1086-35-2811 **Constance M Schober*** (constance.schober@ucf.edu), University of Central Florida, Dept. of Mathematics, P.O. Box 161364, Orlando, FL 32816-1364, and **Annalisa Calini**. *Dynamical Criteria for Rogue Waves in Nonlinear Schrodinger Models.*

We investigate rogue waves in deep water in the framework of the nonlinear Schrodinger (NLS) and Dysthe equations. Amongst the homoclinic orbits of unstable NLS Stokes waves, we seek good candidates to model actual rogue waves. In this article we propose two selection criteria: stability under perturbations of initial data, and persistence under perturbations of the NLS model. We find that requiring stability selects homoclinic orbits of maximal dimension. Persistence under (a particular) perturbation selects a homoclinic orbit of maximal dimension all of whose spatial modes are coalesced. These results suggest that more realistic sea states, described by JONSWAP power spectra, may be analyzed in terms of proximity to NLS homoclinic data. In fact, using the NLS spectral theory, we find that rogue wave events in random oceanic sea states are well predicted by proximity to homoclinic data of the NLS equation. (Received September 25, 2012)