A Geothermal Climate Change Observatory is operating at the Choutuppal campus of National Geophysical Research Institute (17.29 °N, 78.92 °E) near Hyderabad, south India, to measure subsurface temperature changes on diurnal to decadal timescales and quantify how well they track surface temperature changes. The site is located in a designated reserved forest land and far from potential urban heat islands. Surface meteorological data (air temperature, relative humidity, precipitation, solar radiation, wind speed and wind direction) as well as ground temperature data at six different depths in the top 1.2 m of the granite regolith at the same site are being recorded at 30 minute intervals. Repeat temperature measurements are being carried out in two collocated boreholes to depths of 21 m and 210 m respectively, drilled next to the weather station.

Ground temperatures measured down to 21 m show both amplitude attenuation and phase lag of the surface air temperature changes, characteristic of conductive heat transfer. Analysis of temperature-depth profile down to 210 m reveals surface ground warming of 0.5 deg. C with an onset centered on the year 1917 AD. This is consistent with the regional warming trend during the past Century over most of the Interior Peninsula in south India that has been gleaned earlier from both meteorological stations as well as extensive borehole temperature records. The borehole additionally reveals a more recent and localized cooling of 1 °C with an onset around 1970 A.D. superimposed over the longer surface ground warming trend, likely caused by changes in surface vegetation.