

**GOVERNMENT OF INDIA  
SPACE  
LOK SABHA**

UNSTARRED QUESTION NO:6650  
ANSWERED ON:06.05.2015  
STUDY ON CLIMATE CHANGE  
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**Will the Minister of SPACE be pleased to state:**

(a) whether any study/research programme is being undertaken by the Indian Space Research Organisation (ISRO) on climate change; and

(b) if so, the details along with the amount spent for the project and the outcome thereof?

**Answer**

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG & PENSIONS AND IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH):

(a) Yes Madam.

(b) In order to support studies and research in the field of climate change, Indian Space Research Organisation (ISRO) undertakes research programmes using data from satellite and ground based observations. These research programmes include (i) experiments by means of balloons carrying radiosonde and ozonesonde to measure temperature, humidity, pressure and ozone; (ii) setting up network of observatories for measuring atmospheric parameters viz. atmospheric aerosol loading, black carbon concentrations, scattering coefficient, chemical pollution; (iii) research studies in collaboration with national laboratories and academic institutions on landuse/landcover dynamics, snow & glacier studies, Green House Gases, energy & mass exchange in the agricultural systems, net carbon balance for terrestrial biomes and atmospheric carbon sequestration.

Amount spent for this purpose during the Eleventh Five Year Plan period is ` 90.31 crores. The amount spent during the Twelfth Five Year Plan (2012-13, 2013-14 & 2014-15) is ` 40.73 crores.

The outcomes/results include increasing trend of Aerosol Optical Depth; decrease in Black carbon; estimation of total methane emission from Indian rice-ecosystems; advance/retreat of glaciers; upward migration of alpine vegetation. The scientific findings of these research programmes are published regularly in peer reviewed journals.