

Donato, T. F., US Naval Research Laboratory, Washington, DC,USA, donato@nrl.navy.mil
Weidemann, A. D., US Naval Research Laboratory, Stennis Space Center,USA, alanw@nrlssc.navy.mil
Bachmann, C. M., US Naval Research Laboratory, Washington, DC,USA, bachmann@nrl.navy.mil
Gould, R. W., US Naval Research Laboratory, Stennis Space Center,USA, gould@nrlssc.navy.mil
Rhea, J., US Naval Research Laboratory, Washington, DC,USA, rhea@nrl.navy.mil
Bisset, W. P., Florida Environmental Research Institute, Tampa, USA, pbissett@flenvironmental.org

AN EXAMINATION OF SPECTRAL SIGNATURES FROM CASE 2 WATERS USING EMPIRICAL MODE DECOMPOSITION

A relatively new analysis tool, Empirical Mode Decomposition, is used to examine the spectral characteristics of Case 2 waters within and surrounding Mississippi Sound and Mobile Bay. EMD is an adaptive, highly efficient method that can be used to decompose a complicated data set into a finite and often small number of intrinsic mode functions (IMF). These IMFs exhibit sinusoidal character and are defined as follows: Any function is an IMF if (a) in the whole data set, the number of extrema and the number of zero-crossings is either equal or differs at most by one, and (b) at any point, the mean value of the envelope defined by the local maxima and the envelope defined by the local minima is zero. We employ this method on hyperspectral data collected from hand-held spectrometers and PHILLS an airborne hyperspectral imager. The objective of this work is to examine the IMF's for unique signatures that characterize a specific water mass type in terms of its various constituents, such as salinity, organic and matter components, among others.