



## From the Sea to the Mountains: A Soils and Geomorphology Field Tour of North Carolina USA

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During the course of this tour students are introduced to the wide variety of soils and landscapes found across the state of North Carolina. These soils will be representative of the land regions of the southeastern United States. The soils in parts of this region are some of the oldest in the U.S. and are among the least fertile. North Carolina is divided into three distinct land regions: Coastal Plain, Piedmont, and Blue Ridge Belt (mountains). This tour includes sites in all three of these regions. The book entitled *Soil Systems of North Carolina* gives complete information about the soils across North Carolina and serves as a reference about soils as well as the types of parent materials encountered on the tour. North Carolina soils vary in elevation from sea level near the coast to approximately 2000 m at Mt. Mitchell which is the highest peak in the eastern U.S. The soils and landscapes in this region are not static, but change in response to natural and human forces. The natural forces center around climatic factors such as hurricanes that bring high wind velocities and exceptionally large rainfall amounts (>50 cm/day). These cause erosion of our coast, massive flooding, migration of sand dunes, and contribute to landslides in the western portion of the state. All of these make living here a challenge. The state contains soils in the thermic, mesic, and frigid temperature regimes. You will examine soils in all three temperature regimes on this trip. The diversity of soils also affects land use. Issues with drainage, septic systems, compaction, landslides and urbanization are highlighted at appropriate sites throughout the tour. At each of the stops soil profile and landscape are examined. Detailed profile descriptions and analytical data are provided for each pedon to assist in classification. Selected objectives and discussion points for each stop are likewise provided in order to promote discussion and identify the principle reasons for making a site visit. The discussion points are used loosely, and we encourage students ask any questions that they would like to discuss. The tour has been offered to our students since 2002 and is now being expanded to be part of our REU (research education for undergraduates) program that will be offered for the first time later this year.