

Development of Cyclones and Anticyclones



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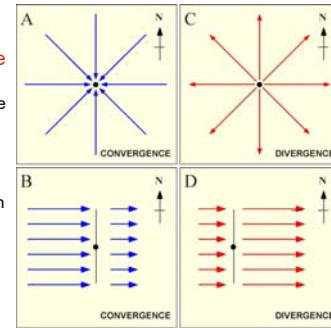
ATMS 103

Convergence and Divergence

Convergence

Acts to increase
air pressure

Associated with
lows



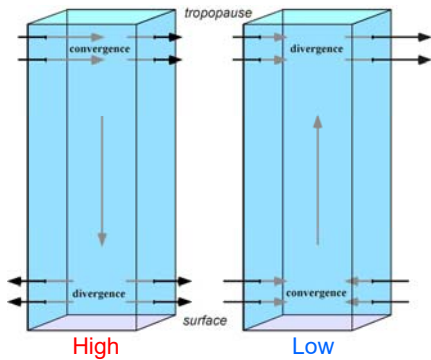
Divergence

Acts to decrease
air pressure

Associated with
highs

ATMS 103

Convergence and Divergence

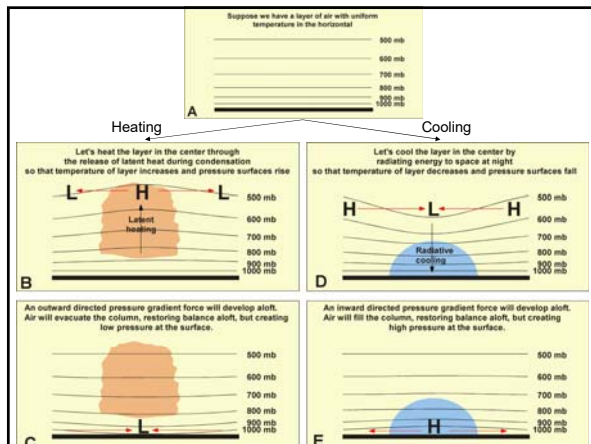


ATMS 103

Vertical Motion

- Convergence at the surface and divergence aloft lead to **ascending** (rising) air
 - Divergence aloft must be stronger for low to develop and maintain itself
- Divergence at the surface and convergence aloft lead to **descending** (sinking) air
 - Convergence aloft must be stronger for high to develop and maintain itself
- Air moves vertically to maintain **hydrostatic balance**

ATMS 103



ATMS 103

Development of Surface High and Low Pressure Systems

- Trough or ridge develops in flow aloft
- Leads to areas of convergence/divergence
 - Pressure rises or falls at the surface
- To strengthen, convergence/divergence aloft must be stronger than divergence/convergence at surface
- Friction acts to kill the system
- Eventually friction wins and dissipates pressure systems

