Clouds!

Using aviation forecasts

to predict clear skies

with Andy Berry



How do you know when you have met a pilot?



1st speaker after lunch

Audience participation exercise

“On GO…”

Introverts, please forgive me

Goal Today

Help you find clear skies BEFORE you drive 3 hours

Goal Today

CLOUD LAYERS

The Different types

Good or Bad layers to help with your

Go / No-Go decision

HOW DETERMINED

Determine height, thickness

Maybe you can go after all?

RESOURCES to MAP CLEAR SKIES

Pilot Speak

Aviation weather resources

Map cloud cover

CLOUDS, my LOVE and HATE relationship





CEILING DEFINITION

- **NOAA (National Oceanic and Atmospheric Administration):**

  The height of the cloud base for the lowest broken or overcast cloud layer

- **FAA (Federal Aviation Administration):**

  The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as “broken,” “overcast,” or “obscuration,” and not classified as “thin” or “partial.”

THIS IS A CEILING



THIS IS NOT A CEILING



Cloud coverage in order of Good to Bad

GOOD

CLR / SKC

Clear or Sky Clear = 0/4



SCT

Scattered Clouds = 1/4



Cloud coverage in order of Good to Bad

BAD

FEW

Few clouds = 2/4



BKN and OVC

Broken 3/4 Overcast 4/4



But...
The weather report says
FEW, BKN, OVC

How bad is it??

Determining height and thickness

CEILING = STRATUS (layers)

CIRROSTRATUS

High and thin



CEILING = STRATUS (layers)

ALTOSTRATUS

Middle altitude

Not great



CEILING = STRATUS (layers)

STRATUS LOW

Best to stay home

May take hours or a day to clear



Cloud Thickness

No perfect or accurate way to tell from the ground.

Weather Balloons / Pilot Reports

CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

Wx BALLOON

Vertical measurements of the atmosphere



Wx balloon at dusk imitating a supernova

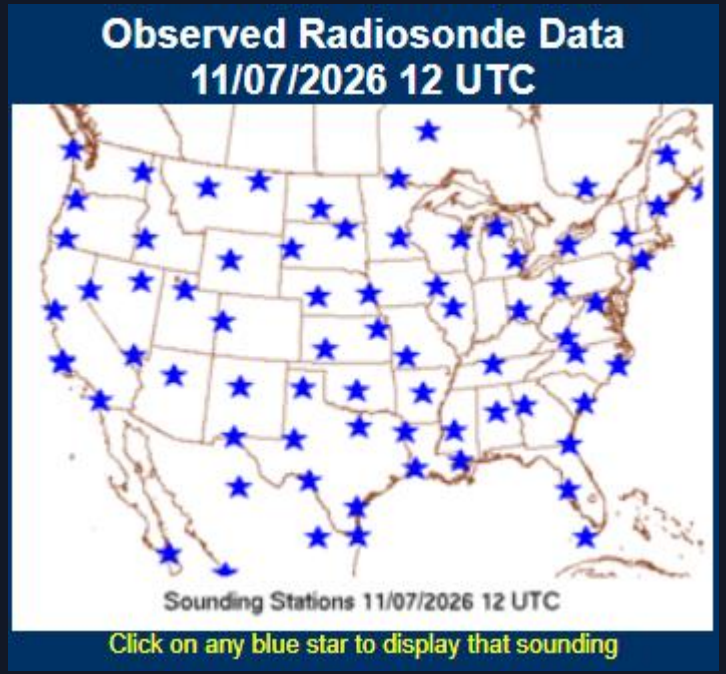
CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

Wx BALLOON

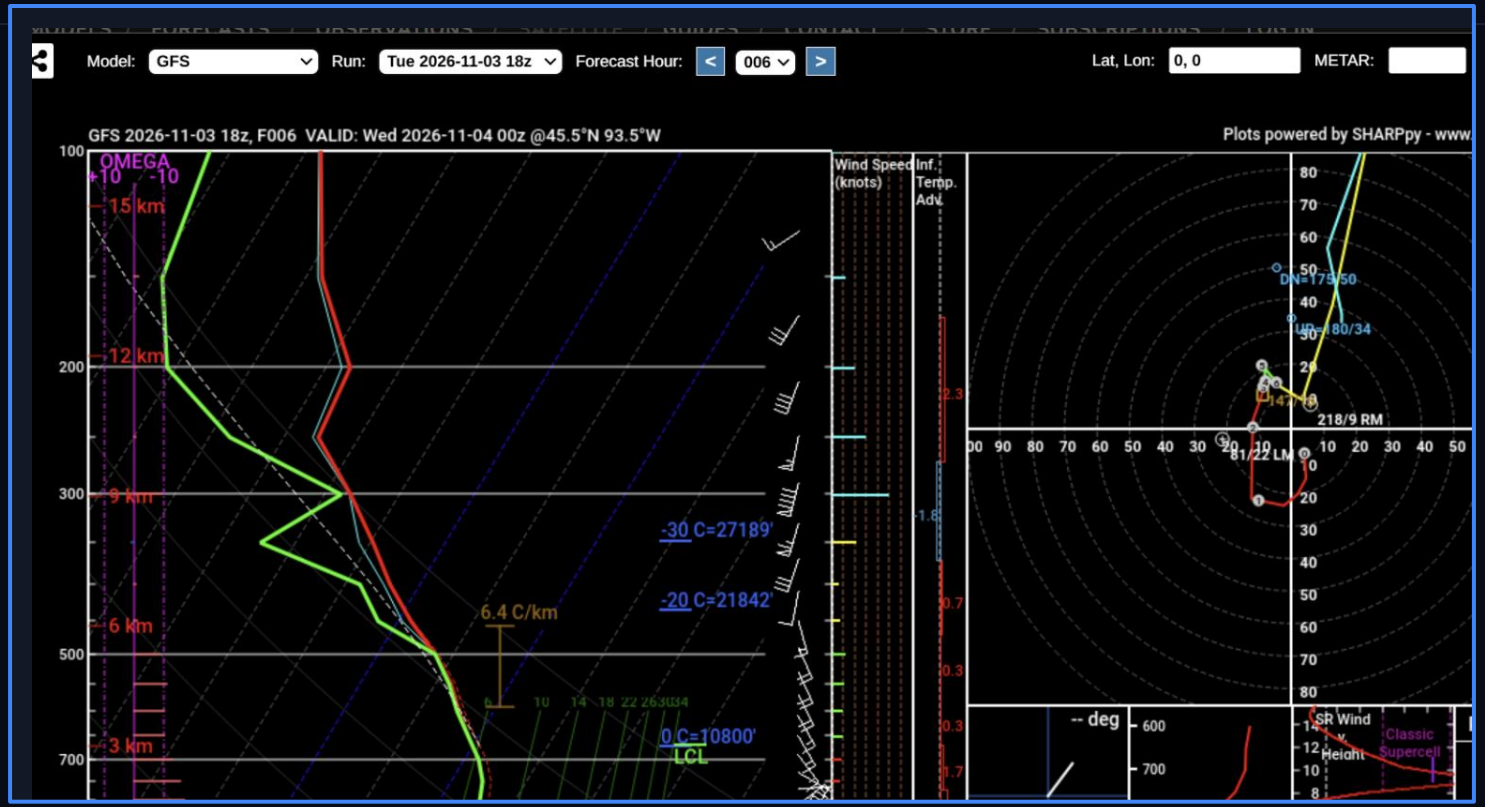
Wx balloon launch map

Launched twice a day
0Z (gmt) and 12Z (gmt)

SKEW-T CHART

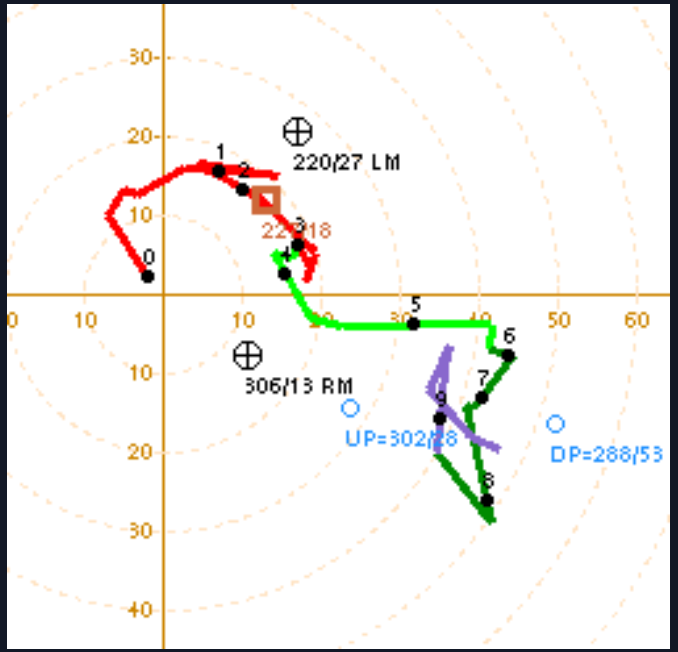


CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T



CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

Weather balloon track over the land



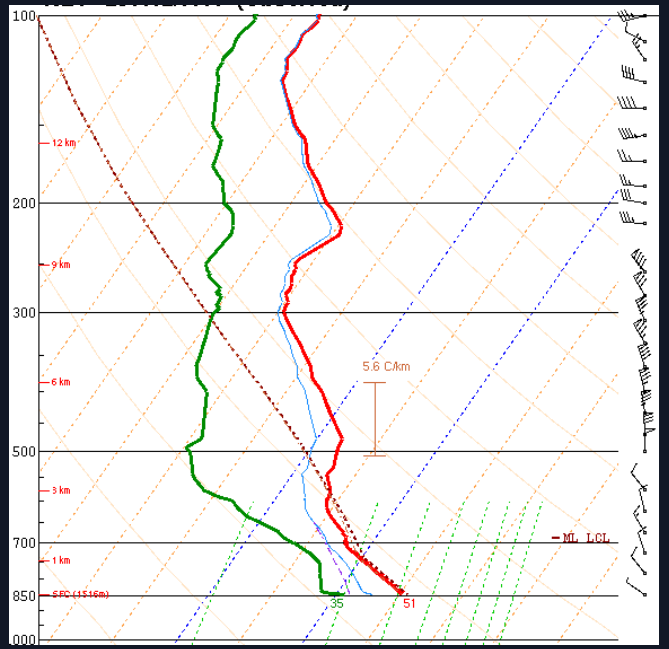
CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

SKY CLEAR

Vertical measurements

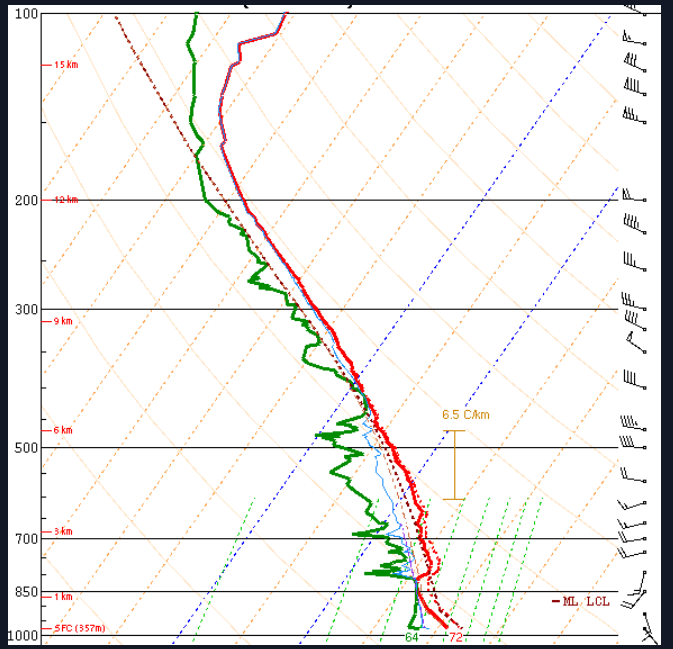
GREEN Dewpoint
RED temperature

When SAME = Condensation



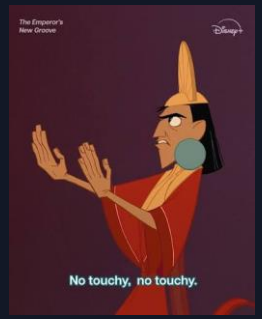
CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

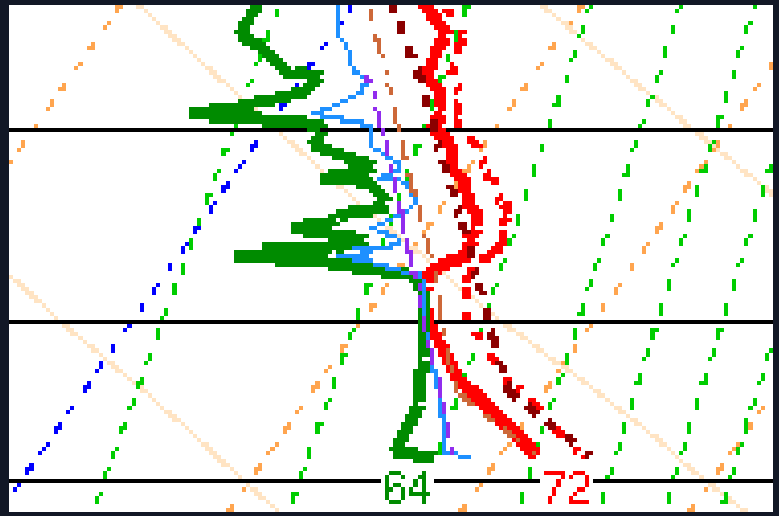
OVERCAST
LOW STRATUS



CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

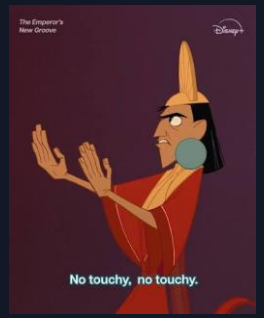
OVERCAST
LOW STRATUS

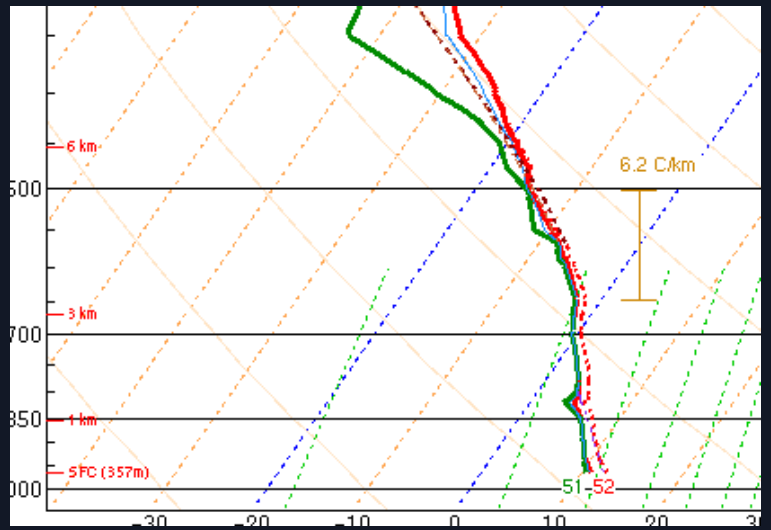




CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

OVERCAST
RAINY DAY





CLOUD THICKNESS - WEATHER BALLOONS and SKEW-T

https://www.spc.noaa.gov/exper/soundings/



CLOUD THICKNESS - PILOT REPORTS; “PIREP”

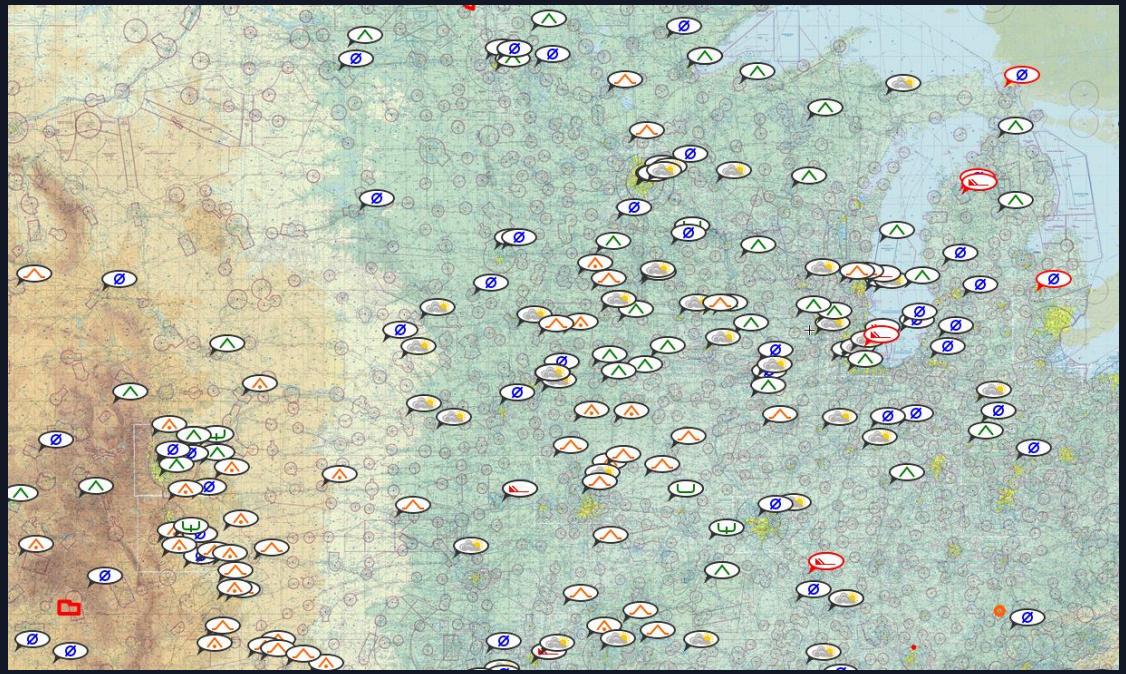
ME: Minneapolis Center; Skylane 6ZV, Have time for a pilot report?

ATC: YES! Go Ahead

ME: “Outside Air temp 15 C Bases 2,500 and Tops at 3,500 Negative Ice and Negative Turbulence”



CLOUD THICKNESS - PILOT REPORTS; “PIREP”



Before Resources; need to TALK LIKE A PILOT

ZULU TIME

"Z" or "Zulu" is easy to say than Greenwich Mean Time

WEATHER - METAR

METeorological Aerodrome Report. Local weather report at an airport

AGL - FL

Above Ground Level
Flight Levels >18,000 feet

WEATHER - TAF

Terminal Aerodrome Forecast
24 to 36 hour weather forecast from major airport determined by activity and regional requirements

Before Resources; need to TALK LIKE A PILOT

VFR

Visual Flight Rules

Good for astrophotography

could still have a ceiling...

MVFR

MARGINAL Visual Flight Rules

Visibility not great.

There is a ceiling 1,000 to 3,000 AGL

IFR

NOT GOOD for Aurora Photography

LOW CLOUDS <1,000 AGL

POOR Visibility

What do we want from the Resources?

GREAT !

- VFR
- SKC or SCT

MAYBE

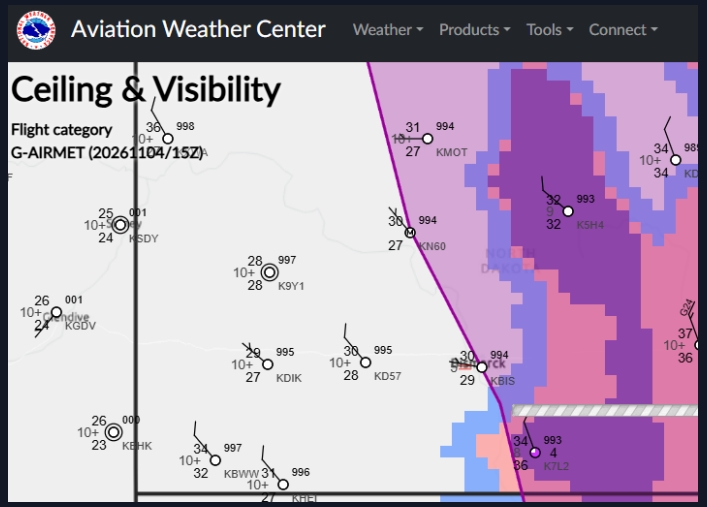
- MVFR but.. Changing to VFR
- HIGH CIRRUS

NAH

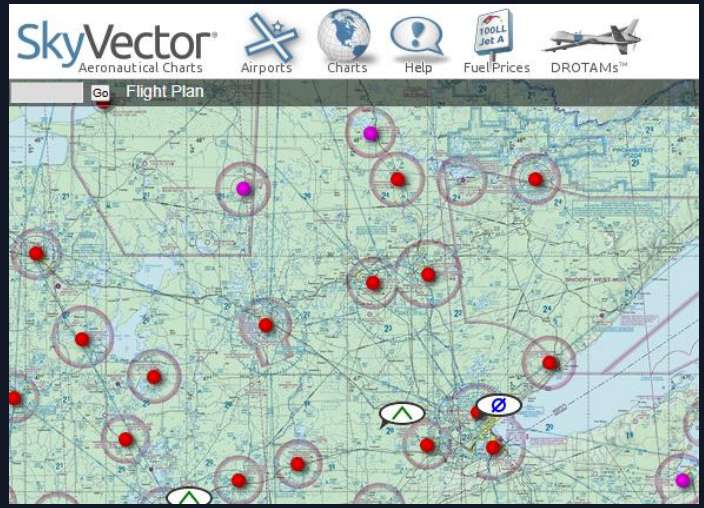
- IFR
- BKN010
  Broken 1,000 AGL
- LOW CEILING
  OVC040
  Overcast 4,000 AGL

RESOURCES

Aviation Weather



SkyVector



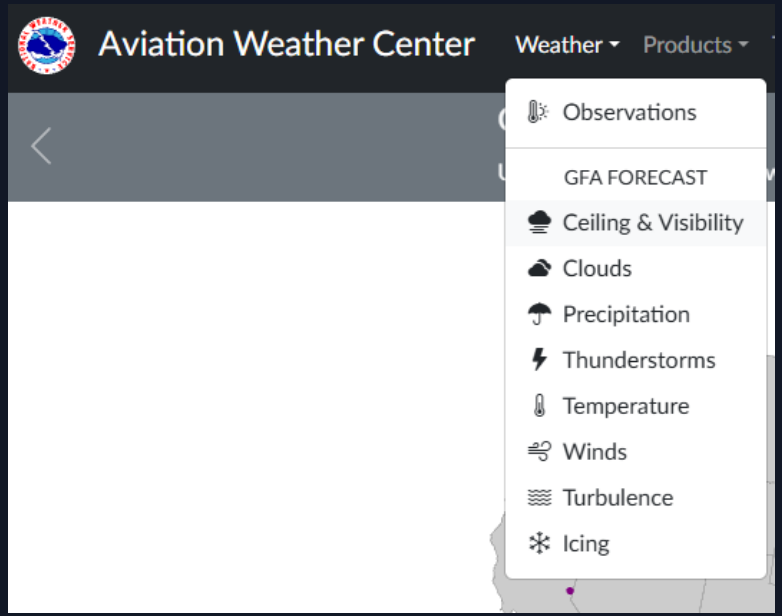
RESOURCE 1; Aviation Weather - Ceiling & Visibility

Aviation Weather
https://aviationweather.gov/

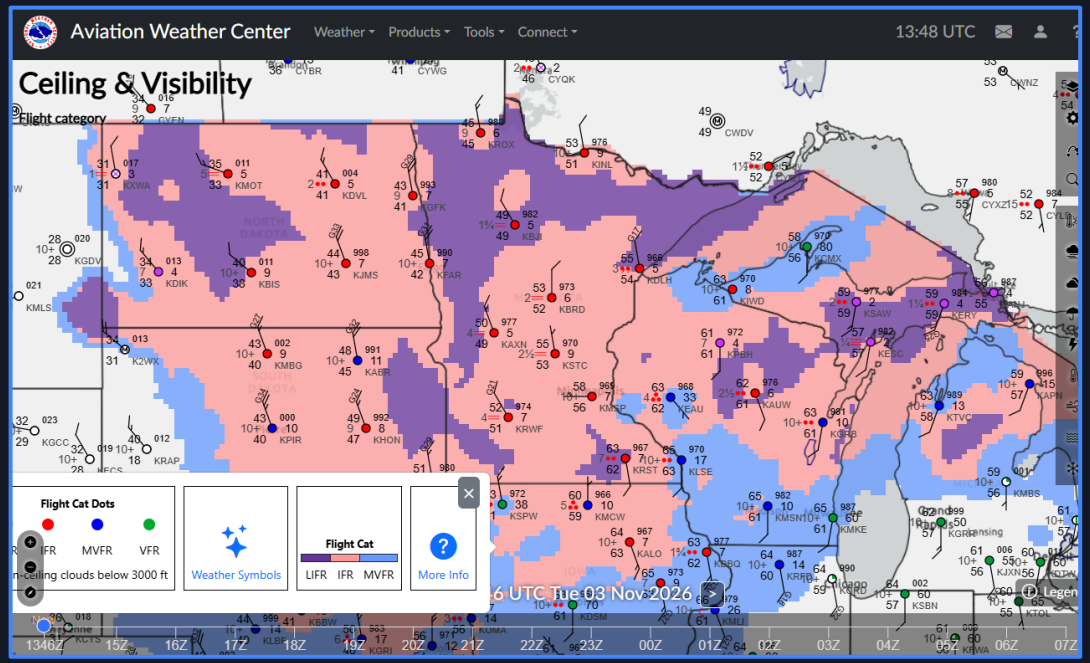
*** Mobile Friendly*

Aviation Weather
... Ceiling & Visibility

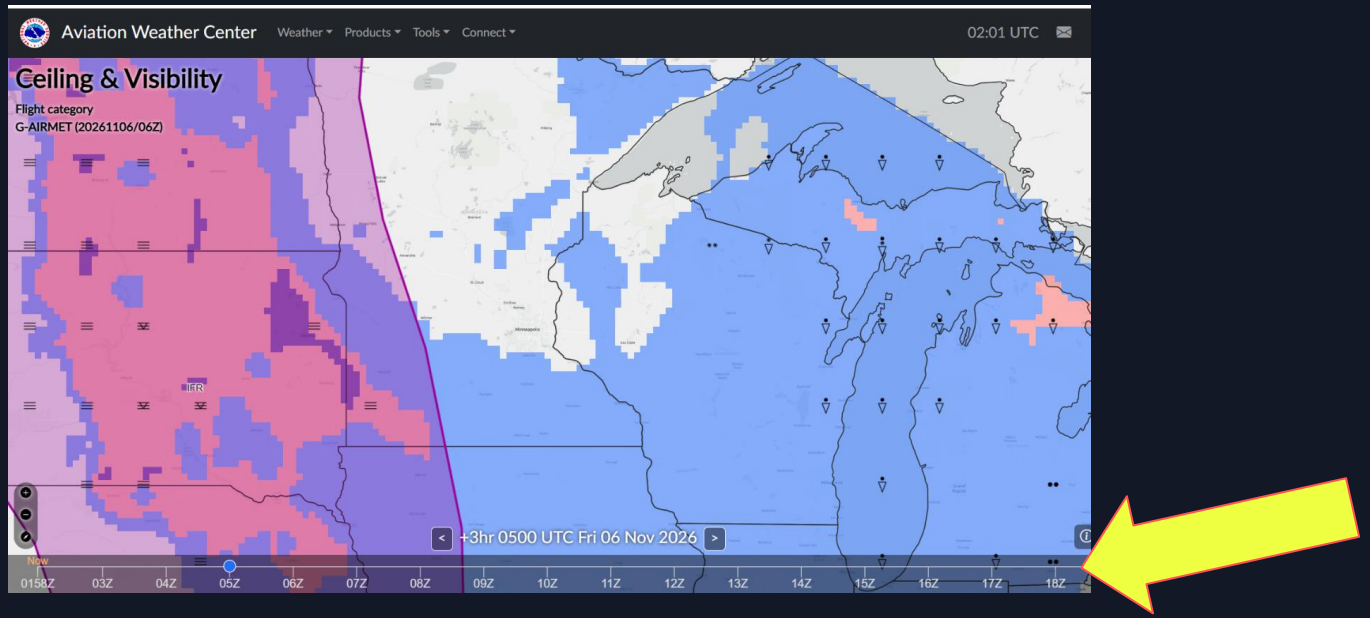
Aviation Weather
... Clouds



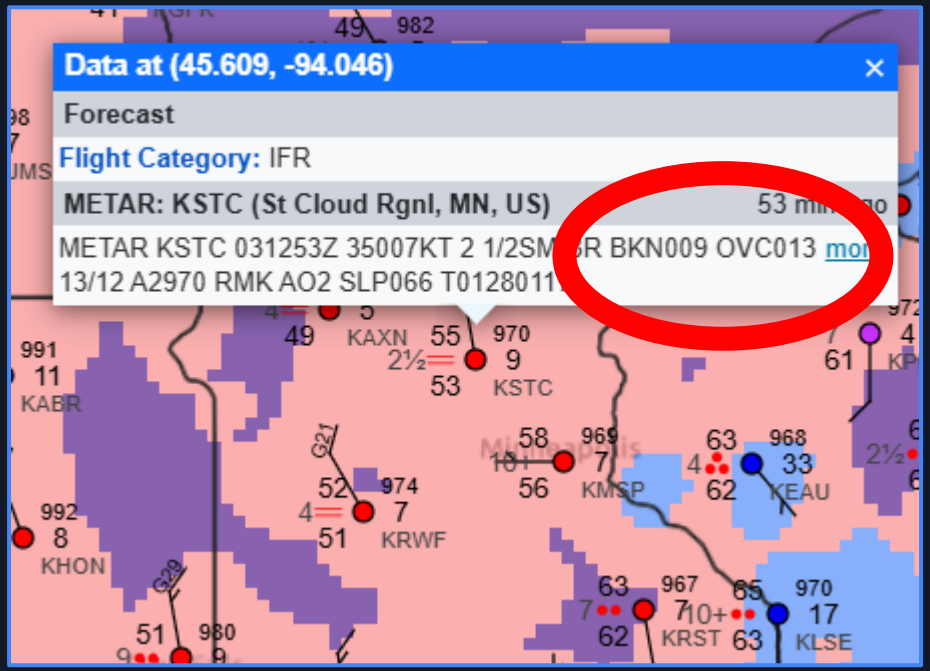
Aviation Weather - Ceiling & Visibility



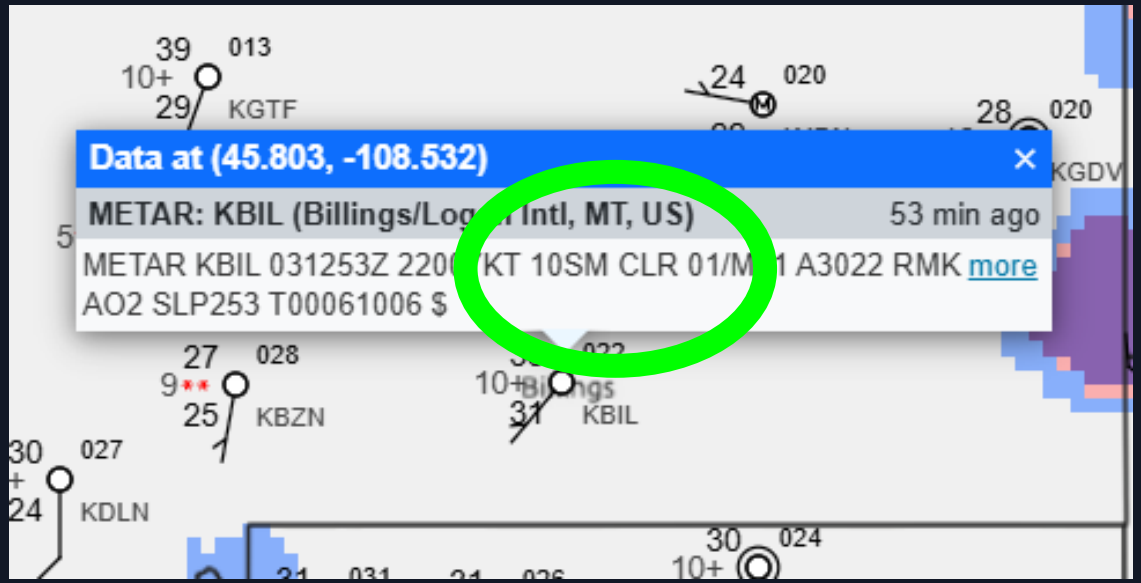
Aviation Weather - Ceiling & Visibility - USE THE TIMELINE



Aviation Weather - Ceiling & Visibility - METAR



Aviation Weather - Ceiling & Visibility - METAR



Aviation Weather - Ceiling & Visibility - TAF

```
TAF KCMX 052320Z 0600/0624 01012G22KT P6SM -SHRASN SCT015 OVC025
  PROB30 0600/0604 4SM -SHRASN OVC015
  FM061800 02009KT P6SM BKN025 OVC035
```

TAFs

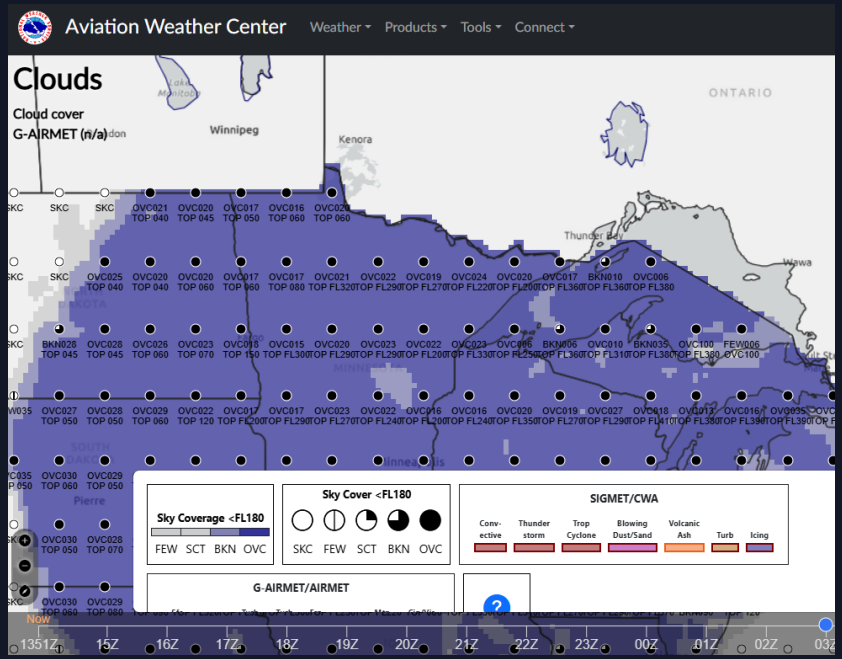
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Decoded Alphabetize

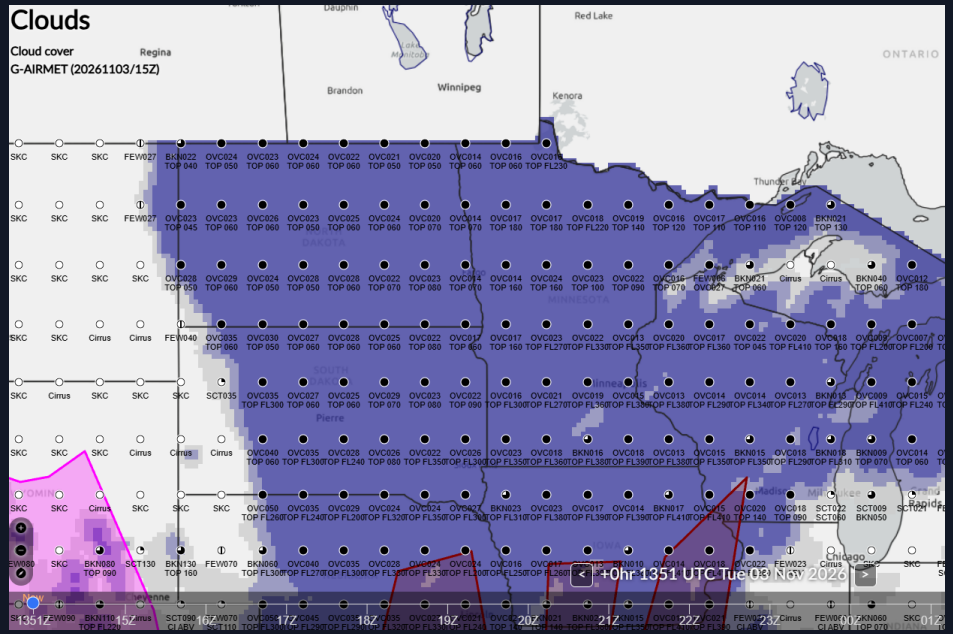
TAFs Tabular Auto refresh

TAF for: Houghton Cnty Mem
Text: TAF KCMX 052320Z 0600/0624 01012G22KT P6SM -SHRASN SCT015 OVC025
Forecast period: 0000 UTC 06 Fri Nov 2026 to 1800 UTC 06 Fri Nov 2026
Forecast type: standard forecast or significant change
Winds: from the N (10°) at 12 kt (6 m/s, 13.8 mph) gusting to 22 kt (11 m/s, 25.3 mph)
Visibility: 6+ mi (10+ km)
Clouds: scattered clouds at 1,500 ft, overcast at 2,500 ft
Weather: light rain showers, light snow showers
Text: PROB30 0600/0604 4SM -SHRASN OVC015
Forecast period: 0000 UTC 06 Fri Nov 2026 to 0400 UTC 06 Fri Nov 2026
Forecast type: PROB: undefined
Visibility: 4.0 mi (6.4 km)
Clouds: overcast at 1,500 ft
Weather: light rain showers, light snow showers
Text: FM061800 02009KT P6SM BKN025 OVC035
Forecast period: 1800 UTC 06 Fri Nov 2026 to 0000 UTC 07 Sat Nov 2026
Forecast type: FM: standard forecast or significant change
Winds: from the NNE (20°) at 9 kt (5 m/s, 10.4 mph)
Visibility: 6+ mi (10+ km)
Clouds: broken clouds at 2,500 ft, overcast at 3,500 ft

Aviation Weather - Clouds



Aviation Weather - Clouds



Aviation Weather

https://aviationweather.gov/



RESOURCE 2; SkyVector

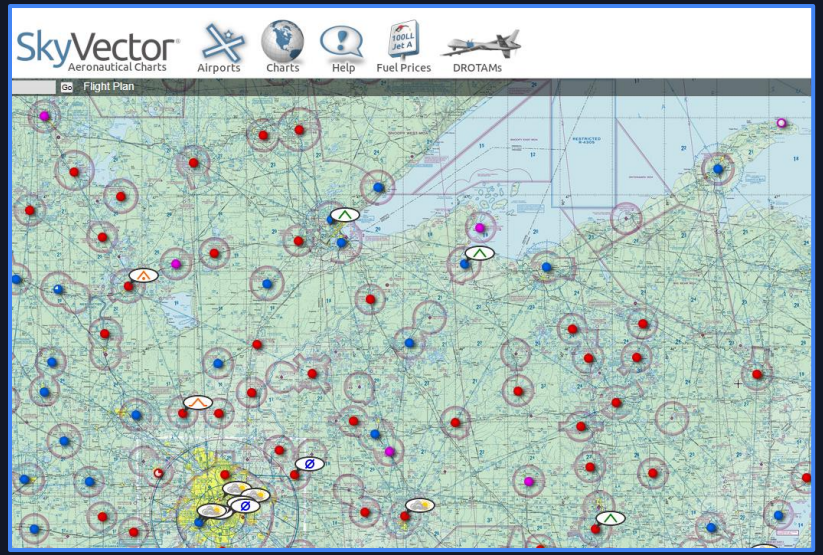
SkyVector

https://skyvector/

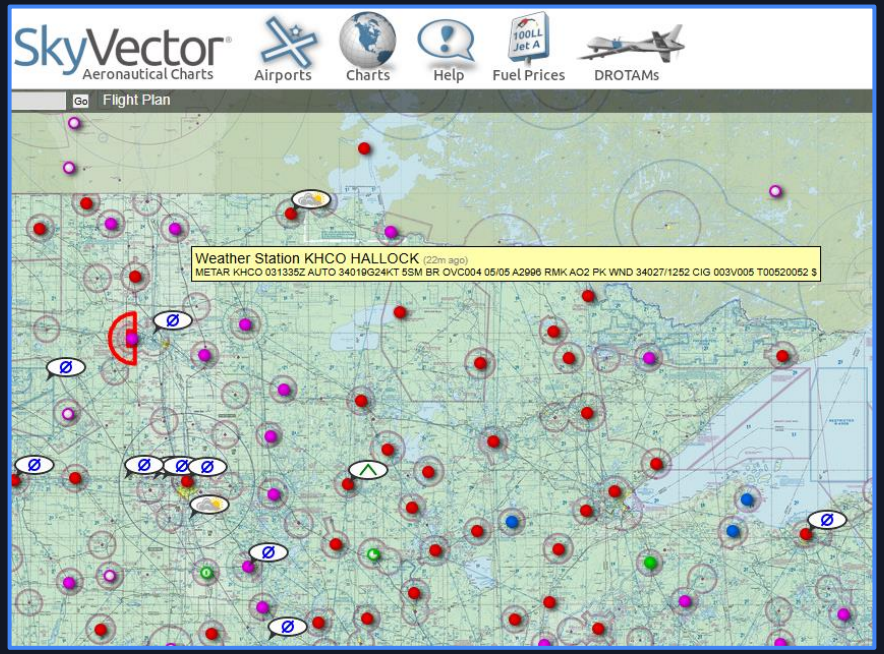
Desktop browser

LOT OF INFORMATION

VERY FAST! If you KNOW how to Read it



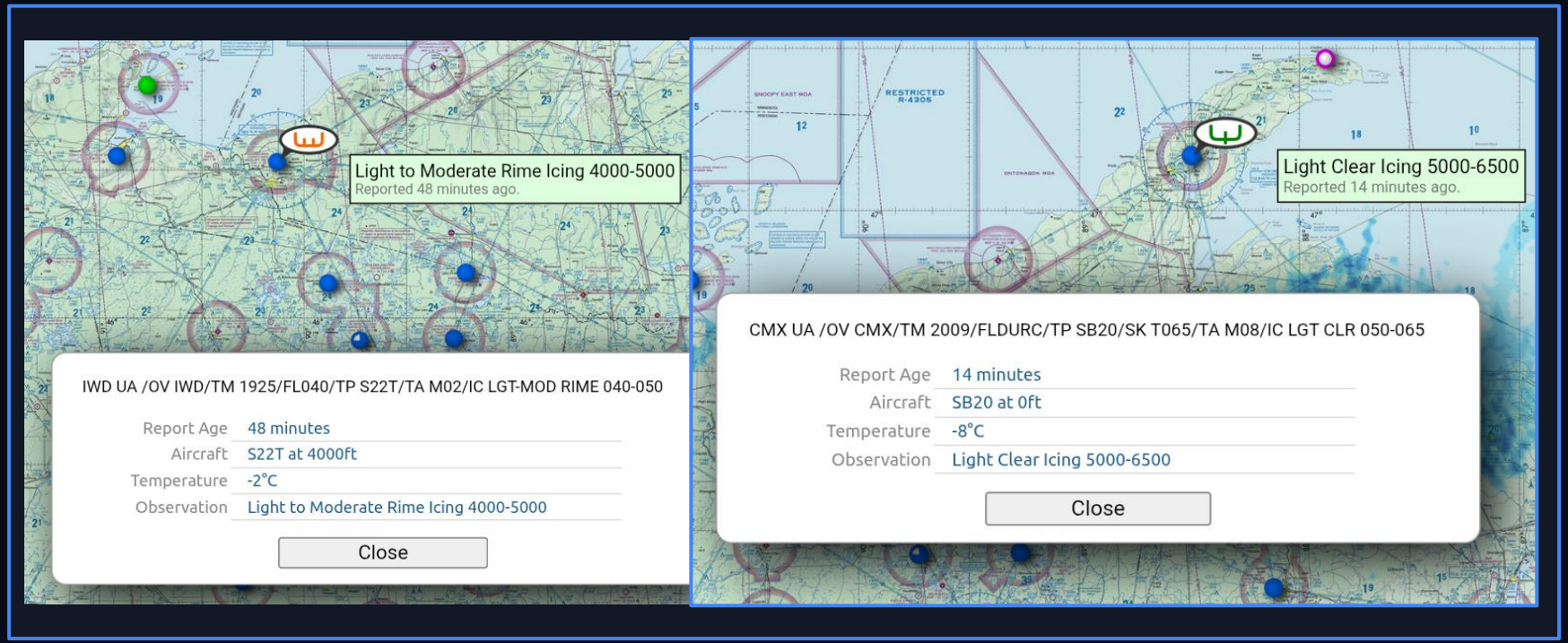
RESOURCE 2; SkyVector - METAR



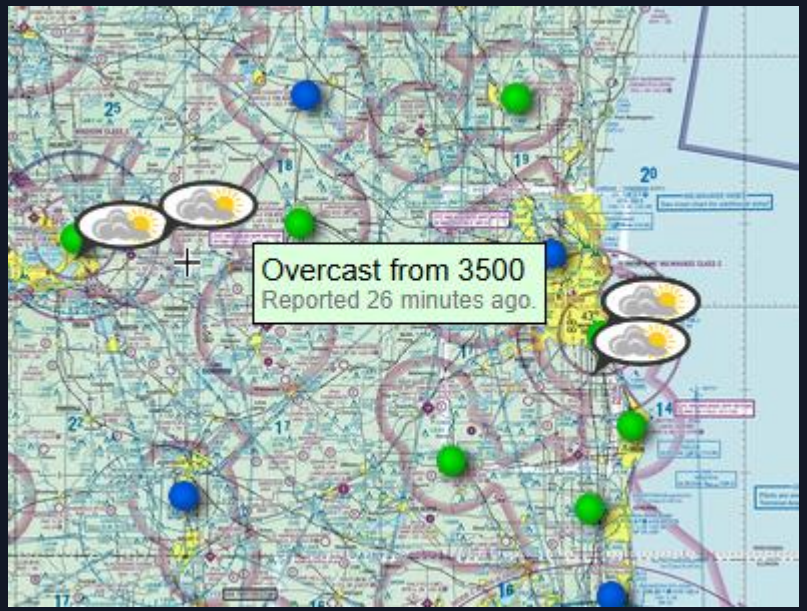
RESOURCE 2; SkyVector - TAF

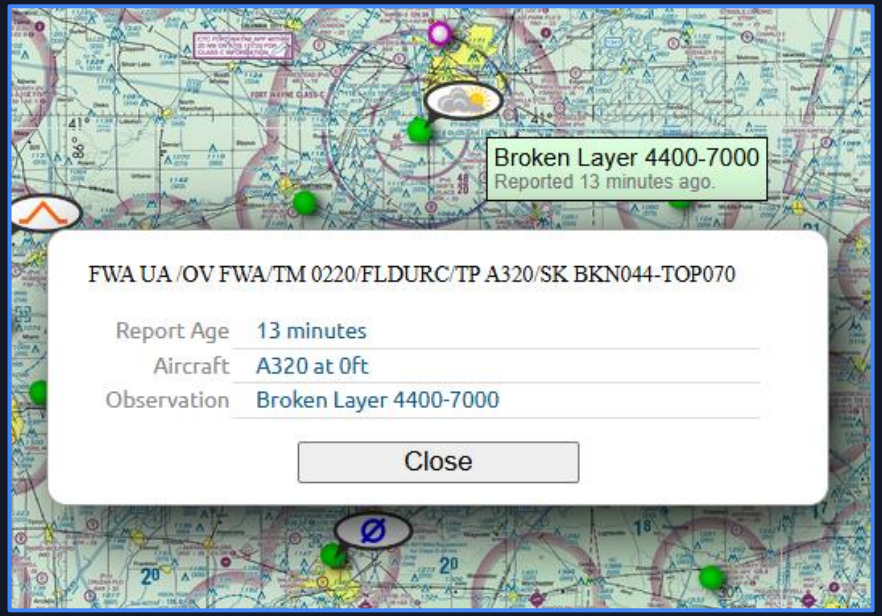


RESOURCE 2; SkyVector - PIREP (Pilot Reports)



RESOURCE 2; SkyVector - PIREP (Pilot Reports)





RESOURCE 2; SkyVector

https://skyvector.com/

Conclusion!
Find the CLEAR SKIES

aviationweather.gov
Look for

SKC or FEW



DISCUSSION & ANALYSIS // OPEN FLOOR

Common Questions

Then

Audience Discussion

ICEBREAKER TOPICS

- Asked by an 8 year old “When you fly at night, can you touch the stars?
- Ever been scared of flying?
- What do rainbows look like?
- Photobomb Aurora Chaser?

SCARED

Acrophobia

Fear of Heights / Fear of Edges

SCARED



NYC

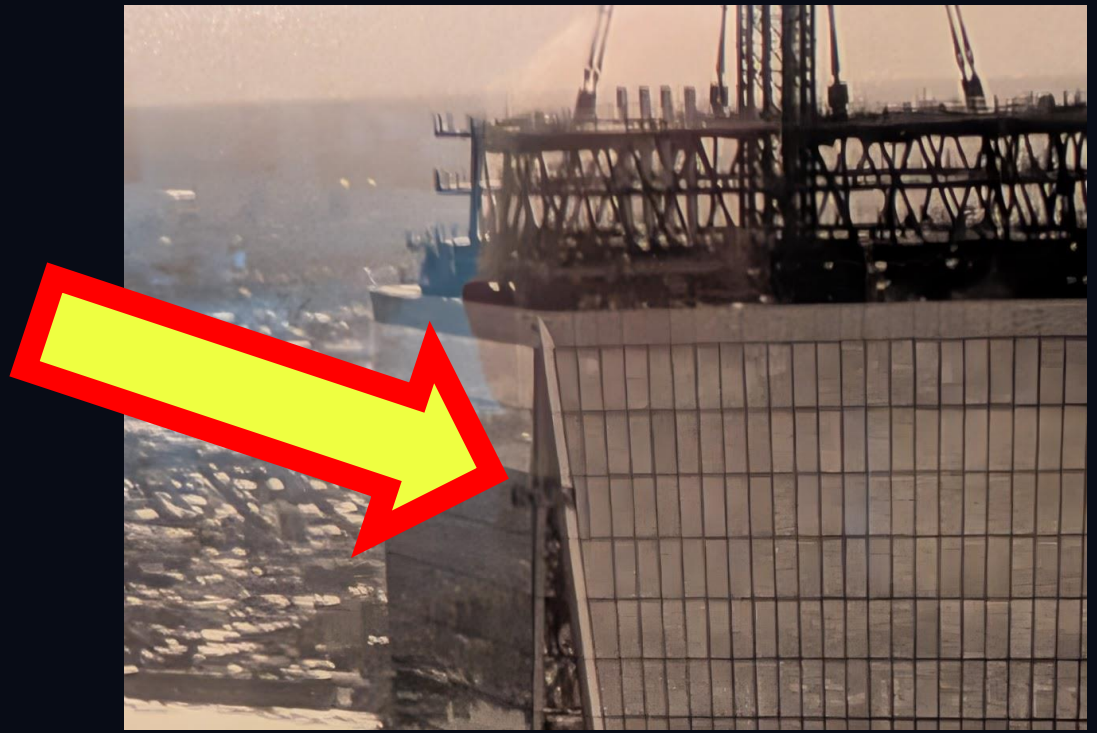
Hudson river corridor

SCARED



Bill Vitiello
@thevtphotography

SCARED



Bill Vitiello
@thevtphotography

RAINBOW





PHOTOBOMB



DISCUSSION & ANALYSIS // OPEN FLOOR

Questions & Audience Discussion

Open Floor for Q&A

THANK YOU!

Clear skies
and
Shiny side up!

