The Relationship Between Maine Soil and PM10. (3574)

Authors:
- G. Van Epps* - Univ. of Southern Maine
- S. Langley-Turnbaugh - Univ. of Southern Maine
- N. Gordon - Univ. of Southern Maine

Abstract:
The effect of airborne particulates on human health, in particular asthma, has become a growing concern. The purpose of this research was to examine the composition of airborne particulates from Maine to determine if the source is local soil or remote contaminants and to determine which components aggravate asthma conditions. Air filters were acquired from Maine DEP’s (Department of Environmental Protection) air sampler collection sites located in Portland, Bridgton, and Presque Isle. Soil samples from sites upwind of these sampler devices were also obtained. Sample collection was timed to coincide with peak asthma events as identified from clinical data. The soils and filters were analyzed for acid and biologically extractable heavy metals (Ni, V, Cd, Cr, Mn, As, Al, Pb, Cu, and Zn) and analyzed by ICP. We also determined pH, color, organic carbon and texture for the soil samples, and the filters were also analyzed for organic elements such as products of combustion and fungicide residues using a GCMS. Human lung fibroblasts Clone-6 were cultured and exposed to concentrations of heavy metals similar to the biological filter extractions to determine cytotoxicity and cellular uptake. Once the analyses are completed, we hope to determine the specific components of air particulates that may have an impact on asthma and whether they are native or foreign to Maine.

Speaker Information: Gemma Van Epps, Univ. of Southern Maine, 144 Ocean Ave Apt. 2, Portland, ME 04103; Phone: (207) 828-0532; E-mail: gemma.vanepps@maine.edu

Session Information: Monday, November 1, 2004, 10:00 AM-12:00 PM  
Presentation Start: 10:00 AM (Poster Board Number: 1567)

Keywords: asthma; air quality; particulate matter; heavy metals