

Making Wx decisions in Spring & Summer

- Why Spring weather is different
- Show you what web info to use
- What web info to be cautious using
- How to evaluate risks
- Help with when to just say no

WHY WEATHER

- #1 Pilot Killer
- Pilot's generally, know the least about it
- The best sources of information are changing rapidly with Web based tools
- You shouldn't be surprised by what you see through the windscreen

WHY IS IT SO COMPLICATED?

- Lot's of variables
 - Varying pressures by altitude & latitude
 - Temperature
 - Moisture
 - Lapse rate
 - Jet stream
 - Air masses
 - Geography
- Meteorology is a complex science
- Requiring complex tools
- Probabilities – never certainties

Agenda

- High and Low Pressure Systems
- Long Range Wx models – GFS
- Short Range Wx tools – LAMP
- Instability Forecast Tools
- New ADDS tool
- Q & A

WHY WEATHER CHANGES IN SPRING







- More direct heating from the Sun
- The Polar Jet Stream moves southward – steers the weather (at 500mb ~ FL180)
- Cold air masses mixing with warmer air masses creating lot's of variables

ARE THESE YOUR PRIMARY TOOLS?

NWS Boise, ID
Point Forecast: Boise ID
43.62°N 116.22°W (Elev. 2709 ft)
Forecast Valid: 9pm MST Mar 8, 2011-6pm MDT Mar 15, 2011

Mobile Weather Information | En Español
Last Update: 2:59 pm MST Mar 8, 2011

Forecast at a Glance

Tonight	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday	Friday Night	Saturday	Saturday Night
								
60% Rain/Snow Likely Lo 35 °F	30% Chance Rain Hi 55 °F	Mostly Cloudy Lo 43 °F	60% Showers Likely Hi 58 °F	60% Showers Likely Lo 34 °F	Partly Sunny Hi 50 °F	Mostly Cloudy Lo 36 °F	20% Slight Chc Showers Hi 55 °F	30% Chance Showers Lo 36 °F

Detailed 7-day Forecast

Tonight: A chance of rain and snow before 11pm, then rain likely. Snow level rising to 3400 feet. Mostly cloudy, with a low around 35. East southeast wind between 9 and 11 mph. Chance of precipitation is 60%. Little or no snow accumulation expected.

Wednesday: A 30 percent chance of rain. Mostly cloudy, with a high near 55. Southeast wind between 8 and 11 mph, with gusts as high as 22 mph.

Detailed Point Forecast

Click Map for Forecast [Disclaimer](#)

Map

THE CWA FORECAST IS ONLY
FORECAST 72 HOURS FORWARD

A TAF IS ONLY ACCURATE
WITHIN 5NM OF THE TAF
STATION. IT IS A POINT
FORECAST

National Weather Service Forecast Office

Boise, ID

Home News Organization Frequently Asked Questions

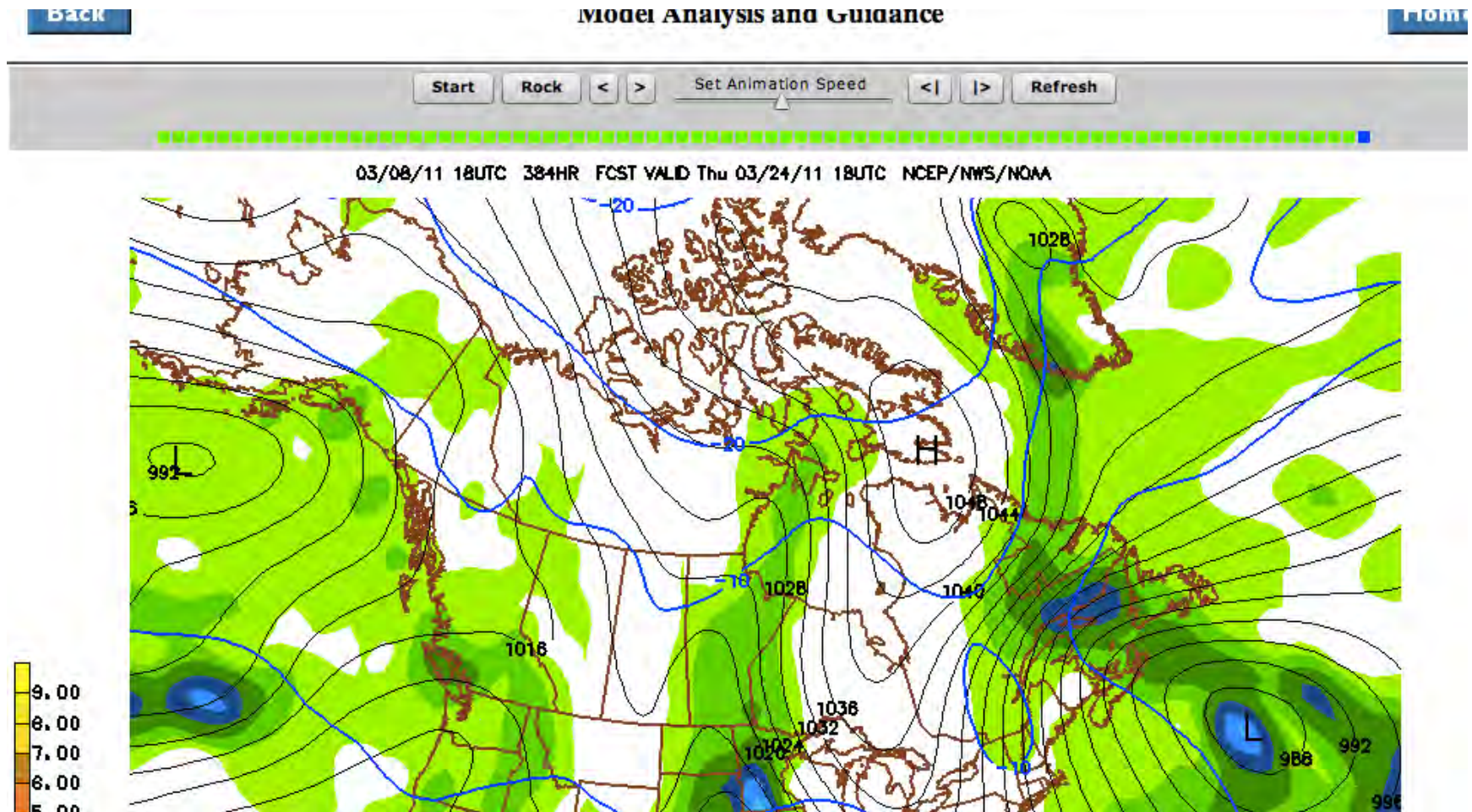
Printer Friendly | Go Back | Version: Current 1 2 3 4 5 6 7 8 9 10 | Font: A A

TERMINAL AERODROME FORECAST *

FTUS45 KBOI 082300
TAFBOI
TAF
KBOI 082329Z 0900/0924 12011KT P6SM VCSH SCT025 BKN040
FM091000 13009KT 4SM -SHSN BKN025 OVC040
FM091900 14009KT P6SM VCSH SCT035 BKN070
FM092100 12009KT P6SM SCT100=

Webmaster

THIS IS BETTER...



BUT FIRST, A FEW BASICS...

High and Low Pressure

- Caused by the uneven heating and cooling of the atmosphere
- The Sun heats the Earth unevenly
- Cold air masses migrate toward the equator
- Warm air masses migrate toward the poles

Canadian record low:
940.2 mb (94.02 kPa)
Saint Anthony,
Newfoundland
(51° N 56° W)
Jan. 1977

U.S. record low:
888 mb (26.23 in.)
Hurricane Gilbert
(Atlantic/Caribbean)
Sept. 1988

Earth's record low:
870 mb (25.69 in.)
Typhoon Tip
(western Pacific)
Oct. 1979

Deep
low-pressure
system

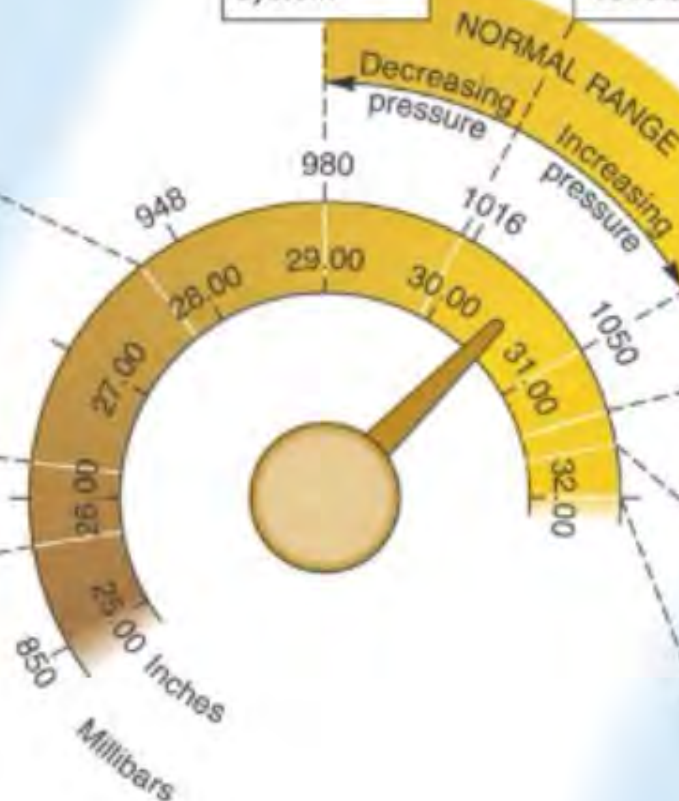
Normal sea-level
pressure
1013.2 mb (29.92 in.)

Strong
high-pressure
system

U.S. record high:
1065 mb (31.43 in.)
Barrow, AK
(71° N 156° W)
Jan. 1970

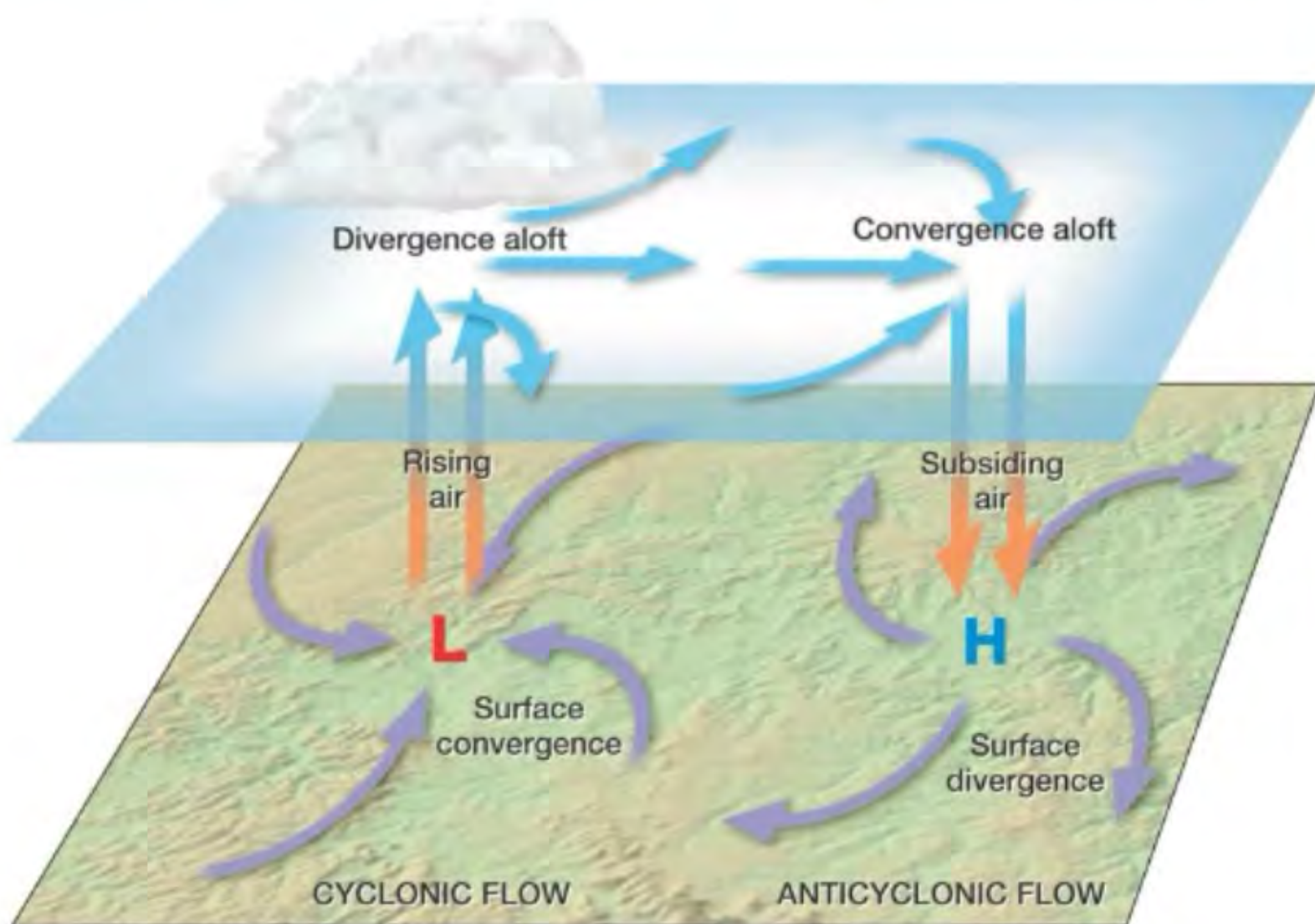
Canadian record high:
1079.6 mb (107.96 kPa)
Dawson, Y.T.
(64° N 139° W)
Feb. 1989

Earth's record high:
1084 mb (32.01 in.)
Agata, Siberia
(67° N 93° E)
Dec. 1968





High and Low Pressure Systems



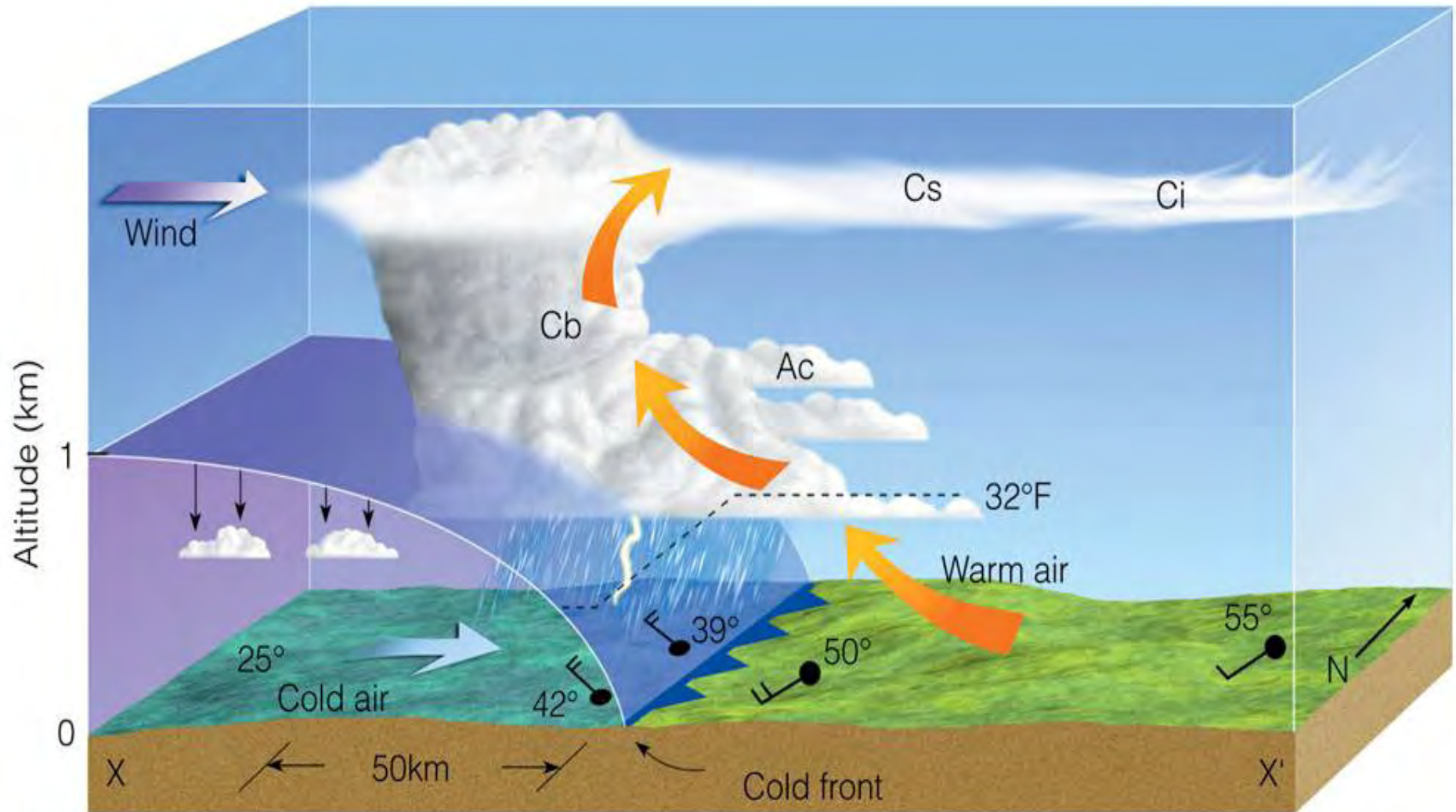
A Serious LOW



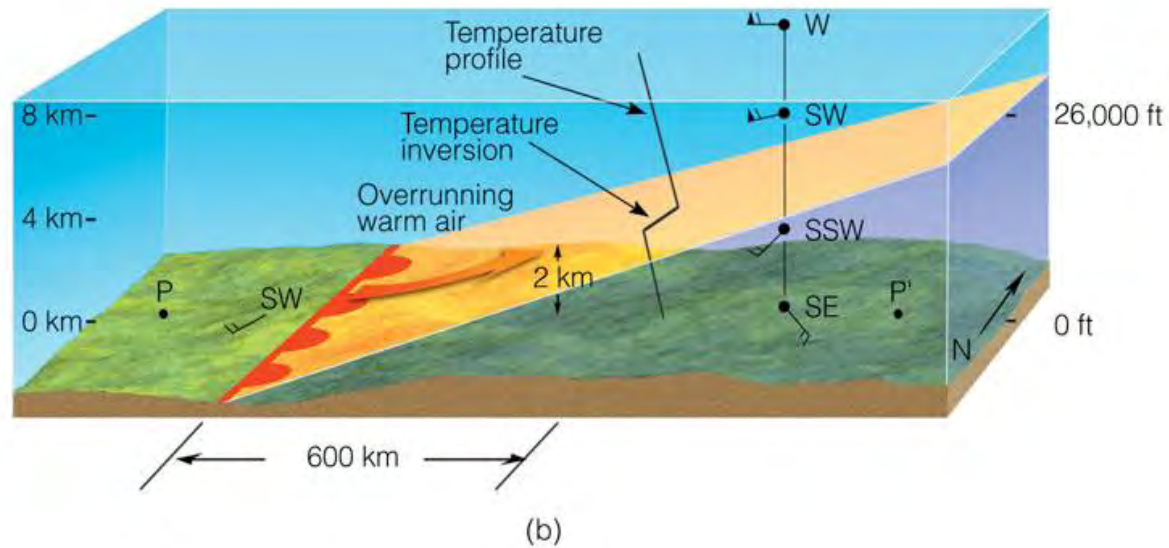
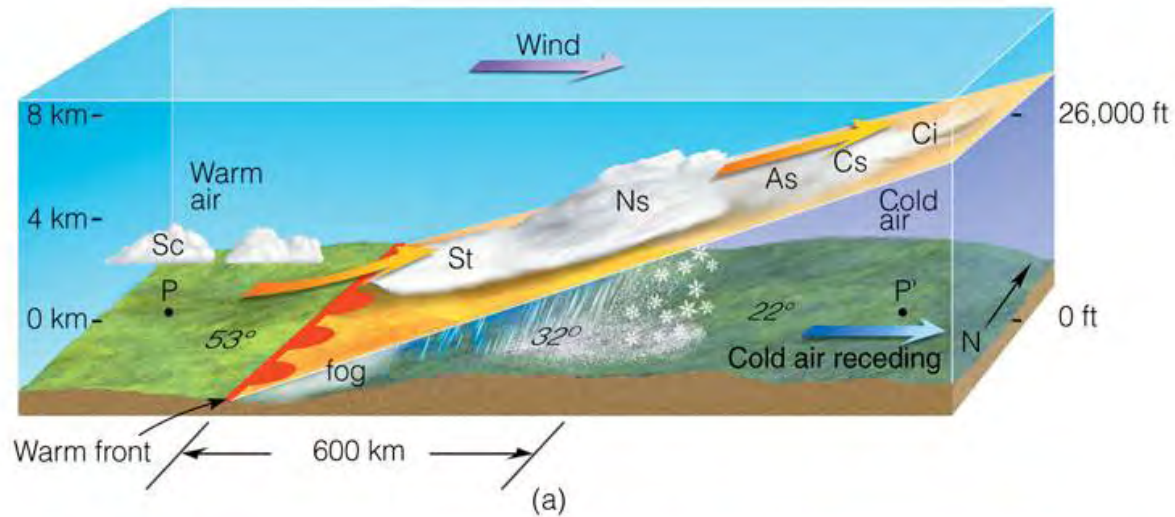
Low Pressure

- Low pressure = warm air rising
- Circulates counter-clockwise
- Winds are much stronger than a HIGH
- Warm air ahead of the front, cold air behind
- Circulates cold air from North, warm air from South (in our case)
- Humidity increases and dew point spread decreases on backside of low
- Often followed by a “dry slot”
- Trough vs full blown LOW
- Arrive with a “Cold Front” or a “Warm Front”

Cold Front



Warm Front (slow moving)





12 hours before incoming LOW

Incoming Warm Front



10am



6pm
(light rain 2 hours later)



12 hours after trough passing
Dry Slot



18 hours – Ridge rebuilding

High Pressure

- Cold air descending – pancakes on land
- Holds warm air, (or cold air), against ground – creates stability
- In the winter causes inversions with fog
- Circulates clockwise
- Winds are light
- Usually found over water – cooler air sinks
- Ridge vs full blown HIGH

Another lifting mechanism

Orographic Uplift



- When air reaches the leeward side of the mountain much of the moisture has been lost
 - Air descends, warms adiabatically, condensation and precipitation not likely
 - Result: rain shadow effect
- Mountain Range - Great Basin Desert (Western US), Patagonia Desert (Argentina)

Valley vs Mountain



http://www.cityofboise.org/Departments/Public_Works/Services/AirQuality/page10796.aspx



<http://www.flyingresorttranches.com/>

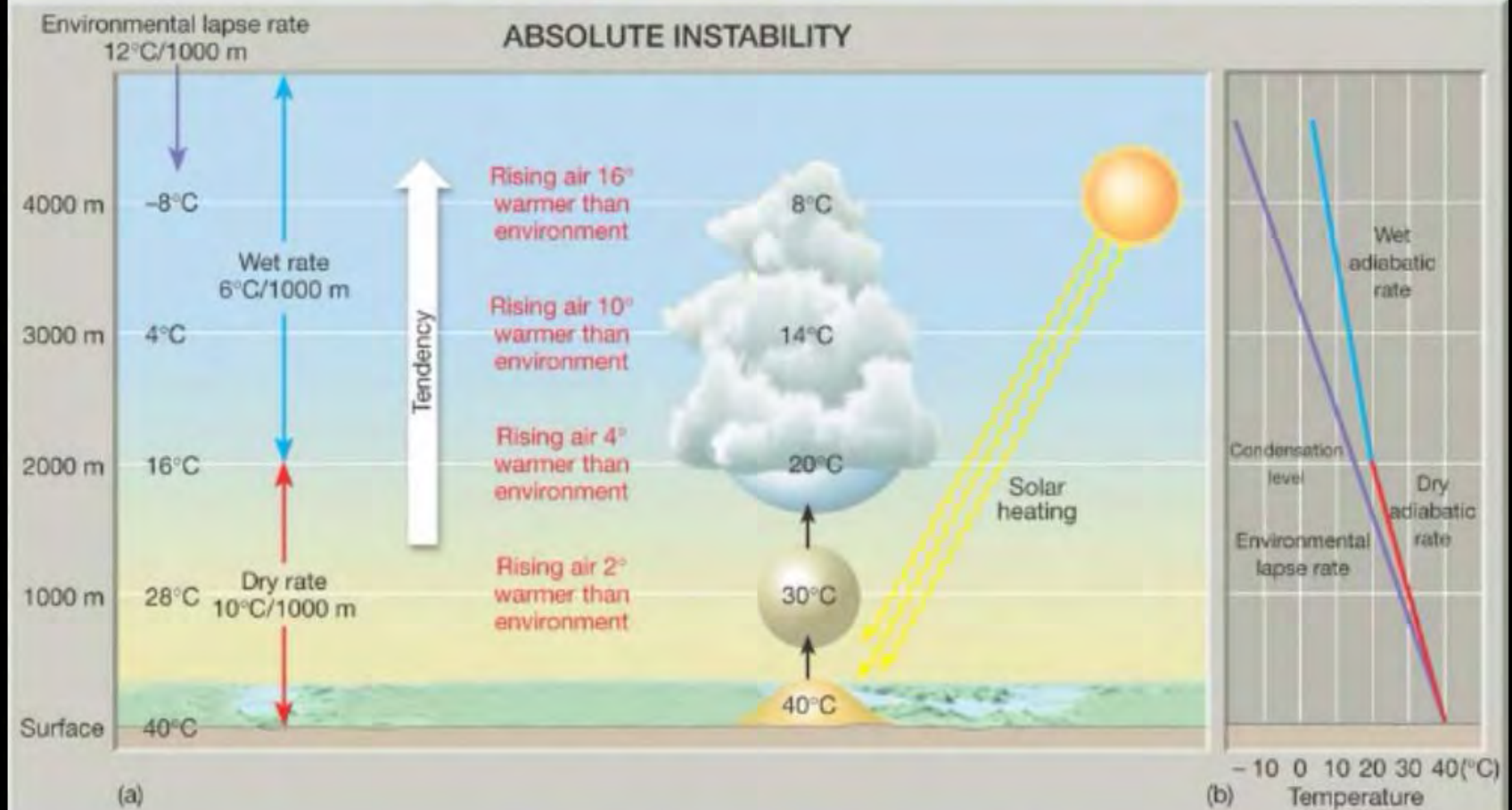


<http://www.idahohotspots.com/infocenter/webcams.htm>



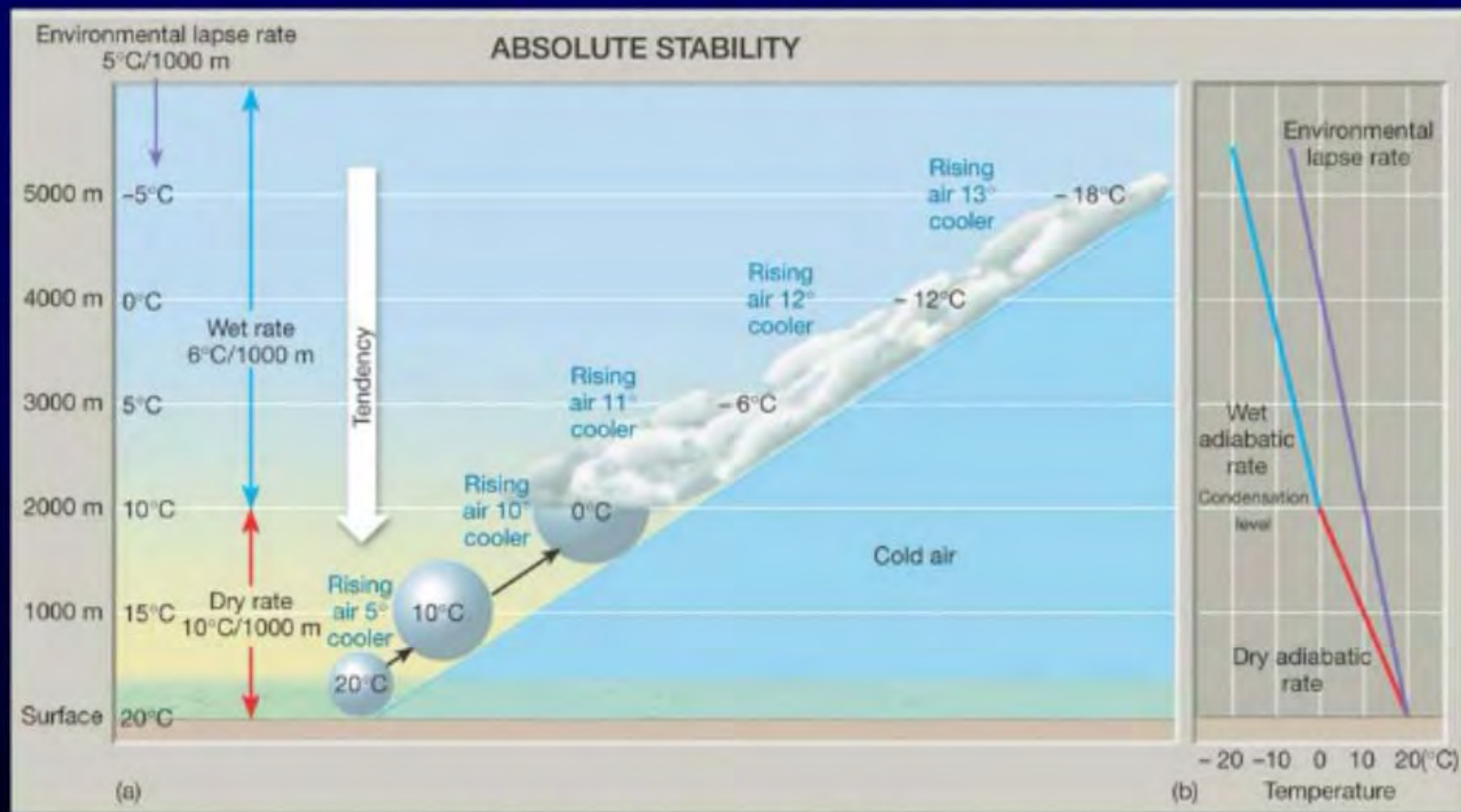
<http://www.pilotcams.org/northwest-us-webcams/48-smiley-creek-id-u87>

Atmospheric Stability



Absolute Instability

Atmospheric Stability



Absolute Stability

Predicting Instability

- Lifted Index - <http://www.emc.ncep.noaa.gov/mmb/namsvrfcst/>

Predicting Ceilings and Clouds

- LAMP – Localized Aviation MOS Program
- Several websites that use MOS data to project weather conditions - <http://www.usairnet.com/cgi-bin/launch/code.cgi?state=ID&sta=KBOI>
- Similar to data available for TAF sites but twice as many locations - <http://www.nws.noaa.gov/mdl/forecast/graphics/MAV/>
- New ADDS tool – <http://weather.aero/tools/desktopapps/hemstool>
- Experimental tool – 850mb RH HT depiction - <http://mag.ncep.noaa.gov/NCOMAGWEB/appcontroller>

Area Forecast

National Weather Service - Boise, ID - Windows Internet Explorer

http://www.wrh.noaa.gov/total_forecast/getprod.php?sid=W8p1l=FA58wfo=boi

File Edit View Favorites Tools Help

7-D... Avi... AvW... Bu... Cha... Cli... Ida... Ida... Ktv... Mod... Mon... Nav... NOA... NWS... Sch... Wol... Rea... 7-D...

http://www.ncep.noaa... National Weather Service - O... National Weather Service... X

Cameras
Idaho Road Report
River & Lake AHPS
Forecasts
Activity Planner
Local Forecasts
Forecast Discussion
National Forecasts
Aviation
Fire Weather
Hydrology
Forecast Weather
Tables
Climate
Local
National
More...
Weather Safety
Weather Radio
Lightning
Weather Awareness
Skywarn™
Storm Ready
Misc Links
Astronomical Data
Emergency Mgmt.
Environ/Air Quality
Information
Web page tutorial
Other Office links
Our Office
Contact Us
Webmaster

ID MT WY NV UT CO AZ NM
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...ALF..A FEW MID LVL IMPULSES WILL CONT ACRS NWRN US-
NRN/N CNTRL ROCKIES THRU PD. OTRW..ZONAL FLOW WILL BECM MORE DMNT
THRUT RGN DURG OTLK. NW FLOW ERN PTN..WLY FLOW WRN PTN. SFC..TROF
NRN FRONT RANGE WILL BECM WRM FNT 03-06Z AND APCH ERN MT DURG
OTLK. TROP ERN NM THRU PD. OCLD/CLD FNT WA CSTN WILL APCH CNTRL
WA-NWRN OR-NRN CA CSTL WTRS 12-15Z. HI PRES RMNDR.
.
ID
NRN...OVC040-060 LYRD FL260. OCNL VIS 3-5SM BR. WDLY SCT/SCT
-SHSN. OTLK...MVFR CIG SHSN BR.
CNTRL MTNS...BKN-OVC080-100 LYRD FL240. OCNL VIS 3-5SM BR. WDLY
SCT -SHSN. OTLK...MVFR CIG SHSN BR.
SWRN...BKN-OVC060-080 LYRD FL240. OCNL VIS 3-5SM BR. WDLY SCT
-SHSN. OTLK...MVFR CIG SHSN BR.
SERN...SCT-BKN080 BKN120 LYRD FL260. ISOL -SN. BECMG 2302 BKN060-
080 BKN-OVC100. OCNL VIS 3-5SM BR. ISOL -SHSN. OTLK...MVFR
CIG SHSN BR.
.
MT
CONTDWD WWD...BKN080-100 TOPS FL180. ISOL -SN. BECMG 2301 BKN060-
080 TOPS 160. ISOL -SN. OTLK...MVFR CIG SHSN BR.
SWRN MTNS...BKN070-090 LYRD FL220. ISOL -SHSN. BECMG 0003 BKN060-
080. OCNL VIS 3-5SM BR. ISOL -SHSN. OTLK...MVFR CIG SHSN BR.
ERN SLOPES OF CONTDWD...BKN100-120 TOPS FL180. WND SW G25KT.
BECMG 2301 BKN080-100 LYRD FL220. ISOL -SN. AFT 06Z OCNL VIS
3-5SM BR. OTLK...VFR.
CNTRL...SCT-BKN100 TOPS 160. BECMG 0103 BKN080-100 LYRD FL220.
OCNL ISOL -SN. OTLK...VFR.
ERN...SCT150 SCT CI. BECMG 0103 BKN120 LYRD FL240. AFT 05Z OCNL
VIS 3-5SM BR. OTLK...VFR.
.
WY
MTNS AND WEST...SCT100-120 BKN CI. BECMG 0003 SCT-BKN090-100 TOPS
160. ISOL -SN. AFT 06Z OCNL VIS 3-5SM BR. OTLK...VFR.
ERN PLAINS-FOOTHILLS SCT150 BKN CI. WND SW 25G30KT BECMG 0103

Done

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7.1.1.1.1 Height Reference

All heights are referenced to Mean Sea Level (MSL) except when prefaced by AGL, CIG or CEILING. Tops are always referenced to MSL.

Verify with webcams



Verify with webcams

Date/Time: 11/01/2011 14:28

▶ Loop



Verify with webcams

