Plastic deformation of quartz at room temperature and pressure

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We performed Vickers indentation tests of natural quartz with a load of 98 - 980 mN (10 - 100 gram force) at room temperature and pressure, and observed the indented surfaces with AFM (atomic force microscopy) at atomic scale resolution. Indented impressions produced under the load less than 98mN show no signs of fractuing during the indentation tests. The observation suggest that quartz plastically deformed even at room temperature and pressure.

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