

Introduction to acoustical oceanography- Lab-week 8.
Effect of size on scattering from a sphere.

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The purpose of this lab is see sensitivity of acoustical backscattering to size.

Measure acoustic backscattering with the 16MHz ADV for two different size beads of diameter centered on 28 μm and 196 μm .

Obtain the concentration specific attenuation coefficient (α^*_p) for each of these sizes and compare it to that which you found previously for beads of size 82 μm .

Homework:

Given that the Glass microspheres (Whitehouse scientific) have the following properties:

Size~75-90 μm

Poisson ration~ 0.21

Specific gravity 2.46 g/cm³

Sound speed – 5292m/s

ADV-16MHz, 25degree backscattering.

1. Compare your results for sensitivity of beads of different sizes in the lab (α^*_p) with the backscattering sensitivity predicted by theory (previous homework for both rigid and elastic spheres). Which model seems most appropriate?
2. Why do we expect sensitivity and α^*_p to be related?