



Results of 20 year repeated temperature logging of borehole Caravelinha near Evora, south-central Portugal

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The 200 m deep borehole TGQC-1 Caravelinha located about 5 km northwest of the town of Evora in south-central Portugal has been logged repeatedly in the time period 1997 – 2017 with the aim to study the subsurface temperature response to the recent climate changes. We report on the results of logging carried out in years 1997, 2000, 2002, 2005 and 2017. The observed data clearly indicate the ongoing warming. The subsurface temperature increase in the 20 year interval 1997 – 2017 is evident down the depth of 120 – 130 m where it disappears in the noise of measurement of several hundredths K. Amplitude of the subsurface warming within this 20 year span decreases with depth and amounts to +0.35 K at 20 m, +0.15 K at 50 m and +0.06 at 100 m. The joint functional space inversion of the repeated logs shows a gradual increase of the ground surface temperature since the end of the 19th century. Its amplitude, about +1.5 K is comparable with the air warming observed at the meteorological station in Lisbon since the second half of the 19th century.