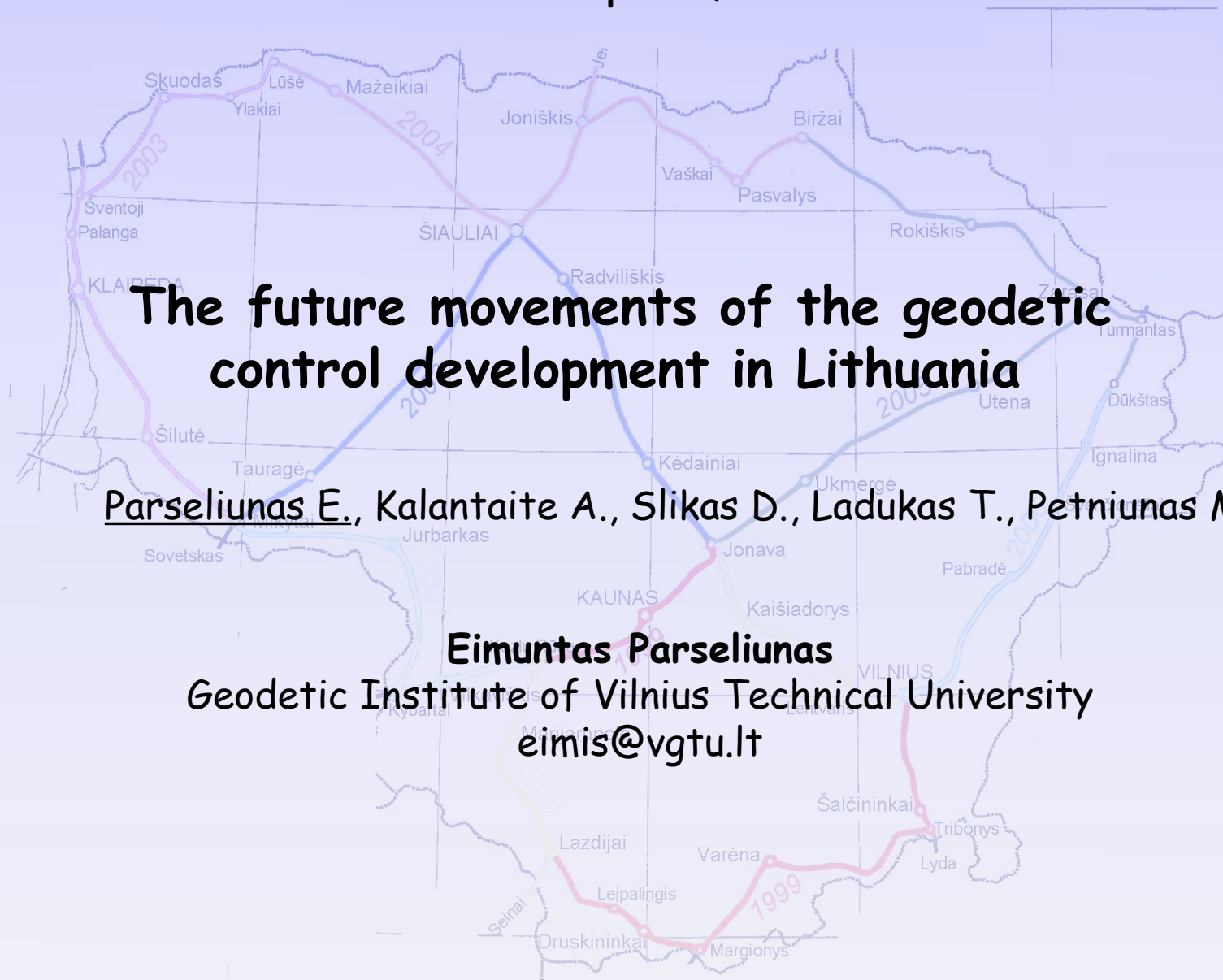




The future movements of the geodetic control development in Lithuania

Parseliunas E., Kalantaite A., Slikas D., Ladukas T., Petniunas M.

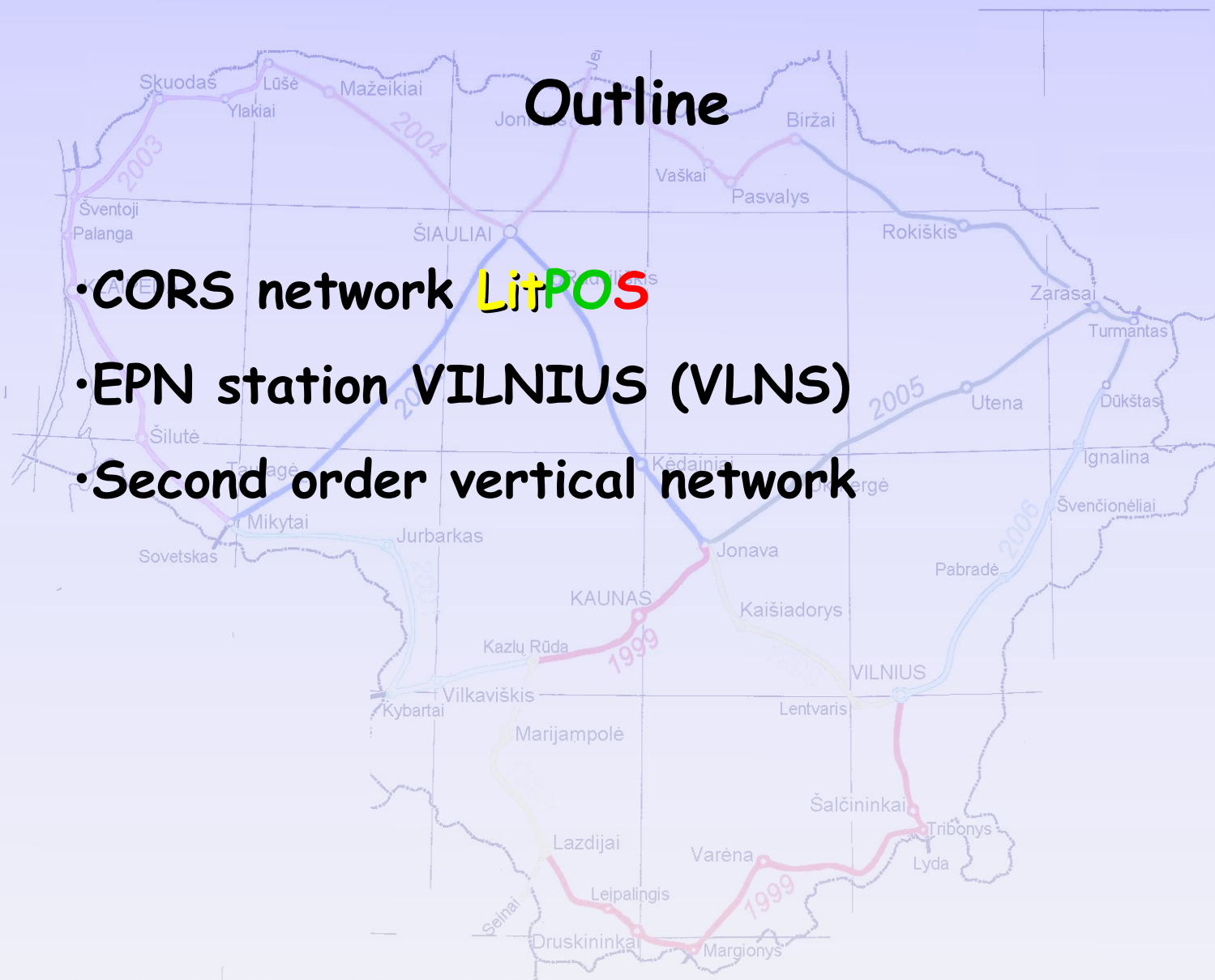
Eimuntas Parseliunas

Geodetic Institute of Vilnius Technical University

eimis@vgtu.lt

Outline

- CORS network **LitPOS**
- EPN station **VILNIUS (VLNS)**
- Second order vertical network

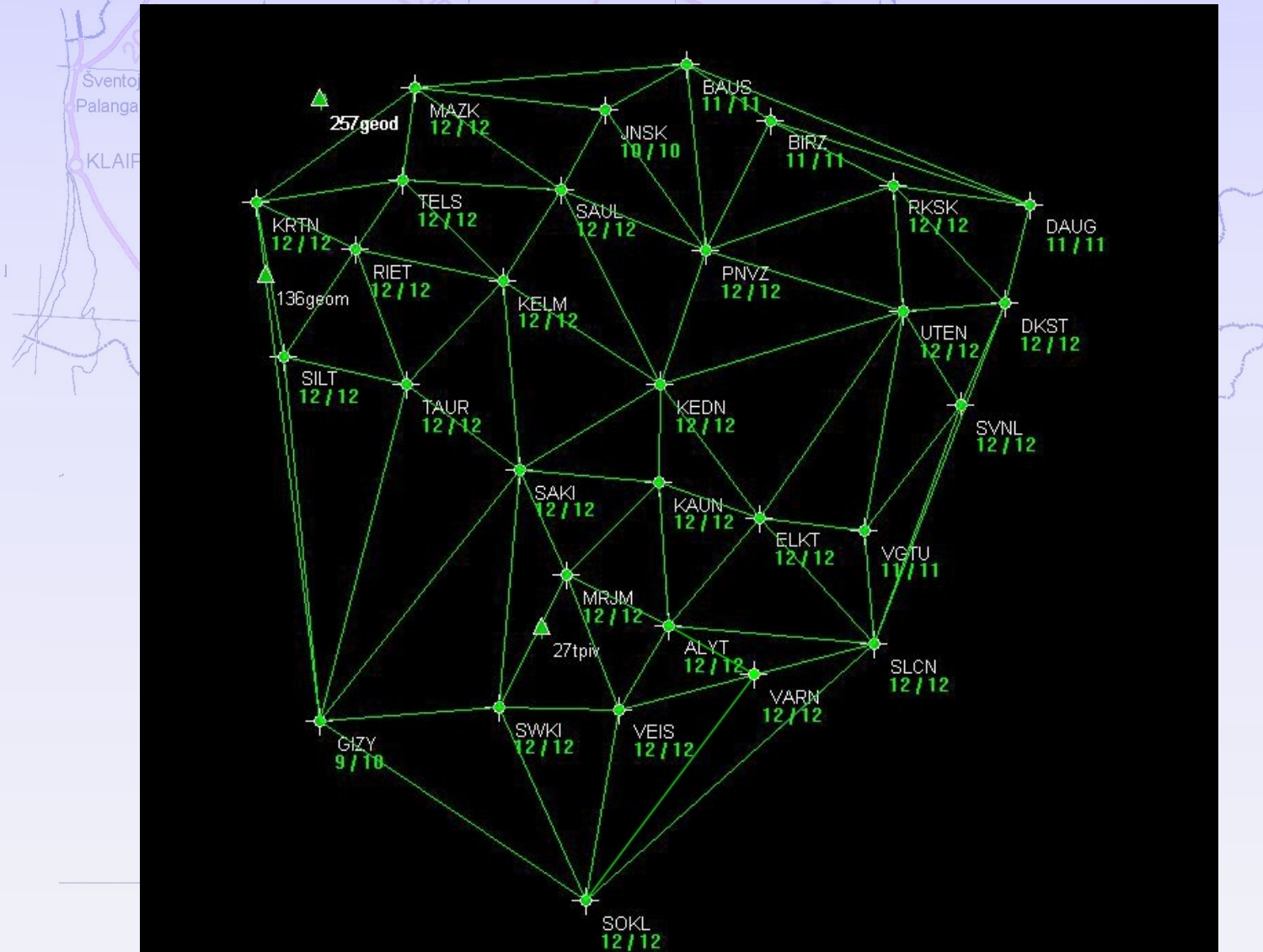




Druskininkai Margionys

LitPOS (2)

INSPIRE: **I**nfrastructure for **S**Patial InfoRmation in **E**urope
EUPOS[®] (European Position Determination System)



LitPOS - A Service for Precise Positioning in Real Time (25 stations)

LitPOS (3)

About GPSNet [X]

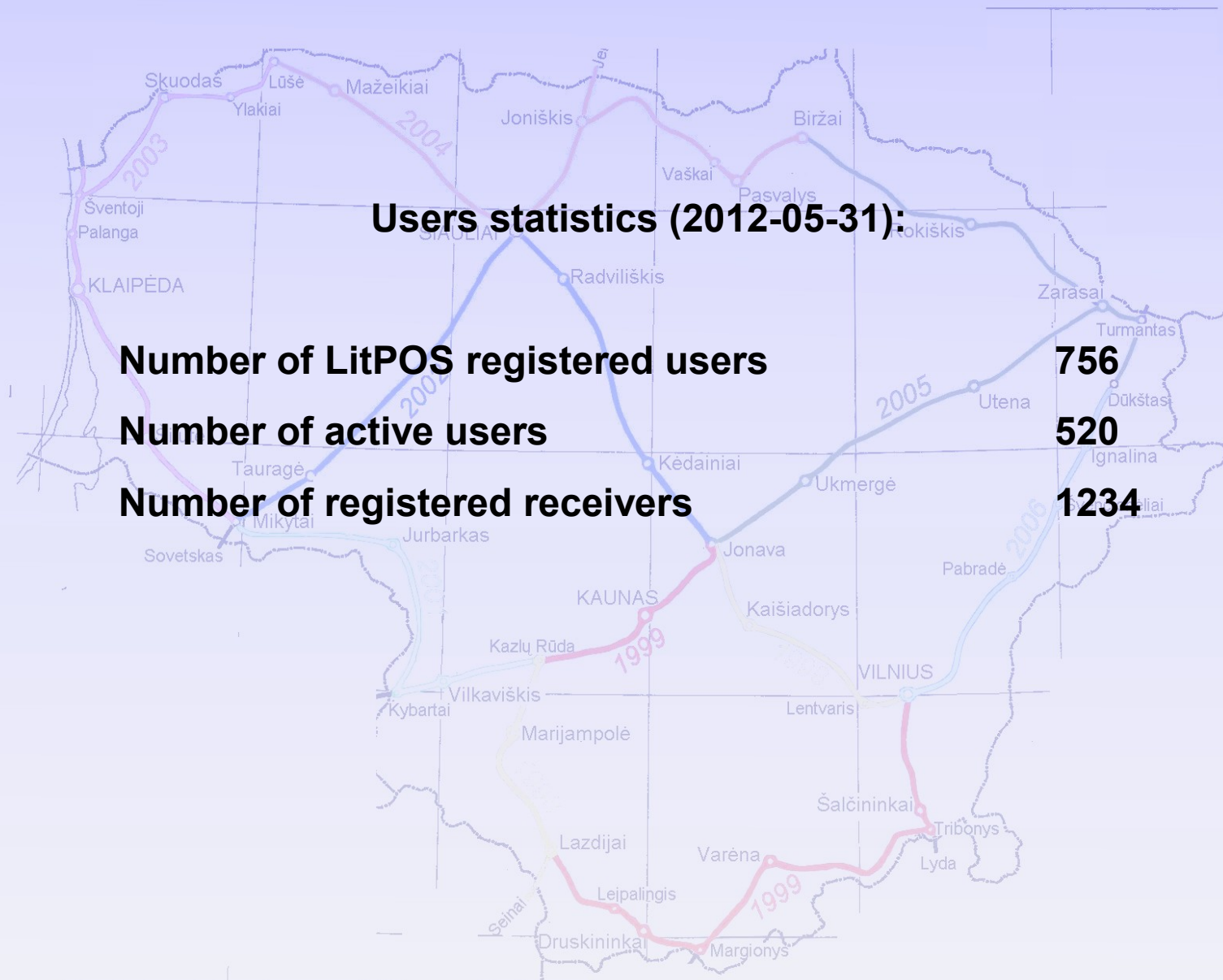
GPSNet Modules Protection

Module	Full License	Timed License
2007.05.30		--
☒ Receivers	☒ 30 connections	☐ --
☒ RTCM Generator	☒ 50 connections	☐ --
☒ VRS RTKNet	☒	☐
☐ VRS Glonass Processing	☐	☐
☐ Enhanced Coordinate Moni...	☐	☐
☐ Rover Integrity	☐	☐
☒ VRS Realtime Output	☒	☐
☒ RTCM3Net Realtime Output	☒	☐

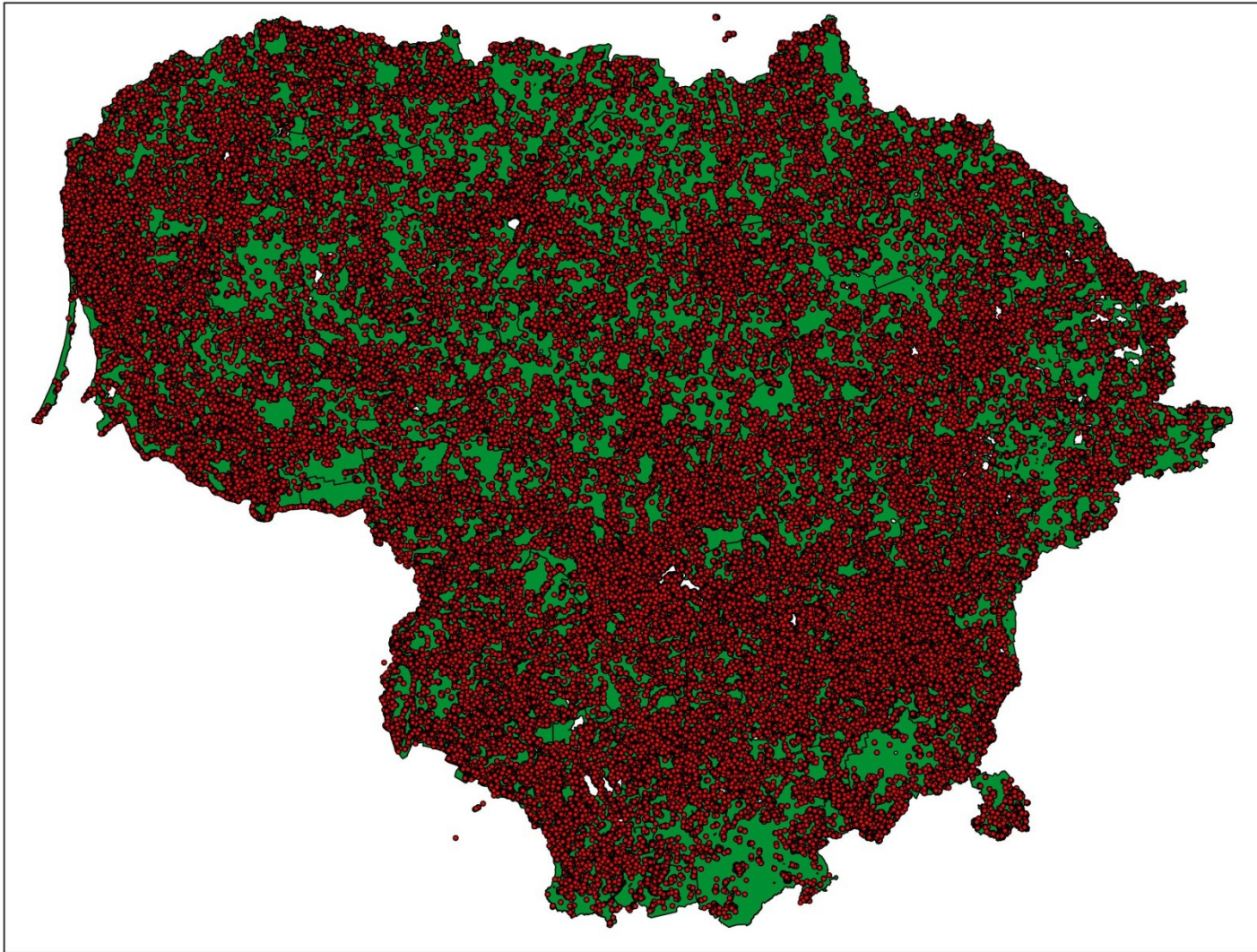
Dongle protection

OK Cancel

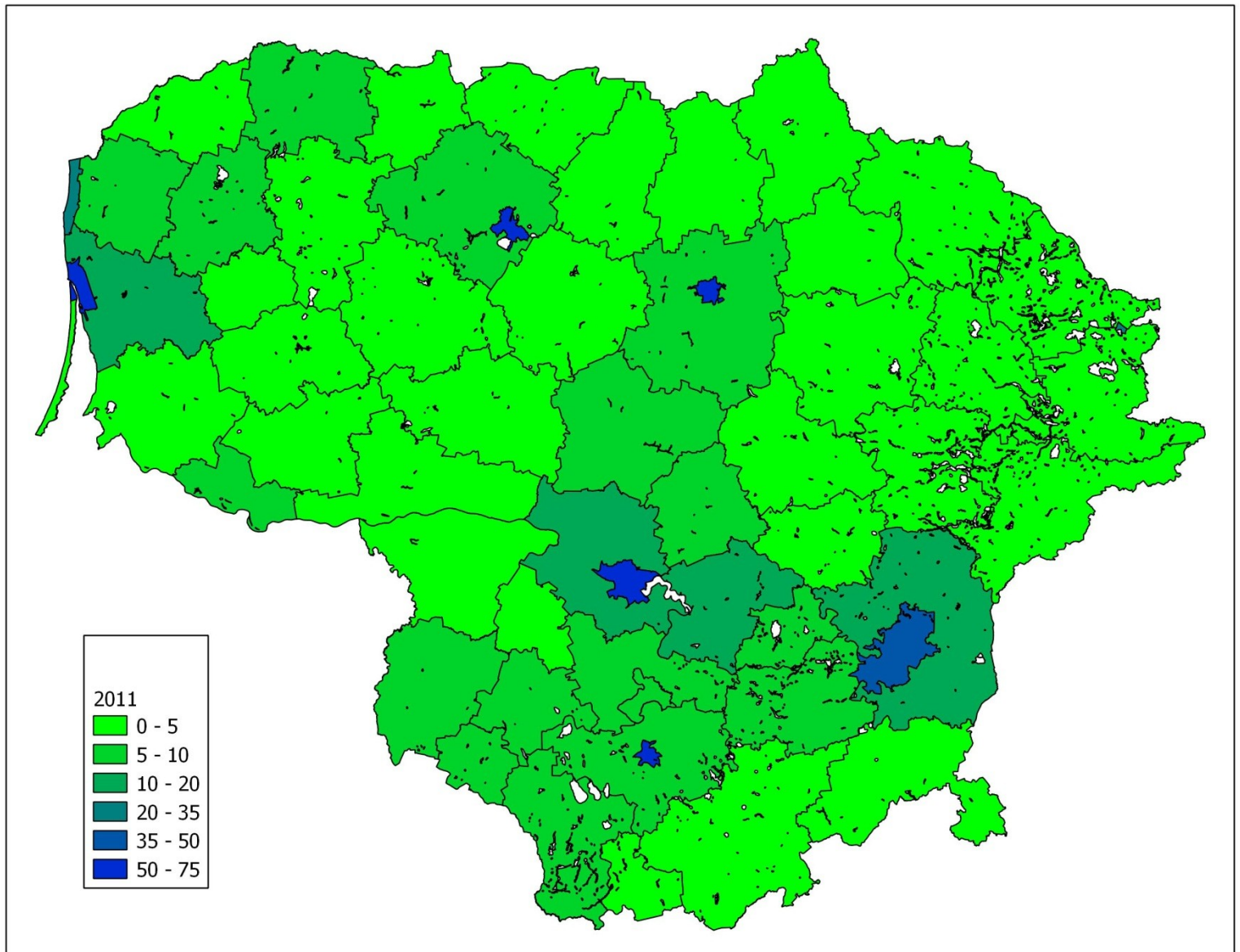
LitPOS (4)



LitPOS (5)



LitPOS (6)



LitPOS (7)

Trimble NTRIP Caster

File View Help

Tree

- Trimble NTRIP Caster [Default]
 - pc2-31015
 - NtripCaster [070510]
 - NtripCaster [gsb]
 - NtripCaster [latvians]
 - NtripCaster [lenkams]

Status

Users Mountpoints History

User Name	Connection Time	Mountpoint	Type (TCP/UDP)	Bytes Sent	Bytes Received	User Host	User Port
573n2ta	0d 00:06:24	RTCM_30	TCP	69652	9289	84.15.175.252	5883
297geod	0d 00:13:04	RTCM_30	TCP	139037	14205	62.212.204.34	3001
440rpii	0d 00:37:17	CMR	TCP	335518	20578	62.212.201.214	1025
62shid	0d 00:06:20	CMR	TCP	61205	9201	188.69.225.180	1724
271mava	0d 00:09:43	RTCM_30	TCP	106568	5331	84.15.175.252	39522
123mard	0d 00:25:19	RTCM_30	TCP	263775	27614	188.69.227.254	3004
79leve	0d 00:44:01	CMR	TCP	398490	177	188.69.227.68	1025
213zdar	0d 00:20:42	CMR	TCP	213777	10687	188.69.224.212	1027
116kelp	0d 00:41:23	CMR	TCP	368735	21508	62.212.204.115	1351
268tkti	0d 00:18:52	CMR	TCP	193555	9709	62.212.203.154	1046
646geka	0d 00:19:00	DGPS	TCP	143809	27107	84.15.15.12	1231
320vzi	0d 00:30:42	RTCM_30	TCP	309692	30774	84.15.189.245	37001
320vzi	0d 00:26:38	RTCM_30	TCP	272689	26657	84.15.179.69	45208
16krdm	0d 00:58:23	CMR	TCP	520966	320559	84.15.186.207	29885
41nom	0d 00:00:56	CMR	TCP	9662	783	188.69.224.232	1032
114shid	0d 00:24:10	RTCM_30	TCP	246863	34837	62.212.207.181	1098
444zeme	0d 00:24:45	RTCM_23	TCP	643994	13567	84.15.175.252	19779
29eume	0d 00:57:58	RTCM_30	TCP	570401	59068	84.15.175.252	39603
170geot	0d 00:16:48	RTCM_30	TCP	177303	18231	188.69.226.171	3001
486geop	0d 01:36:58	RTCM_23	TCP	2396279	52617	84.15.175.252	40009
654gbii	0d 00:02:14	RTCM_30	TCP	20358	1328	84.15.175.252	47973
51dabr	0d 00:11:05	CMR	TCP	79056	6033	188.69.224.9	1560
86geot	0d 00:06:52	RTCM_30	TCP	75148	12754	84.15.175.252	30845
648reom	0d 00:44:30	RTCM_30	TCP	444855	243269	62.212.201.208	1028
646geka	0d 00:05:22	DGPS	TCP	41089	7852	84.15.181.195	29834
102atp	0d 00:19:35	RTCM_23	TCP	510324	11062	188.69.227.3	1033
139trak	0d 00:58:49	RTCM_30	TCP	584583	59857	188.69.224.119	1038
482vand	0d 01:40:48	CMR	TCP	922177	50350	188.69.227.93	1074
444zeme	0d 00:34:42	CMR	TCP	314289	164572	188.69.224.225	1026
520kkpr	0d 00:08:40	CMR	TCP	76572	2661	62.212.204.186	1046
538kved	0d 01:11:36	RTCM_23	TCP	1817639	39377	188.69.225.112	1028
320vzi	0d 00:49:55	CMR	TCP	493754	25722	188.69.226.25	1030
496arca	0d 00:17:41	CMR	TCP	166038	8575	84.15.132.185	1172
451geok	0d 00:01:06	RTCM_30	TCP	11753	1514	84.15.191.160	31539
602gsir	0d 00:02:52	RTCM_30	TCP	31025	15903	84.15.178.146	50312
546vzi	0d 01:21:04	RTCM_30	TCP	835663	87649	84.15.189.157	34612

Active connections: 100 Inbound data rate: 7206 Bytes/sec

Total connections: 63995 Outbound data rate: 80909 Bytes/sec

Caster uptime: 21d 20:48:00

Ports: TCP 2101 (193.219.10.2)

Status Messages

Type	Event Time [UTC]	Source	Group	GPS Week	GPS Seconds	Message Text
IP Client	11/24/2011 8:56:45 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12011 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:57:07 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:57:12 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:57:18 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:58:41 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:59:09 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:59:38 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...
IP Client	11/24/2011 8:59:43 AM	IP Client	Communi...			IP Client driver for 10.200.16.5:12010 could not listen for incoming data and must stop. Mes...

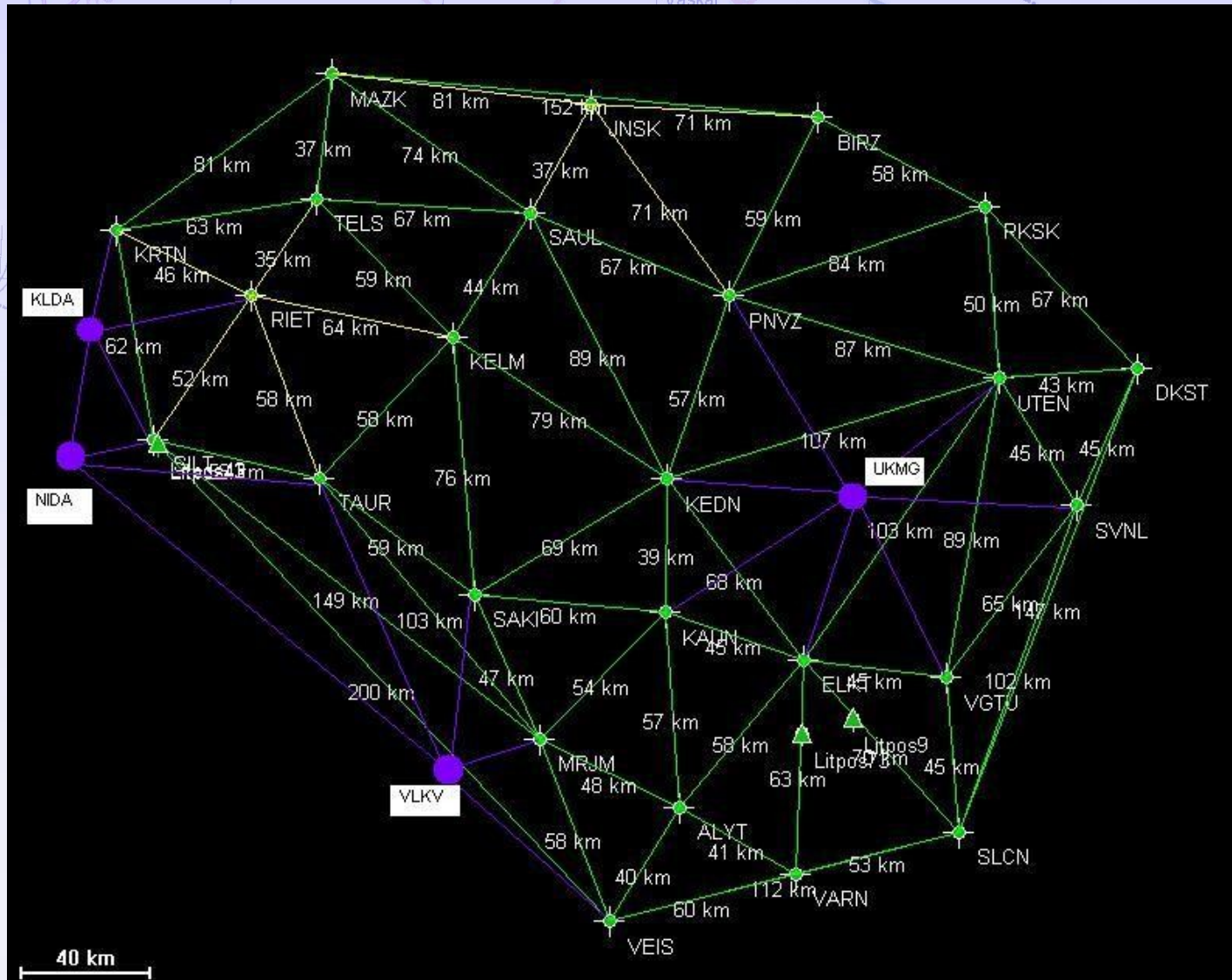
Loading of system configuration "Default" finished.

11/24/2011 9:00:54 AM [UTC Time]

Start Trimble Ephe... 10.200.16.7 ... Trimble NT... DB Total Comma... Control Panel users : Data... Passwd : Table EN 9:00 AM

LitPOS (8)

1. CORS number – 10 more receivers (5 – LitPOS; 5 – foreign networks)
2. Users – 100 more licenses



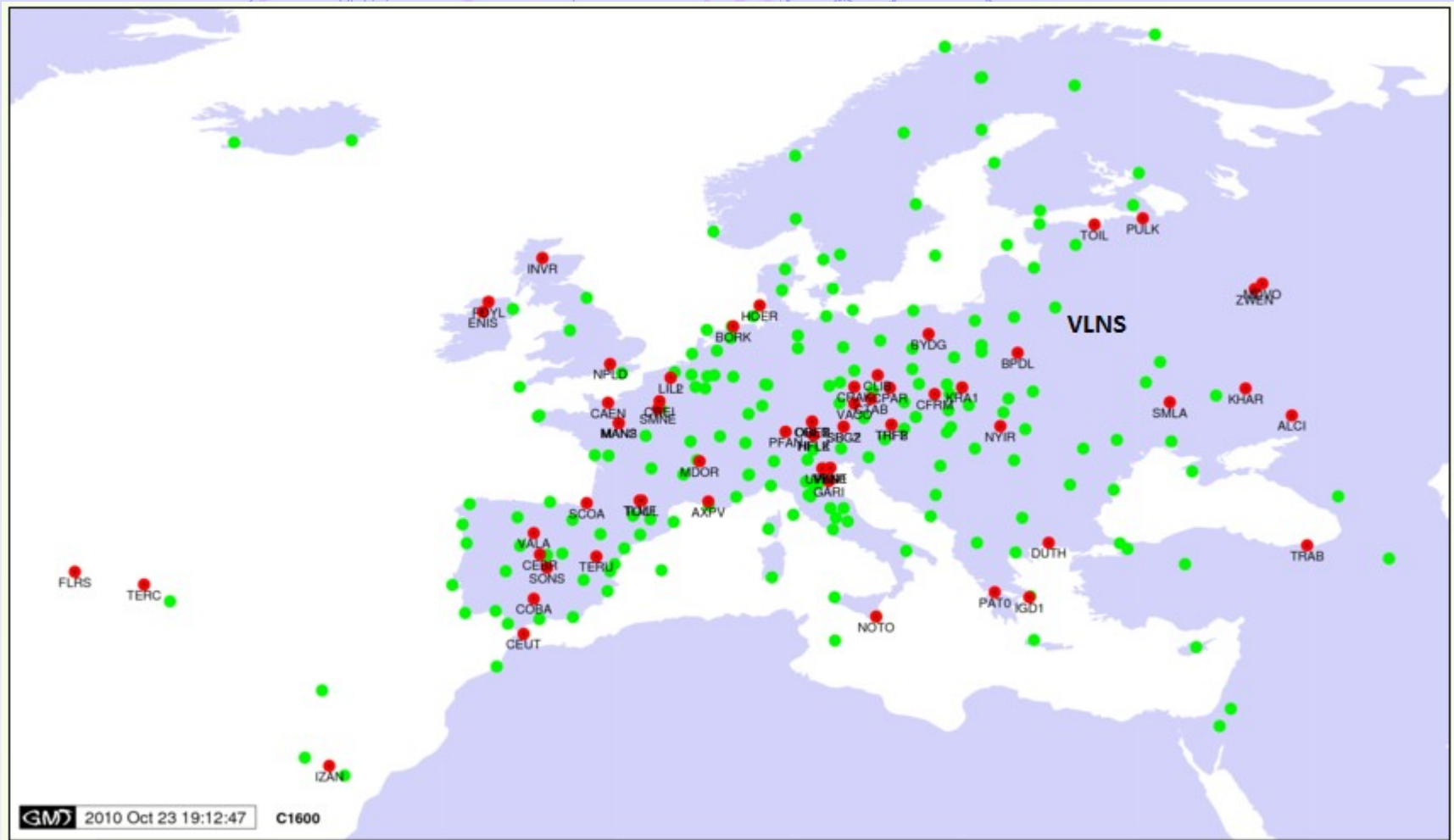
EPN station VILNIUS (VLNS) (1)

NETWORK & DATA > STATION LIST > **VLNS_10801M001**

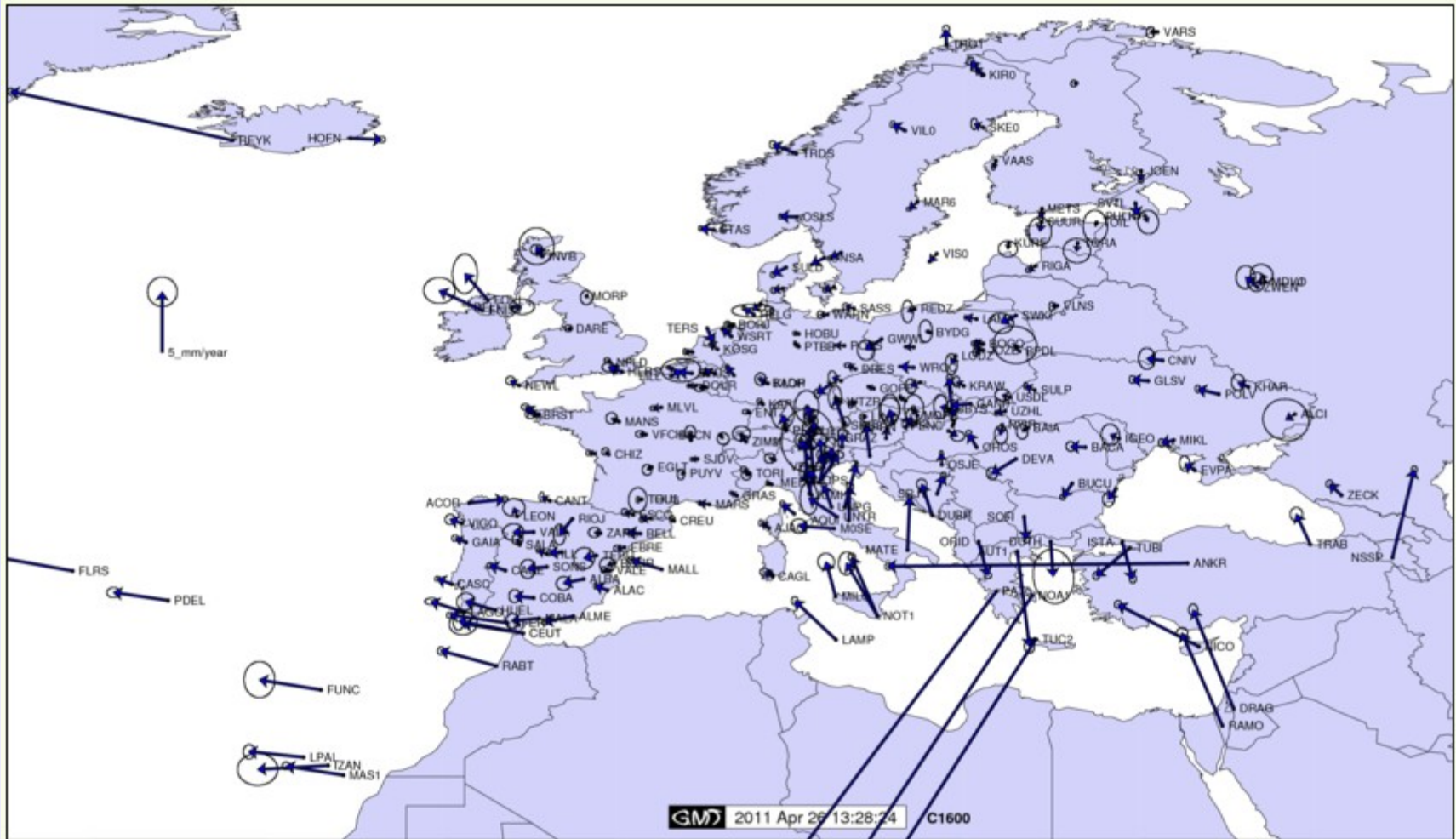
Site Description

LOCATION	Vilnius, Lithuania 
LOG FILE	vlns_20021003.log (current) View
PICTURES	
OPERATIONAL CENTRE	Information not yet available
OTHER NETWORKS	IGS, FOS, ECGN
EPN INCLUSION	Since 052/1999 (GPSweek No 0998).
INACTIVITY PERIODS	None
COORDINATES	Published positions/velocities in ITRS and ETRS89
INDIVIDUAL ANTENNA CALIBRATIONS	None

EPN station VILNIUS (VLNS) (2)



EPN station VILNIUS (VLNS) (3)



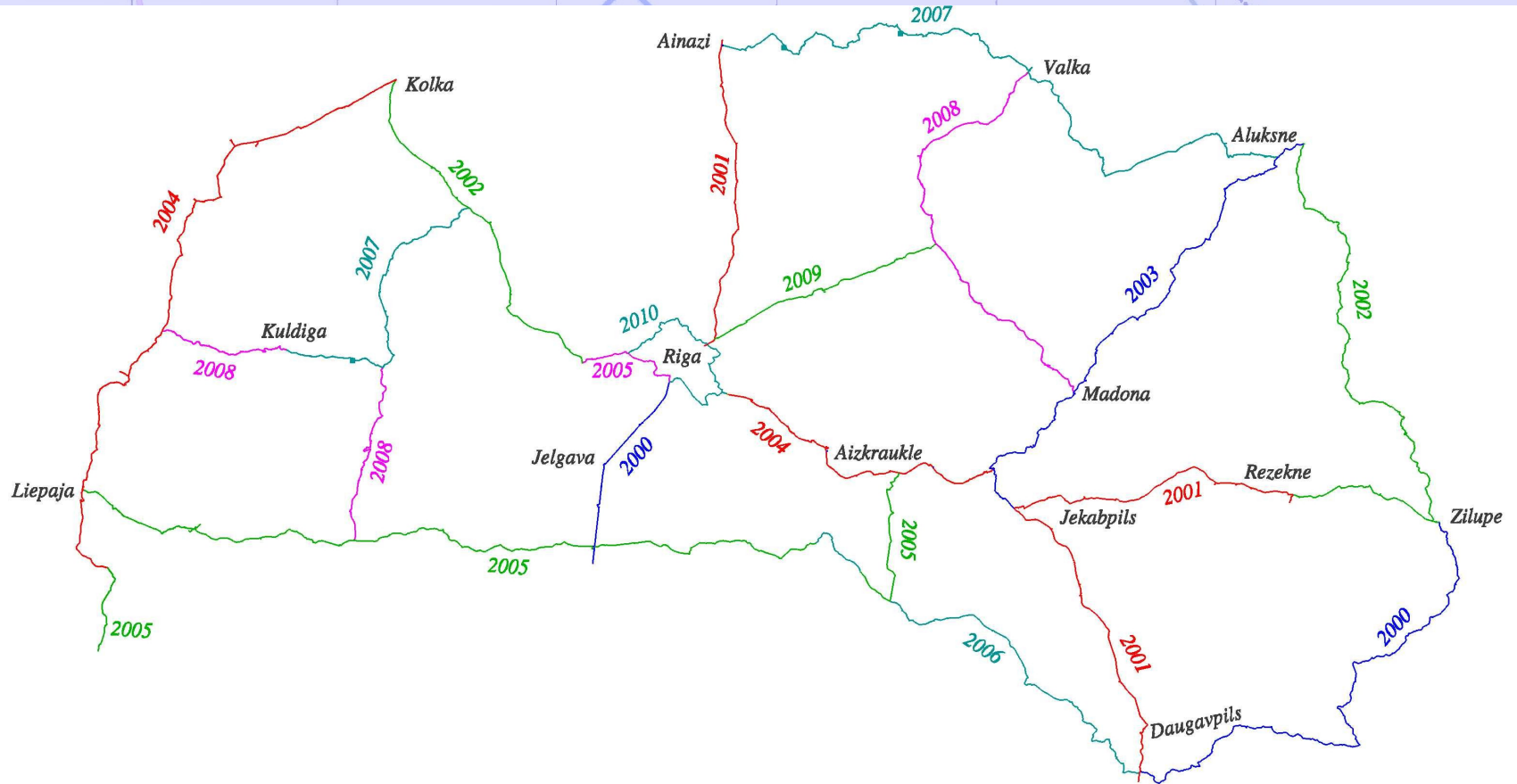
Present: Receiver Ashtech Z12 - many thanks to **Rudolf Stöger**
Plans: New receiver Leica GRX1200, hourly files

Age Group	Total (%)	Female (%)	Male (%)	Non-White (%)
18-24	25	25	25	25
25-34	20	20	20	20
35-44	15	15	15	15
45-54	10	10	10	10
55-64	5	5	5	5
65+	5	5	5	5

Skuodas Lūšė Možeikių



National Geodetic Vertical Network of Latvia

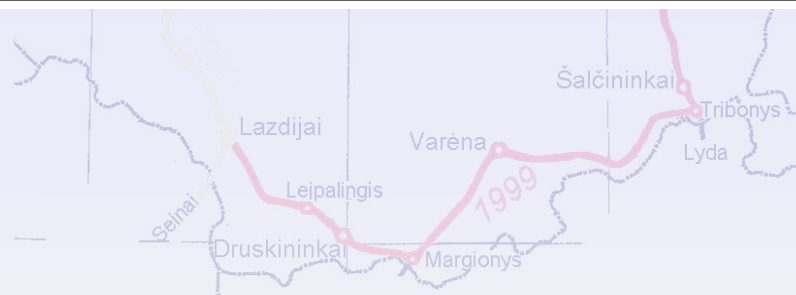


Vertical network (3)



Data on height differences of the connecting lines

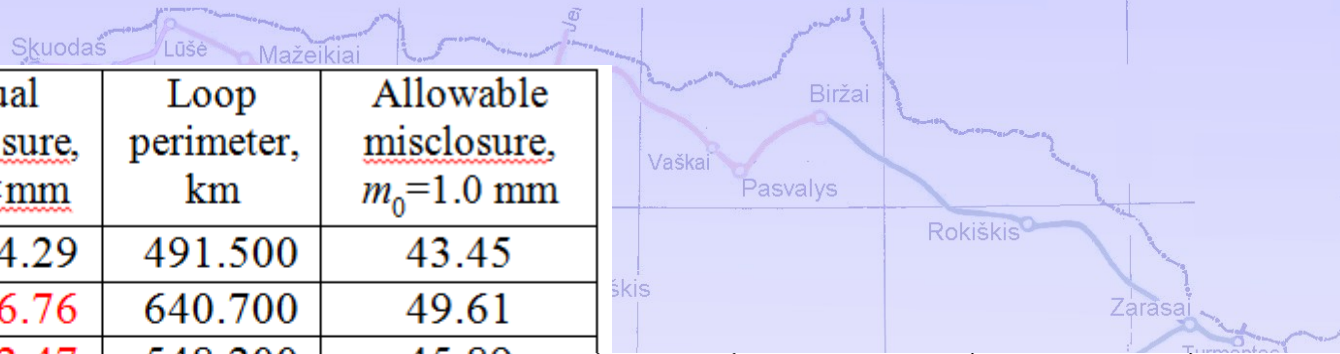
Start point	End point	D , km	h , m (Lithuanian measurements)	h , m (Latvian measurements)	Geopotential number, $kGal \times m$ (Lithuanian measurements)
Būtingė–Rucava					
26V-1561	26V-6237	1.76	+3.20416		+3.14513
26V-6237	26V10238	2.08	+2.39474	+2.3948	+2,35063
26V10238	21L-1684				
Joniškis–Eleja					
56V10049	56V10051	1.43	0.56092		+0,55060
56V10051	56S--335	1.88	-1.00096	-1.00014	-0,98255
56S--335	02L-0718	1.50		-0.3766	
Turmantas–Demene					
03L-0331	03L-2285	1.21		+0.98737	
03L-2285	95V-0053	1.60		+0.31740	
95V-0053	95S--295	0.35	+1.54210	+1.5421	+1,51363



Vertical network (4)

Loop No.	Actual misclosure, $\text{kGal} \times \text{mm}$	Loop perimeter, km	Allowable misclosure, $m_0 = 1.0 \text{ mm}$
1	+4.29	491.500	43.45
2	+6.76	640.700	49.61
3	+2.47	548.200	45.89
4	-14.65	525.400	44.93
5	-32.83	576.300	47.05
6	+11.66	510.000	44.26
7	+3.04	452.000	41.67
8	+17.67	569.500	46.77
9	+5.22	53.300	14.31
10	-2.44	36.800	11.89
11	-7.66	35.500	11.68
12	-18.86	429.800	40.63

13	-15.62	353.300	36.84
14	-16.69	97.000	19.30
15	-11.76	363.200	37.35
16	+1.82	42.700	12.81
17	-5.90	49.300	13.76
18	-7.72	36.400	11.83
19	-15.33	342.400	36.27
20	+4.10	366.900	37.54
21	-7.49	362.800	37.33
22	+33.50	501.600	43.90
23	+12.25	548.500	45.90
24	+11.66	423.800	40.35
25	-9.10	420.600	40.20



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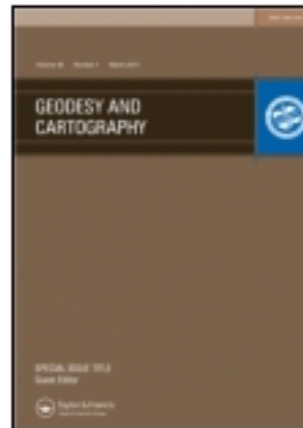
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Co-Published with Vilnius Gediminas Technical University

Published By: Taylor & Francis

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Frequency: 4 issues per year

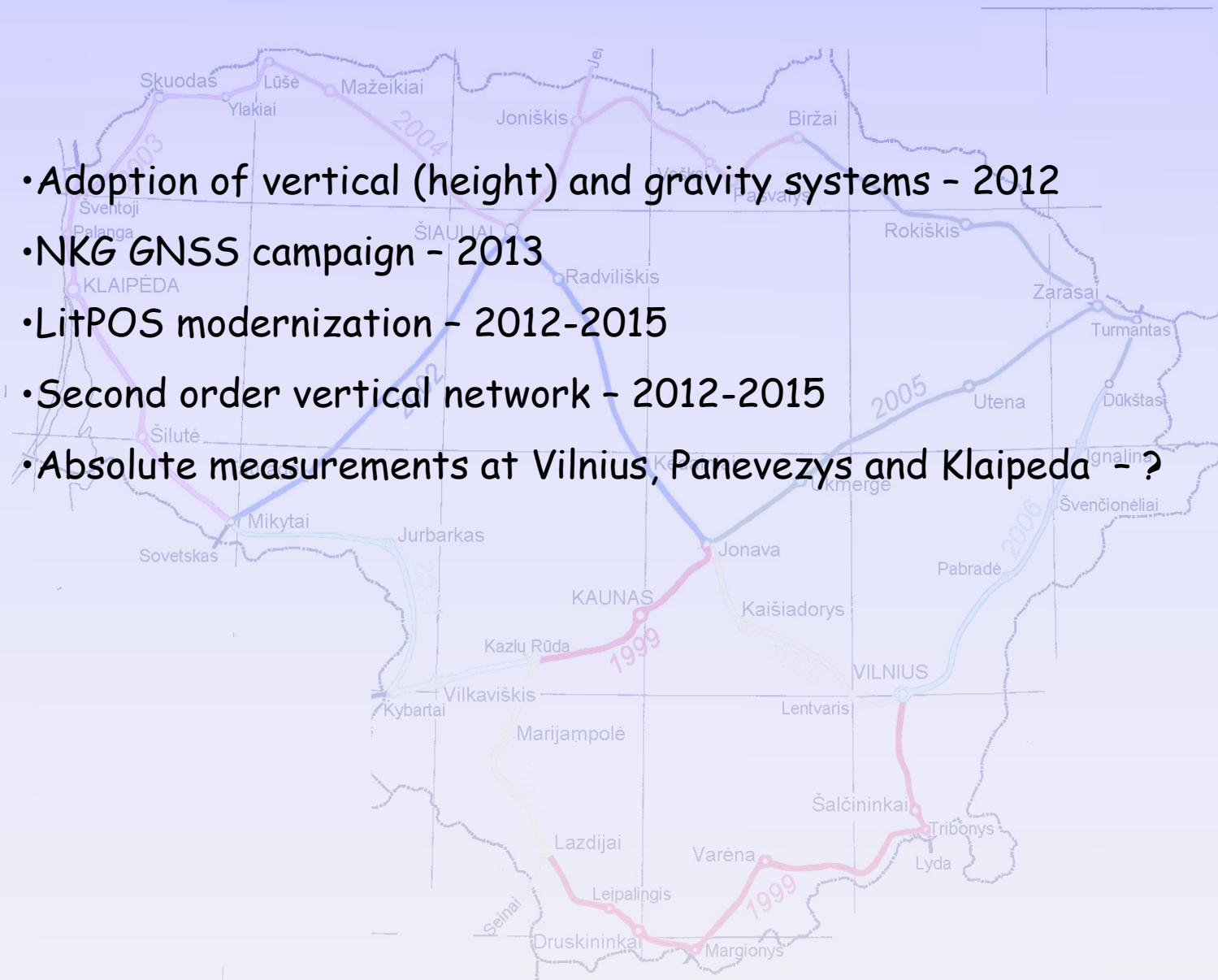
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Future plans

- Adoption of vertical (height) and gravity systems - 2012
- NKG GNSS campaign - 2013
- LitPOS modernization - 2012-2015
- Second order vertical network - 2012-2015
- Absolute measurements at Vilnius, Panevezys and Klaipeda - ?



Thanks...



Thank you for your attention!