



*McVinnic Aviation*





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# WEATHER RELATED FATAL ACCIDENTS

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# THE PIPER PA46

- PA46-310P
- PA46-350P/M350
- PA46-350T\*
- PA46-310P TURBINE (P46T)
- PA46-350P TURBINE (P46T)
- PA46-500/M500 (P46T)
- PA46-M600

FIRST MASS PRODUCED GENERAL AVIATION  
SINGLE ENGINE

PRESSURIZED AIRCRAFT

APPROVED FOR FLIGHT INTO KNOWN ICING (FIKI)





**PIPER MALIBU INTRODUCED IN  
1984**

**MOST ARE OWNER FLOWN**

**FIKI IS A STANDARD OPTION**

**The Mirage ice protection system was designed and tested for operation in light to moderate meteorological conditions defined in FAR 25, Appendix C, for continuous maximum and intermittent maximum icing conditions. The ice protection system was not designed or tested for flight in freezing rain, freezing drizzle or supercooled liquid water and ice crystals, or conditions defined as severe. Flight in these conditions is prohibited and must be avoided.**

**PIPER MALIBU INTRODUCED IN 1984**

**STILL IN PRODUCTION**

**OVER 2480 BUILT**

AIRCRAFT FOR ALL SCENARIOS

**Aircraft Categories**





**PIPER MALIBU INTRODUCED IN 1984**

**MOST ARE OWNER FLOWN**

**OVER 2480 BUILT**

AIRCRAFT FOR ALL SCENARIOS

**Aircraft Categories**



**PIPER MALIBU INTRODUCED IN 1984**

**MOST ARE OWNER FLOWN\*\***

**MANY- PRIVATE PILOTS W/INSTRUMENT**

AIRCRAFT FOR ALL SCENARIOS

**Aircraft Categories**



A dramatic sky with dark, heavy clouds and a bright lightning bolt striking from the top left. In the bottom right corner, the silhouettes of several wind turbines are visible against a lighter, hazy horizon. The overall color palette is dominated by deep blues, greys, and a warm yellowish glow from the bottom right.

**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

A dramatic sky with dark, heavy clouds and a bright lightning bolt striking from the top left. In the bottom right corner, the silhouettes of several wind turbines are visible against a lighter, hazy horizon. The overall color palette is dark blue and purple, transitioning to a warm yellow and orange near the horizon. There are also faint, semi-transparent circular graphics with tick marks and arrows overlaid on the image, particularly on the right side.

**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

LIMITED HIGH/MIDDLE ALTITUDE  
WEATHER EXPERIENCE

A dramatic sky with dark, heavy clouds and a bright lightning bolt striking from the top left. In the bottom right corner, the silhouettes of several wind turbines are visible against a lighter, hazy horizon. The overall color palette is dominated by deep blues, greys, and a warm yellowish-gold at the bottom right. Overlaid on the right side of the image are several semi-transparent, futuristic-looking circular gauges and dials with numerical markings and arrows, suggesting a technical or data-driven theme.

**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

**SYSTEMS KNOWLEDGE**



**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

**UNDERSTANDING OF SYSTEMS LIMITATIONS**

The background of the slide features a dramatic sky with dark, heavy clouds and a bright lightning bolt striking from the top left. In the lower right corner, the silhouettes of several wind turbines are visible against a lighter, hazy sky. The overall color palette is dominated by deep blues, greys, and a warm yellowish-gold glow from the bottom right.

**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

**OVER RELIANCE ON INSTALLED SYSTEMS**

A dramatic sky with dark, heavy clouds and a bright lightning bolt striking from the top left. In the bottom right corner, the silhouettes of several wind turbines are visible against a lighter, hazy horizon. The overall color palette is dominated by deep blues, greys, and a touch of yellowish-orange near the horizon.

**PAST 10-YEARS (2012 – 2021)**

**16 ICING RELATED FATAL ACCIDENTS**

**23 CONVECTION RELATED FATAL ACCIDENTS**

**LIMITED EXPERIENCE/INADEQUATE TRAINING**



# PAST 5-YEARS (2017 – 2021)

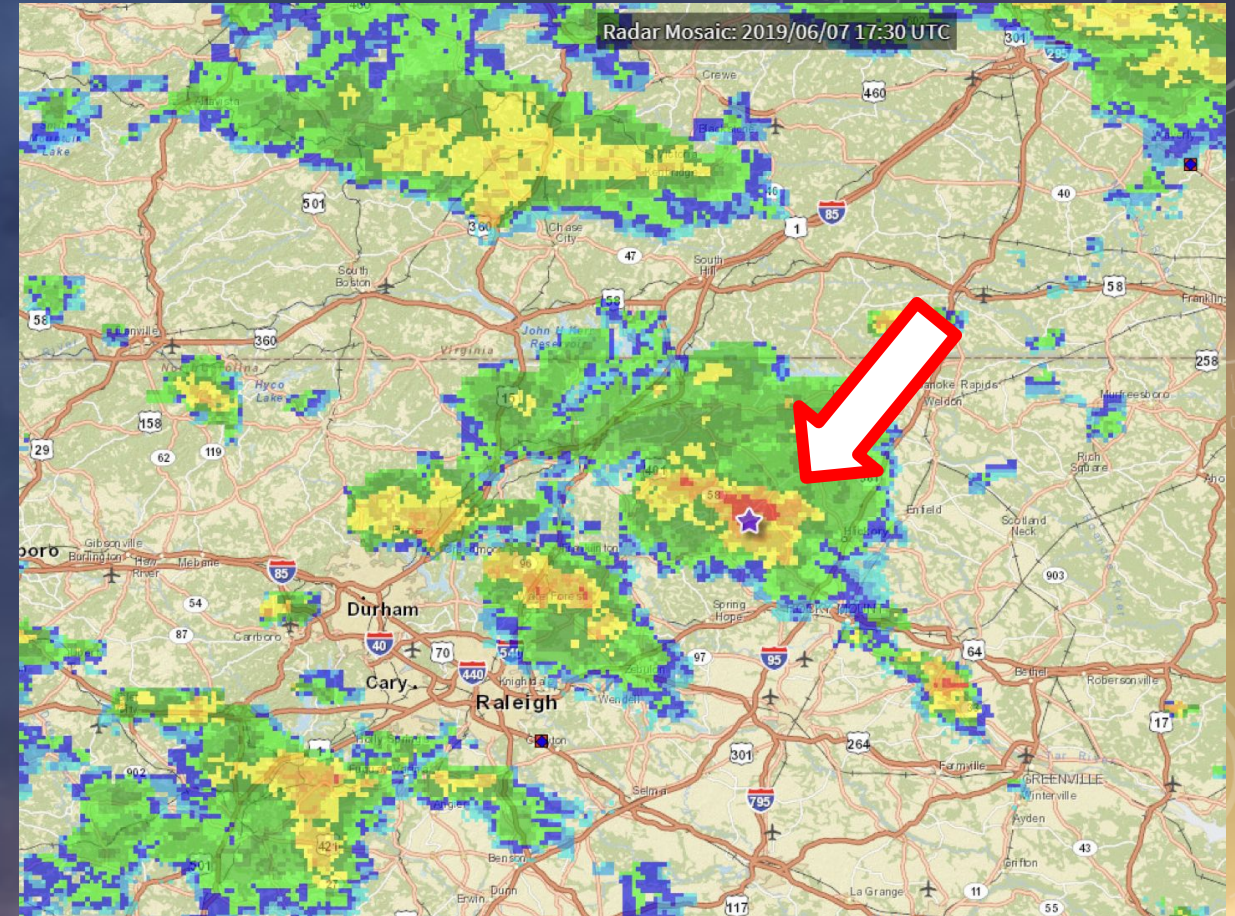
Date	Aircraft	Description	Risk Element
Aug 2017	HB-PPH	Loss of Control During Climb	Icing
Dec 2018	N307JM	Loss of Control During Climb	Icing
Apr 2019	N123SB	Loss of Control During Approach	TRW Microburst
May 2019	N757NY	CFIT	Blizzard Conditions
Jun 2019	N709CH	In-Flight Breakup	TRW/Icing
Mar 2020	N43368	In-Flight Breakup NEXRAD/ATC	TRW
Feb 2021	N40TS	CFIT/LOC	Blizzard Conditions
Apr 2021	N461DK	Loss of Control During Climb	Icing

7 Jun 2019

# CONVECTIVE ISSUES

TRUST/MISUNDERSTANDING  
OF NEXRAD AND FIS-B  
(DELAYS)

LIMITED RADAR KNOWLEDGE  
LIMITED RADAR TRAINING



3 Mar 2020

# CONVECTIVE ISSUES

TRUST/MISUNDERSTANDING  
OF NEXRAD AND FIS-B  
(DELAYS)

LIMITED RADAR KNOWLEDGE  
LIMITED RADAR TRAINING



**MAY  
BE ICY  
AHEAD**



# ICING



Dr. Mark Andregg, wife Shannon, son Nathan

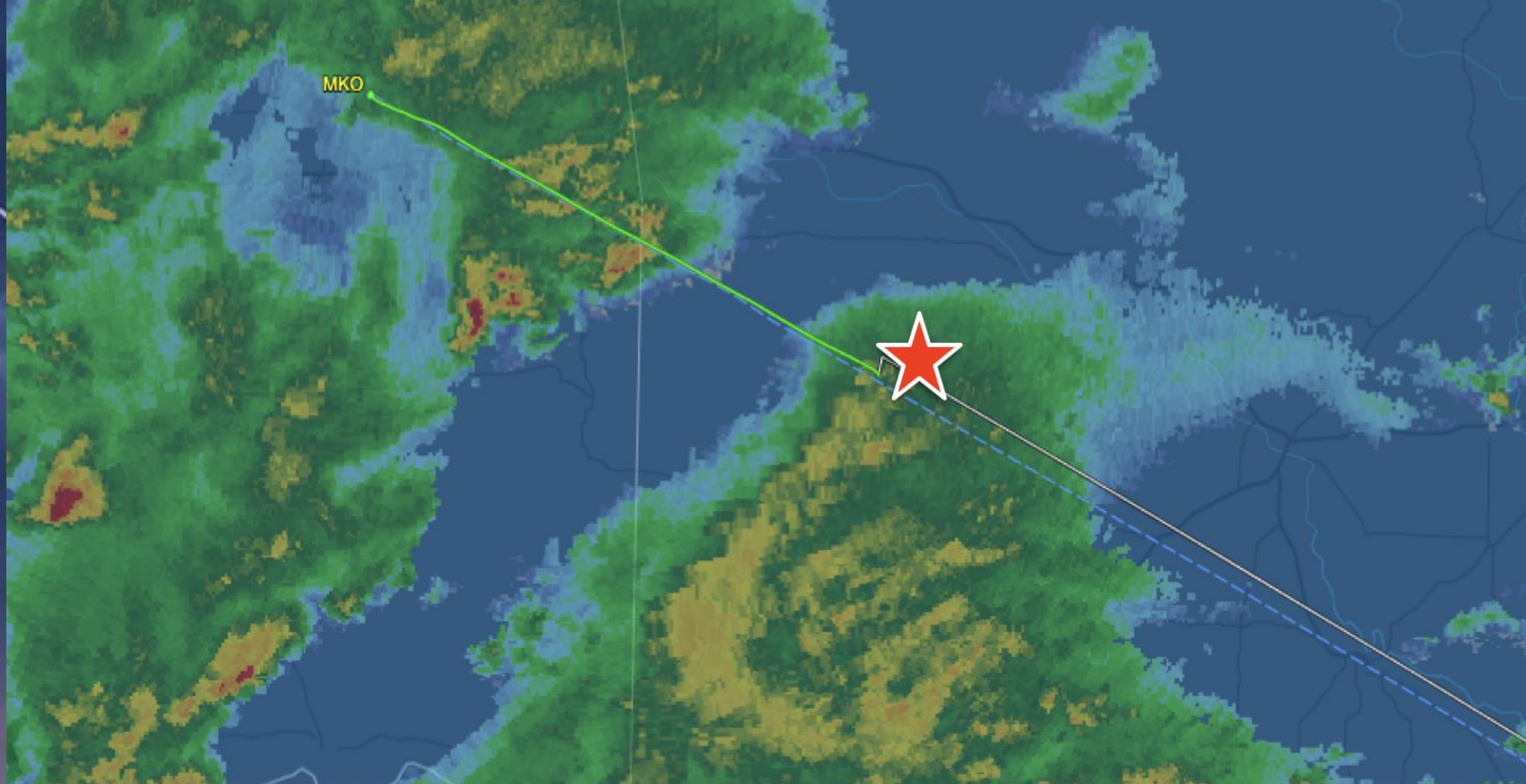
Tulsa Orthodontist



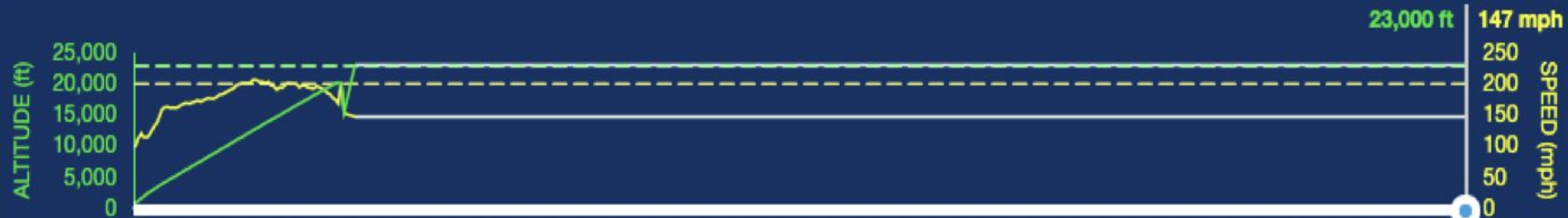
CFI Tim

Independent Instructor

# ICING



En Route    Replay    Speed 10x



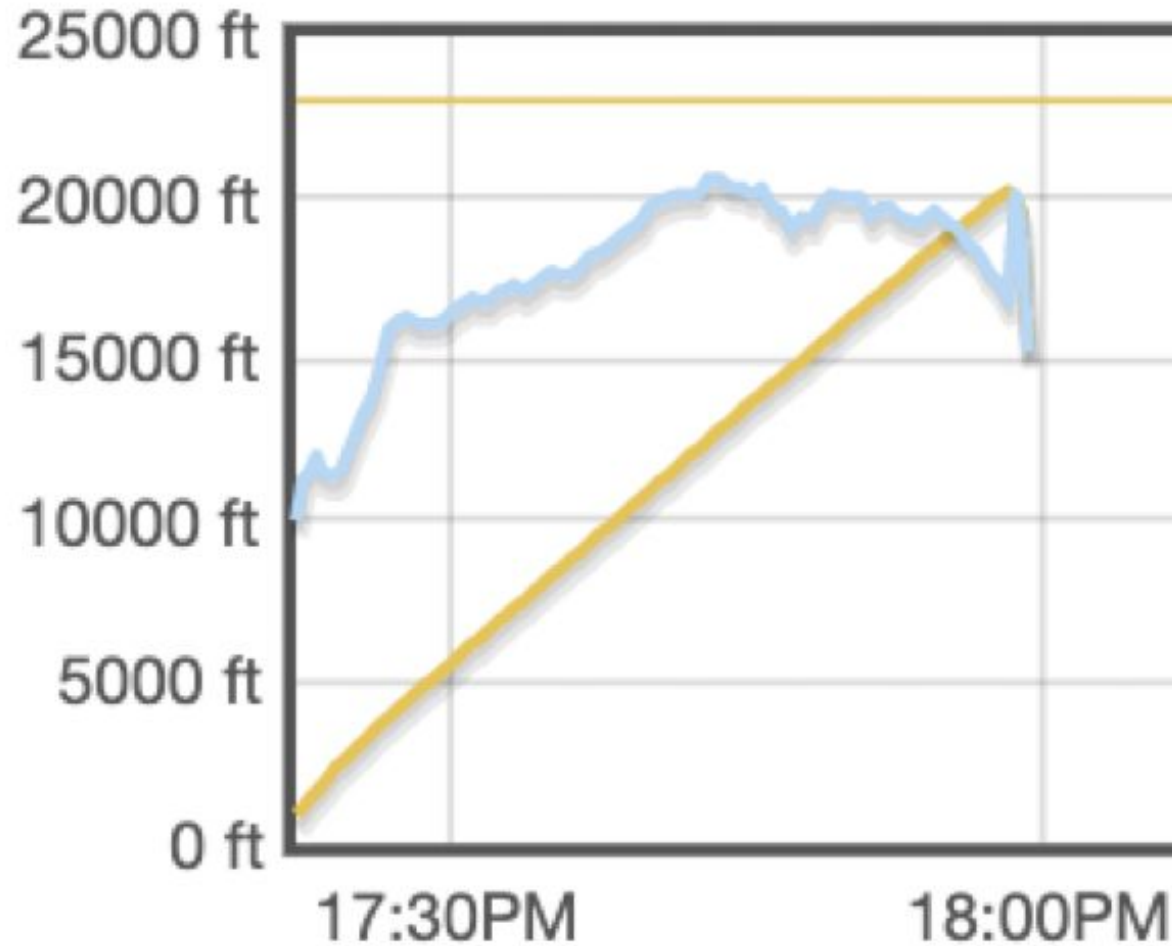
MKO 04:22PM CDT  
X60 05:22PM EDT

08:19PM CDT  
09:19PM EDT

# ICING

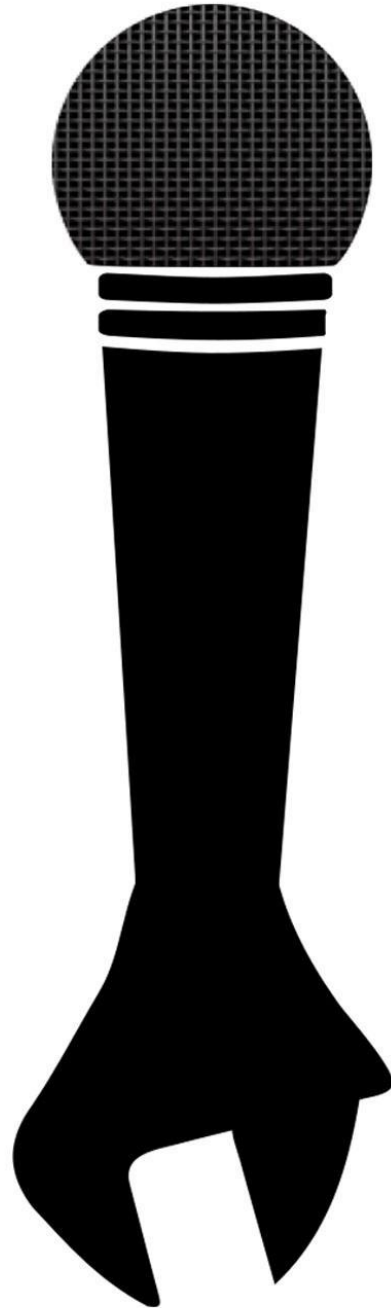


Altitude = 00000 ft  
Speed = 000 mph



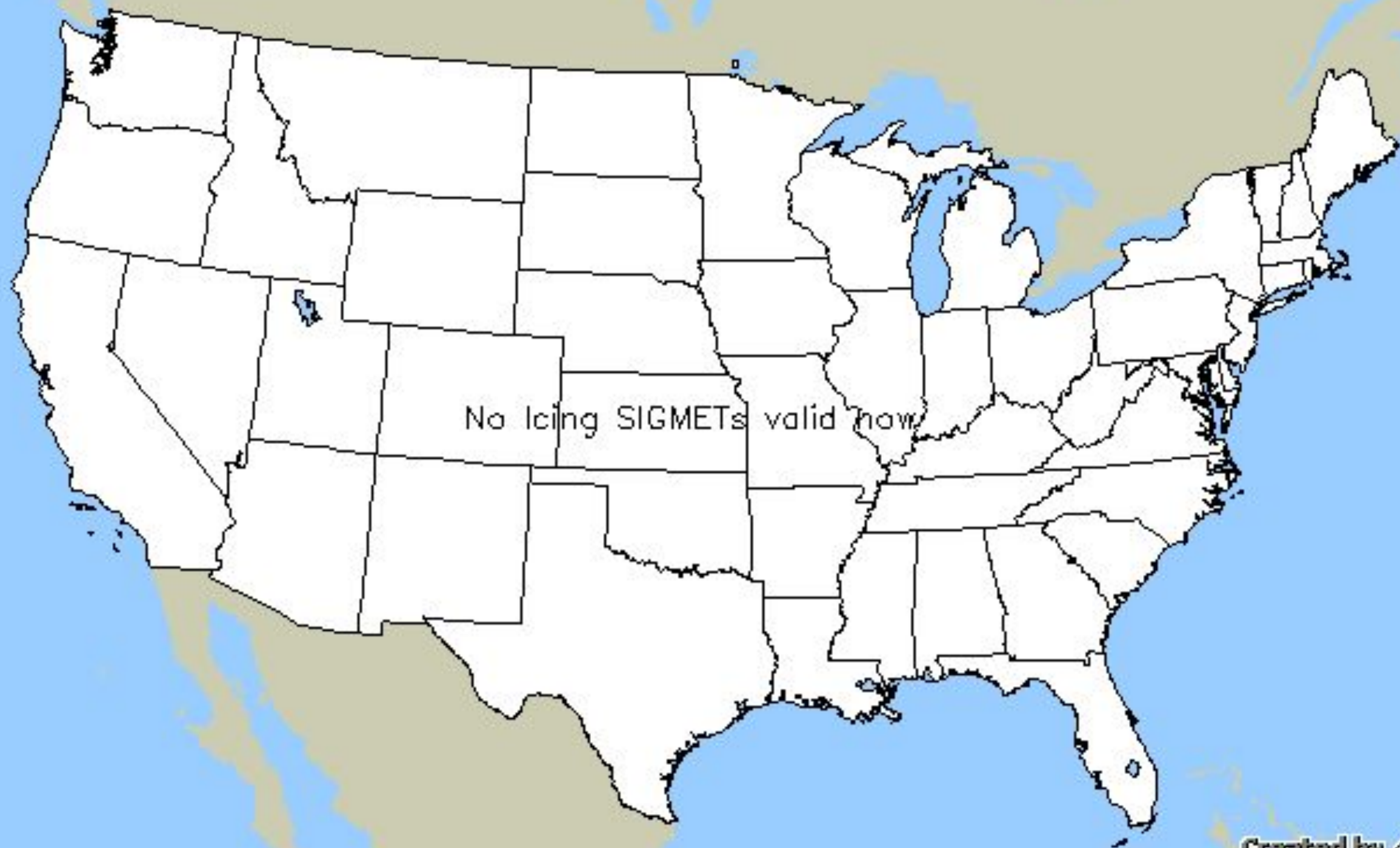
19,300	500	↑
19,500	500	↑
19,800	500	↑
20,000	400	↑
20,200		
20,000	-923	↓
19,600	-6,900	↓
15,400	1,468	↑

ICING

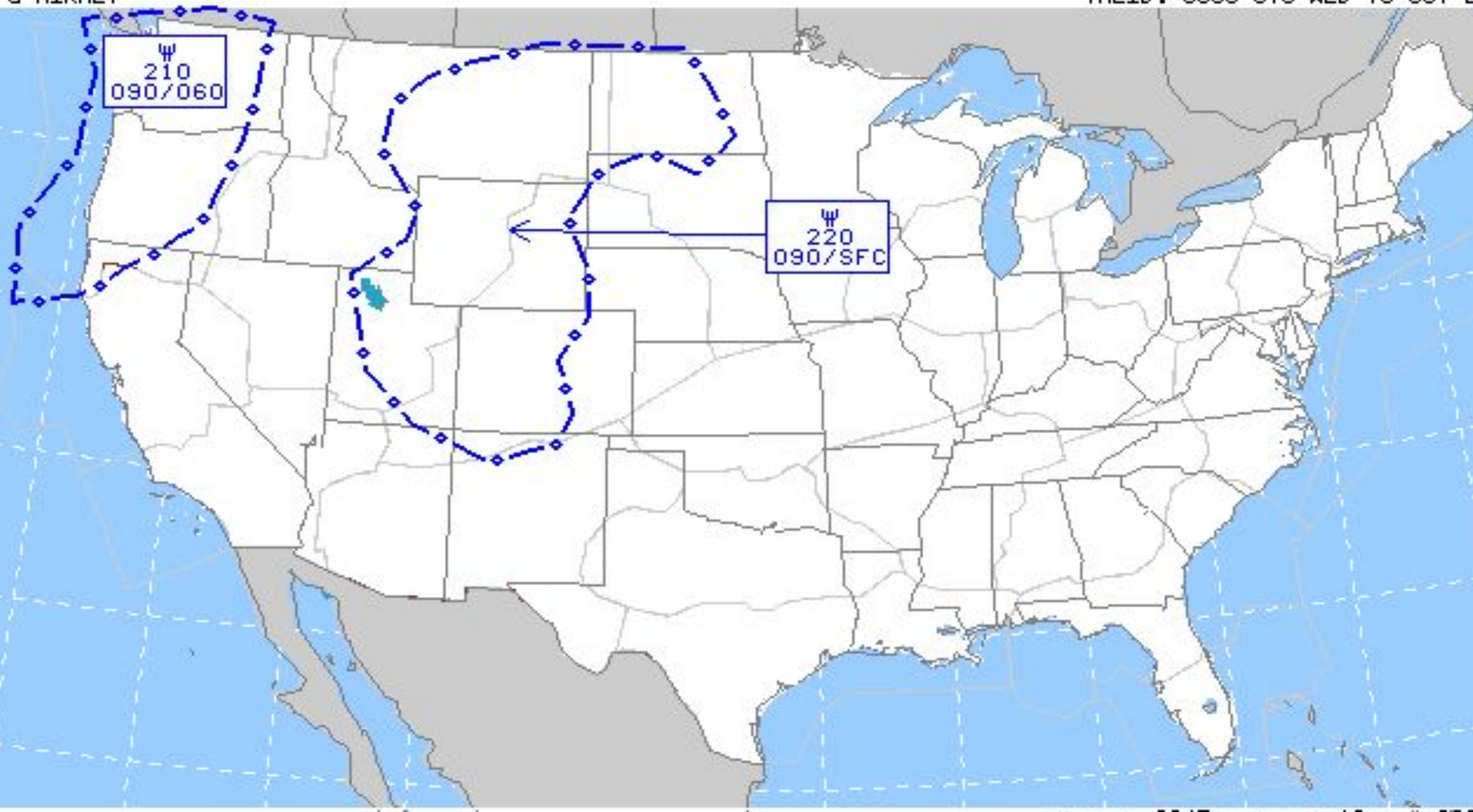


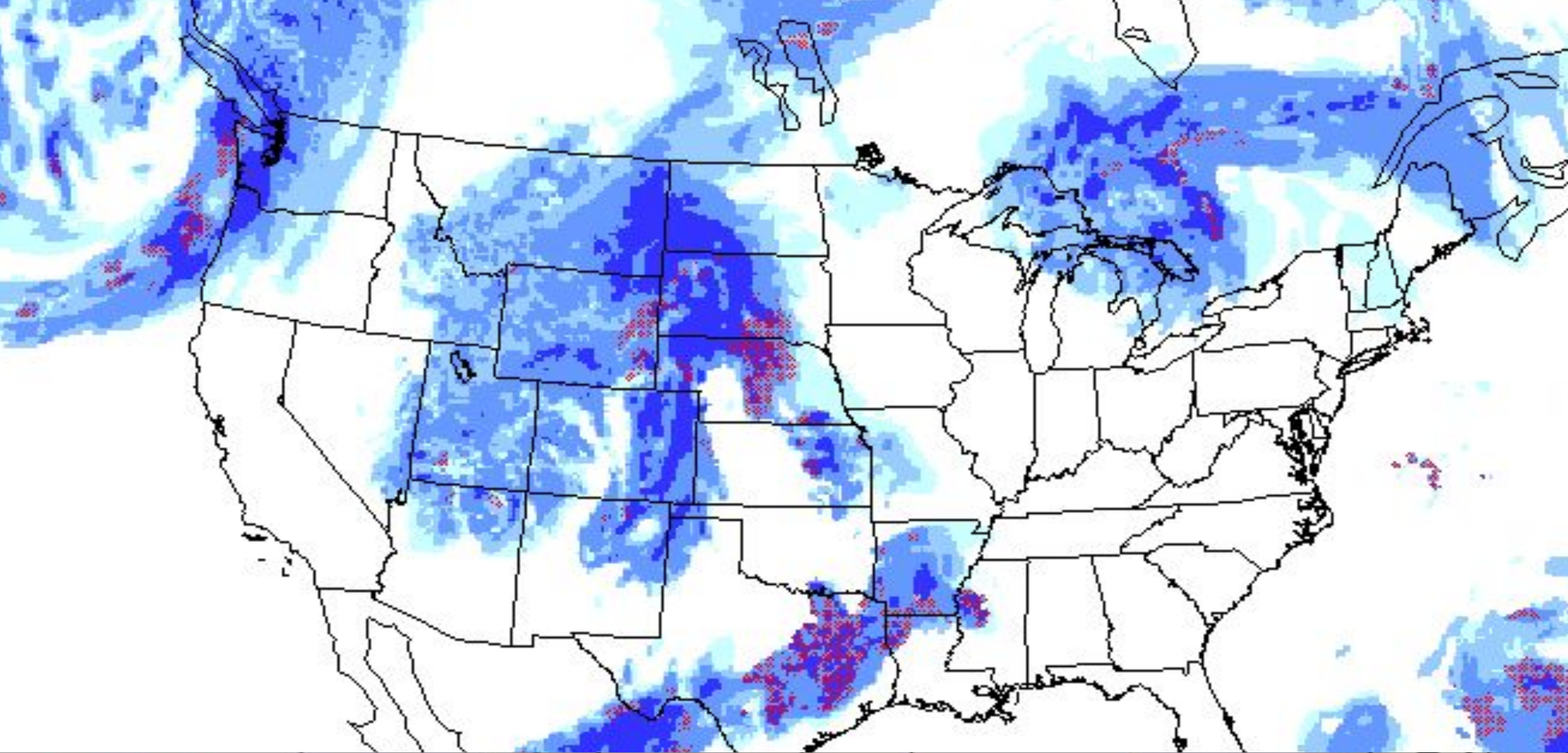
**HOW  
DO  
WE  
FIX  
IT?**





No Icing SIGMETs valid now





SLD threat

terrain

None

Trace

Light

Moderate

Heavy

## Icing

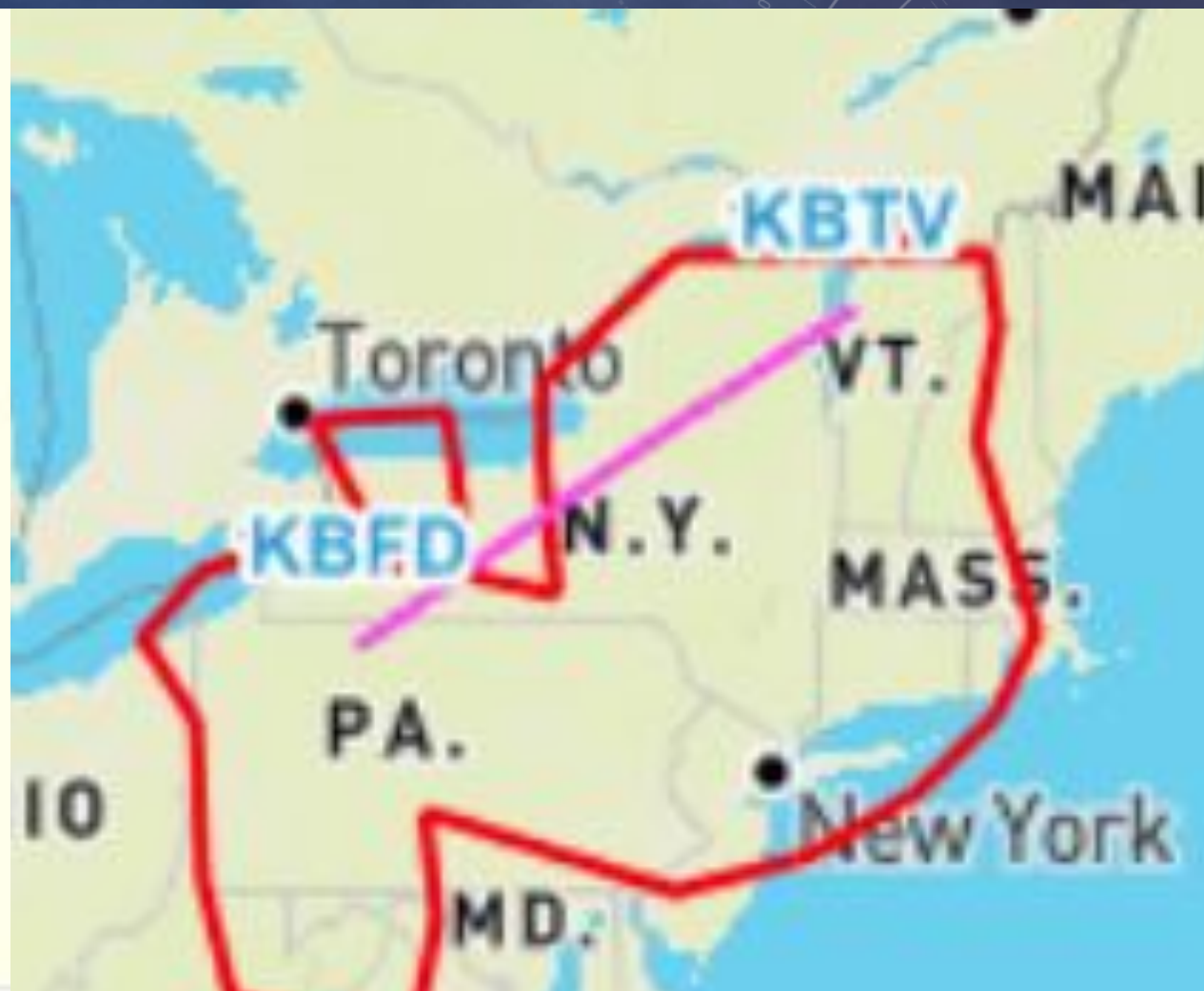
Oct 17, 1800Z to Oct 17, 2059Z

Valid: 2021-10-17T18:00Z Issued: 2021-10-17T14:45Z Severity: MOD Top: 13000

...

ACTIVE DURING PASSING TIME

**Oct 17, 1804Z to Oct 17, 1920Z**



# Icing

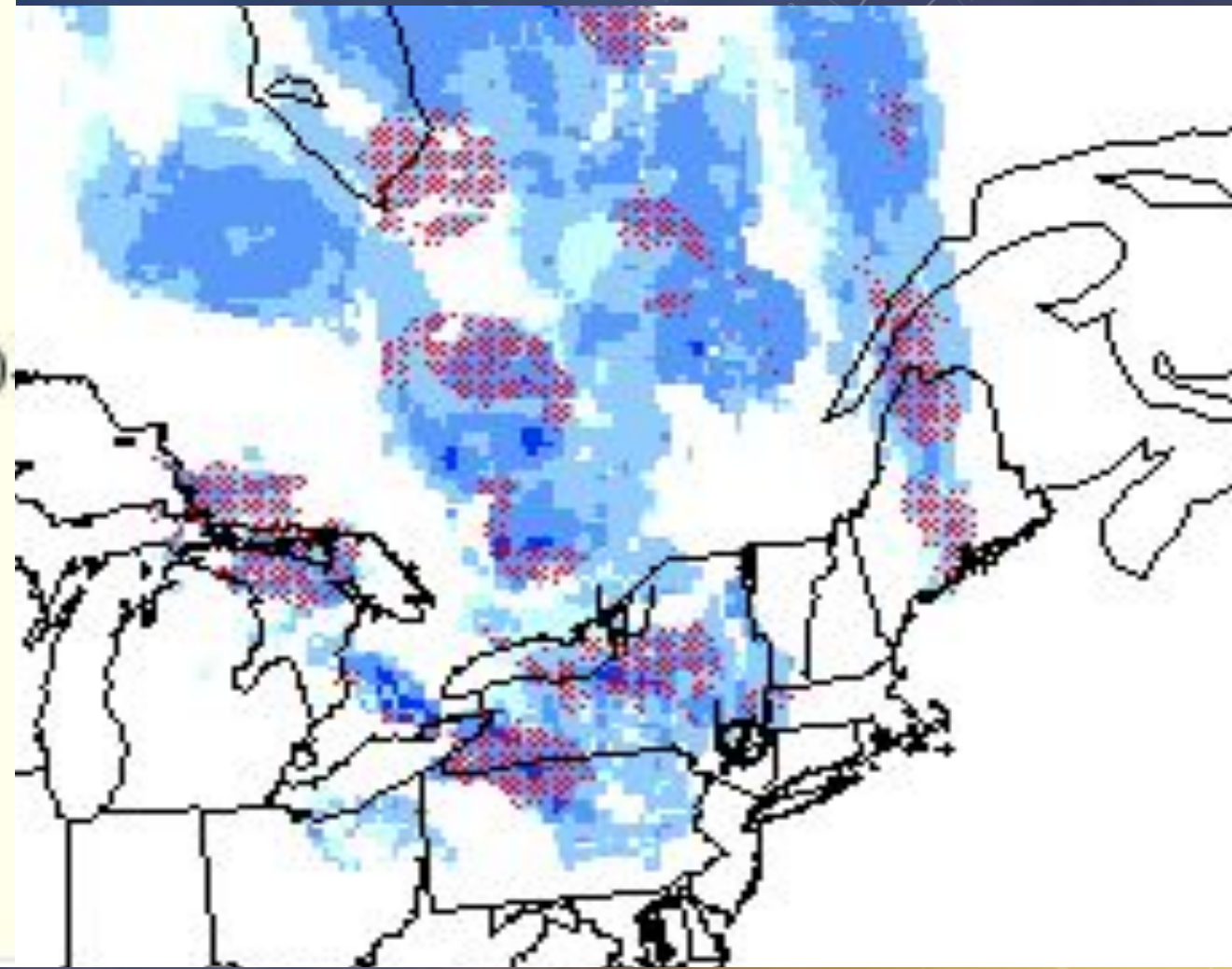
Oct 17, 1800Z to Oct 17, 2059Z

Valid: 2021-10-17T18:00Z Issued: 2021-10-17T14:45Z Severity: MOD Top: 13000

...


ACTIVE DURING PASSING TIME

**Oct 17, 1804Z to Oct 17, 1920Z**




  
SLD threat

  
terrain

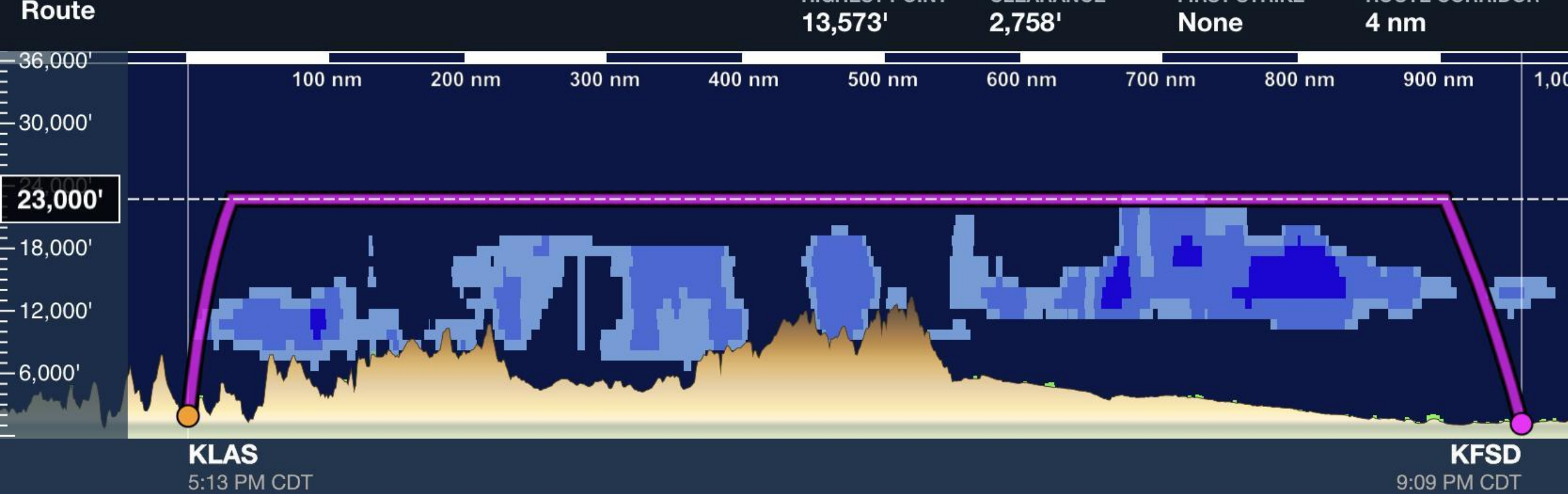
  
None

  
Trace

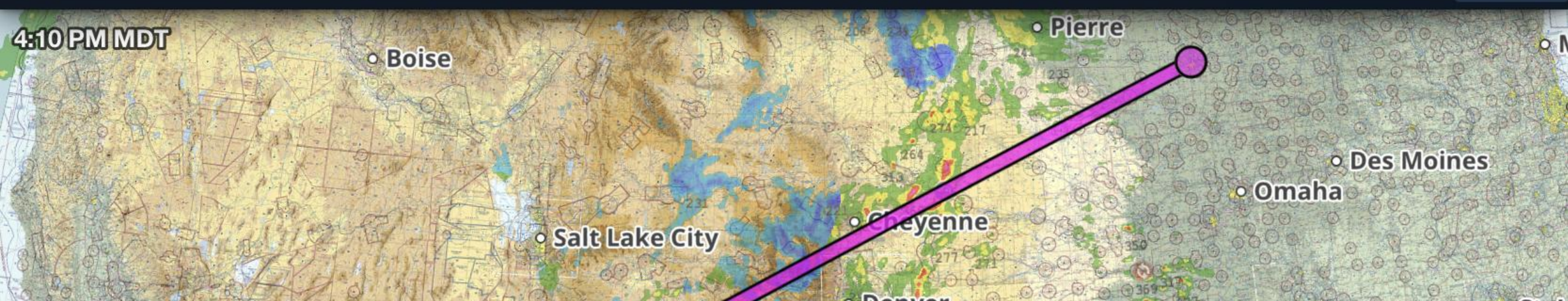
  
Light

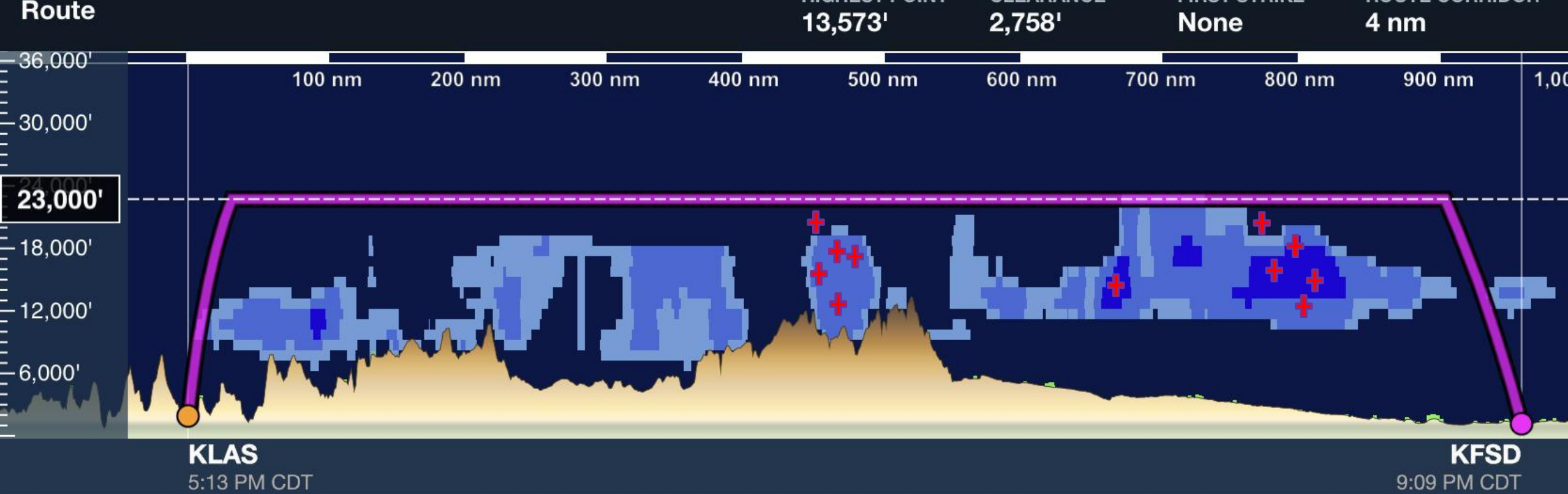
  
Moderate

  
Heavy

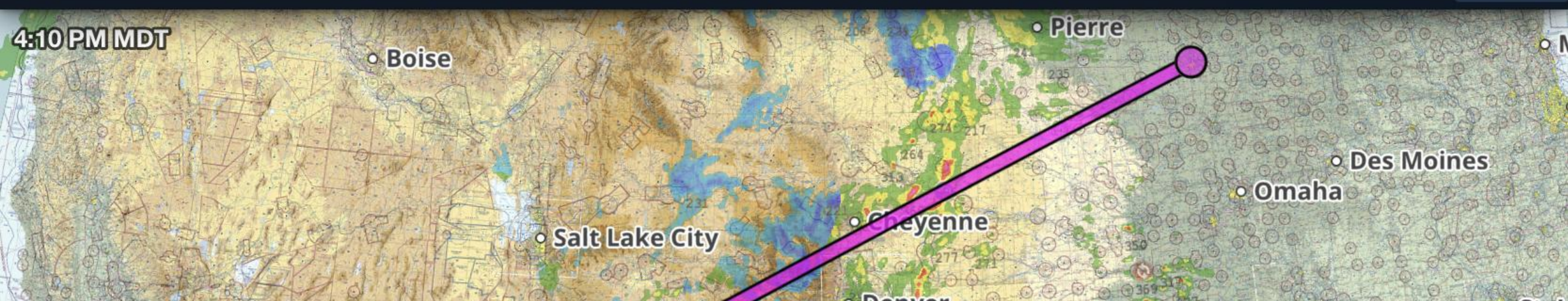


Icing (US) XTE > 2 nm Edit NavLog Profile





Icing (US) XTE > 2 nm Edit NavLog Profile







# Adverse Conditions

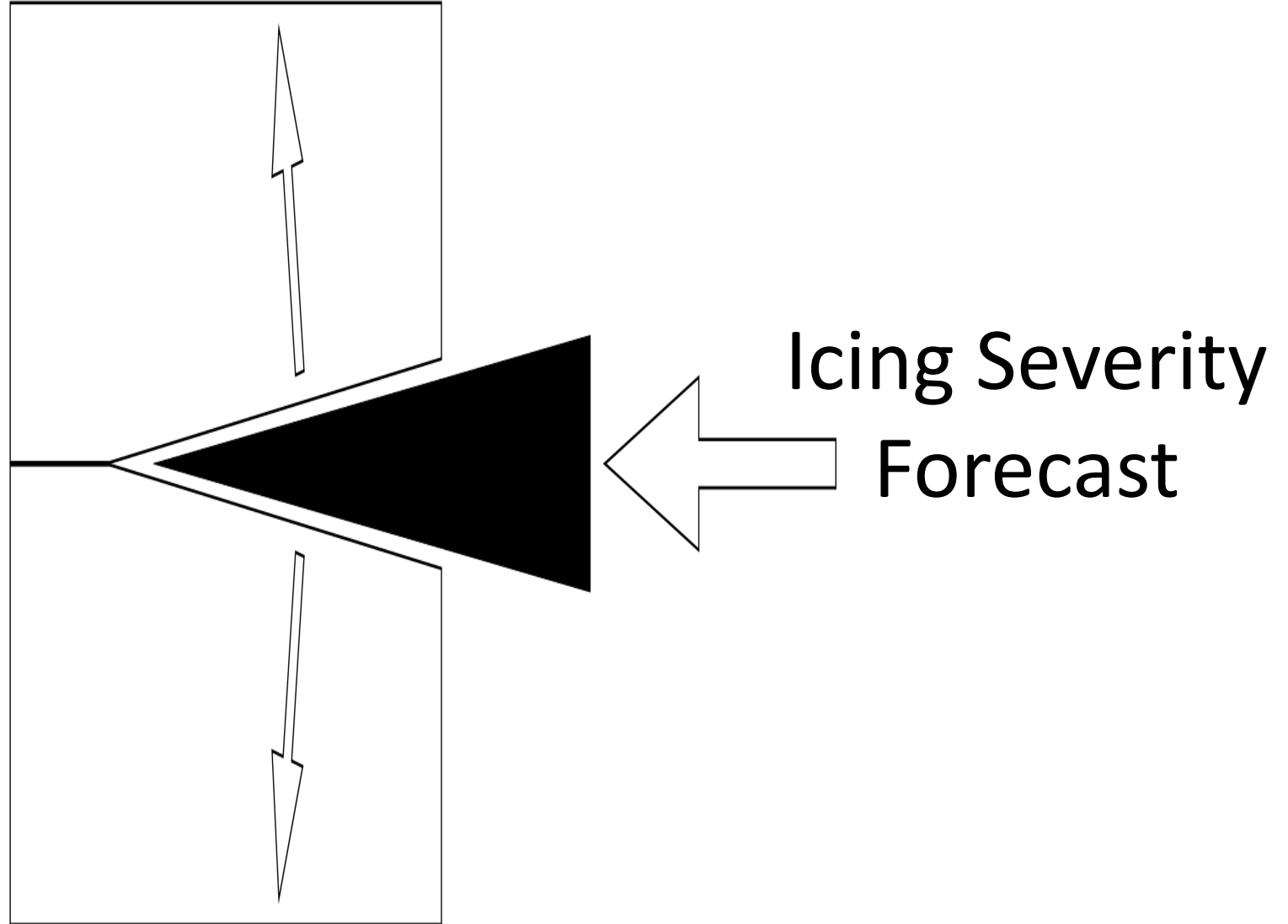
Convective SIGMETs

SIGMET

S

AIRMET

S



# HOW CAN WE BETTER SERVE OUR CUSTOMERS?

The Mirage ice protection system was designed and tested for operation in light to moderate meteorological conditions defined in FAR 25, Appendix C, for continuous maximum and intermittent maximum icing conditions. The ice protection system was not designed or tested for flight in **freezing rain**, **freezing drizzle** or **supercooled liquid water** and ice crystals, or **conditions defined as severe**. Flight in these conditions is prohibited and must be avoided.

DID THIS PILOT “KNOW”  
DID THIS PILOT “APPRECIATE”



I DON'T THINK THE PILOT STARTED  
OUT THE DAY THINKING...







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