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PROPOSAL FOR RIOMAR RESEARCH 2010-2012

**RioMAR Research **

RioMAR Research continues to focus on (a) the river mouth, the delta and its ability to deliver sediment out onto the shelf and to the deepwater slope beyond the shelf break, and (b) the sedimentary lithology and architecture of the outer shelf, the shelf edge and of the entire shelf-margin prism. Our work emphasizes the process linkage between shelf, slope and basin floor as shown in Figure 1 below.

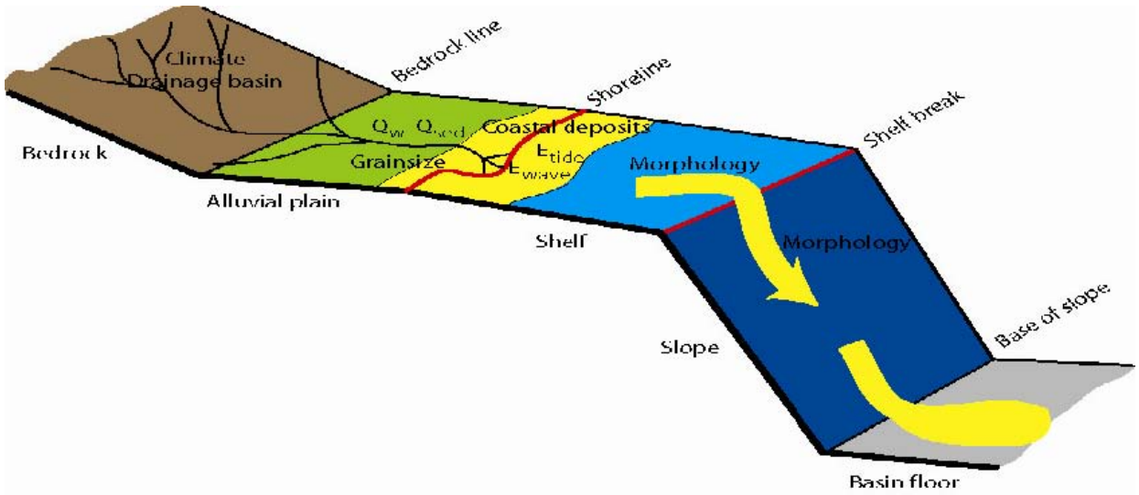

Fig. 1 **RioMAR Research themes with emphasis on delivery of sediment from shallow to deep water.**

Research continues to cover modern sedimentary environments, numerical and physical modeling of sediment transport and deposition, and sedimentological/stratigraphic interpretation of outcrop, well and seismic data. This spread of methods is possible because 4 PIs (Plink-Bjorklund, Mohrig, Olariu and Steel) and up to 10 graduate students are involved in RioMAR. Although we deliver year-end summary sheets (mini-posters), student theses and reports/papers of the main work tasks, the project results are also continually added to the RioMAR website throughout the project year.

Results 2008-9

During the current phase of RioMAR (2008 and 2009) we have provided 12 research reports/papers and 5 student theses in 2008, and for year end 2009 there will be another set of products on concepts of hyperpycnal flow, backwater effects at river mouths, channels of Mississippi River delta, the distal Castlegate Sandstone problem, Baltic tide-dominated deltas, autogenic and allogenic shelf-delta growth, Fox Hills-Lewis shelf margin, Pliocene Orinoco Delta research, initial Karoo Margin results and tabulated global rates of progradation/aggradation of shelf margins.

Field Seminars

We will continue to provide at least one field seminar pr year for sponsor companies. In 2010 we plan to run a seminar to view current work on the Mississippi Delta.

RIOMAR PROPOSAL FOR 2010 AND 2011

Consortium Fee: The yearly fee will continue to be $30,000

Research on Modern Systems

1. *Stratigraphic model for growth of mouth-bar complexes*:
   Students J. Shaw and V. Smith (Mohrig)
2. *New facies model for incisional deltas*.
   Students J. Nittrouer and J. Shaw (Mohrig)

Flume Experiments

3. Initiation and growth of submarine channels connected to shelf-edge deltas.
Students A. Fernandes and A. Peyret.(Mohrig).

Seismic interpretation

4. *Comparative infill architectures of well confined and weakly confined submarine channel*
   Student A. Fernandes (Steel/Mohrig)
5. *Avulsion model for deep rivers in coastal zones*.
   D. Mohrig.

Interpretation of outcrop and subsurface strata

6. Avulsion models for the lobes of river- and wave-dominated deltas; shelf versus shelf-edge settings.
C. Olariu, and I. Olariu.

7. *Stratigraphic model for Karoo IceHouse shelf-edge deltas*.
Students J. Dixon and J. Leva-Lopez (Steel); **students M.Bubb +Another** (Plink-Bjorklund).
8. *Tyee Basin Infill, Oregon.*
   Student M. Santra (Steel).
9. *Completing the Deltaic Database.*
   Twenty-Mile Deltas: **Student J. Leva-Lopez** (Steel); Delta Database: **I. Olariu, Plink-Bjorklund, C. Olariu, R. Steel**
10. *Stratigraphic models for clastic shelf-margin architecture*.
    R. Steel, P. Plink-Bjorklund and C. Olariu