

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

UNSTARRED QUESTION NO:4066

ANSWERED ON:23.12.2015

Earth System Model

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Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether Scientists have developed an Earth System Model (ESM), together with comprehensive assessment of various interactions among different earth system components;
- (b) if so, the details thereof along with its objectives ;
- (c) whether ESM has shown a good representation of the present global climate and short term variability and if so, the facts in this regard;
- (d) whether high- resolution climate change scenarios have been developed for the 21st century; and
- (e) if so, the details thereof and the extent to which it is likely to help to solve the problems faced due to climate change?

Answer

THE MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a-b) Yes Madam. Earth System Science Organisation- Indian Institute of Tropical Meteorology (ESSO-IITM) has developed an Earth System Model (ESM) which includes the land-atmosphere-ocean-biosphere-cryosphere components and their associated interactions. The ESM is built with an objective to generate scenarios for studying long term climate variability and change so as to address comprehensively the issues associated with attribution and projection of long term global and regional climate change.

(c) Yes Madam. The present global climate is well reproduced by the ESM.

(d-e) Yes Madam. Under the Coordinated Regional Climate Downscaling Experiment (CORDEX) for South Asia, projections from the global models used for the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC-AR 5) have been downscaled to high resolution (~50km grid scale) for assessing the future scenarios for the 21st century.

The climate change scenarios will help us to assess the impact of climate change on critical sectors of agriculture, water resources, health, etc. and to generate adaptation guidance.