

tion temperature. The compositional isopleths in pseudosections also point to temperature decrease, corroborated by average PT calculations (800 => 650 °C/6kbar).

There is no direct evidence of the composition of involved melt, apart from the mineral compositions with which it equilibrated. A melt composition that is in equilibrium with plagioclase-K-feldspar-quartz-sillimanite-garnet-biotite in the NCKFMASH system can be calculated if X_{An} and the P-T conditions are fixed. With a melt composition derived in this way we calculated T-x pseudosections for a bulk composition line between K-feldspar (or plagioclase) and melt in order to understand bulk composition changes. When in a K-feldspar layer, plagioclase starts to crystallize above the temperature of muscovite stability only if melt: rock is 9:1. Similarly, in the plagioclase layer, the K-feldspar crystallizes if more than melt: rock is 8:1. Such a high melt proportion is reasonable only if the edges of grains of solid phases

are considered to be in equilibrium with melt covering the grain boundaries. Thus, a small proportion of melt is present in the whole rock at one time. In order to change the whole rock composition in such a way, a large, but currently unidentified quantity of melt must have passed through the rocks along the grain boundaries.

The observed compositional changes in individual layers as well as bulk rock chemistry changes are driven by equilibration with large quantities of infiltrating haplogranitic melt of unknown source. Such a process of a large quantity of melt passing through rocks at grain scale without any important signs of segregation might be an important mechanism for melt transport in a migmatitic crust. As the Gföhl gneiss appears as hundreds of km² bodies, the process of penetrative melt flow through the orogenic crust would be a crucial process for crustal differentiation and also for crustal rheology during orogeny.

New Seismo-Tectonic Activity near Zakopane (Poland) – Events Recorded by Broad-Band Stations Operated by IPE

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During the end of the year 2004, the seismo-tectonic activity in the Polish part of the Vysoké Tatry region was newly detected. This activity continued also during the year 2005. The broad-band stations operated by the IPE (Institute of Physics of the Earth, Masaryk University, Brno – stations JAVC, KRUC, MORC and VRAC) in the eastern part of the Czech Republic registered 25 events with local magnitude ML from 1.1 to 4.6.

The new exhibitions of the seismo-tectonic activity have started by the strongest event (local magnitude ML=4.6) on 30. 11. 2004, which was macroseismically observed. The historical macroseismic observations are known in this region. But during about ten years long continuous registration of broad-band stations operated by the IPE, before 30. 11. 2004, these stations had not recorded any tectonic event with epicentre situated in the Polish part of the Vysoké Tatry region. In contrast to situation before the strongest event, the significant seismo-tectonic activity

was observed during first three days of the December 2004 (13 recorded events with local magnitude ML from 1.1 to 3.5). Less intensive activity continued up to the August 2005 (11 recorded events with local magnitude ML from 1.5 to 3.4).

Using other stations operated by Polish, Slovak, Czech and Hungarian seismological institutes, 13 events were reliably located by program LocSAT. In the case of other 12 events, only approximate locations were possible due to small number of reliable records by accessible broad-band stations. Epicentres are situated near Zakopane, on the northern margin of the Central Western Carpathians. This region represents the NE prolongation of the significant seismoactive zone passing from the Mur-Mürz fault system in the Eastern Alps through the southeastern part of the Vienna basin into Western Carpathians and continuing along the Pieniny Klippen Belt to NE.

Seismo-Tectonic Activity in the NE Part of the Bohemian Massif – New Records in the Period 2004–2005

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In the NE part of the Bohemian Massif, the weak recent seismo-tectonic activity occurs. Micro-earthquakes are concentrated in nume-

rous epicentral areas. During the period 2004–2005, more than 250 tectonic events were detected (more than 60 events were located)