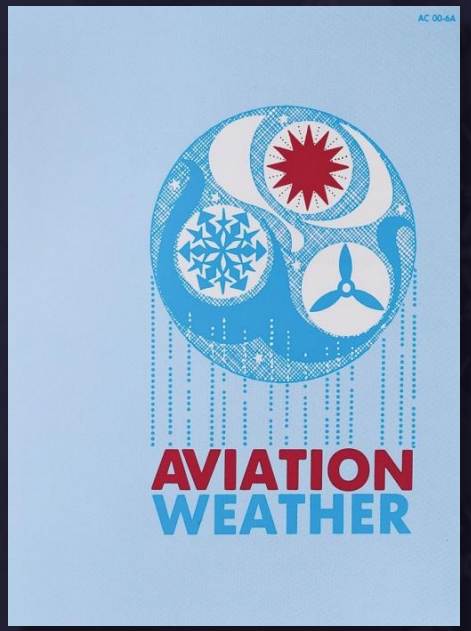
CENTRAL PENNSYLVANIA AVIATION WEATHER

WELCOME



CENTRAL PENNSYLVANIA AVIATION WEATHER

National Weather Service State College, PA

Charles Ross
Aviation Focal Point

Aaron Tyburski
Commercial, Instrument/Multi-engine

National Weather Service
New York Center Weather Service Unit

Kirt Squires
Aviation Forecaster

Pennsylvania Aviation

Topics covered

- Pennsylvania Aviation
- NWS Aviation Services
- NWS Center Weather Service Unit New York Presentation

Let's keep this interactive and laid back

- Ask Questions
- Comments Welcome

Our Office in State College

NWS Offices Nationwide

NWS Background

Issues weather and water forecasts

- Public
  - Daily
  - Long Range
  - Severe weather
  - Aviation
- Rivers
- Coastal / Marine

Issues weather warnings

- Tornado, Severe Thunderstorms, Flooding
- Special Marine
- Aviation - Icing, Turbulence, Convection

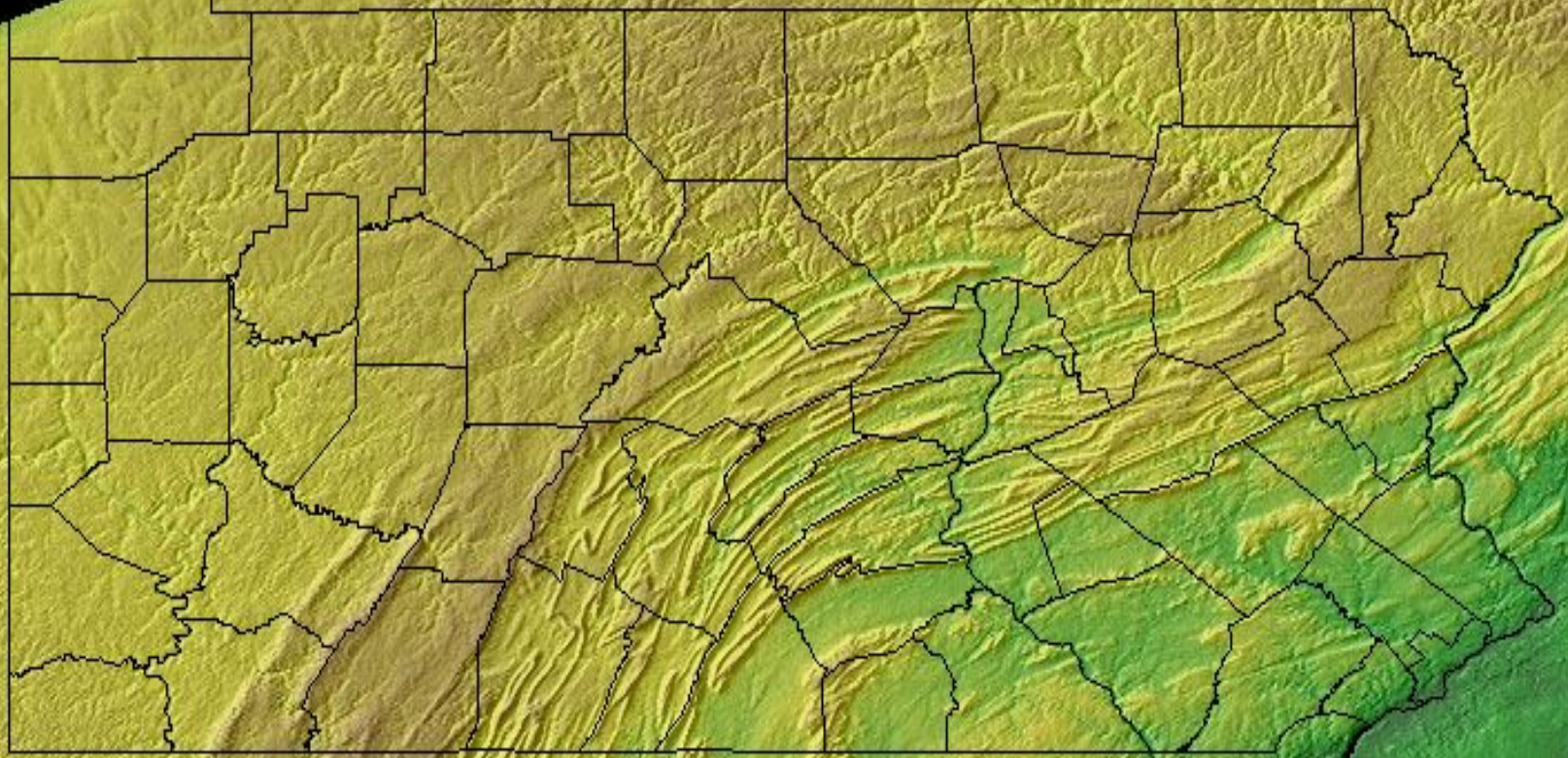
NWS Background

- NWS in the Aviation Community
  - National: Aviation Weather Center (AWC)
  - Regional: Center Weather Service Units (CWSUs)
  - Local: NWS Offices

Aviation in PA

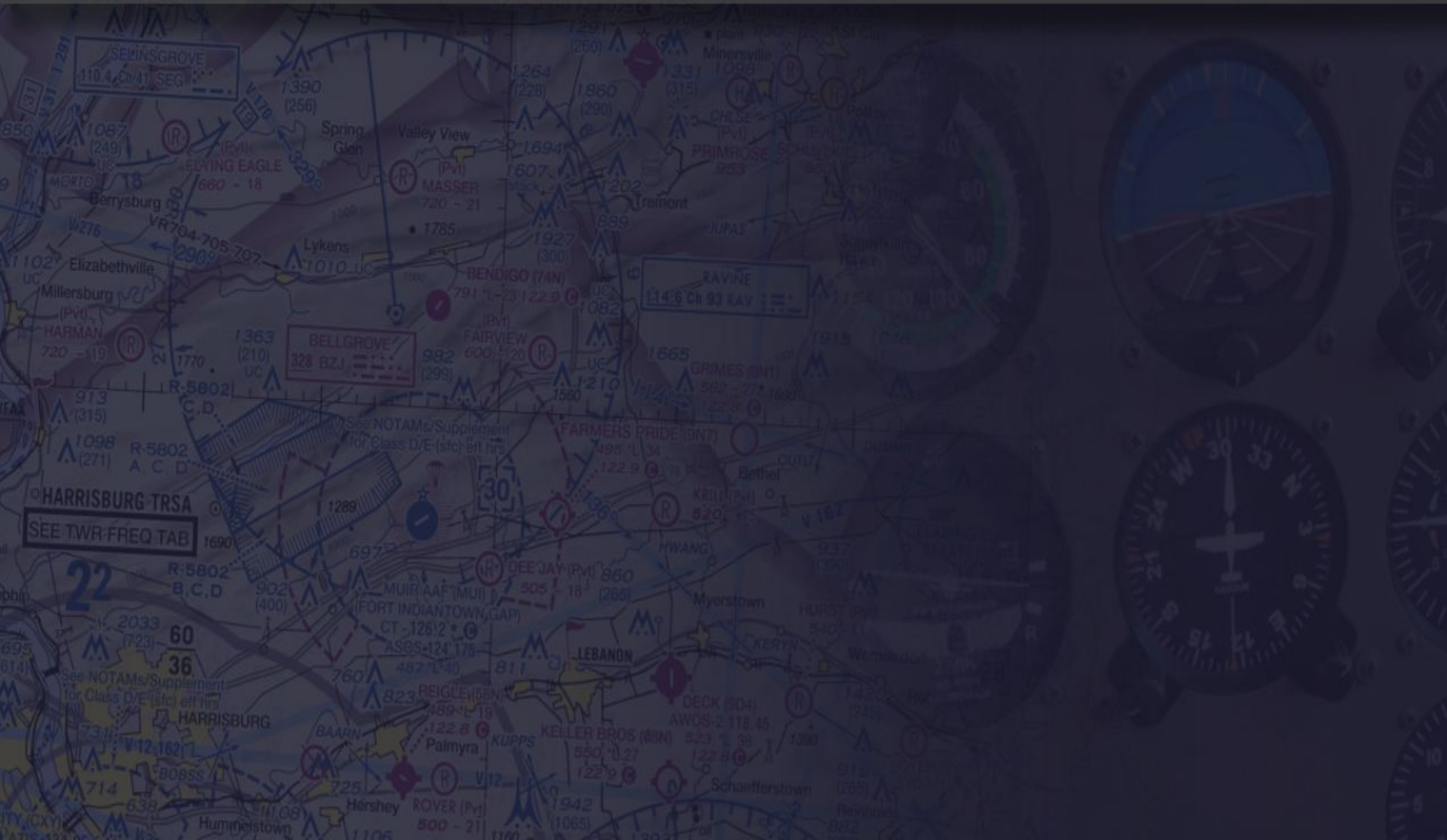
- Pennsylvania is a challenging place for General Aviation
  - Topography
    - Long rolling ridges and deep valleys
  - Weather
    - Low Ceilings and reduced visibility
    - Icing in clouds
    - Thunderstorms in summer

PA Ridges and Valleys



CENTRAL PENNSYLVANIA AVIATION WEATHER

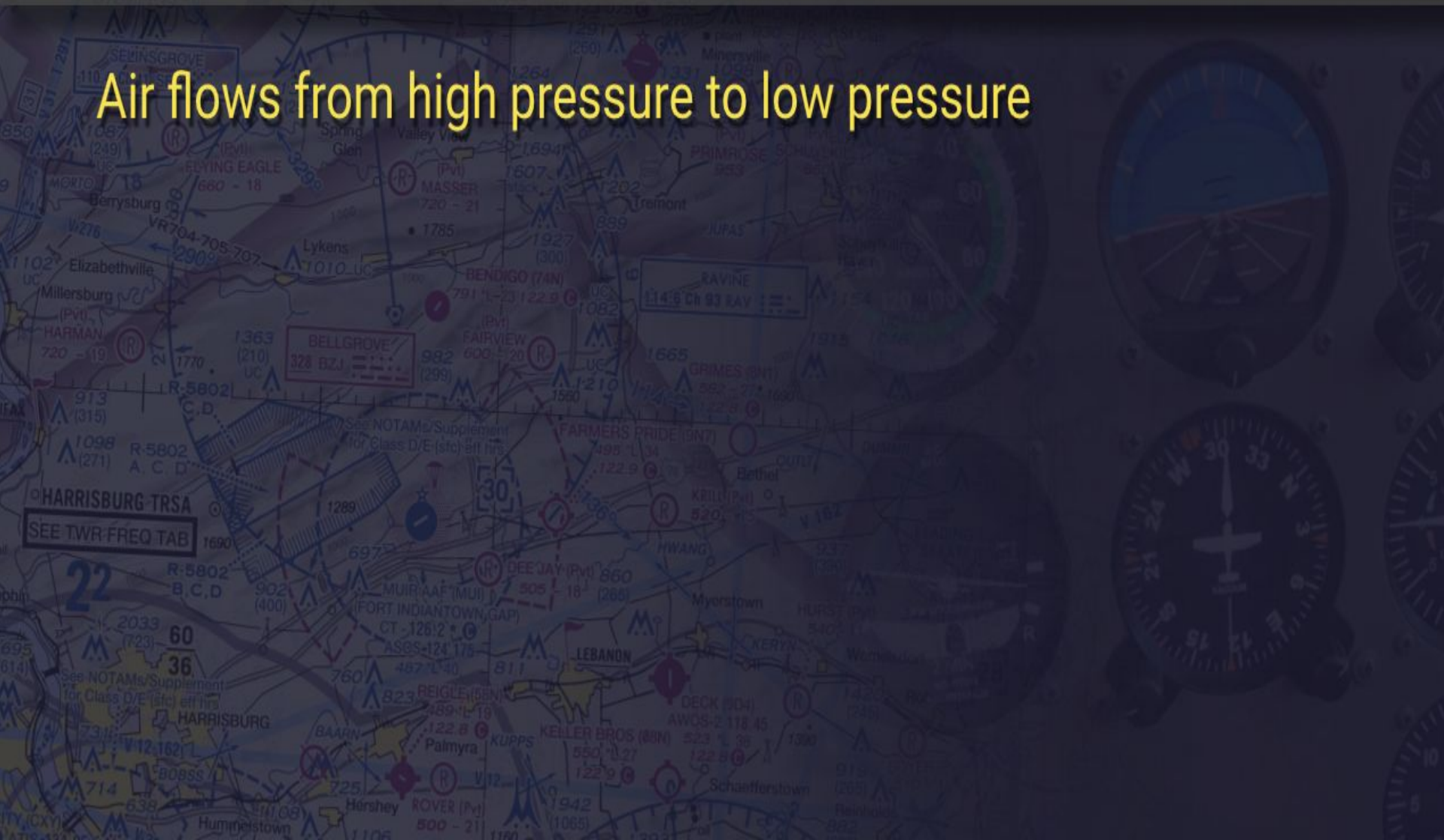
Weather Truths



CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure



CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

Warm air rises

CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

Warm air rises Cold air sinks

CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

Warm air rises Cold air sinks

Moisture coexists with air

CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

Warm air rises Cold air sinks

Moisture coexists with air

When air is lifted, it cools and moisture condenses out

CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

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Moisture coexists with air

When air is lifted, it cools and moisture condenses out

Water freezes at 32 degrees F ... Sometimes!

CENTRAL PENNSYLVANIA AVIATION WEATHER

Weather Truths

Air flows from high pressure to low pressure

Warm air rises Cold air sinks

Moisture coexists with air

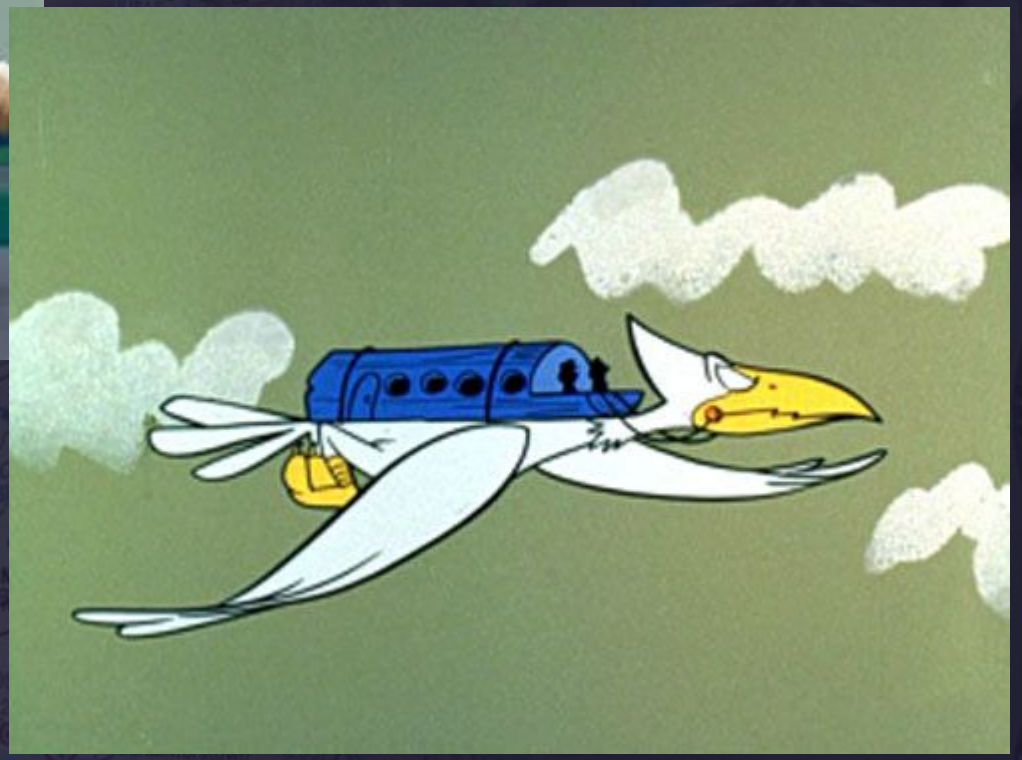
When air is lifted, it cools and moisture condenses out

Water freezes at 32 degrees F ... Sometimes!

Laws of physics apply to the atmosphere

CENTRAL PENNSYLVANIA AVIATION WEATHER

Aviation Truths



CENTRAL PENNSYLVANIA AVIATION WEATHER

Aviation Truths

Once wheels depart the earth, an aircraft is at the mercy of the airmass it's flying through.

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The atmosphere can overpower any aircraft.

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You can't see through clouds or fog.

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Ice loves to form on cold metal surfaces.

CENTRAL PENNSYLVANIA AVIATION WEATHER

Aviation Truths

Once wheels depart the earth, an aircraft is at the mercy of the airmass it's flying through.

The atmosphere can overpower any aircraft.

You can't see through clouds or fog.

Ice loves to form on cold metal surfaces.

If you don't have enough air going over the wings, gravity always wins.

Aviation in PA - CIGS and VSBY

- Definitions:
  - Proper Ceilings and Visibility are most important for visual flight flying
  - Ceiling - measurement of the height of the base of the lowest cloud deck that cover more than half of the sky
  - Visibility - measure of the distance at which an object can be clearly discerned

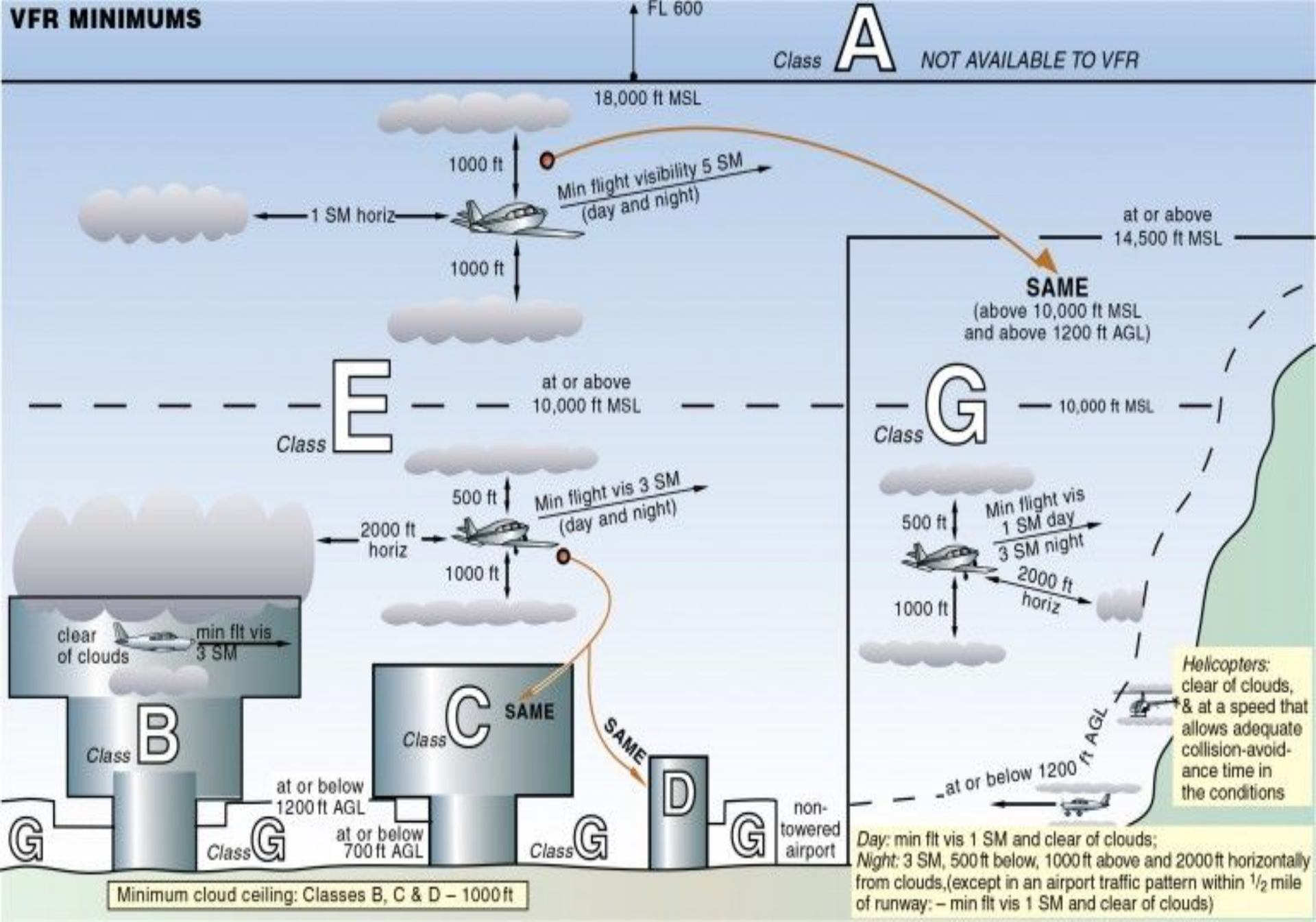
Aviation in PA - Observations

- ASOS: Automated Surface Observing System
  - Used for aviation and general meteorological purposes (i.e. climate data)
  - Weather reported hourly
  - SPECIs issued when significant weather changes occur
  - Supported by observer who issues corrections (COR) to observation when needed (i.e. frozen precipitation correction).
  - Wind direction reported in magnetic direction
  - A02: means that the site is automated and HAS a precipitation sensor
  - AO1 means there is no precipitation sensor. This does not mean the site is un-manned.
  - AUTO: in the metar observation, then there is no observer.
  - Maintained by NWS, DOD, and sometimes FAA

Aviation in PA - Observations

KJST 261151Z 31007KT 2SM +SN BKN005 02/02 A2994 RMK AO2 SLP139 60014 70036 T00210028 10211 20200 53001

- Used for aviation and general meteorological purposes (i.e. climate data)
- KJST: Station Identifier - Johnstown Airport
- 261151Z: Date / Time in Zulu
- 2SM: Visibility in statute miles
- +SN: Precipitation type and intensity
- BKN005: Cloud base and height
- 02/02: Temperature / Dewpoint temperature (°C)
- A2994: Altimeter / Pressure (i.e. 29.94 inches of mercury)
- A02: indicates that the site is automated and HAS a precipitation sensor.
- AO1: indicates there is no precip sensor. This does not mean the site is un-manned. AUTO after the ID in the metar observation: there is no observer.
- SLP 139: pressure - 1030.9 hPA (millibars)
- 60014: 6 hourly precipitation
- 70036: 24 hourly precipitation
- T02060200: Temperature and Dewpoint to nearest tenth of a degree
- 10211: 6-hour maximum temperature
- 20200: 6-hour minimum temperature
- 53001: 3-hour pressure tendency – 30.01 Hg (inches of mercury)


VFR MINIMUMS
FL 600
Class A
NOT AVAILABLE TO VFR
18,000 ft MSL
1000 ft
1 SM horiz
Min flight visibility 5 SM
(day and night)
1000 ft
at or above
14,500 ft MSL
SAME
(above 10,000 ft MSL
and above 1200 ft AGL)
Class E
at or above
10,000 ft MSL
Class G
10,000 ft MSL
500 ft
Min flight vis 3 SM
(day and night)
2000 ft
horiz
1000 ft
500 ft
Min flight vis
1 SM day
3 SM night
2000 ft
horiz
1000 ft
clear
of clouds
min flt vis
3 SM
Class B
Class C
SAME
SAME
Class D
at or below
1200 ft AGL
at or below
700 ft AGL
Class G
Class G
G
non-
towered
airport
-at or below 1200 ft AGL
Helicopters:
clear of clouds,
& at a speed that
allows adequate
collision-avoid-
ance time in
the conditions
Minimum cloud ceiling: Classes B, C & D – 1000 ft
Day: min flt vis 1 SM and clear of clouds;
Night: 3 SM, 500 ft below, 1000 ft above and 2000 ft horizontally
from clouds,(except in an airport traffic pattern within 1/2 mile
of runway: – min flt vis 1 SM and clear of clouds)

PILOT VISIBILITIES

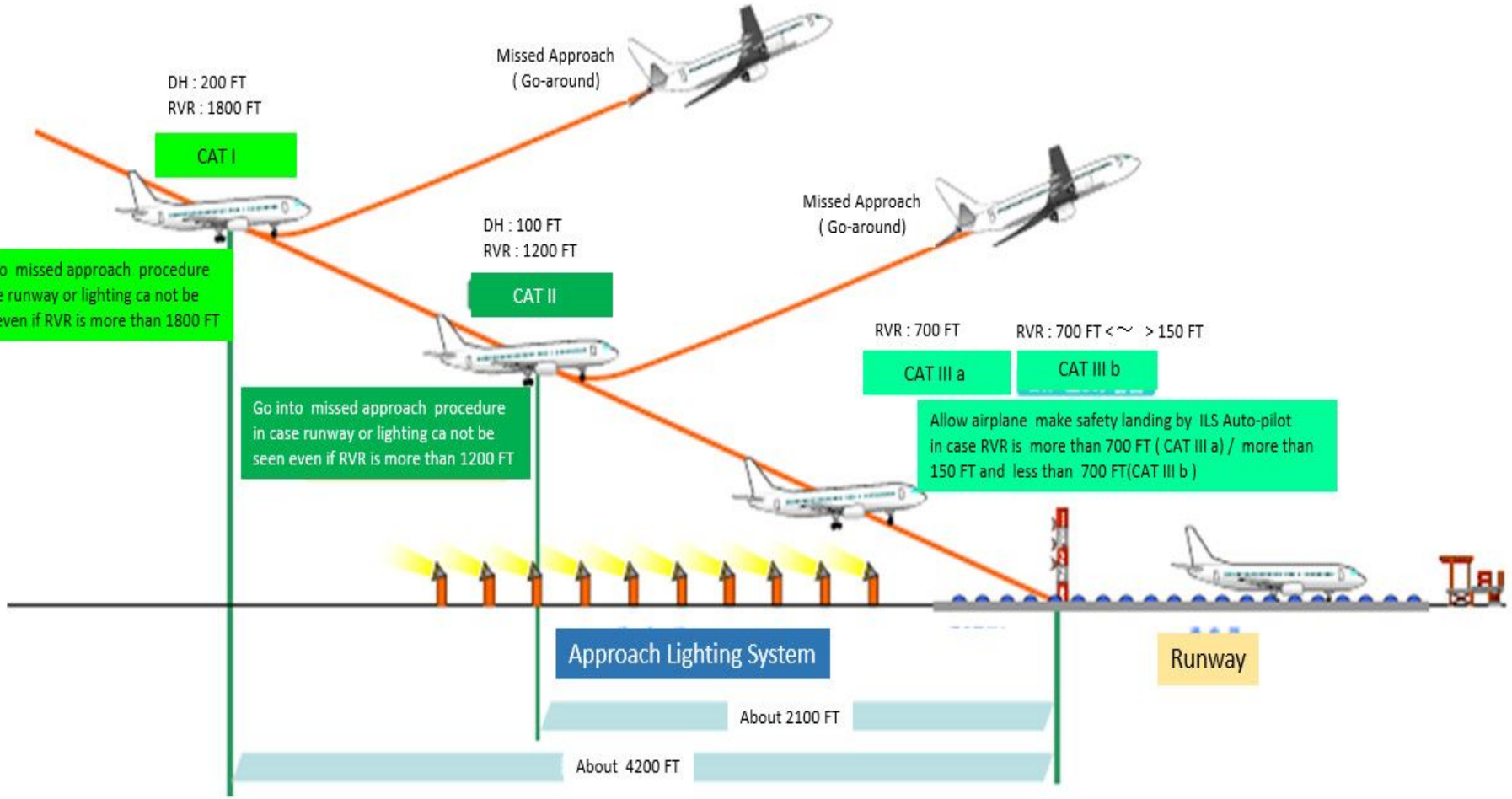


Figure : Ministry of Land ,Infrastructure , Transport and Tourism Japan
http://www.mlit.go.jp/common/001020334.pdf

Aviation in PA

TAF Amendments for Area Airports

CENTRAL PENNSYLVANIA, PA							
	THRESH A	THRESH B	THRESH C	THRESH D	THRESH E	THRESH F	APPROACH
AOO	200 - 1/2	800 - 2	1000 - 3	3000 - 5	2000 - 3		ILS or LOC RWY 21
BFD	300 - 1	600 - 2	1000 - 3	3000 - 5	2000 - 3		ILS or LOC RWY 32
IPT	300 - 3/4	1000 - 2	1000 - 3	3000 - 5	2000 - 3		ILS or LOC RWY 27
JST	200 - 1/2	600 - 2	1000 - 3	3000 - 5	2000 - 3		
LNS	200 - 1/2	700 - 2	1000 - 3	3000 - 5	2000 - 3		
MDT	200 - 1/2	700 - 2	1000 - 3	3000 - 5	2000 - 3		
UNV	200 - 1/2	800 - 2	1000 - 3	3000 - 5	2000 - 3		

PITTSBURGH, PA							
	THRESH A	THRESH B	THRESH C	THRESH D	THRESH E	THRESH	
AGC	200 - 3/4	600 - 2	1000 - 3	3000 - 5	2000 - 3		
BVI	300 - 1	800 - 2	1000 - 3	3000 - 5	2000 - 3		
DUJ	200 - 1/2	600 - 2	1000 - 3	3000 - 5	2000 - 3		
FKL	200 - 1/2	600 - 2	1000 - 3	3000 - 5	2000 - 3		ILS RWY 21
HLG	200 - 1	700 - 2	1000 - 3	3000 - 5	2000 - 3		ILS RWY 03
LBE	200 - 1/2	1200 - 2	1000 - 3	3000 - 5	2000 - 3		ILS RWY 24
MGW	300 - 1/2	600-2	1000 - 3	3000 - 5	2000 - 3		ILS RWY 18
PIT	200 - 1/2	400 - 1	1000 - 3	3000 - 5	2000 - 3		ILS RWY 10L, 10R, 28L, 28R
ZZV	200 - 3/4	600 - 2	1000 - 3	3000 - 5	2000 - 3		ILS RWY 22

- CAT E- Additional fuel required when forecast <2000/3
- CAT D–MVFR
- CAT C–IFR
- CAT B- Airport can not be used as an alternate
- CAT A- Airfield minimums

Aviation in PA

- Definitions:
  - LIFR - Low Instrument Flight Rules
    - Ceilings < 500’ and/or 1 mile vsby
  - IFR - Instrument Flight Rules
    - Ceilings between 500 and 100’ and/or 1-3 mile vsby
  - MVFR - Marginal Visual Flight Rules
    - Ceilings between 1000 and 3000 and/or 3-5 mile vsby
  - VFR - Visual Flight Rules
    - Ceilings > 3000’ and vsby > 5 miles

Aviation in PA

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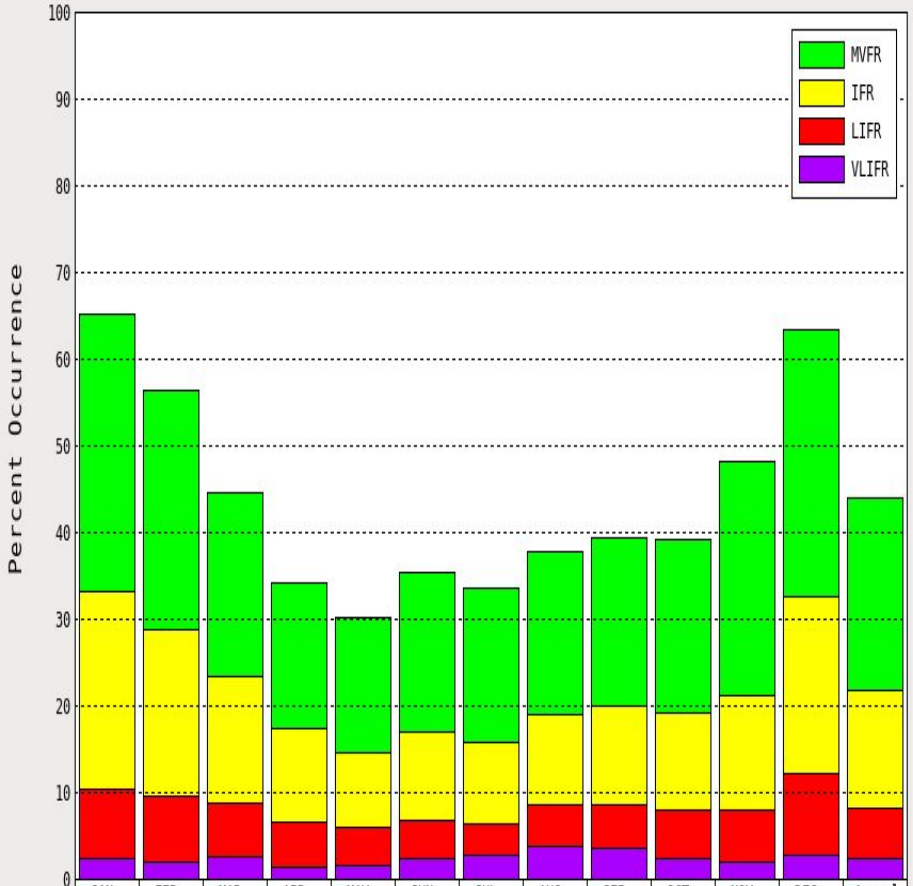
    - Ceilings > 3000’ and vsby > 5 miles

Aviation in PA

Time for a poll question!

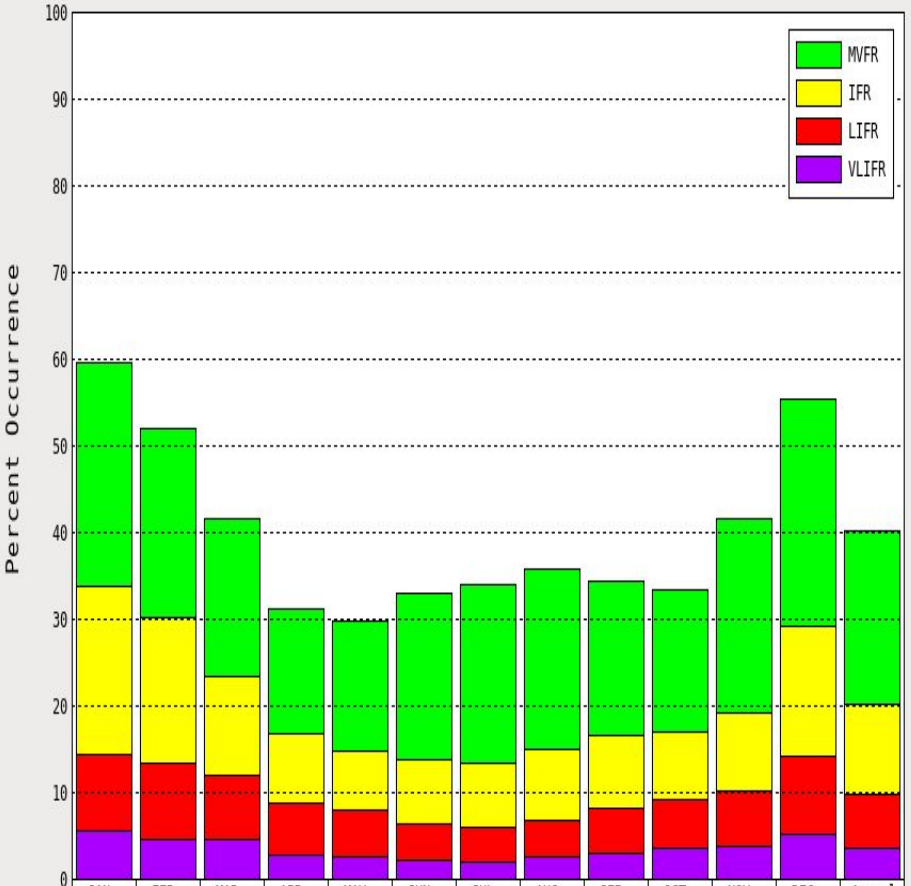
Central PA Flight Categories

KBFD Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	32	28	21	17	16	18	18	19	19	20	27	31	22
IFR	23	19	15	11	09	10	09	10	11	11	13	20	14
LIFR	08	08	06	05	04	04	04	05	05	06	06	09	06
VLIFR	02	02	03	01	02	02	03	04	04	02	02	03	02

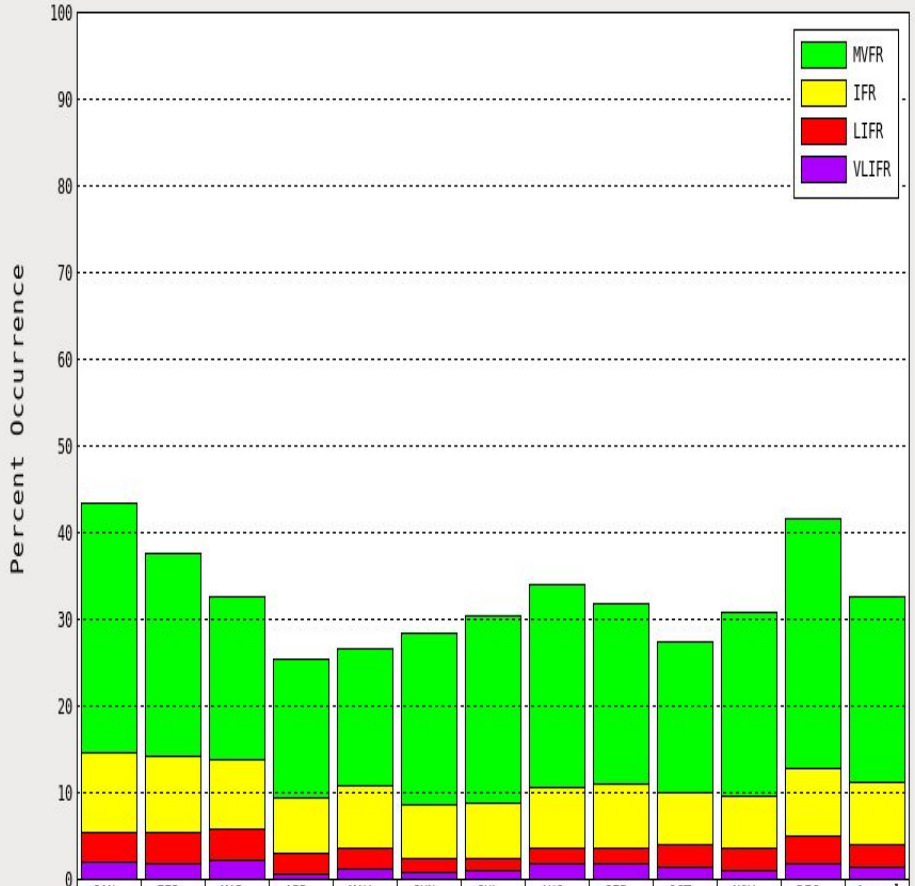
KJST Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	26	22	18	14	15	19	21	21	18	16	22	26	20
IFR	19	17	11	08	07	07	07	08	08	08	09	15	10
LIFR	09	09	07	06	05	04	04	04	05	06	06	09	06
VLIFR	06	05	05	03	03	02	02	03	03	04	04	05	04

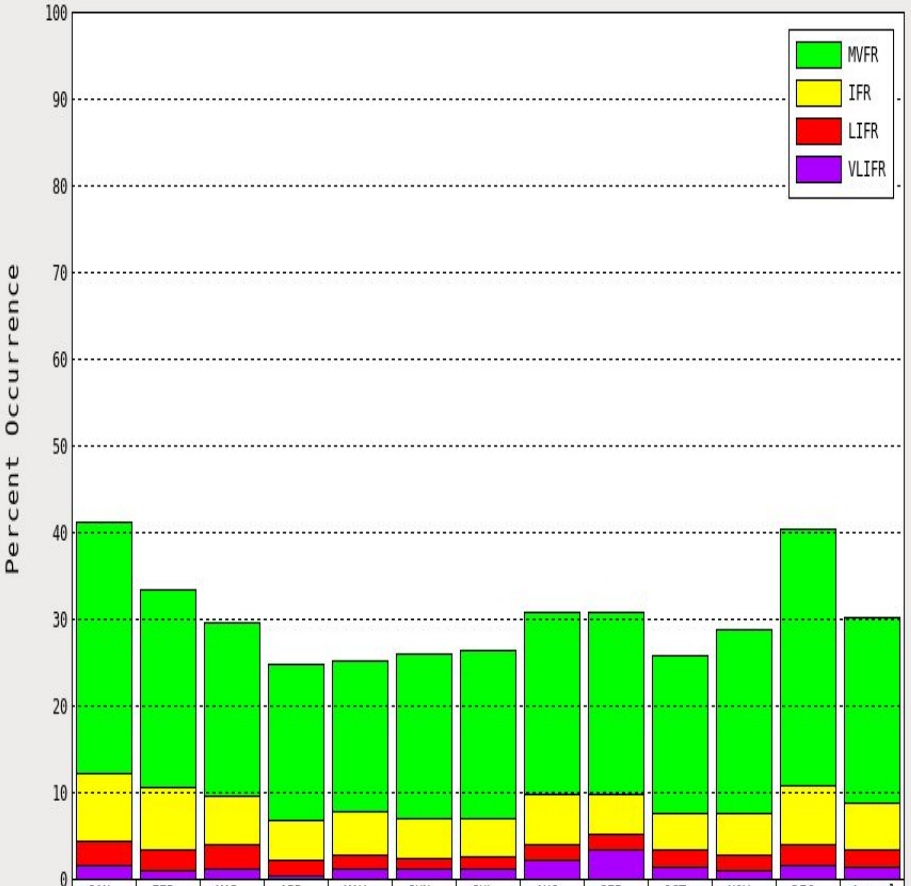
Central PA Flight Categories

KAOO Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	29	23	19	16	16	20	22	23	21	17	21	29	21
IFR	09	09	08	06	07	06	06	07	07	06	06	08	07
LIFR	03	04	04	02	02	02	01	02	02	03	03	03	03
VLIFR	02	02	02	01	01	01	01	02	02	01	01	02	01

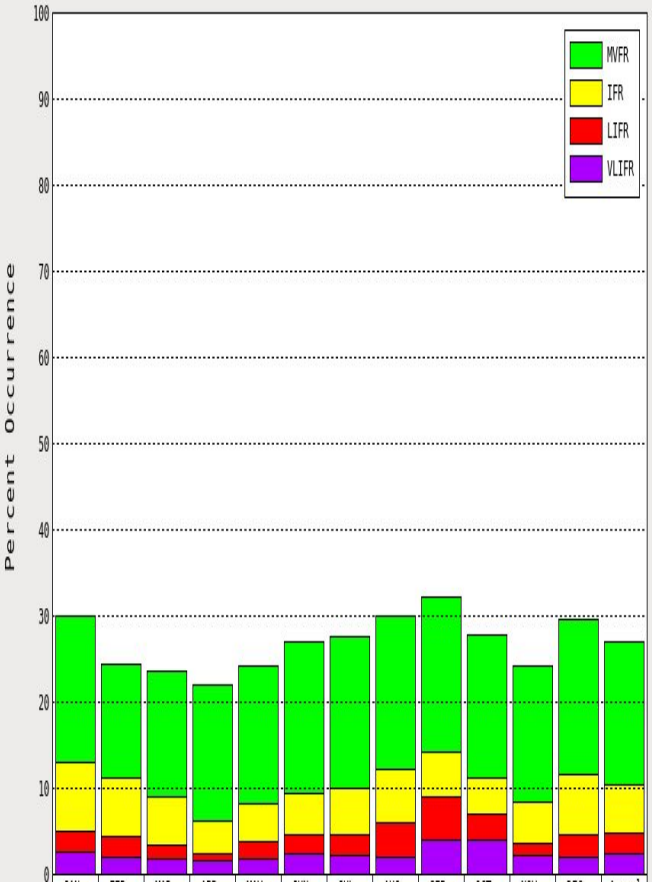
KUNV Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	29	23	20	18	17	19	19	21	21	18	21	30	21
IFR	08	07	06	05	05	05	04	06	05	04	05	07	05
LIFR	03	02	03	02	02	01	01	02	02	02	02	02	02
VLIFR	02	01	01	00	01	01	01	02	03	01	01	02	01

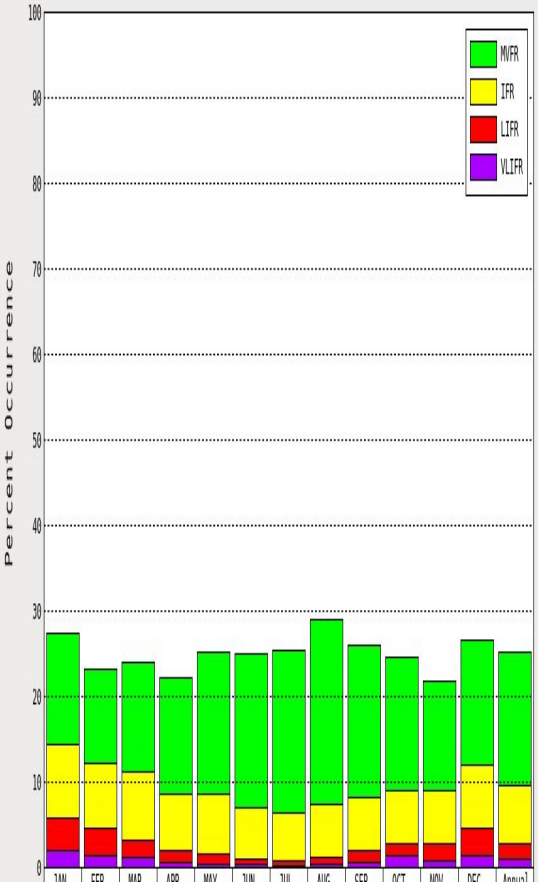
Central PA Flight Categories

KIPT Flight Category 00-23Z (1988-2017)



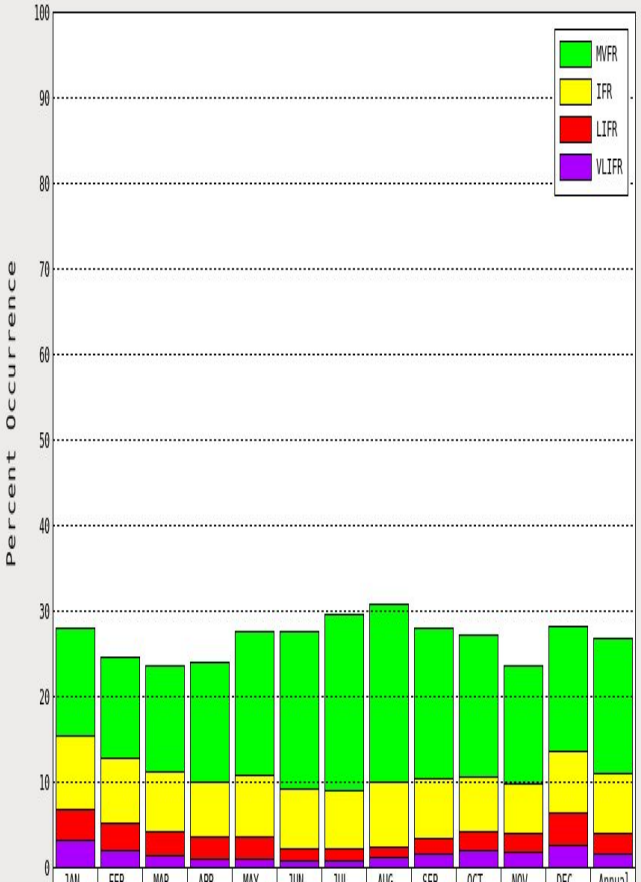
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	17	13	15	16	16	18	18	18	18	17	16	18	17
IFR	08	07	06	04	04	05	05	06	05	04	05	07	06
LIFR	02	02	02	01	02	02	02	04	05	03	01	03	02
VLIFR	03	02	02	02	02	02	02	02	04	04	02	02	02

KMDT Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	13	11	13	14	17	18	19	22	18	16	13	15	16
IFR	09	08	08	07	07	06	06	06	06	06	06	07	07
LIFR	04	03	02	01	01	01	01	01	01	01	02	03	02
VLIFR	02	01	01	01	00	00	00	00	01	01	01	01	01

KLNS Flight Category 00-23Z (1988-2017)



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
MVFR	13	12	12	14	17	18	21	21	18	17	14	15	16
IFR	09	08	07	06	07	07	07	08	07	06	06	07	07
LIFR	04	03	03	03	03	01	01	01	02	02	02	04	02
VLIFR	03	02	01	01	01	01	01	01	02	02	02	03	02

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing

The effects of icing on an aircraft are cumulative

- Weight Increases
- Lift is Diminished
- Thrust is Reduced
- Drag Increases

Aircraft icing can occur in cloud or in precipitation

- Supercooled water droplets
- FZRA / FZDZ / IP in ob
- Cold-soaked airframe
- Frost

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing

Snow, ice or frost on the aircraft during preflight?

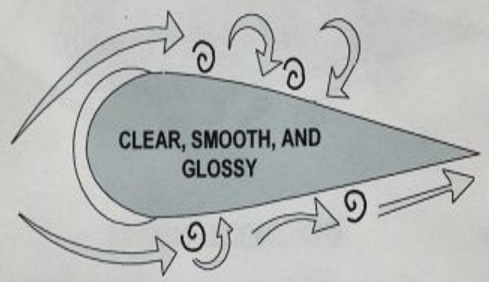
Are you sure it's all gone?

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing

Icing types

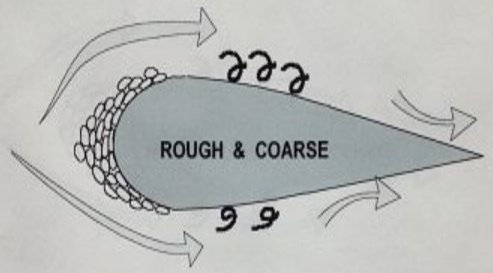
CLEAR ICING



FAVORABLE CONDITIONS

- LARGE DROPLETS IN CUMULIFORM CLOUDS, FREEZING RAIN, OR TERRAIN EFFECTS

RIME ICING



FAVORABLE CONDITIONS

- SMALL, SUPERCOOLED DROPLETS IN STRATIFORM CLOUDS

MIXED ICING

FAVORABLE CONDITIONS

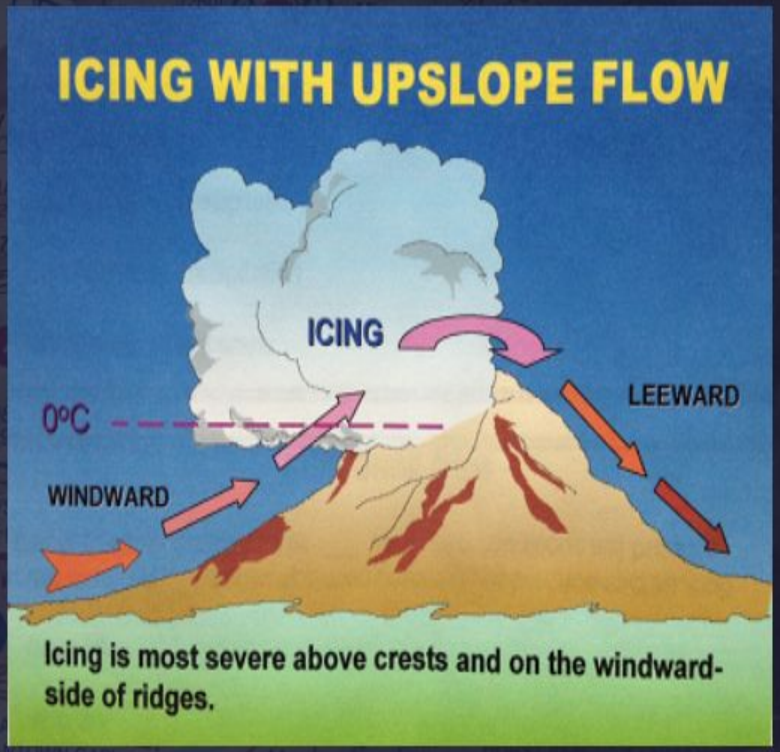
- LARGE AND SMALL DROPLETS COEXIST
- LIQUID AND FROZEN PARTICLES COEXIST
- WET SNOW

Difficult to discern types from flight deck

Because you just got really busy

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing



Pennsylvania ridges and valleys

Every ridge line you cross is another chance for icing

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing

Trace
- Stratus clouds

Light
- Stratus clouds and weak weather-producing system
- Widespread weak cumulus or stratocumulus clouds

Moderate
- Nimbostratus clouds and weather-producing system
- Stratocumulus and turbulent mixing
- Light freezing rain, freezing drizzle
- Extensive vertically-developed cumuliform clouds

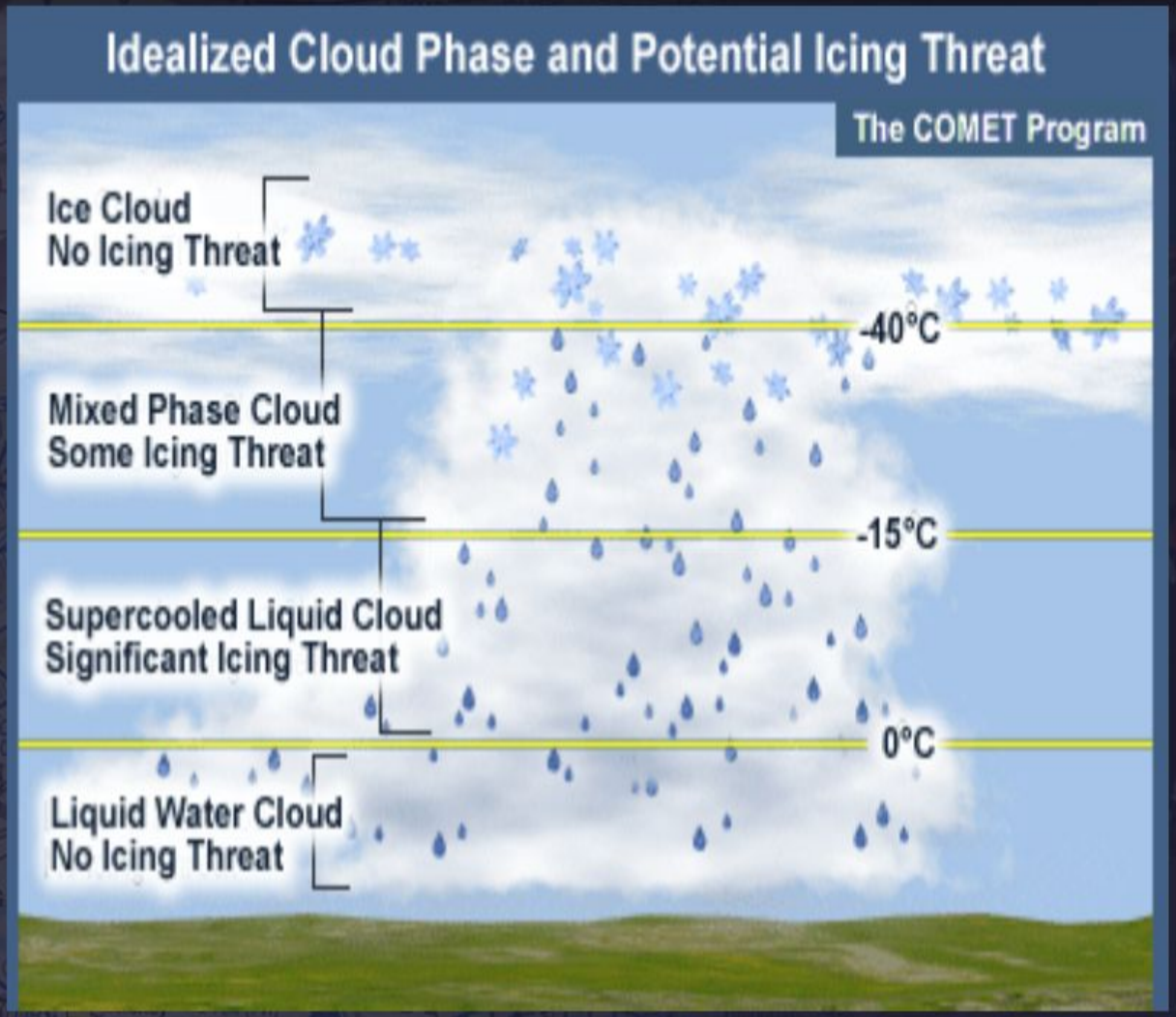
Severe
- Nimbostratus clouds and strong weather-producing system
- Freezing rain
- Cumulonimbus

Each aircraft will handle icing differently

Got de-ice boots or hot bleed air? Great! If not, get to a warmer altitude

CENTRAL PENNSYLVANIA AVIATION WEATHER

Icing



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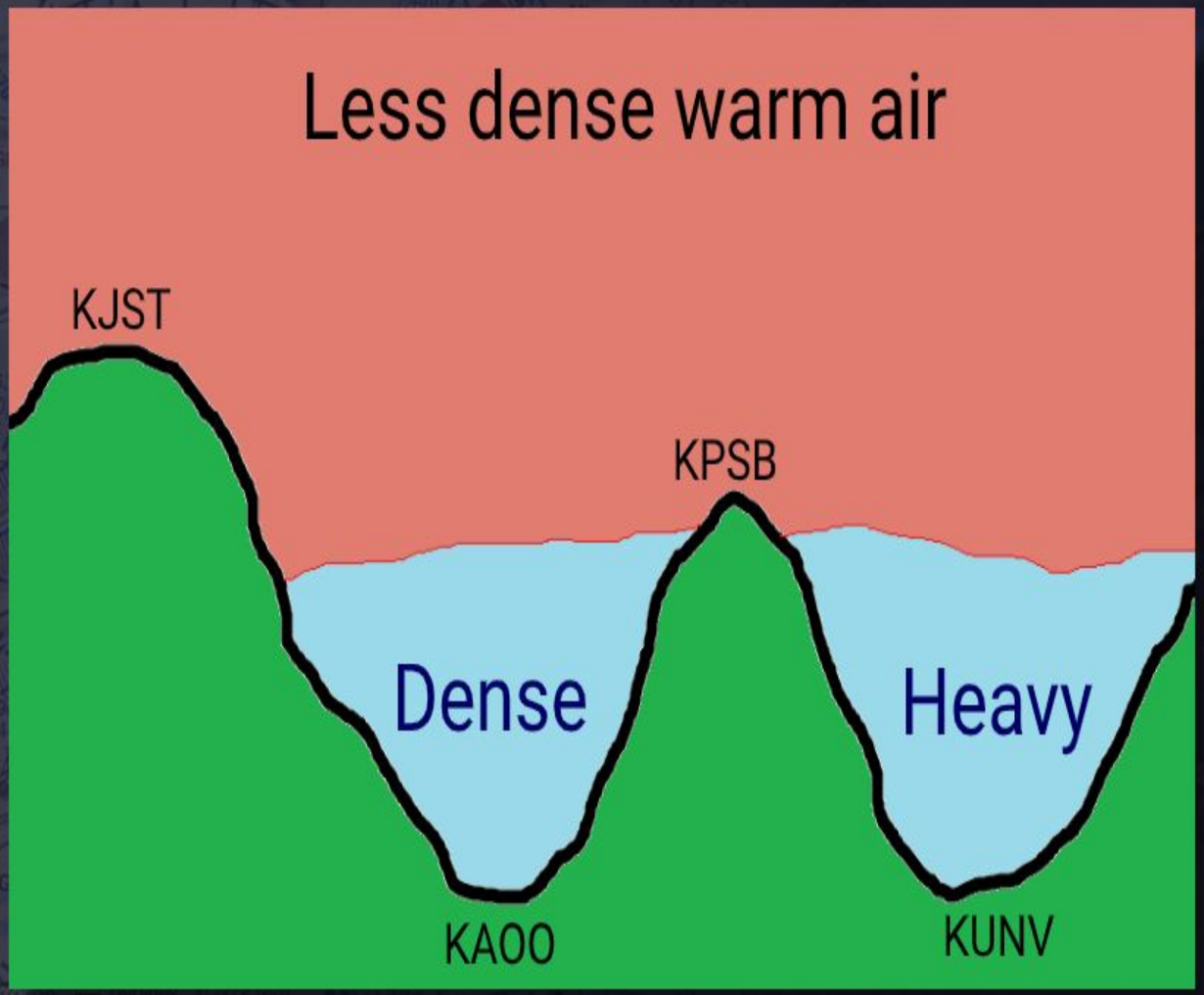
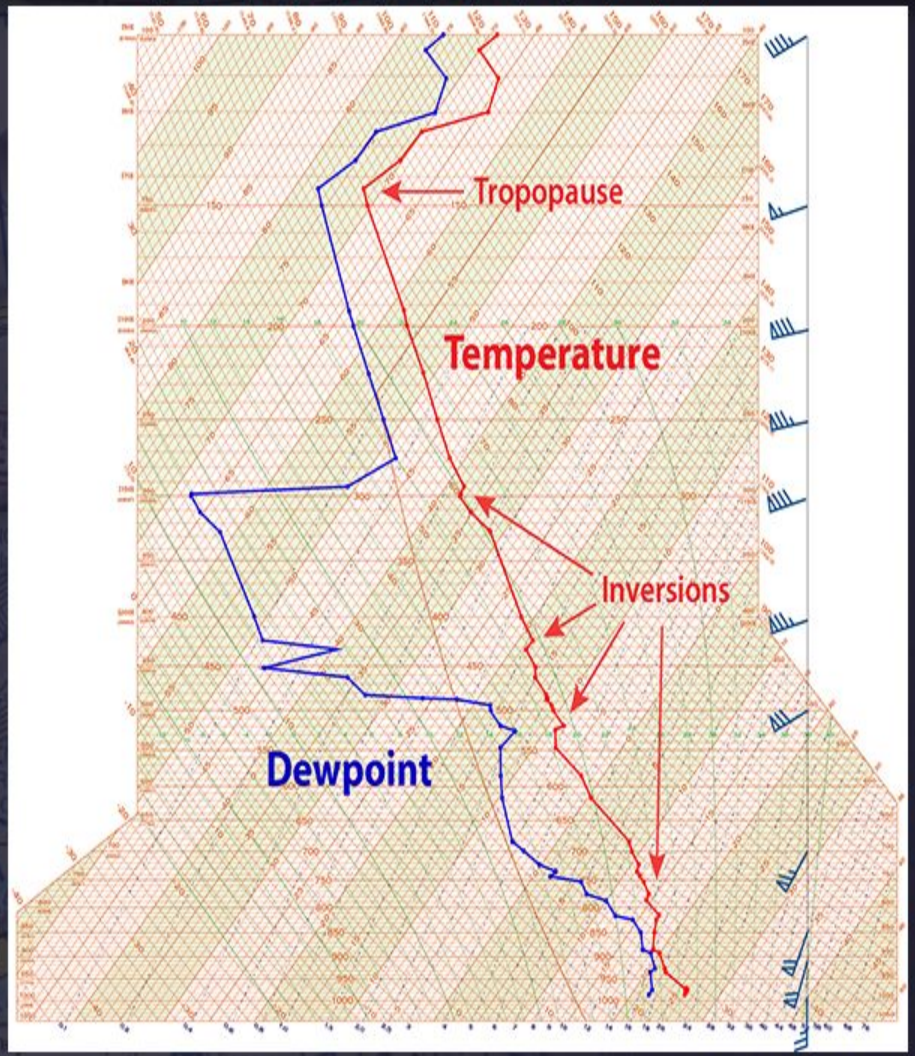
Icing



CENTRAL PENNSYLVANIA AVIATION WEATHER

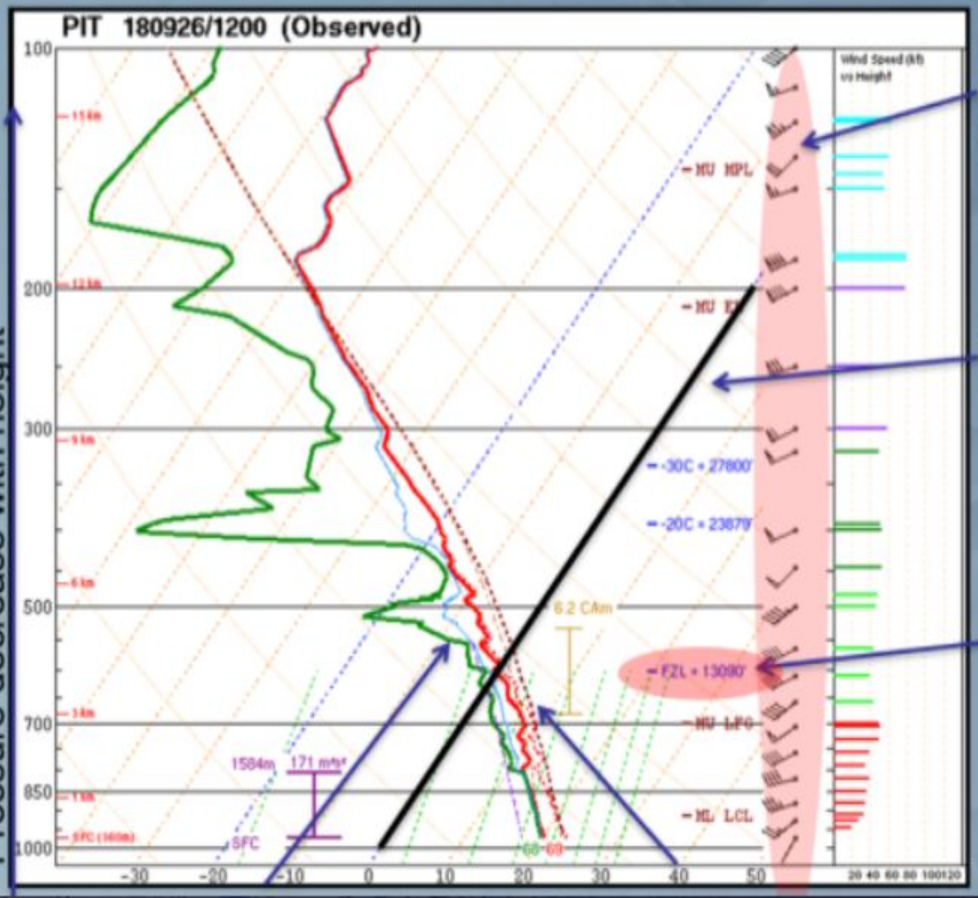
Upper Air Sounding / Skew-T Chart



CENTRAL PENNSYLVANIA AVIATION WEATHER

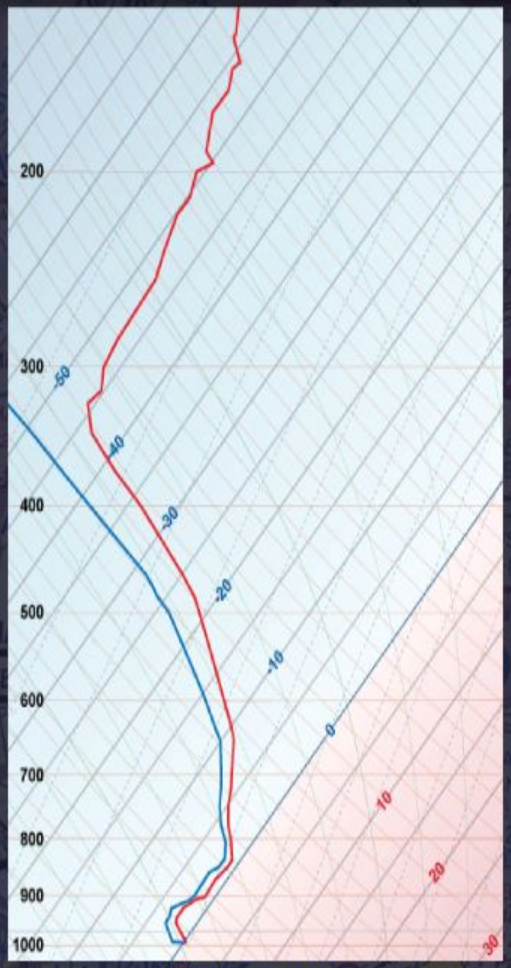
Upper Air Sounding / Skew-T Chart

Upper Air Soundings

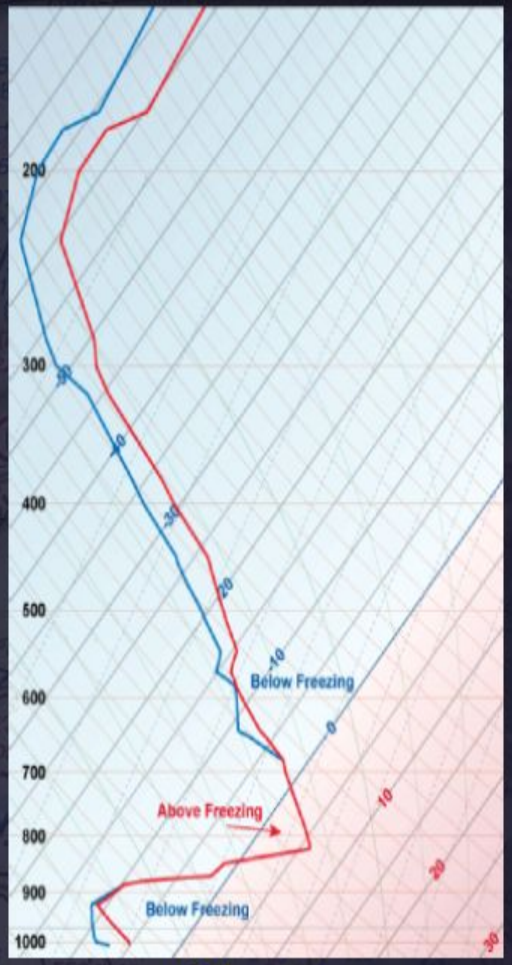


CENTRAL PENNSYLVANIA AVIATION WEATHER

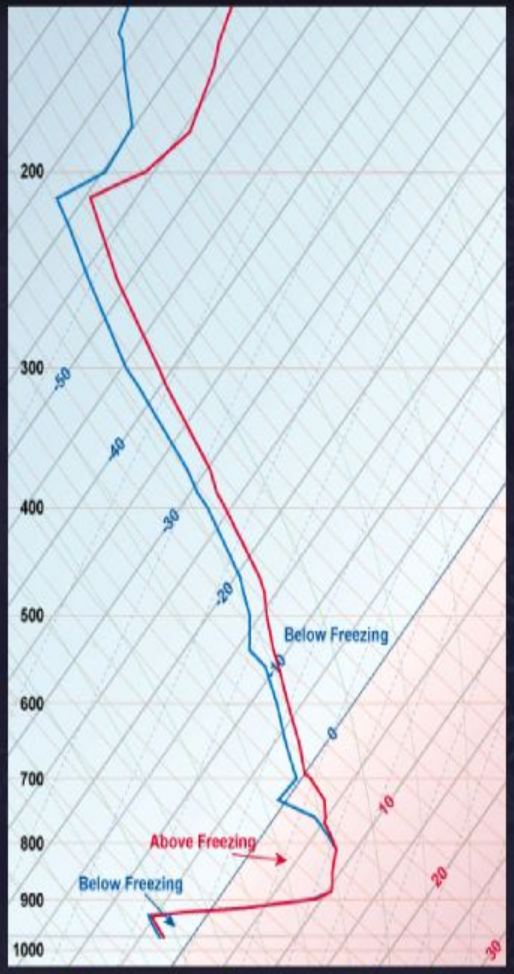
Icing



Snow



Sleet



Freezing Rain

CENTRAL PENNSYLVANIA AVIATION WEATHER

Upper Air Sounding / Skew-T Chart

https://www.youtube.com/watch?v=jHm4itwxpVY&t=6s

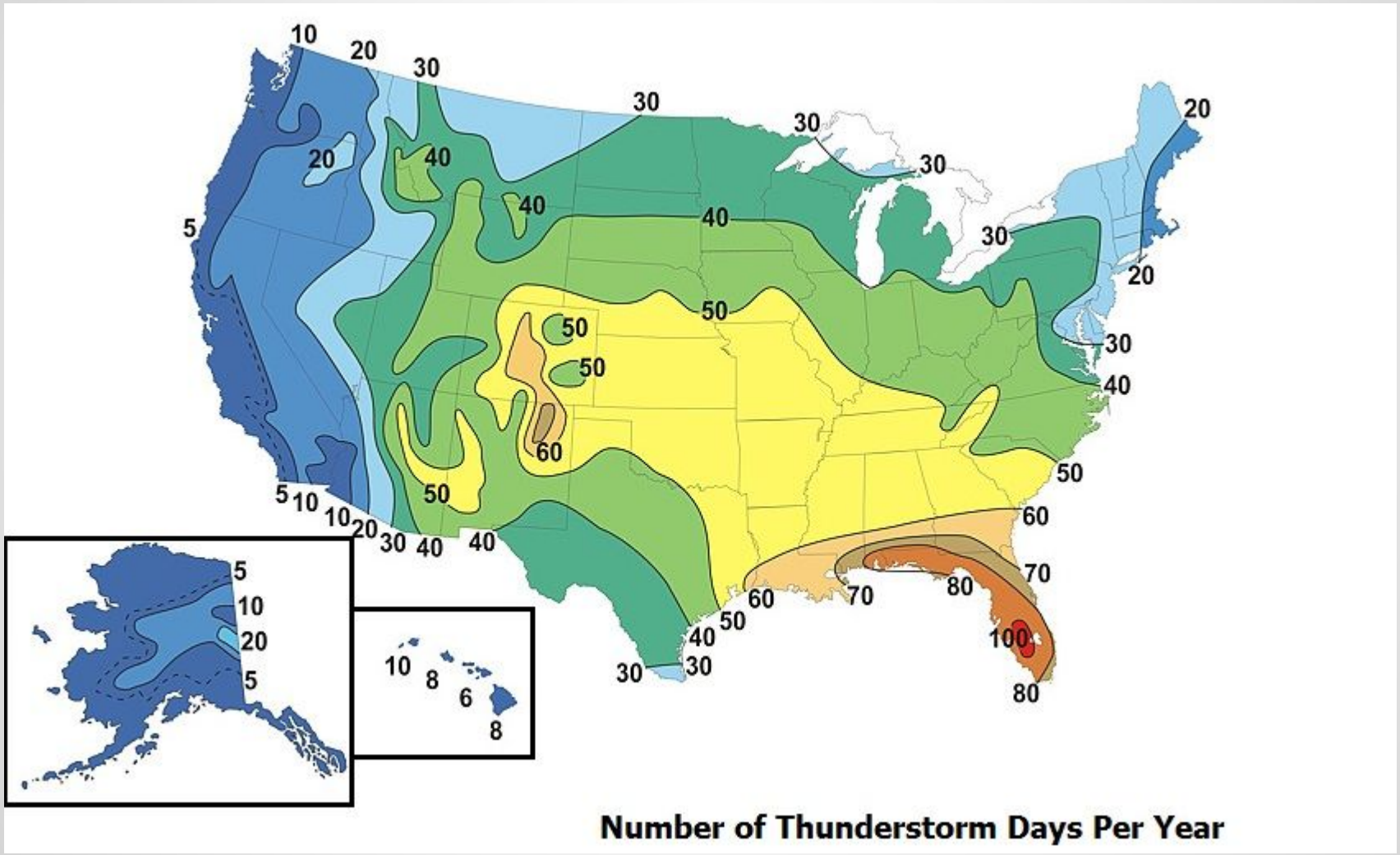
Real Pilot Stories:

Icing Encounter

- **Location:** *Central Pennsylvania*
- **Pilot:** *Heath Wells*
- **ATC:** *Terry Pitts, Stacy Parham, Mike Wilson*
- **Aircraft:** *Cessna 172*
- **Date:** *December 2005*

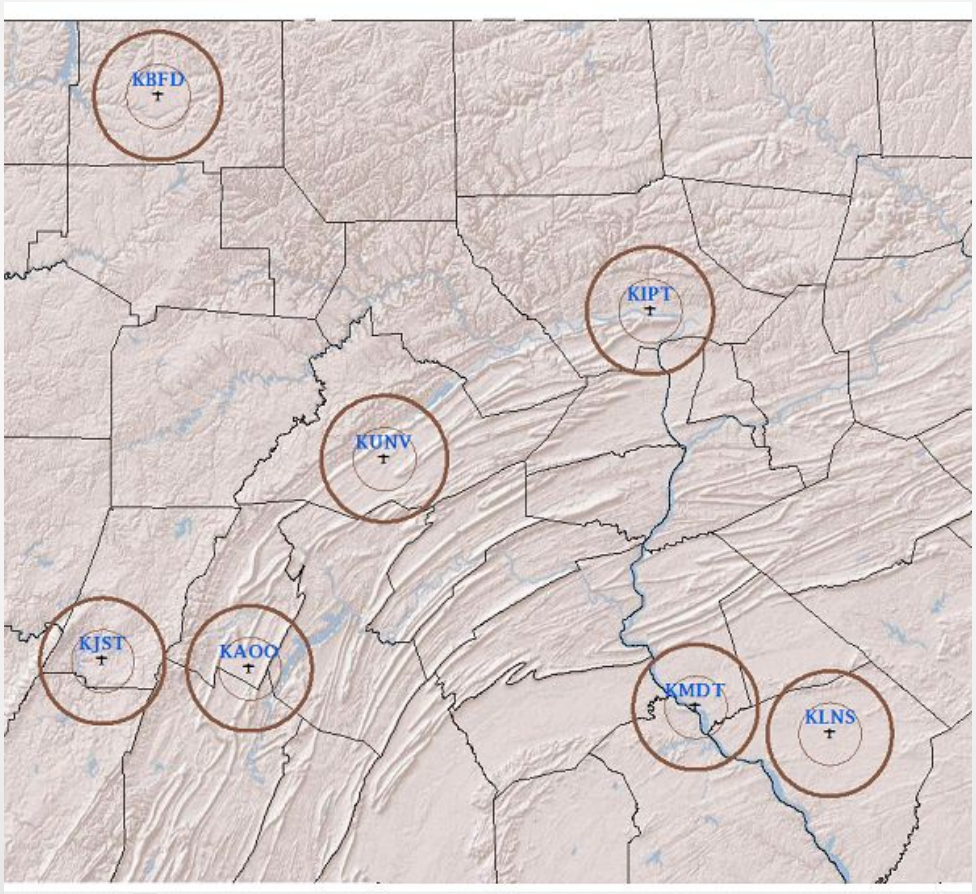
A brand-new IFR rating, an airplane full of family and an icy winter storm over the mountains combined to teach Heath Wells some valuable – and nearly fatal – lessons about instrument flying.

Aviation in PA - Thunderstorms



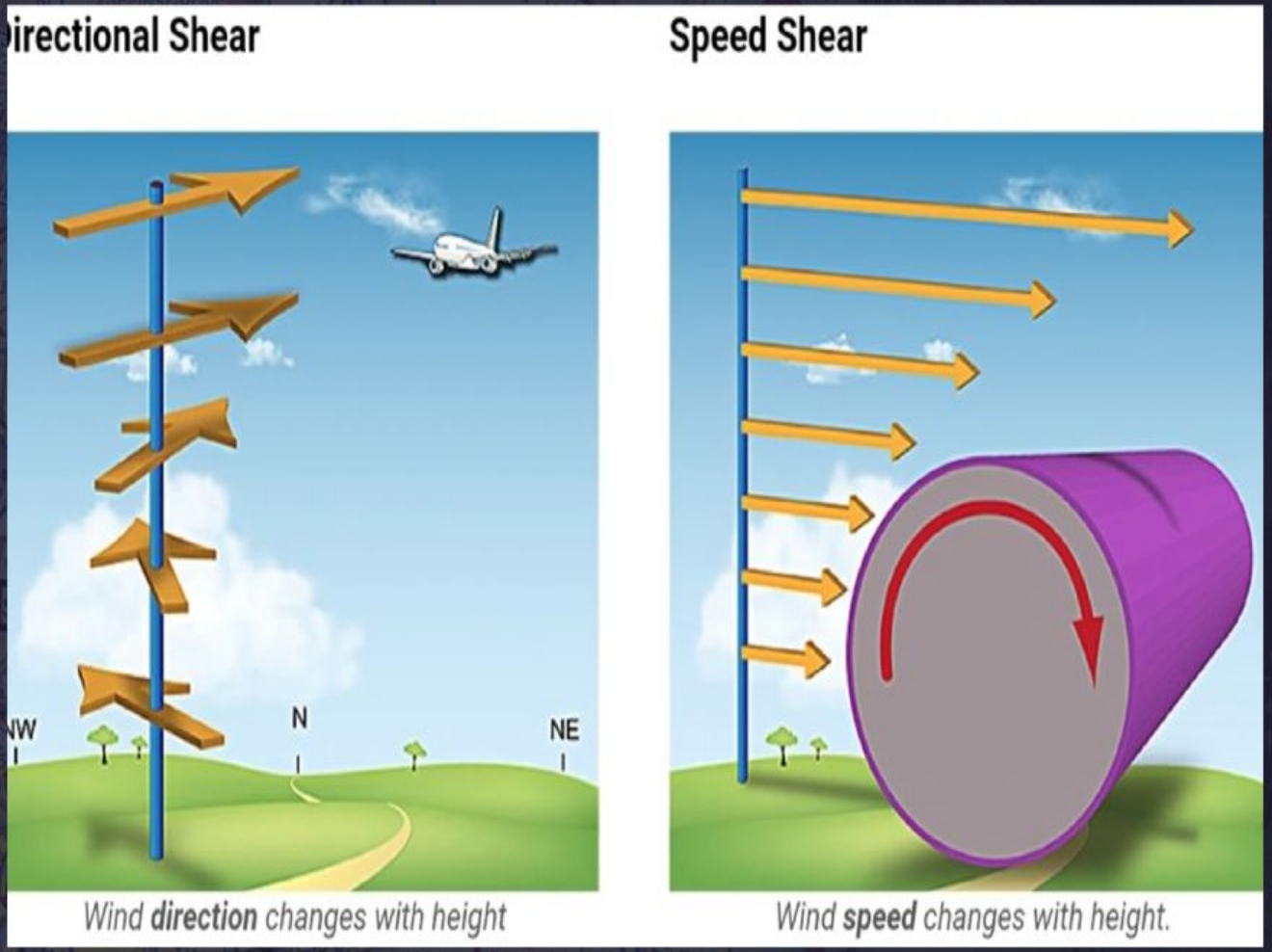
NWS Offices

NWS State College Aviation Webpage



CENTRAL PENNSYLVANIA AVIATION WEATHER

Wind Shear



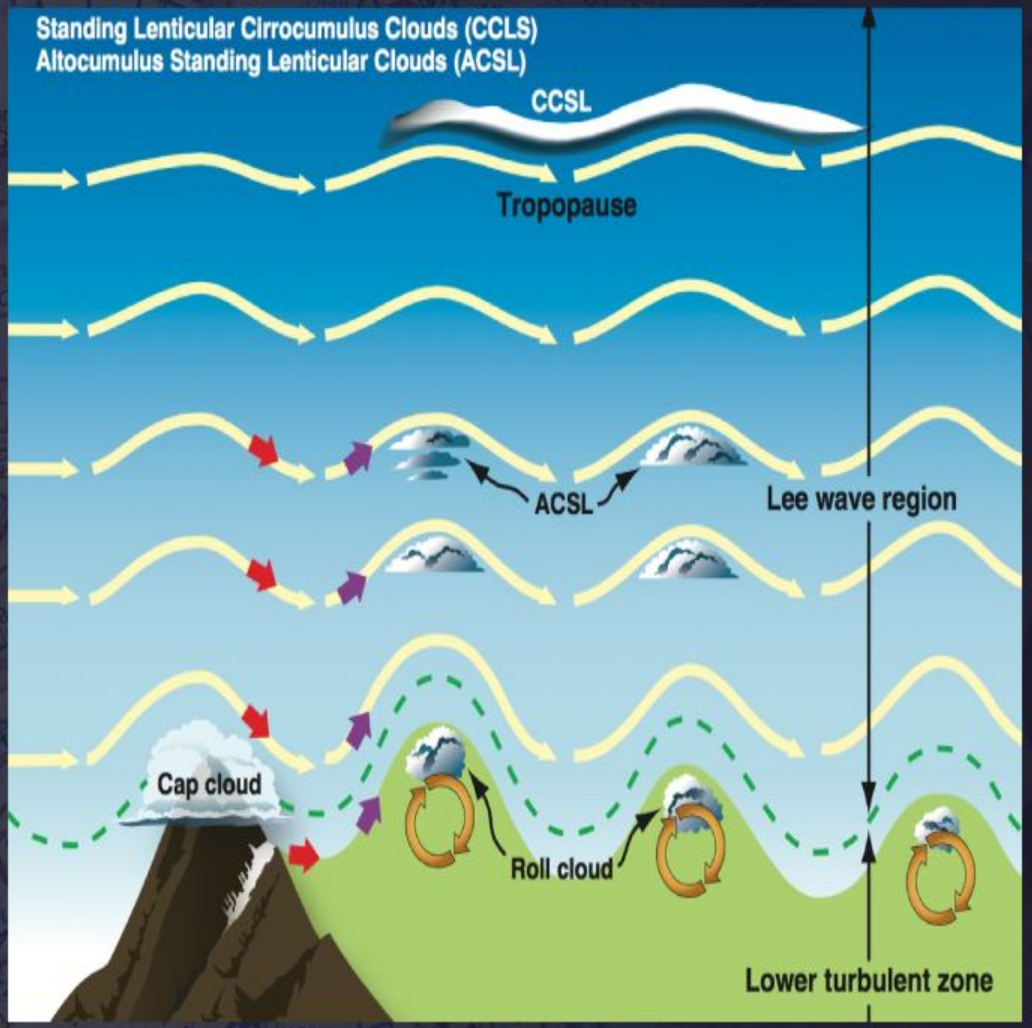
A change in wind speed or direction over a relatively short distance.

Can be horizontal or vertical.

Causes a "rolling" or "twisting" of the air column.

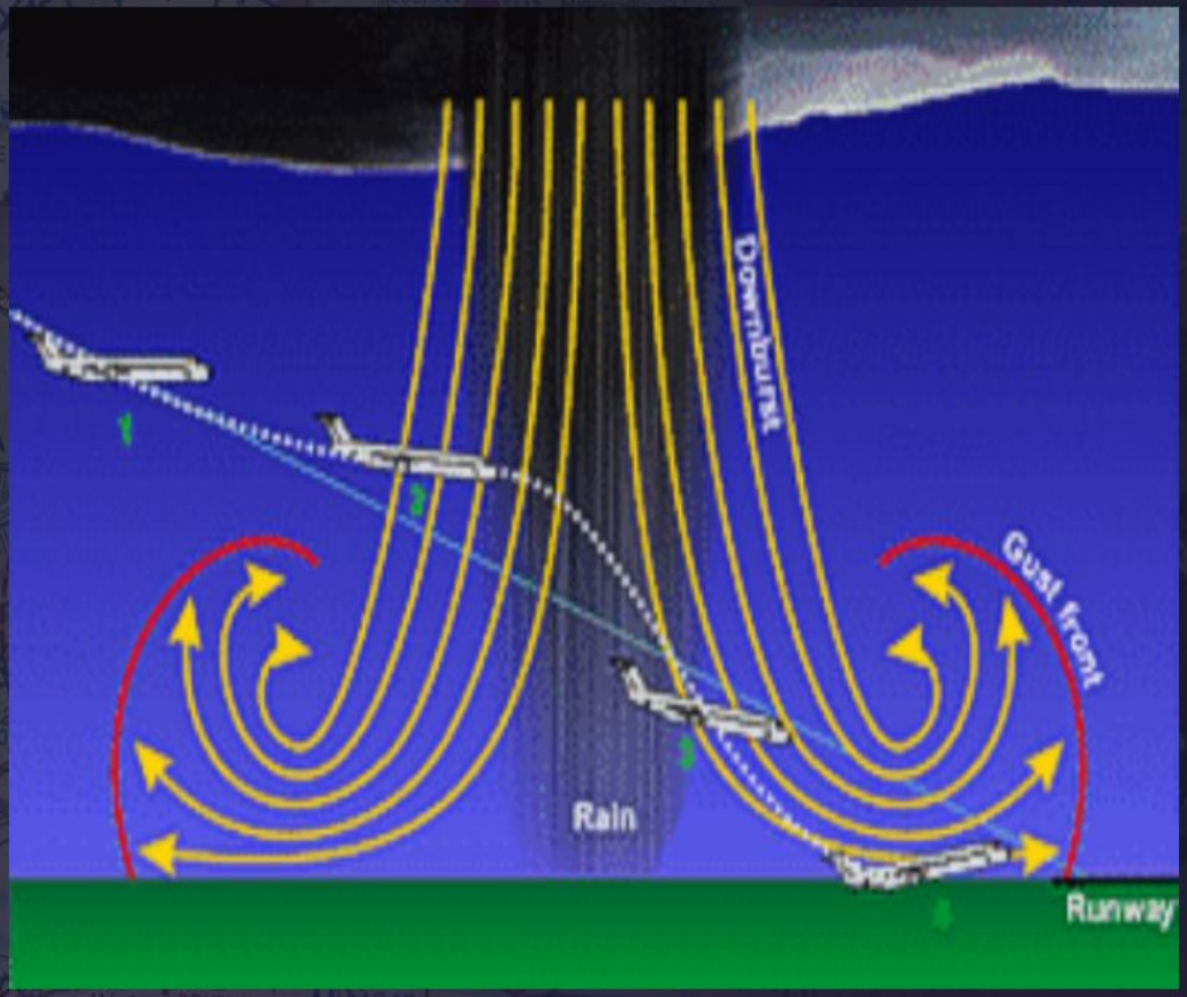
CENTRAL PENNSYLVANIA AVIATION WEATHER

Wind Shear



CENTRAL PENNSYLVANIA AVIATION WEATHER

Wind Shear



CENTRAL PENNSYLVANIA AVIATION WEATHER

Wind Shear

```
KMEM 081503Z 0815/0912 20006KT P6SM SCT100 BKN250
FM082100 21006KT P6SM VCSH SCT050 BKN200
FM090000 18005KT P6SM -RA OVC015
FM090200 18010KT 2SM -RA BR BKN008 OVC015 WS020/20045KT=
```

Compare the wind direction and speed in the "WS" section to the prevailing wind

Terminal Aerodrome Forecast

Interpretation:

- TAF is a concise statement of the expected meteorological conditions significant to aviation to impact an airport during the 24-hour forecast period.
  - 30-hour TAFs issued for 32 airports across the country (KPIT).
- An airport is defined as the area within 5 statute miles of the center of an airport's runway complex.
- Updated every 6 hours (00Z, 06Z, 12Z, 18Z)
  - 3-hourly amendments issued as well.

TAF Example

KIPT 261134Z 2612/2718 23010KT 6SM -SHRA BR OVC015
  FM261500 25013KT 5SM -SHRA VCTS OVC010CB
  FM262000 30012KT P6SM OVC035 WS020/25045KT
  FM262300 33005KT P6SM SCT100
  FM270900 VRB03KT 4SM BR OVC250

TAF Example

Flight Categories		
Flight Category	Ceiling (feet)	Visibility (SM)
VLIFR	< 200 and/or	< ½
LIFR	< 500 and/or	< 1
IFR	≥ 500 to < 1,000 and/or	≥ 1 to < 3
MVFR	≥ 1,000 to ≤ 3,000 and/or	≥ 3 and ≤ 5
VFR	> 3,000 and	> 5

Critical Amendment Critera - CAC	
Flight Category	Impact
MVFR	≤ 3000 ft and/or ≤ 5 sm
Must File Alternate	< 2000 ft and/or < 3 sm
IFR	< 1000 ft and/or < 3 sm
Alternate Landing Minimums (airport dependent)	600 ft and/or 2 sm
Airfield Landing Minimums (airport dependent)	200 ft and/or ½ sm

- Federal Aviation Regulations state that when flying under instrument flight rules alternate fuel and airport are required unless the ceiling AND visibility are >/= to 2000' AND 3SM.

Center Weather Service Units (CWSUs)

Joint FAA / NWS weather support units

Staffed 16 hours per day by NWS personnel

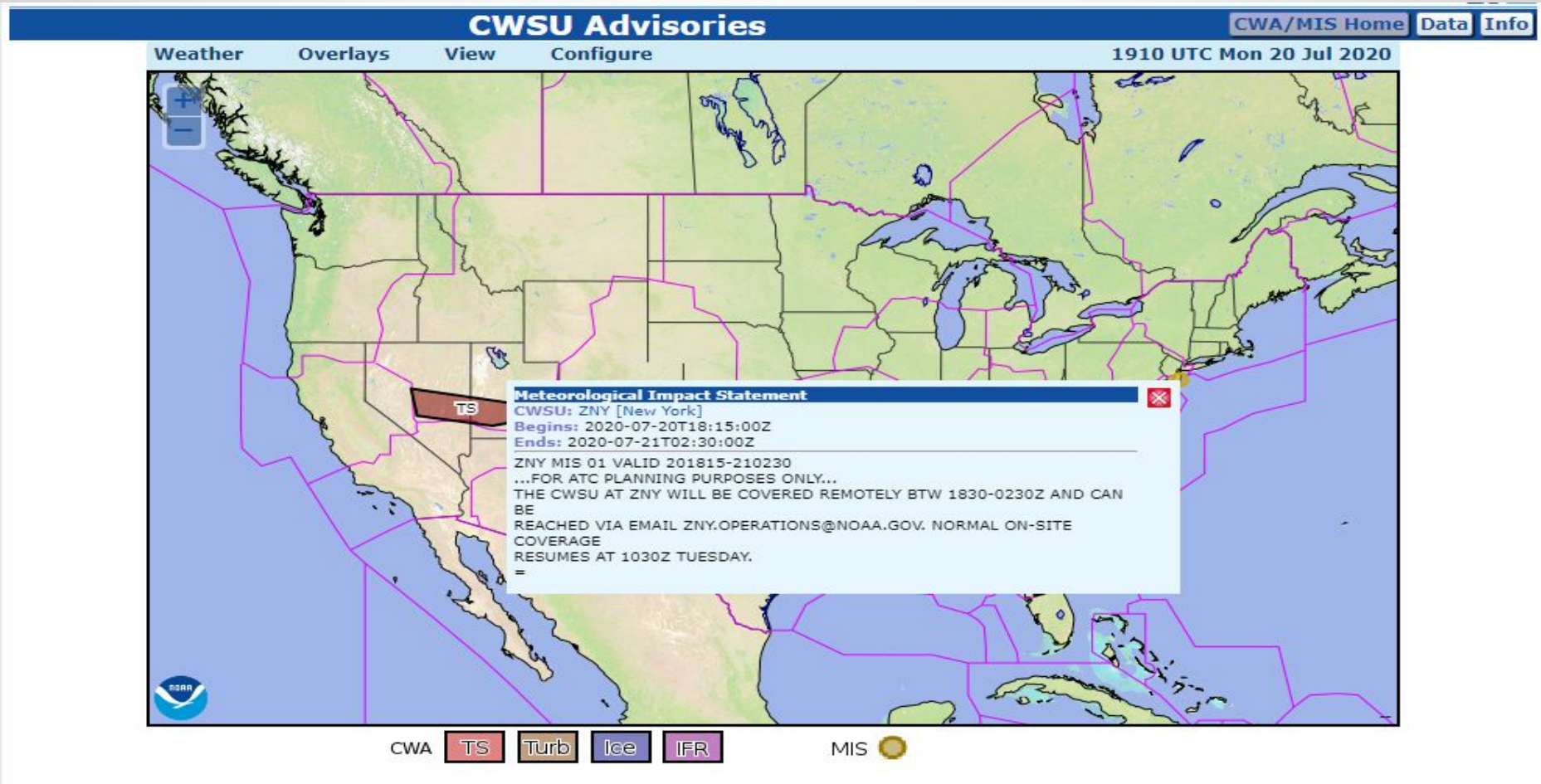
Staffed 24 hours per day by Traffic Management Unit personnel

CWSU Products

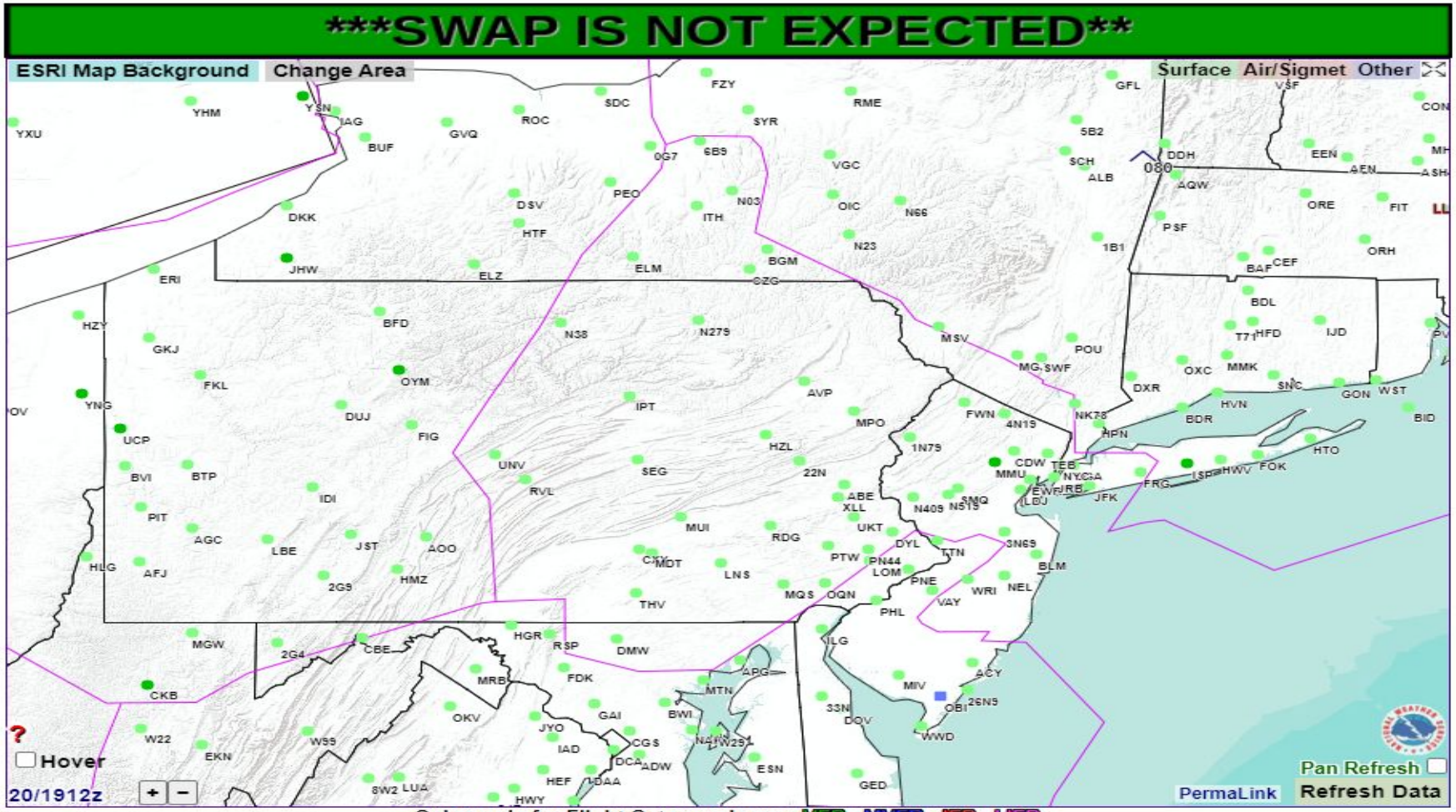
- CWA: Center Weather Advisory
  - Aviation weather warning for conditions meeting or approaching national in-flight advisory criteria (AIRMET / SIGMET)
  - Used to provide real-time or near-term guidance during en-route or terminal environments
  - Valid for up to 2 hours
- MIS: Meteorological Impact Statement
  - Unscheduled flow control and flight operations planning forecast
  - Details weather conditions expected to adversely impact air traffic flow
  - Valid up to 12 hours after issuance time

NWS CWS

CWSU: CWA& MIS Products



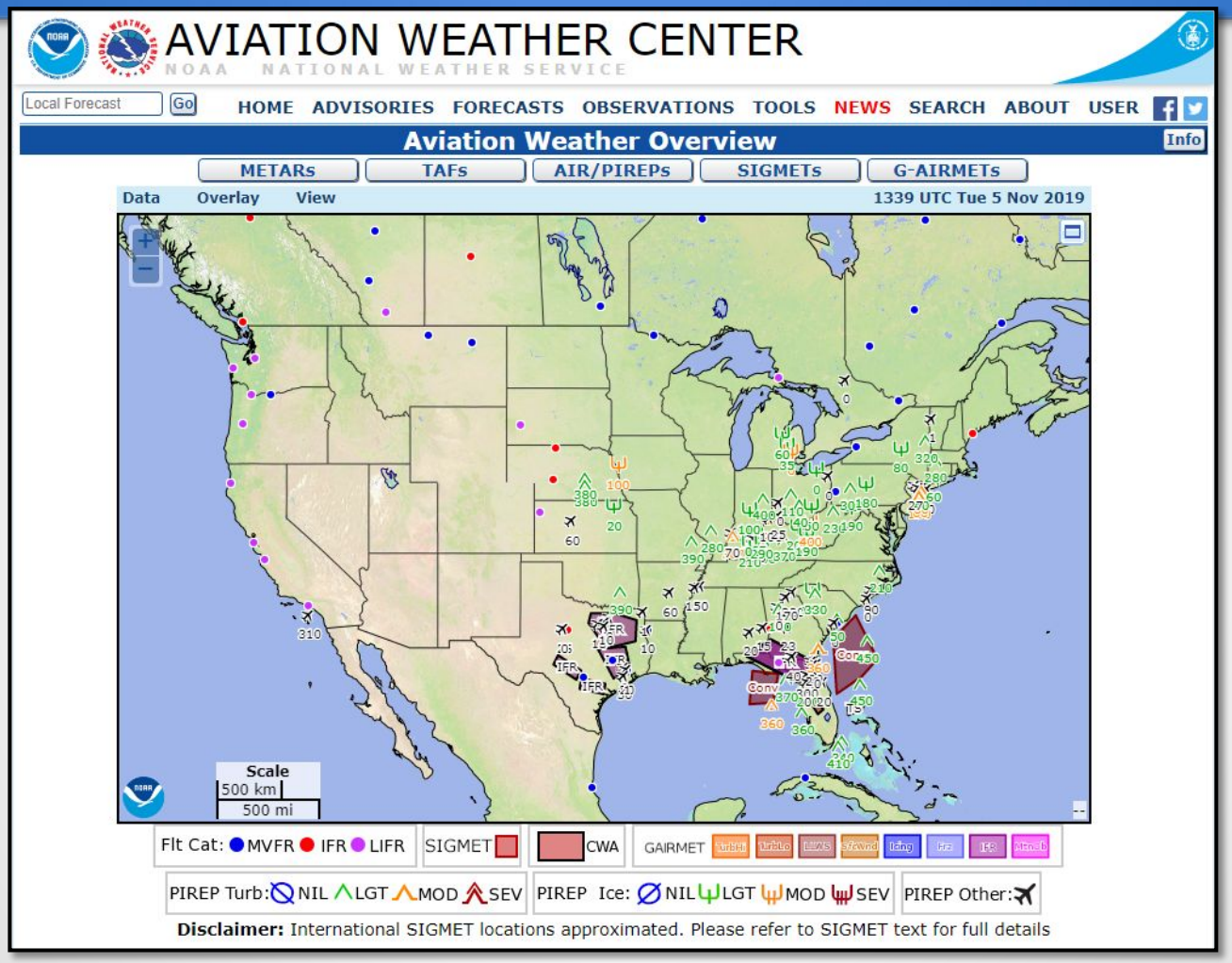
CWSU New York



Color code for Flight Category icons: VFR MVFR IFR LIFR

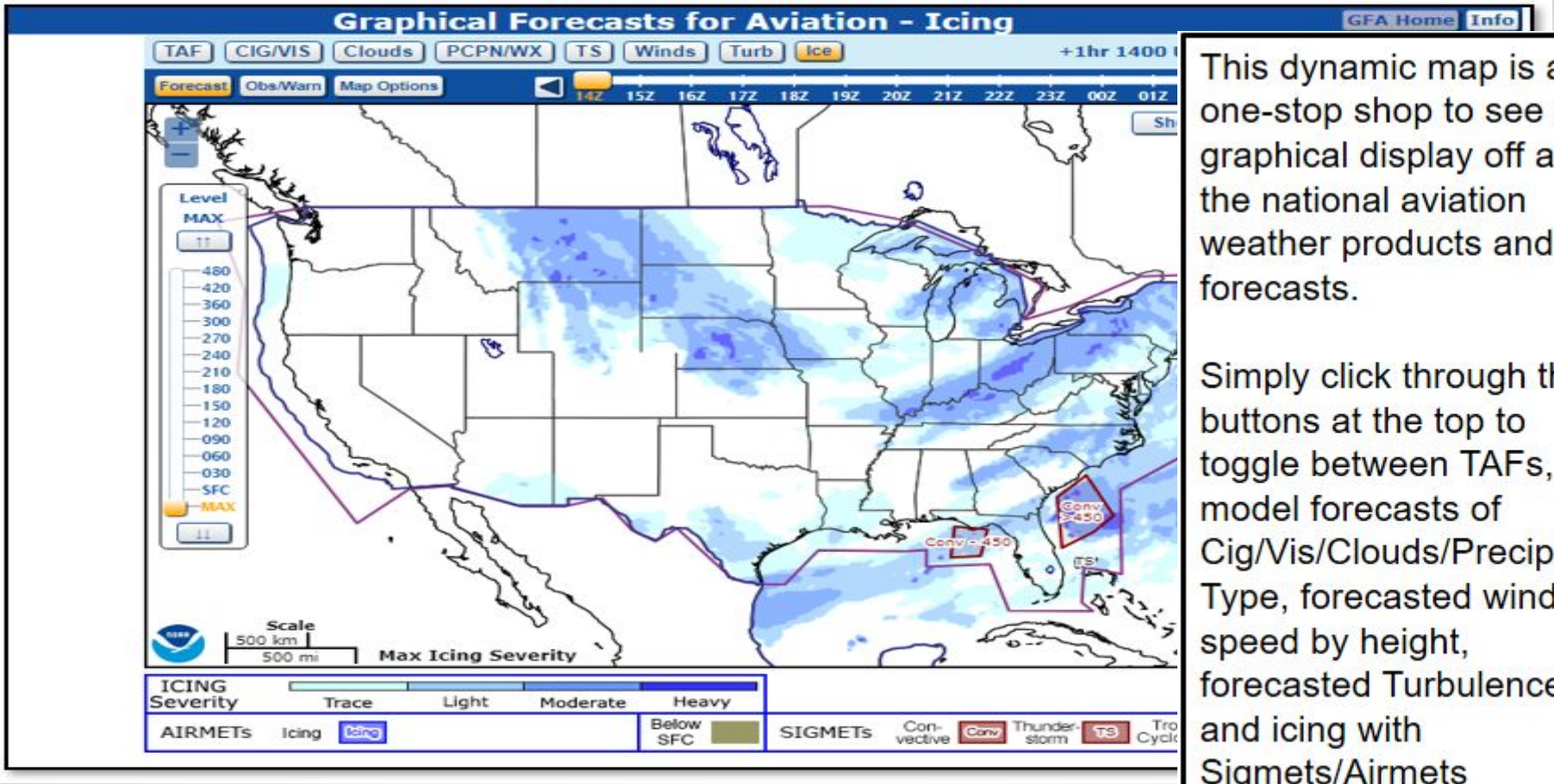
Click on airport or select "Hover" and mouse-over airport for TAFs (where available) and METARs.

National Support



Aviation Weather Center

Graphical Aviation Forecasts

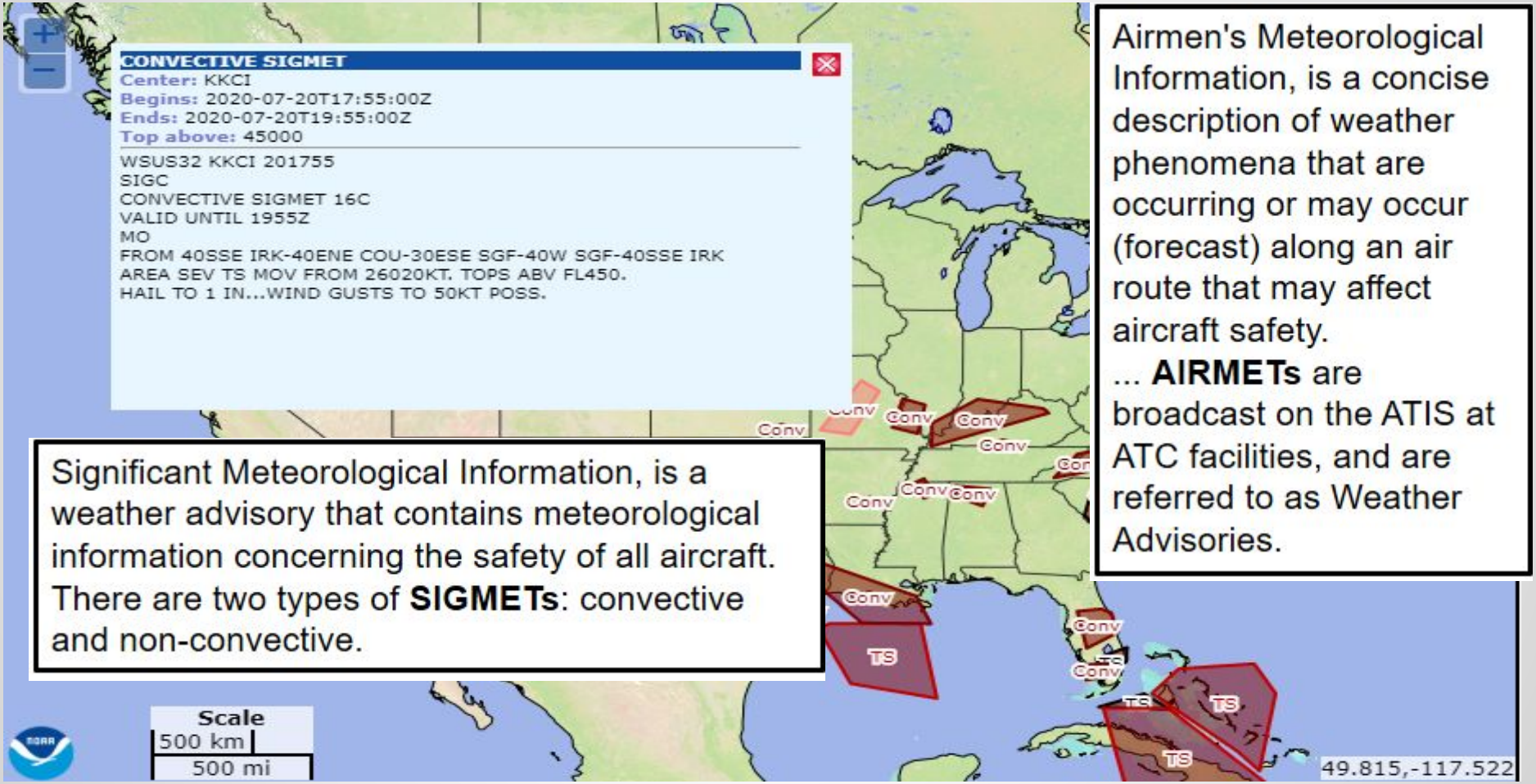


This dynamic map is a one-stop shop to see a graphical display off all the national aviation weather products and forecasts.

Simply click through the buttons at the top to toggle between TAFs, model forecasts of Cig/Vis/Clouds/Precip/Wx Type, forecasted wind speed by height, forecasted Turbulence and icing with Sigmets/Airmets displayed.

Aviation Weather Center

SIGMETS / AIRMETS

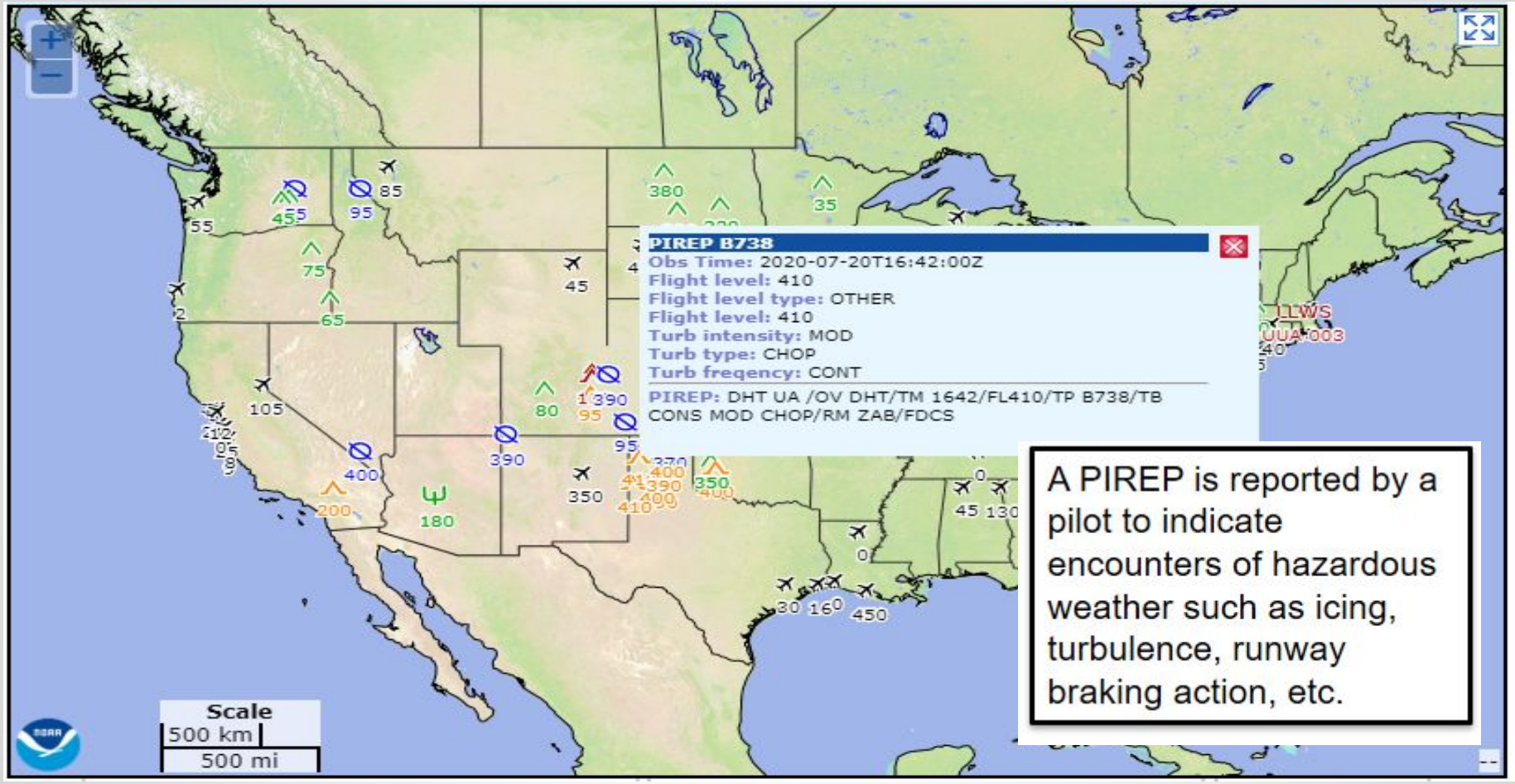


Airmen's Meteorological Information, is a concise description of weather phenomena that are occurring or may occur (forecast) along an air route that may affect aircraft safety.
... **AIRMETs** are broadcast on the ATIS at ATC facilities, and are referred to as Weather Advisories.

Significant Meteorological Information, is a weather advisory that contains meteorological information concerning the safety of all aircraft. There are two types of **SIGMETs**: convective and non-convective.

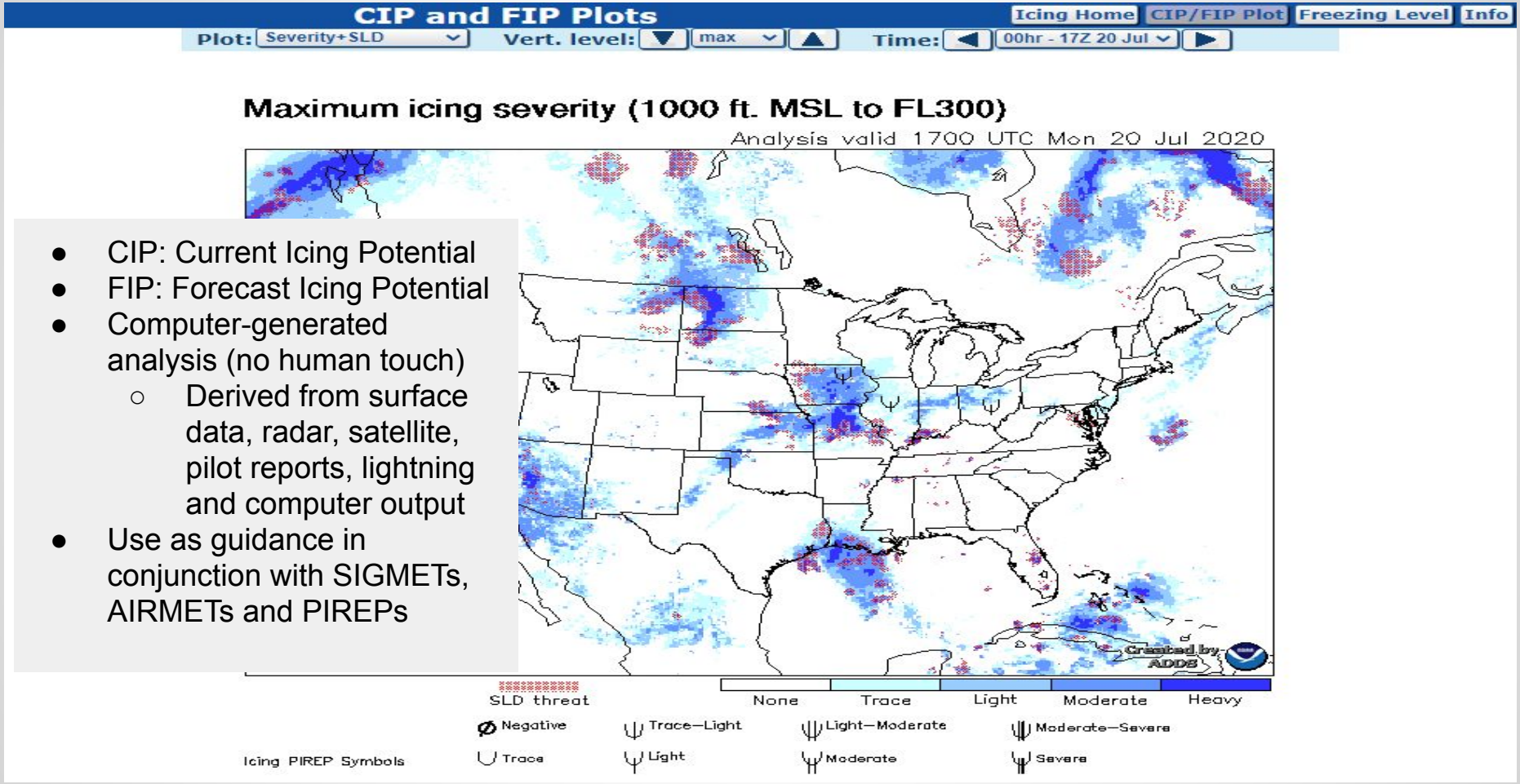
Aviation Weather Center

Pilot Reports - PIREPS



Aviation Weather Center

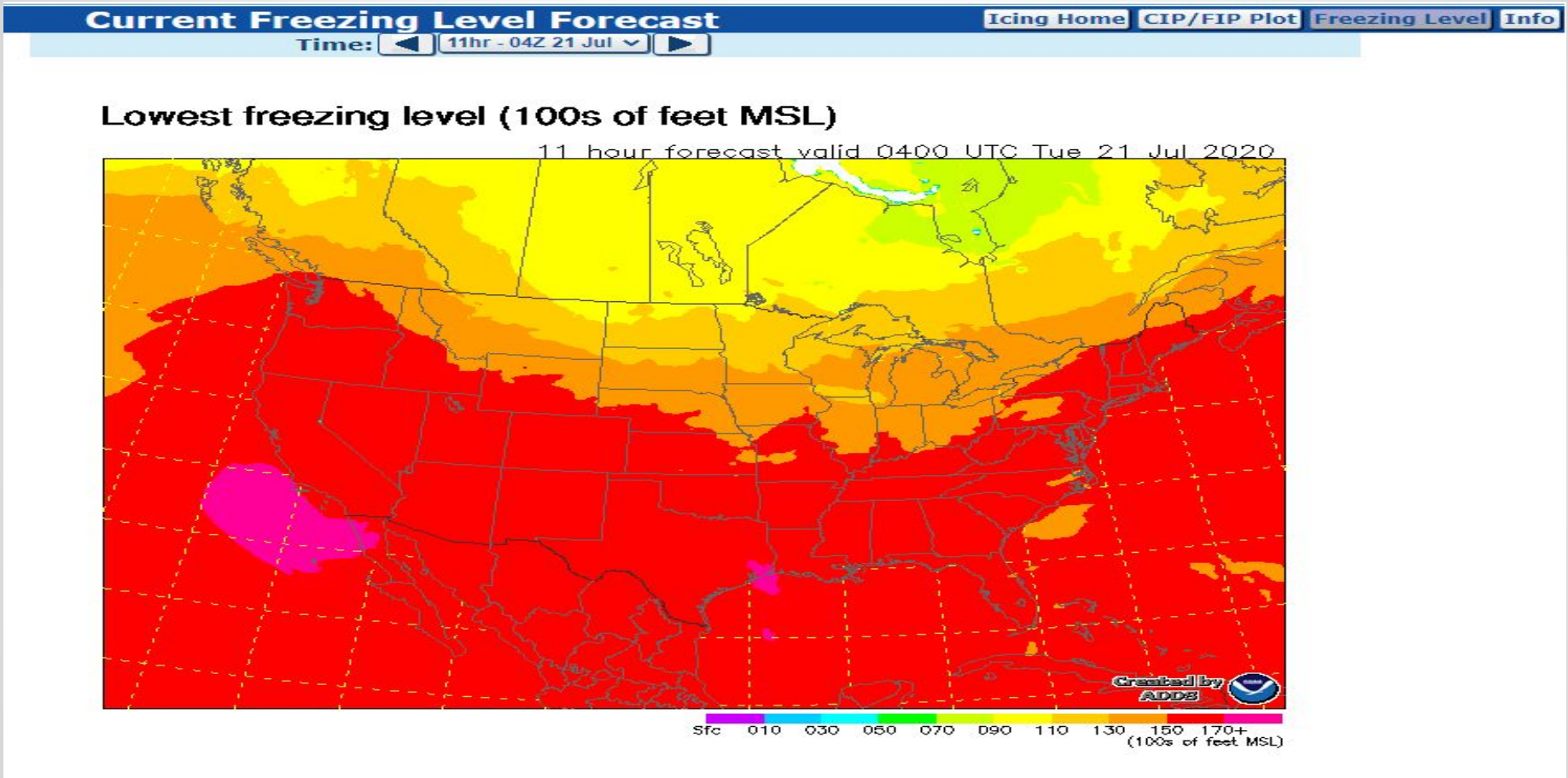
Icing Guidance: CIP & FIP



- CIP: Current Icing Potential
- FIP: Forecast Icing Potential
- Computer-generated analysis (no human touch)
  - Derived from surface data, radar, satellite, pilot reports, lightning and computer output
- Use as guidance in conjunction with SIGMETs, AIRMETs and PIREPs

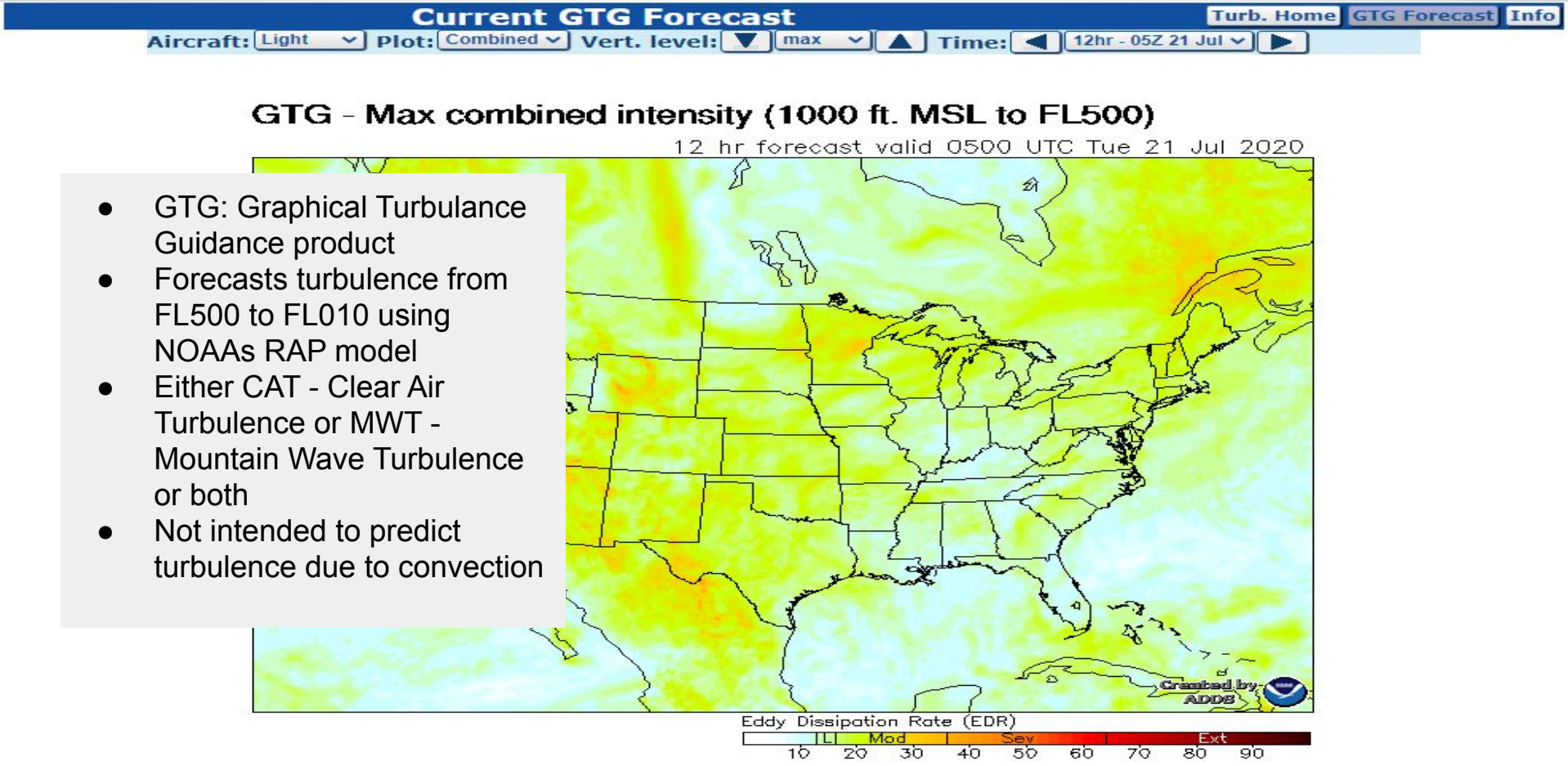
Aviation Weather Center

Icing: Freezing Level Forecasts



Aviation Weather Center

Turbulence: GTG



- GTG: Graphical Turbulance Guidance product
- Forecasts turbulence from FL500 to FL010 using NOAAs RAP model
- Either CAT - Clear Air Turbulence or MWT - Mountain Wave Turbulence or both
- Not intended to predict turbulence due to convection

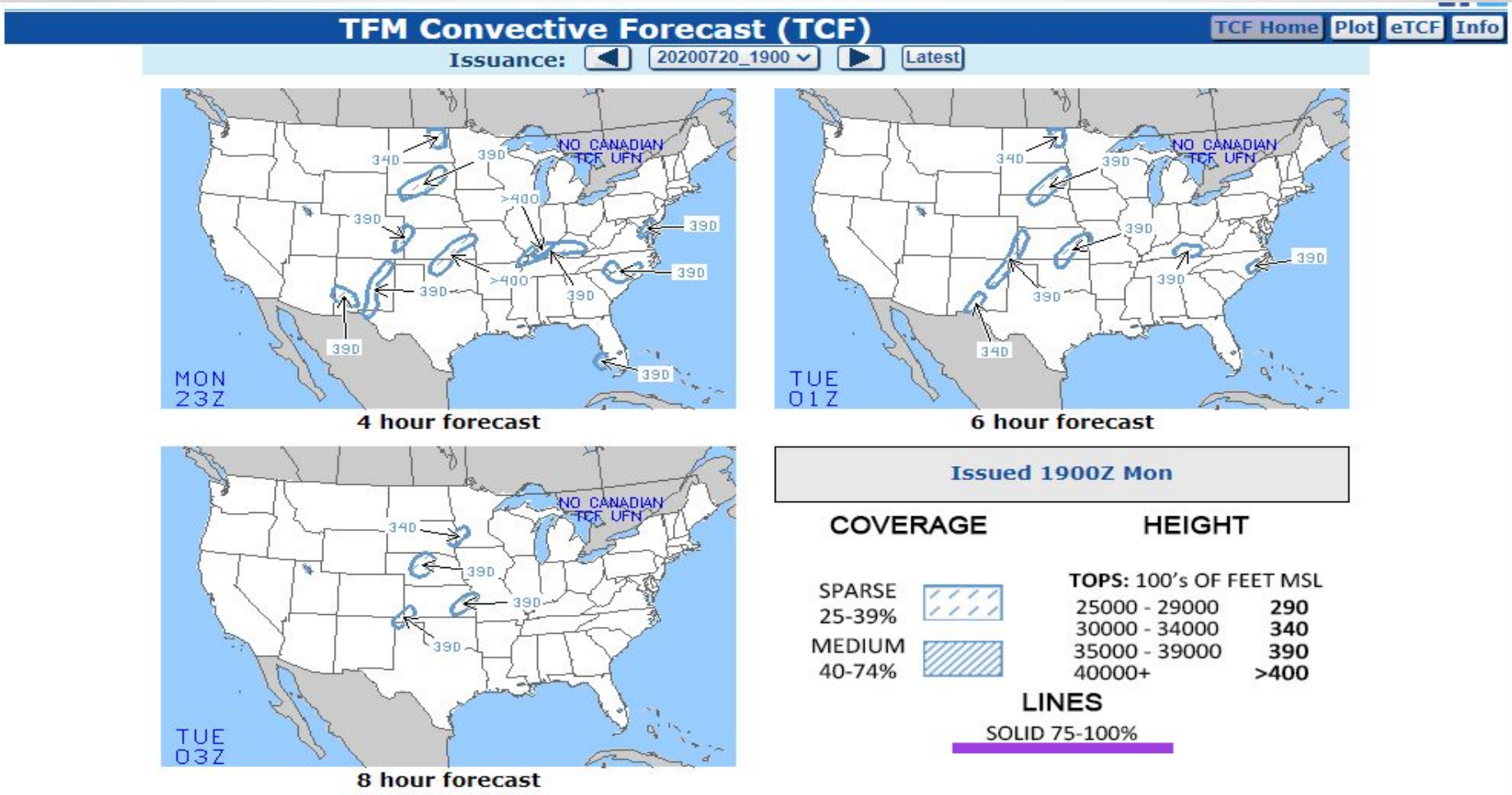
Aviation Weather Center

TCF: Traffic Convective Forecast

- The TCF is a high confidence graphical representation of forecasted convection meeting specific criteria of coverage, intensity, and echo top height. The TCF graphics are produced every 2 hours and valid at 4-, 6-, and 8- hours after issuance time.
- Areas of convection in the TCF include any area of convective cells containing (at a minimum):
  - Composite radar reflectivity of at least 40 dBZ;
  - Echo tops at or above FL250;
  - Coverage (a & b) of at least 25% of the polygon area;
  - Forecaster confidence of at least 50% (High) that criteria (a, b, & c) will be met.
- Lines of convection in the TCF include any lines of convective cells:
  - Composite radar reflectivity of at least 40 dBZ having a length of at least 100 nautical miles (NM); and
  - Having a linear coverage of 75% or greater; and
  - Having echo tops at or above FL250.
  - Forecaster confidence of at least 50% (High) that criteria (a, b, & c) will be met.
  - All four of the threshold criteria listed above for both areas and lines of convection are required for inclusion in the TCF. This is defined as the minimum TCF criteria.
- Available March 1 through October 31

Aviation Weather Center

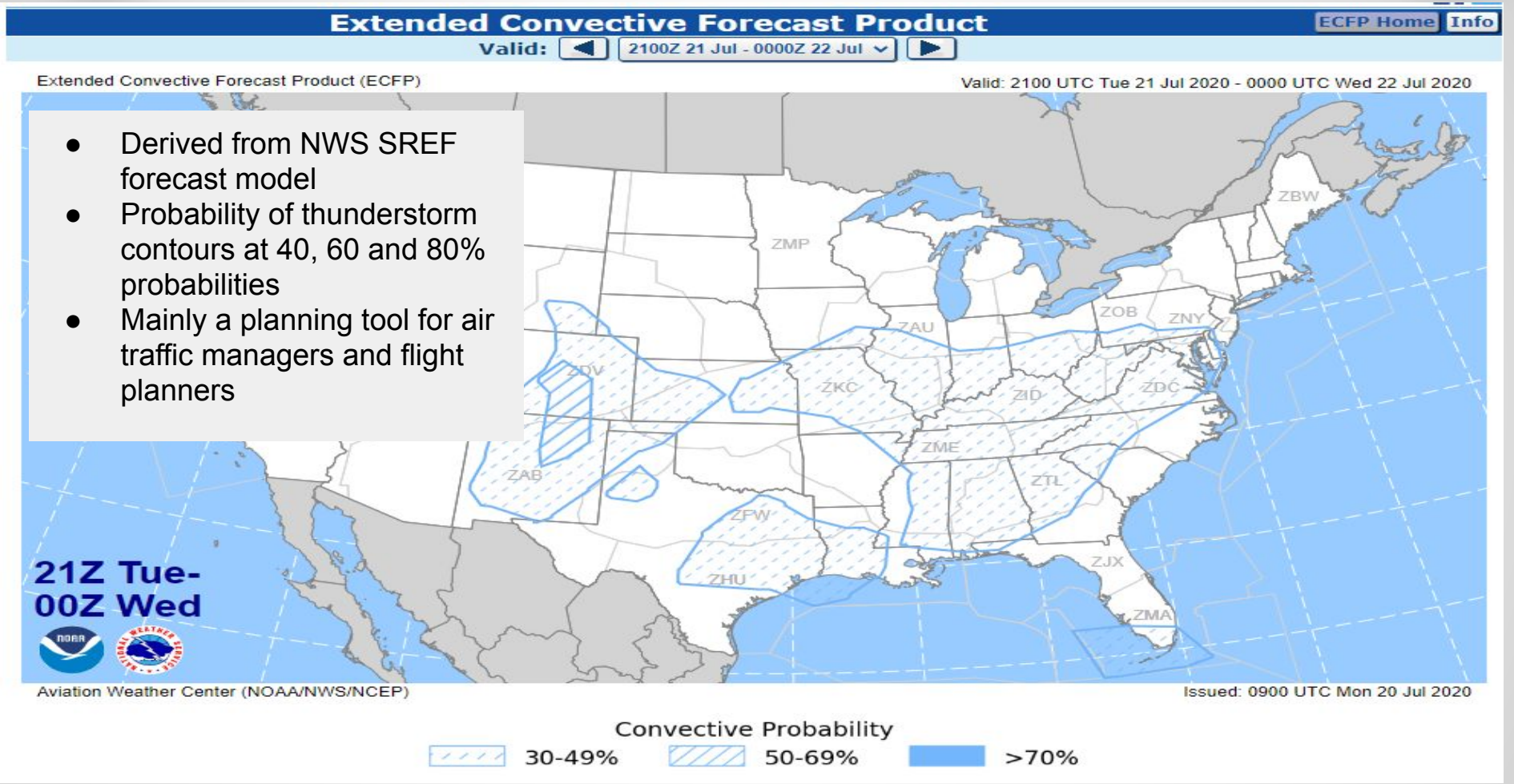
TCF: Traffic Convective Forecast



Aviation Weather Center

Building a Weather-Ready Nation

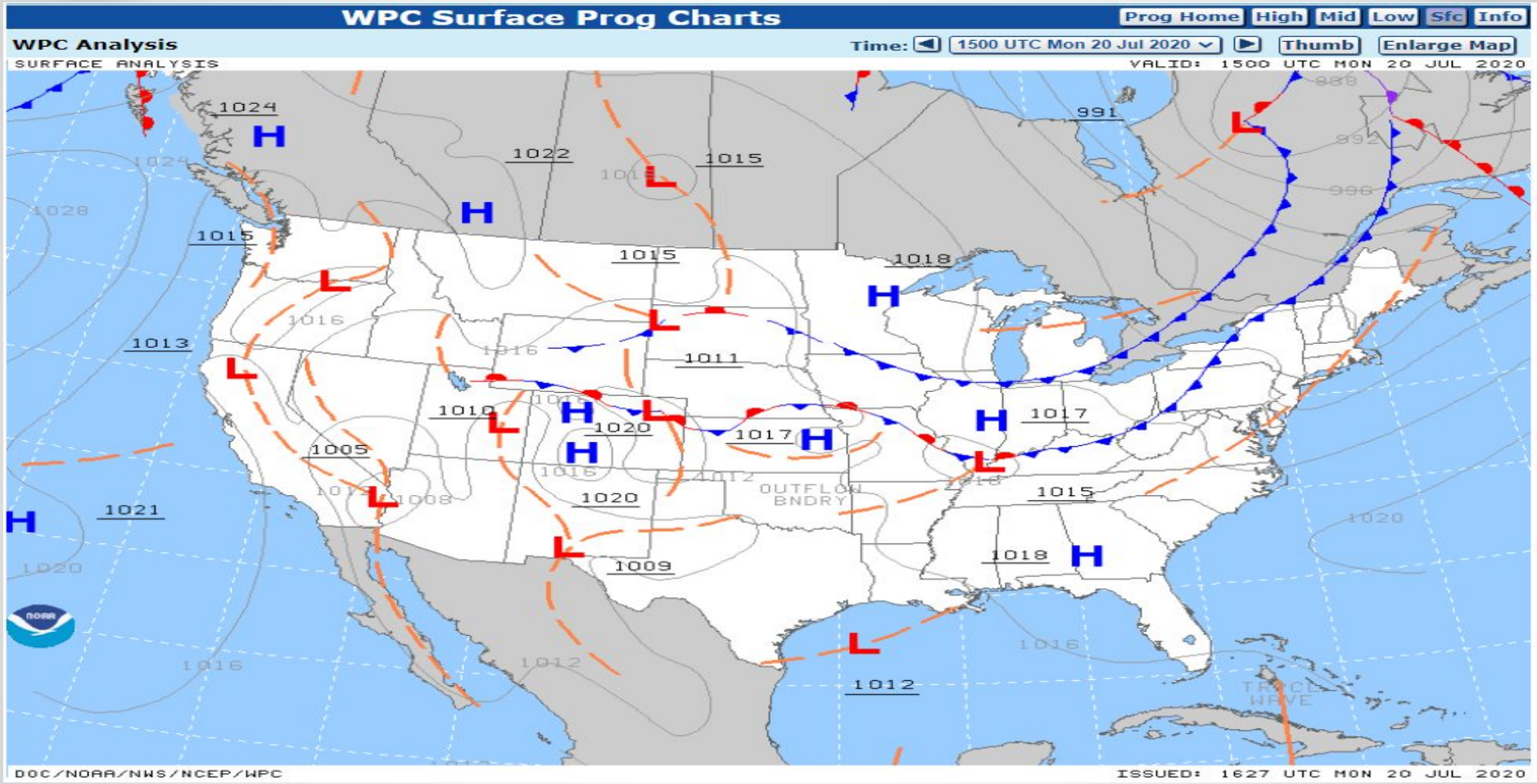
ECFP: Extended Convective Forecast Product



- Derived from NWS SREF forecast model
- Probability of thunderstorm contours at 40, 60 and 80% probabilities
- Mainly a planning tool for air traffic managers and flight planners

Aviation Weather Center

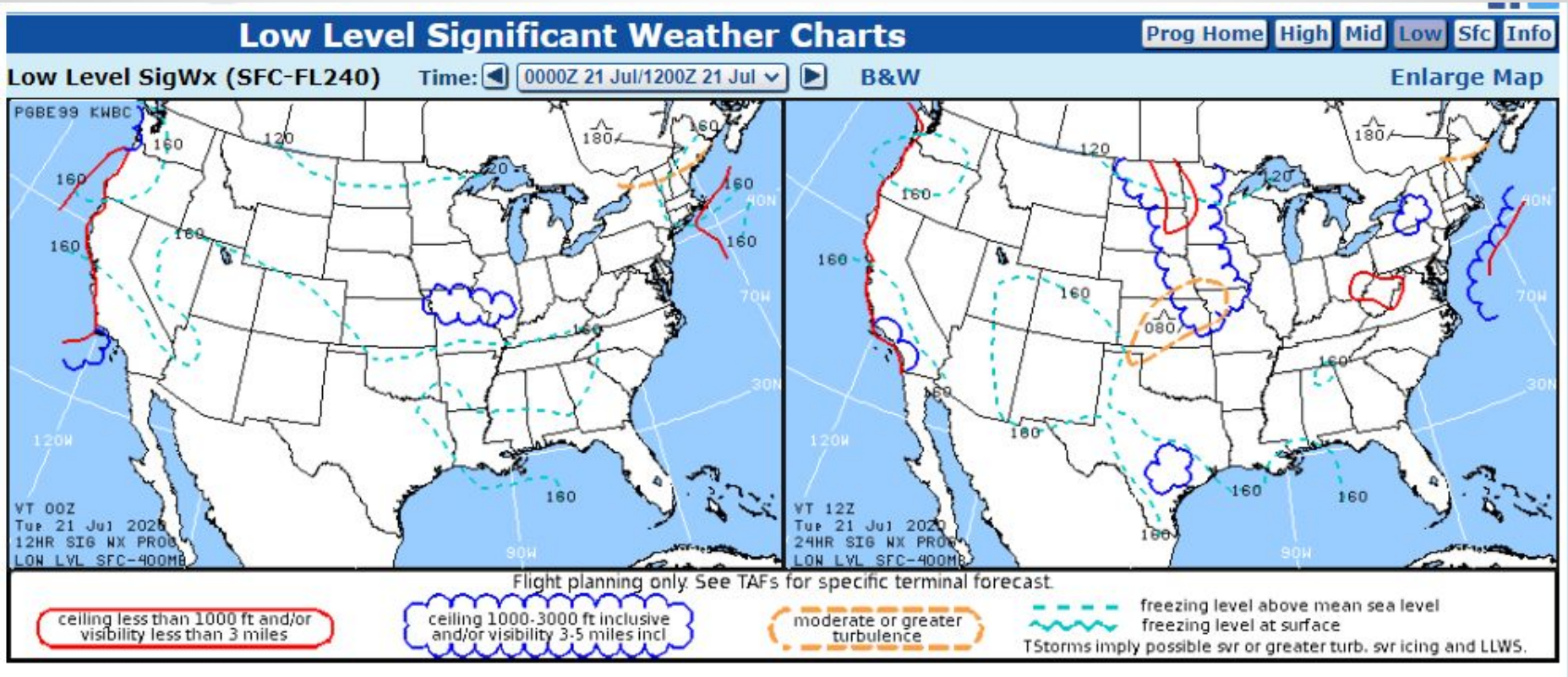
Surface Plot Analysis



Aviation Weather Center

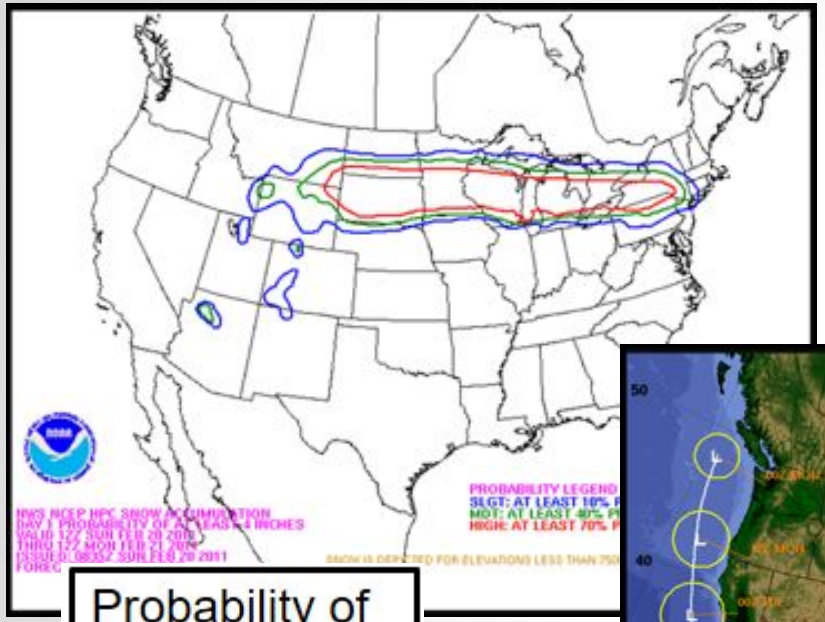
Building a Weather-Ready Nation

Low Level Significant Weather Charts



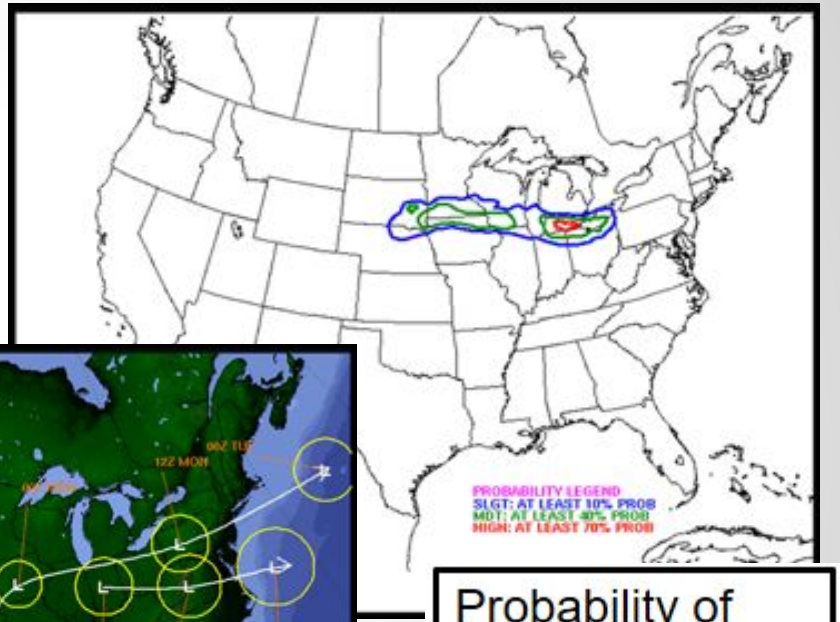
Aviation Weather Center

WPC Winter Forecasts



Probability of 4", 8", and 12" snowfall

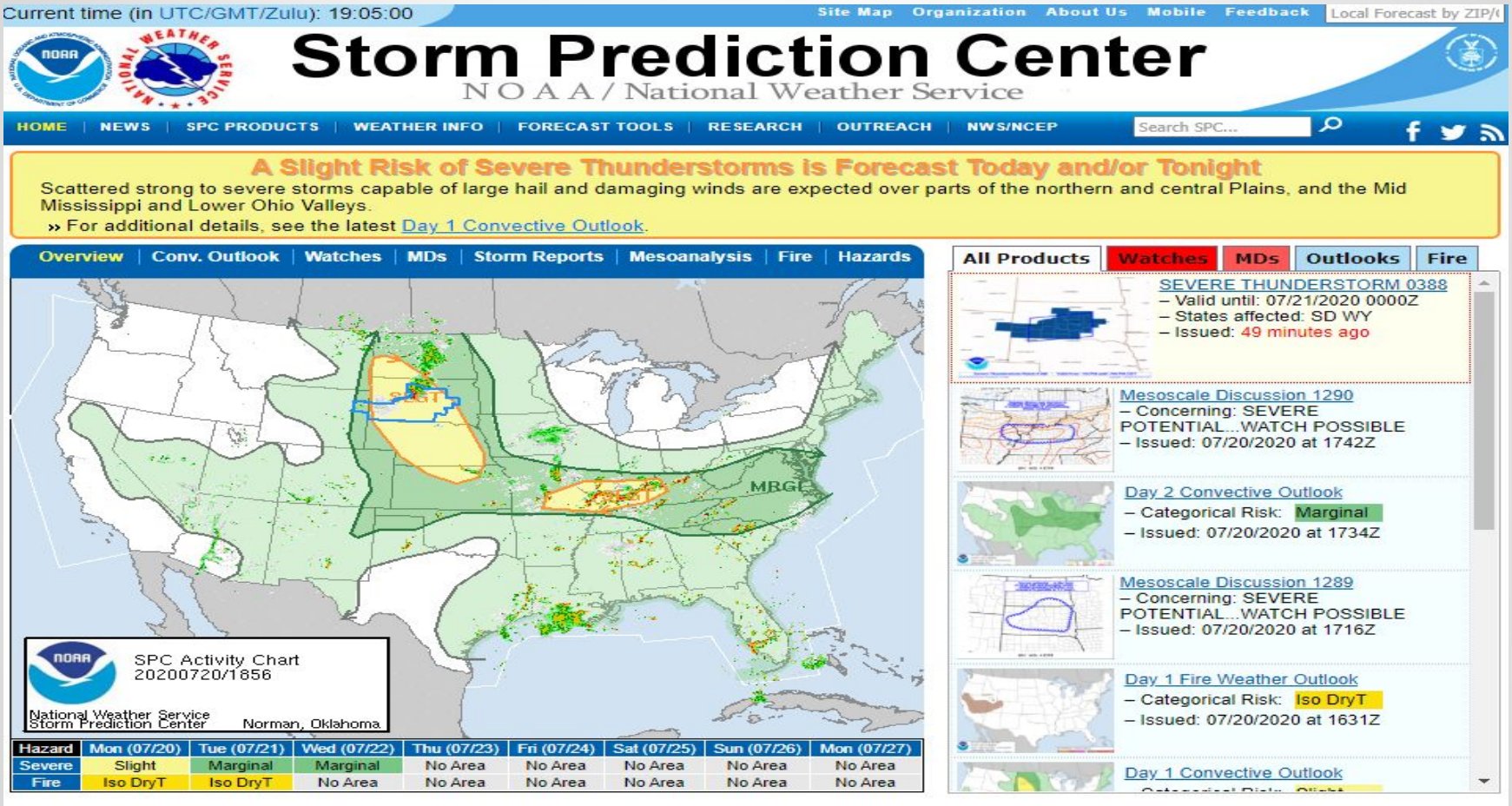
Significant surface low forecast



Probability of Freezing rain exceeding 0.25"

Weather Prediction Center

National Support



Storm Prediction Center

Thanks For spending the evening with us!

Presenters:

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CWSU New York:

Kirt Squires - kirt.squires@noaa.gov