



The Chienberg tunnel - a part of the Sissach by-pass close to Basle - was constructed in the period 2000-2005. During a lengthy construction standstill, the floor of the top heading experienced a heave of about 1.5 m within three months. As anhydrite dissolution and gypsum precipitation are rather slow processes, it seems that these very large deformations have been caused by the swelling of the clay matrix.

**Figure 3. Heave of the top heading floor of the Chienberg tunnel during construction.**