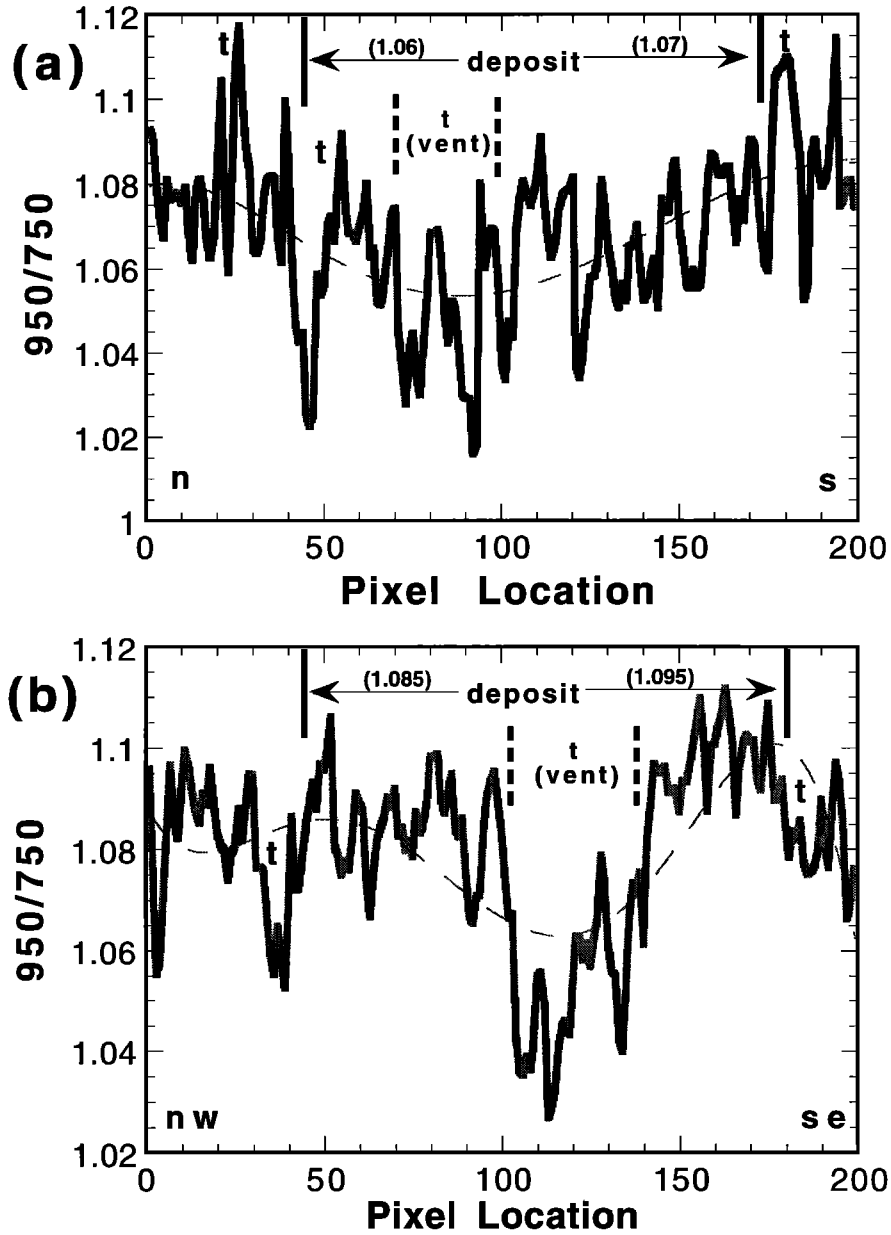

Figure 7. Atlas crater: Profiles of 950/750 ratio values across the (a) North and (b) South vents. The locations of topographic features are marked ("t"), and the extents of the deposits and the vents are indicated. Mean ratio values for each portion of the deposit are also shown. The dashed curves, provided for reference, are fifth-order polynomial curves fit to the profiles using the least squares method.

occurred from a single, possibly related vent structure, and that we may be observing changes with composition through time at Atlas crater.

It should be noted that this analysis does not explicitly account for the possible effects of scattered light. If present, scattered light would act to artificially brighten the pyroclastic deposits in a wavelength-dependent manner [e.g., *Gaddis et al.*, 1995; *Robinson et al.*, 1999]. Shadow measurements of craters in the region suggest a possible brightening effect at the 2% level which may be due to scattered light. However, because the two deposits in Atlas crater floor are in relatively close proximity to each other, and they are likely to be uniformly affected by scattered light from surrounding highlands units, scattered light is not thought to be responsible for the observed variations in 950/750 values. In any case, scattered light could not account for the magnitudes of the differences in brightness between the deposits [e.g., *Li et al.*, 1999].

3.3. Interdeposit Compositional Variation

To examine the compositional relations among representative members of the three classes of small lunar pyroclastic deposits, we compared mean values of reflectance ratios (415/750 and 950/750) for 15 deposits at 11 sites: Alphonsus, Atlas, Crüger, Franklin, Eastern Mare Frigoris, Grimaldi, J. Herschel, Lavoisier, Oppenheimer, Riccioli, and the unclassified annular pyroclastic deposit on the southern