

Empirical Orthogonal Functions: Snapshots, Biases, Variances and Connections to Random Matrices and Adaptive Array Processing

The problem of a finite number of "snapshots" for constructing the sample covariance matrices is well known in adaptive array processing. The use of random matrix theory has recently led to insights about the biases and variances of the eigenvalues and the reliability of the eigenvectors for constructing adaptive algorithms. The equivalent problem is accounting for the energy, or power, in an EOF expansion of oceanographic processes and the fidelity of their representation. This talk will discuss these recent results.

Joint work with Raj Rao, Department of ME and Mathematics Post Doc.

Sponsored by the Office of Naval Research

Arthur B. Baggeroer
Ford Professor of Engineering
Secretary of the Navy - Chief of Naval Operations
Chair for Ocean Science

Center for Ocean Engineering, Dept. of Mechanical Engineering
Department of Electrical Engineering and Computer Science
Massachusetts Institute of Technology
Room 5-204, MIT
Cambridge, MA 02139

Tele: 617 253 4336, Fax: 617 253 2350
Email: abb@boreas.mit.edu