ GIS - thematic maps	3%
■ Terrestrial photogrammetry and scanning	1%
■ Aerial photogrammetry and scanning	1%
■ Other	1%

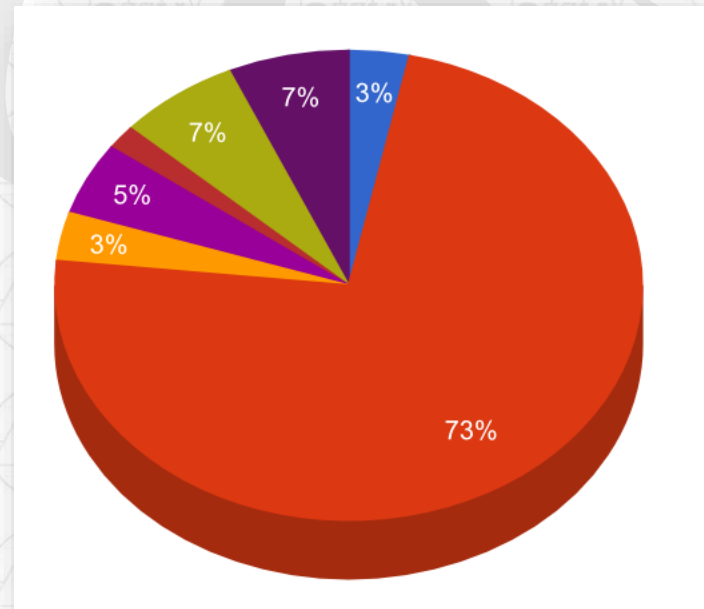


■ Q: For what field of applications do you use the SKPOS® service?

- Other fields - 8%

Other than surveying, cadastre, cartography, geodesy, GIS etc.

■ Precise farming	73%
■ Other	7%
■ Pipeline transport	7%
■ Mining	2%
■ Construction – control of machines	3%
■ Air transport	3%



Charges per one registration



New! Post processing 1000 hours RINEX files	RINEX 2.x, 3.x	50 € / 365 days
Network RTK (year) 1000 hours network RTK 50 hours RINEX files	RTCM 2.3, 3.1, CMRx, CMR+	90 € / 365 days (until 30.4.2014) 50 € / 365 days (from 1.5.2014)
Network RTK (month)	RTCM 2.3, 3.1, CMRx, CMR+	19 € / 30 days
DGNSS	RTCM 2.1	20 € / 365 days

Application for SKPOS[®] Monitoring And RTK Users Performance (ASMARUP)

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

The screenshot displays the ASMARUP application interface. At the top, there are search filters for Date, User, Time (SEC), Initializations, and Number of satellites. Below these are radio buttons for MountPoint (SKPOS_CM_2,3, SKPOS_CM_3,0, SKPOS_CM_CMR, All) and checkboxes for 'Display the reference stations SKPOS' and 'Choose location'. A 'Show' button is present.

Below the filters, a search bar contains 'Vyhľadávať:'. A table displays search results for user 'uzivatel1' on '15.11.2011'. The table has columns for 'Užívateľ', 'Dátum', 'Čas (SEC)', 'Inicializačný čas [s]', 'Počet satelitov', and 'MountPoint'.

Užívateľ	Dátum	Čas (SEC)	Inicializačný čas [s]	Počet satelitov	MountPoint
uzivatel1	15.11.2011	7:09:01	22	13	SKPOS_CM_2,3
		9:17:00	22	14	SKPOS_CM_2,3
		9:37:24	21	9	SKPOS_CM_2,3
		10:20:11	22	14	SKPOS_CM_2,3
		10:21:29	12	16	SKPOS_CM_2,3
		10:39:54	32	14	SKPOS_CM_2,3
		11:11:47	22	14	SKPOS_CM_2,3
		11:19:43	22	14	SKPOS_CM_2,3
		11:21:43	23	12	SKPOS_CM_2,3
		11:29:26	22	15	SKPOS_CM_2,3
		11:30:33	22	15	SKPOS_CM_2,3
		11:32:19	33	15	SKPOS_CM_2,3
		11:38:07	13	15	SKPOS_CM_3,0
		11:39:12	17	15	SKPOS_CM_3,0
		11:41:02	12	14	SKPOS_CM_3,0
		11:46:37	22	15	SKPOS_CM_3,0
		11:51:12	22	14	SKPOS_CM_3,0

Below the table, there are navigation buttons: 'Predošlá', '1', '2', '3', '4', '5', 'Ďalšia', 'Posledná'.

On the left, a histogram shows the distribution of initialisation times. The y-axis is 'Počet inicializácií' (0 to 200,000) and the x-axis is 'Inicializačný čas [s]' (0 to 300). A legend box provides statistics: Počet hodnôt: 691308, Minimálna hodnota: 1, Maximálna hodnota: 300, Priemer: 30,8', Stredná chyba: 0,049, Štandardná odchýlka: 39,98, 01: 75% inicializačných časov.

On the right, a map shows the geographical distribution of the data points, with a legend for initialisation time ranges: 0-40 seconds (black), 41-80 seconds (grey), and 81-300 seconds (red).

Application „SKPOS[®] network solution quality monitoring“

<http://monitoringskpos.gku.sk>

SKPOS[®]



desktop version



SKPOS[®]

SKPOS network solution quality monitoring



SKPOS[®]

SKPOS network solution quality monitoring



SKPOS[®]

SKPOS network solution quality monitoring



SKPOS[®] network solution quality monitoring

Select date 10.04.2014

SKPOS[®] network solution quality monitoring

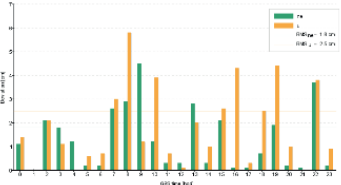
SKPOS[®] network solution quality monitoring

Select date

SKPOS[®] network solution quality monitoring

SKPOS[®] network solution quality monitoring

Location GKU4 2013-12-02



Close

mobile version

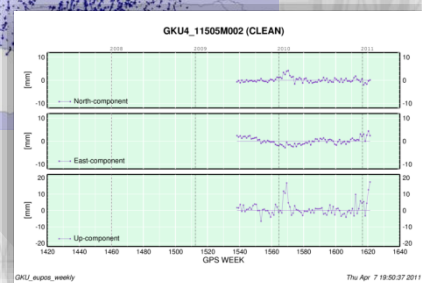
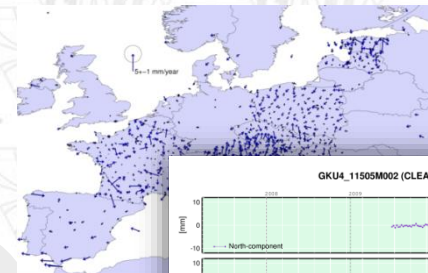
Activities related to **EUPOS**[®]

European Position Determination System

■ contribution to **EUPOS**[®] Combination Center



- SINEX files (**GKUwww7.SNX**) - GPS weeks 1408-1729
- more SINEX files early



■ contribution to **EUPOS**[®] station database



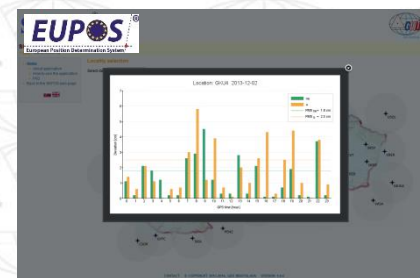
- Slovakian part updating
- we are using new features – changes mail alert

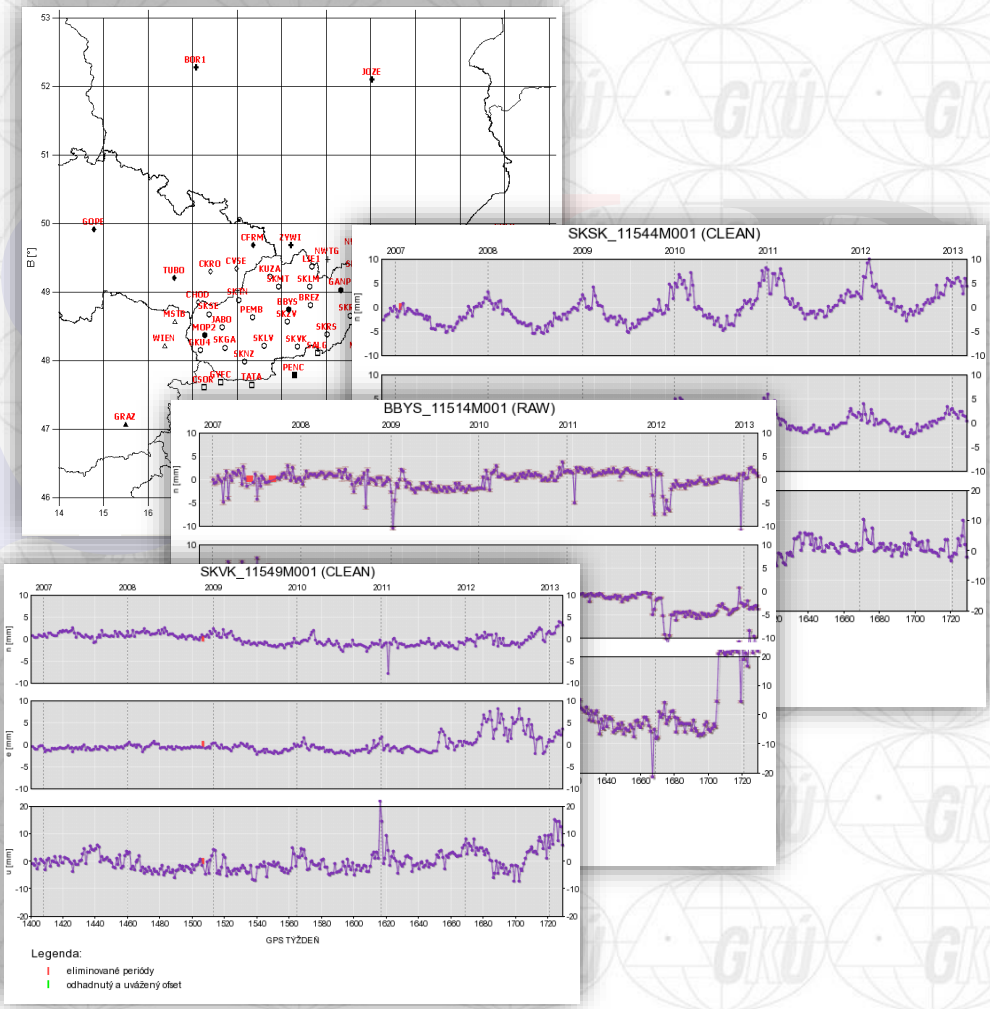


■ **EUPOS**[®] network RTK monitoring

European Position Determination System

- under preparation for EUPOS partners
- working on **SKPOS**[®]
- test is doing on ASG-EUPOS network



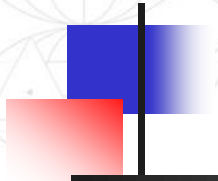


- Precise processing
 - Bernese software 5.0
 - January 2007 - February 2013
 - Bernese software 5.2
 - March 2013
- Times series analysis
 - jump determination
 - trend & season variation estimation
- Experience from analysis
 - jump estimation
 - unknown jumps estimation
 - seasonal variation
 - anomaly behaviour
 - stabile behaviour

Geodesy and Cartography Act novelisation



- The main Slovakian Act about Geodesy and cartography is in process of ratification
- DGNSS / **SKPOS**[®] related parts
 - **SKPOS**[®] will be defined in the novelised Act as a tool for determining coordinates in real-time in geodetic references systems
 - the new act will also better protect **SKPOS**[®] stations and its equipment
 - permanent stations will be considered as a geodetic marks equipment so the owner of the real estate or building, where permanent station is monumented, has to protect it and tolerate it as he has to protect other geodetic mark equipment like levelling marks, mark protection equipment etc.



SKPOS®

**Thank you for your
attention**