

Cloud Formation Processes: Adiabatic Lifting

1) Convection due to heating of the ground

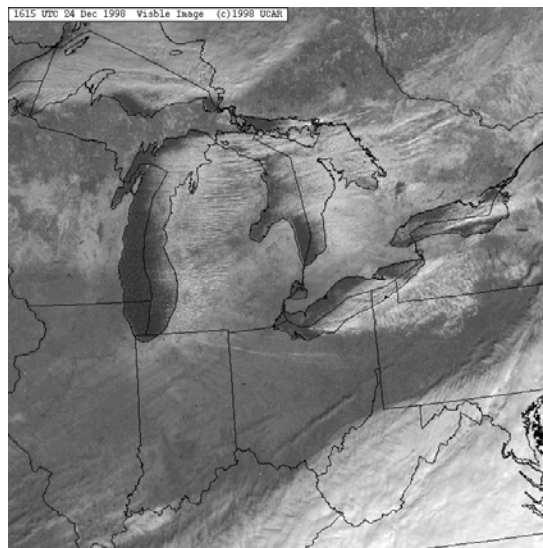
Example: "fair-weather cumulus"



Cloud Formation Processes: Adiabatic Lifting

2) Convection due to cold air passing over warm water

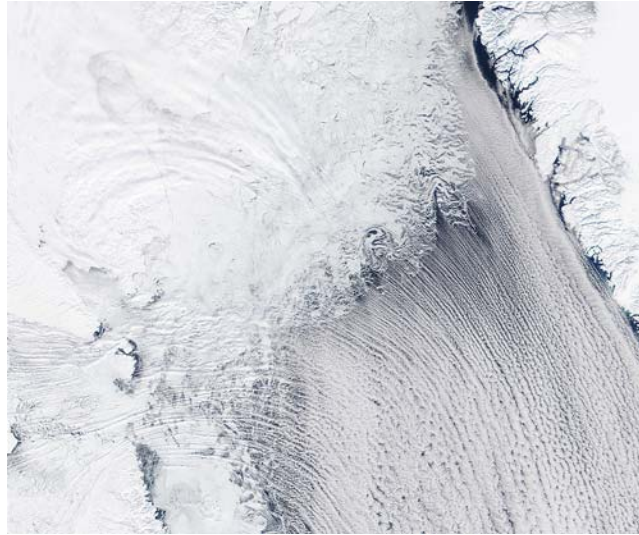
Example: "lake-effect snow bands"



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2) Convection due to cold air passing over warm water

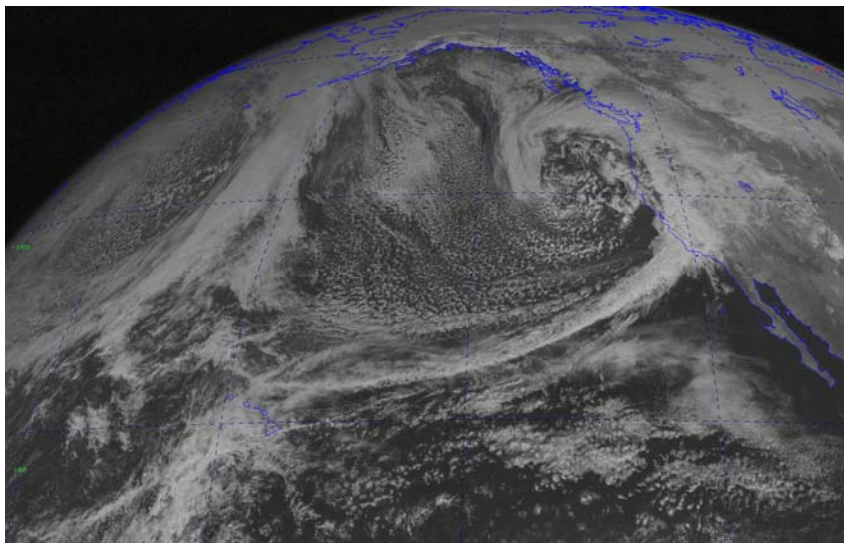
Example: "cloud streets"



Cloud Formation Processes: Adiabatic Lifting

2) Convection due to cold air passing over warm water

Example: "post-frontal open-cellular convection in NE Pacific"



Cloud Formation Processes: Adiabatic Lifting

3) Convection due to convergence

Example: "sea-breeze convergence boundary"

http://www.srh.noaa.gov/mfl/newpage/research/gif/sat_anim.gif

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3) Convection due to convergence

Example: "Puget Sound Convergence Zone"



Cloud Formation Processes: Adiabatic Lifting

4) Convection due to release of convective instability aloft

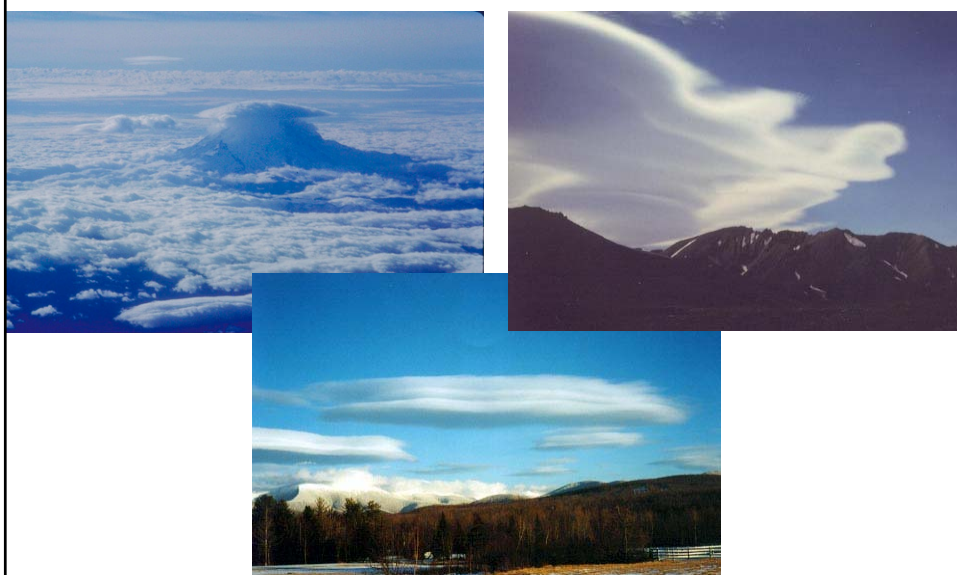
Example: "altocumulus castellanus"



Cloud Formation Processes: Adiabatic Lifting

5) Forced lifting by orographic ascent

Example: "lenticular clouds"



Cloud Formation Processes: Adiabatic Lifting

5) Forced lifting by orographic ascent

Example: "orographic clouds"

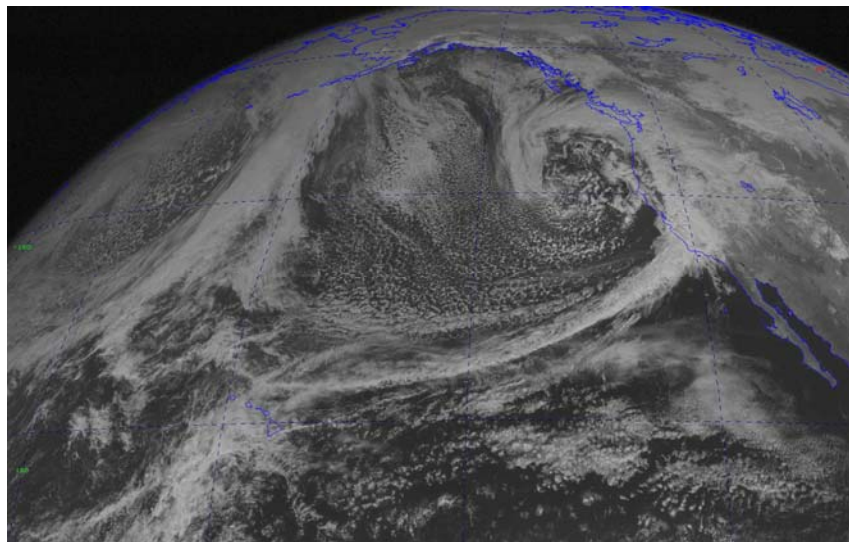
<http://www.atmos.washington.edu/~ovens/loops/wxloop.cgi?vis1km+/48h/0.5h>

http://atoc.colorado.edu/~cassano/weather/lee_waves_mar2005/vis_sat_WMC.html

Cloud Formation Processes: Adiabatic Lifting

6) Forced lifting by frontal ascent

http://www.classzone.com/books/earth_science/terc/content/visualizations/es2002/es2002page01.cfm?chapter_no=visualization



Cloud Formation Processes: Other Adiabatic Cooling

7) Rotational pressure reduction

Example: "funnel clouds / tornadoes"



Cloud Formation Processes: Other Adiabatic Cooling

7) Rotational pressure reduction

Example: "wing-tip vortices"



Cloud Formation Processes: Non-Adiabatic Cooling

8) Mixing of air of different temperatures

Example: "seeing your breath"

Cloud Formation Processes: Non-Adiabatic Cooling

8) Mixing of air of different temperatures

Example: "seeing your breath", "contrails"



Cloud Formation Processes: Non-Adiabatic Cooling

9) Fog

Types: Radiation Fog



Cloud Formation Processes: Non-Adiabatic Cooling

9) Fog

Types: Radiation Fog (cont.)



Cloud Formation Processes: Non-Adiabatic Cooling

9) Fog

Types: Radiation Fog (cont.)

http://www.srh.noaa.gov/mfl/newpage/research/gif/sat_anim.gif

Cloud Formation Processes: Non-Adiabatic Cooling

9) Fog

Types: Advection Fog

