

STUDY OF RISK ZONES IN THE CZECH MASSIF AND WESTERN CARPATHIAN TERRITORY

Lubomil POSPÍŠIL, Otakar ŠVÁBENSKÝ and Josef WEIGEL

¹ Institute of Geodesy, Faculty of Civil Engineering, Brno University of Technology Veveří 95, 602 00 Brno Czech Republic,
e-mail: pospasil.l@fce.vutbr.cz



Brno 2015

Institute of Geodesy, Faculty of Civil Engineering, Brno University of Technology

STUDY OF RISK ZONES IN THE CZECH MASSIF AND WESTERN CARPATHIAN TERRITORY

Content / **Obsah**

- 1 INTRODUCTION / **ÚVOD**
- 2 KINEMATICAL MODELS / **KINEMATICKÉ MODELY**
- 3 Čebín-Diendorf tectonic zone / **ČDTZ**
- 4 South slope of Lower Tatras / **Jižní svahy Nízkých Tater**
- 5 CONCLUSION / **ZÁVĚR**

KINEMATICKÉ MODELY

Kinematical models

KINEMATICKÝ MODEL ČESKÉHO MASÍVU

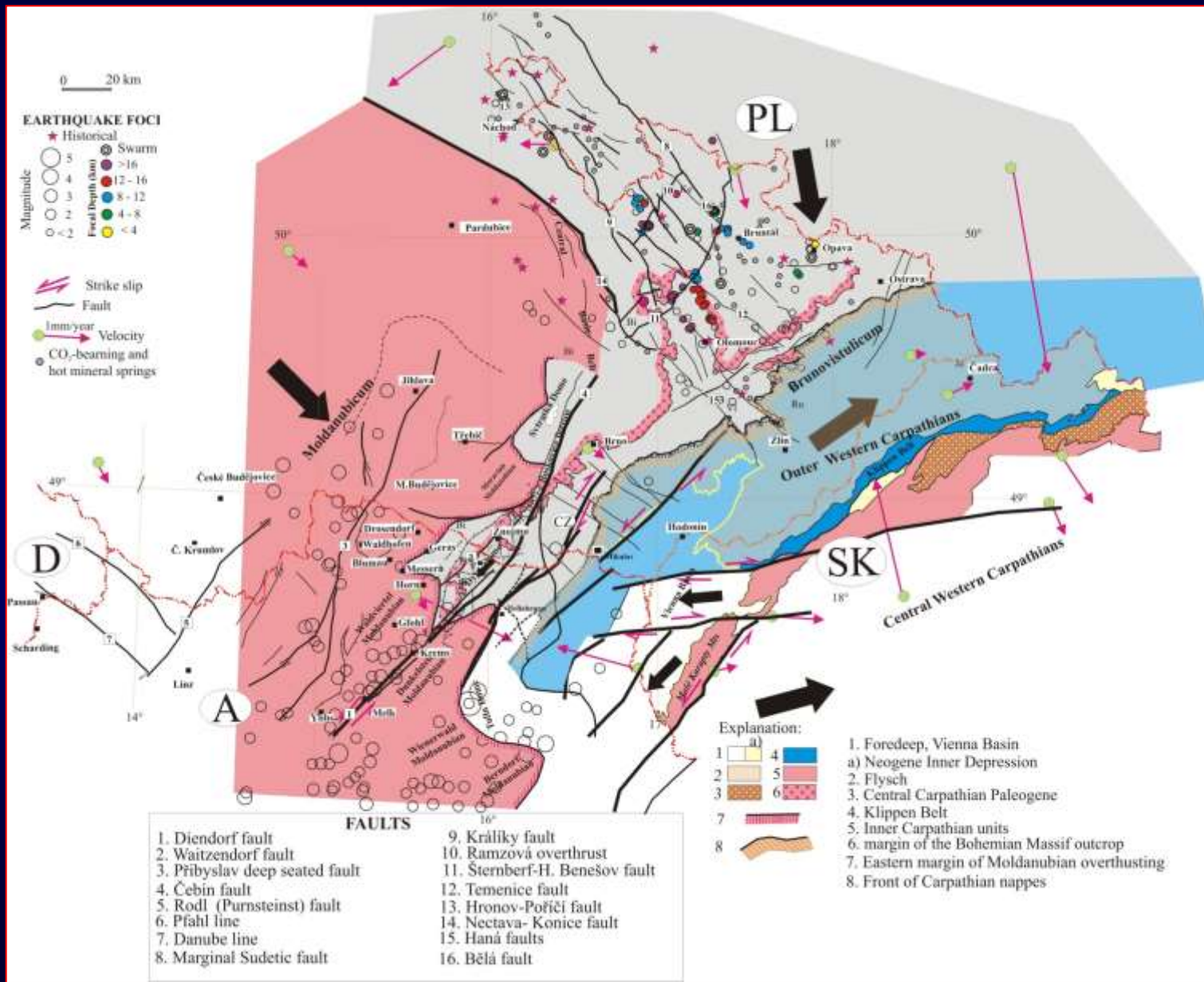
Část MORAVA

Kinematical model of the Bohemian Massif

Moravian part

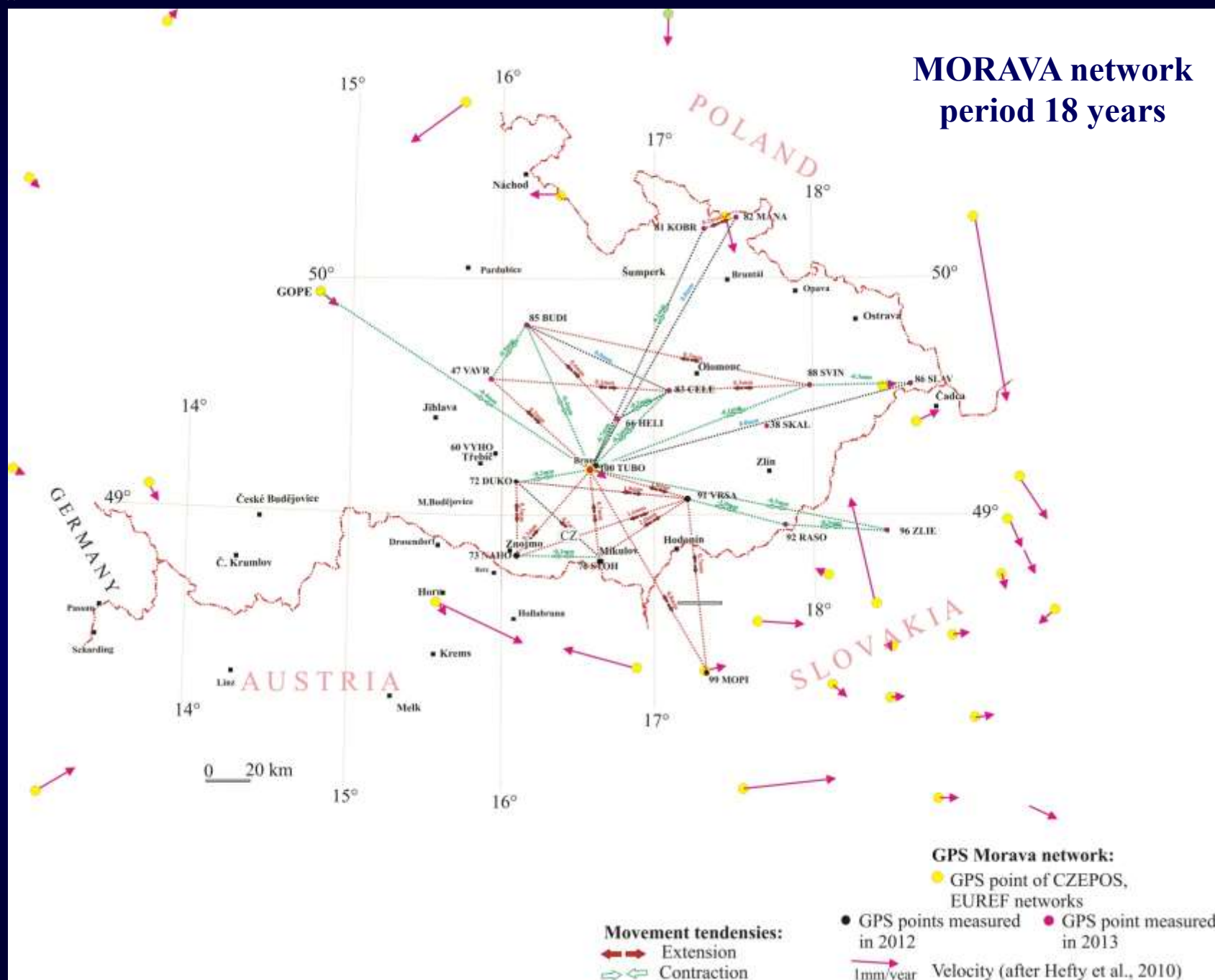
KINEMATICAL MODEL OF MORAVIA

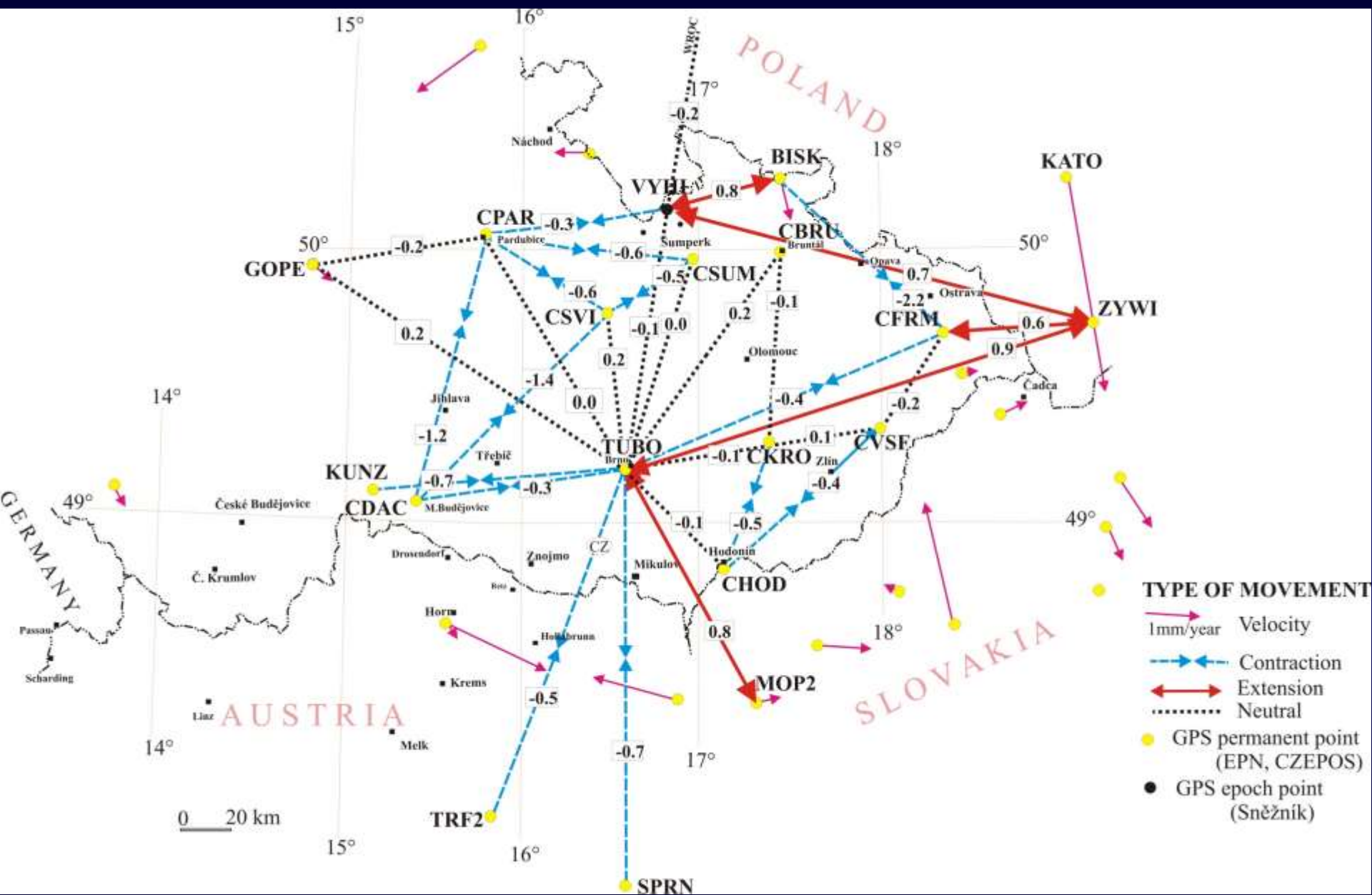
POSPÍŠIL L., ŠVÁBENSKÝ O. and WEIGEL J., 2013

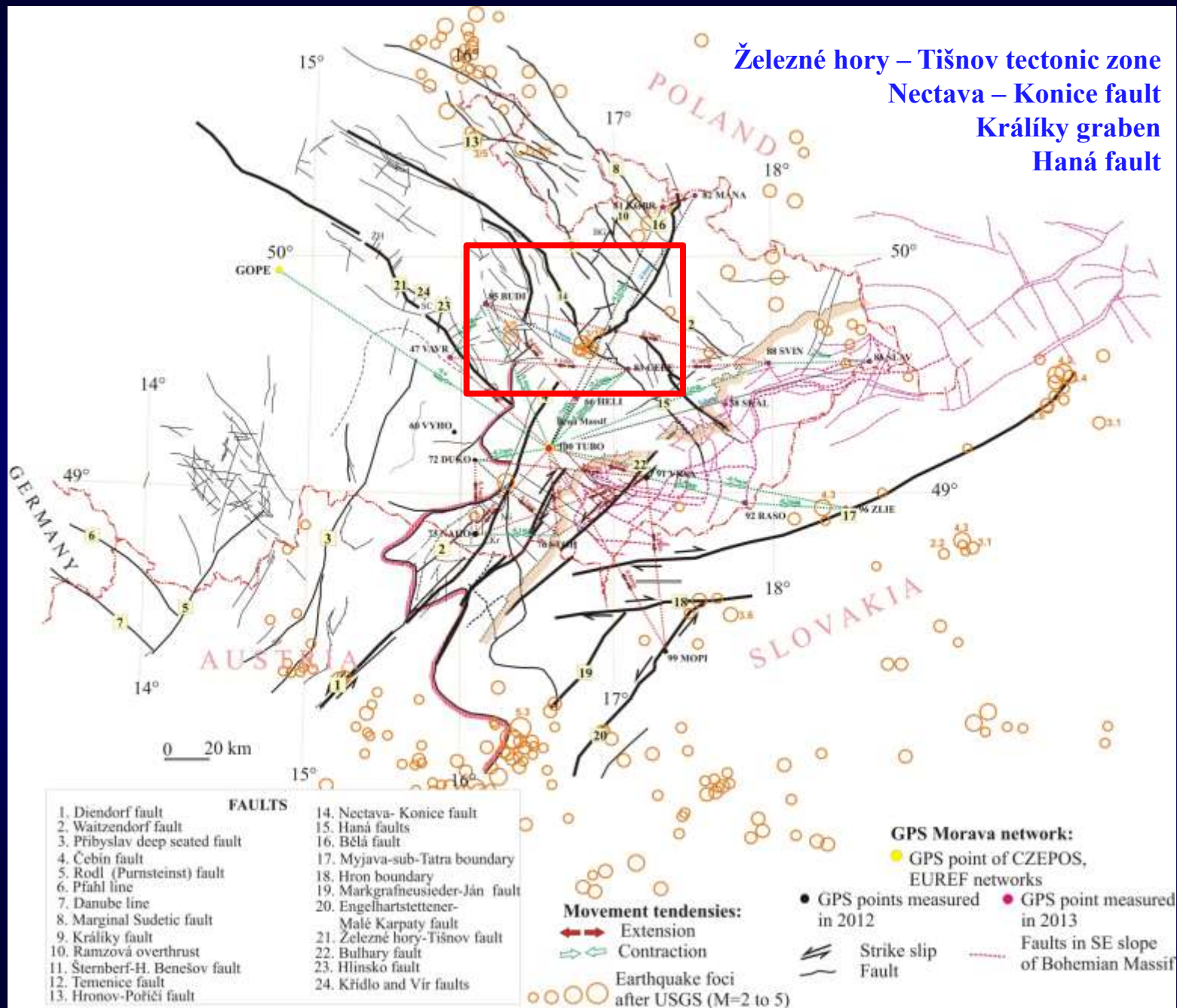


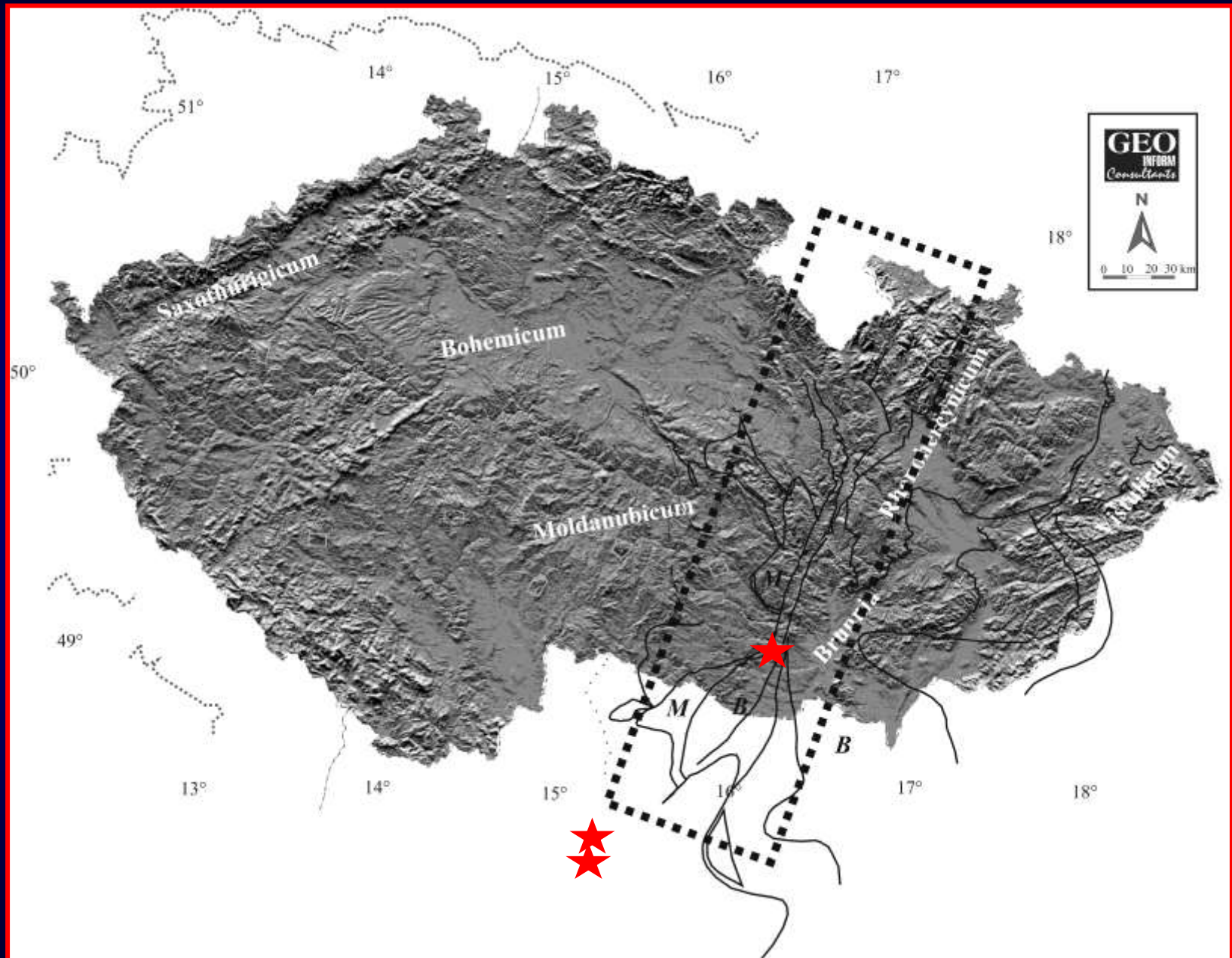
ČEBÍN-DIENDORF TECTONIC ZONE

MORAVA network period 18 years





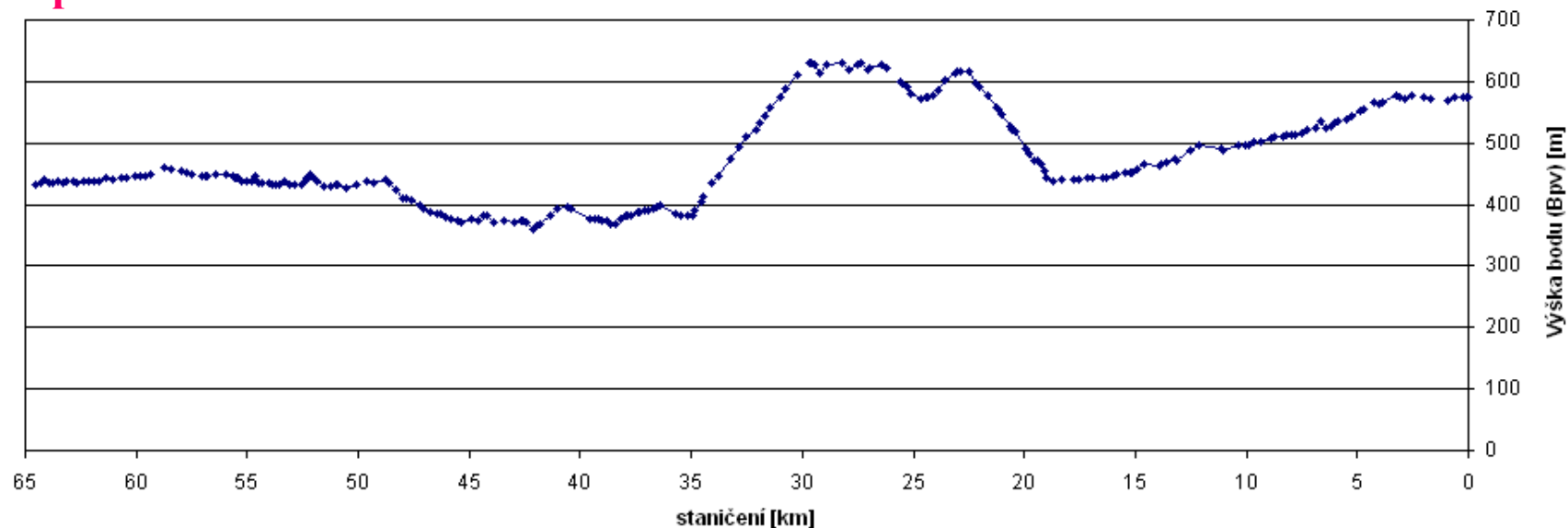




2013/03 - earthquake near MELK (5) and Hostěradice (3.4)

Topo relief

Nivelační pořad I. řádu EF (Králíky - Svitavy) - rozvinutý podélný profil



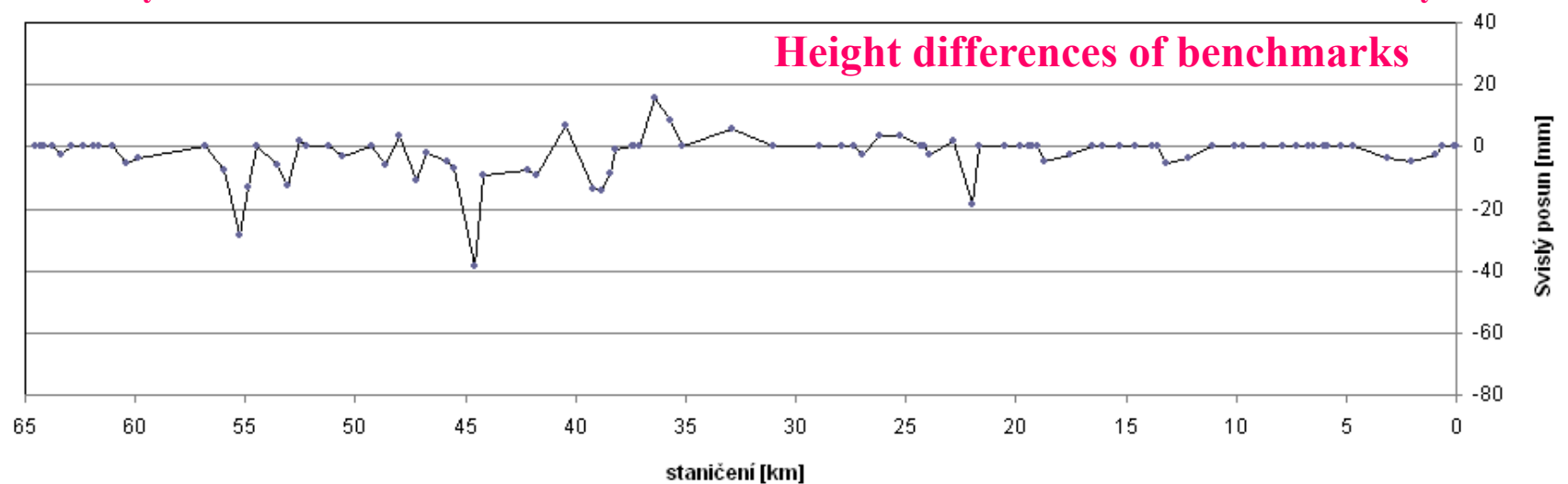
Králíky

Nivelační pořad I. řádu EF (Králíky - Svitavy) - svislé posuny

Lanškroun

Svitavy

Height differences of benchmarks





Bod	50	53	56	58	59	60	61	62	63	65	66	67	68	69
Posun [mm]	0,0	0,0	5,8	0,0	8,7	15,8	0,0	0,0	0,0	-1,1	-8,7	-14,1	-13,7	7,0
Bod	70	71	74	75	76	77	79	80	81	82	83	85	86	88
Posun [mm]	-9,3	-7,3	-9,5	-38,3	-6,8	-4,9	-2,3	-11,1	3,2	-5,8	0,0	-3,0	0,0	0,0

KINEMATICAL MODELS

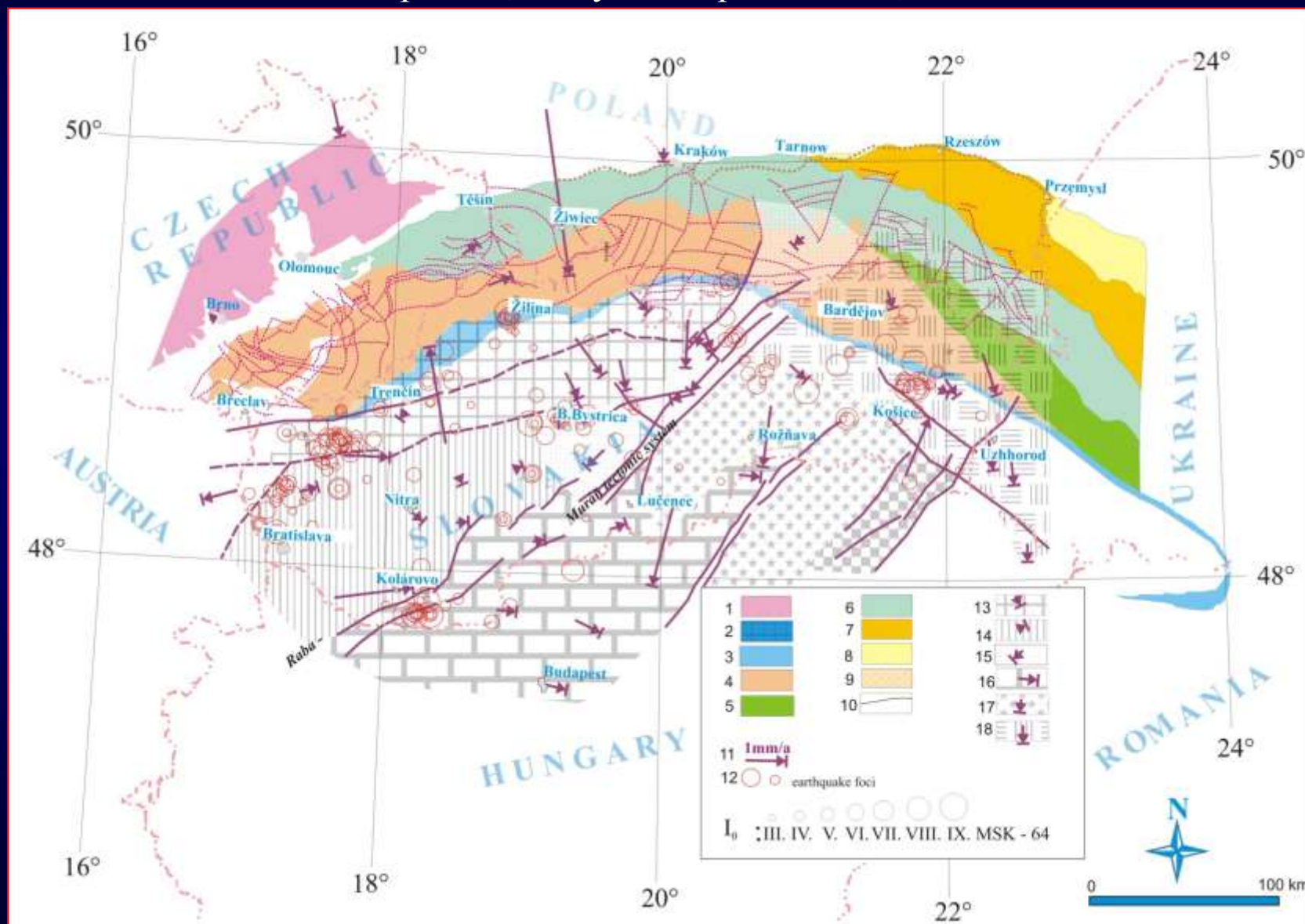
KINEMATICAL MODEL OF WESTERN CARPATHIANS

KINEMATICKÉ MODEL Y

KINEMATICKÝ MODEL ZÁPADNÍCH KARPAT

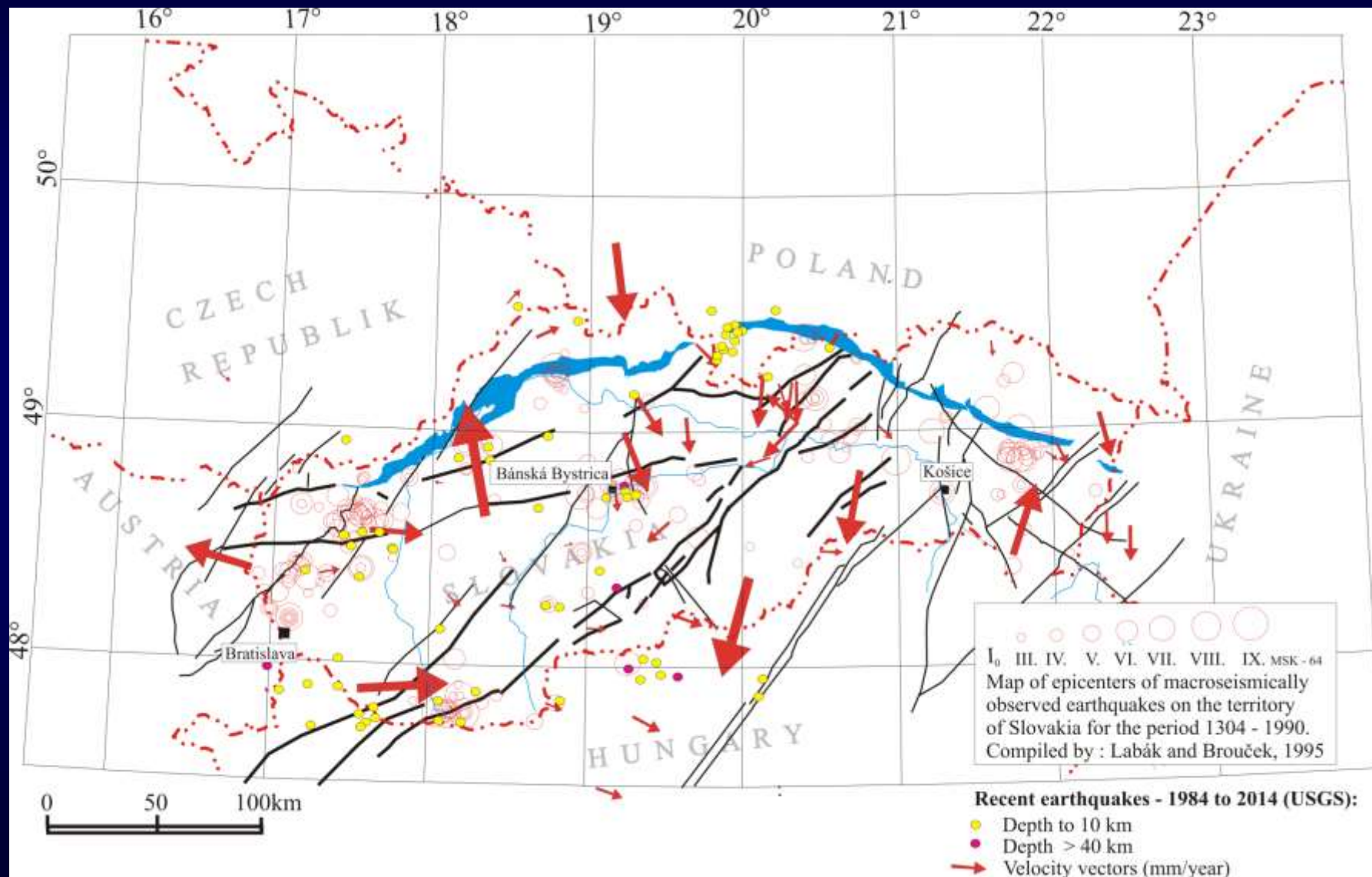
KINEMATICAL MODEL OF W. CARPATHIANS

Pospíšil L., Hefty J. a Hipmanová L., 2012

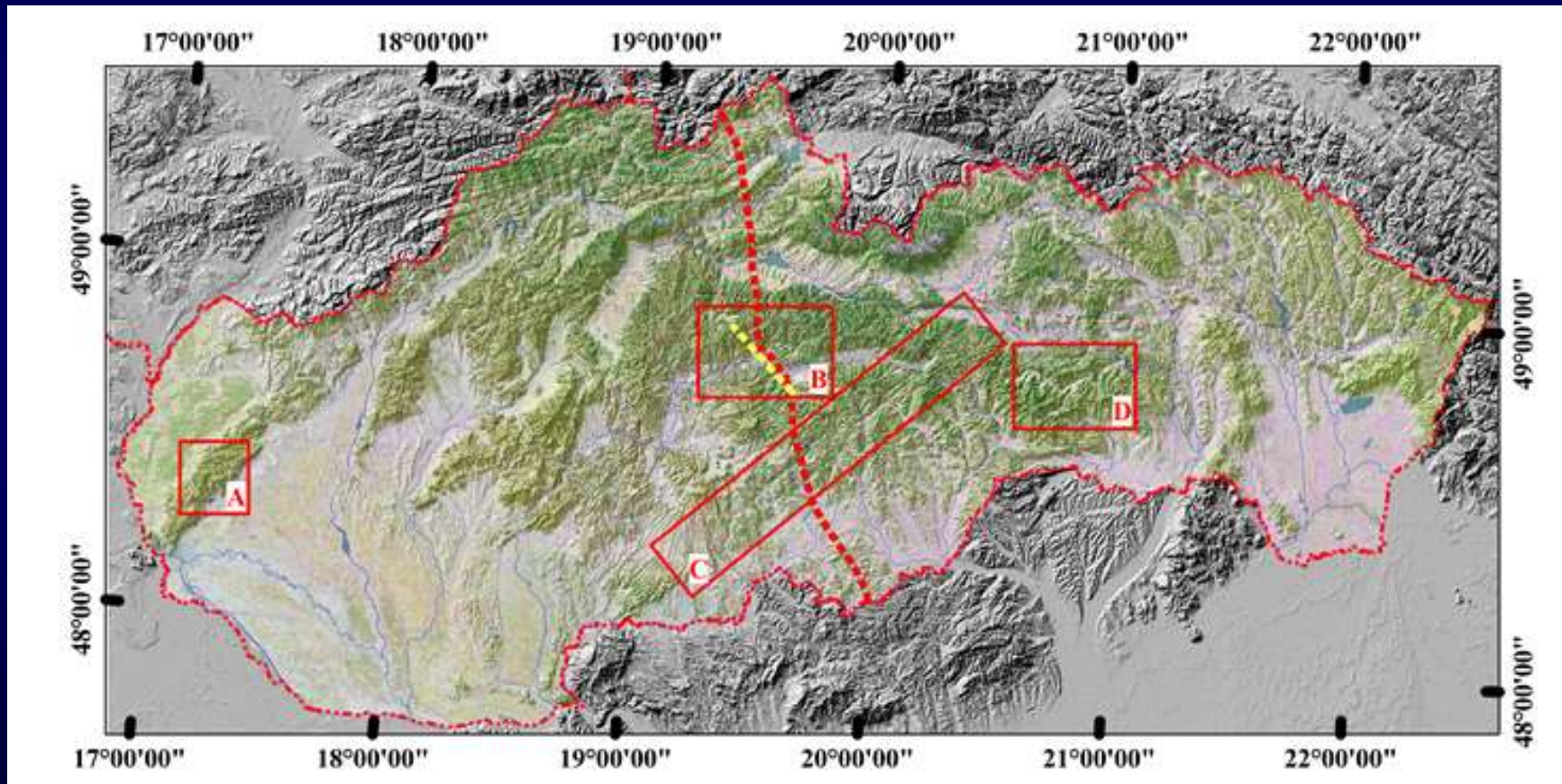


KINEMATICKÝ MODEL ZÁP. KARPAT

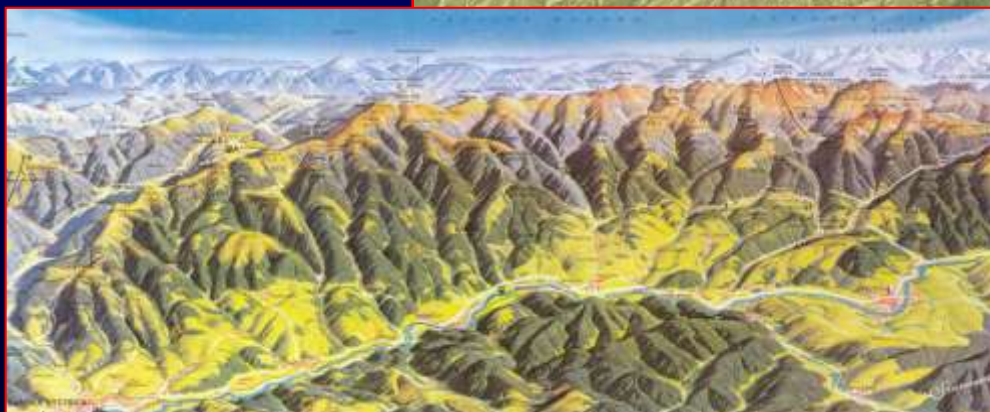
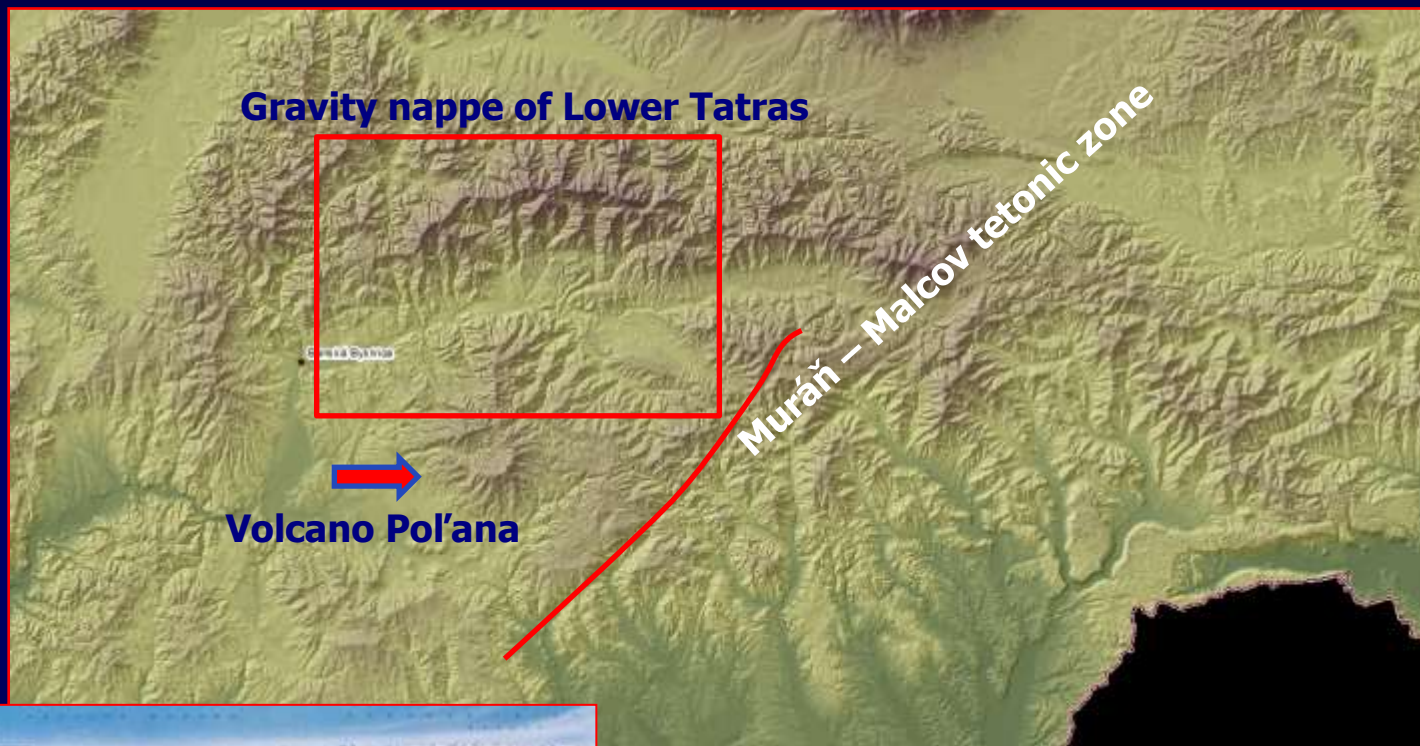
Pospíšil L., Hefty J. a Hipmanová L., 2012



Western Carpathian Geodynamic active structures



Western Carpathian S slopes of the Lower Tatras



Western Carpathian S slopes of the Lower Tatras

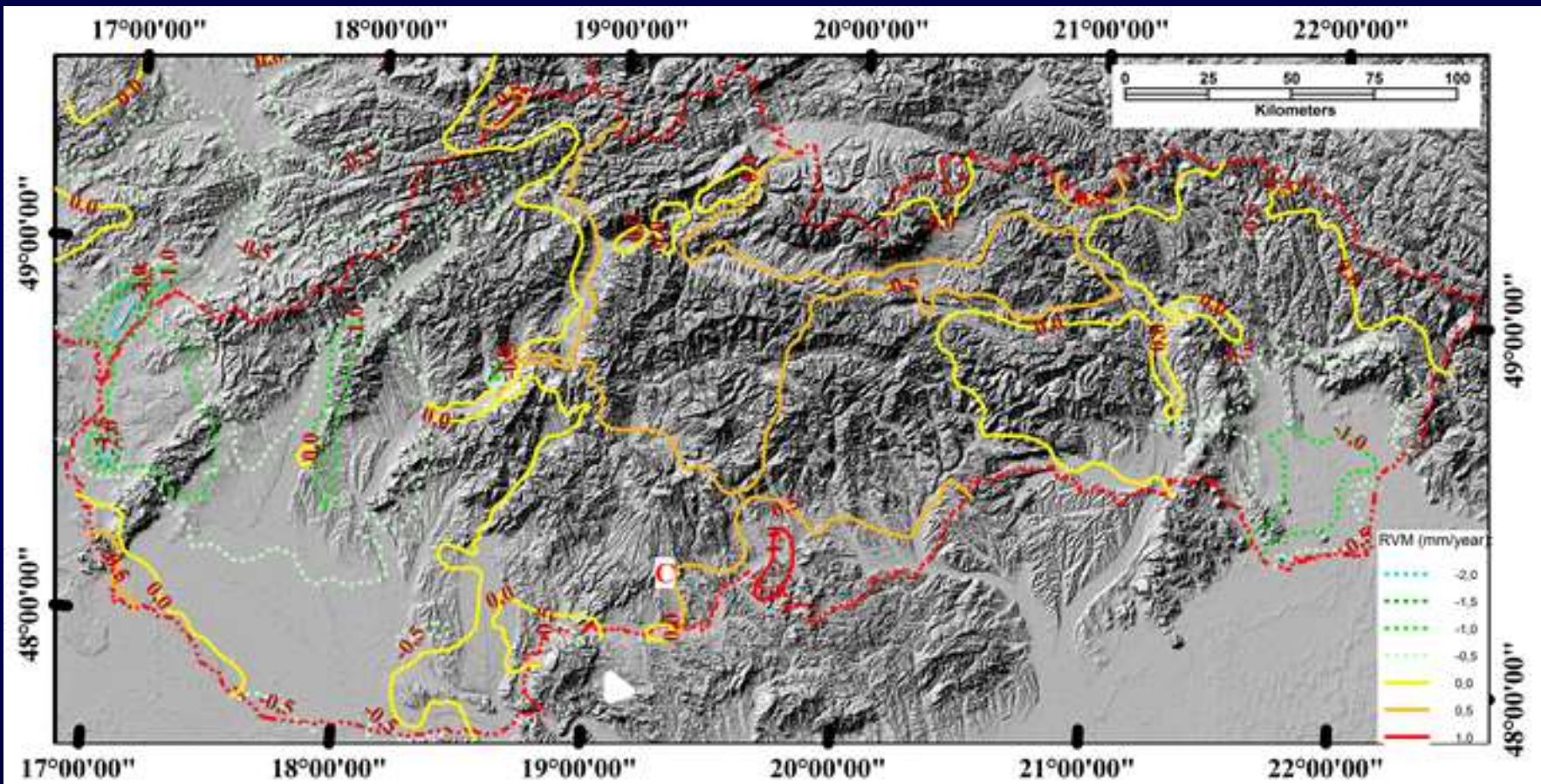
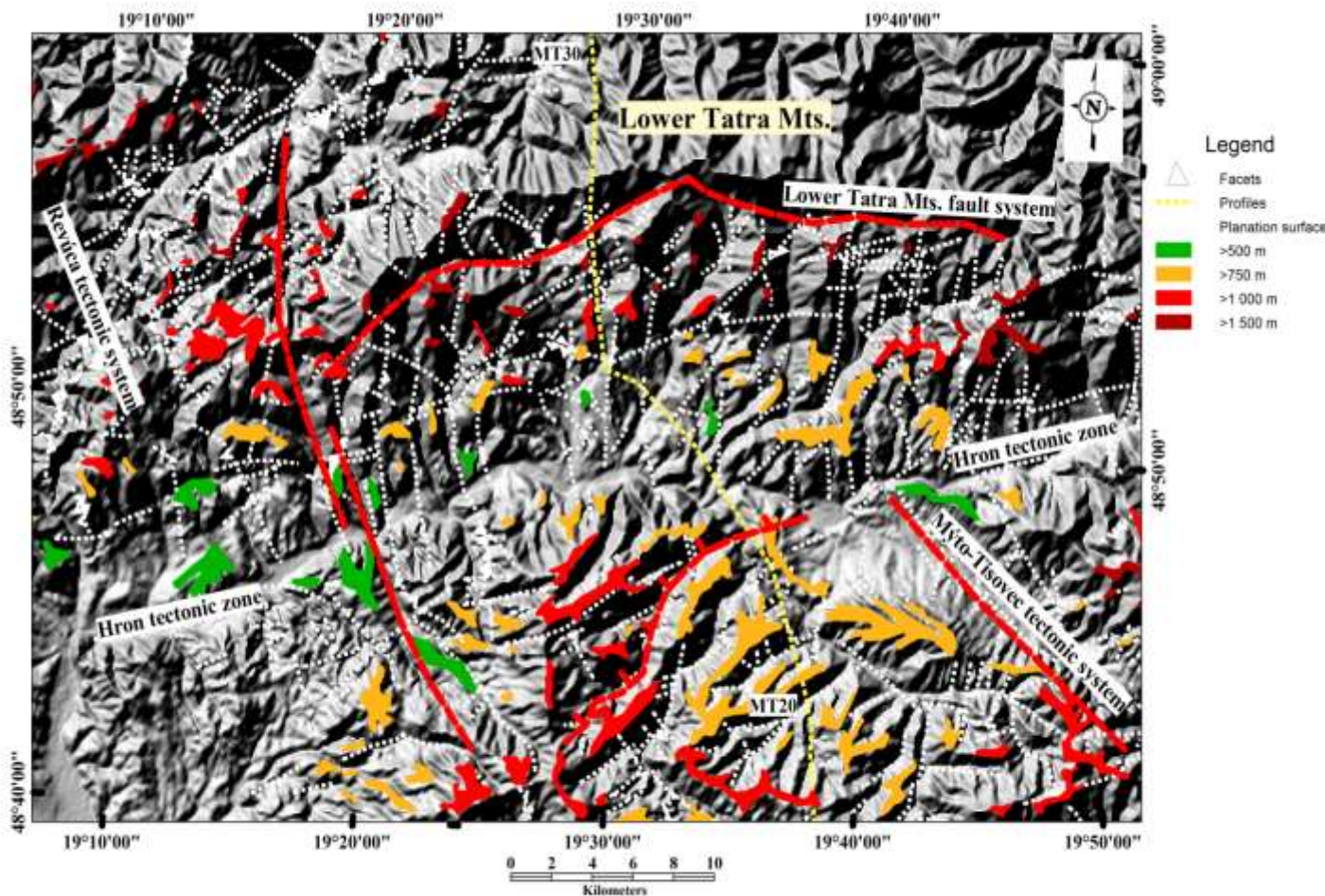
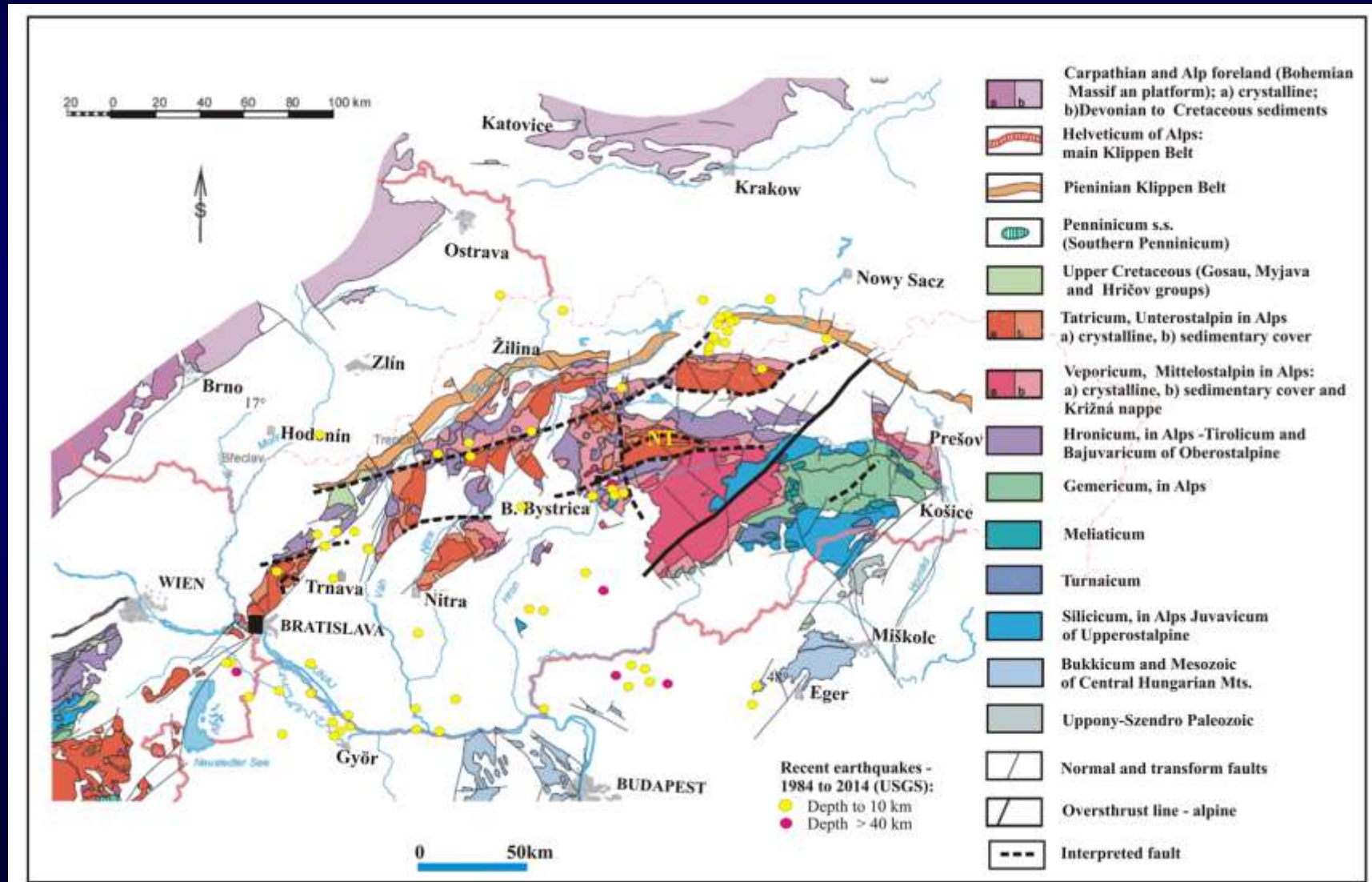


Fig. 3. Map of recent vertical movements (after Vanko and Vyskočil, 1987).

Western Carpathian S slopes of the Lower Tatras



Western Carpathian S slopes of the Lower TatraS



CONCLUSION

- At ČDTZ and southern slopes of Lower Tatras were to verify the important tectonic boundaries and deformation structures interpreted on satellite images and confirmed by the geophysical, geomorphological and GPS data.
- Relatively little densely GPS points in Slovakian networks do not enable to follow such geodynamical and kinematical changes in presented localities
- This areas represent seismo-tectonic active risk zone – from point of view of possible seismic hazards
- In future period we consider with Slovakian partner to realize more detail campaigns on solution of this problem

Thank you for your attention!

Děkujeme za pozornost!

Lubomil POSPÍŠIL

