

**Aviation Weather Forecasts as Actionable Information:
Support of Air Traffic Flow Management**

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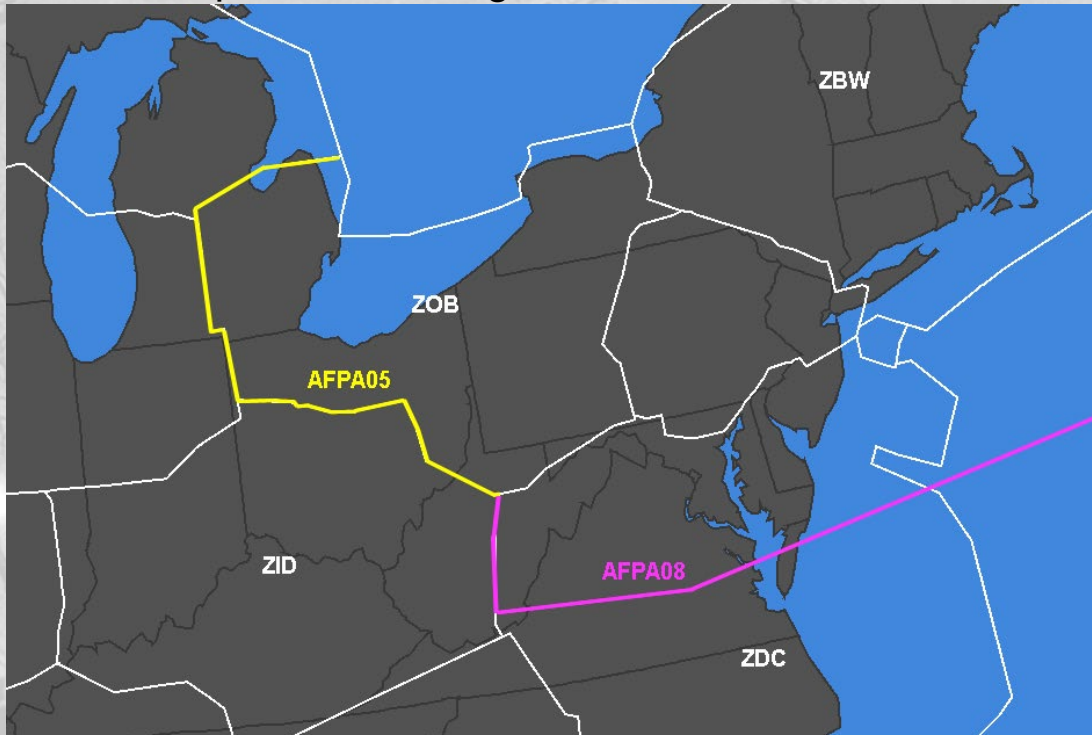
- Advances in air traffic flow management reliant on weather information
 - Ground Delay Programs
 - Airspace Flow Programs
 - Coded Departure Routes
 - Playbooks
 - TBFM
 - Expected Departure Clearance (EDC)
 - Dynamic Weather Routes (DWR)
 - PDRR/ABRR
 - Use with trajectory Option Sets
 - Surface CDM
 - Collaborative Trajectory Operations Program
 - CTOP



- Key concepts:
 - Time varying uncertainty (strategic planning to support tactical adjustments)
 - Development of reservoirs to enable adaptation based on uncertainties
- Solution: Continuous adaptive planning
 - Weather forecast - Needs:
 - Strategic planning
 - Assessment of uncertainties
 - Translation of weather data into TFM and FOC constraints
 - Development of contingency plans
 - Asynchronous collaborative constraint propagation to coordinate (TFM and FOCs)
 - Monitoring
 - Tactical adaptation

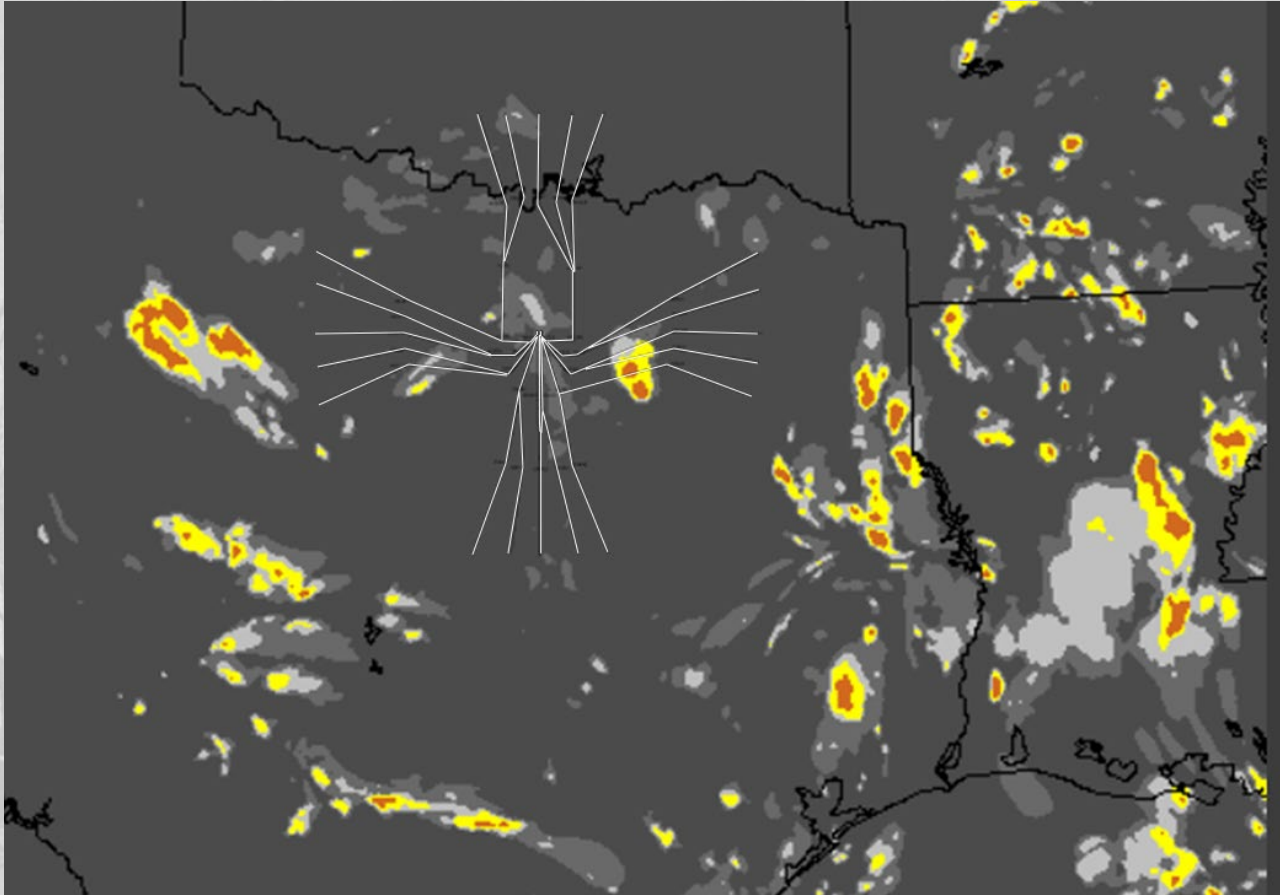


- Key concepts:
 - Development of reservoirs to enable adaptation
 - Airspace Flow Programs

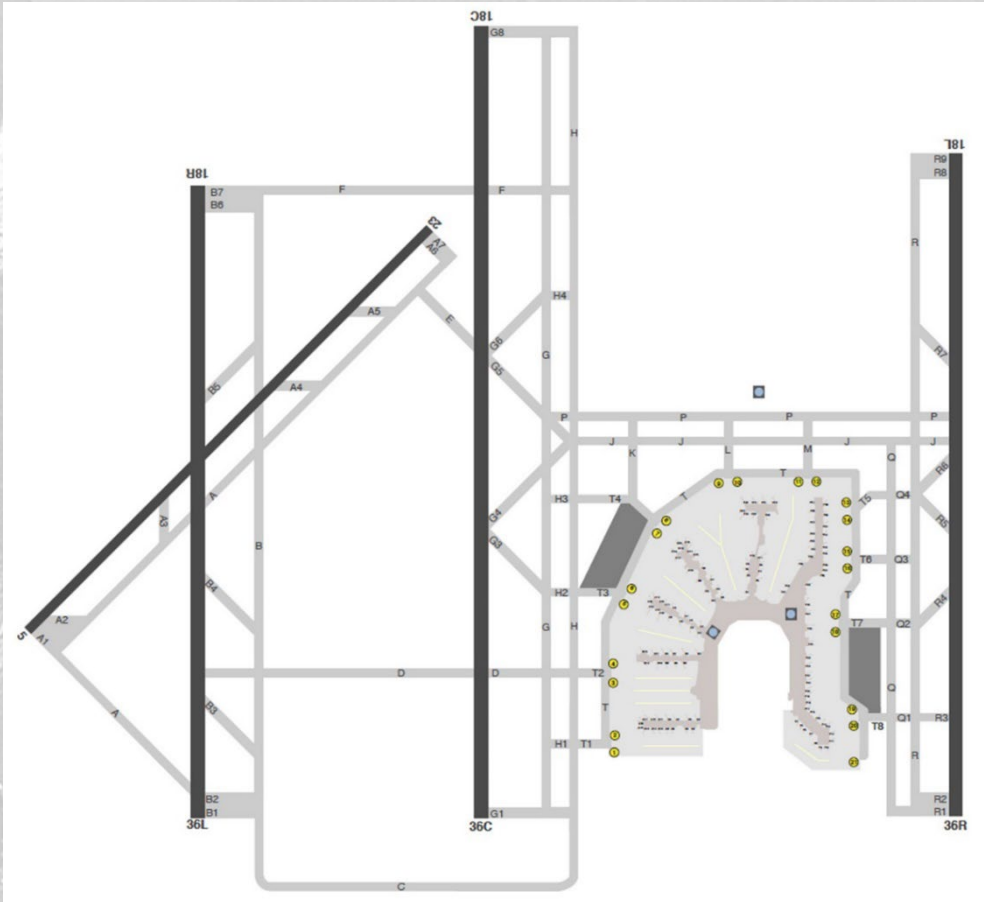


AFPA05: EDCTs plus call for release for ZOB departures

- Key concepts:
 - Asynchronous collaborative constraint propagation to coordinate (TFM and FOCs)



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Future Concept

Past development → Future integration of tools

- Surface CDM for strategic planning to produce inventory (categorical SMPs)
 - Integration of PDRR and EDC to indicate departure delays associated with alternative reroutes
 - TOS indicates flight-specific constraints
 - TM indicates At-or-After time
 - EDC indicates release times for alternative departure fixes (in PDRR)
 - TM reroutes using PDRR
 - Departure Controller plans for use of two departure queues and adjusts sequences within each queue
- (“Give the departure controller a fighting chance”)



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File View
FCA Filters FCA Locations

Current Time (Z): 1500

CTOP Name:

FCA(s) Max Capacity: +
(percentile of historical max throughput in clear weather)

FCA Entry: Start (Z): End (Z):

Altitude: Floor (ft): Ceiling (ft):

Time Bin Size (mins):

Distance Exemption (nm):

Flight Operator: Aircraft Type:

Departure Facilities:

Arrival Facilities:

NAS Elements Traversed:

Exemptions (not):
Arrival:
Departure:
Traversed:

Current Time: 1500Z
Forecast Time: 1600Z

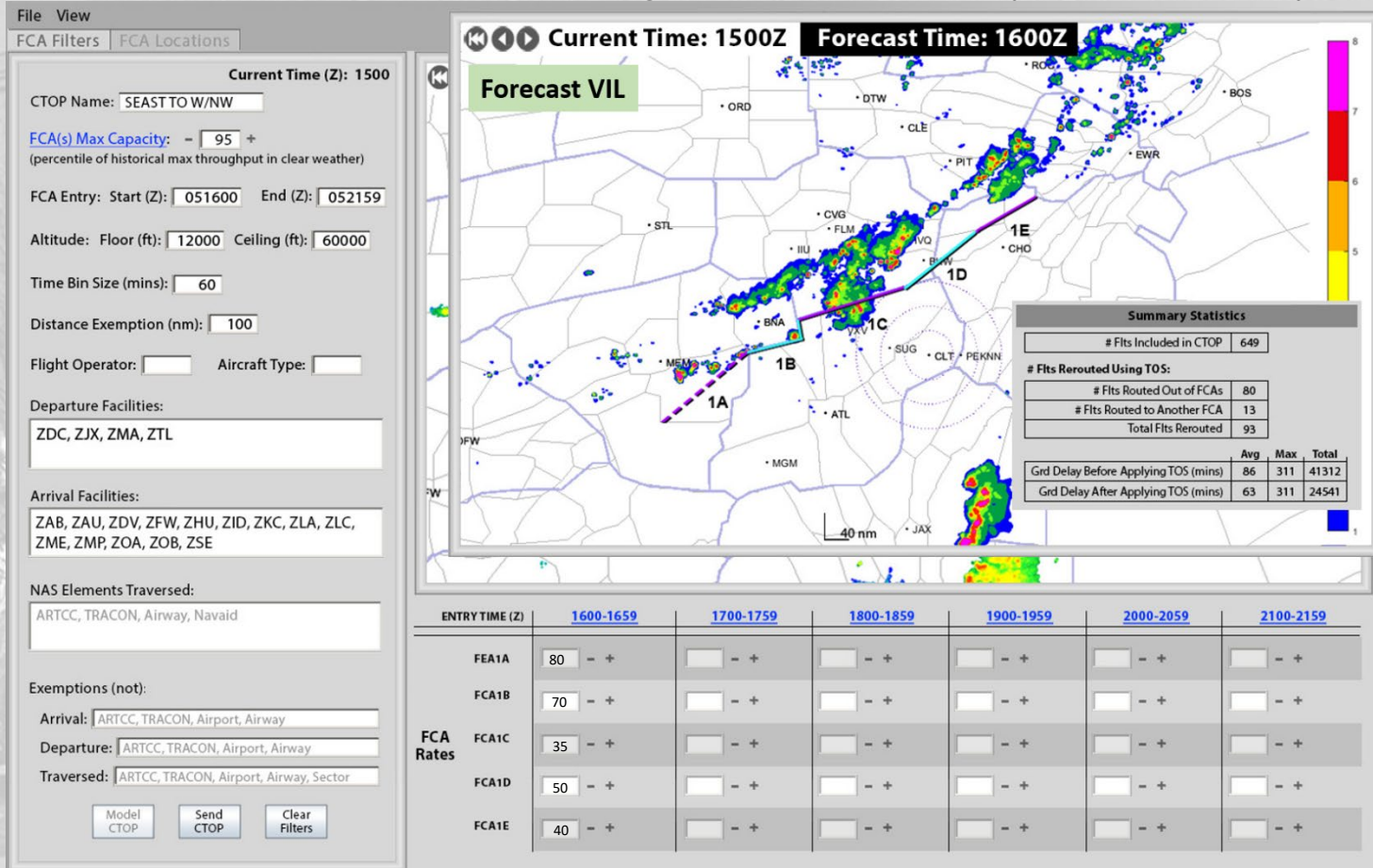
Forecast VIL

Summary Statistics

# Flts Included in CTOP	649
# Flts Rerouted Using TOS:	
# Flts Routed Out of FCAs	80
# Flts Routed to Another FCA	13
Total Flts Rerouted	93
Avg Max Total	
Grd Delay Before Applying TOS (mins)	86 311 41312
Grd Delay After Applying TOS (mins)	63 311 24541

	1600-1659	1700-1759	1800-1859	1900-1959	2000-2059	2100-2159
FEA1A	- +	- +	- +	- +	- +	- +
FCA1B	- +	- +	- +	- +	- +	- +
FCA1C	- +	- +	- +	- +	- +	- +
FCA1D	- +	- +	- +	- +	- +	- +
FCA1E	- +	- +	- +	- +	- +	- +

- Key concepts:
 - Collaborative constraint propagation to coordinate (TFM and FOCs)



1600-1659
 FEA1A: 80%
 FEA1B: 70%
 FEA1C: 35%
 FEA1D: 50%
 FEA1E: 40%