

Interactive comment on “Reply to: “Tropical cirrus and water vapor: an effective Earth infrared iris feedback?”” by M.-D. Chou et al.

Anonymous Referee #1

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The focus of Chou et al. (2002)’s comments on Fu et al. (2002) is: How does one determine the contrast in the net radiation at the top of the atmosphere between cirrus-covered regions and regions covered only by low clouds? Specifying these two domains using monthly-averaged 275-km scale satellite data is problematic due to smoothing of the signal and the difficulty in isolating scenes containing thin cirrus from those containing only low clouds.

It is unfortunate that neither set of authors introduced pixel-scale data which were obtained during ERBE. Such data provides the spatial and temporal resolution to precisely prescribe the areal extent of each domain in the 3.5-box model (Lindzen et al., 2001), while simultaneously providing accurate net radiative flux measurements. Consistent use of pixel data would obviate the arbitrariness in domain area specification and the averaging problems raised by Chou et al. (2002), while still satisfying the

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consistency requirements of Fu et al. (2002)

This reviewer agrees with reviewer #2 of Fu et al. (2002) that the greatest uncertainty associated with the IRIS hypothesis is the relationship between climatological sea-surface temperature and tropical high cloud fraction. However, the present exchange has been useful in examining the sensitivity of the proposed IRIS feedback to uncertainties in the radiative contrast between cirrus anvils and surrounding tropical regions.

Interactive comment on Atmos. Chem. Phys. Discuss., 2, 173, 2002.

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