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Environmental Radioactivity: Gamma Ray Spectroscopy with Germanium detector GARGI VYAS, CORNELIUS BEAUSANG, RICHARD HUGHES, THOMAS TARLOW, KRISTEN GELL, University of Richmond, UNIVERSITY OF RICHMOND PHYSICS TEAM — A CF-1000BRL series portable Air Particle Sampler with filter paper as filter media was placed in one indoor and one outdoor location at 100 LPM flow rate on six dates under alternating rainy and warm weather conditions over the course of sixteen days in May 2013. The machine running times spanned between 6 to 69 hours. Each filter paper was then put in a germanium gamma ray detector, and the counts ranged from 93000 to 250000 seconds. The spectra obtained were analyzed by the CANBERRA Genie 2000 software, corrected using a background spectrum, and calibrated using a 20.27 kBq activity multi-nuclide source. We graphed the corrected counts (from detector analysis time)/second (from air sampler running time)/liter (from the air sampler's flow rate) of sharp, significantly big peaks corresponding to a nuclide in every sample against the sample number along with error bars. The graphs were then used to compare the samples and they showed a similar trend. The slight differences were usually due to the different running times of the air sampler. The graphs of about 22 nuclides were analyzed. We also tried to recognize the nuclei to which several gamma rays belonged that were displayed but not recognized by the Genie 2000 software.

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