

AVIATION WEATHER EDUCATION: CHALLENGES USING CURRENT FAA GUIDANCE

Presented by

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Background

ERAU Daytona Beach:

- We teach over 400 professional pilot students in Aviation Weather each year.
 - 1500 Total Flight Students
- Course focuses on both **phenomenology** (theory) and **product interpretation** (improved decision making)
- Utilize FAA Advisory Circulars for both phenomenology and product interpretation
 - 45H, 06B, 24C, etc.

Big kudos for the improved AC 00-06!

Motivation

- Stems from observed challenges while teaching as well as during research on understanding GA pilot knowledge
- Advisory Circulars continue to improve with each iteration and provide exceptional information but challenges remain
- We can offer unique perspective since we use the ACs in a classroom setting
- Goal is to provide our observations and suggestions for improvements

Observed Challenges

- Incorrect product information
- Guidance not keeping pace with new products
- Multiple formats of same product
- Potentially unnecessary information
- Missing product information
- Limited focus on interpretation

Incorrect product information

- Radar Example: “Ghost”

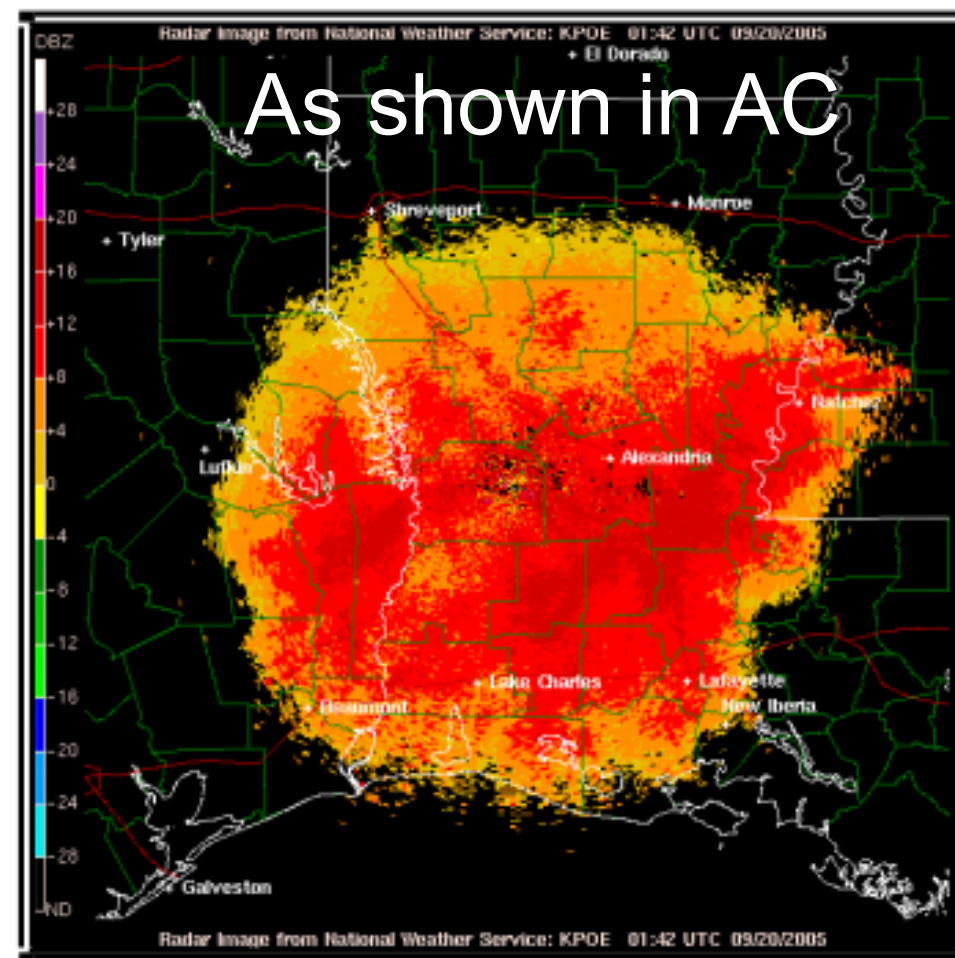
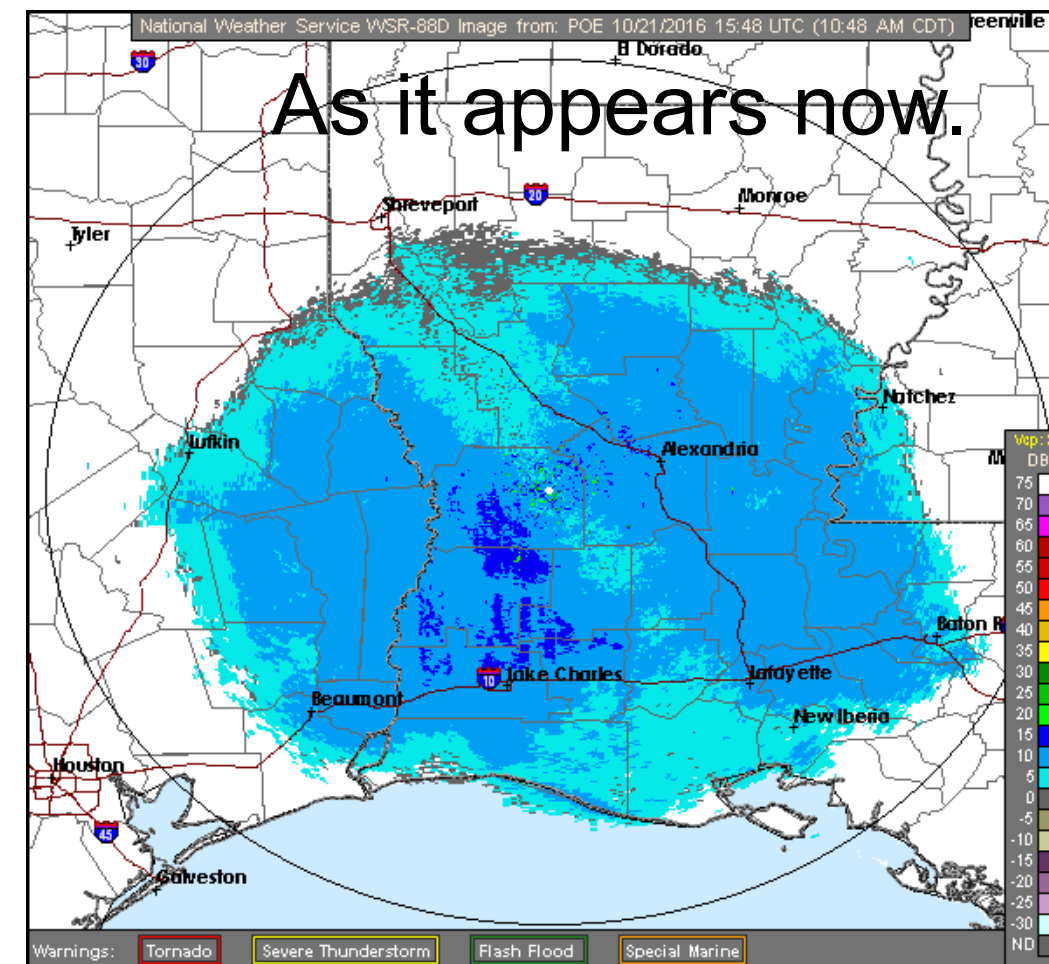


Figure 4-9. WSR-88D Weather Radar Ghost Example

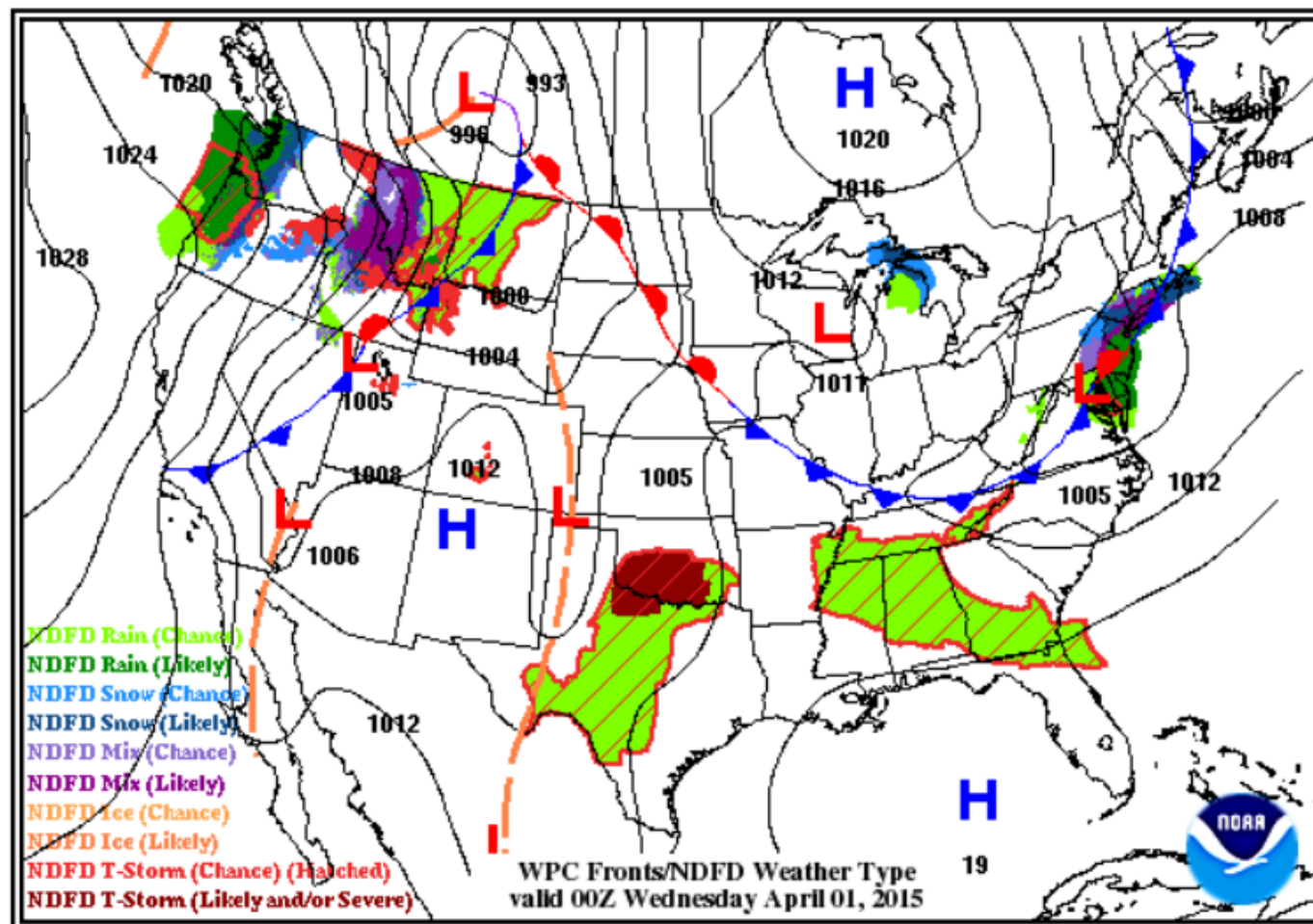


Combined precip/clear air mode color bar legend changed several years ago. ***Red is never safe.***

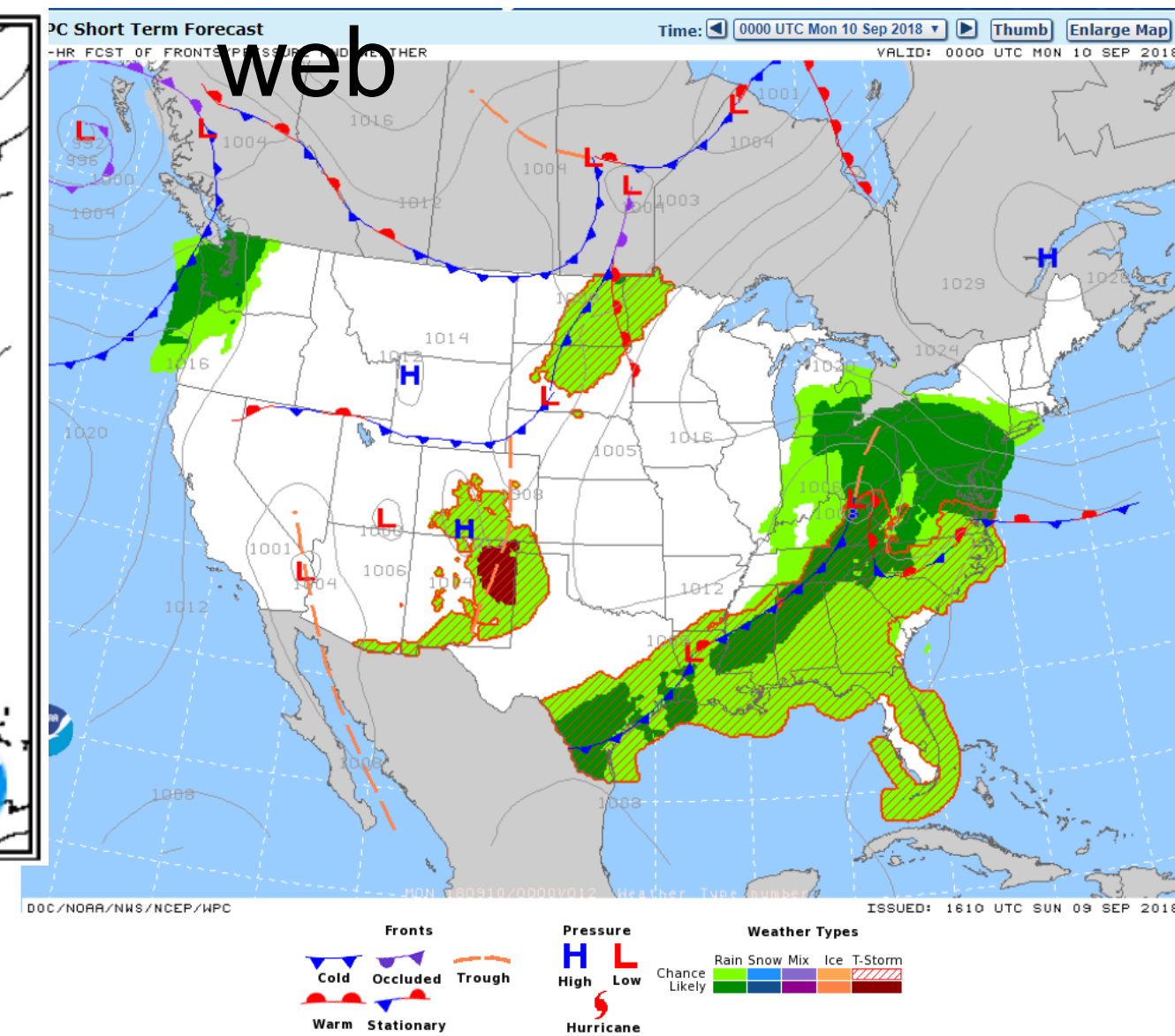
Guidance not keeping pace with products

- Surface Weather Prog Chart Example

As shown in AC

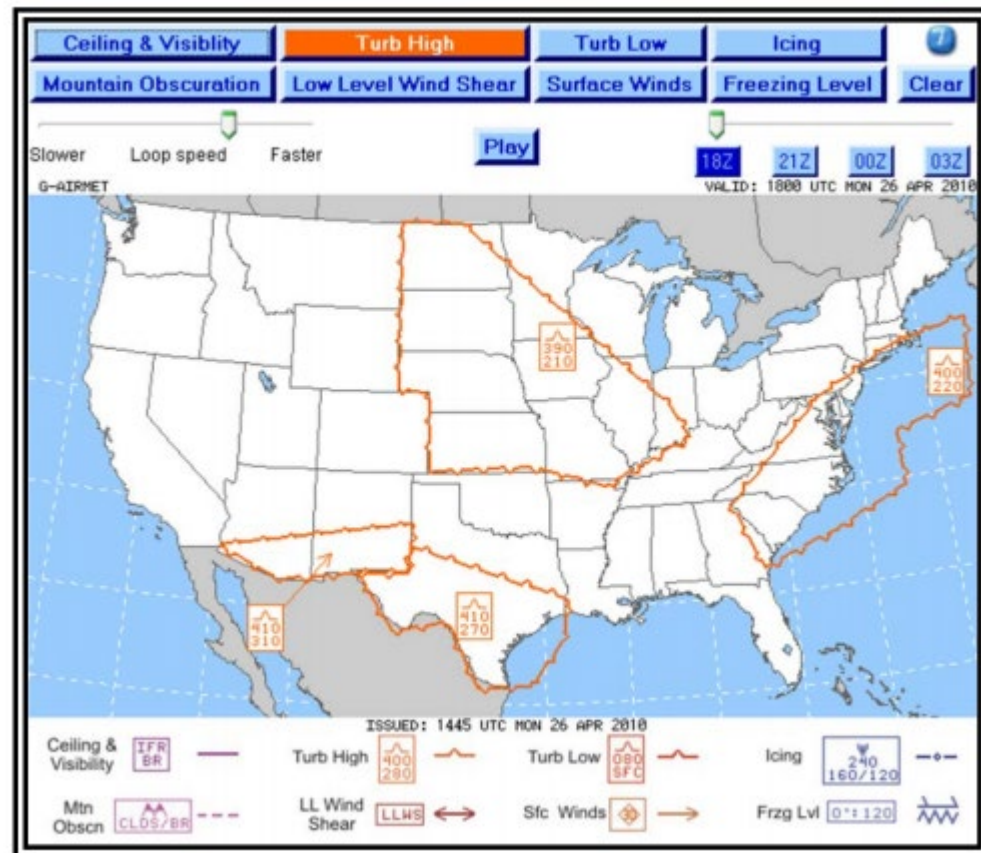


As appears on
web

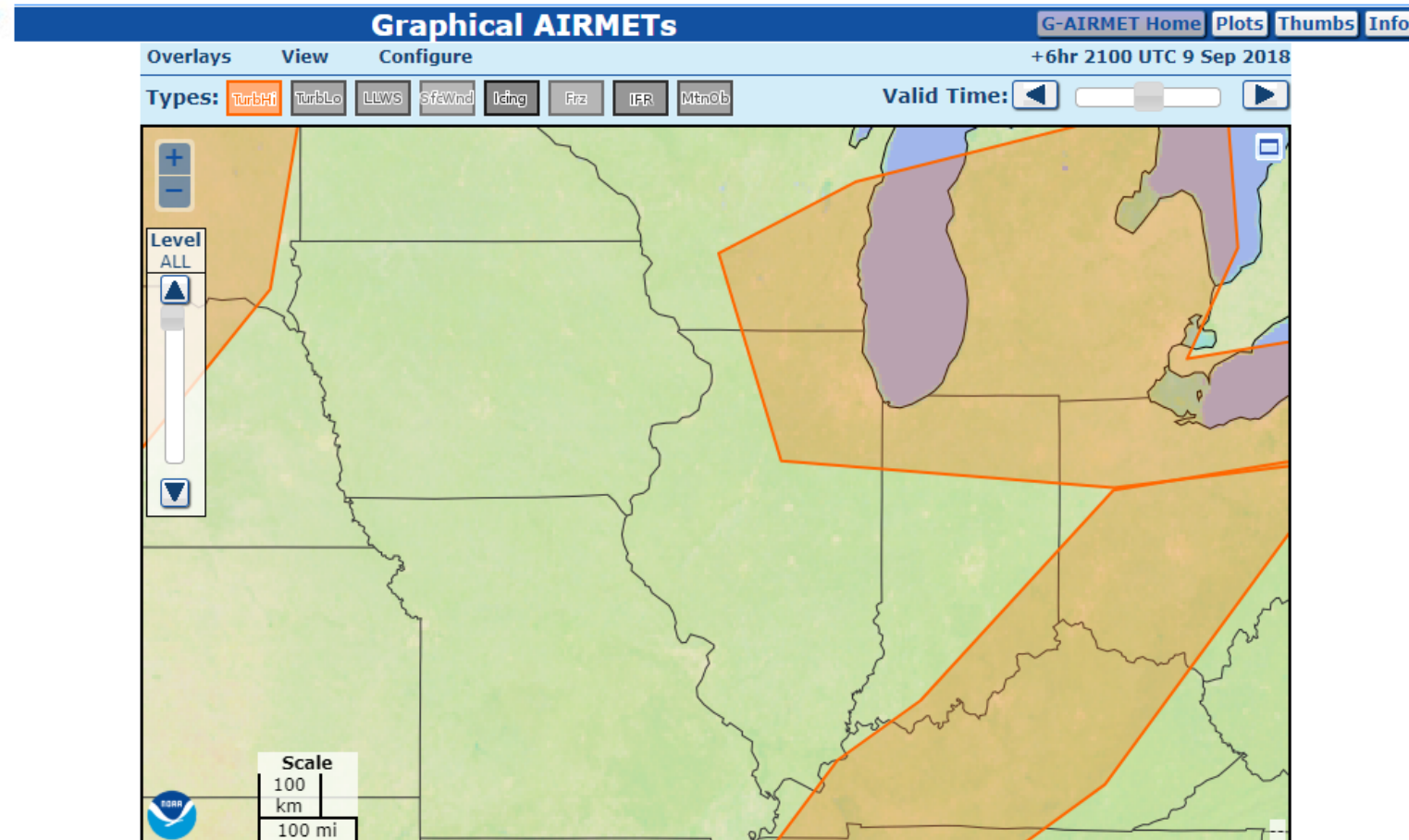


Multiple formats of same images

Figure 5-16. G-AIRMET—Turbulence-High Snapshot Example



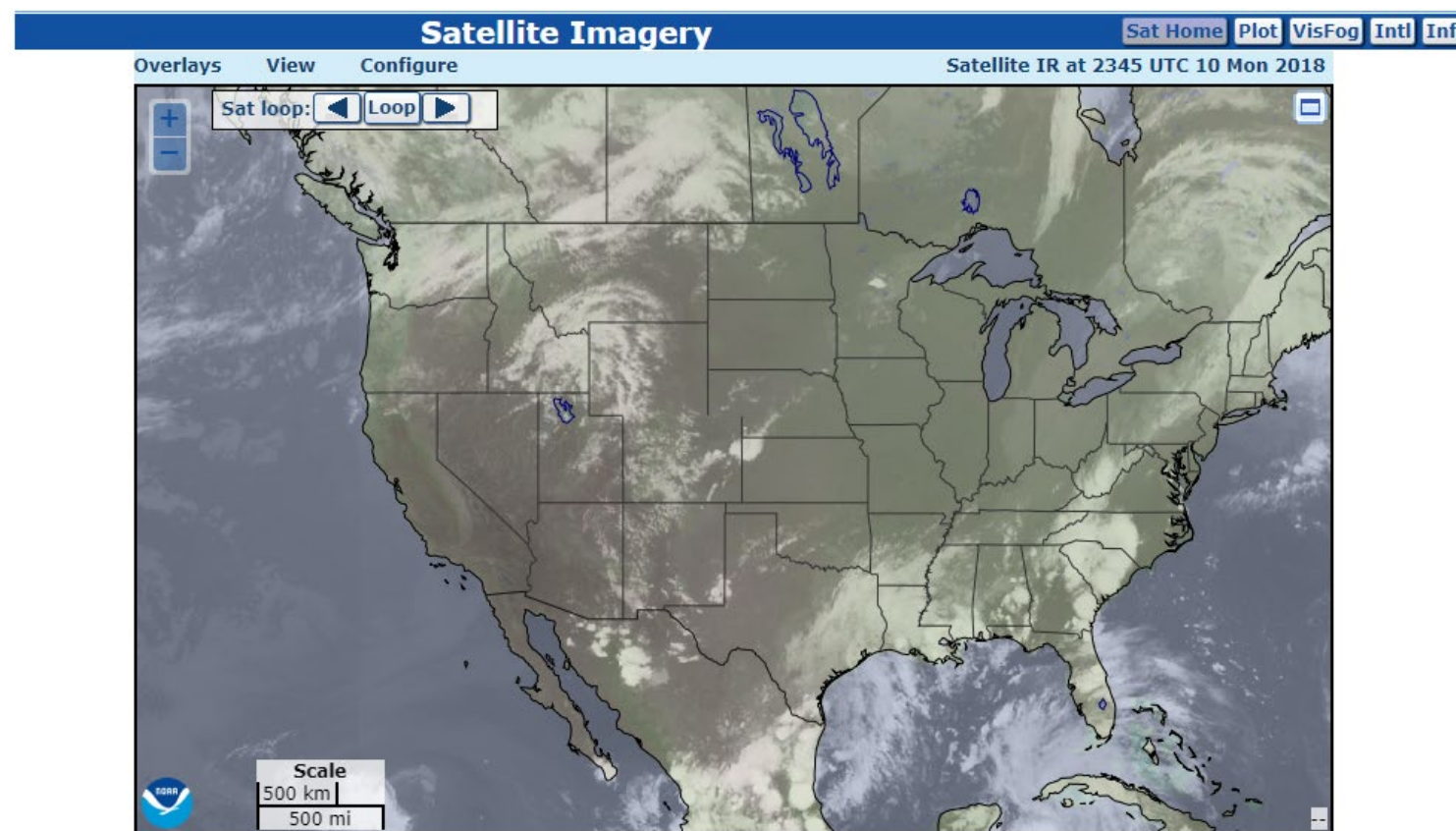
AC
Example



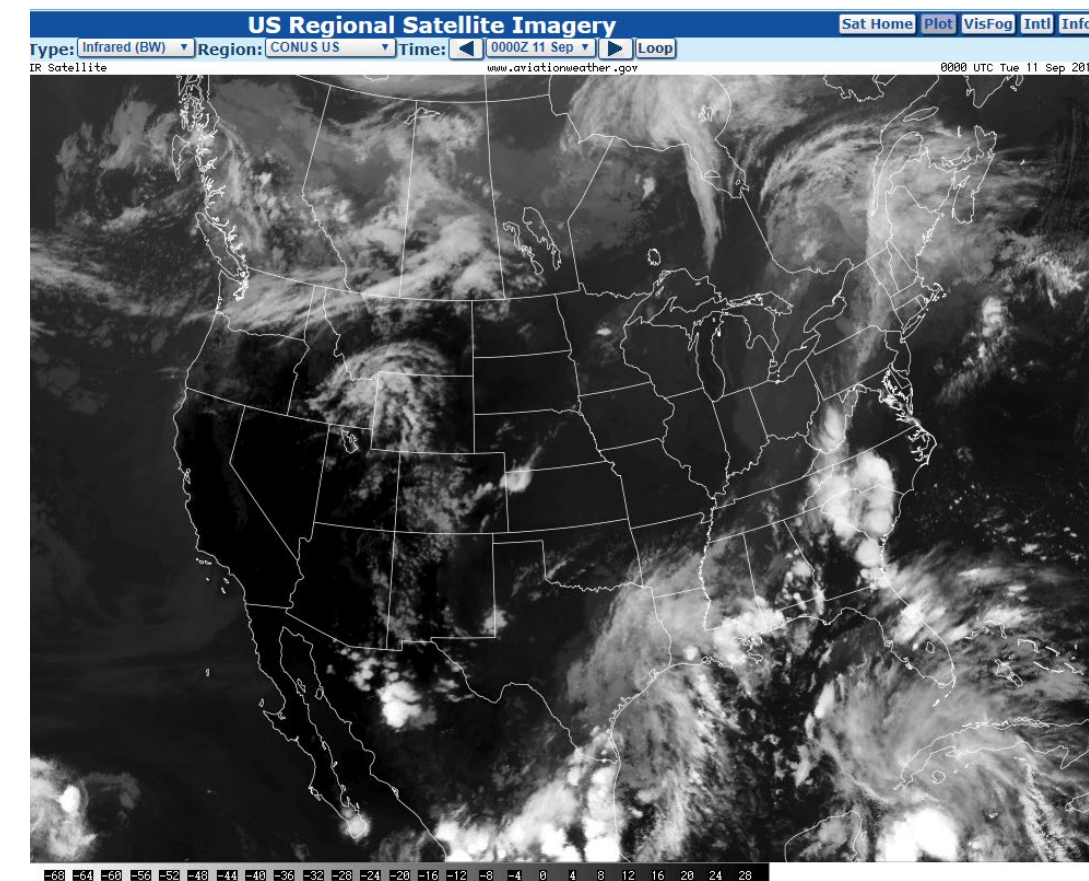
As it appears on website
splash page (not
addressed in AC)

Multiple formats of same data

- Satellite Imagery



Splash page

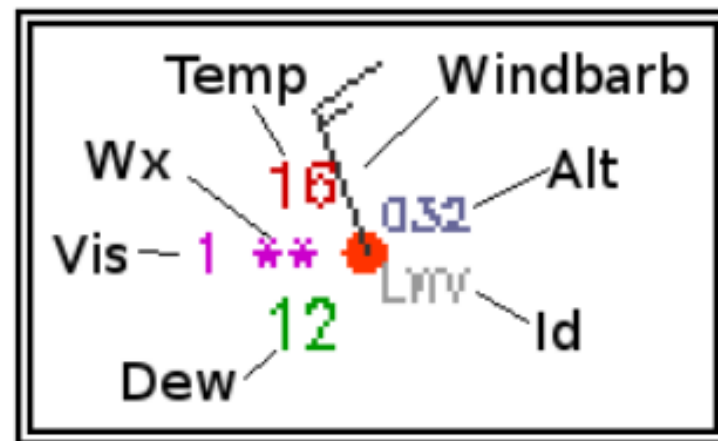


Format discussed in AC

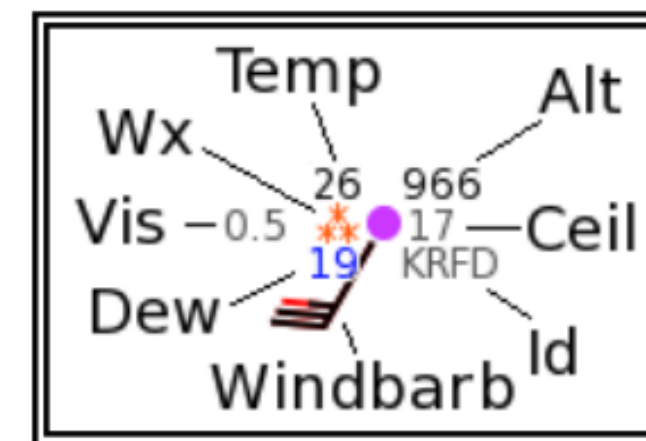
- Splash page not addressed in AC. Different format than other satellite images. No temperature scale.

Multiple surface station plot formats

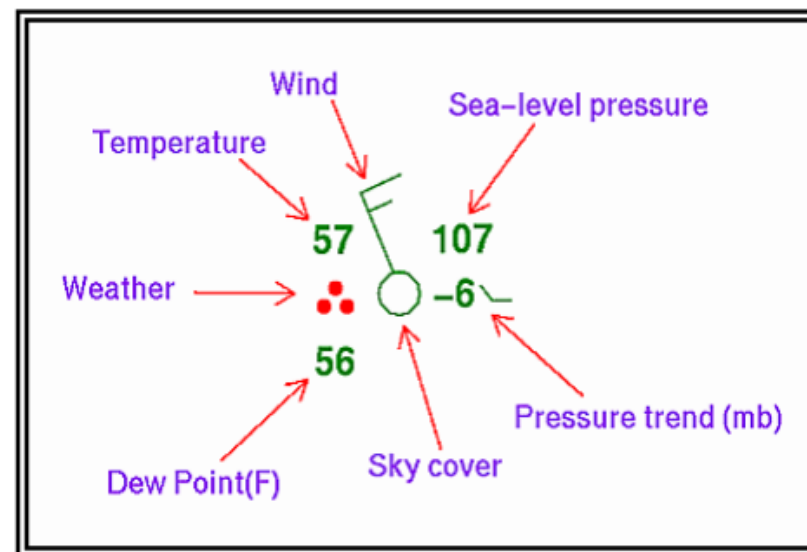
- Surface Weather Prog Chart Examples from AC 00-45H1



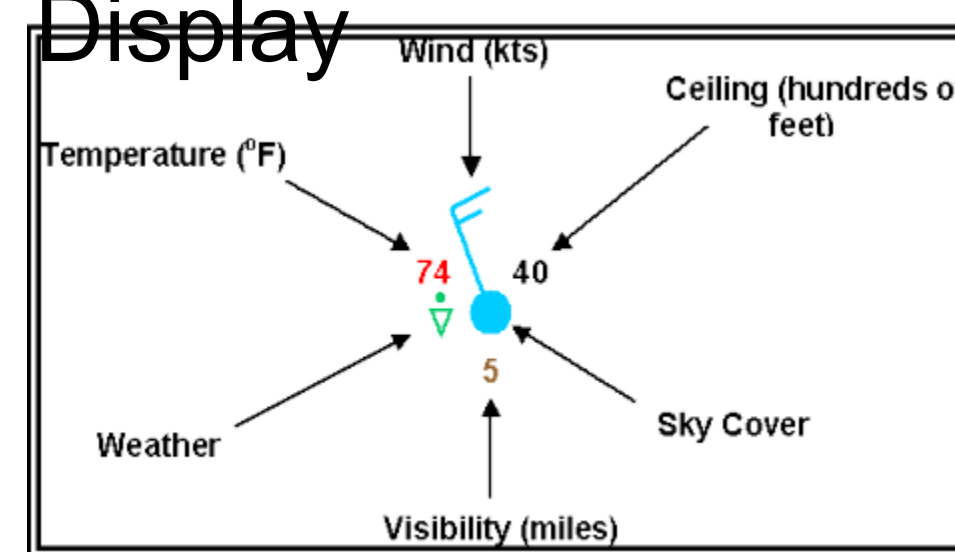
AWC Static Display



AWC Interactive Display



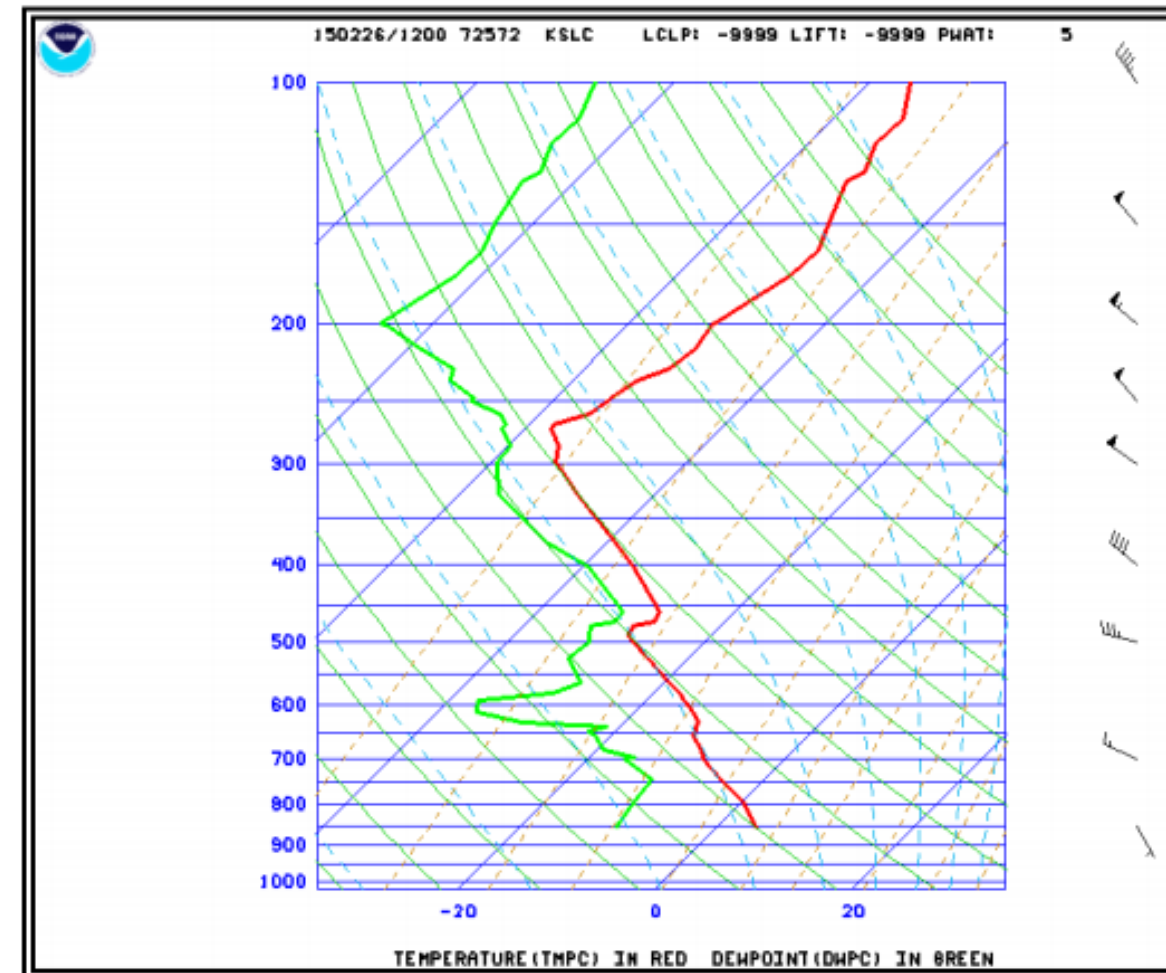
WPC Display



WPC for Aviation Display

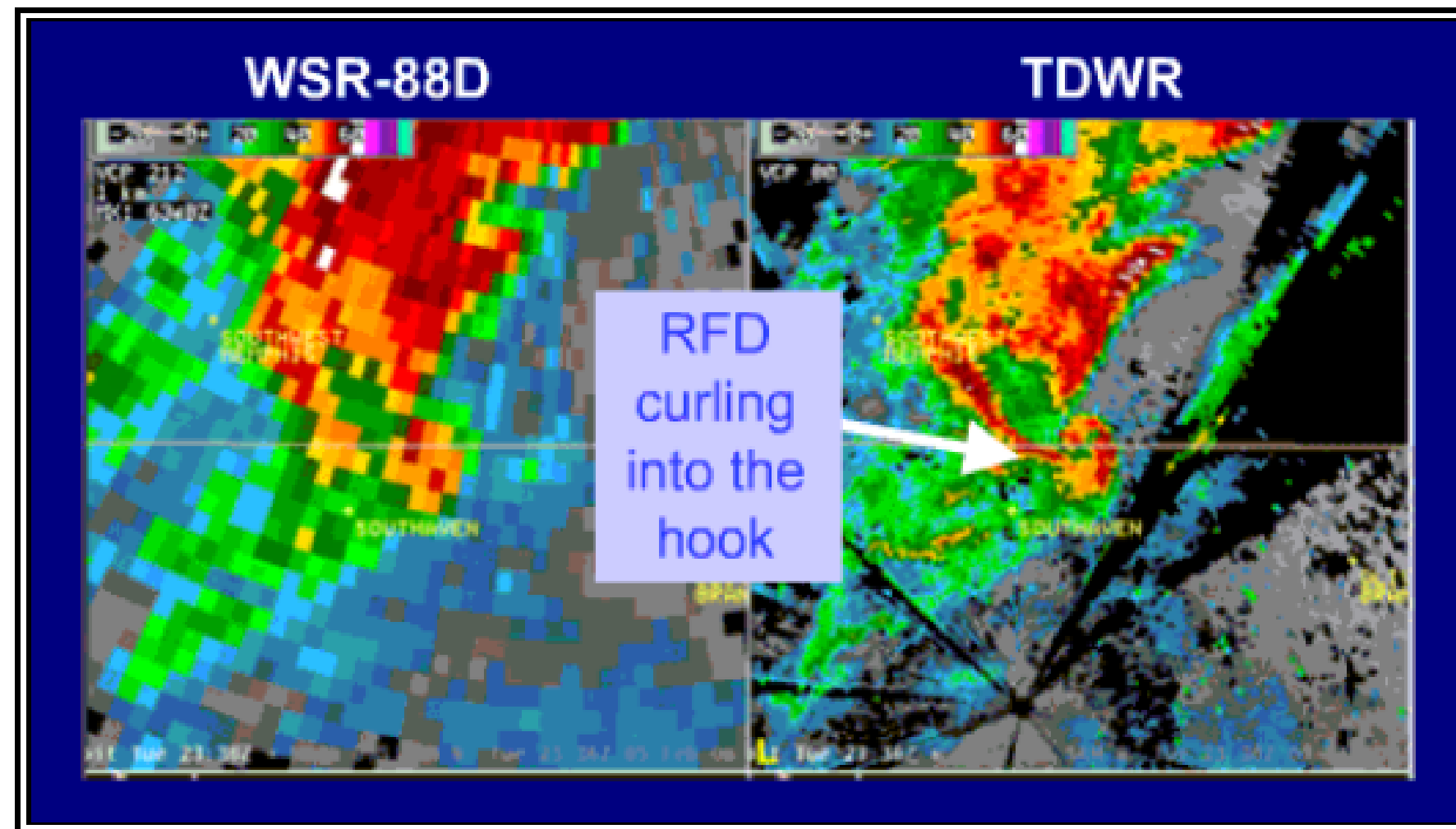
Potentially Unnecessary Product Information

- Skew-T Soundings
 - Guidance indicates information for meteorologist use only
 - Not enough instruction in AC to be useful for pilots



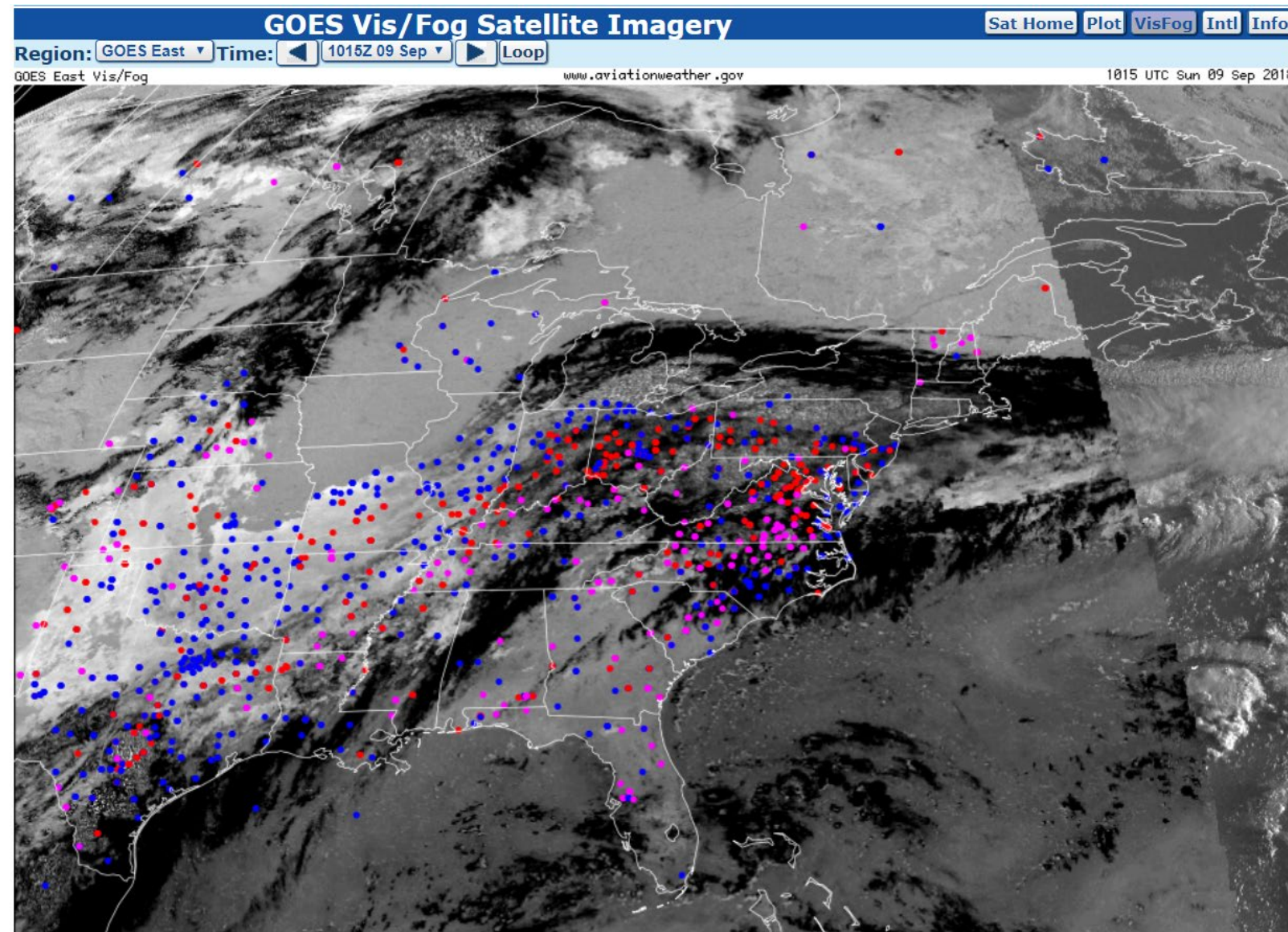
“Potentially” Unnecessary Product Information

- TDWR
 - Cannot be accessed on AWC
 - May create confusion with traditional radar



Product on website but not included in AC

- GOES Vis/Fog



- Great product, but requires detailed explanation

Limited Focus on Product Interpretation

Radar Displays

- Limited product interpretation of hazardous phenomena
 - Convective vs Stratiform was added in Change 1
- Focus mainly on deficiencies (ghosts, angels, anomalous propagation, beam blockage)
- Include more examples of hazardous signatures such as squall lines, thunderstorms, and outflow boundaries.
- Include comparisons with visual images or cockpit views.
- Compare satellite and radar for same phenomena

Limited Focus on Product Interpretation

Satellite Data

- Limited information on using IR and VIS together to infer cloud types.
 - Fog and low cloud detection
 - Thunderstorm detection
 - Outflow boundaries
- Include more examples of hazardous phenomena.
- Compare radar and satellite information

Recommendations and Suggestions

- Use AWC to notify public of new or updated circulars related to weather.
- Include easy-to-find product descriptions on AWC website
 - Update as products are added
- Create Weather Handbook to consolidate weather information (more in next presentation)

Questions?