**Continuous Resistivity Profiling**

**Waterborne Surveys**

Waterborne resistivity surveys were conducted along 180 km of three rivers (Tallahatchie, Quiver, and Sunflower Rivers) in the Yazoo Basin of Mississippi. Surveys are conducted by pulling a 70 m-long floating, multi electrode cable behind a slow-moving motorboat proceeding upstream. Electrodes transmit a low current into the bed materials of the stream and receive a signal back which allows the user to map the lithology of the streambed. By understanding the lithology of the streambed the connection between the surface streams and the underlying groundwater systems can be better studied. This work will be used to scale streambed groundwater flow rates for incorporation into the hydrogeological framework of a regional groundwater flow model, which may be used to guide policy decisions.

Waterborne Photos:

IMG\_2564: Waterborne resistivity crew conducting a resistivity survey of the Quiver River, Sunflower County, Mississippi. Electrodes on a floating cable are visible behind the boat, which is travelling upstream. Photo by Ben Miller, 2016

DCN0456: Waterborne resistivity survey in progress on the Tallahatchie River, Leflore County, Mississippi. GPS unit and depth sounder are visible attached to the front of the boat. Photo by James R. Rigby, 2016

IMGP6630: Waterborne resistivity profiling in progress on the Tallahatchie River, Leflore County, Mississippi. GPS unit and depth sounder are visible attached to the front of the boat and the cable with electrodes can be seen just behind the outboard motor. Photo by Shane Stocks, 2016

**Terrain-based Surveys**

Terrain-based resistivity surveys were conducted using an Ohmmapper system which allows the user to map the near surface geology by pulling a series of seven electrodes behind a vehicle along dirt and gravel roads. Low currents transmitted into the earth, via these electrodes, are used to map the shallow lithology of the surveyed area. Variations in the geological materials of the Mississippi Alluvial Plain can significantly influence the rate at which an aquifer is recharged, which have a direct result on groundwater levels and flow rates. This work will help to understand the influence that the geomorphology and thus the near-surface geology have on the groundwater flow of the region.

Ohmmapper Photos:

IMG\_2758: Jason Payne driving an ATV pulling an array of electrodes for mapping the near surface geology in the vicinity of Steiner, Mississippi. Photo by Ben Miller, 2016

IMG\_2759: View of the Ohmmapper system electrodes being pulled behind an ATV in order to map the near surface geology of Sunflower County, Mississippi. Photo by Ben Miller, 2016

IMG\_2778: View of the Ohmmapper system electrodes being pulled behind a small truck in order to map the near surface geology of Sunflower County, Mississippi near the town of Shellmound. Photo by Ben Miller, 2016