AGENDA

La Valencia Hotel, La Jolla, California
March 1-5, 2004

Monday, March 1, 2004

2:00-4:00 ***Registration***

Tuesday, March 2, 2004

8:50-9:00 ***Opening Remarks***

9:00-10:45 ***Sediment Acoustics*** ***Chair: Mohsen Badiey***

Wave and material properties of marine sediments: relationships for geoacoustic inversions (***M. Buckingham, MPL/SIO, UCSD – Invited Speaker***)

Empirical predictions of seafloor properties based on remotely measured sediment impedance (*M. Richardson, NRL- Stennis, K. Briggs*)

Using buried directional receivers in high-frequency seafloor studies (*J. Osler, Defence R&D Canada, A. Lyons)*

Geoacoustic inversion of broadband data from the Florida Straits (*R. Chapman, University of Victoria, Y. Jiang)*

High-frequency rapid geo-acoustic characterization (*K. Heaney, Lockheed Martin ORINCON*)

10:45-11:15 Break

11:15-12:15 ***Ambient Noise*** ***Chair: Ross Chapman***

High-frequency geoacoustic inversion of ambient noise data using a short arrays (*M. Siderius, SAIC, C. Harrison*)

Mid to high-frequency ambient noise anisotropy and notch-filling mechanisms (*P. Ferat, Johns Hopkins University/APL, J. Arvelo*)

Measurements and predictions of high frequency ambient noise (*A. Holden, DSTL*)

12:15-1:45 Lunch

1:45-3:30 *Time-reversal Methods* *Chair: William Hodgkiss*

Ultrasonic time reversal mirrors (*M. Fink, ESPCI – Invited Speaker*)

Time reversal ocean acoustic experiments at 3.5 kHz: Applications to active sonar and undersea communications (*H. Song, MPL/SIO-UCSD, P. Roux, T. Akal, G. Edelmann, W. Higley, W. Hodgkiss, W. Kuperman, K. Raghukumar, M. Stevenson*)

Time-reversal and spatial diversity: issues in a time-varying geometry test (*S. Jesus, SiPLAB-FCT, University of Algarve, A. Silva)*

Acoustic communication using time-reversal signal processing: spatial and frequency diversity (*D. Rouseff, APL-University of Washington, J. Flynn, J. Ritcey, W. Fox*)

A high-frequency active underwater acoustic barrier experiment using a time reversal mirror; model-data comparison (*A. Tesei, NATO Undersea Research Centre, H. Song, P. Guerrini, P. Roux, W. Hodgkiss, T. Akal, M. Stevenson, W. Kuperman*)

3:30-4:00 Break

4:00-5:45 *Underwater Acoustic Communications I* *Chair: Milica Stojanovic*

Iterative equalization and decoding in underwater acoustic channels (*J. Proakis, Northeastern University / UCSD - Invited Speaker*)

Environmental and motion effects on orthogonal frequency division multiplex on-off key (*P. Gendron, NRL, T. Yang*)

Environmental effects on phase coherent underwater acoustic communications: a perspective from several experimental measurements (*T. Yang, NRL*)

The impact of underwater acoustic channel structure and dynamics on the performance of adaptive coherent equalizers (*J. Preisig, WHOI*)

High-frequency FH-FSK underwater acoustic communications: the environmental effect and signal processing (*W. Yang, NRL, T. Yang*)

Wednesday, March 3, 2004

9:00-10:45 *Boundary Interactions I* *Chair: Mike Richardson*

Progress and research issues in high-frequency seafloor scattering (*D. Jackson, APL-University of Washington – Invited Speaker*)

Modeling shallow water propagation with scattering from rough boundaries (*E. Thorsos, APL-University of Washington, F. Henyey, W. Elam, S. Reynolds, K. Williams*)

Mid frequency sonar backscatter measurements from a rippled bottom (*J.Lopes, NSWC, R. Lim, K. Commander*)

The dependence of long-range reverberation on bottom roughness (*R. Gauss, NRL, D. Fromm, K. LePage, R. Gragg*)

Environmental effects of waveguide uncertainty on coherent aspects of propagation, scattering and reverberation (*K. LePage ,NRL, B. McDonald*)

10:45-11:15 Break

11:15-12:15 Underwater Acoustic Communications II Chair: Jim Preisig

Spatio-temporal focusing for elimination of multipath effects in high rate acoustic communications (*M. Stojanovic, MIT*)

Synthetic undersea acoustic transmission channels (*D. Green, Benthos, J. Rice*)

Underwater acoustic communication channel capacity: a simulation study (*T. Hayward, NRL, T. Yang*)

12:15-1:30 Lunch

1:30-3:15 Scattering Chair: Gary Heald

HF Doppler acoustic imaging of the ocean surface and interior (*R. Pinkel, SIO-UCSD – Invited Speaker, J. Smith*)

Mean and covariance of forward propagated field through a random oceanic waveguide (*P. Ratilal, MIT, T. Chen, N. Makris*)

Detection of high-frequency sources in random/uncertain media (*L. Sibul, ARL-Pennsylvania State University, C. Coviello, M. Roan*)

Long range acoustic imaging of the Continental Shelf environment: the acoustic clutter experiments *(N. Makris, MIT, P. Ratilal, Y. Lai, S. Lee, D. Symonds*)

Modeling acoustic signal fluctuations induced by sea surface roughness (*R. Heitsenrether, College of Marine Studies-University of Delaware, M. Badiey*)

3:15-3:45 Break

3:45-5:50 Marine Mammals Chair: Angela D'Amico

The dolphin sonar: excellent capabilities in spite of some mediocre properties (*W. Au, Hawaii Institute of Marine Biology – Invited Speaker*)

Active sonar and the marine environment (*E. Sevaldsen, FFI/NDRE, P. Kvadsheim*)

Acoustic propagation studies for sperm whale phonation analysis during LADC experiments *(N. Sidorovskaia, University of Louisiana at Lafayette, G. Ioup, J. Ioup, J. Caruthers*)

Predicting the environmental impact of active sonar (*A. Duncan, Center for Marine Science-Curtin University of Technology, R. McCauley, A. Maggi*)

Biomimetic target classification (*A. Abawi, SAIC, M. Porter, C. Tiemann, P. Hursky, S. Martin*)

Underwater ambient noise and sperm whale click detection during extreme wind speed conditions (*J. Newcomb, NRL-Stennis, A. Wright, S. Kuczaj, R. Thames, W. Hillstrom, R. Goodman*)

6:45 Cocktails and Banquet (*La Sala and The Mediterranean Room*)

Thursday, March 4, 2004

9:00-10:45 Boundary Interactions II — *Chair: Grant Deane*

Nonlinear bubble dynamics and the effects on propagation through the near-surface bubble layers (*T. Leighton, Institute of Sound and Vibration Research-University of Southampton – Invited Speaker*)

On the relationship between signal bandwidth and correlation for surface forward scattered signals (*L. Culver, ARL-University of Pennsylvania, D. Bradley*)

The sea surface bounce channel: bubble -mediated energy loss and time/angle spreading (*P. Dahl, APL-University of Washington*)

The influence of the sea surface and fish on long-range reverberation (*R. Gauss, NRL, D. Fromm, K. LePage, J. Fialkowski, R.. Nero*)

Numerical modeling of bottom scattering (*R. Stephen, WHOI*)

10:45-11:15 Break

11:15-12:35 Underwater Acoustic Communications III: KauaiEx — *Chair: Dan Rouseff*

The Kauai Experiment (*M. Porter, SAIC, P. Hursky, M. Siderius, M. Badiey, J. Caruthers, W. Hodgkiss, K. Raghukumar, D. Rouseff, W. Fox, C. de Moustier, B. Calder, B. Kraft, V. McDonald, P. Stein, J. Lewis, S. Rajan, The KauaiEx Group*)

Telesonar testbed instrument provides a flexible platform for acoustic propagation and communication research in the 8-50kHz band (*V. McDonald, SPAWARSYSCEN, P. Hursky, The KauaiEx Group*)

Comparing single and multi-carrier modulation schemes for underwater acoustic communications (*P. Hursky, SAIC, V. McDonald, The KauaiEx Group*)

Impact of thermocline variability on underwater acoustic communications: results from KauaiEx (*M. Siderius, SAIC, M. Porter, The KauaiEx Group*)

12:35-2:00 Lunch

2:00-3:25 Target Modeling — *Chair: Ahmad Abawi*

Virtual source approach to scattering from partially buried elastic targets (*H. Schmidt, Department of Ocean Engineering, MIT – Invited Speaker*)

A finite-element tool for scattering from localized inhomogeneities and submerged elastic structures (*M. Zampolli, NATO Undersea Research Centre, D. Burnett, F. Jensen, A. Tesei, H. Schmidt, J. Blottman III*)

High-frequency material-dependent scattering processes for tilted truncated cylindrical and disk-shaped targets (*P. Marston, Department of Physics-Washington State University*)

Towards a deterministic high frequency shallow water ray propagation model (*L. Pautet, NATO Undersea Research Centre, E. Pouliquen*)

3:25-3:55 Break

3:55-5:55 Experiments and Measurement Techniques I (Panama City) Chair: Eric Thorsos

Panama City 2003 broadband shallow-water acoustic coherence experiments (*S. Stanic, NRL-Stennis, E. Kennedy, D. Malley, B. Brown, R. Meredith, R.. Fisher, H. Chandler, R. Ray, R. Goodman*)

A high-speed, multi-channel data acquisition system (*D. Malley, NRL-Stennis, R. Brown, E. Kennedy, R. Meredith, H. Chandler, S. Stanic*)

Panama City 2003 acoustic coherence experiments: environmental characterization (*R. Meredith, NRL-Stennis, R. Fisher, S. Stanic, E. Kennedy, D. Malley, R. Brown,*)

Broadband horizontal and vertical spatial coherence measurements (*T. Ruppel, NRL-Stennis, S. Stanic, G. Norton, R. Meredith, E. Kennedy, R. Goodman, M. Wilson*)

Broadband temporal coherence results from the June 2003 Panama City coherence experiments (*H. Chandler, NRL-Stennis, S. Stanic, E. Kennedy, R. Meredith, R. Goodman*)

Panama City 2003 acoustic coherence experiments: low frequency bottom penetration fluctuation measurements in a multi-path environment (*R. Meredith, NRL-Stennis, E. Kennedy, D. Malley, R. Fisher, R. Brown, S. Stanic*)

Friday, March 5, 2004

9:00-10:45 Systems and Applications Chair: Jack Ianniello

Navy applications of high-frequency acoustics (***H. Cox, Lockheed Martin ORINCON – Invited Speaker***)

Mid-frequency signal fluctuations and target localization (*W. Hodgkiss, MPL/SIO-UCSD, G. D'Spain, D. Ensberg*)

Detection of direct-path arrivals for multi-narrowband sequences (3-30 kHz) in shallow water (*A. Zoksimovski,Center for Coastal and Ocean Mapping-University of New Hampshire, C. de Moustier*)

High frequency propagation models: a comparison of performance in Brazilian shallow waters (*A. Sousa, Brazilian Navy Research Institute, A. Correa*)

A new synthetic aperture sonar design with multipath mitigation (*M. Pinto, NATO Undersea Research Centre, A. Bellettini, L. Wang, P. Munk, V. Myers, L. Pautet)*

10:40-11:15 Break

11:15-12:55 Experiments and Measurement Techniques II (KauaiEx and ElbaEx) Chair: Lucie Pautet

Results from the Elba HF-2003 experiment (*F. Jensen, NATO Undersea Research Centre, M. Porter, M. Siderius, V. McDonald, M. Badiey, D. Kilfoyle, L. Freitag)*

Ocean variability on high-frequency acoustic propagation in KauaiEx (*M. Badiey, University of Delaware, S. Forsythe, Mike Porter, The KauaiEx Group*)

Side-scan sonar survey operations in support of KauaiEx (*J. Caruthers, Department of Marine Sciences-University of Southern Mississippi, E. Quiroz, C. Fisher,, R. Meredith, N. Sidorovskaia, The KauaiEx Group*)

High frequency tomography using bottom-mounted transducers (*J. Lewis, Scientific Solutions, P. Stein, S. Rajan, J. Rudzinsky, A. Vandiver, The KauaiEx Group*)

Model-based tracking at high frequency (*P. Hursky, SAIC, M. Porter, The KauaiEx Group*)

12:55-1:00 Closing Remarks

1:00-2:30 Lunch