

Scientific Drilling in the Barberton Greenstone Belt (Source: Geobulletin, v.53, pp.17-20)

The Barberton Greenstone Belt in South Africa is one of the best-preserved successions of mid-Archaean (3.5-3.2 Ga) supracrustal rocks in the world, and, as such, a remarkable natural laboratory where conditions and processes of the surface of the Archaean Earth can be studied in detail.

Two scientific drilling programs are planned in the Barberton Greenstone Belt in coming years. The International Continental Drilling Program (ICDP) has approved one of them and drilling is expected to start soon.

Two main drilling targets were identified: (1) Sedimentary sequences, which will provide information about erosion and sedimentation on the early Earth, the composition and temperature of Archaean seawater, and one possible site where life may have emerged and evolved. Study of tidal sequences will provide information about the dynamics of the Earth-Moon system, and the investigation of spherule layers (including impact debris) provide information about the nature and magnitude of meteorite impacts on the early Earth. (2) Succession of ultramafic to felsic volcanic rocks, which will provide new insights into volcanic processes, dynamics of the crust and mantle, interaction between oceanic volcanic crust and the hydrosphere and biosphere.