

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. 1480
TO BE ANSWERED ON MONDAY, DECEMBER 24, 2018**

STUDY ON GEOTHERMAL RECORDS IN INDIA

1480 SHRI MAJEED MEMON:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether Government is aware that the new study of geothermal records has shown that India has become hotter by about one degree Celsius over the baseline mean temperature of the 19th century; and**
- (b) whether it is a fact that southern India has experienced a significant warming over the past few decades?**

ANSWER

**MINISTER OF MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(DR. HARSH VARDHAN)**

- (a) Yes Sir. A recent study, based on analysis of borehole temperature measurements at 146 sites in peninsular India, provides new evidence for ground warming of about 1 degree Celsius on average since the mid-1880s. The borehole sites are distributed in the latitude range 8°-29° N. The result supports the general warming inferred from surface air temperature records available with the India Meteorological Department (IMD) extensively since the year 1901. The surface warming is penetrated in the upper few tens to a few hundred metres of the solid Earth by the physical process of heat diffusion.**

Further, a combined analysis of borehole temperature records from 146 sites and meteorological records for 49 stations in peninsular India provides an estimate of the long-term average temperature for the 19th Century as 0.7°C lower than the 1961-1990 averaged temperature. If the warming during the subsequent years is taken into account, the study suggests that peninsular India has experienced about 1.1°C of warming above a baseline broadly representative of 19th century mean temperature.

- (b) Yes, Sir. The average annual temperature over the country as a whole during the last ten years (2008 to 2017) was 26.20°C as compared to 25.94°C during the previous ten years (1998 to 2007). The rate of warming trend in the annual mean temperatures since 1980s is about 0.2°C per decade. The warming is mostly confined to the northern, central and eastern/north-eastern parts of the country. Peninsular India experienced the least warming.**
