

JJA (81-10)

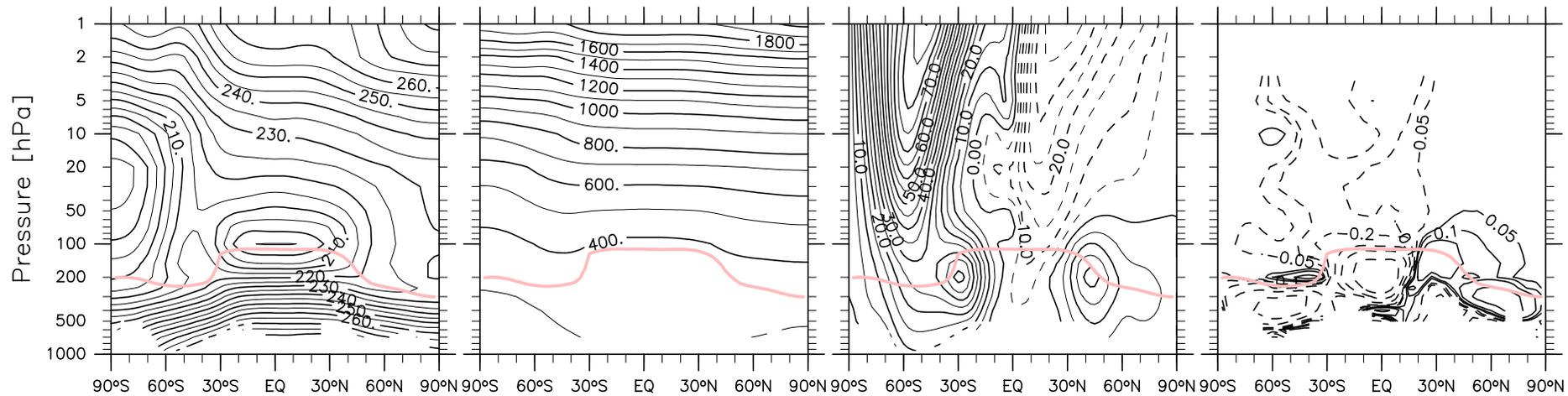
MERRA-2

(a) T [K]

(b)  $\theta$  [K]

(c) u [m/s]

(d)  $v_{res}$  [m/s]

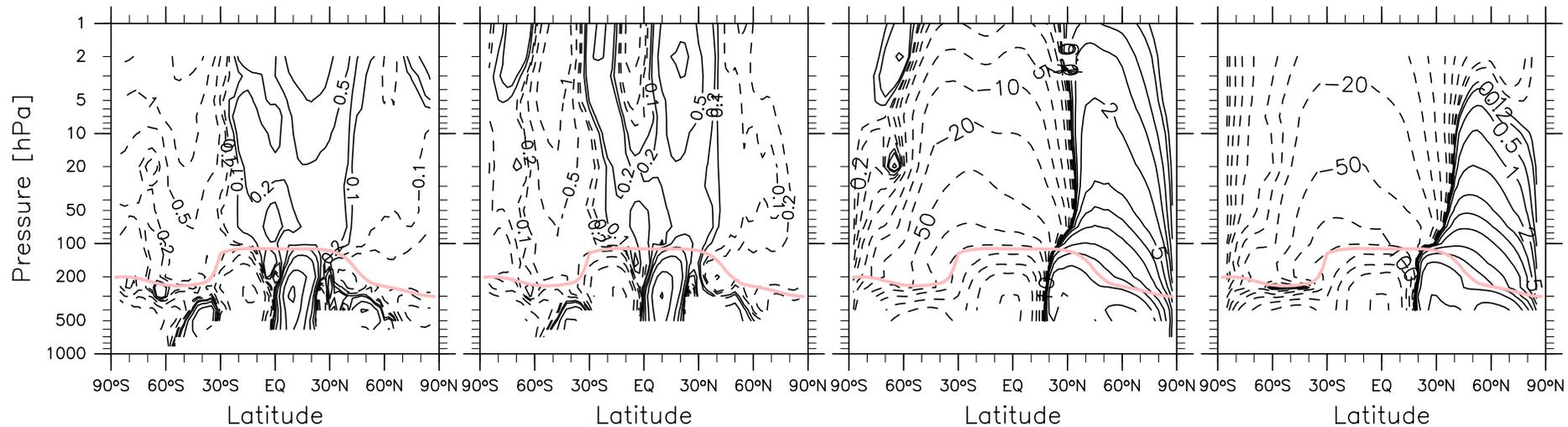


(e)  $w_{res}$  [mm/s]

(f)  $w_{res}$  from  $\psi_{vres}$  [mm/s]

(g)  $\psi_{vres}$  [kg/m/s]

(h)  $\psi_{wres}$  [kg/m/s]



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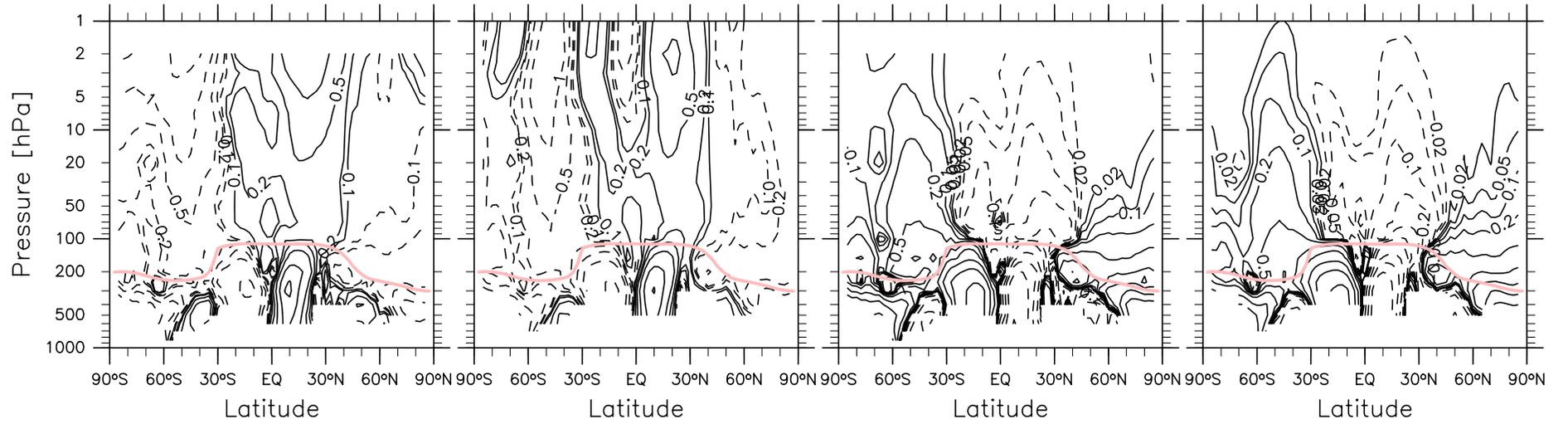
MERRA-2

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

(b)  $w_{res}$  from  $\psi_{vres}$  [mm/s]

(c)  $\omega_{res}$  [mPa/s]

(d)  $\omega_{res}$  from  $\psi_{vres}$  [mPa/s]



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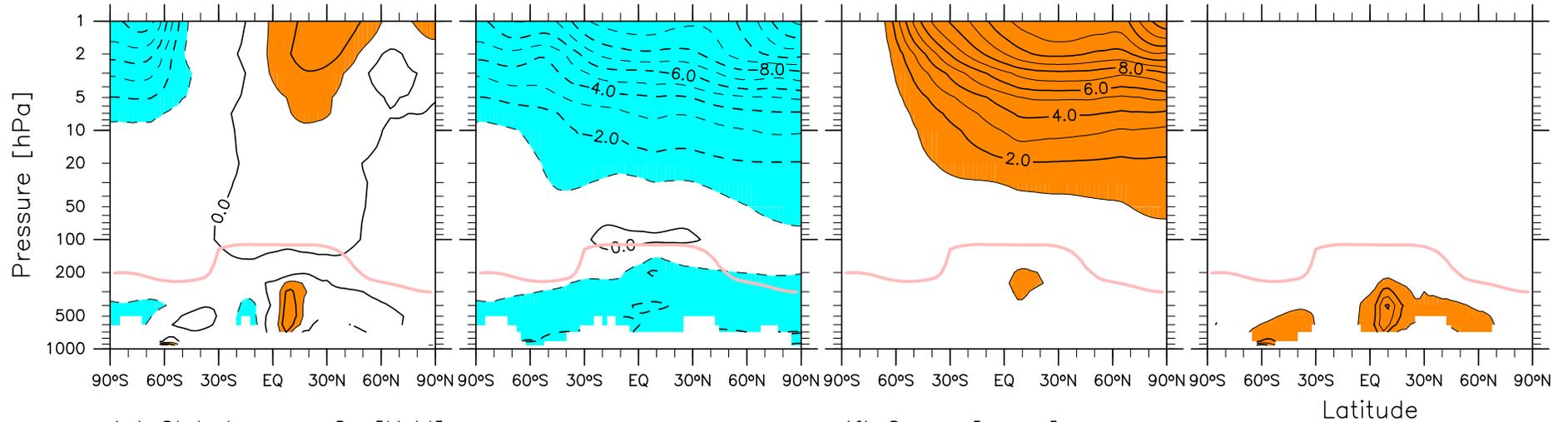
MERRA-2

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

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

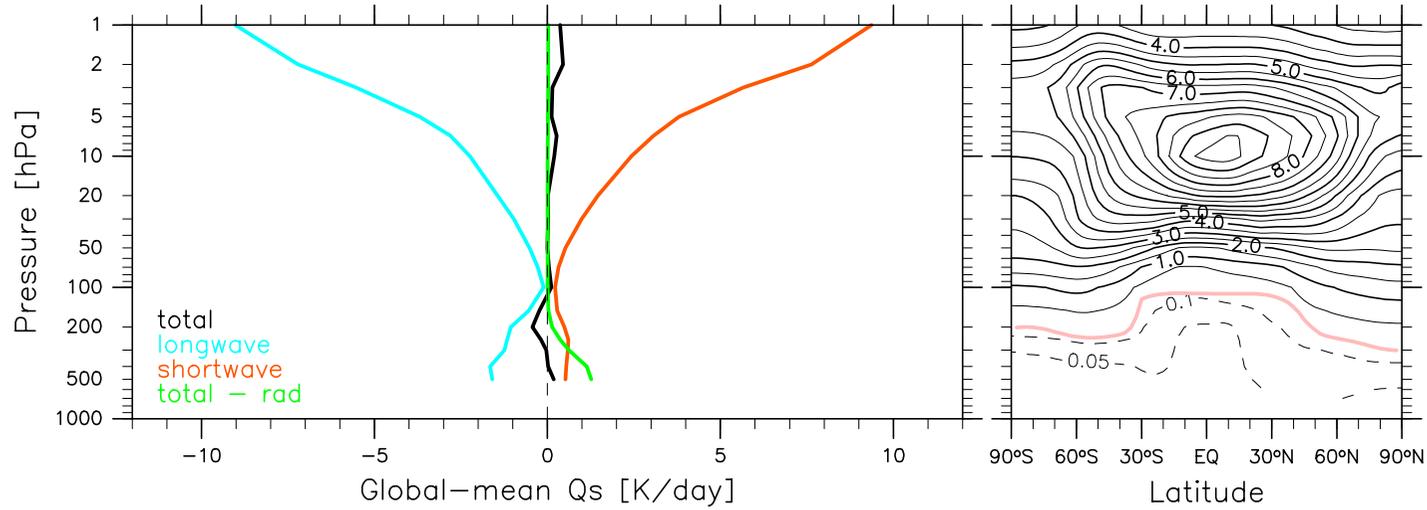
(c)  $Q_{shortwave}$  [K/d]

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



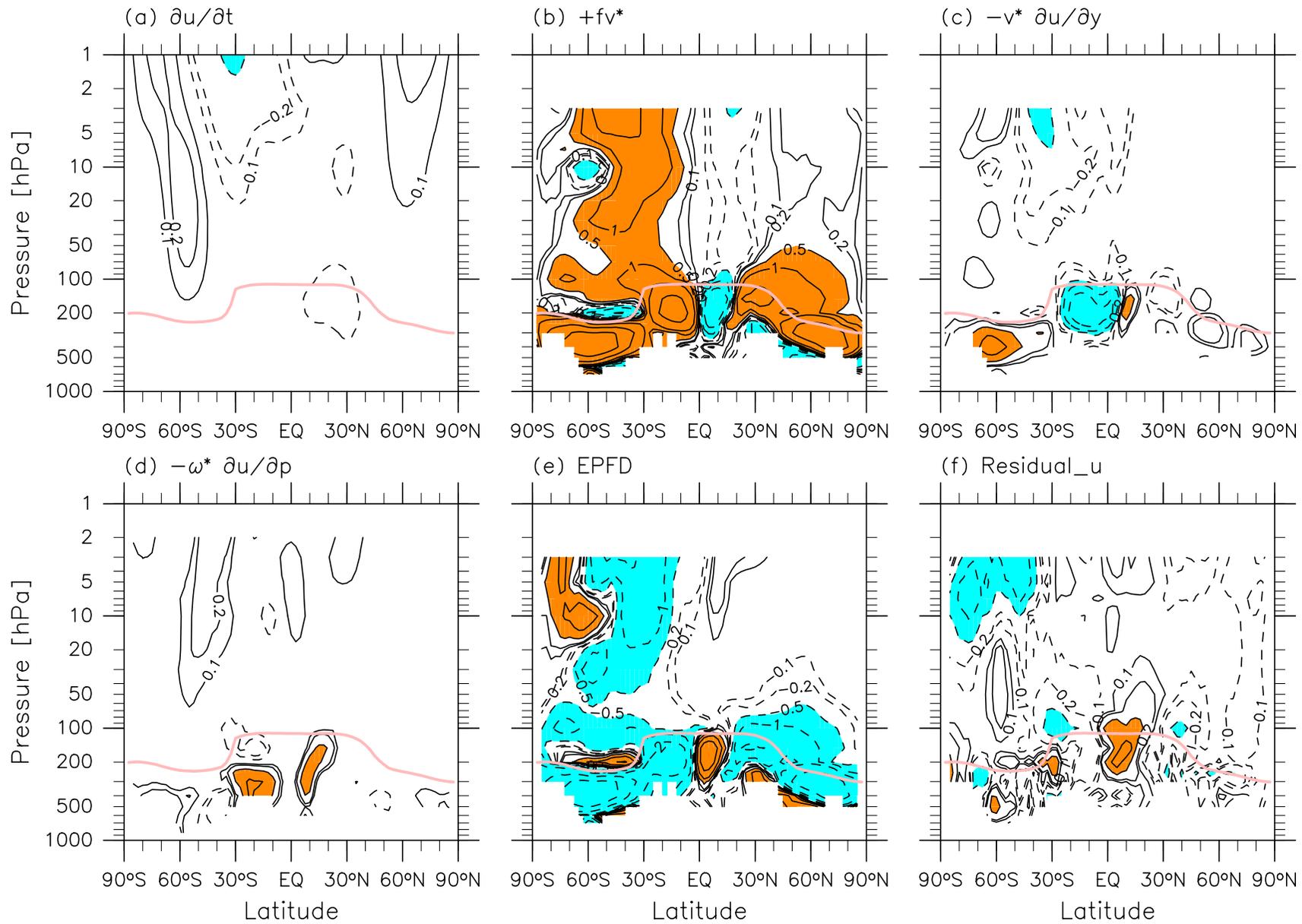
(e) Global-mean  $Q_s$  [K/d]

(f) Ozone [ppmv]



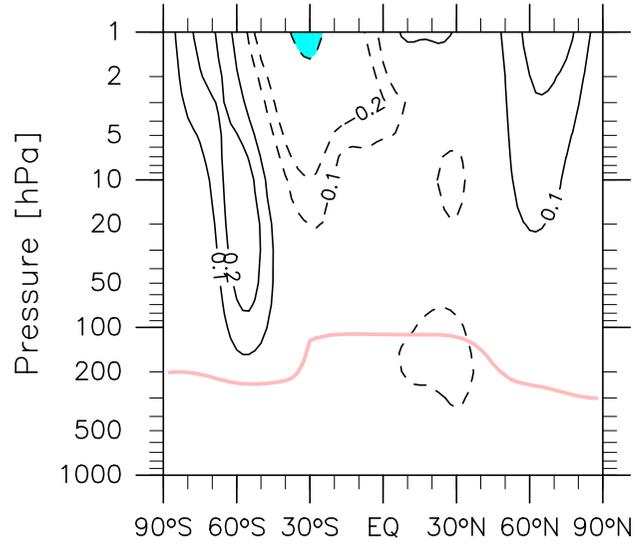
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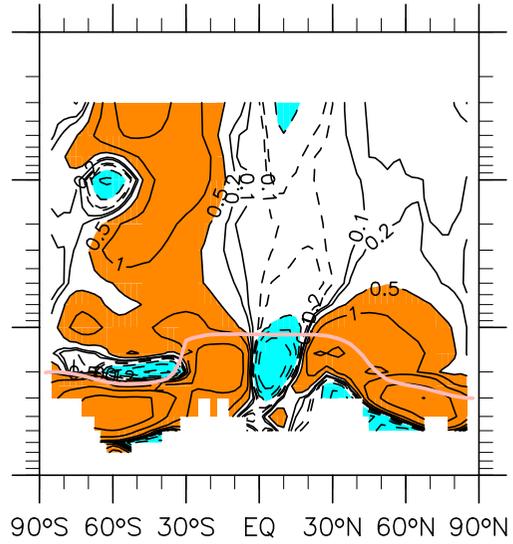
JJA (81-10)

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

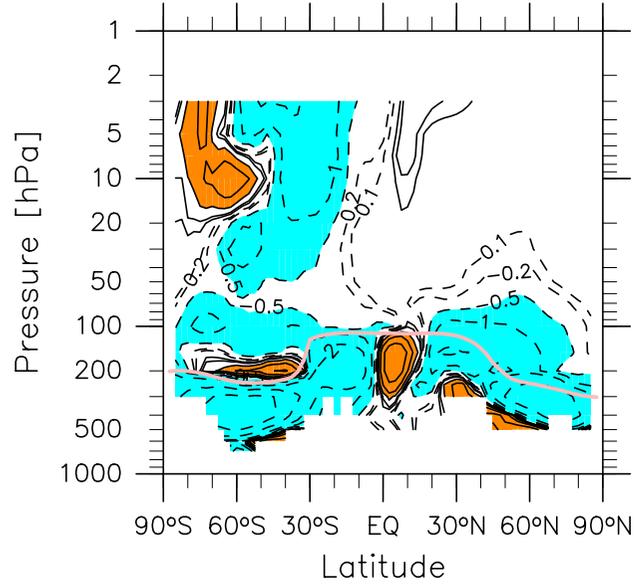


MERRA-2

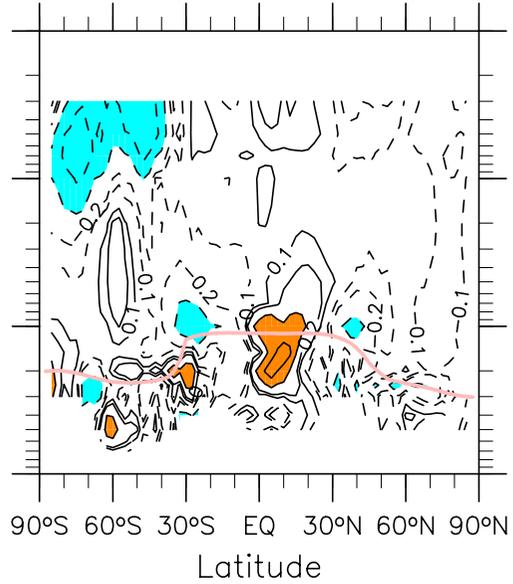
(b)  $+fv^* - v^* \partial u / \partial y - \omega^* \partial u / \partial p$



(c) EPFD



(d) Residual\_u



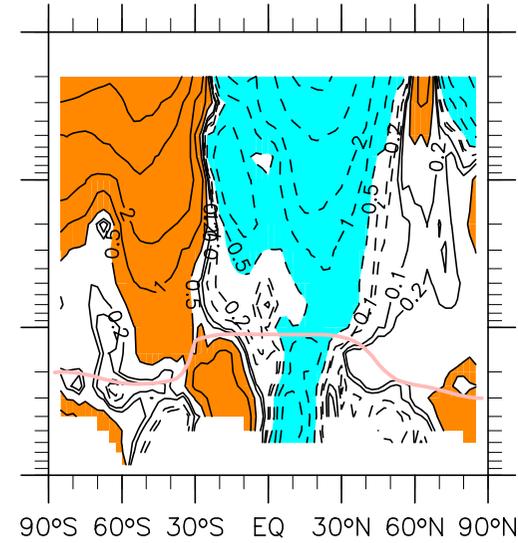
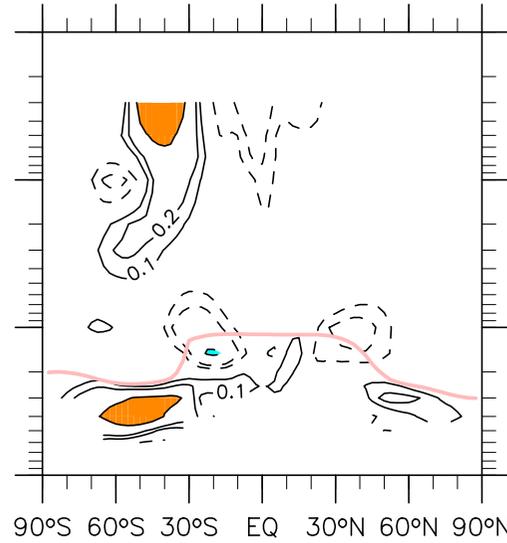
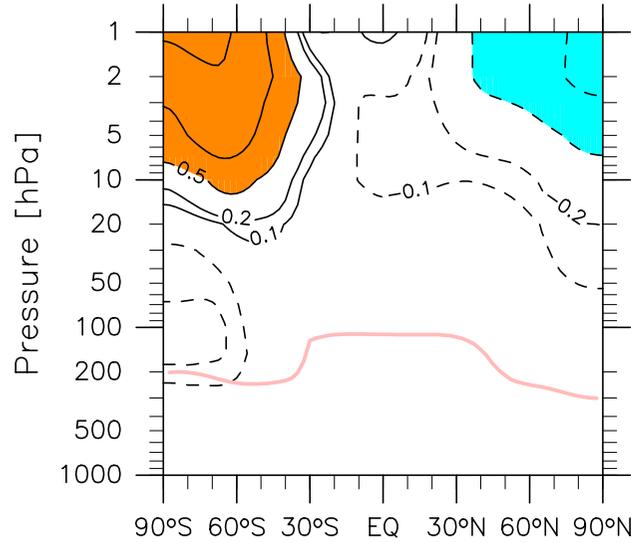
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MERRA-2

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

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

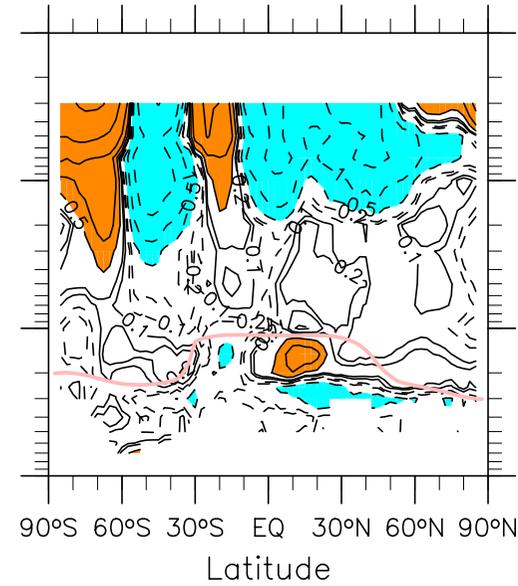
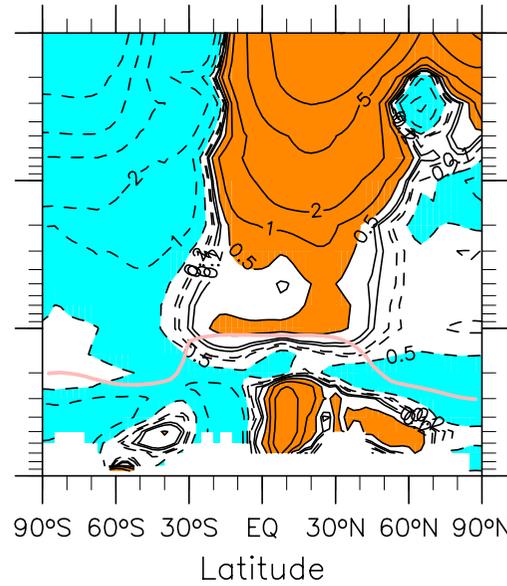
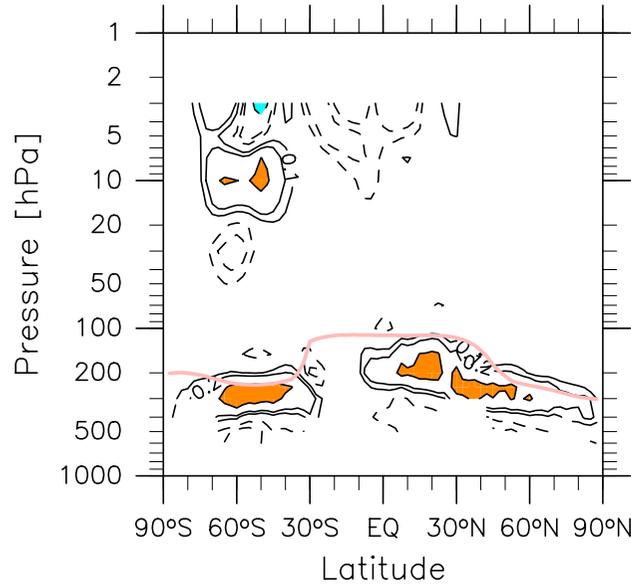
(c)  $-\omega^* \partial\theta/\partial p$



(d) TEM—thermo flux term

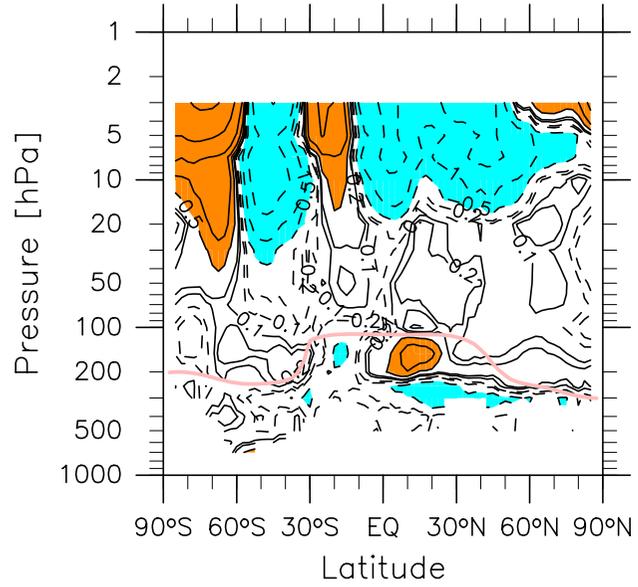
(e)  $Q_{total}$

(f) Residual\_θ

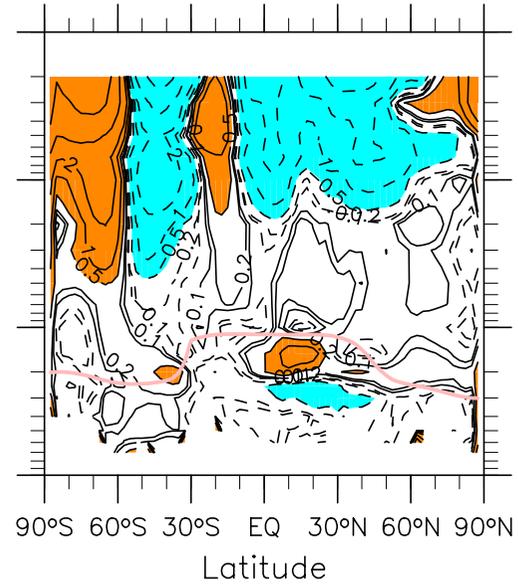


JJA (81–10)

(a) Residual\_θ (TEM)



(b) Residual\_θ (EM)



MERRA-2

(c) difference (TEM minus EM)

