Weather from the Future Flight Deck

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The world is changing:

The basic meteorological syllabus provided at initial crew training, when was it last reviewed, updated or assessed as valid for today's requirements?

What is your relationship and involvement with the State Regulator?

How is the data being delivered going to be consumed by the end user?
How is the Meteorological material delivered?

• Verbally - Traditional, face to face, value added
• Paper Products - Consistent, reliable, 2 Dimensional
• Digital - Modern, overwhelming, 3 & 4 Dimensional
Next Generation Flight Decks

- Crew Numbers- Autonomous
- EMI Tolerant
- System Agnostic
The Basics - Takeoff, Cruise and Land

Departure Weather

Temperature - Performance requirement

Wind - Performance headwind/tailwind

Pressure - Performance accuracy

Visibility - Limitation, enhanced/ synthetic vision. HUDs

Cloud Information - Operational

Threats - Performance and Operational
Cruise Weather

Temperature - ISA-Deviation, Tropopause

Wind - Break even calculations

Pressure - Standard setting

Visibility -

Cloud Information -

Threats - Turbulence Convective / Clear Air
Landing Weather

Temperature - Performance requirement

Wind - Performance headwind/tailwind (Real Time)

Pressure - Performance accuracy

Visibility - Limitation, enhanced/ synthetic vision. HUDs

Cloud Information

Threats - Performance and Operational, runway surface
Hazardous Weather

• What’s it look like?
• How is it presented?
• How is it consumed?
• Modern technology the automatic expectation is faultless forecasts. This is symptomatic of the digital age.

• Accurate and consistent forecasting is required.
Portable Electronic Devices
- Sources of data
- Balloon data
- Aircraft sensors
- AMDAR, TAMDAR, TAPS
• Data granularity verses risk
• Forecast Validity
• With Time Based - 4D
Data Layers and Granularity
Polar Weather
Connectivity Online Vs Off Line

- Complexity of data
- Inflight Updating
- Strategic Vs Tactical
Onboard Weather Radar
Ground Radar Feeds
Summary

• The content is optimized for the device or aircraft.
• The forecasts need to be accessed simply so the focus is on the mission and weather not selecting layers of data and manipulating the software.
• The information provided is a balance between usability and complexity. The importance of extracting the correct information.
• Granularity of data is balanced against the threat. Accountability.
• Risk Vs Accuracy (Sigmets, Turbulence, Volcanic ash, Ozone, HIWC.)
• Time based, no longer static with some standards.
• Connected data, Maintain the balance between Strategic and Tactical
• Introduction of real time artificial intelligence.
Thank you