

# Letter To The Editor

551-551

## HIGH LEVEL MODERATE TO SEVERE TURBULENCE NEAR THE I.T.F.

On 25 August 1953, the Air-India International Constellation VTDAR, on a scheduled flight from Cairo to Bombay, reported moderate to severe turbulence at about 1125 GMT at a height of 15,500 ft between the positions Lat.  $22^{\circ}40' N$ , Long.  $61^{\circ}40' E$  and Lat.  $22^{\circ}27' N$ , Long.  $63^{\circ}30' E$ . The aircraft was flying at an indicated speed of 177 knots and the turbulence was experienced for 15 minutes. The nearest clouds from the point of incident, as reported by the aircraft commander (*vide* Fig. 1 which is a reproduction of the relevant portion of pictorial cross-section of weather observed by the aircraft) were

- (a) Below the aircraft: 8/8 AS at 8000 to 10,000 ft and 4/8 Sc tops 6000 ft
- (b) Above the aircraft: 4/8 AS extending from 17,000 to 23,000 ft

### 2. Upper air information

The aircraft reported only a small drop of temperature (from  $-1$  to  $-2^{\circ}C$ ) near the turbulent area, which would indicate very little temperature gradient. No reliable estimate of the horizontal or vertical shear nor the temperature lapse rate could be calculated due to lack of data in the neighbourhood. The winds reported by the aircraft ( $105^{\circ}/12$  knots before the occurrence of turbulence and  $030^{\circ}/18$  knots afterwards) shows anticyclonic flow at the point of incident at the level of flight (15,500 feet). However, an examination of the 500-mb constant pressure chart of 25th evening showed that there was a trough to the south and southwest of the point of incident.

### 3. Synoptic situation

At 1200 GMT of 25th the seasonal low extended from Persian Gulf to West Pakistan (Fig. 2). A depression which formed over

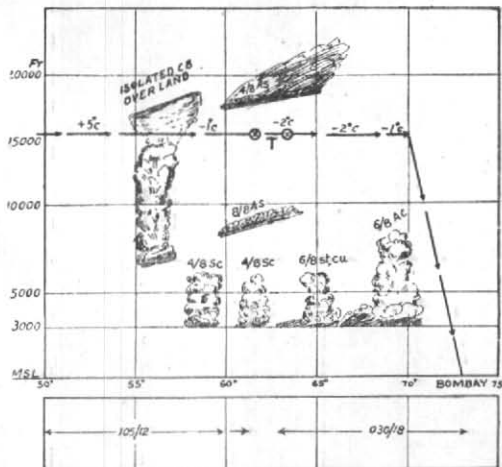


Fig. 1. Pictorial cross-section of weather observed by the Commander of aircraft on 25 August 1953

(Departed from Cairo at 0335 GMT,  
Arrived Bombay at 1410 GMT)

T represents Turbulent area

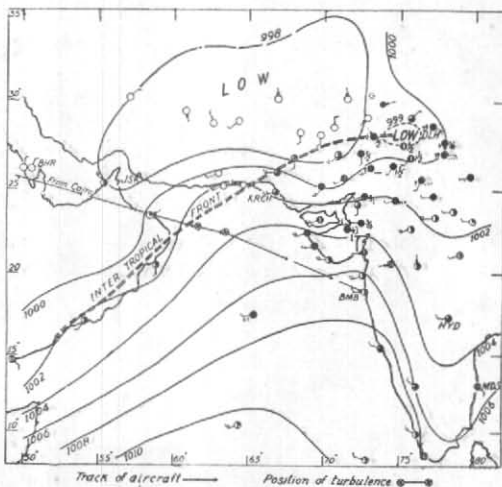


Fig. 2. Weather Chart for 1200 GMT on 25 August 1953

TABLE 1

	900 mb		850 mb		800 mb		700 mb	
	Temp (°C)	Mixing ratio	Temp (°C)	Mixing ratio	Temp (°C)	Mixing ratio	Temp (°C)	Mixing ratio
<i>24 August 1953</i>								
Veraval	21.1	12.8	18.9	13.0	17.0	6.4	12.9	3.5
Karachi	25.4	12.0	23.2	12.1	21.5	10.0	15.0	5.7
<i>25 August 1953</i>								
Veraval	18.4	14.6	15.6	13.0	13.6	12.5	12.5	4.5
Karachi	21.0	15.5	22.0	13.7	23.5	12.6	17.6	7.0

Chota Nagpur on 23rd moved northwestwards, weakened into a low on 24th and by 1200 GMT of 25th, lay as a weak cyclonic circulation up to 5000 ft over west Uttar Pradesh. In association with this, the I.T.F. moved northwestwards between 24th and 25th and on the 25th was running along the East Arabian coast up to Lat.  $22\frac{1}{2}^{\circ}$ N Long.  $60^{\circ}$ E (as inferred from coastal observations) and then northeastwards towards Karachi. This is confirmed by the rise in mixing ratios at Karachi and Veraval at 14-15 GMT of 25th compared to those of 24th up to at least 850 mb

as can be seen from the available radiosonde data of Karachi and Veraval which are given in Table 1.

The aircraft apparently experienced this turbulence while crossing the I.T.F. However, the turbulence was not met with inside the clouds at the I.T.F. but in clear air in their vicinity.

S. C. DATTA

*Meteorological Office,  
Santacruz, Bombay  
March 8, 1954.*

#### ANNOUNCEMENTS

##### I

We thankfully acknowledge receipt of copies of the publication containing U. R. S. I. Special Reports Nos. 4 and 5 on "The Distribution of Radio Brightness on the Solar Disk" and "Interstellar Hydrogen" respectively, from the General Secretariat of U. R. S. I., Brussels.

This book is available at the General Secretariat of the U. R. S. I., 42, Rue des Minimes, Brussels (Belgium), at the following price, 100 Belgian Francs, or 14/6 sh, or \$ US. 2 (postage included).

##### II

A Special Geomagnetic Number of the Indian Journal of Meteorology and Geophysics of about 240 pages will be issued in December 1954 in commemoration of the Golden Jubilee of the Magnetic Observatory, Alibag (Bombay). The Special Number will also contain a historical account of the activities of the Alibag Magnetic Observatory and papers and articles from well-known workers on Geomagnetism and related solar phenomena.

Copies will be obtainable through the High Commissioner for India, Public Department, India House, Aldwych, London W. C. 2, in the case of indentors from Europe and North and South America and from the Manager of Publications, Civil Lines, Delhi, in the case of other countries.