

ATM 400: Synoptic Meteorology I
Homework Assignment #3: Sutcliffe–Trenberth & Q vectors
Due: Wednesday, November 6

1. Compare the Sutcliffe–Trenberth (plotted for Homework #2) to the Q-vector forcings (from class and [http://www.atmos.albany.edu/daes/atmclasses/atm400/Handouts & Recordings/files/93031400_qvector.png](http://www.atmos.albany.edu/daes/atmclasses/atm400/Handouts%20&%20Recordings/files/93031400_qvector.png)) for vertical motion at 0000 UTC 14 March 1993. Where do the two methods agree and where do they differ? Why do you think these differences exist?
2. Consider the 1000–500-hPa thickness (dam; red dashed lines) and 700-hPa height fields (dam; solid black lines) in the figure below. Use the Sutcliffe–Trenberth form of the QG ω equation to determine where the strongest upward and downward motions are located.

