

Diersche, Volker

Blassangerl-Hundstodscharte Fm - a new Lower to Middle Miocene lignite formation from the Steinernes Meer, NCA/Tirol, Germany and Austria

Privat, Deutschland;

volkerdiersche@gmail.com

Geologic fieldwork on tectonics and sediments of the Steinernes Meer Mts. between Lake Diesbach and Blühnbachtörl rose our interest on 2 lignite occurrences, described already 1928 by Nora Hoffmann (“Pechkohle”; “Gosau im Steinernen Meer?”).

Other Alpine and Foreland lignite occurrences are well-known and -researched (Piller 2022), but Hoffmann’s lignite discovery was forgotten for nearly 100 years.

Due to the over-regional importance, we herewith define these lignite occurrences as the Blassangerl-Hundstodscharte Formation, with a revised age of Early- to Middle Miocene.

Type-section “Blassangerl” (1850m NN, 15m long water-ditch 300m southeast of Schönbichlalm, Topographic Map 8343/44 Funtensee) starts above Dachsteinkalk (fault?) with 0.2m carbonate pebbles with lignite streak, followed by 0.5m greyish-brown silty clay with several up to 1.5cm thick, lignite layers, overlain by 0.3m light-grey fine- to middle sand with clayey matrix and lignite flakes. Estimated succession thickness: 4-5m (Hoffmann). The lignite is black, hard, splintery, shiny crush, vitrinite reflexion value of 0.35% VRr (=Weichbraunkohle) (det. Dr. Neumeister). No molluscs, no macroscopic plant-remains.

At reference section “Hundstodscharte”/Austria (2210mNN, ca. 20x60m plain, 30m west of trail. Topographic Map 8443 Königssee; lying on Kleiner Hundstod thrust-block) a more than 0.5m reddish-brown clay contains 1cm thick black lignite, and pieces of 0.5cm greenish-yellow, calcareous sandstone. Footwall boundary at Blassangerl are possibly residual Augenstein Fm and Bohnerz. At Hundstodscharte are no Augensteine at surface, but expected underneath, because Augensteine and Bohnerz occur in nearby ruin-cave “Hundsfott-Wandhöhle” (Kat.nr. 1331/115).

Type section and reference section have as hanging wall boundary the overthrusting Dachsteinkalk of Mts. Hirsch resp. Großer Hundstod., corresponding to the South-directed Hundstod Thrust of Hahn (1913), as part of the K-L-T fault-zone active during the Miocene Lateral Extrusion (Decker et al.1994, Diersche et al.2018). This post-sedimentary overthrusting protected both lignite occurrences from erosion. Pollen research from type-section Blassangerl (det. Prof. Zetter) showed *Pinus*, *Cathaya*, *Cupressaceae* (*Taxodioideae*), *Carya*, *Pterocarya*, *Platanus*, *Quercus* - a pollen spectrum typical for a Lower to Middle Miocene age (statement Prof. Zetter).

This age is in accordance with Steininger et al. (1989) that the inneralpine lignite basin cycle is of Lower to Middle Miocene age.

We interpret the Blassangerl and Hundstodscharte lignite sections, together with lignite traces between, as proof for an originally at least 3km long “Blassangerl-Hundstodscharte Lignite Basin”, partly hidden under the Hundstod Thrust, with NW-SE axis (tectonically corrected).

The newly defined Blassangerl-Hundstodscharte Fm (Lower-to Middle Miocene) contains the highest lignites of the Northern Calcareous Alps of Germany and Austria and fills a gap in the knowledge on Tertiary paleogeography, subsidence and coalification.

Acknowledgements

We thank Prof. Reinhard Zetter/Boku Wien for pollen and age determination, Dr. Stefan Neumeister/Salzburg for vitrinite reflexion measurements, Bayerische Saalforste /St.Martin and Landratsamt and Nationalpark Berchtesgaden for road and sampling permits.

Session: *Pangeo workshop: Regional Geology*

Keywords: *Steinernes Meer, NCA, Middle Miocene*