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SURFACE AND GROUND WATER HYDROLOGY INVESTIGATIONS UTILIZING AN ON-CAMPUS HYDROGEOLOGICAL FIELD LABORATORY

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The Earth and Environmental Sciences Department utilizes two small watersheds for field-based, undergraduate education and research in water resources. One of the watersheds is located on campus and the other is located within 10 km of the campus. Furman University occupies a 750-acre campus that encloses the major portion of a watershed that drains into a man-made lake and on through the campus maintenance facility where, eight years ago, leaking underground fuel tanks were removed and seven shallow monitoring wells installed. Because the level of contamination was low and the volume of release small, the state regulatory agency did not require remediation and granted permission for the use of these wells for educational purposes. With the assistance of an alumnus, six area drilling, consulting, and supply firms were persuaded to contribute time, expertise, and materials for the construction of two deep bedrock wells and six additional shallow wells. The completed field laboratory consists of a 200-acre watershed with two streams draining into a 29-acre lake, two deep bedrock wells, three piezometers placed across the lake dam, and 10 shallow saprolite monitoring wells. The second small watershed drains Paris Mountain, an erosional remnant, and is located about 10 km from the Furman Campus. Proposed development of the upper reaches has led to concerns over the effects of development on the undisturbed lower reaches that drain into a small mountain lake within the Paris Mountain State Park. With funding from EPA, a long-term study of the water, sediment and chemical fluxes, and biological changes has been initiated to document the effect of an 'environmentally-friendly' development. This study represents a unique partnership between Furman University, the South Carolina Department of Parks and Recreation, the Roper Mountain Science Center of the Greenville County School System, the Paris Mountain Watershed Association, and the subdivision developers. Undergraduate investigations planned or in progress include watershed water budgets, recharge/discharge relationships in the campus lake, bedrock/saprolite aquifer interactions, surface water/ground water interactions, aquifer testing, sedimentation rates, and water quality.

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