

**Stop 6 –
Biała Woda valley –
“mid”-Cretaceous basaltic olistolith
(Figs 29, 33, 34)**

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A block of basalt a few meters in diameter has long been known from the Biała Woda valley (Horwitz & Rabowski, 1929; Kamiński, 1931; Birkenmajer, 1958b, 1979). This is an olistolith occurring within conglomerates of the Jar-muta Formation (Maastrichtian–Paleocene) belonging to the Grajcarek Succession (Birkenmajer & Wieser, 1990 and references therein). The radiometric age (K-Ar) of this basalt was determined as 140 Ma \pm 8 Ma, an age which

corresponds to the boundary between the Jurassic and Cretaceous (Birkenmajer & Wieser, 1990). More recent radiometric dating by Birkenmajer & Pécskay (2000) for both columnar and platy-jointed varieties of the basalt gave ages of 110 Ma \pm 4.2 Ma and 120.3 Ma \pm 4.5 Ma respectively, equivalent to the Barremian-Albian interval. The basalt has geochemical features of intraplate alkali basalts (Birkenmajer & Lorenc, 2008) and geochemically resembles two olistoliths in the Proč Formation in eastern Slovakia (Spišák & Sýkora, 2009; Oszczytko *et al.*, 2012). The Early Cretaceous volcanism at the northern edge of the PKB was probably related to the opening of the Magura Basin, although this theory is still under discussion (Oszczytko & Oszczytko-Clowes, 2009). Traditionally an Early/Middle Jurassic age, coeval with opening of the Ligurian–Penninic Ocean, has been accepted (see Birkenmajer, 1986; Oszczytko, 1992, 1999; Golonka *et al.*, 2000, 2003; Oszczytko *et al.*, 2012) (Fig. 34).



Fig. 33. View of basaltic olistolith in Biała Woda Valley

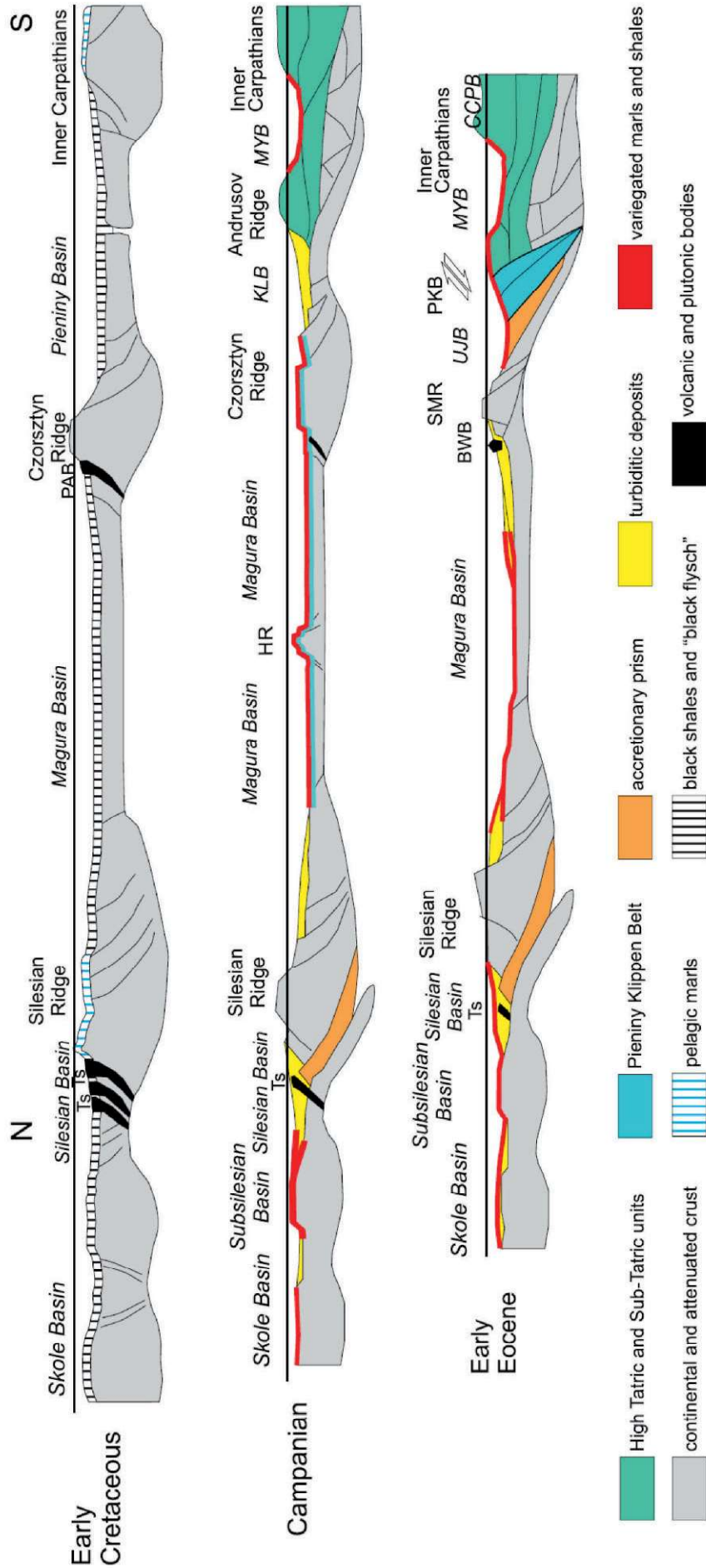


Fig. 34. Early Cretaceous–Early Eocene palinspastic evolutionary model for the Magura Basin, not to scale (based on Oszczytko, 2006, modified and Oszczytko *et al.*, 2012). CCPB – Central Carpathian Paleogene Basin, HR – Hluk Ridge, UJB – Ujak Basin, KLB – Klapa Basin, MYB – Myjava Basin, PKB – Pieniny Klippen Belt, SMR – South Magura Ridge, Ts – teschenites, PAB – Pieniny alkaline basalts, BWB – Biala Woda basaltic block