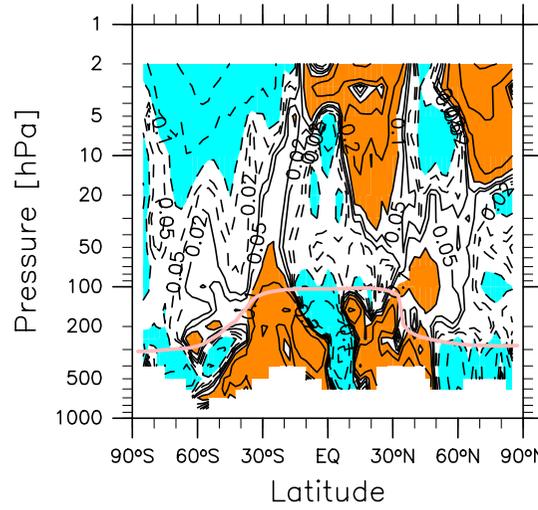
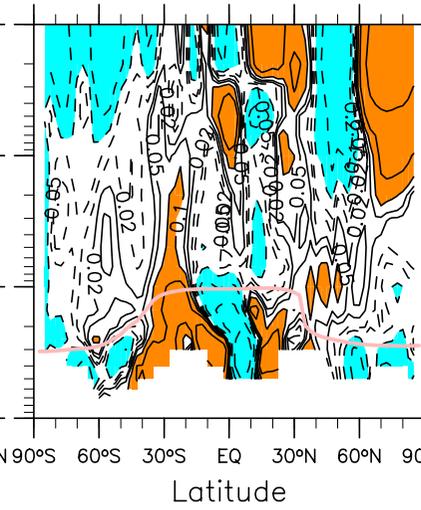


DJF (D80–F10)

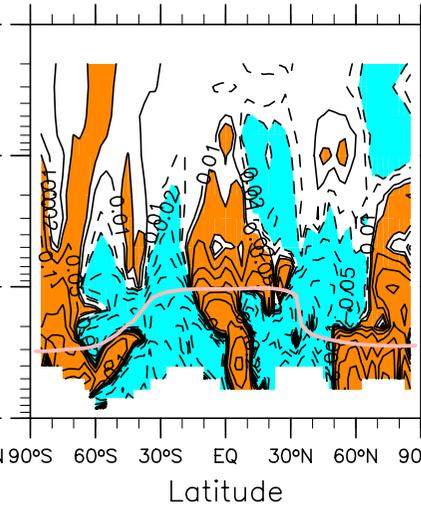
(a) w_{res} [mm/s]



(b) w_{res} from Ψ_{vres} [mm/s]

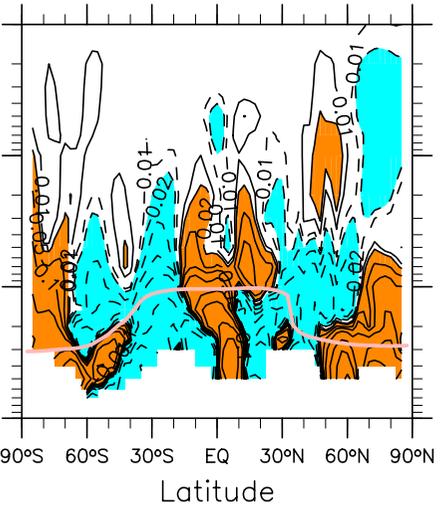


(c) ω_{res} [mPa/s]



MERRA-2 — REM

(d) ω_{res} from Ψ_{vres} [mPa/s]



DJF (D80–F10)

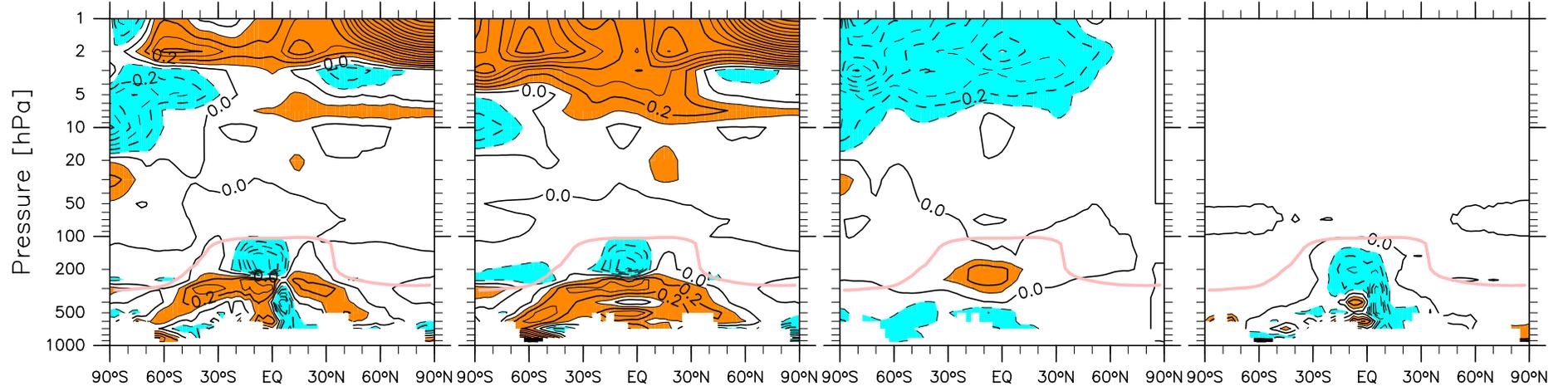
MERRA-2 — REM

(a) Q_{total} [K/d]

(b) $Q_{longwave}$ [K/d]

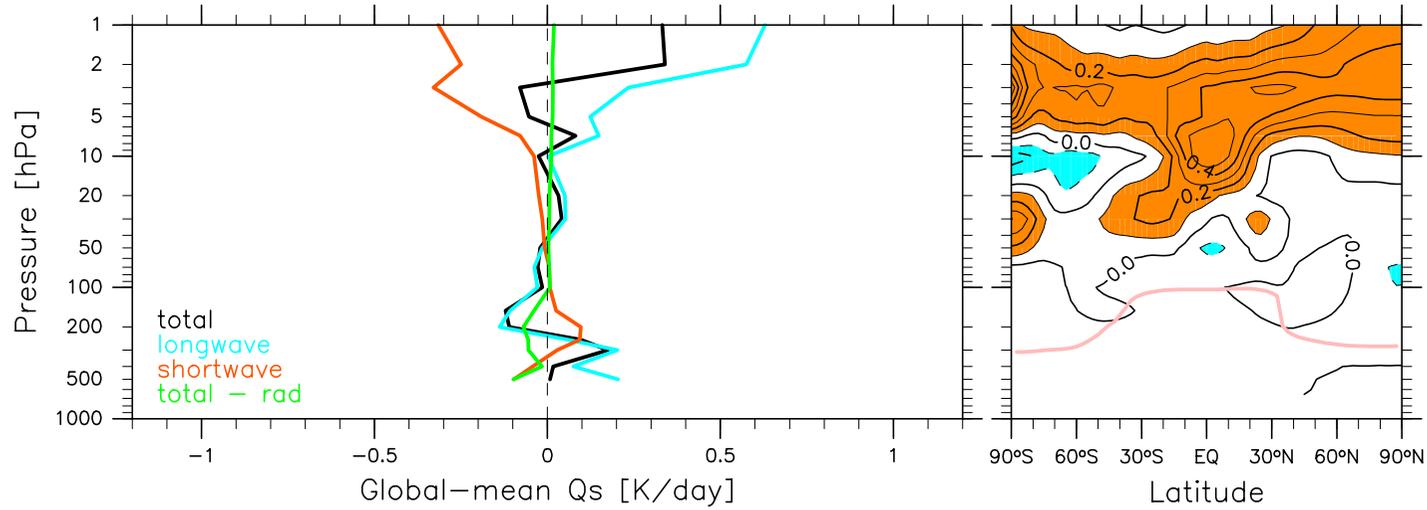
(c) $Q_{shortwave}$ [K/d]

(d) $Q_{total} - Q_{rad}$ [K/d]



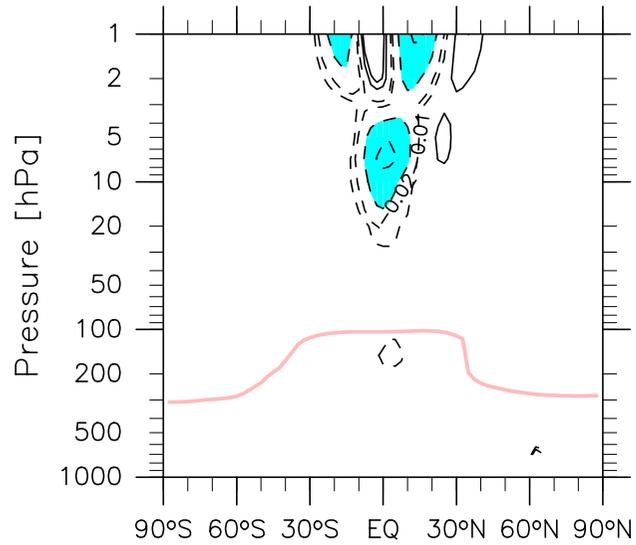
(e) Global-mean Q_s [K/d]

(f) Ozone [ppmv]



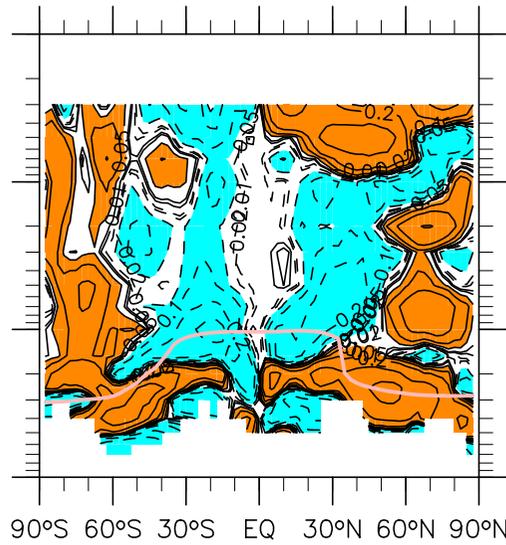
DJF (D80-F10)

(a) $\partial u / \partial t$

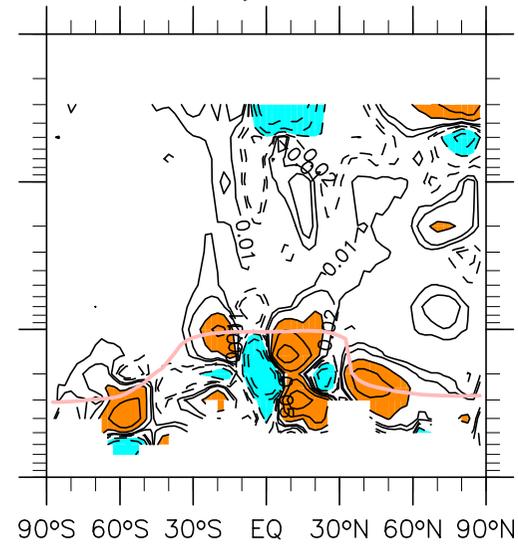


MERRA-2 - REM

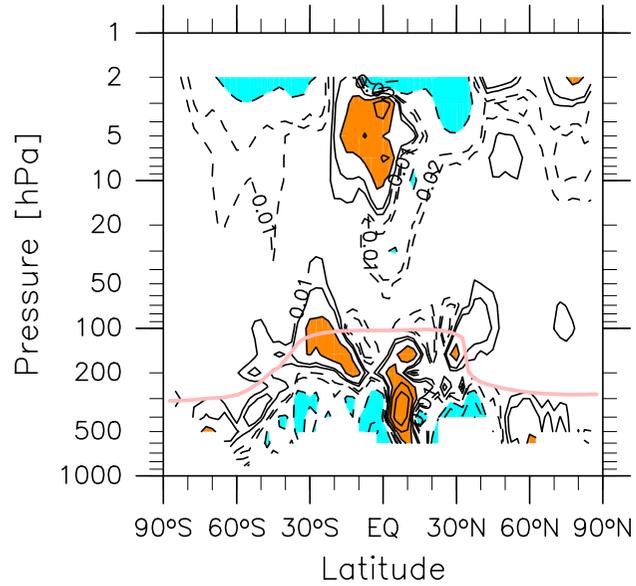
(b) $+fv^*$



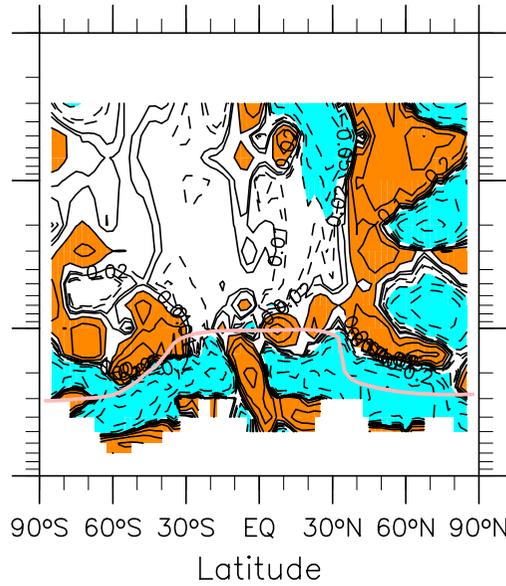
(c) $-v^* \partial u / \partial y$



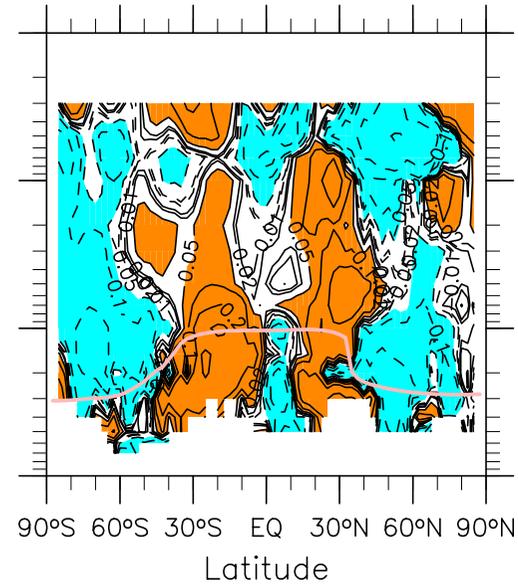
(d) $-\omega^* \partial u / \partial p$



(e) EPFD

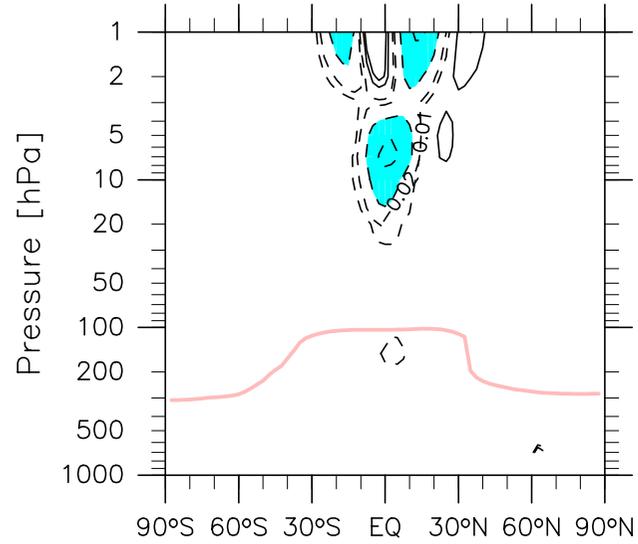


(f) Residual_u



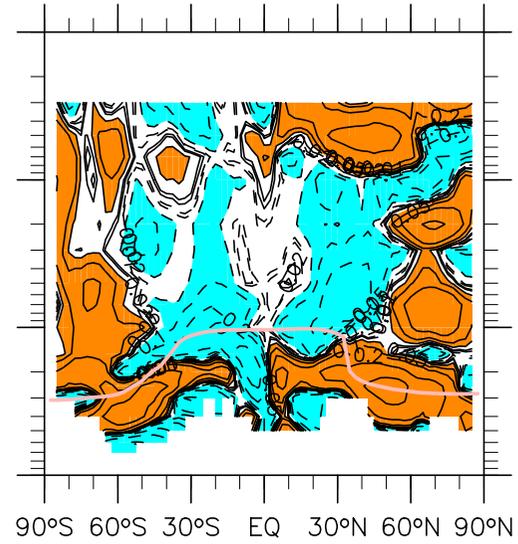
DJF (D80-F10)

(a) $\partial u / \partial t$

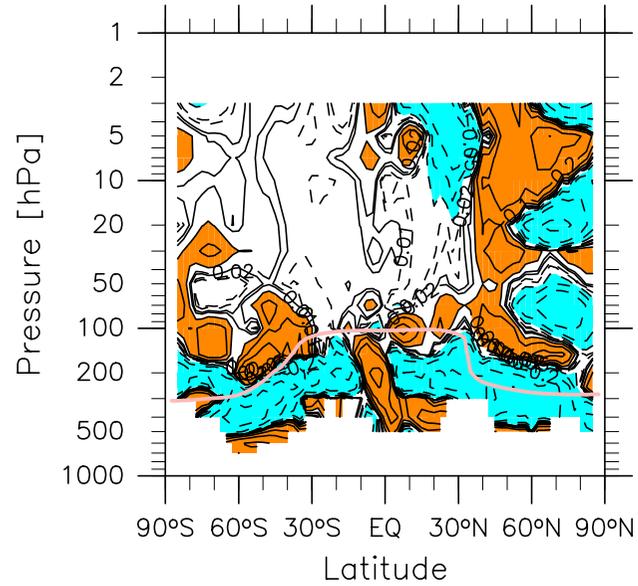


MERRA-2 - REM

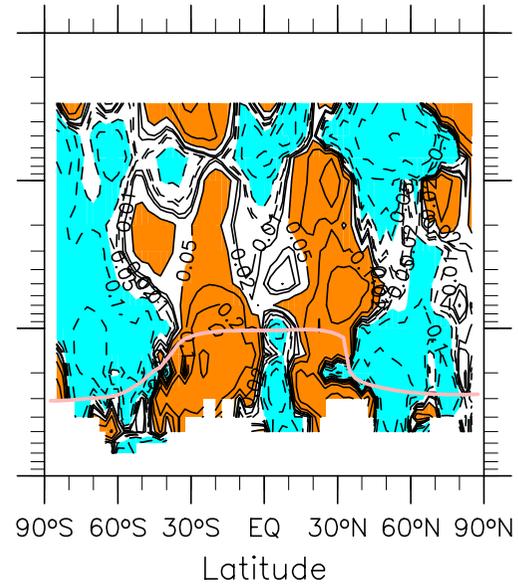
(b) $+fv^* - v^* \partial u / \partial y - \omega^* \partial u / \partial p$



(c) EPFD

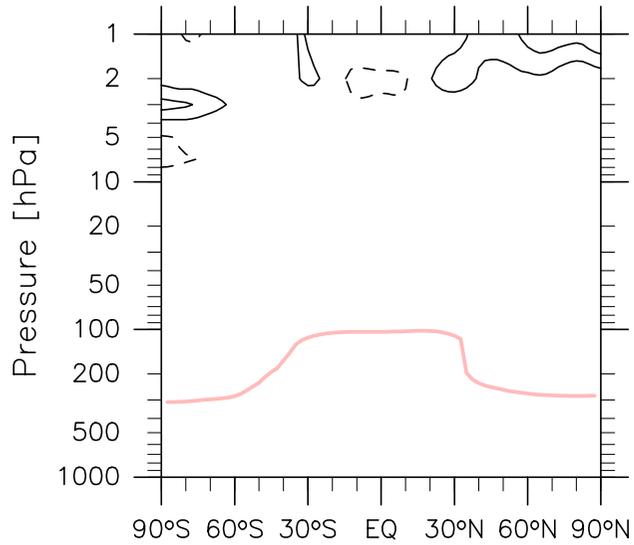


(d) Residual_u



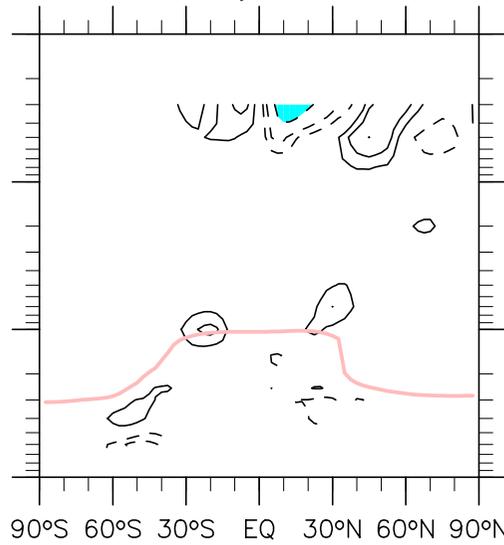
DJF (D80–F10)

(a) $\partial\theta/\partial t$

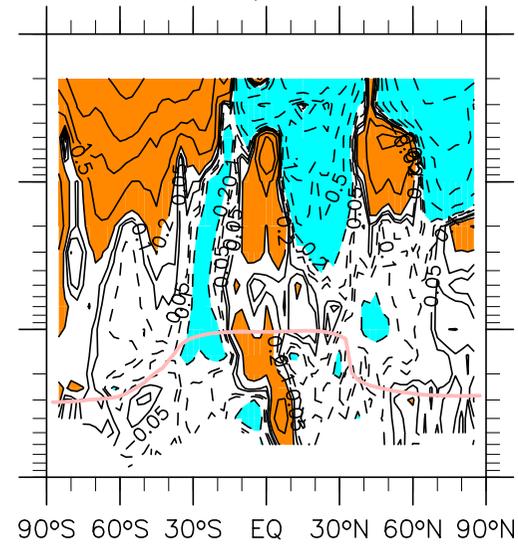


MERRA-2 – REM

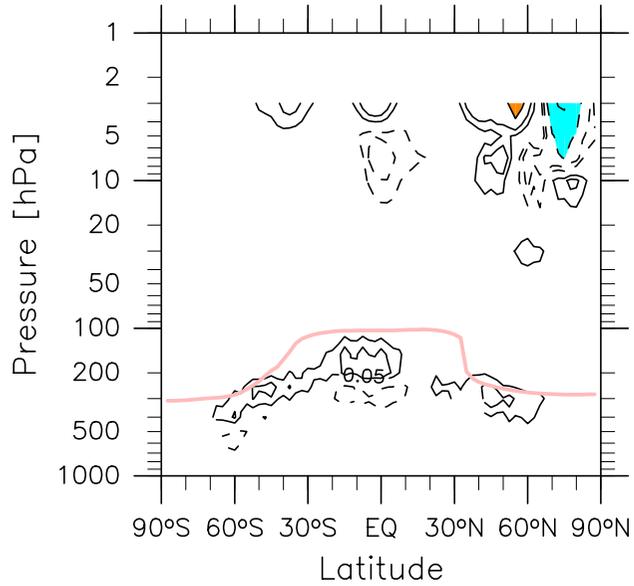
(b) $-v^* \partial\theta/\partial y$



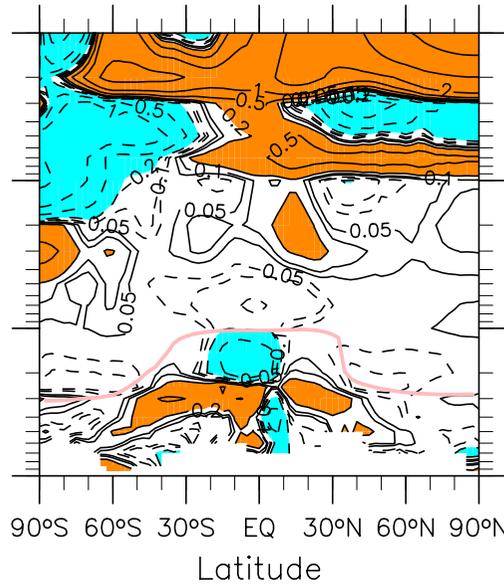
(c) $-\omega^* \partial\theta/\partial p$



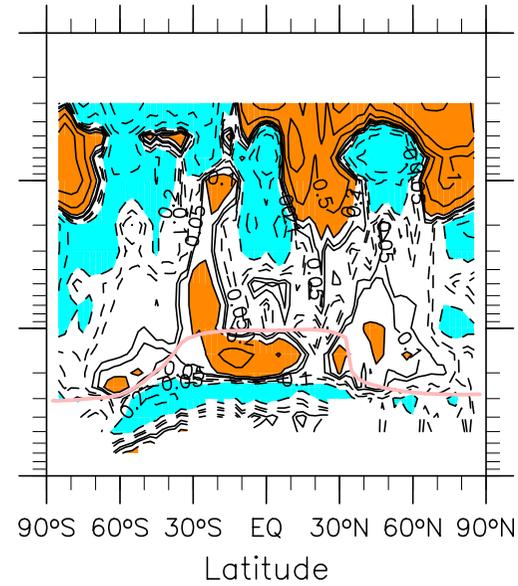
(d) TEM–thermo flux term



(e) Q_{total}

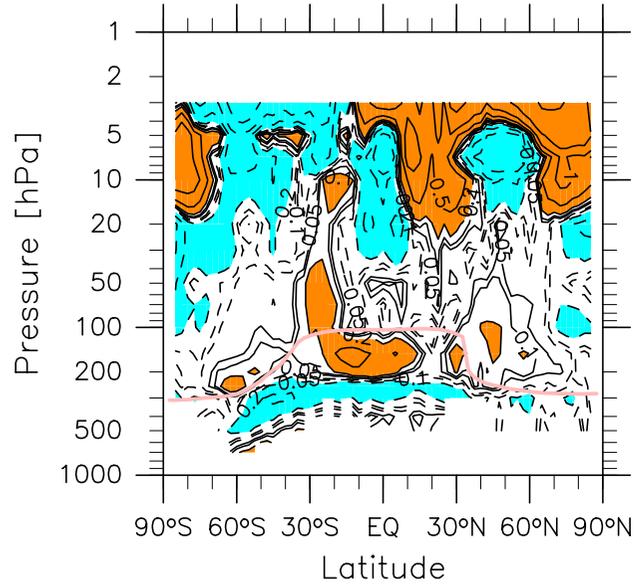


(f) Residual_θ

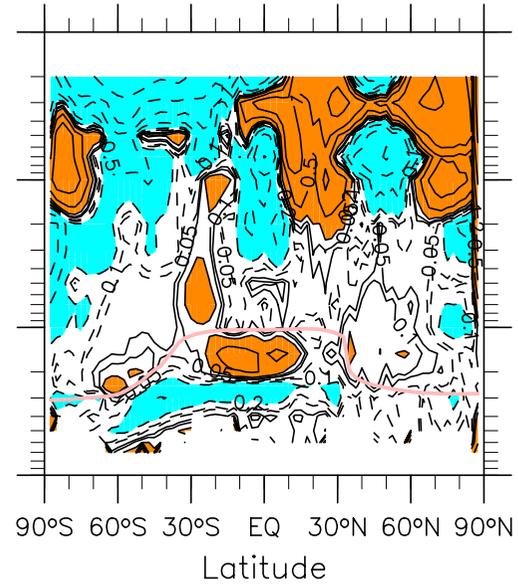


DJF (D80–F10)

(a) Residual_ θ (TEM)



(b) Residual_ θ (EM)



MERRA-2 – REM

(c) difference (TEM minus EM)

