one hour each. In general this is correct but the quantitative aspects of the entrainment rate is poor due to slight variations in the slope of the linear approximation to the density profile, and perhaps even more significant is the variation in curvature. For example, considering the density profiles at station 18 for a wind velocity of 3 mps (Figures 29, 30, and 31), a greater entrainment velocity is indicated from 4 to 5 hours than from 3 to 4 hours. Due to the increasing density gradient and depth of the interface with time, this should not be so according to the expression for the entrainment constant. A close look at the initial profiles reveals that the 5 hour case had a gradual curvature concave upwards while the other two were less curved and exhibited concavity both up and down at different levels. Mixing of a finite element of a fluid with a profile concave upward will result in positive buoyancy for that element (Long, 1970), consequently, it will rise into the turbulent region and be completely mixed with the upper layer and produce a lowering of the interface. The same element in a fluid with the concavity of the profile downwards would have a negative buoyancy and sink back towards the interface rather than being immediately mixed with the turbulent layer, thereby slowing the entrainment. This in itself is an interesting observation, but the presence of this anomaly makes it difficult to determine an entrainment constant from the data.

In addition to the relative magnitudes of the entrainment in the two experiments, there is a non-uniformity in the entrainment velocity along the length of the tank. An expression for the entrainment might look like

$$E(R_i, x) = f(x) \frac{\rho_o u_{*w}^2}{g \delta\rho D} , \tag{5}$$

where ρ_o is the mixed layer density and