Explosive processes arise naturally in several scientific investigations. Examples of such processes include supercritical branching processes, explosive autoregressive processes, and their variants. Precise description of the large deviation aspects of the empirical mean, requires knowledge concerning the local limit theory for these processes. In this talk, I will describe several aspects of the local limit theory for these processes and their role in the study of large deviations for these processes. I will also describe consequences of our results to data arising from Polymerase Chain Reaction Experiments, Cell Lineage Studies, and Internet Traffic.