

The W-Sn-Be deposit of Xuebaoding, Sichuan Province, China: current research, past, and future of a world class mineral locality

Markus B. Raschke

**Department of Physics, Department of Chemistry, and JILA
University of Colorado at Boulder**

The Xuebaoding Mountain with its W-Se-Be deposits has emerged as a world-class specimen locality for scheelite, cassiterite, and beryl since its discovery in the 1950s. Situated high above tree line on the northeastern edge of the Tibetan Plateau, the mineralized muscovite-rich quartz veins intruding Triassic metamorphic schist and carbonate rock are of a greisen-type associated with small alkali granite intrusions. Major gem-grade scheelite, beryl, and cassiterite are found with minor K-spar, quartz, fluorite, calcite, and rare Sn-bearing minerals mushistonite, k esterite, and others. Difficulties in access of this remote locality above 4200 m have long limited systematic research of its geology and mineralogy. I will discuss recent progress and new insight into the mineralogy which resolve a number of mysteries surrounding this deposit.



Xuebaoding (雪宝顶) Mountain (background). The localities are in small adits and artisanal pits just above the talus slope and beyond the ridge to the right.



Accessing some of the outcrops and workings.



A quartz crystal above omnipresent Sichuan cloud soup to the east at sunrise.

The major minerals from the area:

For a W-Sn-Be greisen the primary minerals are cassiterite, scheelite, and beryl. However, a number of associated rare especially Sn-bearing minerals mushistonite, k esterite, and others.

Scheelite with cassiterite on biotite. Xuebaoding, 11.7 cm. Collection Steve Smale. Photo Jeff Scovil.



Scheelite with beryl in typical tabular habit. Xuebaoding, 4.2 x 3.7 x 2.2 cm cm. Collection and photo Yasu Okazaki.



Right: Beryl (var. aquamarine) with cassiterite. Xuebaoding, 21.0 x 13.0 x 10.0 cm. Collection MIM museum. Photo James Elliott.



