SHORT CORES IN MISSION LAKE, MOODY AFB

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ABSTRACT
We extracted four short cores from Mission Lake, a small artificial lake constructed in 1941 in order to build the airstrip on Moody Air Force Base. We recovered from 20 to 43 cm of lacustrine mud above coarse sandy sediment in these cores. By taking advantage of a short, well-dated time window for deposition, we constrain modern sedimentation rates for this lake. Laboratory results for grain size and chemistry of the cores further help to characterize sediment deposited by soil erosion in a south Georgia lake.

LABORATORY METHODS
The four lake cores and two soil cores extracted from the field locations at Moody Air Force Base were described and sampled in the Surficial Processes Laboratory during Spring semester, 2011. Organic matter was measured by loss-on-ignition (LOI) using a Thermolyne 62700 furnace at a temperature of 550°C (Ball, 1964; Luke et al., 2009; Schulte, 1995). Soil pH was measured as a slurry (Thomas, 1996) using an accurometer model 10 pH meter. Grain size was measured as percent sand, silt, and clay using the hydrometer method (Bouyoucos, 1962; Day, 1965).

RESULTS
From 20 to 43 cm of lacustrine mud and fine sand were recovered in four short cores from Mission Lake. All of the sediment has been deposited since the construction of the original runways in 1941. Of the four cores, the most rapid sedimentation appears to have occurred in the vicinity of an outfall for runoff from the airstrip at Core ML-3. That sedimentation rate is 6.2 cm per decade with the next highest rate occurring in the ML-4 location (3.8 cm/decade). Cores ML-1 and ML-2 both have rates less than 3 cm/decade. All of the rates from Mission Lake are lower than the rates recently reported by Tepper and Hyatt (2011) for Lake Louise less than 30 km to the south. We conclude that local soil erosion represents a significant source for the recent lake sediment at Mission Lake and probably at other small lakes in south Georgia.

REFERENCES CITED