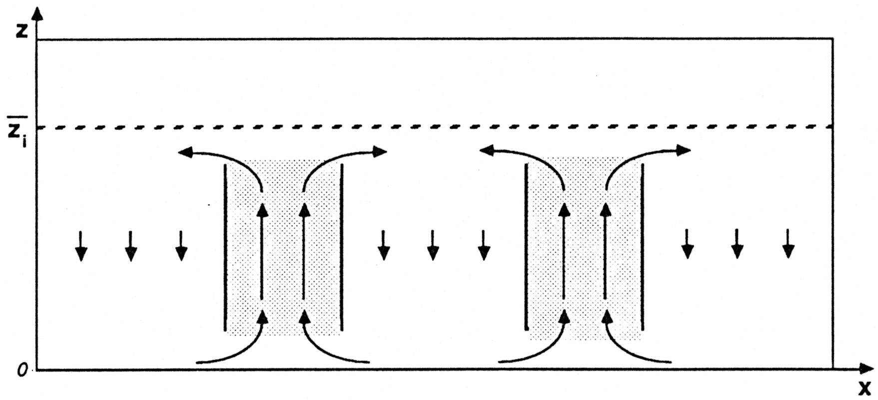
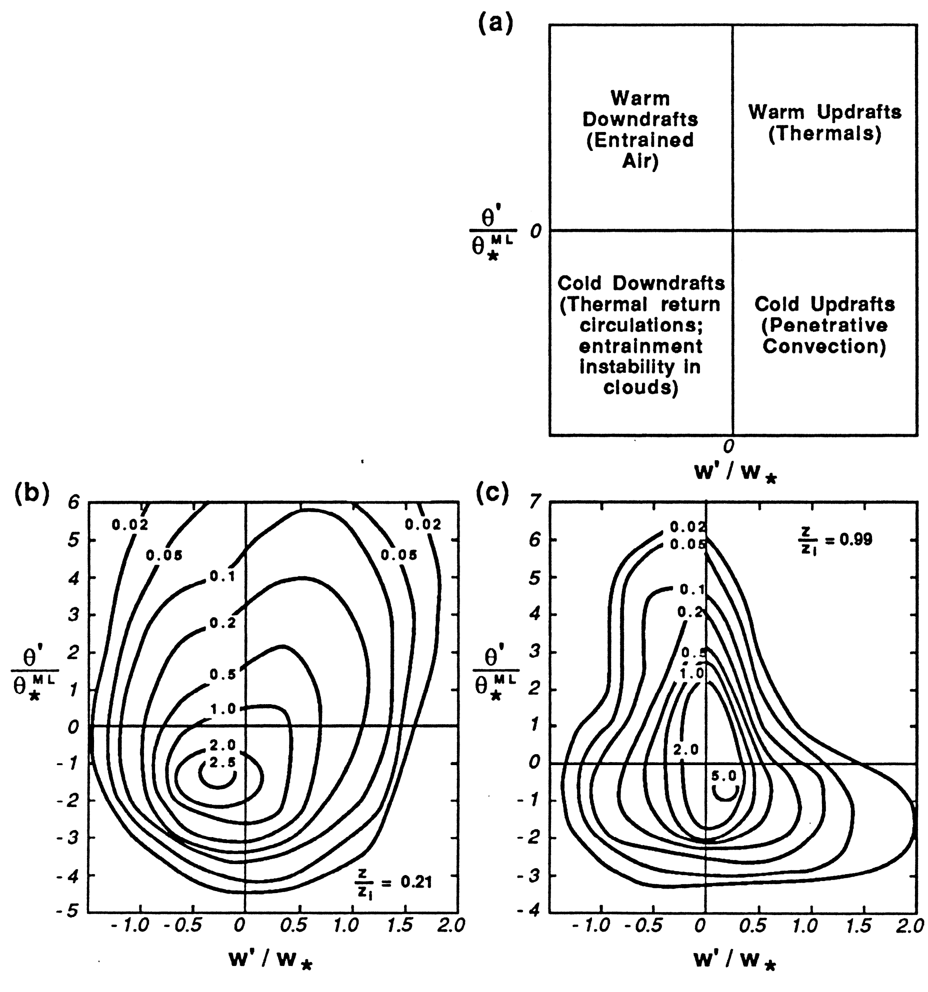


Fig. 11.19 Exaggerated idealization showing thermals with strong updrafts covering a relatively small fraction of the area, with weak downdrafts in between.

Although not plotted here, temperature histograms show negatively skewed frequency distributions in the ML, which change to symmetric distributions in the entrainment zone, similar to those of vertical velocity.

Joint probability distributions showing the relative frequency of vertical velocities and temperature fluctuations are shown in Fig 11.20 (Mahrt and Paumier, 1984; Deardorff and Willis, 1985). In the bottom 2/3 of the ML (Fig 11.20b) there is a predominance of cool downdrafts. At the top of the ML, however, we see a peak associated with cool updrafts (Fig 11.20c). In fact, there is a broad peak associated with both updrafts and downdrafts that are cool. These are the tops of thermals overshooting into the entrainment zone and then sinking back down.



X

Figure 4.

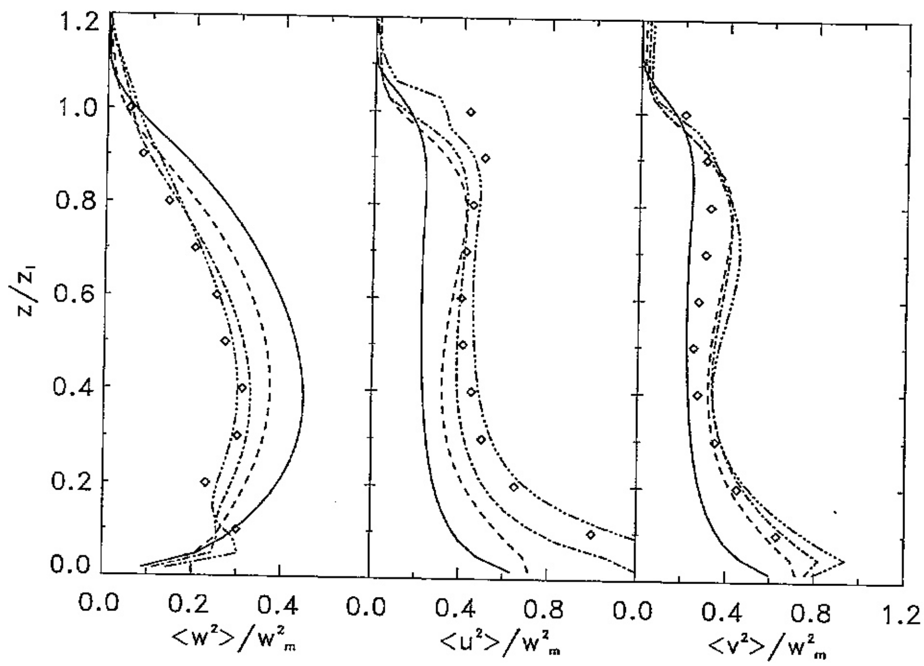


Figure 5.