Environmental Health Facilities

Experimental laboratories

The Environmental Health group occupies ~3400 sq. feet of laboratory space in the College of Public Health (COPH). Infrastructure in the labs includes chemical fume hoods and biosafety cabinets, standard bench space for at least 20 students, hazardous chemical storage cabinets, safety equipment, sinks, and cabinetry for glassware and chemicals, and a Nanopure® Diamond™ analytical ultra-pure water treatment system. Common facilities include two temperature-controlled walk-in chambers for refrigerated storage and incubation, a laboratory for gravimetric analysis of microgram quantities, an electron microscope suite with dark room, glassware washer, autoclaves, centrifuge, and low temperature freezer. Major analytical equipment in the Environmental Health group includes:

- a Dionex DX-600 ion chromatograph with a CD25 conductivity detector, AS9-HC (anion) and CS12A (cation) columns, and a automatic sampler;
- a Varian 3400 gas chromatograph with a flame ionization and electronic capture device as detectors,
- a Varian 9010 high performance liquid chromatograph with a Varian ProStar fluorescence detector,
- a Varian 3400 gas chromatograph and Saturn II mass spectrometer, and
- a Thermo TN 3000 total nitrogen analyzer with chemiluminescence detector, and a
- 36-sample photochemical chamber reactor

In addition, College of Public Health researchers also have local access to equipment through the laboratories for Toxicology, Occupational Health, and Global Health. Available equipment includes an aerosol chamber, wind tunnel, UV-VIS spectrophotometers, atomic absorption spectrophotometers, and the Enviro-Van, which is designed for the off-site transport and use of laboratory instrumentation.

Field measurement facilities and equipment

The Environmental Health group is involved in atmospheric and water sampling at several sites in Tampa, for example, rainfall monitoring at an atmospheric deposition monitoring at a site adjacent to Tampa Bay and water quality/quantity monitoring at a storm water research site ~1 mile from the COPH. Available field sampling equipment includes mass-flow controlled pumps, dry gas meters, denuder/filter pack sampling media and particle size selection inlets (both cyclone and elutriator), a federal reference method $PM_{2.5}$ sampler, TEI nitrogen oxides (NOx) sulfur dioxide, and carbon monoxide analyzers, two carbon dioxide analyzers, a pyranometer, wind vane and thermocouple for meteorological measurements, >50 passive samplers, and two high volume particle samplers.

Computational resources

To support computational research, the environmental health group has recently purchased a state-of–the–art supercomputing Beowulf cluster built by Microway (see http://rocs.acomp.usf.edu/enviro/about.php). System specifications include 12 nodes

with a total of 24 AMD Opteron processors, 48 GB of RAM, 1 TB of storage on a Raid system, Myrinet interconnects, and a Linux operating system. The cluster is housed and administered by the USF's Research Computing Core (http://rocs.acomp.usf.edu). All environmental health research students and faculty also have desktop and laptop Dell and Apple PCs for laboratory support, numerical code development, data analysis and visualization, and research writing and presentation.