

**GOVERNMENT OF INDIA
SPACE
LOK SABHA**

UNSTARRED QUESTION NO:3936
ANSWERED ON:19.04.2000
GRAVITY WAVES
C. KUPPUSAMI;SURESH RAMRAO JADHAV (PATIL)

Will the Minister of SPACE be pleased to state:

- (a) whether the Indian Space Research Organisation(ISRO)has started intensive scientific campaign involving 'Rohini' sounding rockets to study gravity waves in the atmosphere;
- (b) if so, the aims and objects thereof;
- (c) the ground-based observations and findings of this study; and
- (d) the expenditure involved in this study and cost- benefit ratio?

Answer

MINISTER OF STATE IN THE DEPARTMENT OF SPACE

(SMT. VASUNDHARA RAJE)

(a) Yes, Sir.

(b) The objectives of the campaign are:

(i) To delineate the equatorial waves in atmospheric winds and temperatures for the heights ranging from 2 to 70 km in the troposphere and mesosphere regions of the atmosphere.

(ii) To estimate the vertical momentum fluxes of these equatorial waves in the above height range.

(c) The ground based observations include operation of Mesosphere, Stratosphere and Troposphere radar and a Light Detection and Ranging system (LIDAR) from the National MST Radar Facility at Gadanki.

The wind, temperature and related data collected from the series of rocket and balloon experiments as well as from ground based observations are being analysed to determine the characteristics of equatorial waves and to compute the momentum fluxes at various stages of their propagation through the atmosphere upto mesospheric altitudes.

(d) The cost of the rocket and balloon launchings and the operation of ground based experiment adds up to about Rs.65 lakhs. The results will be very valuable for validating atmospheric models over the tropical region which would help in improving our understanding of various linkages between the lower atmospheric weather and climate variability and the middle/upper atmospheric phenomena.