Natural Radioactivity Measurements in Fine Aerosols

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Measurements of 7Be, 210Pb, 210Po, and 210Bi were taken at 12 hour increments (day - night) at the T0 and T1 sites using impactors that allowed 0.1 to 1.0 micron size cuts using high volume sampling instrumentation. Samples were counted using gamma counting for 7Be and 210Pb. Portions of the samples were analyzed for 210Po (138day half-life) and 210Bi (5-day half-life) by dissolving the sample collected on the quartz fiber filter 8x10 inch filters in nitric acid. The dissolved material was then treated with HCL to form the metal chloride complexes and the 210Po and 210Bi separated from the 210Pb by collecting the chloride anion complexes on to anion exchange resin impregnated filters. The samples were then counted using beta and alpha counting equipment. The results will be presented. We also are taking 14C and 13/12C measurements on the filters that will be analyzed for organic and elemental fractions using accelerator mass spectrometry for 14C and isotope ratio mass spectrometry for the 13/12C measurements. These are still underway and will be reported later.

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