1022-76-53   **Radu Dascaliuc** (`rdascaliu@indiana.edu`), Department of Mathematics, Indiana University, Bloomington, IN 47405, **Ciprian Foias**, Department of Mathematics, Texas A&M University, College Station, TX 77843, and **Michael S. Jolly*** (`msjolly@indiana.edu`), Department of Mathematics, Indiana University, Bloomington, IN 47405. *2-D Navier-Stokes bounds in the enstrophy,palinstrophy-plane.*

We present general bounds for the global attractor of the periodic 2-D incompressible Navier-Stokes equations when projected into the enstrophy,palinstrophy-plane. These bounds, which are yet to be shown to be sharp, allow the quotient palinstrophy/enstrophy to be large without both quantities being small. A pronounced enstrophy cascade toward larger wavenumbers requires the quotient of the averages of these quantities to be large compared to the largest wavenumber of the force. This is contrasted with bounds in the energy,enstrophy-plane, where the corresponding quotient cannot be large unless both quantities are small. (Received September 07, 2006)