

#### **STOP 4: Maissau - "Amethystwelt", Amethyst dyke in the Thaya Batholith**

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**Locality:** The Amethyst dyke of Maissau is outcropped in an exhibition hall representing the central part of the "Amethystwelt" centre located on the federal road B4 to Horn, about 500 m off Maissau. The dyke was originally discovered during the production works in the Thaya granite quarry in the first half of the 19<sup>th</sup> century. Hence the first description of the amethyst idiophanous axis projections phenomenon was based on therein sampled material, by famous mineralogists and founder of the Austro-Hungarian Geological Survey WILHELM VON HAIDINGER (*Denkschriften math.-naturwiss. Cl. Akad. Wiss. Wien*, 1848). The author discovered thereby the typical optical property of the amethyst resulting from alternating superposition of right-handed and left-handed quartz lamellae. Soon however the quarry production stopped and its amethyst occurrence slid into oblivion. The modern rediscovery of the dyke was triggered in 1986 through extensive exploration campaigns by the Krahuletz Museum (Eggenburg). Hence in the early 2005 the "Maissau Amethyst Gesmbh" launched a unique tourist centre on the dyke exploiting now commercially the natural phenomenon.

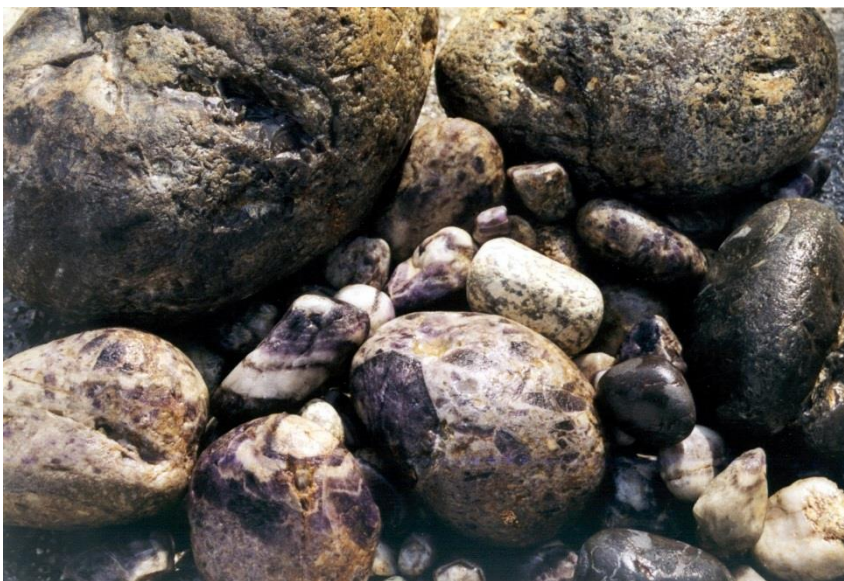


Amethyst dyke at the site in the "Amethystwelt".

**Section:** It is a WNW-ESW striking, vertically oriented dyke with maximal thickness of 2 m. The prospecting works have proved its continuous extension for at least about 400 m. This classified it to the larger occurrences of its kind. Additional parallel striking dykes are present in the region as well. One such famous occurrence, known already for about 250 years, is positioned about 7 km northwards from the site and crosses the graveyard of Eggenburg. In Maissau moreover spectacular are neighbouring sites with large well rounded amethyst pebbles at places where the Early Miocene marine transgression eroded the dykes. One such site was discovered below the centre's parking place eastwards to the hall.

**Thaya granite:** This is a homogenous, medium grained, slightly metamorphic biotit-granite, which is in the surroundings of Maissau characterised through a typical red colour of its feldspars. North of the dyke it is only slightly weathered although commonly brownish in colour through iron oxyde ingressions from the cleavage system. In contrast the granite in the southern wing of the dyke is partly completely altered to kaolin.

**Amethyst dyke:** The dyke comprises a main vein that is in the outcrop 40 to 60 cm wide and is lateral exposed for about 40 m. The main vein splits into several parallel striking veins and also feather joins where single veinlets can be followed several meters off the main one. The quartz mineralization of the node, showing typical elongated zigzag pattern, is intensively striped, alternating different intensities of black (morion), whitish (milk quartz), grayish (smoky quartz) and violet (amethyst) colors. The mainly only several centimeters wide veinlets of the feather joins are commonly filled only by a single colored quartz mineral. Moreover common are cm-wide cavities that can elsewhere reach several meters in diameter. They comprise geodes where crystal generations end toward the cavity with six-sided pyramids.



Lower Miocene amethyst gravel.

Text from: MANDIC, O., HARZHAUSER, M., STEININGER, F. & ROETZEL, R.: RCMNS 2005.  
Excursion C: Miocene of the Eastern Alpine Foredeep – The Bohemian Massive southeastern  
margin. – 52 p., Vienna 2005.