The Svalbard Archipelago is situated in the northwestern part of the Barents shelf, in close proximity to the passive continental margin. This intraplate region is characterized by some of the highest seismicity in the entire Barents Sea and adjoining continental shelf, surpassed only by the Knipovich ridge (*e. g.*, Engen *et al.* 2003; International Seismological Centre 2001), which, as a spreading plate boundary, is the structure that dominates the regional stress field. Most of the seismic activity (Figure 1) is characterized by smaller events, which often occur in small concentrations sparsely distributed in time. However, earthquakes of moderate to stronger magnitudes do occur in the Svalbard area, such as the 4 July 2003 *mb* 5.7 event close to Hopen Island (*e. g.*, Stange and Schweitzer 2004).

A more recent example will be discussed here: the *Mw* 6.0 earthquake that occurred in Storfjorden, off the coast of the island of Spitsbergen, on 21 February 2008 and initiated an extensive aftershock sequence. The data presented in this contribution cover approximately seven months following the occurrence of the mainshock and involve more than 250 aftershocks included in the NORSAR Regional Reviewed Bulletin (http://www.norsardata.no/NDC/bulletins/regional/), which contains events with an automatic network magnitude (M_{GBF}) larger than 2.0