

To: IAS, OFFICE OF THE TREASURER –  
Geological Institute, Ghent University  
Krijgslaan 281 – S8, B-9000 Gent –  
BELGIUM

International Association of Sedimentologists - Grant Report -  
**Quantitative study of a lake delta, Red River/ Lake Texoma**

The key data for the project was to collect ancillary data which allow correlation of the ground data with remote sensing data (aerial photos and satellite images) and with Red River discharge measurements provided by United States Geological Survey (USGS).

The funds provided the IAS Grant have been used for field work/ sample collection in the Red River Delta/ Lake Texoma area from Texas/ Oklahoma border. The field trip was organized such way to collect data during different stages of the river. I was in the field in June 18<sup>th</sup> to 20<sup>th</sup> and in October 30<sup>th</sup> and 31<sup>st</sup>. In the first field trip I did physical measurements on 12 vertical profiles and I collected 47 water samples. The water samples have been filtered to measure suspended sediments in particular locations and depths. Also sediment bottom samples were collected for grain size analysis. To be able to collect the data close to the delta, in shallow water I rented a boat with a flat bottom and sonar. Quanta-Hydrolab (Fig. 1) has been used for the field physical measurements (total dissolved solids (TDS), dissolved oxygen (DO), PH, temperature). Also, in the profile locations I collected bottom sediments for grain size analysis.

In the second field trip I collected again water samples for suspended sediment measurements and I took core plugs with a soil-sampler device (Fig. 2). The water samples were collected again during the second trip to analyze the pattern of sediment dispersion at different river discharges. The core plugs (Fig. 2) will be analyzed for the grain size to be able to analyze distribution of preserved deposits. After partial analysis some the suspended sediment samples (Fig. 3), can be concluded that indeed the river plume is hyperpycnal (the river water is denser than the lake water) and plunge below river water.

The data collected will be integrated with the aerial photos and satellite images which I have to evaluate the plume evolution and the delta progradation through time. A poster has been presented at national 2004 AAPG meeting in Dallas and IAS has been acknowledged for supporting this project.

Data collected in these field trips will be analyzed and integrated with the other data at the end of this year. A paper related to the Red River Delta progradation into Lake Texoma: *Topography influence on a hypopycnal delta: Lacustrine Red River Delta, Lake Texoma*, by Cornel Olariu and Janok Bhattacharya is in preparation and will be submitted to Sedimentology early next year and IAS will be acknowledged for financially supporting this project. The IAS grant was great because allowed me to have a flexible program in the field, to choose convenient field trip dates and not to depend by other people. In the field I was helped by a colleague as a field assistant.

Sincerely,

Cornel Olariu

Budget summary (attached are receipts from field trip expenses):

	Car rental	Gas	Food&supplies	Boat&lodging	Total
June 18/19/20	155.16	19.02+16.41	12.67+54.92+25.51	150	433.69
October 30/31	69.28	19.02	28.22+29.69+2.4	100	248.61