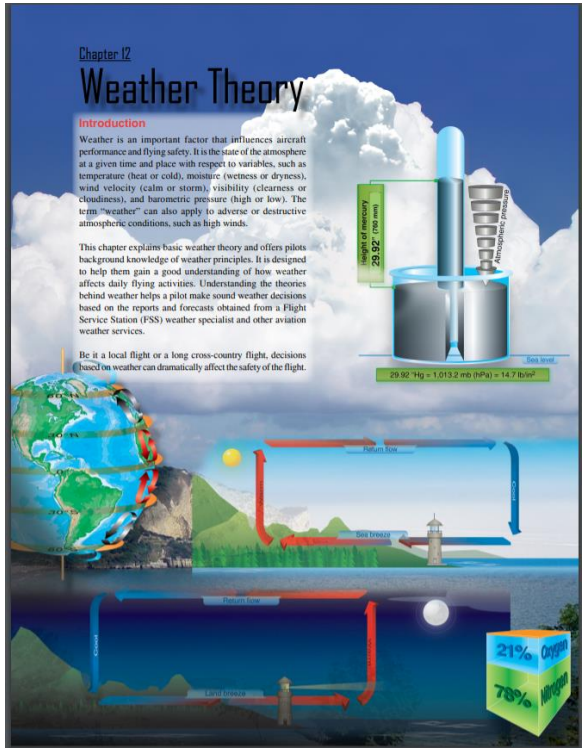
PRIVATE PILOT COURSE

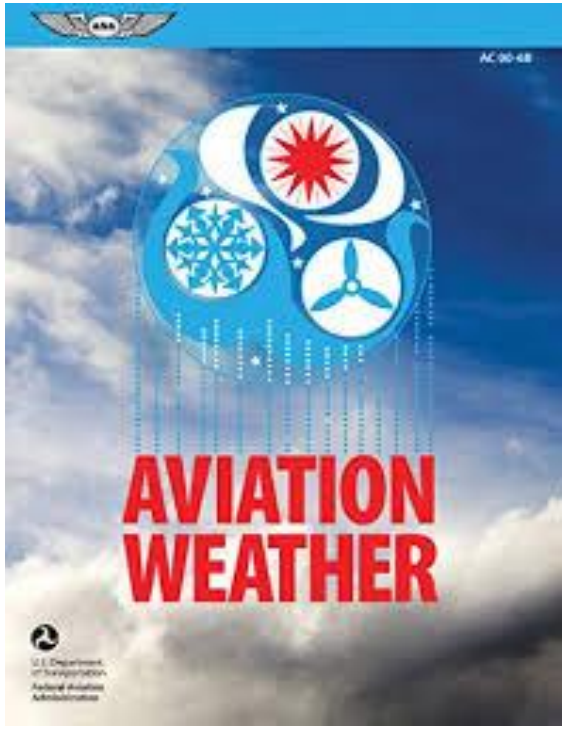
WEATHER THEORY

RAINIER
FLIGHT SERVICE

WEATHER THEORY



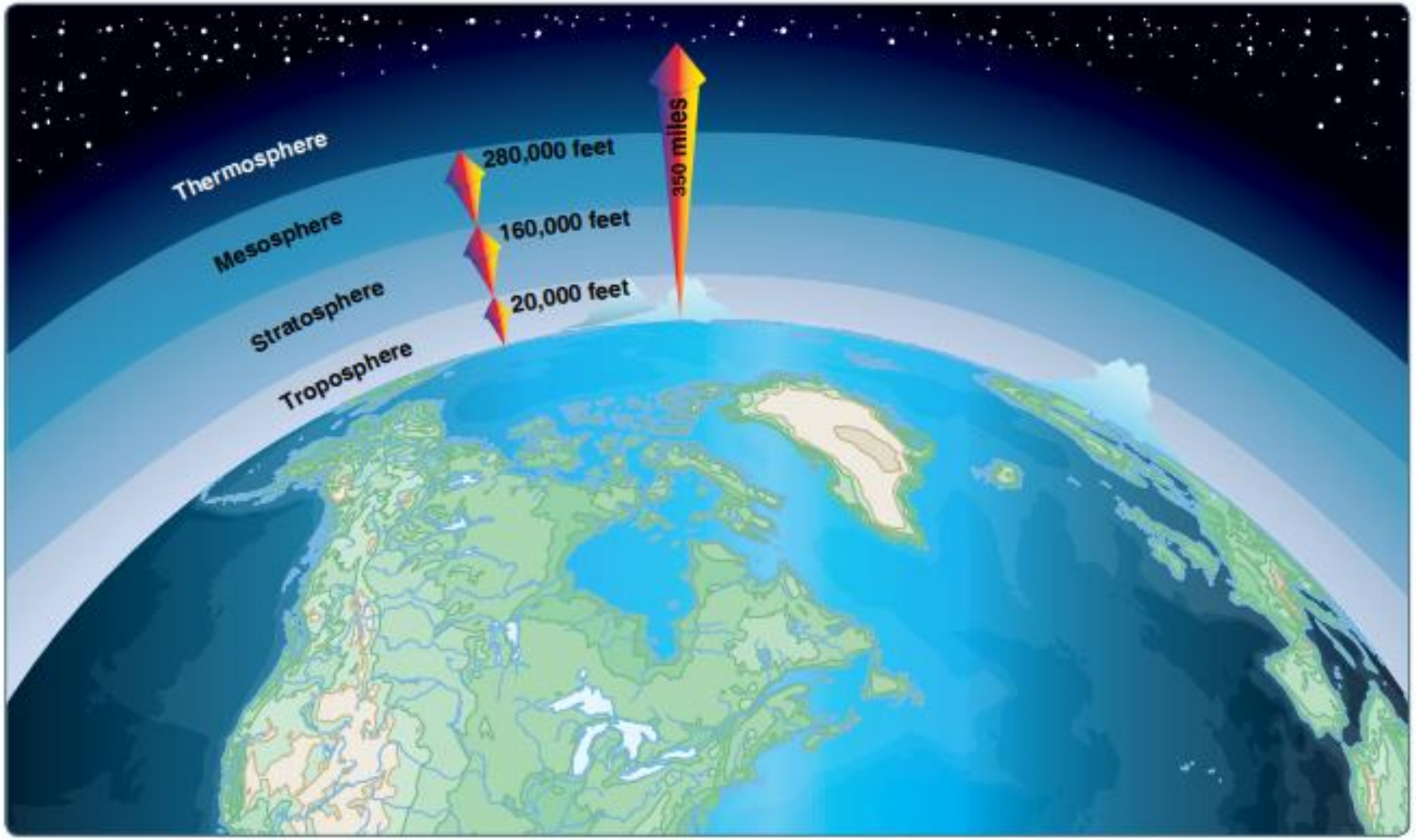
PHAK



AC 00-6B - Aviation Weather

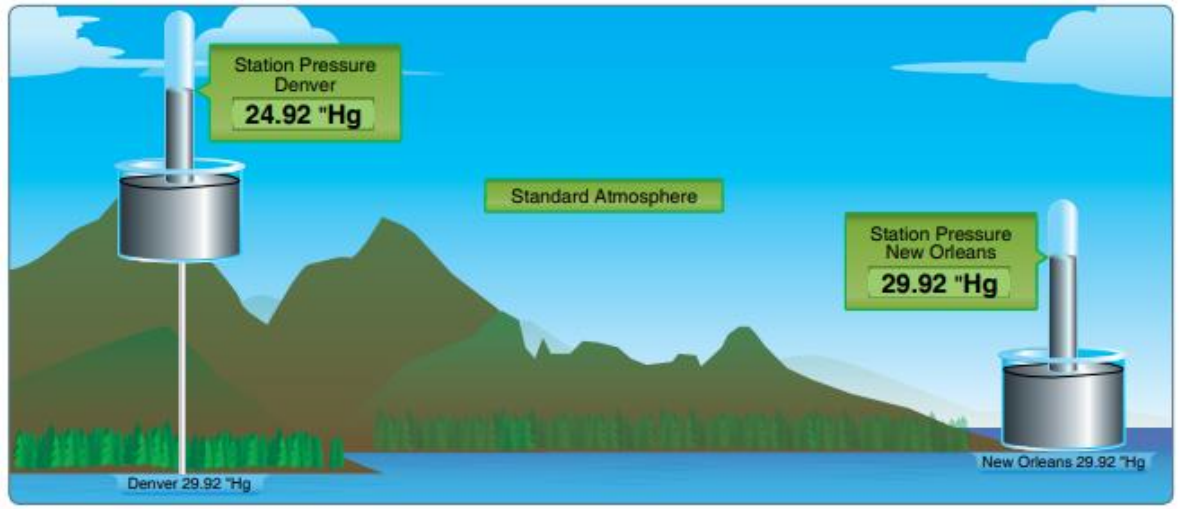
RAINIER FLIGHT SERVICE

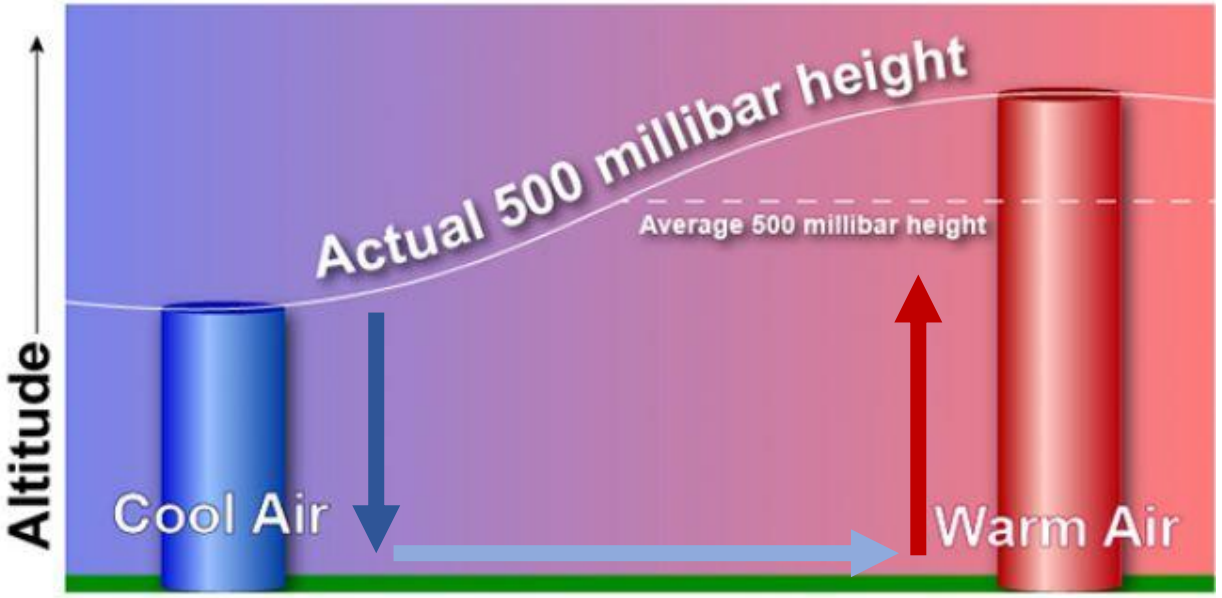
THE ATMOSPHERE



RAINIER FLIGHT SERVICE

ATMOSPHERIC PRESSURE

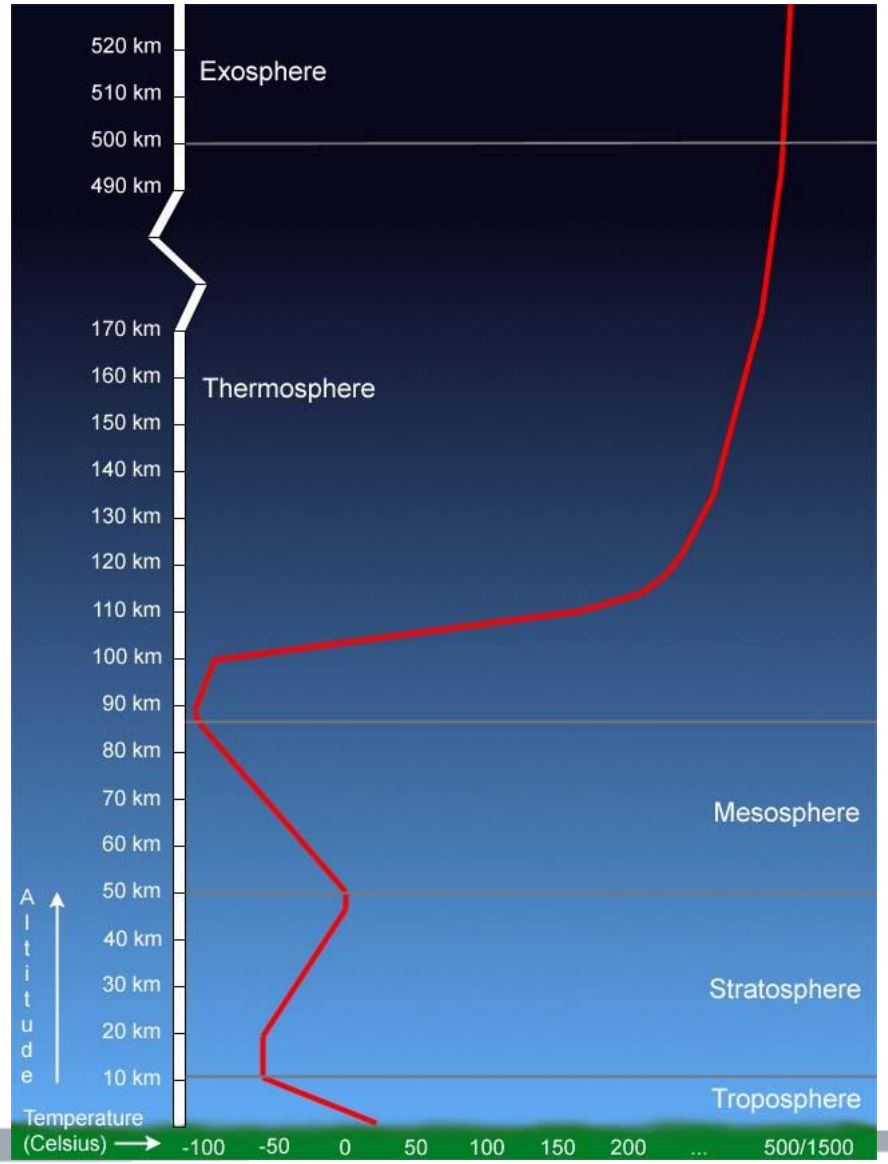


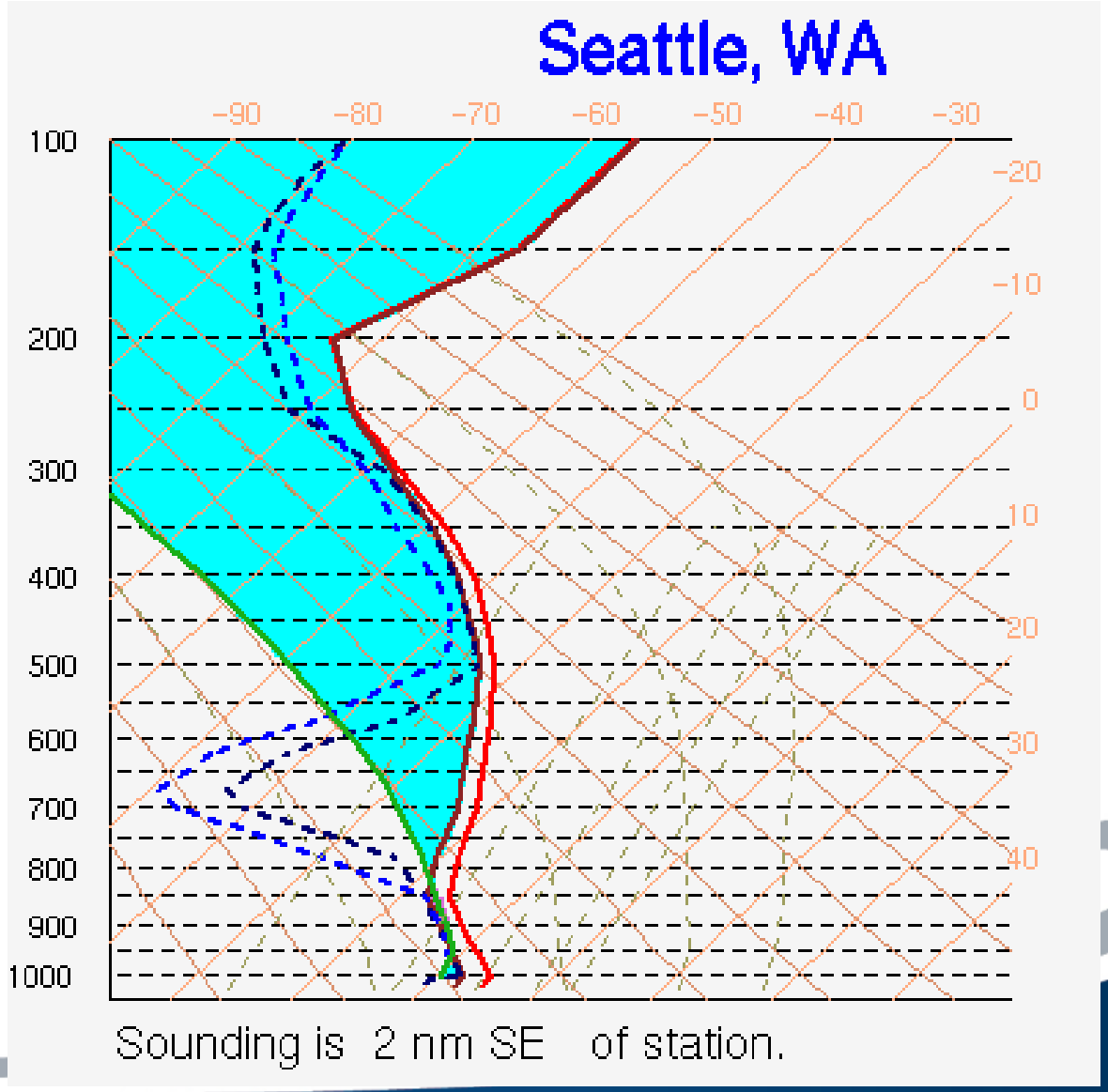


Compresses
H

Expands
L

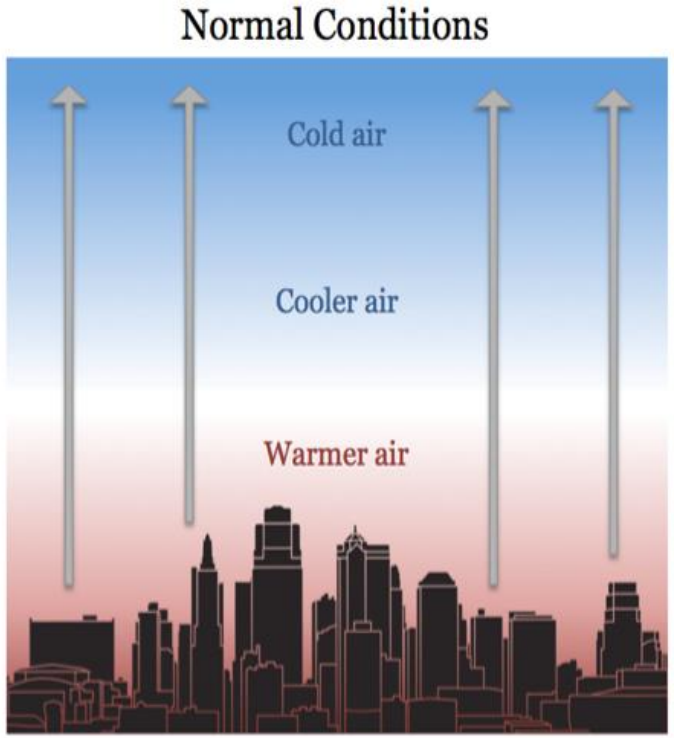
ATMOSPHERIC TEMPERATURE

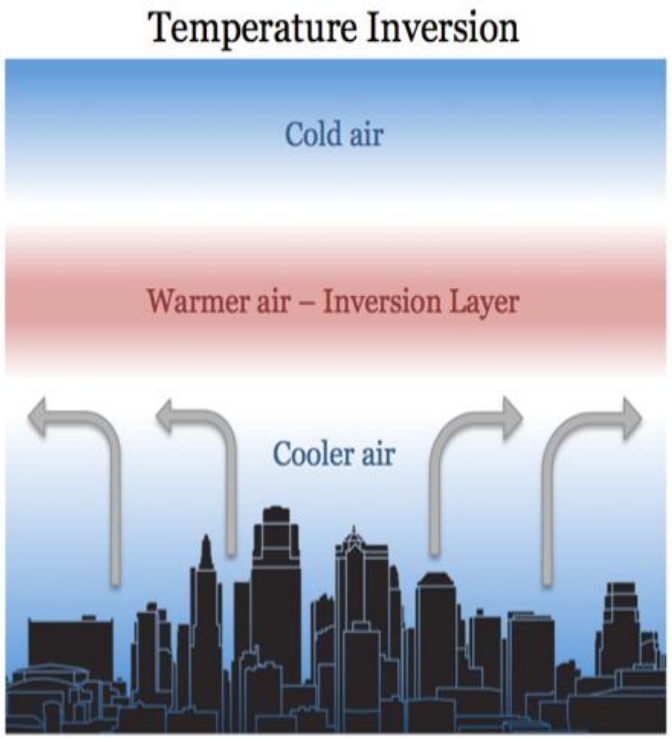




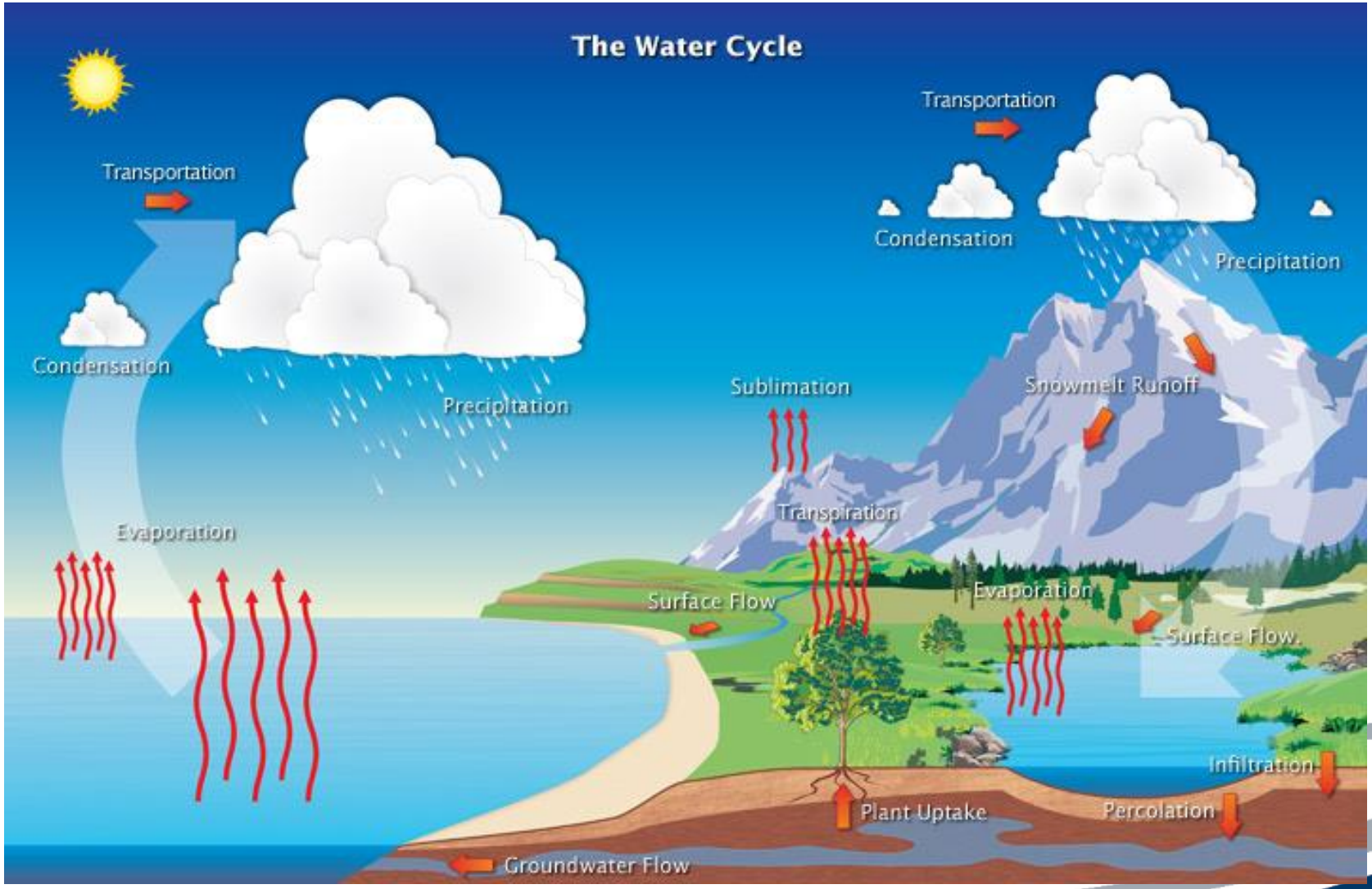
RAINIER FLIGHT SERVICE

ATMOSPHERIC TEMPERATURE INVERSIONS

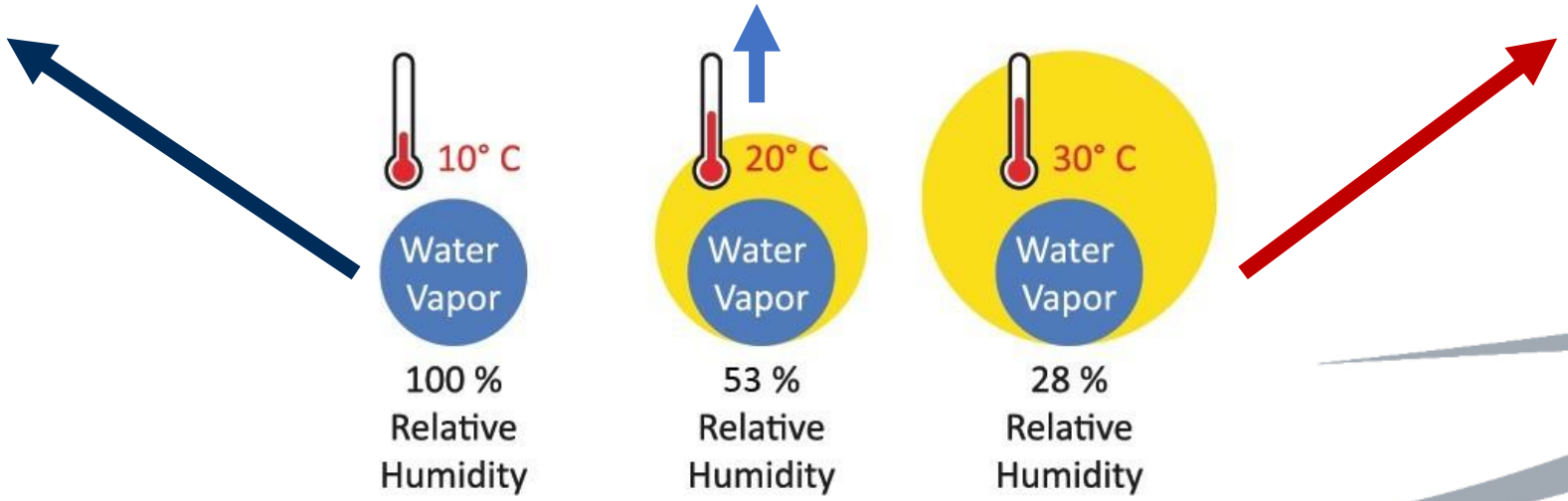




HYDROLOGIC CYCLE

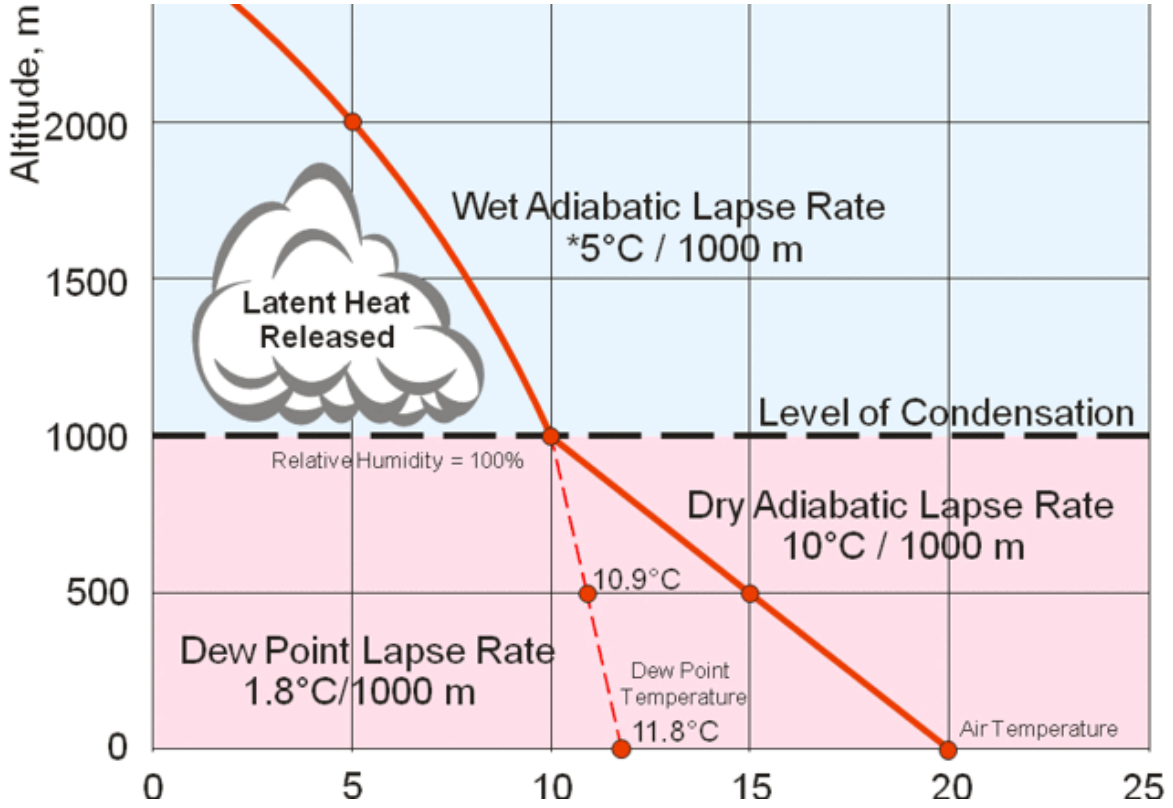


ATMOSPHERIC MOISTURE



RAINIER FLIGHT SERVICE

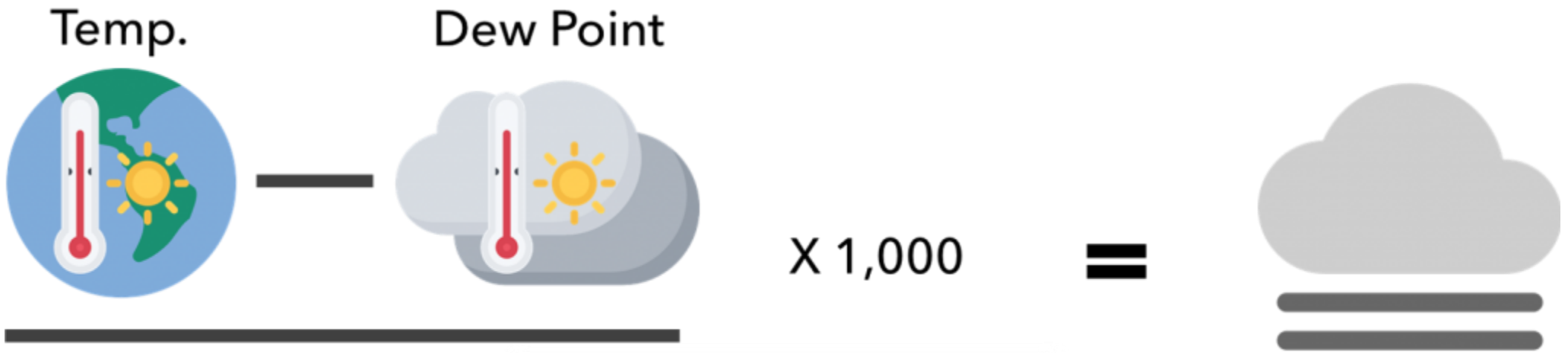
TEMPATURE / DEW POINT RELATIONSHIP



- Unsaturated air cools at 5.4F/3C per 1,000ft
- Dew point cools at a rate of 1F/.5C per 1,000ft
- Converge at a rate of 4.4F/2.5C per 1,000ft

RAINIER FLIGHT SERVICE

CALCULATING CLOUD BASES

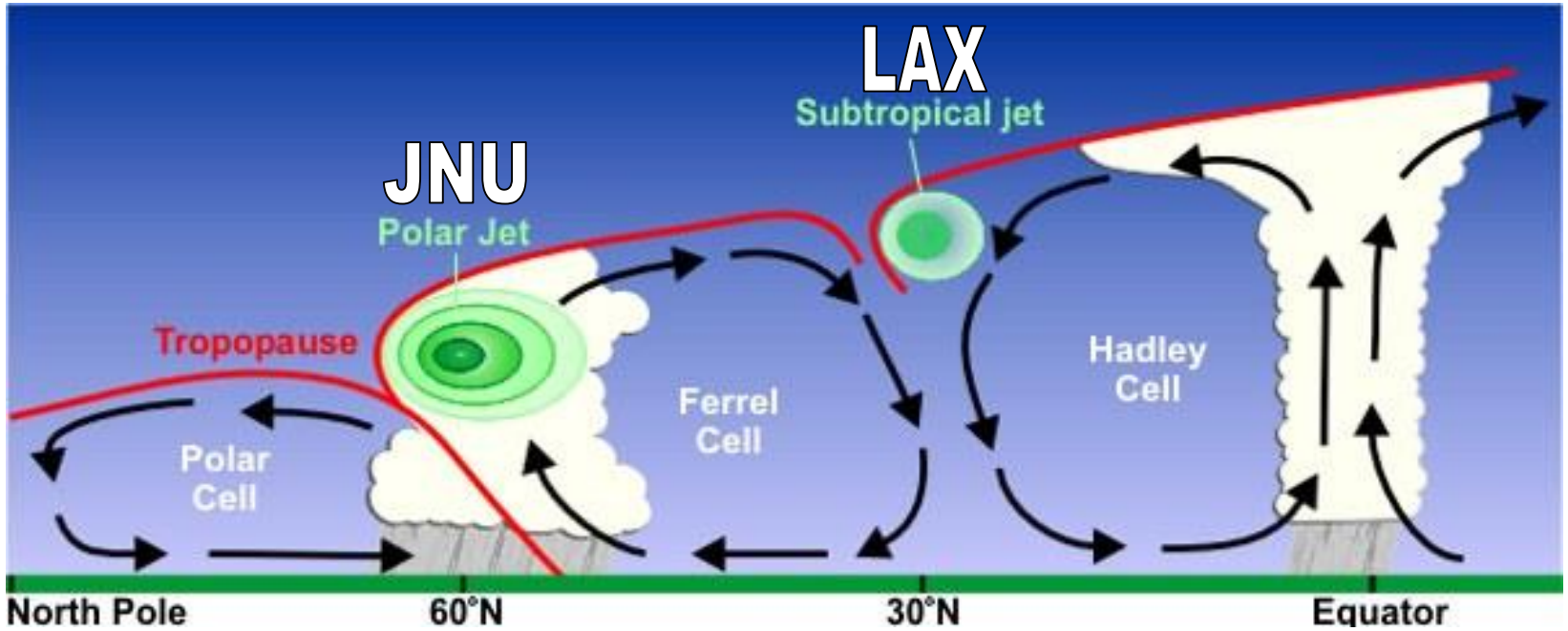


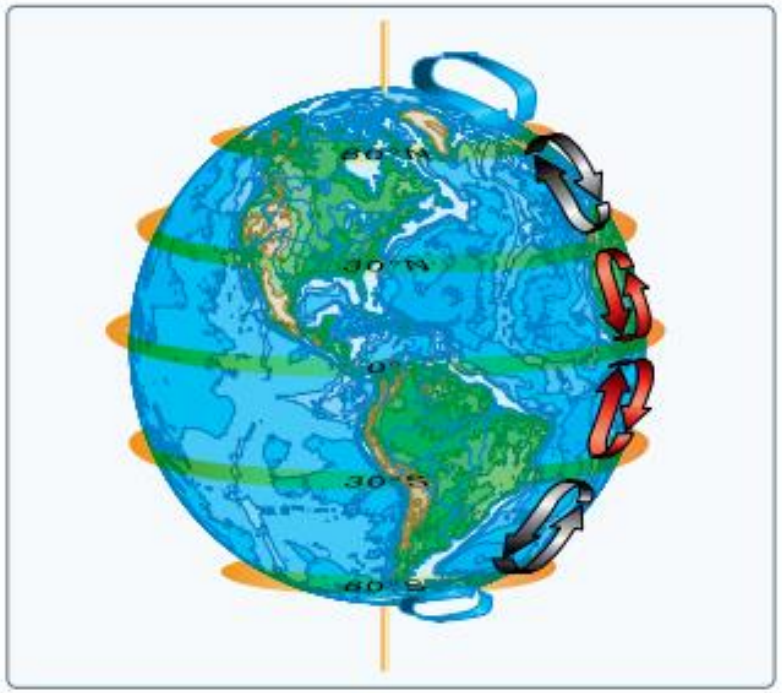
4.4F / 2.5C

In Florida it is 82F with a dew point of 38F. Where are the cloud bases?

RAINIER FLIGHT SERVICE

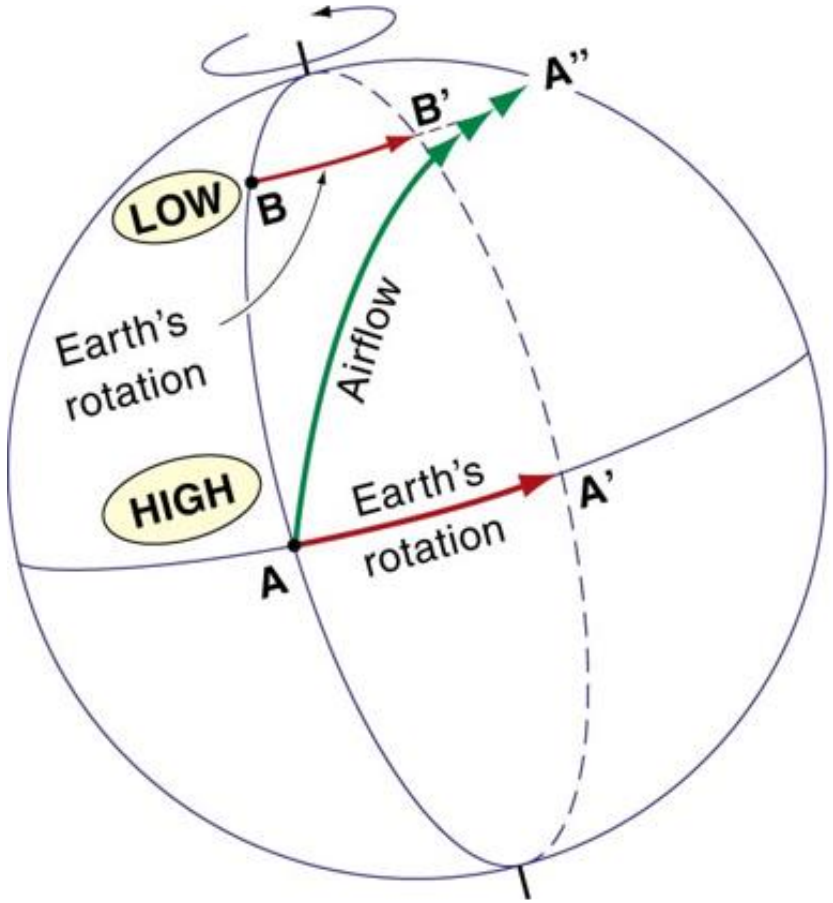
ATMOSPHERIC CIRCULATION

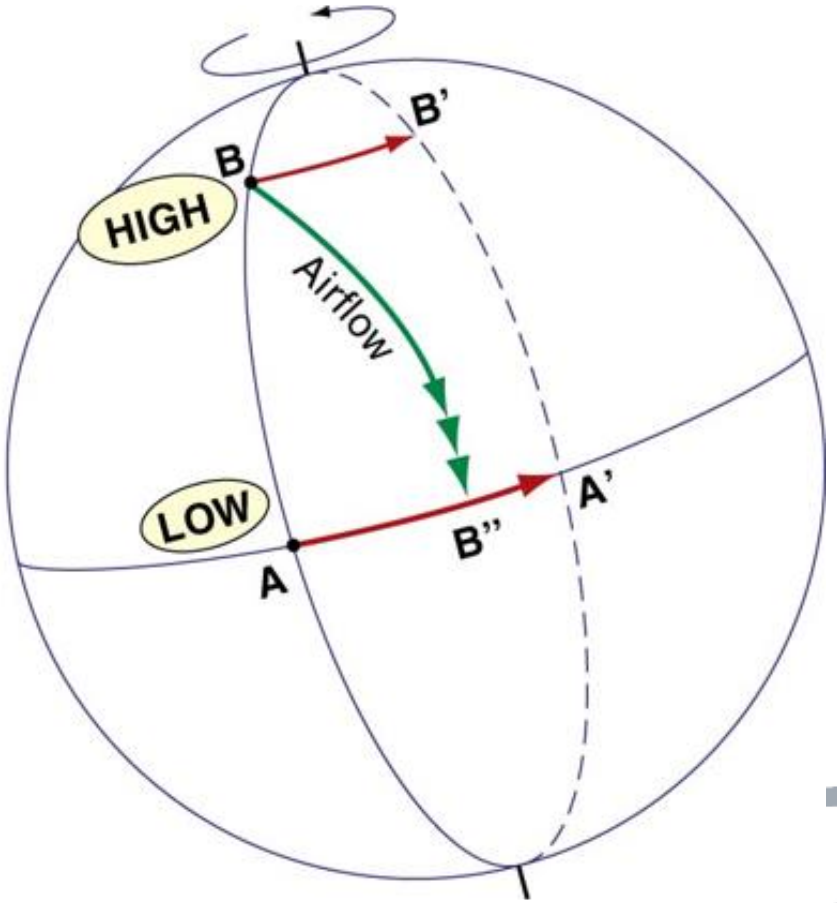




RAINIER FLIGHT SERVICE

CORIOLIS FORCE





RAINIER
FLIGHT SERVICE

CORIOLIS FORCE

ATMOSPHERIC STABILITY

Stable Air

Stratiform Clouds / Fog

Smooth Air

Poor Visibility

RAINIER FLIGHT SERVICE

ATMOSPHERIC STABILITY

Unstable Air

Cumuliform Clouds

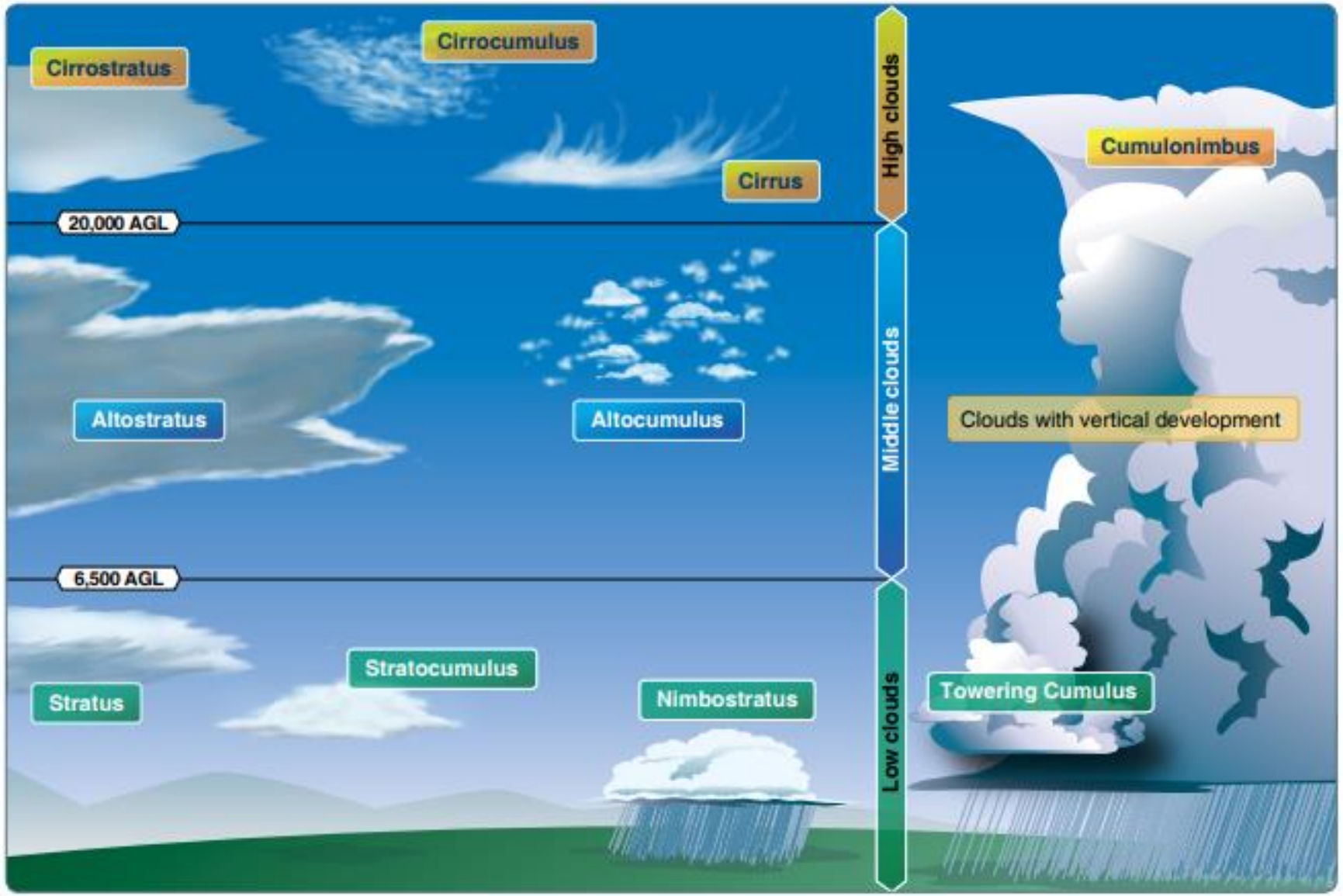
Showery Precipitation

Rough Air

Good Visibility

RAINIER FLIGHT SERVICE

CLOUD TYPES



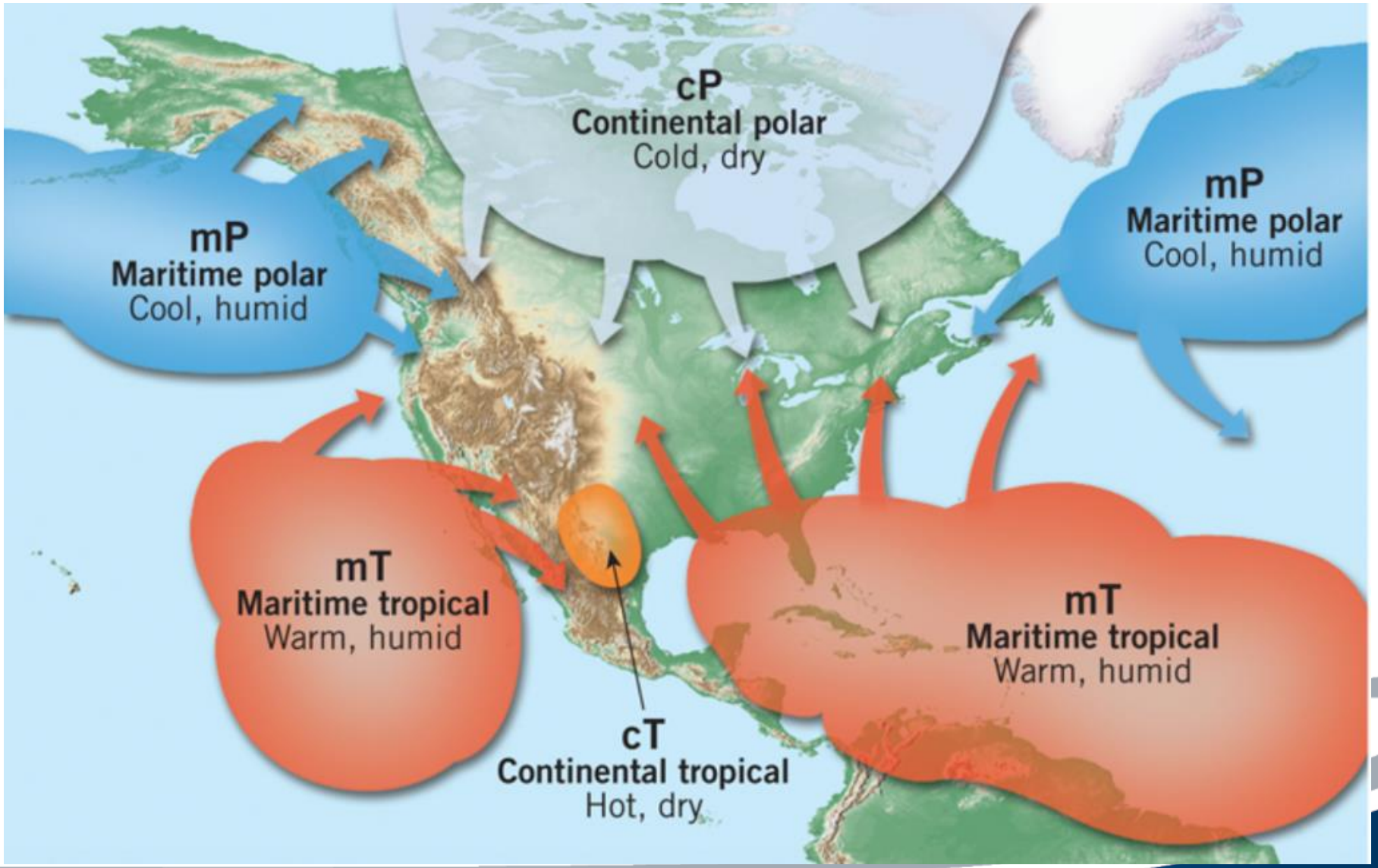
RAINIER FLIGHT SERVICE

PRECIPITATION

How is this weather formed?

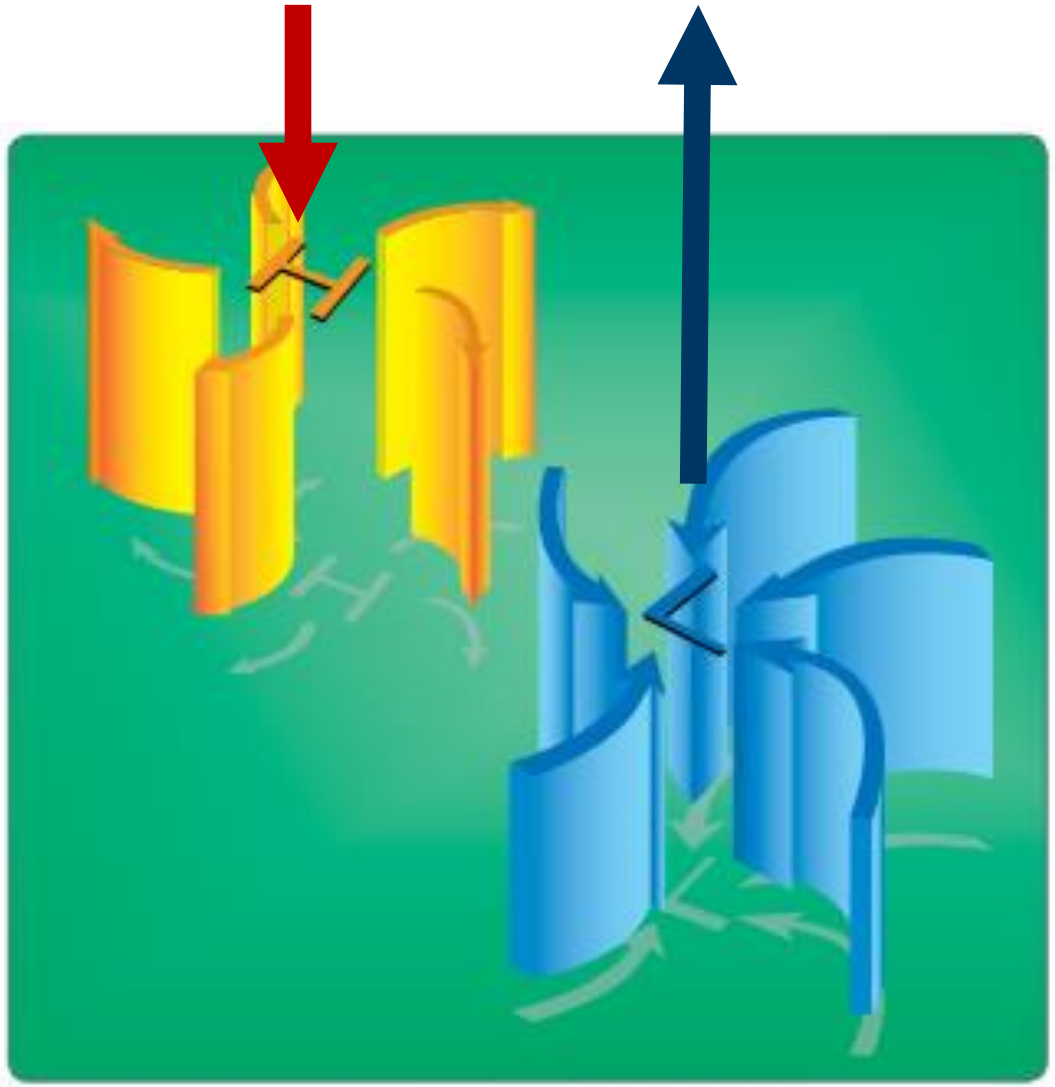
RAINIER FLIGHT SERVICE

AIR MASSES



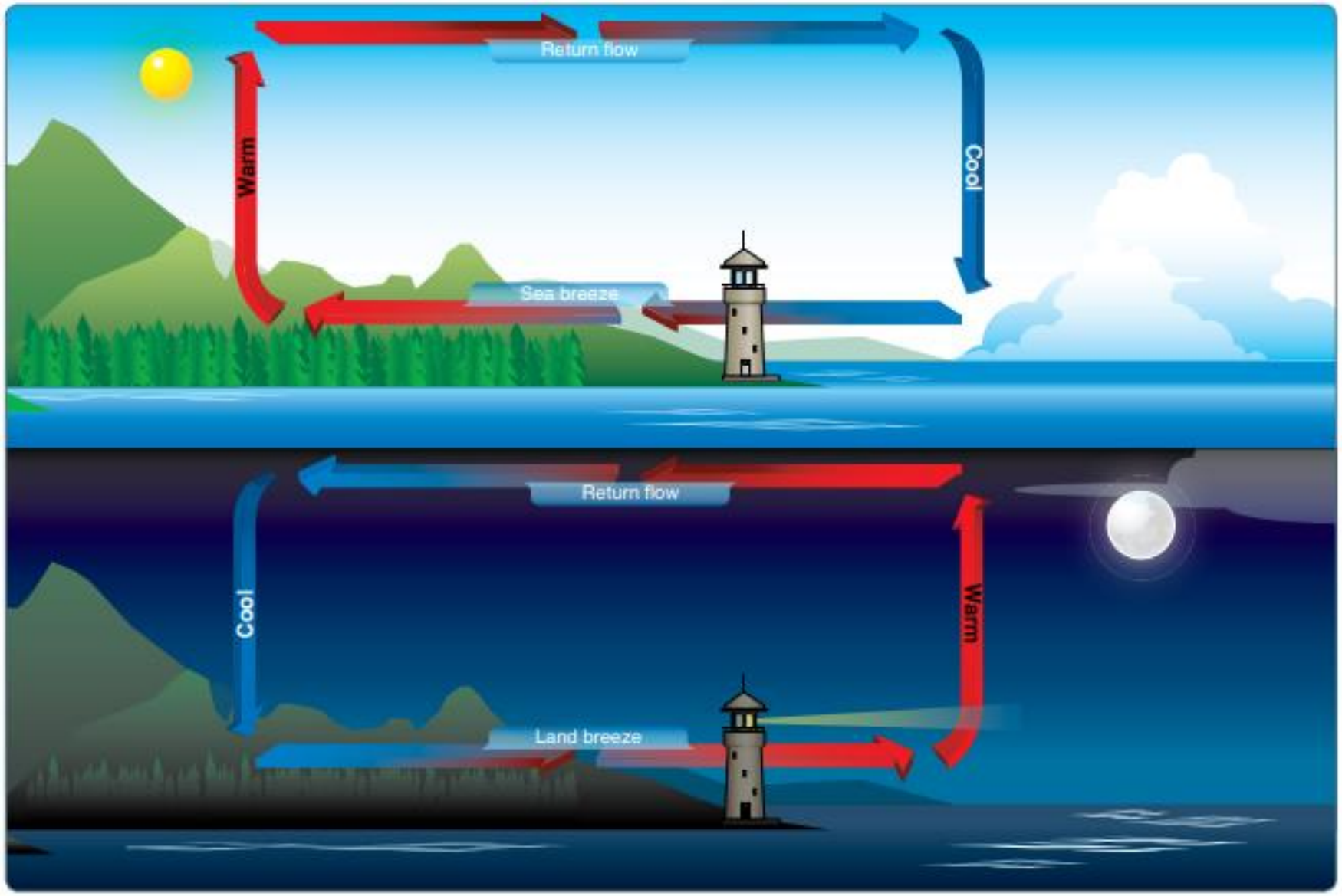
RAINIER FLIGHT SERVICE

WEATHER PATTERNS



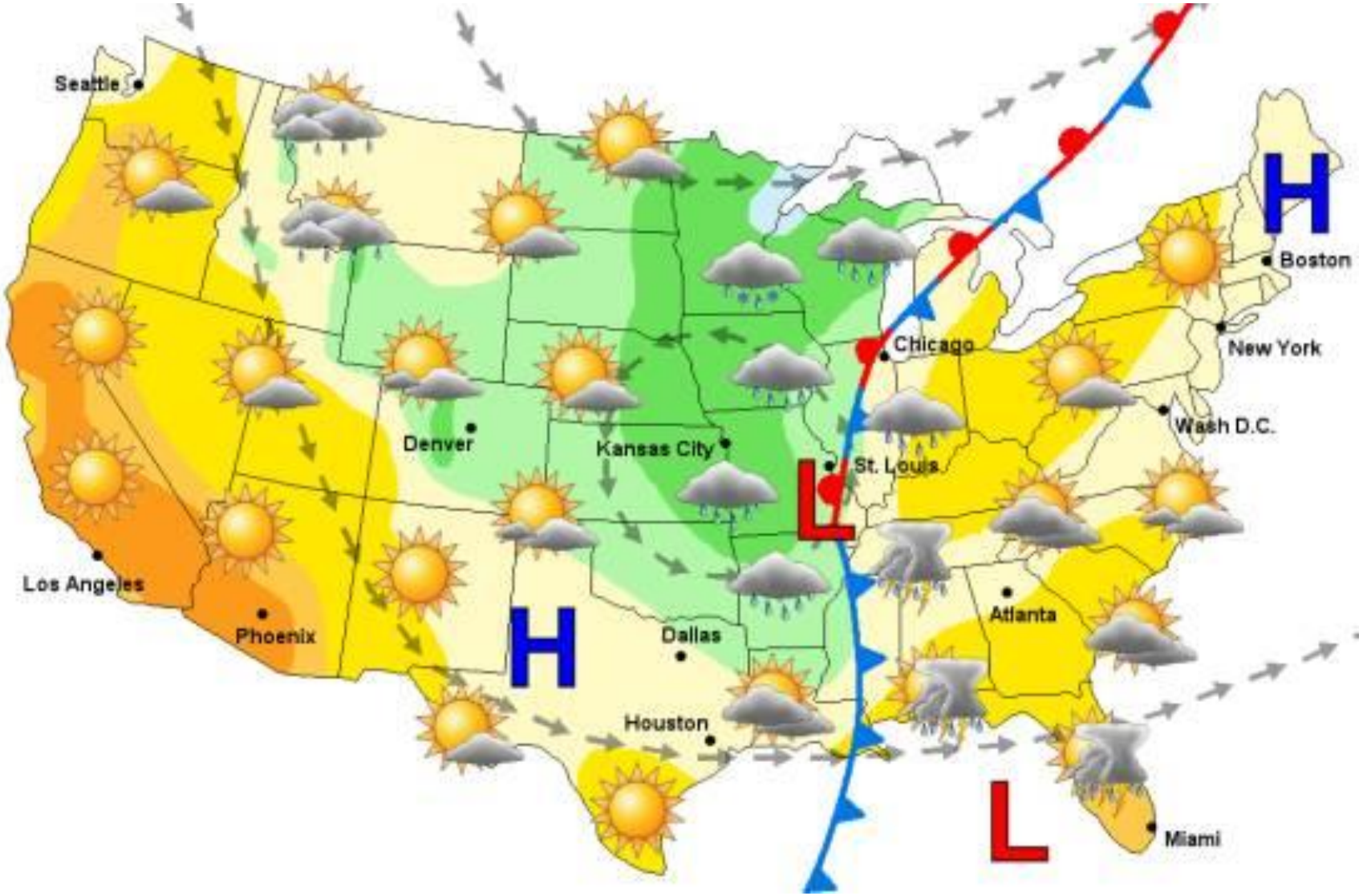
RAINIER FLIGHT SERVICE

CONVECTIVE CIRCULATION



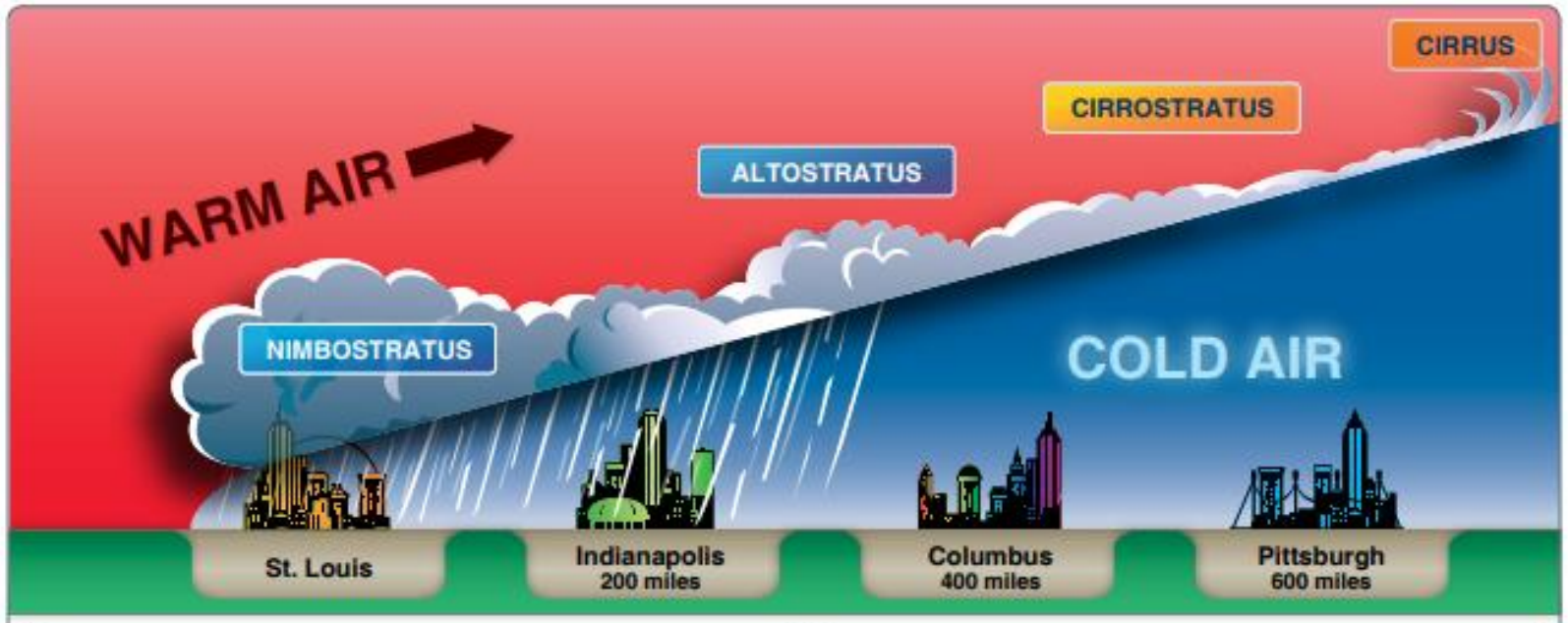
RAINIER FLIGHT SERVICE

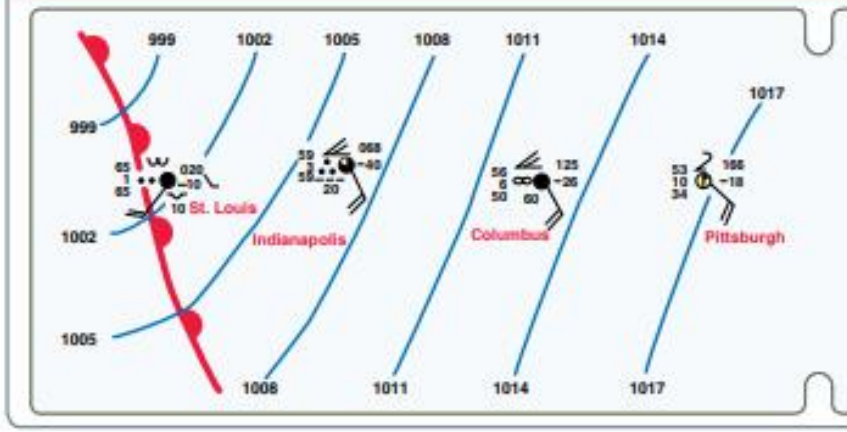
WEATHER PATTERNS



RAINIER FLIGHT SERVICE

WARM FRONTS





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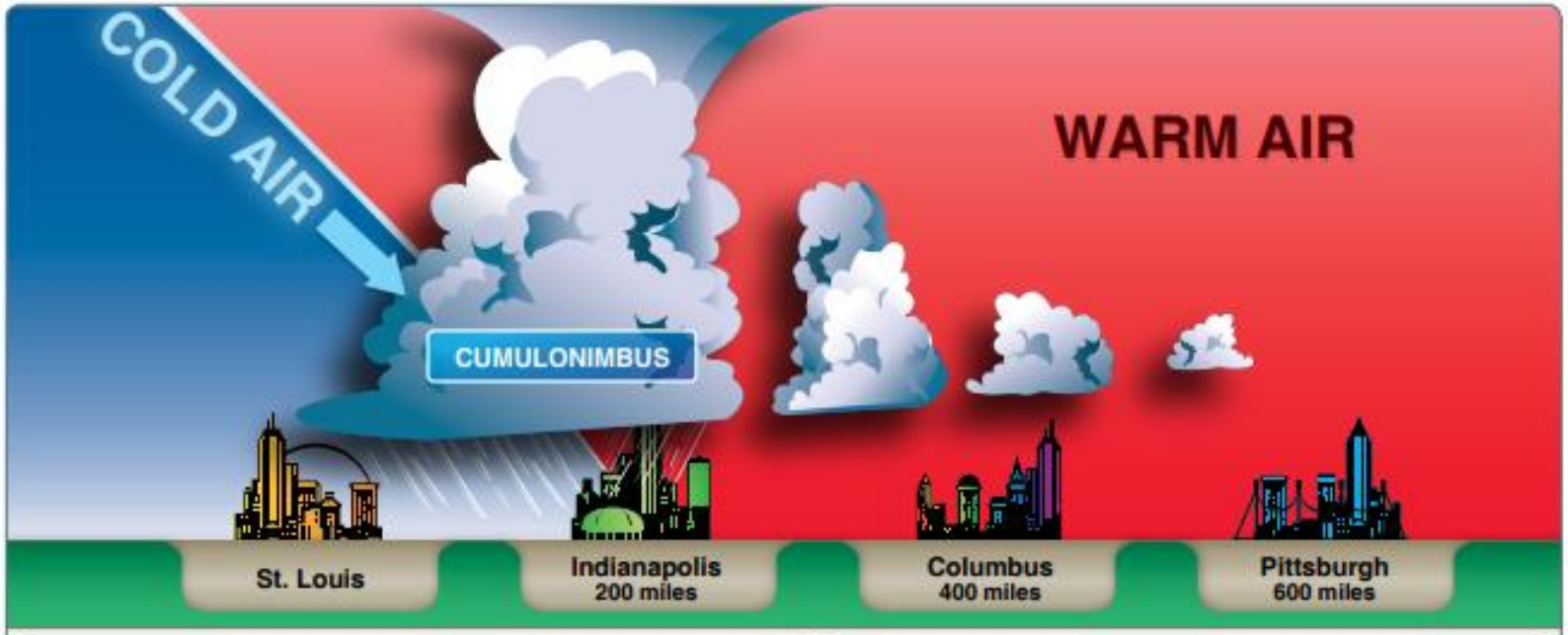
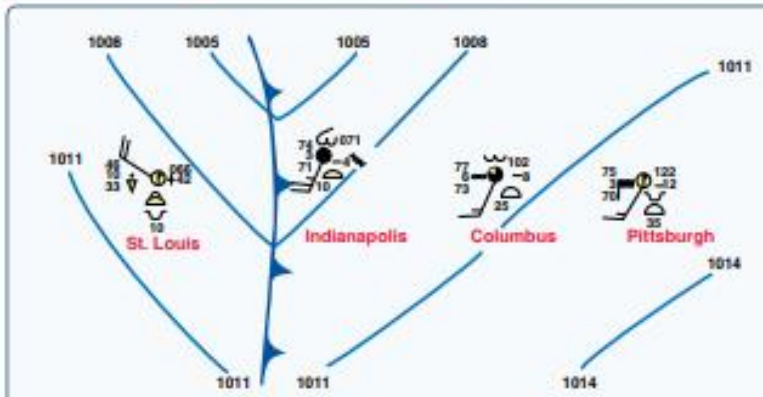
METAR	KIND BKN020	1950Z	16012KT 15/15	3SM A2973	RA
METAR	KCMH 0VC060	1950Z	13018KT 14/10	6SM A2990	HZ
METAR	KPIT SCT150	1950Z	13012KT 12/01	10SM A3002	

RAINIER FLIGHT SERVICE

COLD FRONTS

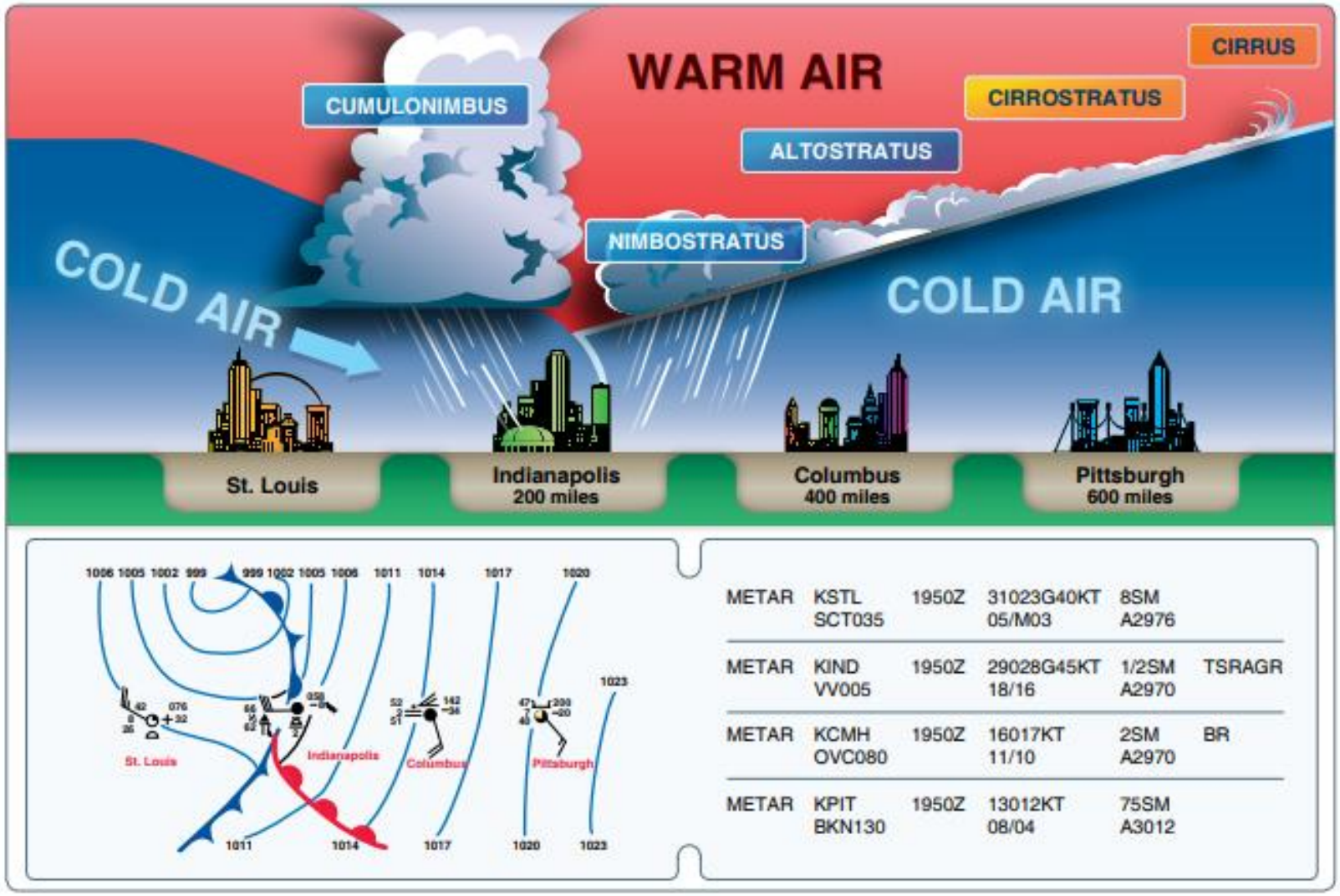




METAR	KSTL SCT010	1950Z	30018KT 08/02	10SM A2979	
METAR	KIND OVC010	1950Z	20024KT 24/23	3SM A2974	+TSRA
METAR	KCMH BKN025	1950Z	20012KT 25/24	6SM A2983	HZ
METAR	KPIT SCT035	1950Z	20012KT 24/22	3SM A2989	FU

RAINIER FLIGHT SERVICE

OCCLUDED FRONTS



METAR	KSTL SCT035	1950Z	31023G40KT 05/M03	8SM A2976	
METAR	KIND VV005	1950Z	29028G45KT 18/16	1/2SM A2970	TSRAGR
METAR	KCMH OVC080	1950Z	16017KT 11/10	2SM A2970	BR
METAR	KPIT BKN130	1950Z	13012KT 08/04	75SM A3012	

RAINIER FLIGHT SERVICE