

WEATHER SERVICE UNIT
ALBUQUERQUE, NM
CENTER

**Winter Weather
Refresher Training**



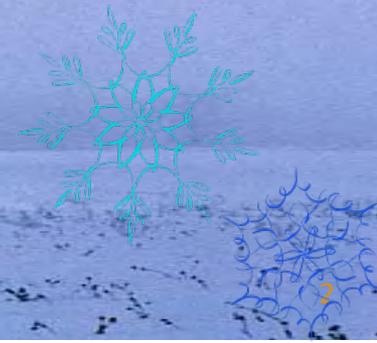
Prepared by:
Center Weather Service Unit
Albuquerque





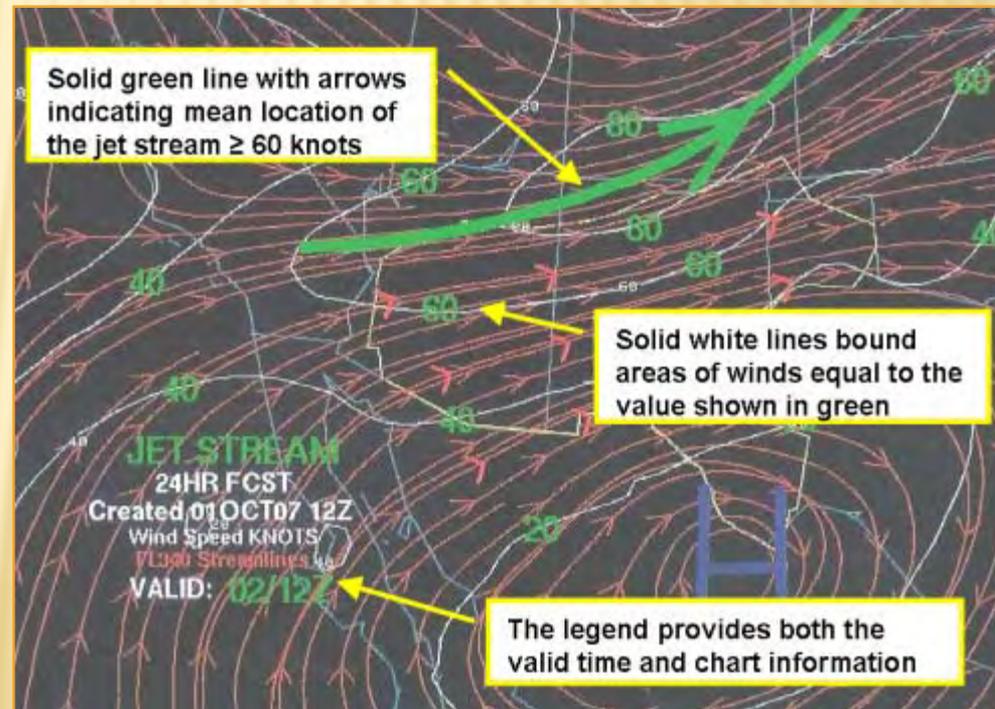
OVERVIEW

- ✘ Jet Stream
 - + Compression
 - + Turbulence
 - ✘ Mountain wave
- ✘ Icing
- ✘ IFR ceiling and visibility
- ✘ CWSU Products
 - + MIS
 - + CWA
- ✘ PIREPS
- ✘ Questions and Comments



JET STREAM

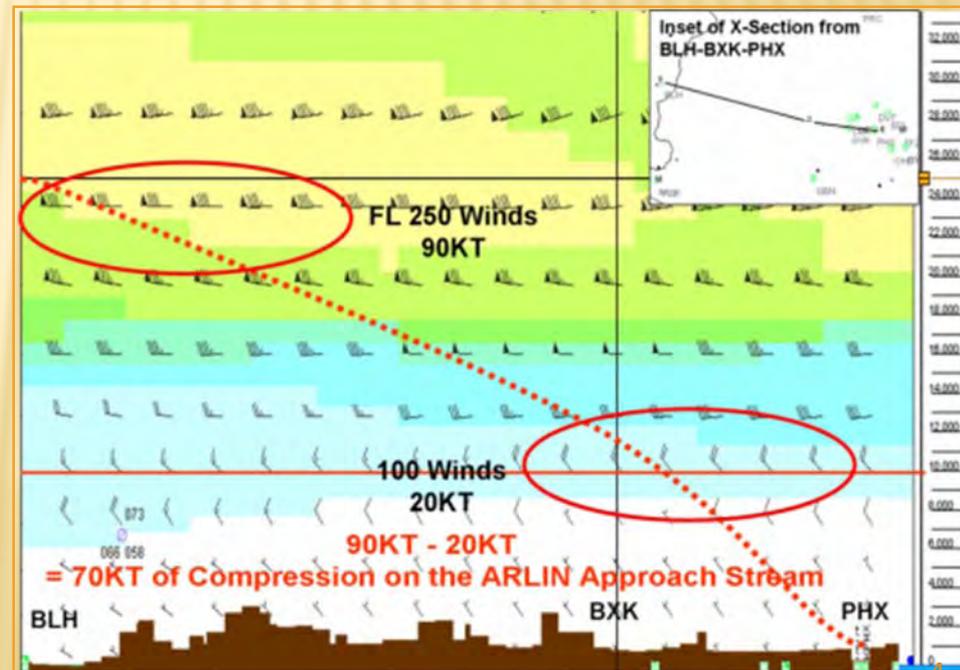
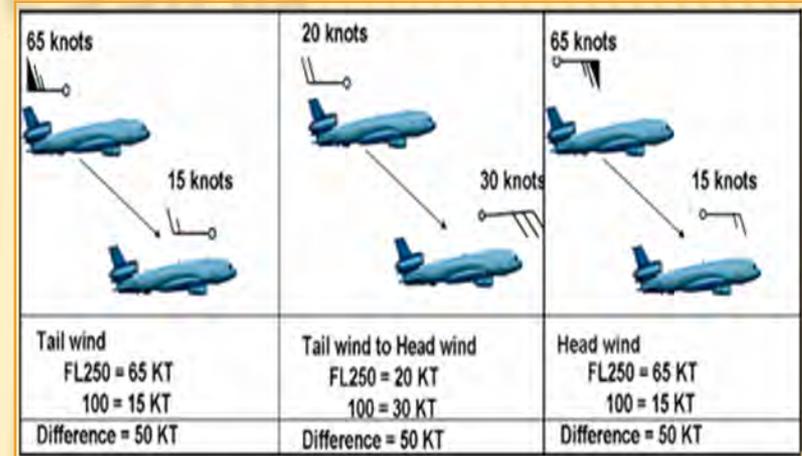
- ✘ Moves south during fall and winter
- ✘ Vectoring problems
 - + Sloppy turns
 - + Altitude vs. Vectoring
- ✘ Compression
- ✘ Turbulence



JET STREAM - COMPRESSION

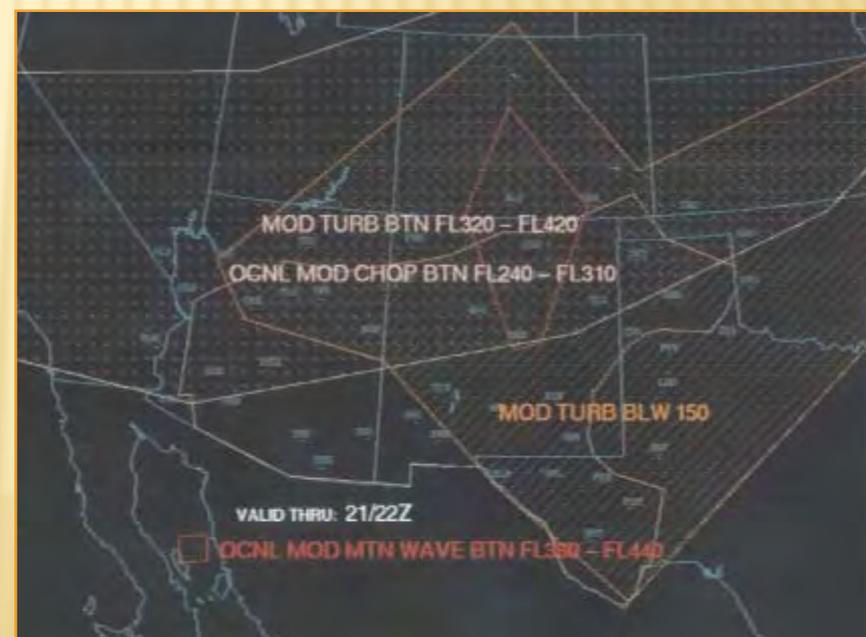
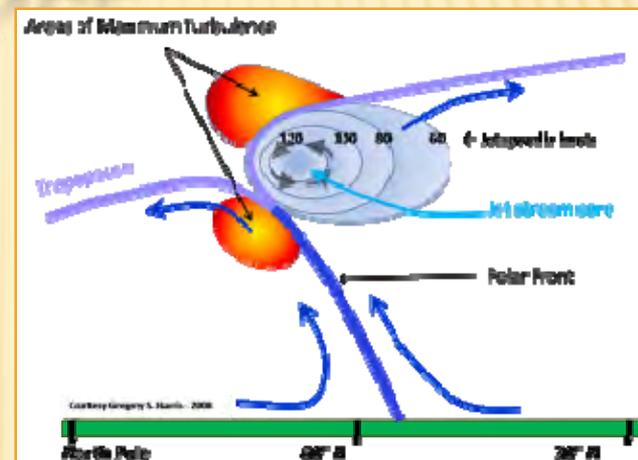
“Compression on approaches creates problematic turns and possibly results in overshooting turns. Additionally if PHX is on an east flow with a strong tail wind miles in trail becomes an issue for handing off aircraft. Yet, some advantages can be using the winds when possible to slow aircraft by turning them into the wind.”

-Steve Wright, Supervisor
Southwest Specialty



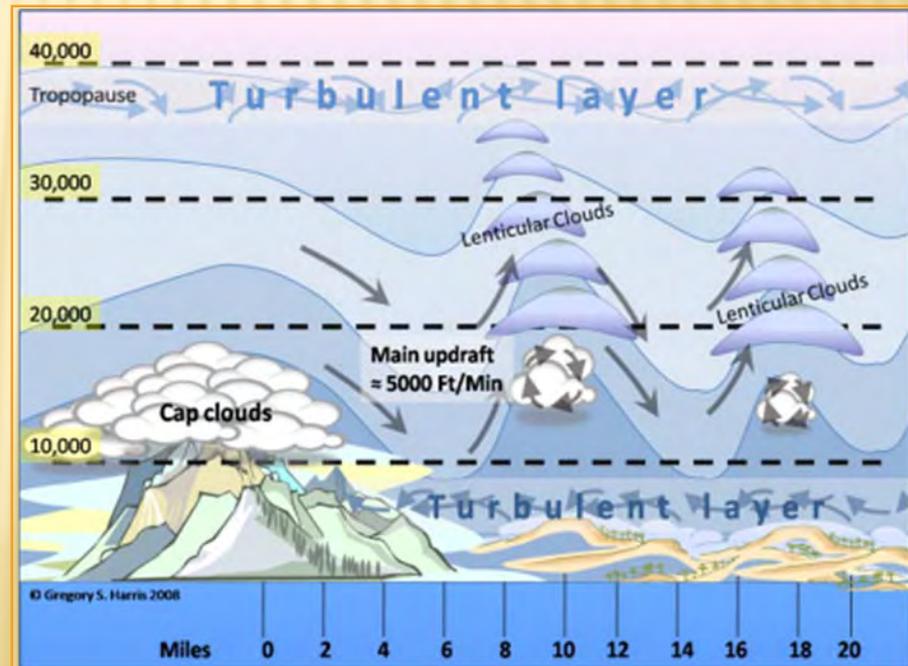
JET STREAM - TURBULENCE

- ✘ The strongest high altitude turbulence is above or below a jet speed maximum
- ✘ Jet Streams intensify in segments from 1,000 to 3,000 miles long, 100 to 400 miles wide, and 3,000 to 7,000 feet deep
- ✘ Jet stream CAT often occurs in patches 2,000 feet deep, 20 miles wide, and 50 miles long



TURBULENCE – MOUNTAIN WAVE

- ✘ Potential for up and downdrafts to reach 5000 feet per minute
- ✘ Playbook and carrier re-routes
- ✘ Increases miles-in-trail

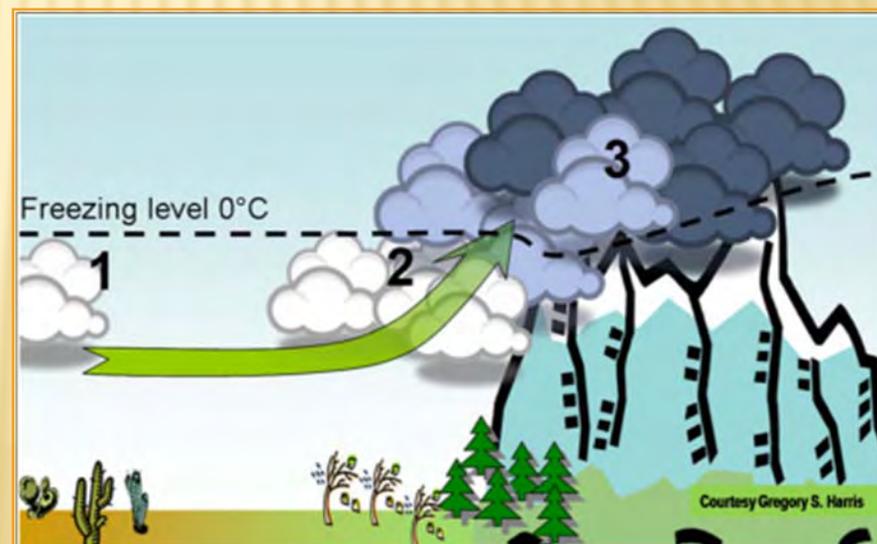
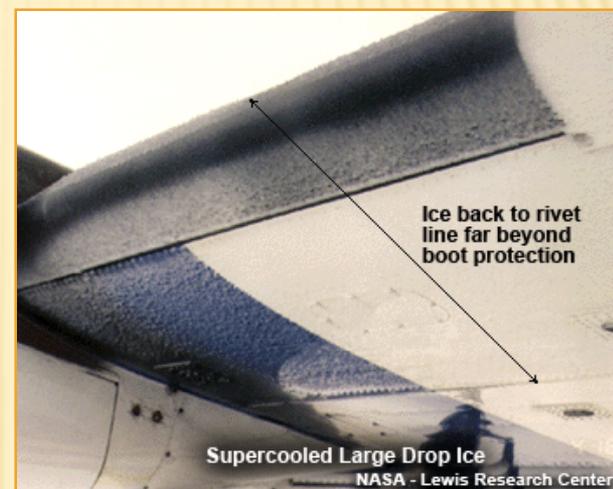


JET STREAM & TURBULENCE – SUMMARY

- ✘ Jet stream winds and turbulence result in:
 - + NRP Routes - Jet Stream & Turbulence Avoidance
 - + Increased mile-in-trail
 - + Increased controller stress
 - + Terminal approach compression
 - + Vectoring issues and sloppy turns
 - + Overtakes
 - + Decreased AAR due to cross winds and or LLWS

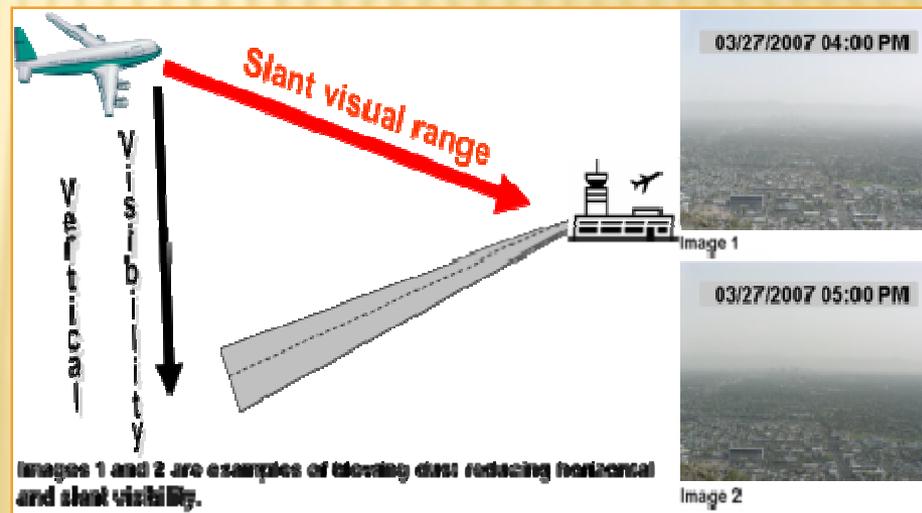
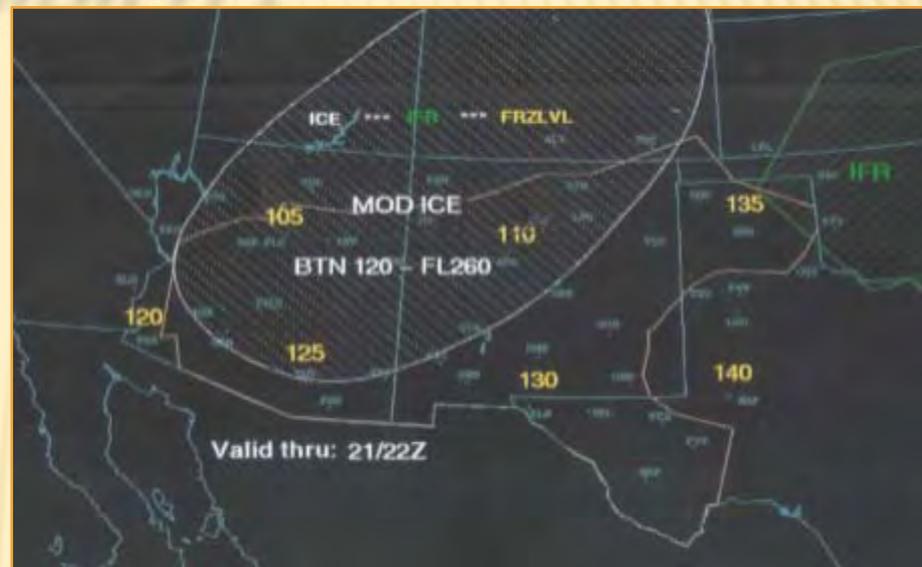
ICING

- ✘ A layer of frost increases drag by 40% and reduces lift
- ✘ MOD or greater icing is a significant hazard
- ✘ Aircraft without de-icing equipment encounter problems with trace to light icing
- ✘ Be aware of freezing level heights during icing events



IFR CEILING AND VISIBILITY

- ✘ Most common from central NM through SW TX & TX PNHDL
- ✘ Winter storm systems will produce IFR conditions across AZ to include PHX
- ✘ Icing chart includes IFR and MTN OBSC



FLIGHT CATEGORY

Category	Ceiling		Visibility
Low Instrument Flight Rules LIFR* (magenta)	below 500 feet AGL	and/or	less than 1 mile
Instrument Flight Rules IFR (red)	500 to below 1,000 feet AGL	and/or	1 mile to less than 3 miles
Marginal Visual Flight Rules MVFR (blue)	1,000 to 3,000 feet AGL	and/or	3 to 5 miles
Visual Flight Rules VFR+ (green)	greater than 3,000 feet AGL	and	greater than 5 miles

*By definition, IFR is ceiling less than 1,000 feet AGL and/or visibility less than 3 miles while LIFR is a sub-category of IFR.

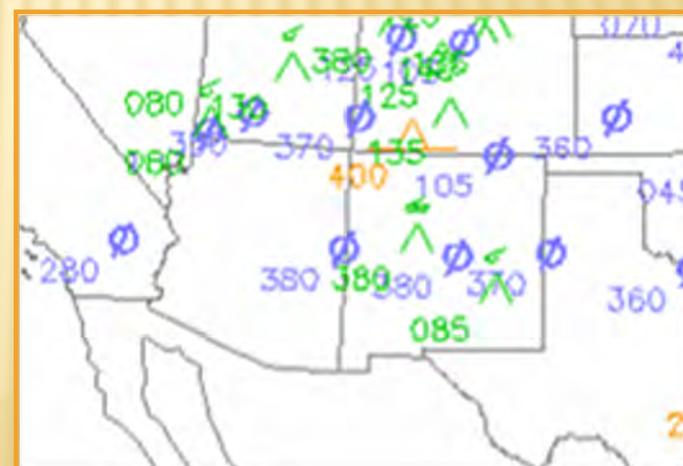
+By definition, VFR is ceiling greater than or equal to 3,000 feet AGL and visibility greater than or equal to 5 miles while MVFR is a sub-category of VFR.

CWSU PRODUCTS

- ✘ Meteorological Impact Statement (MIS)
 - + Details weather conditions expected to adversely impact air traffic flow
 - + Valid up to 12 hours
- ✘ Center Weather Advisory (CWA)
 - + Is an aviation weather warning
 - + For conditions meeting or approaching (AIRMET, SIGMET or SIGMET for convection) criteria
 - + Valid up to 2 hours
- ✘ MIS/CWA are transmitted via AISR and KVDT

PILOT REPORTS (PIREPS) WHY BOTHER?

- ✘ Upper Air (UA) Observations
 - + Very limited, only 6 sites in ZAB airspace
 - + Only 2 UA observations per day 00Z and 12Z
- ✘ Aircraft
 - + Several Thousand aircraft transit ZAB airspace daily
 - + Can provide current reports of turbulence, icing, weather conditions, etc.
 - + PIREPs enhance local and national AIRMET/SIGMET forecasts



PILOT REPORTS (PIREPS)

WHEN SHOULD I SOLICIT PIREPS?

FAAO 7110.65, PIREP INFORMATION, PARA 2-6-3 & 7110.10S CHG 1

1. **Ceilings** at or below 5,000 feet. These PIREPs shall include cloud base/top reports when feasible.
 - + **TERMINAL**. Ensure that at least one descent/climb out PIREP, including cloud base/s, top/s, and other related phenomena, is obtained each hour.
 - + **EN ROUTE**. When providing approach control services, the requirements stated in TERMINAL above apply.
2. **Visibility** (surface or aloft) at or less than 5 miles.
3. **Thunderstorms** and related phenomena.
4. **Turbulence** of moderate degree or greater.
5. **Icing** of light degree or greater.
6. **Wind shear**.
7. **Volcanic ash** clouds.

PIREP CLASSIFICATION

UA and UUA Classification

FAA Order 7110.10S; Pilot Weather Report (UA/UUA) 9-2-3

URGENT (UUA) PIREP:

1. Tornadoes, funnel clouds, or waterspouts.
2. Severe or extreme turbulence (including clear air turbulence).
3. Severe icing.
4. Hail.
5. Low level wind shear. UUA if speed fluctuations are 10 knots or more. If air speed fluctuation is not reported, classify PIREP as UUA.

NOTE- LLWS defined as wind shear within 2,000 feet of the surface.

6. Volcanic ash clouds.
7. Any other weather phenomena reported which are considered by the specialist as being hazardous, or potentially hazardous, to flight operations.

ROUTINE.

Classify as ROUTINE (UA) all PIREPs received except those listed above.



QUESTIONS / COMMENTS

