Aviation Weather Education: Challenges Using Current FAA Guidance

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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”

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
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
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?