Ertel PV at 315 K and 950 hPa θ. From Pytharoulis and Thorncroft, 1999
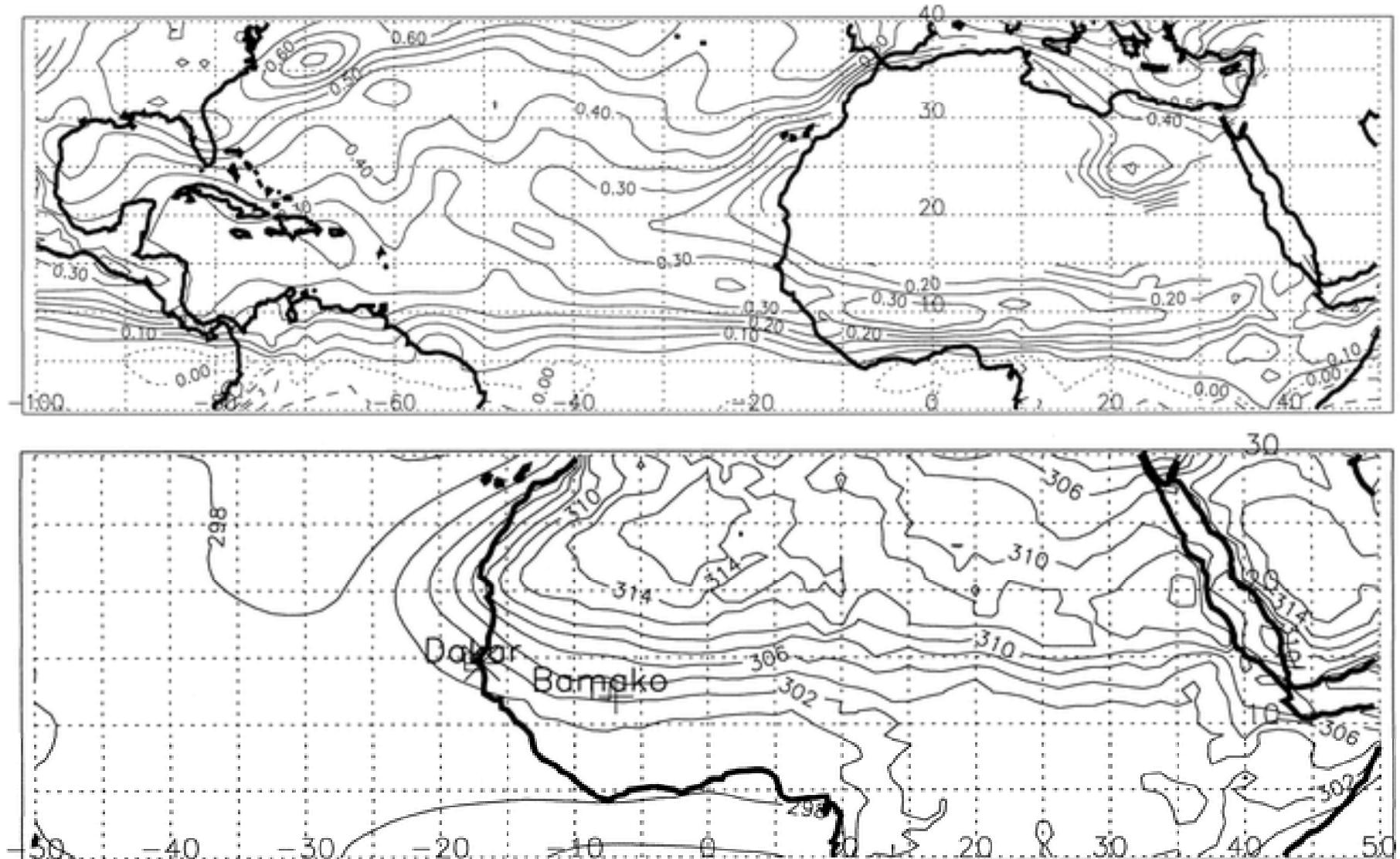
Section at 5 E of θ (solid), u (light solid), and Ertel PV (bold dashed), averaged over Aug., 1995. From Pytharoulis and Thorncroft, 1999.

JUL WET

JUL DRY

Latitude

QPV gradient

QPV gradient

(a)

850 hPa ω'T'

Bold dashed contours: u

(b)
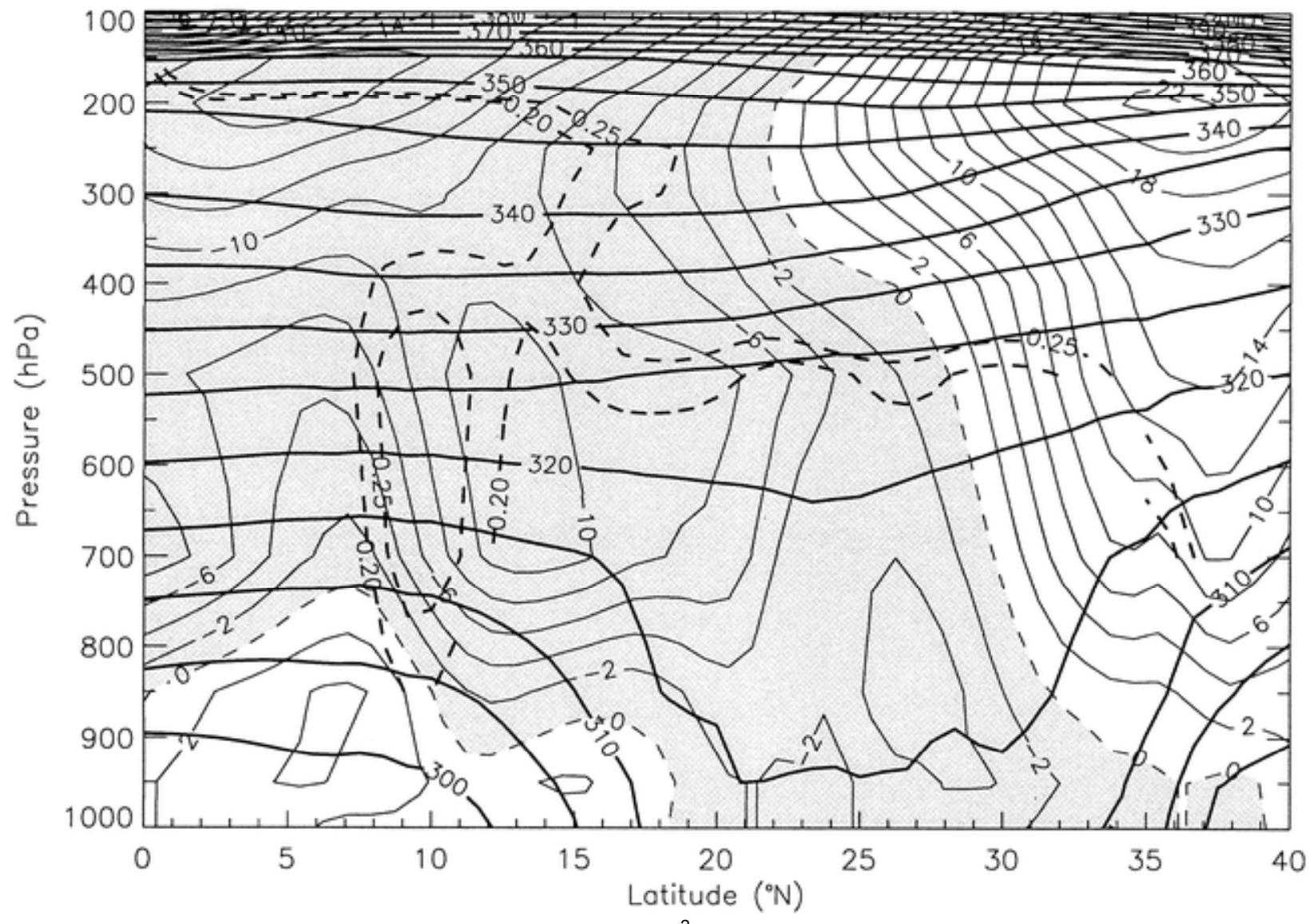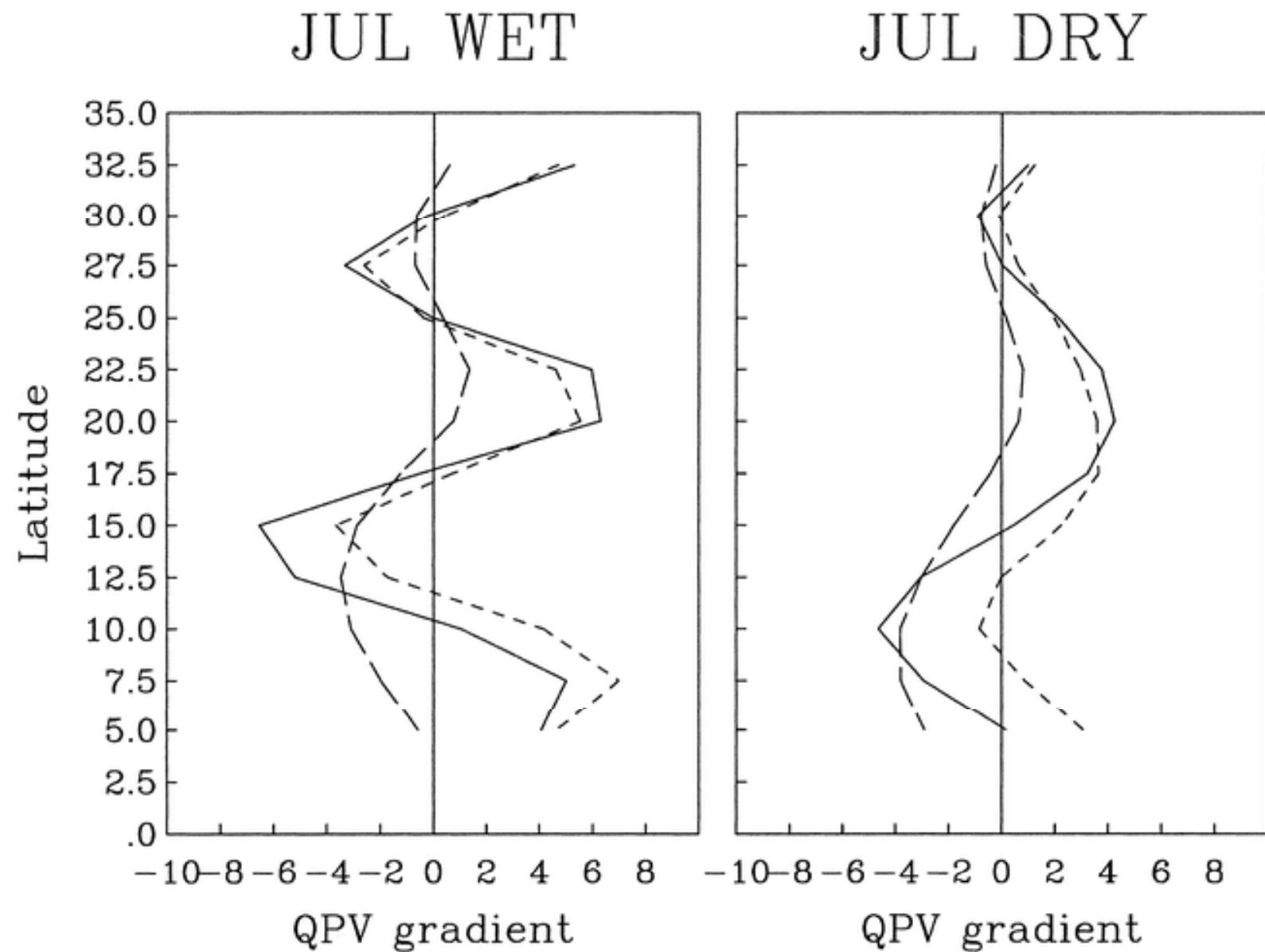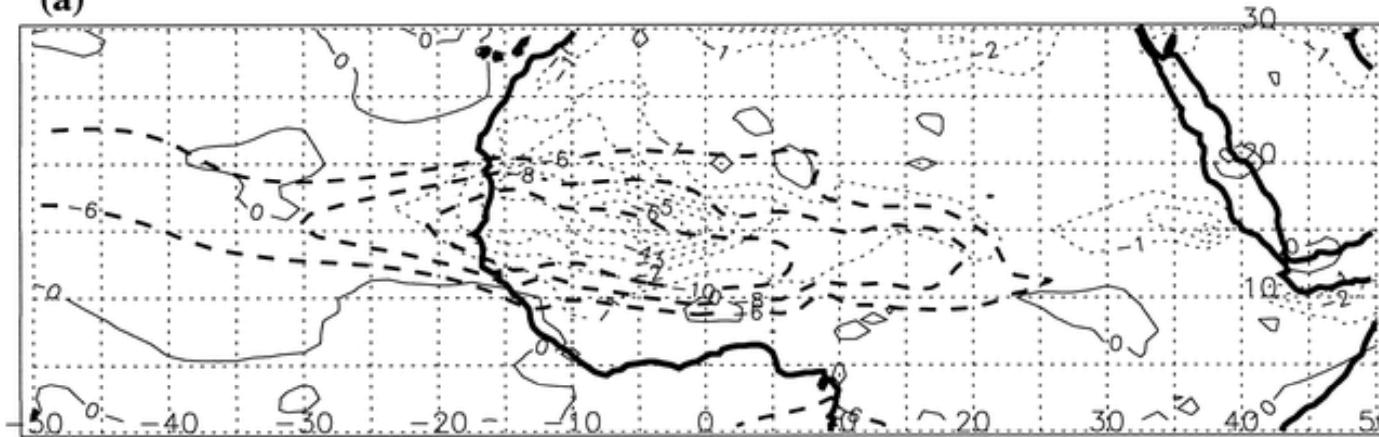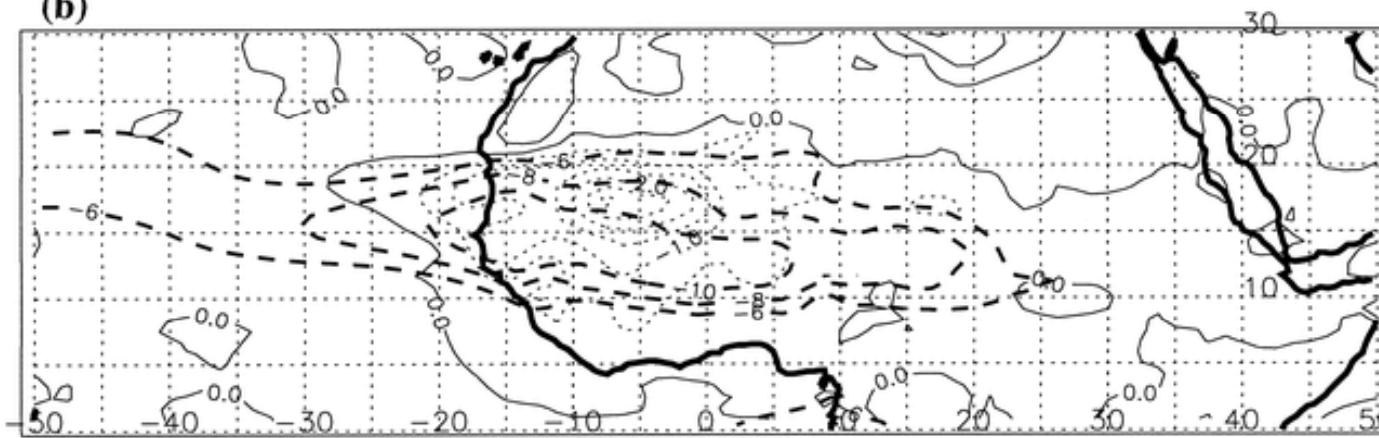
950 hPa v'T'

From Pytharoulis and Thorncroft, 1999

(c)

700 hPa u'v'

4
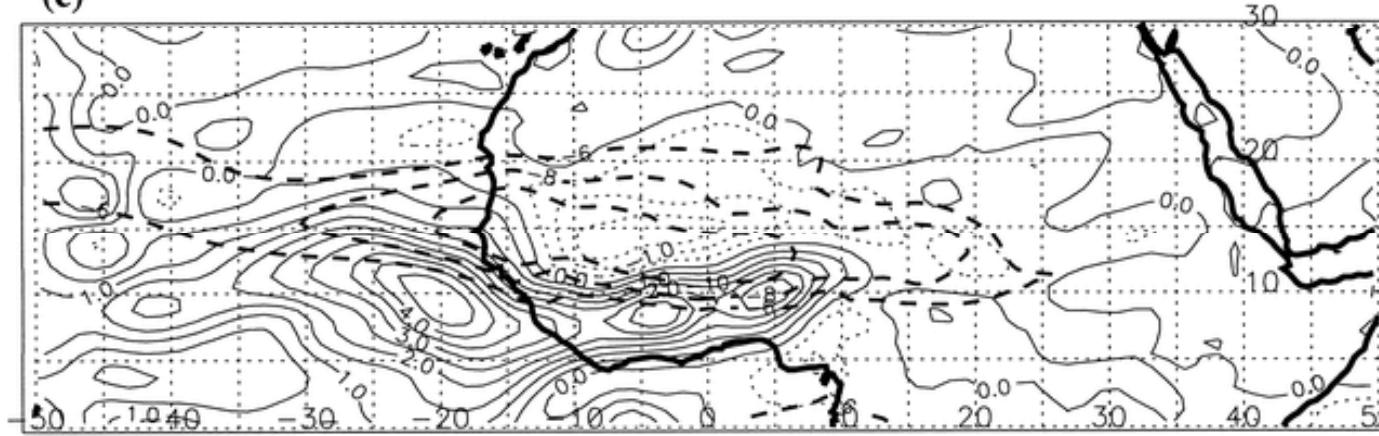
Easterly waves in the eastern North Pacific
(From Petersen et al., *J. Atmos. Sci.*, 2003)

EPIC 2001 ITCZ Domain
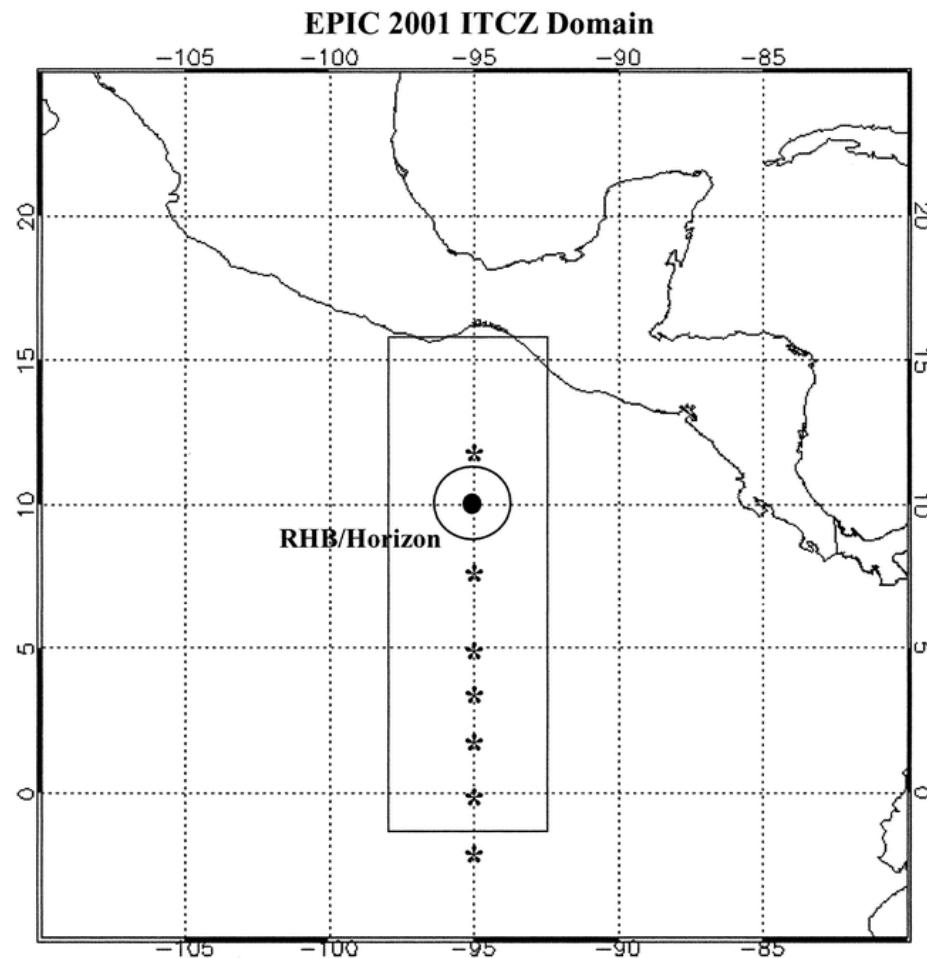
TB Anomaly 5°N - 15°N (9/5 – 10/01, 2001)
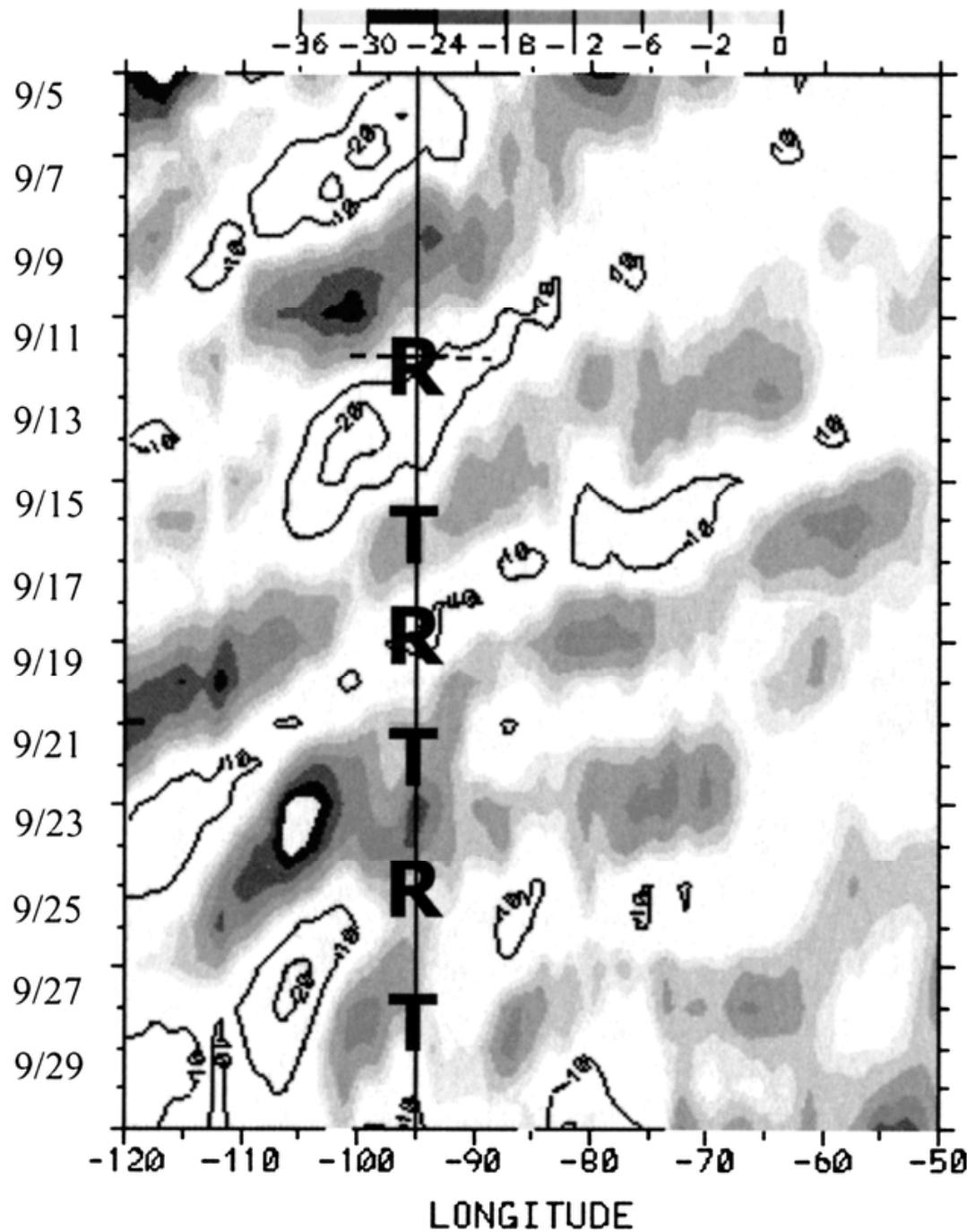
Brightness temperature anomaly

a) RH′

b) T′

R   ⊢T⊣   R   ⊢T⊣   R   ⊢T⊣

7

a) U

b) V

c) T'

d) RH'

e) q'

< 0 m/s   > 0 m/s

=dry   =moist

Wave Phase

8
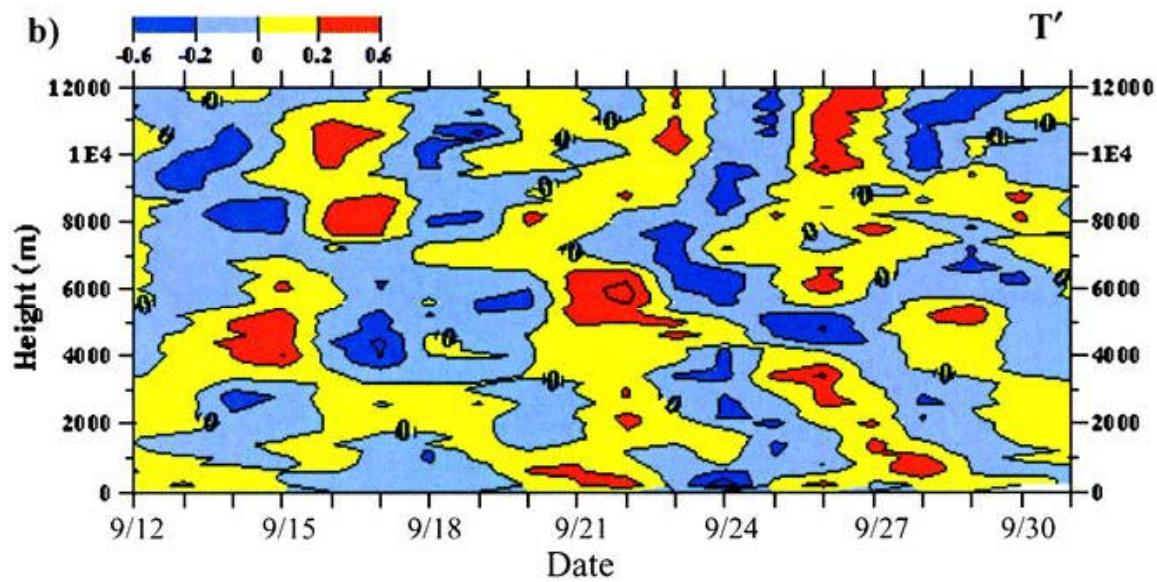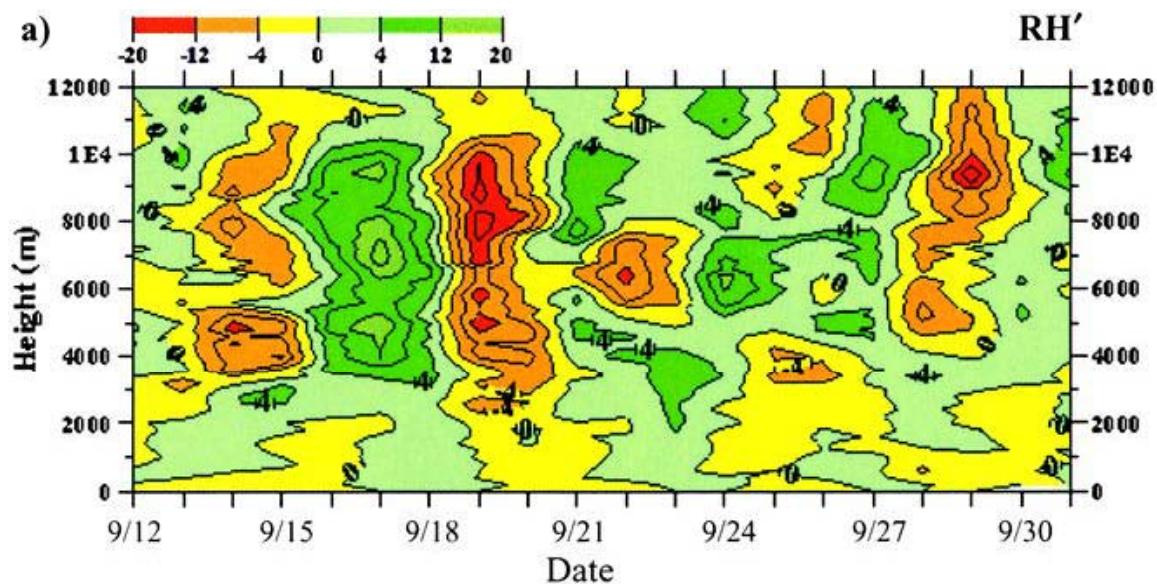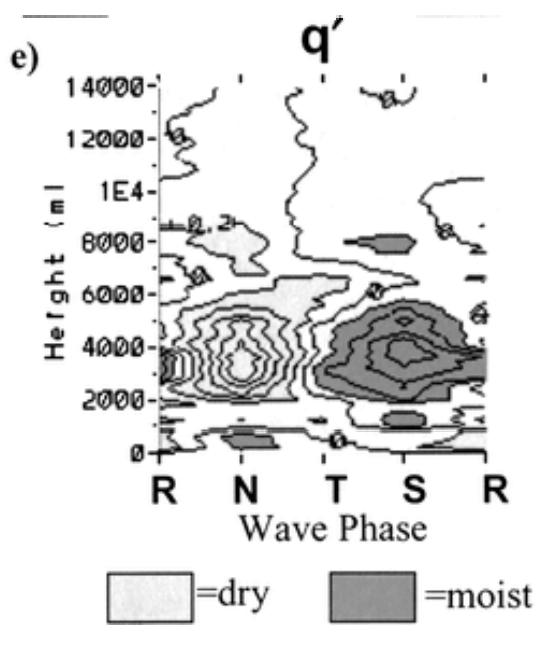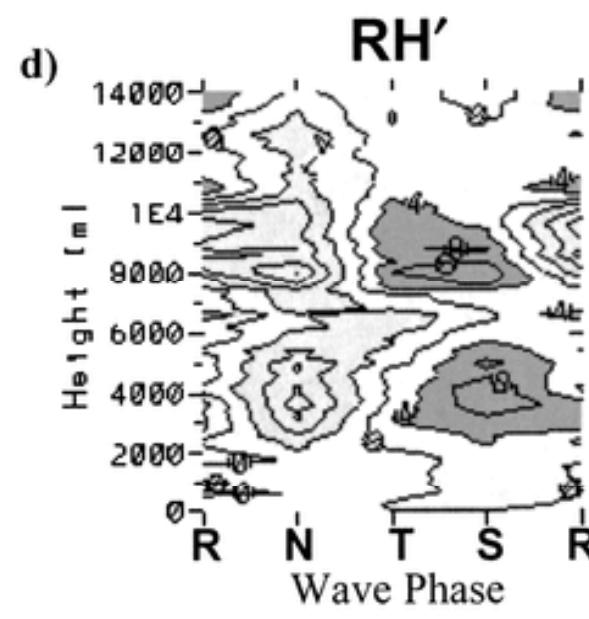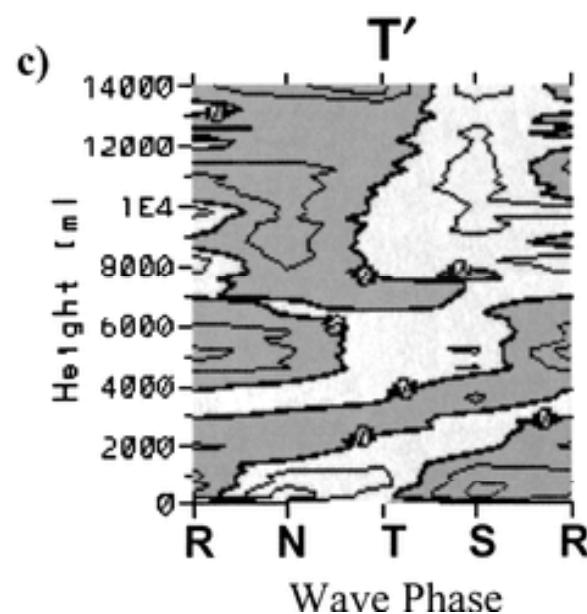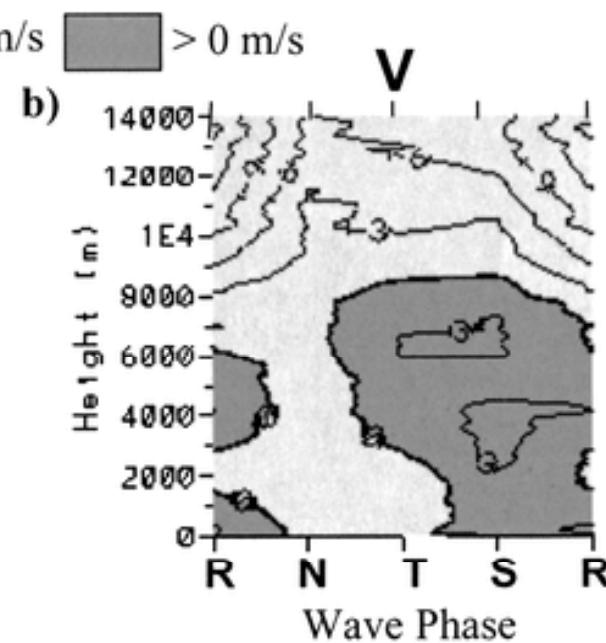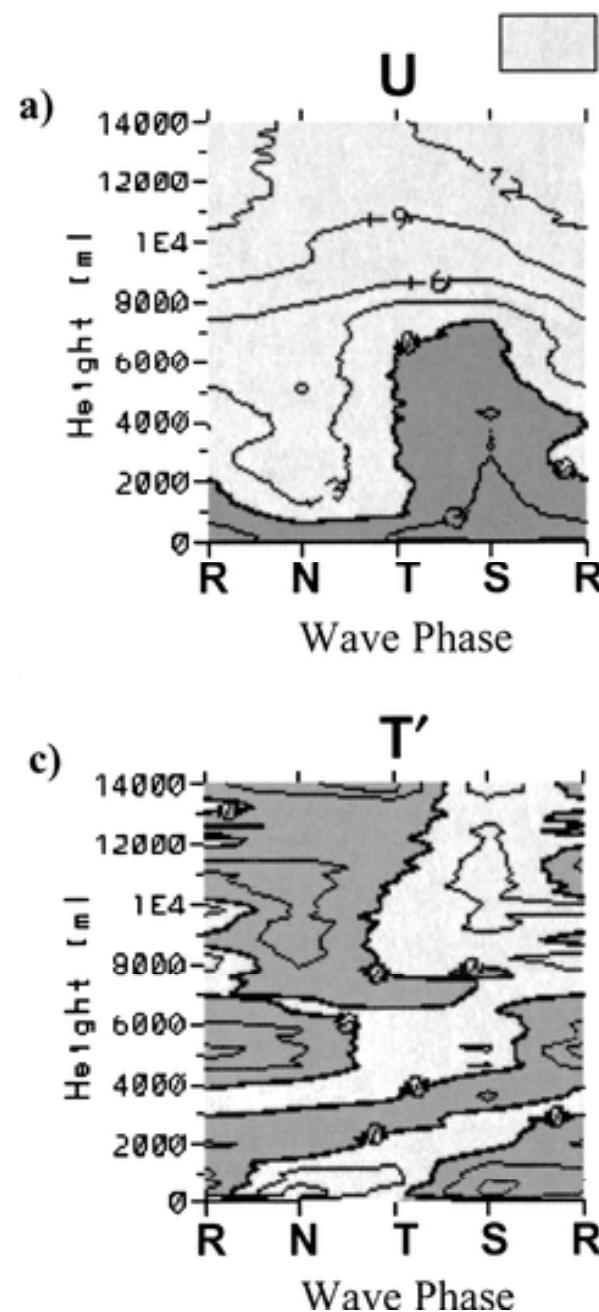
From Molinari et al., *Mon. Wea. Rev.*, 1991

PV on the 310 K surface, 15 June-30 September 1991
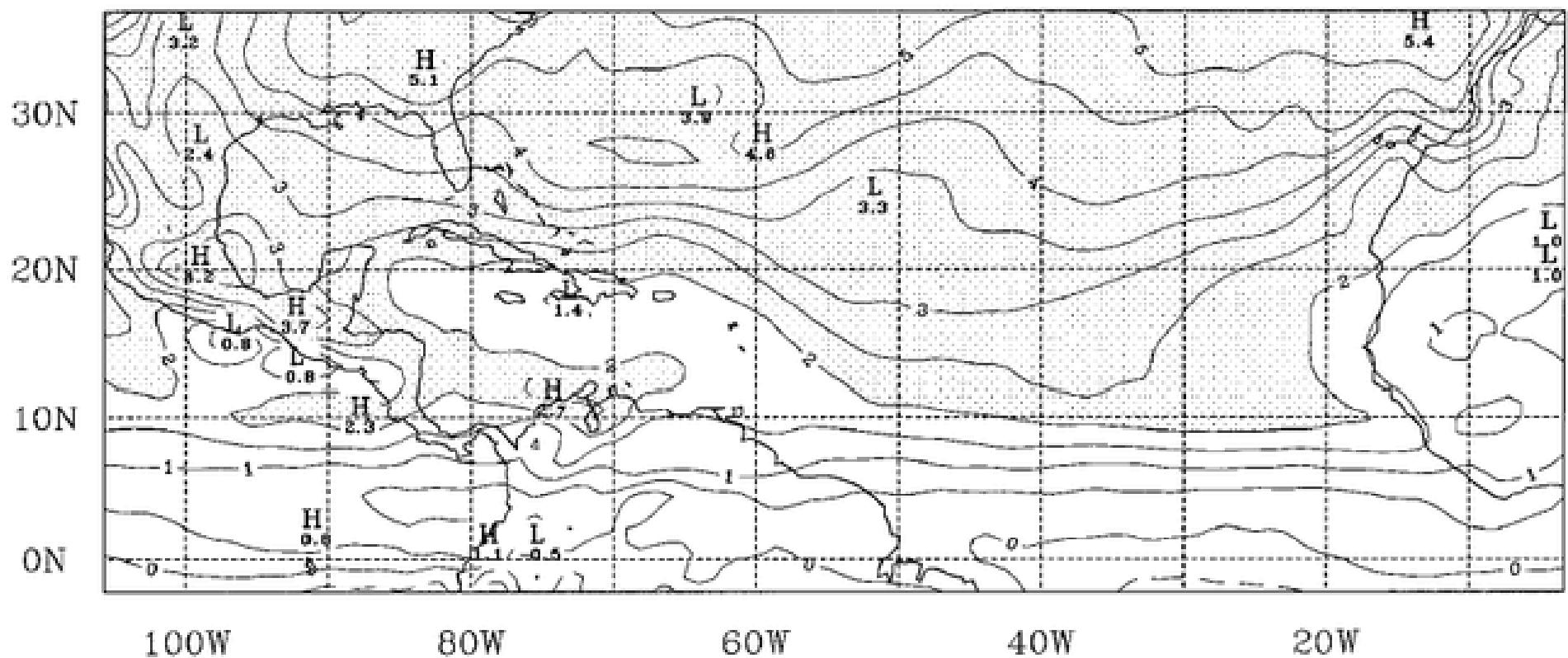
Mean winds on 310 K surface
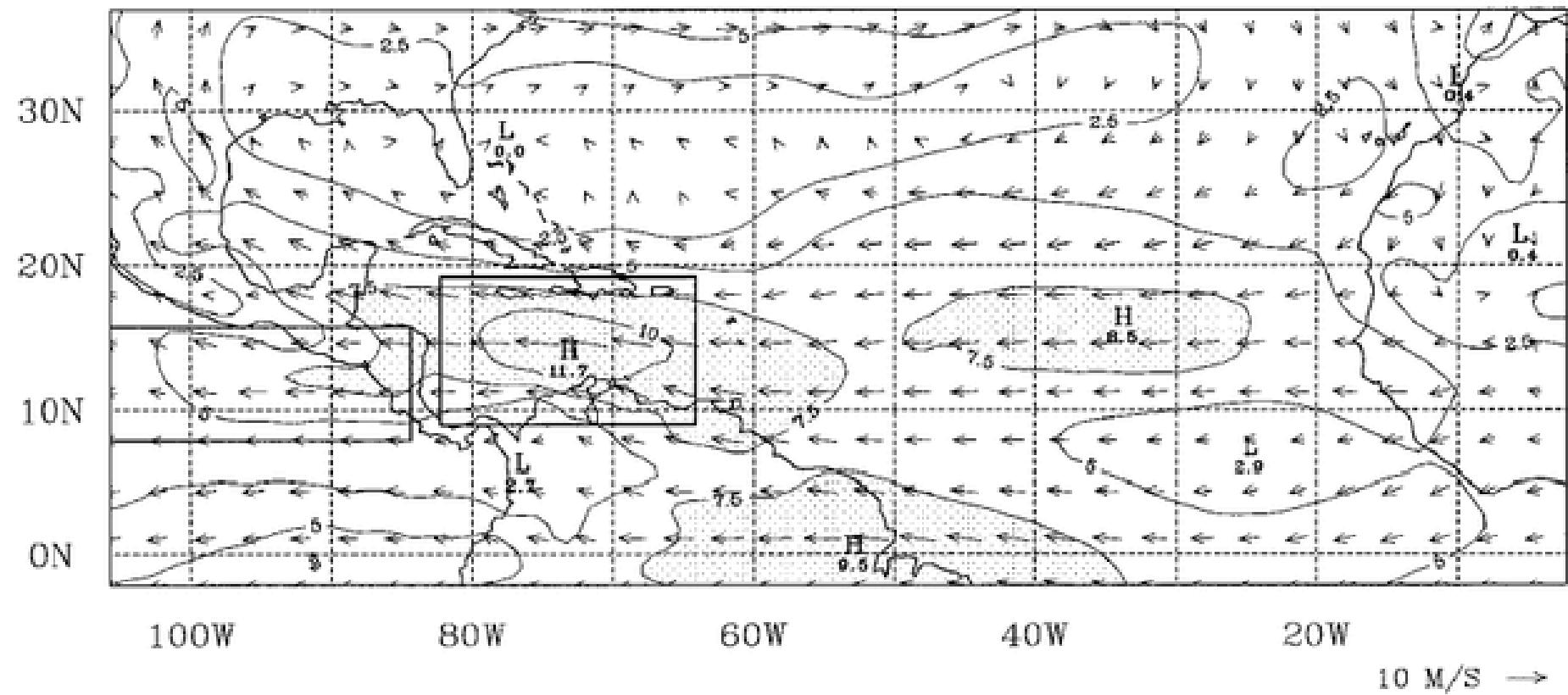
Reed and Recker, *J. Atmos. Sci.*,1971
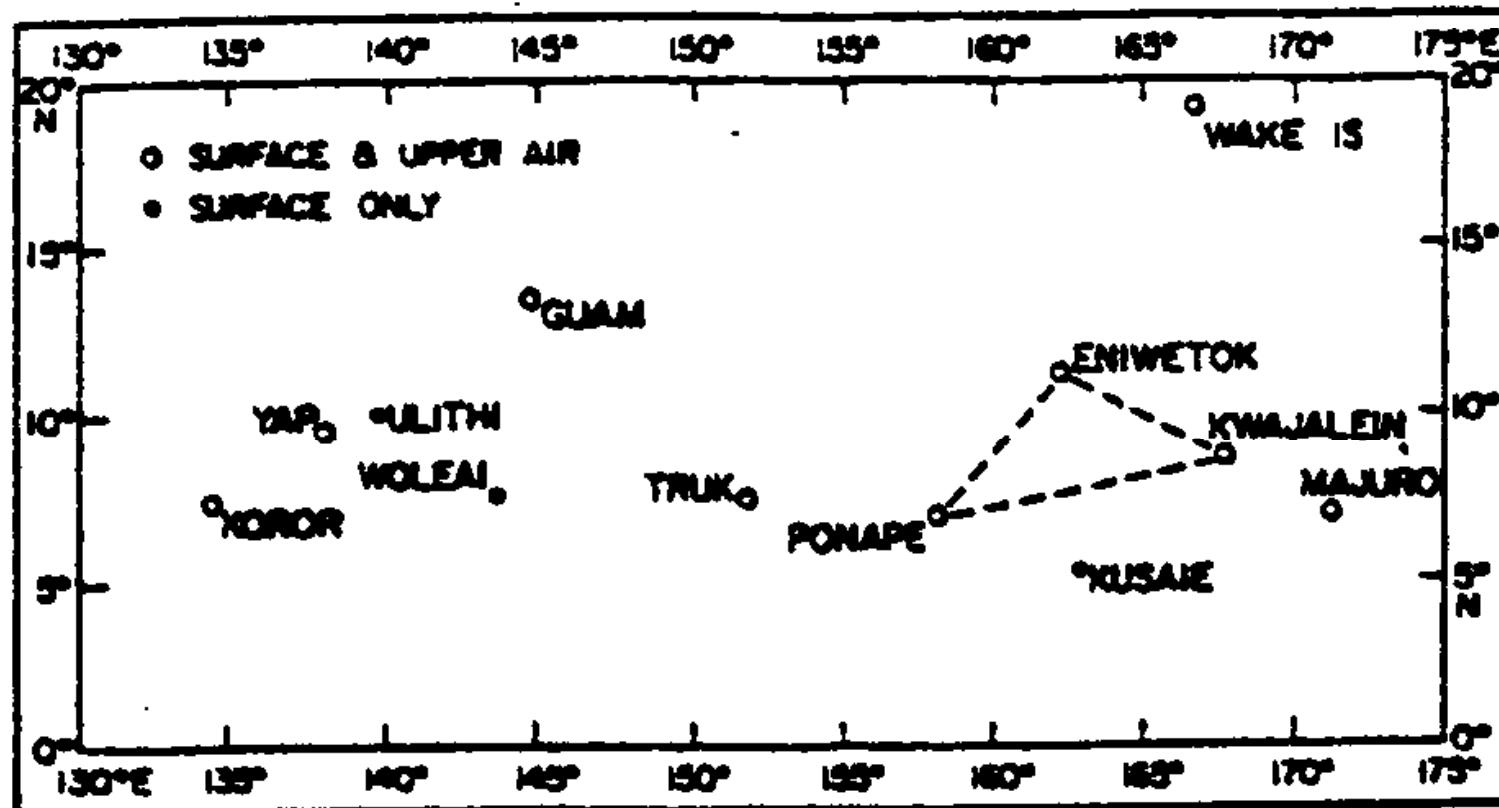
FIG. 1. Observational network in the equatorial western Pacific.
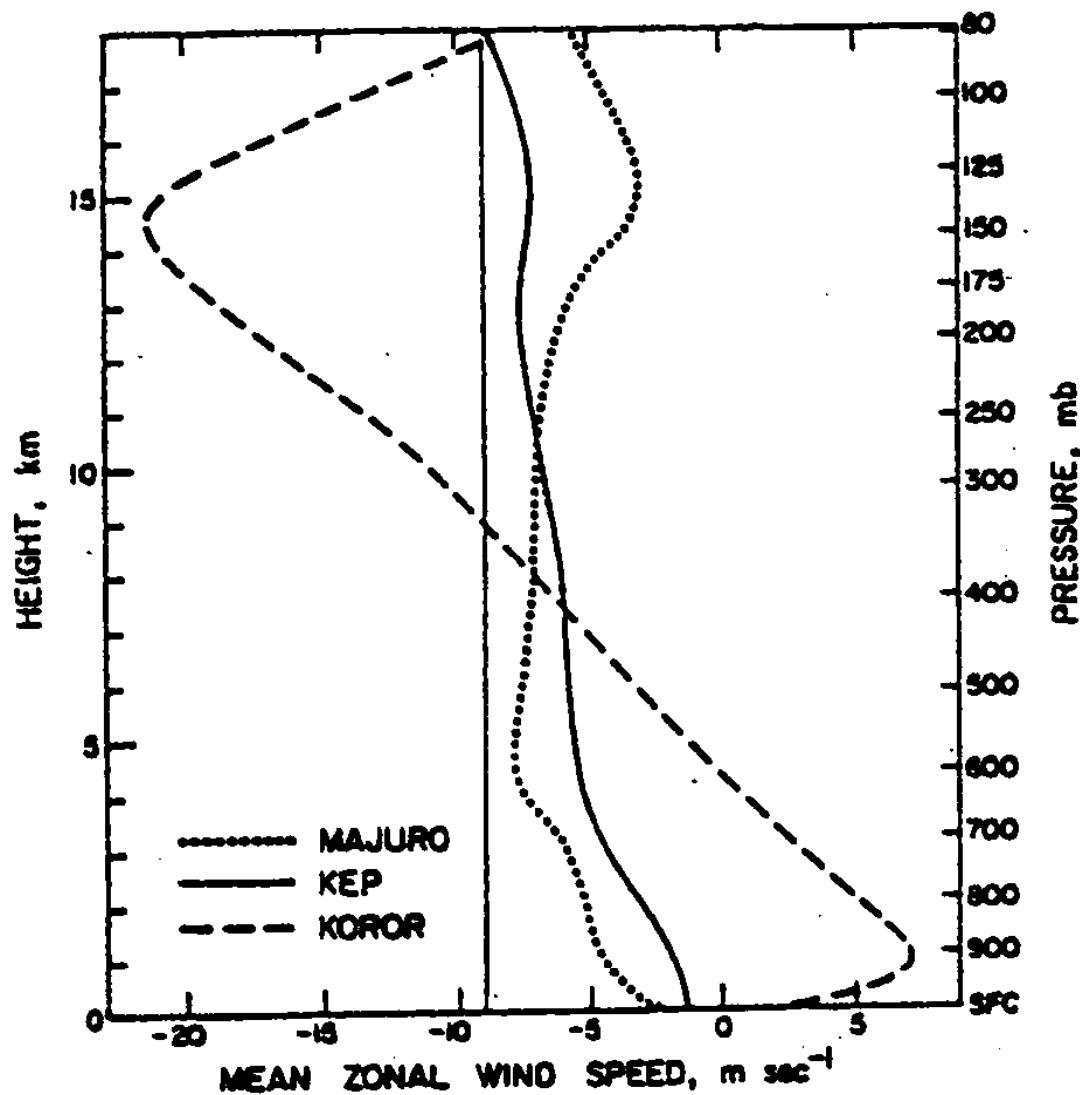
FIG. 3. Mean zonal wind speed for the period July–September 1967. The profile labeled KEP is the mean for Kwajalein, Eniwetok and Ponape. The thin vertical line denotes the average wave speed (-9 m sec^{-1}) observed during the period of study.
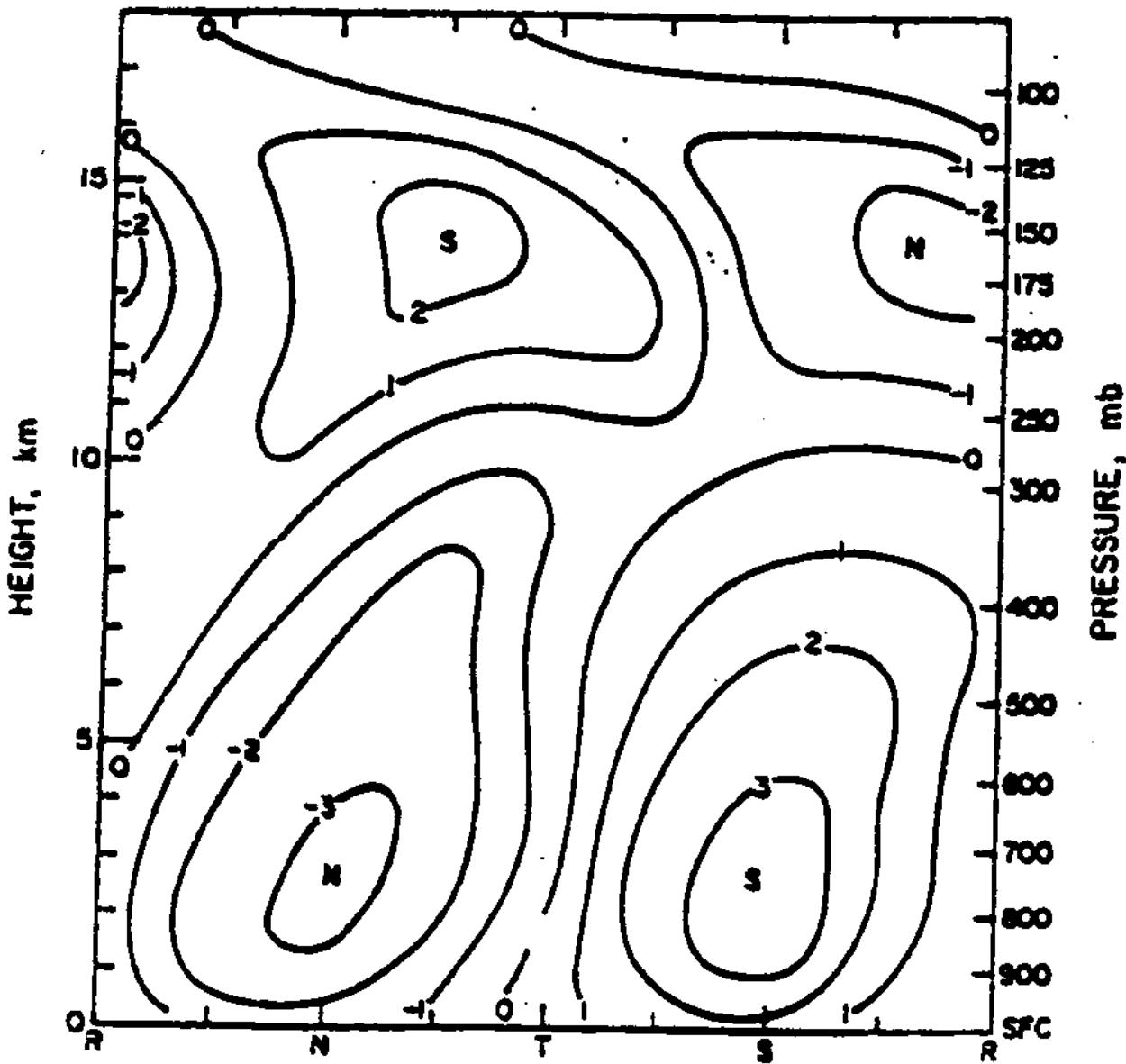
FIG. 4. Composite diagram of meridional wind speed (m sec⁻¹) for KEP. The letters R, N, T and S refer to the ridge, north wind, trough and south wind regions, respectively, of the wave as defined by its structure in the lower troposphere.
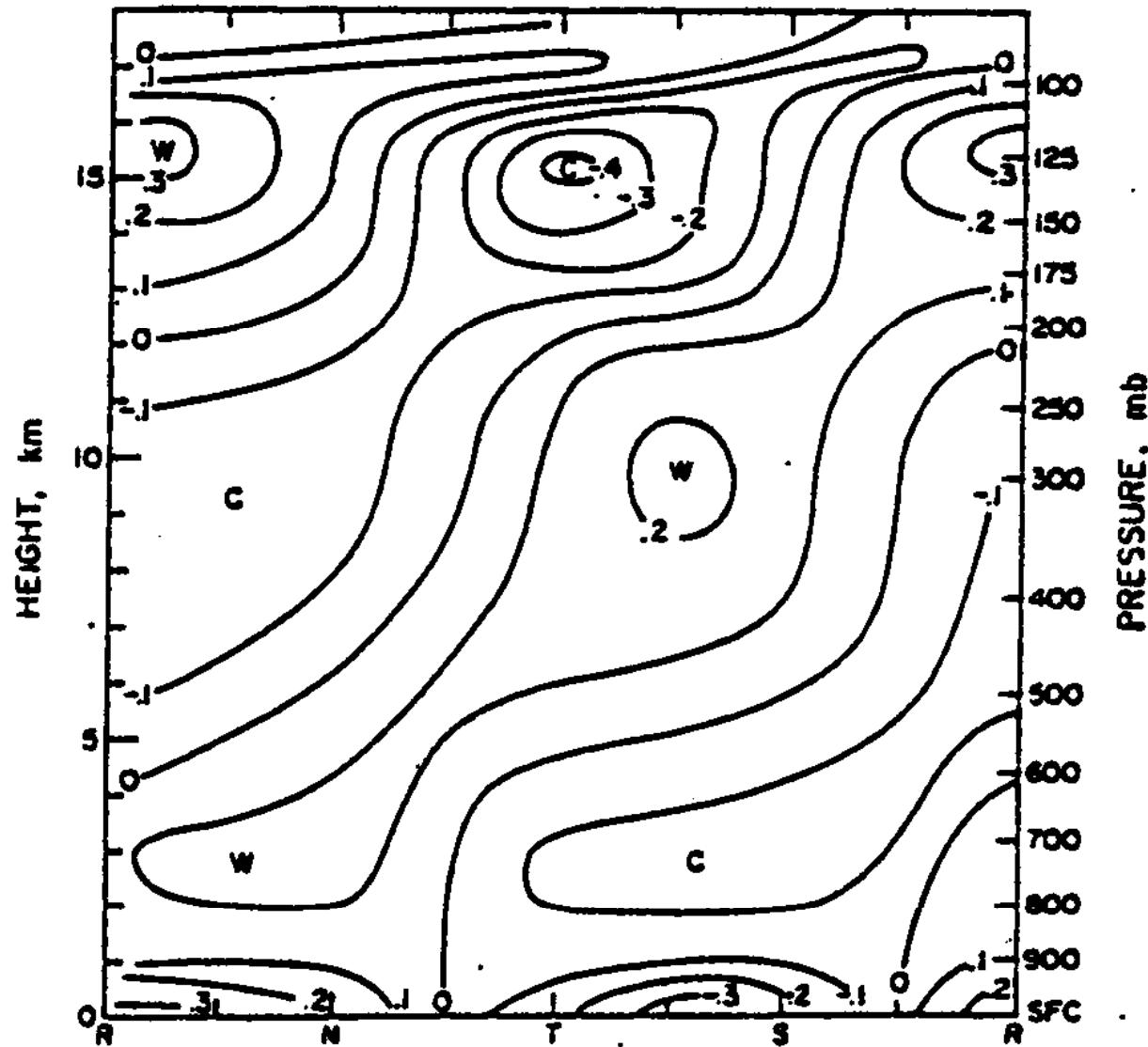
FIG. 5. Composite diagram of temperature deviations (°C) at various levels from their respective mean values at KEP. Refer to Fig. 4 for further explanation.
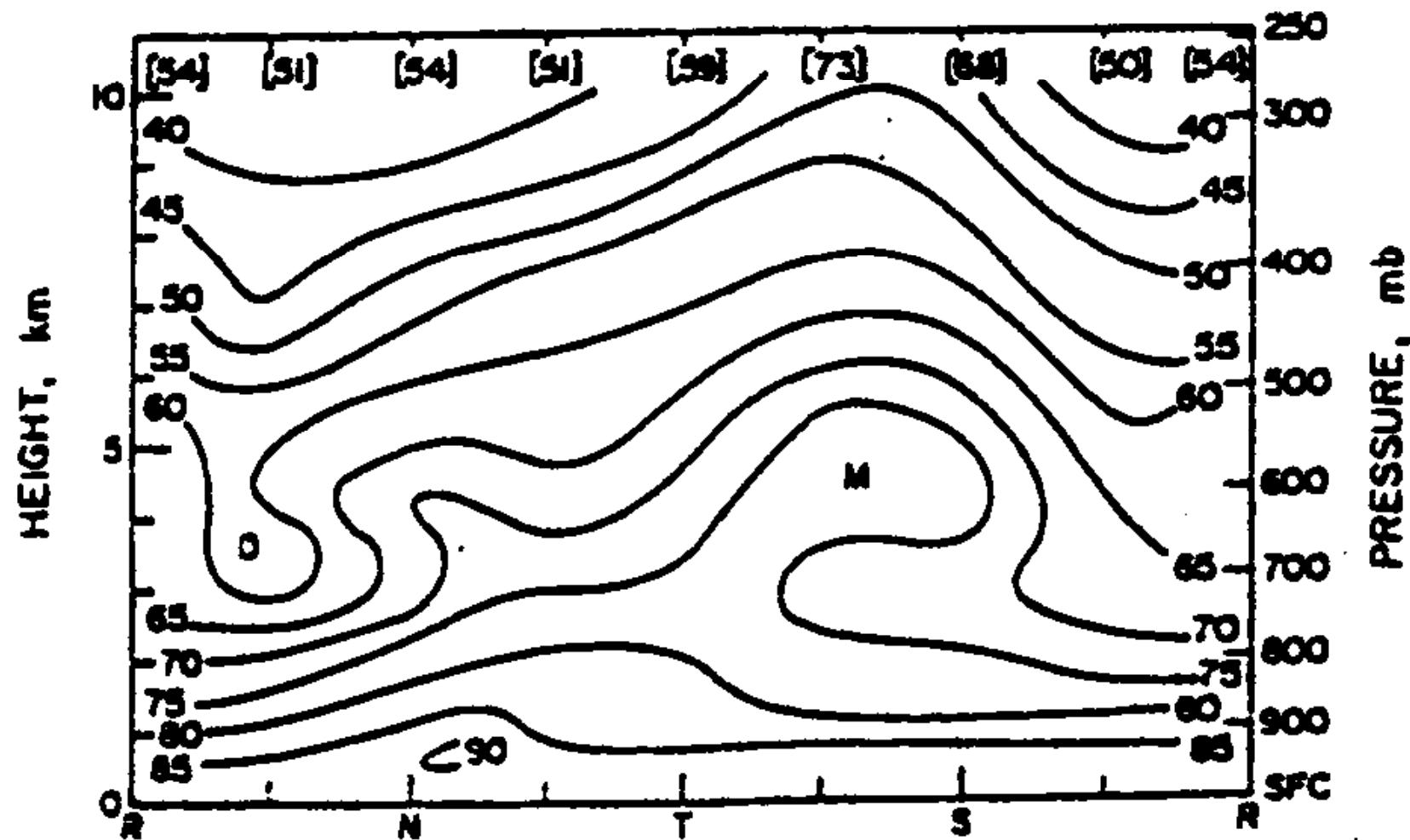
FIG. 6. Composite diagram of relative humidity for KEP. Values in brackets at the top are for saturation with respect to ice. Refer to Fig. 4 for further explanation.

ω
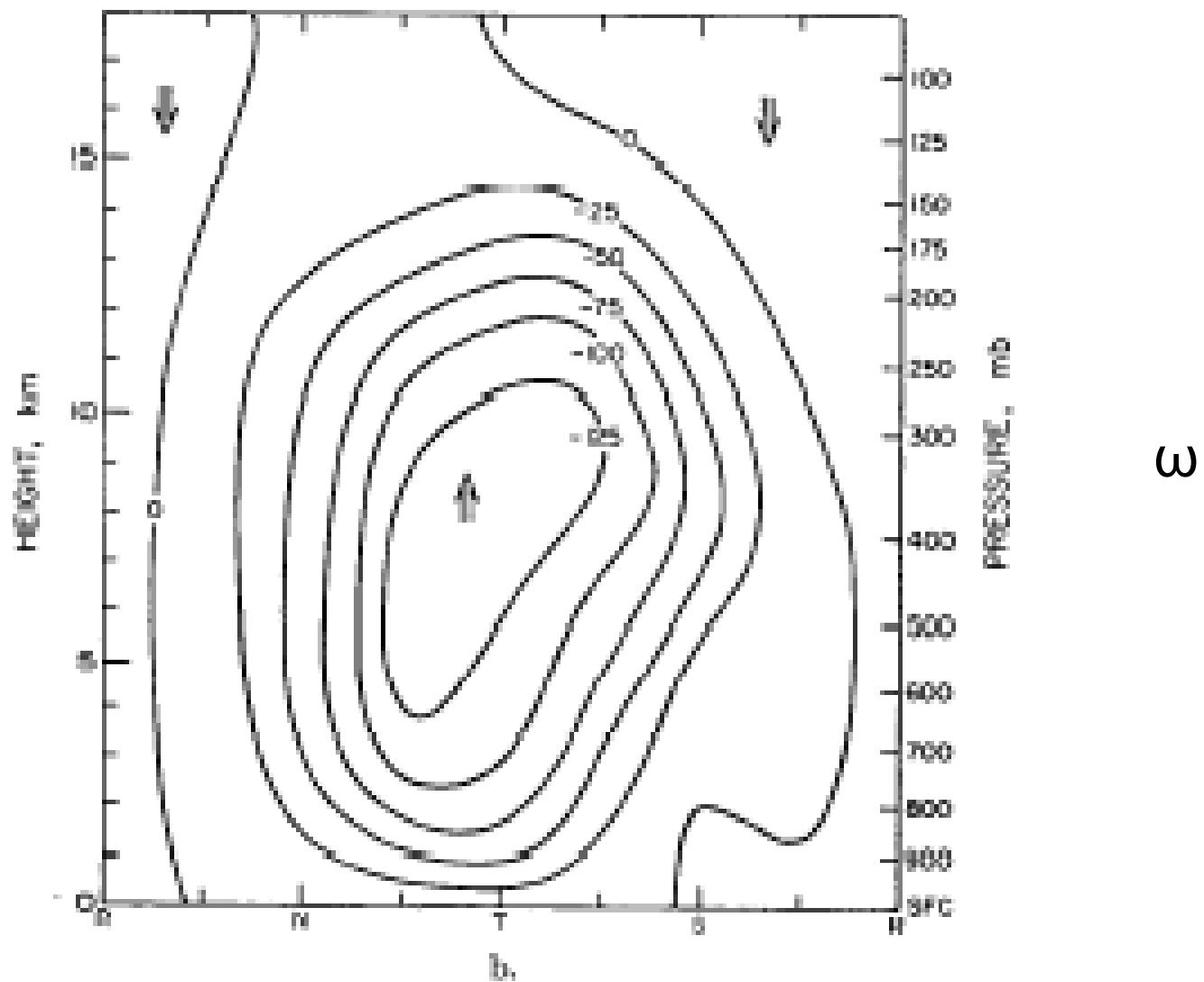
Fig. 8. Composite of horizontal velocity divergence (10^{-6} sec^{-1}) for KEP, a., and corresponding vertical p velocity (10^{-6} mb sec^{-1}), b. (Analyzed values give approximate displacement in millbars per day.) See Fig. 4 for further explanation.
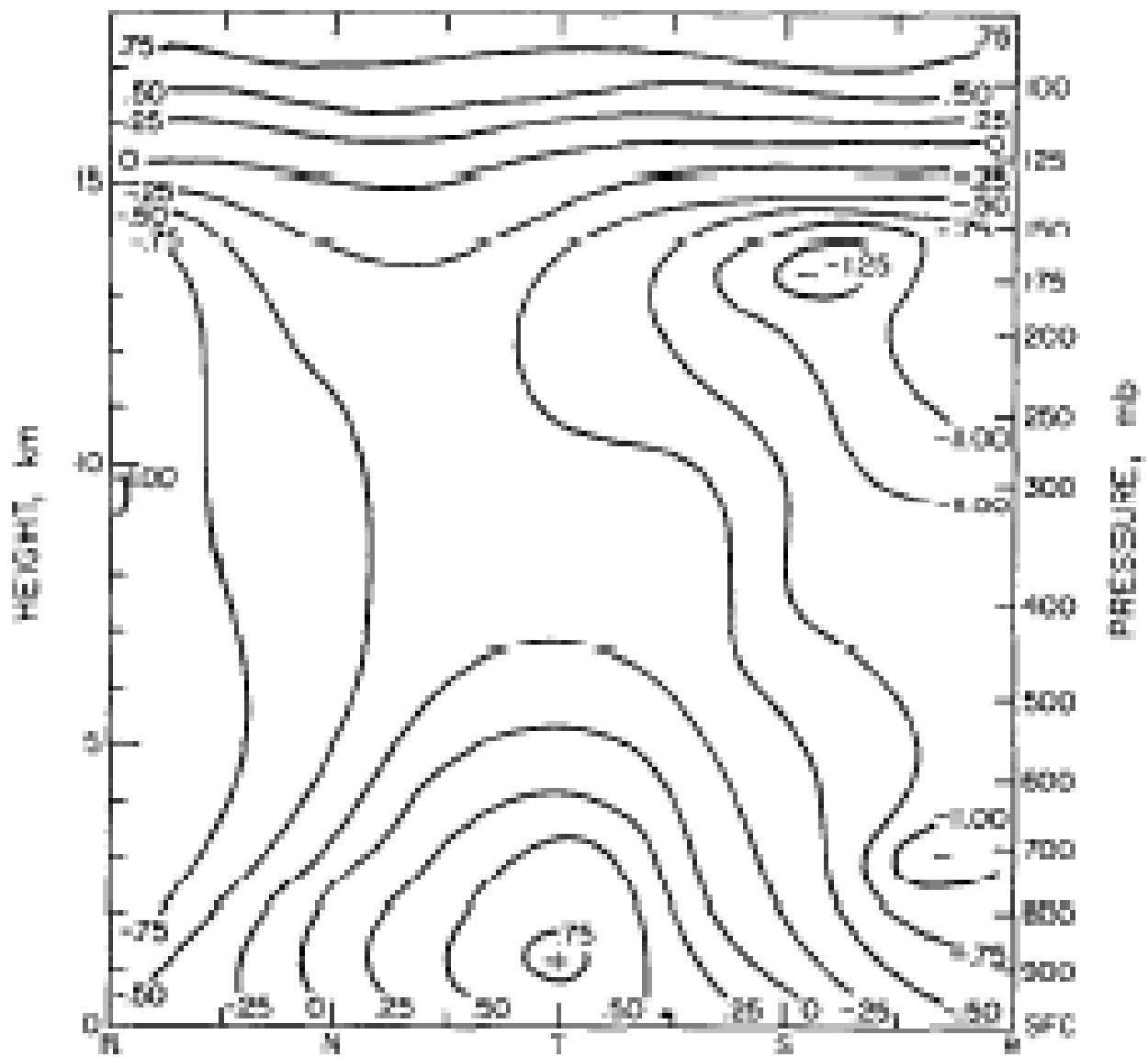
Fig. 9. Composite diagram of vertical component of relative vorticity (10^{-6} sec^{-1}) for KEP. See Fig. 4 for further explanation.

12.811 Tropical Meteorology

Spring 2011