Atmospheric Rossby Waves in Fall 2011: Analysis of Zonal Wind Speed and 500hPa Heights in the Northern and Southern Hemispheres

Samuel Cook, Craig Eckstein, and Samantha Santeiu

Department of Atmospheric and Geological Sciences, Iowa State University, Ames, IA

ABSTRACT

This study is an analysis of atmospheric waves using 500hPa heights as well as 500hPa and 300-150hPa zonal winds. Data was collected from September 7, 2011, to November 11, 2011, in order to relate real-time atmospheric waves with barotropic Rossby wave theory. Collected data included wave number, average wave amplitude, wave speed, and zonal wind calculations from the 500hPa and 300-150hPa layers. In general, observations did not follow theory except for one case in the Northern Hemisphere. The waves in this study exhibited decreasing wave speed as wave number decreased. In addition, wave number increased as amplitude decreased.