In order to better understand phase transformations, chemical migration, and isotopic disequilibrium in highly shocked rocks [1], we have performed a microprobe and an ATEM study on gneisses from the Haughton Crater. A TEM study of shocked gneisses from the Haughton Crater (Canada) has been published [2]. These gneisses were shocked to 60 GPa from the Haughton Crater. 

**Phase Transformations in 40-40 GPa Shocked Gneisses from the Haughton Crater (Canada)**

**Structure**

The Haughton impact structure, Devon Island, is a crater of about 24 km in diameter formed in a target of about 1700 m of sedimentary rocks and 3 km of consolidated volcanic rocks. The Haughton impact structure is a well-preserved, pristine impact structure that has been extensively studied [3].

**References**

PHASE TRANSFORMATIONS IN 40–60-GPa SHOCKED GNEISSES FROM THE HAUGHTON CRATER (CANADA):
Martinez I. et al.

Fig. 1. (a) EDS microanalysis of polycrystalline quartz. Oxygen is not detectable with this EDS configuration and some contamination by the copper of the sample support occurs; (b) EDS microanalysis of the silica-rich amorphous phase.

Fig. 2. (a) EDS microanalysis of an iron-rich spinel crystal. The composition is approximately \((\text{Mg}_{0.1}\text{Fe}_{0.9})\text{Al}_2\text{O}_4\), although Fe\(^{3+}\) could not be determined; (b) EDS microanalysis of the silica-rich amorphous phase. Notice the similarity with Fig. 1b.

Fig. 3. (a) TEM image of the lamellar structure of intercalated mullite and silica-rich (+Al, K) amorphous phase (see arrows). Scale bar is 200 nm. (b) In some areas, mullite appears as small euhedral crystals surrounded by the amorphous phase. TEM, scale bar 200 nm.