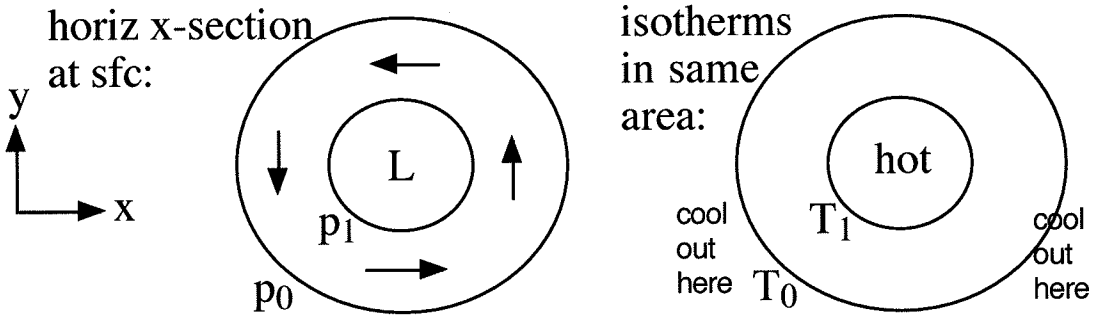
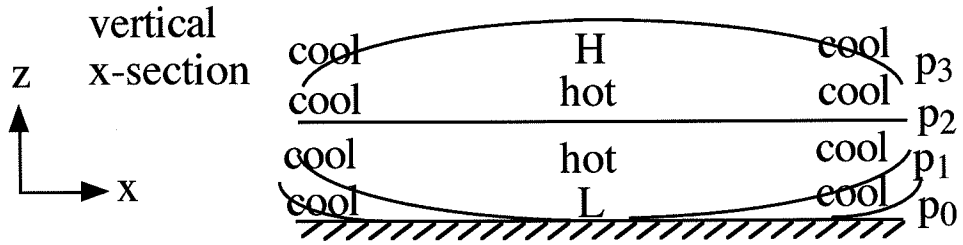
Structure of Heat low (thermal low at low levels)

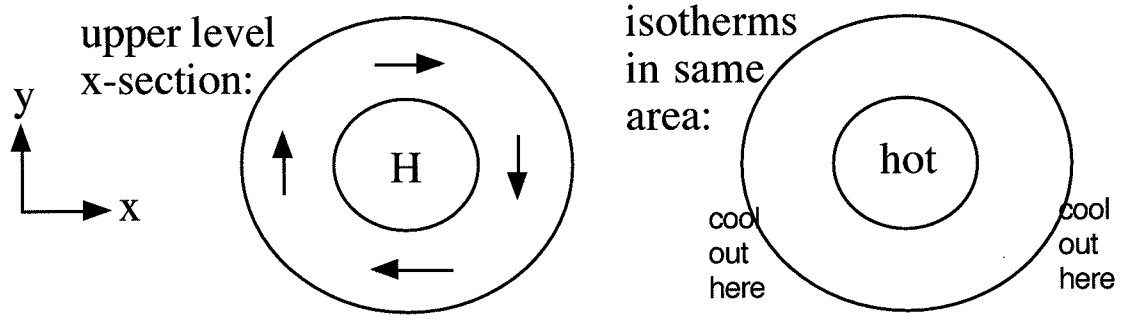
METR 3123, Atmospheric Dynamics II



vectors above are $\vec{V}_g$ vectors

If air in sfc low and above sfc low is hot, get a thermal high at upper levels.

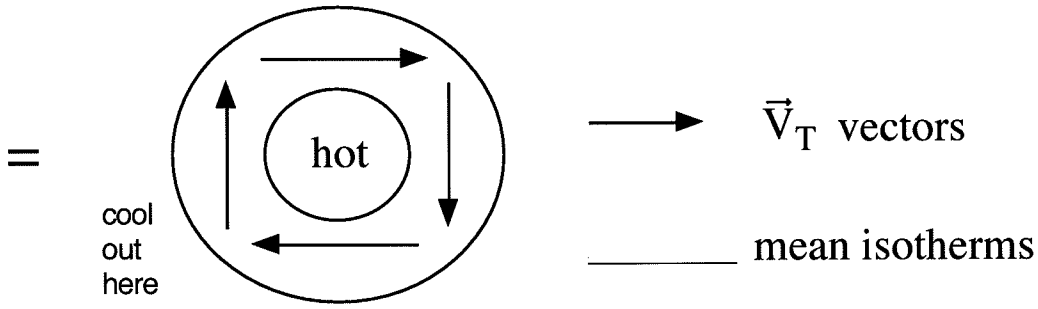




vectors above are $\vec{V}_g$ vectors

The solid lines in the left panel above can be interpreted as isobars (on an upper level constant height surface) or isoheights (on an upper level isobaric surface).

thermal wind $\vec{V}_T \equiv \vec{V}_{g\ \text{upper level}} - \vec{V}_{g\ \text{lower level}}$



Note that in agreement with the thermal wind theory,

$\vec{V}_T$ is parallel to mean isotherms, and

Cold air is to the left of $\vec{V}_T$.