Description of MATLAB scripts that accompany the paper

Slow Modes of the Equatorial Waveguide

The zip file *equapak.zip* contains two MATLAB scripts: *equamodes.m* and *equaplot.m*. The former calculates the eigenvalues of the dispersion relation given by equation (14) of the paper. It uses the MATLAB *solve* function and it can be quite slow, typically taking tens of seconds to a few minutes on a normal desktop machine or laptop. The script also produces plots of the dispersion solutions similar to those in the paper and it writes out key quantities for use in plotting eigenfunctions using *equaplot*.

The script *equaplot.m* can plot eigenvalues and eigenfunctions corresponding to the parameters set at the beginning of *equamodes*. It can also plot the eigenvalues associated with both the geostrophic and weak-temperature-gradient (WTG) approximations and the eigenfunctions associated with the geostrophic approximation (but not the WTG approximation).

The important nondimensional parameters, described in the paper, are set at the beginning of *equamodes*. See the headers of both scripts for more detailed descriptions.