SOLID-PHASE GEOCHEMICAL SURVEY OF THE STATE OF MISSISSIPPI: ON THE NATURE AND DISTRIBUTION OF AS, SE, HG, CU, PB, AND ZN IN STREAM SEDIMENTS AND SOILS

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Over 1500 samples were collected statewide on a100-km2grid-cell-based survey to determine baseline geochemical values for a suite of metallic elements in stream sediment (drainage basins up to 10 km2) and soil samples (about 300) from the “Delta” and Gulf Coast regions, and to prepare statistically reliable geochemical maps. Samples were analyzed by a number of analytical techniques as detailed by Thompson and others (1998). Salient statistics for stream sediment and soil samples are given below in parts per million. The “Delta” and Black Prairie regions have significantly higher baseline values of these potentially toxic elements with respect to adjacent terranes, in part because soils were the sampled media. A strong spatial correlation is shown to exist between regions of elevated values of these metals and land (broadly) classified as agricultural, irrespective of media sampled. Cretaceous sediments in the State, as throughout the continent, also exhibit higher baseline geochemical values than adjacent geologic units.

Statistical geochemical values for stream sediment and soil samples in Mississippi (1522 samples)

	Sediment			Soil		
	Min	**Median**	**Max**	**Min**	**Median**	**Max**
As	-0.6	2.3	137	1.7	8.6	27.9
Se	-0.2	-0.2	2.5	-0.2	0.4	4.1
Hg	-0.02	-0.02	0.08	-0.02	0.03	0.20
Cu	-2	3	517	-2	10	62
Pb	-4	13	101	-4	17	50
Zn	-2	14	220	6	49.5	222

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