SMS-618, Particle Dynamics, Fall 2003 (E. Boss)

Assignment # 2: Answer the following questions prior to next week's class.
Please submit electronically for easy transfer to the web site.

1. Using Dietrich's paper compute the settling velocities of single grains of quartz with a roundness factorsof 3.5 and Corey shape factor of 0.7 and characteristic lengths of 0.1, 1, 10, 100 & 1000 μm in water of 10°C. How different is it (in %) from the prediction based on Stokes formula?

2. From Johnson's et al. (1996) paper determine whether an aggregate sinks faster or slower than if the same material was lumped into one denser and smaller particle (in other words, as a gels swells or collapse how is their sinking speed affected?).