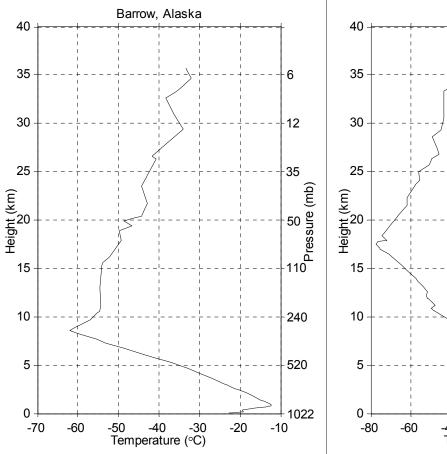
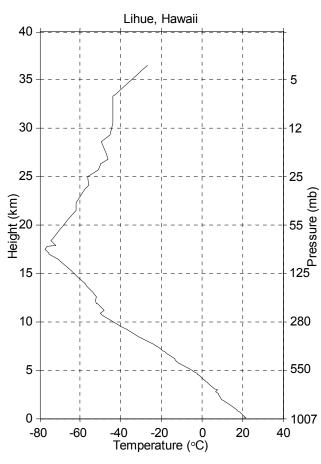
Atmospheric Sciences 101, Spring 2003 Homework #1 - Due in section Thursday/Friday, 10/11 April 1. Precipitation across Washington State varies tremendously from location to lo due to many features, some of which include predominant storm tracks as wel existence of mountainous regions. We will compare five locations across the sconsider their average annual precipitation. First locate the following locations Seattle, Forks, Yakima, Olympia, and Spokane on a state map. Once located, 1961-1990 average annual precipitation data across Washington State to rank amounts of precipitation experienced at these locations, on average, from wett driest. Be sure to also include the precipitation amounts (the range shown on reaction (Average Annual Precipitation Data for Washington is located at the following http://www.ocs.orst.edu/pub/maps/Precipitation/Total/States/WA/wa.gif)	aries treme clude pred vill compa on. First le pokane on data acros these loca itation am Washingto pitation/T	mendously edominant pare five la locate the locate the locate the locate the locations, or mounts (to the locations) and the locations of the	y from t storm location e follow map. O ington the range cated at tes/WA	location to tracks as was across the wing located State to rarge, from was shown on the follow www.wa.gif)	loca vell a e sta ons: l, use lk the ettes n ma
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	July 15 th hoenix, Ar December	Arizona			C
2b. Specify whether the following are example radiation. A microwave heating your food Ashes rising above a fire Your mug filled with hot coffee feels warm You feel warm when facing the sun An eagle soaring without flapping its wings on		es of o	es of convection	es of convection OR c	es of convection OR conduction Conduction

3. Consider a red balloon and a burning red coal. In the light both appear red. However, when it is dark you are no longer able to see the balloon yet the coal still shines red. Explain why this is so.

4. The following figure shows soundings (temperatures at different heights or pressure levels) from Barrow, Alaska, and Lihue, Hawaii. The soundings were taken at the same time, 12:00 GMT (3:00 am Alaska Time, 2:00 am Hawaii Time) on 31 March 2003. Use them to answer the questions that follow.





a.	Approximately what is the height (km) and pressure level (mb) of the tropopause at
	Lihue, HI?
	Barrow, AK?
b.	At which station is the coldest temperature recorded? Approximately what is this temperature and at what height is it observed?
c.	Approximately what is the temperature (Please give your answers in both °F and °C) at 5 km at
	Lihue, HI?
	Barrow, AK?
d.	Which station has a temperature inversion near the surface?
5.	In what range of wavelengths would a cream have to absorb for it to be an effective sunscreen? Please give the range in micrometers (μ m) and the name for the range (visible, UV, IR, radio, etc.). Hint: see page 33 in EOM text.
	In what range of wavelengths does an atmospheric gas have to absorb for it to be an effective greenhouse gas? Again, please give the range in micrometers and the name.