SAX04 Workshop---Agenda
22-23 March 2006
Astor Crowne Plaza Hotel
New Orleans, LA

Wednesday 22 March

10:00-10:10 Eric Thorsos, Introduction

10:10-10:20 Bob Headrick, Remarks from ONR

I. ENVIRONMENTAL MEASUREMENTS

A. Acoustic Surveys

Issues: Large scale spatial variations; mud distribution after H. Ivan

10:20-10:30 Jerry Caruthers (pre-Ivan)

10:30-10:45 Peter Traykovski (post-Ivan)

B. Sediment Density, Porosity, Layering

Issues: Spatial and temporal variability

10:45-11:05: Chad Vaughan, Vibracore results

11:05-11:25: Kevin Briggs/Mike Richardson, Physical and geoacoustic properties (diver core results)

11:25-11:45: Allen Reed, Porometric (pore and grain) analysis and predictions of permeability

11:45-12:00: Jin-wook Kim, Sand grain morphology

12:00-12:20: DJ Tang, IMP results

12:20-12:30: Rob Wheatcroft, Consolidation of mud layers

12:30-1:30 **Working lunch**

Mike Richardson will speak on the effects of Hurricane Katrina on the Mississippi Gulf Coast

C. Sediment Interface Roughness

Issues: Space/time variability for ripple and multi-scale roughness

1:30-1:50: Todd Hefner, APL-UW stereo photography and IMP measurements

1:50-2:10: Tony Gerig, NURC photogrammetry results

2:10-2:30: Kevin Briggs, NRL roughness measurements

2:30-2:50: Alex Hay, Measurements and modeling of ripple decay

2:50-3:10: Peter Traykovski, Modeling the evolution of ripple spectra

3:10-3:30: **Break**

3:30-3:50: Todd Holland, Results of video measurements from FWB tower

D. Sediment Volume Heterogeneity

Issues: Discrete scatterer size distribution
         Sediment density variation spectrum
         Mud patches/mud-sand lenses

3:50-4:00: Anatoliy Ivakin, Results for discrete scatterer size distribution

4:00-4:20: Mike Richardson/Kevin Briggs: Observations on mud patches and mud-sand lenses

II. SEDIMENT ACOUSTICS MEASUREMENTS/MODELING

A. Sediment Sound Speed and Attenuation

Issues: Frequency dependence
         Measurement uncertainty

 4:20-5:00: John Osler and Dave Chapman, Progress on sound speed measurements and analysis

5:00-5:10: Tony Lyons, Sound speed dispersion measurements from ship noise

5:10-5:30: Mike Zimmer, NRL sound speed and attenuation measurements

5:30-5:50: Marcia Isakson, Sediment sound speed dispersion results

5:50-6:10: Todd Hefner, APL-UW sound speed and attenuation measurements

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II. SEDIMENT ACOUSTICS MEASUREMENTS/MODELING (cont.)

A. Sediment Sound Speed and Attenuation (cont.)

10:00-10:20: Mike Buckingham, Sediment acoustics measurements using light aircraft

10:20-10:40: Nick Chotiros, Alternative models for low-frequency sound speed in sandy sediments

B. Backscattering – Natural Sediments.

Issues: Space/time dependence, mud/sand volume scattering, angle/frequency dependence, scattering statistics

10:40-11:00: Kevin Williams, APL-UW results

11:00-11:10: Joe Lopes, Backscatter results at 8-20 kHz using a parametric source

11:10-11:20: Tony Lyons, Statistics of the rail SAS measurements

C. Backscattering – Manipulations

11:20-11:40: Mike Richardson, Backscattering from raked sediment

D. Reflection

Issues: Incoherent vs. coherent scattering, ensemble size, frequency and grazing angle dependence, discrimination between sediment constitutive equations

11:40-12:00: Marcia Isakson, ARL-UT reflection measurements

12:00-12:20: Kevin Williams, APL-UW reflection measurements

E. Subcritical Penetration

Issues: Penetration mechanisms – evanescent wave, ripple scattering

12:20-12:30: Darrell Jackson, APL-UW penetration measurements

12:30-1:30: **Working Lunch**

DJ Tang will speak on modeling penetration into layered media with roughness

III. IMAGING – REAL AND SYNTHETIC APERTURE

A. Imaging Measurements

Issues: Rail vs. moving system results
Detection of buried objects

1:30-1:50: Kevin Williams, SAS measurements with the APL-UW rail system

1:50-2:10: Steve Schock, Target images and spectra, focusing on cases where detections were made beyond the critical angle

B. SAS Modeling

Issues: SNR vs. resolution for extended targets
Simple sonar equation estimates of SAS SNR
Benchmark solutions for SAS images

2:10-2:30: Steve Kargl, SAS simulations for simple buried targets

2:30-2:50: Kevin Williams, Comparison of SAS simulations for buried targets with sonar equation estimates and with measurements

2:50-3:10: Dave Burnett, Finite element target scattering for SAS modeling

3:10-3:30: **Break**

IV: SUMMARY, DISCUSSION, FUTURE DIRECTIONS

3:30-4:15: Eric Thorsos: Summary on the status of our understanding of the important issues following SAX99 and SAX04.

4:15-4:30: Eric Thorsos: Future events

4:30-4:40: Peter Traykovski, Plans for DRI Ripples Program

4:40-close: Open discussion on (1) needs in the area of sediment ripples prediction, and (2) sediment acoustics topics in need of further experiments, modeling, and theoretical development.