2023 Southeast US SVRWX Strategies Briefing

- *Presented by ZMA/ZJX/ZTL*

ATOSysOps

Federal Aviation Administration

2023 Southeast US SVRWX Strategies Briefing

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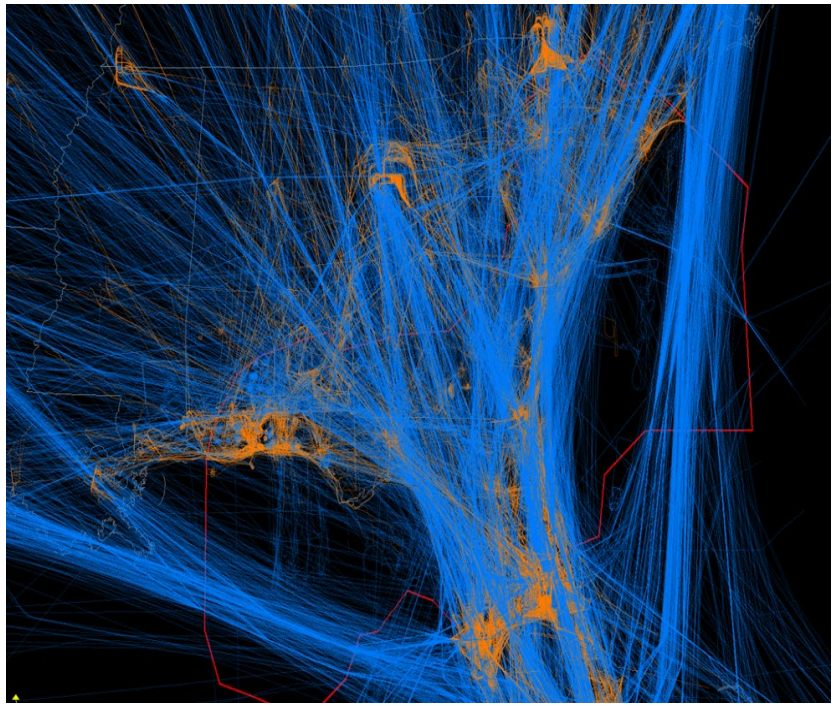
Overview/Challenges

The SE US has the distinction and honor of leading the NAS in growth of air traffic volume in 2022. This growth has continued into 2023. ZJX and ZMA have unique challenges that few other centers face due to:

- Their location, the funneling effect of air traffic transitioning through ZJX into ZMA
- significant and unique convective weather activity
- airspace closures/reroutes associated with Launch and Reentry operations
- airspace constraints for military activity

ZTL plays a critical role in the success of managing any SVRWX event due to their ability to handle high volume large scale events in a dynamic fashion. ZJX, ZMA and ZTL's 2023 goal is improve on situational awareness and collaborative efforts when managing SVRWX events

The intent of this briefing is to serve as a resource for the FAA and Industry to use when SVRWX strategies are considered for SE US flow constrained events



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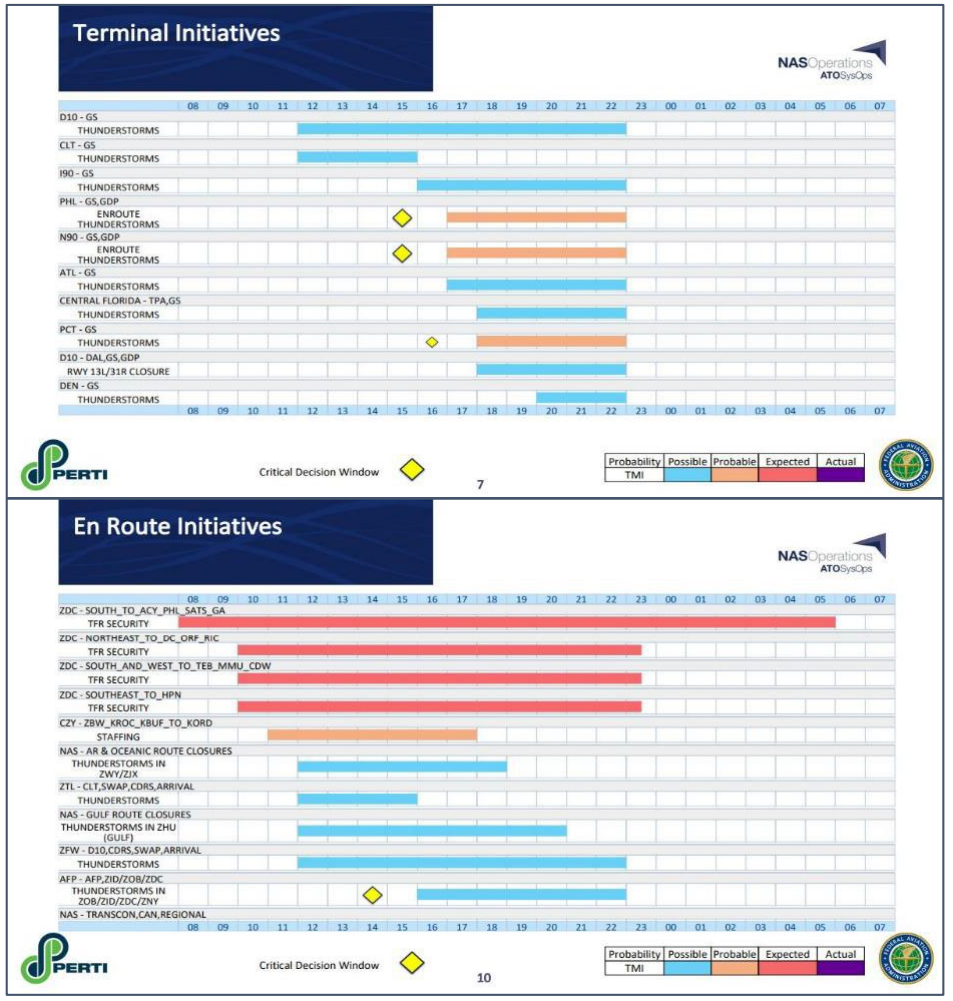
Advanced Planning

Continuous, strategic planning for any flow constrained event results in better outcomes. The ATCSCC PERTI team assists with continuous planning for the next day operations by performing the following:

- PERTI Advanced Plan conducted daily at 1930Z
- Afternoon/evening update to Advanced Plan
- Midnight shift update
- Early morning Day of Operations (DoO) initial Plan
- Strategic Planning Team (SPT) DoO planning telcons



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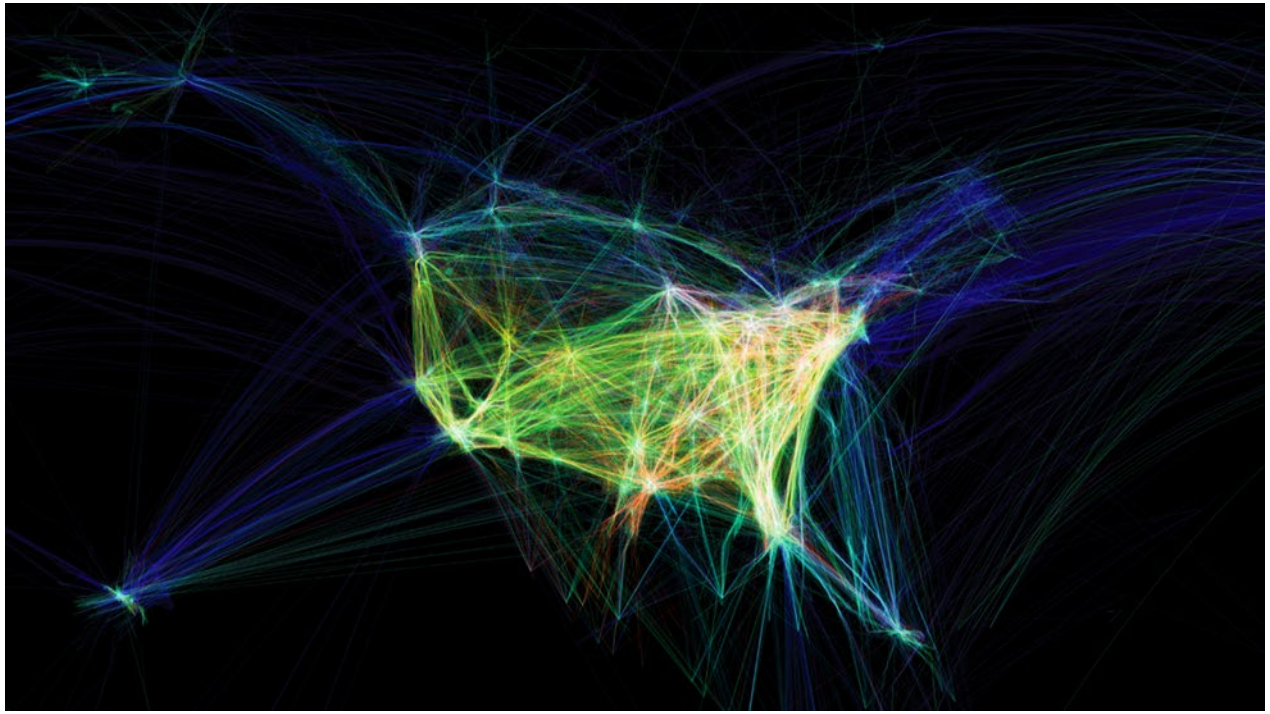
Advanced Planning: AFP vs Route Strategies

The first and most critical decision in mitigating a SVRWX event is to determine what strategy will be implemented. These strategies under consideration should be conveyed on the Advanced Plan and continuously updates to DoO:

- AFPs: Is there a NE event that may require an AFP? If so, consider the location and lifecycle of the event. Which region will benefit more by utilizing the strategy.
- RQD Routes, Escape Routes and MIT:
- Combination of both: Are there foundational routes forecast to be available for the duration of the event?

Determining whether or not an AFP strategy for the event is the first step in the planning process for the event.



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SWAP Statements

- ZJX and ZMA will issue SWAP statements when a SVRWX event is anticipated
- ATCSCC will relay the statement via Advisory to increase stakeholder awareness of what to expect for the event.
- SWAP statements may include:
  - ✓ Planned GDPs/GSs/AFPs
  - ✓ Planned alternate departure Routes
  - ✓ Playbook Routes
  - ✓ Escape Routes
  - ✓ Planned alternate arrival Routes
  - ✓ Departure/Arrival Gate closures
  - ✓ Airborne Holding info

Example: ZMA SWAP Statement:

EVENT TIME: (XX/XXXXZ – XX/XXXXZ)
CONSTRAINED FACILITIES: ZMA

THIS ADVISORY IS FOR PLANNING PURPOSES ONLY. CUSTOMERS ARE ENCOURAGED TO COMPLY WITH ALL ATCSCC ROUTE ADVISORIES.

ZMA SWAP STATEMENT:
SEVERE WEATHER AVOIDANCE PLANS ARE EXPECTED FOR ZMA AIRSPACE AND SOUTH FLORIDA TERMINAL AREAS AFTER (XXXXZ).

PLANNED ALTERNATE DEPARTURE ROUTES:
DEPARTURE GATES ARE ANTICIPATED TO OPEN AND CLOSE BASED ON MOVEMENT OF WEATHER. EXPECT COMPACTED DEPARTURE ROUTES AND/OR SWAPS OUT ALTERNATE GATES. INCREASED DEPARTURE DELAYS AND MIT ASSOCIATED WITH SEVERE WEATHER CAN CAUSE LONGER THAN NORMAL DEPARTURE WAIT TIMES.

PLANNED ALTERNATE ARRIVAL ROUTES:
ARRIVAL GATES ARE ANTICIPATED TO OPEN AND CLOSE BASED ON MOVEMENT OF WEATHER. CUSTOMERS CAN EXPECT POSSIBLE PLAYBOOKS, TACTICAL ROUTE ADJUSTMENTS AND HOLDING ON INBOUND FLIGHTS DUE TO CONVECTIVE WEATHER IMPACTS WITHIN ZMA AIRSPACE AND MIA/FLL/TPA TERMINAL AREAS.

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Checklist for AFP Coordination due to Convective Activity

- ✓ What type of convective activity is the constraint (Air mass, line, backfill, stationary)?
  - ✓ What areas will be affected?
    - For SE events, Spring time frontal movement affecting ZHU24/ZJX30 and ZMA08 may require an Adhoc AFP to capture traffic that may end up flanking WX and transition through those sectors
    - determine which AFP combination would be appropriate to manage the event.

- ✓ What is life cycle (Start to End Time) of the event (i.e., forecast start/end time that high altitudes will be affected).

- ✓ Utilize step down rates and step up rates to the maximum extent possible targeting the most impactful time period for the lowest rate.

- ✓ Will the ARs be available for both north and southbound traffic?
  - If ARs are unrestricted, consider running AR AFP rate at UFT to encourage operators to route into. Same for Gulf Routes.

Note: AFP rates should be determined based on the constraint and not set to generate delay.

• AFP Guidebook
• AFP Checklist - TSTMs

Checklist for AFP Coordination due to Convective Activity – cont'd

- ✓ Will there be any airports GDPs that will be required due volume/extended TSTM activity affecting the terminal? If the GDP is imminent, implement prior to implementing AFP(s). **Note:** FSM functionality can accommodate/accept GDP(s) after the issuance of AFP(s), but if it is known a GDP is going to be implemented in conjunction AFP(s), it is a preferred practice to implement GDP first, then the AFP.

- ✓ Will there be foundational structured routes utilized that transition through the AFP (Reroutes that remove flights from a flow constrained area)? If so, **implement reroutes prior issuing AFP to avoid pop-up and re-control delays.**

- ✓ Will route-outs be available? If so, implement leading into AFP implementation.

- ✓ Evaluate potential AFP start/end time as it relates to the life cycle of the event. (i.e. demand exceeding capacity for extended periods. Examine FCA in 15-minute buckets).

- ✓ Will the AFP be implemented in a timely fashion to allow for T+45? If no, is T+30 sufficient or T+20 sufficient? etc. *Note: "From status" should only be used in extreme circumstances and as a last resort.*

- ✓ Consider implementing WATRS_RMD to route out/reduce traffic on inland routes/ARs.

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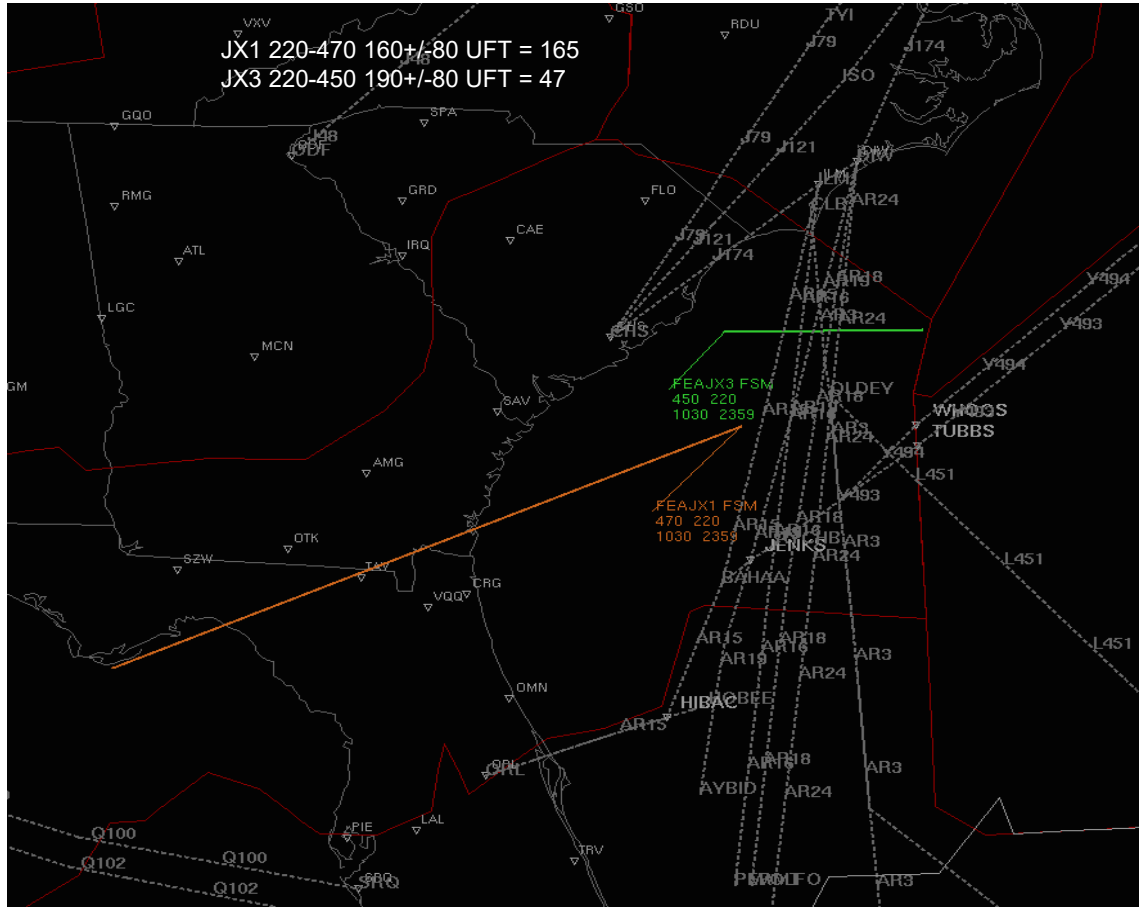
SE AFP Selection Strategies

JX1: Consider using for airmass (Stationary) TSTMs or heavy Southbound volume events. Allows/encourages route-outs via ARs and Q-Routes. Consider running in UDP mode.

JY3: Consider using to manage Southbound AR traffic. Can be used in conjunction with JX1 when heavy AR usage is expected (Run UFT rate), or if ARs are affected by weather but are still usable. Consider running in UDP mode.



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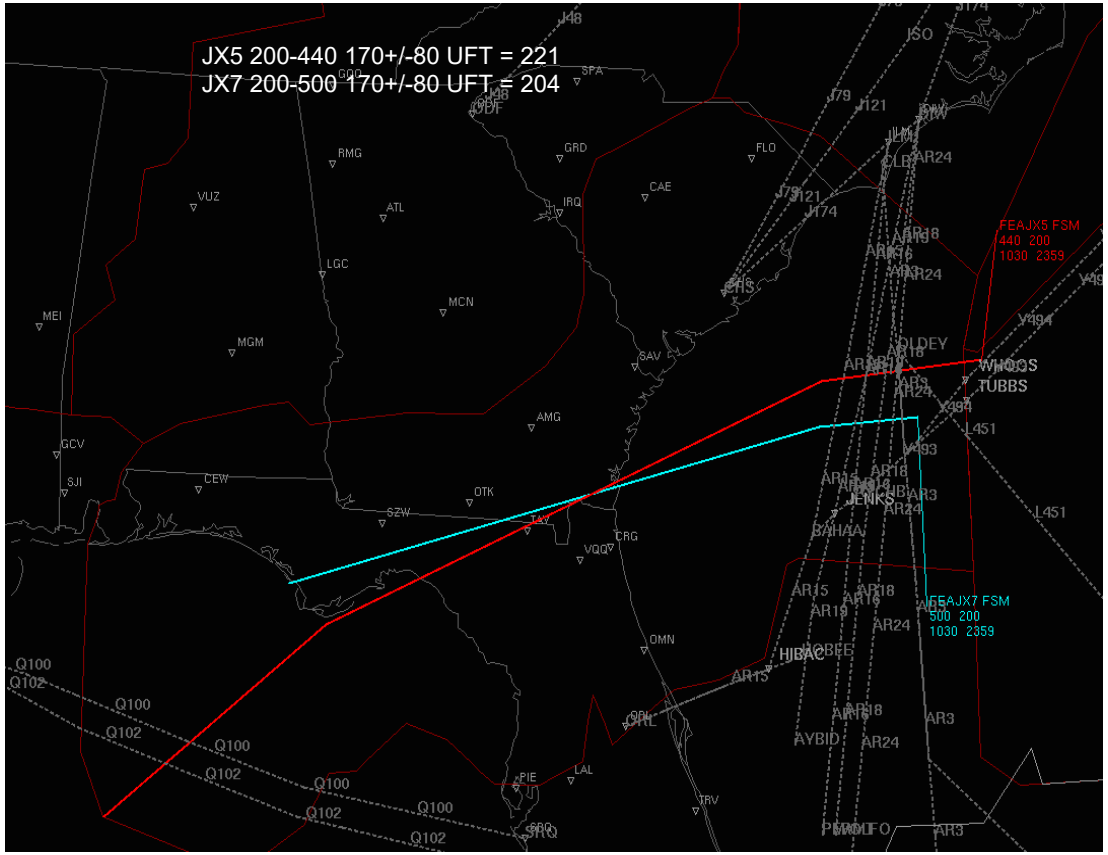
SE AFP Selection Strategies

JX5: Consider using when TSTMs will affect/shutdown Q-routes and ARs creating volume issues inland in addition to deviations. Consider running in UDP mode.

JX7: Consider using for TSTMs with frontal line movement moving east through ZJX (covers ARs). Allows/encourages route-outs via Q-routes. Consider running in UDP mode.

Note: Multiple areas of convective activity could require the use of JX5/JX7 in lieu of JX1/JX3



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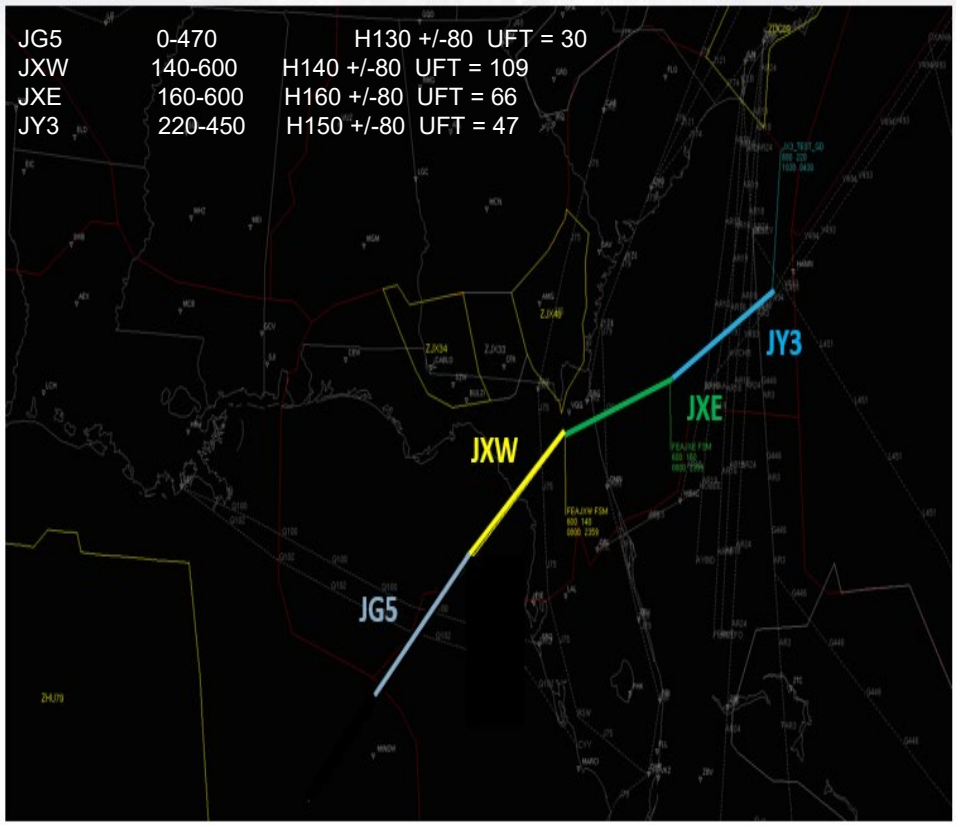
SE AFP Selection Strategies

JG5, JXW, JXE, JY3: The most recent AFP additions.

- ✓ Used primarily for VFR, heavy volume events. These AFPs, used individually, grouped, or together, allow ZJX the flexibility to adjust throughput rates to manage throughput more efficiently. These have been used during TSTM events with mixed results.
- ✓ Consider running in DAS mode so that operators can evaluate which AFP they want to fly through by comparing the delay vs route requirement.



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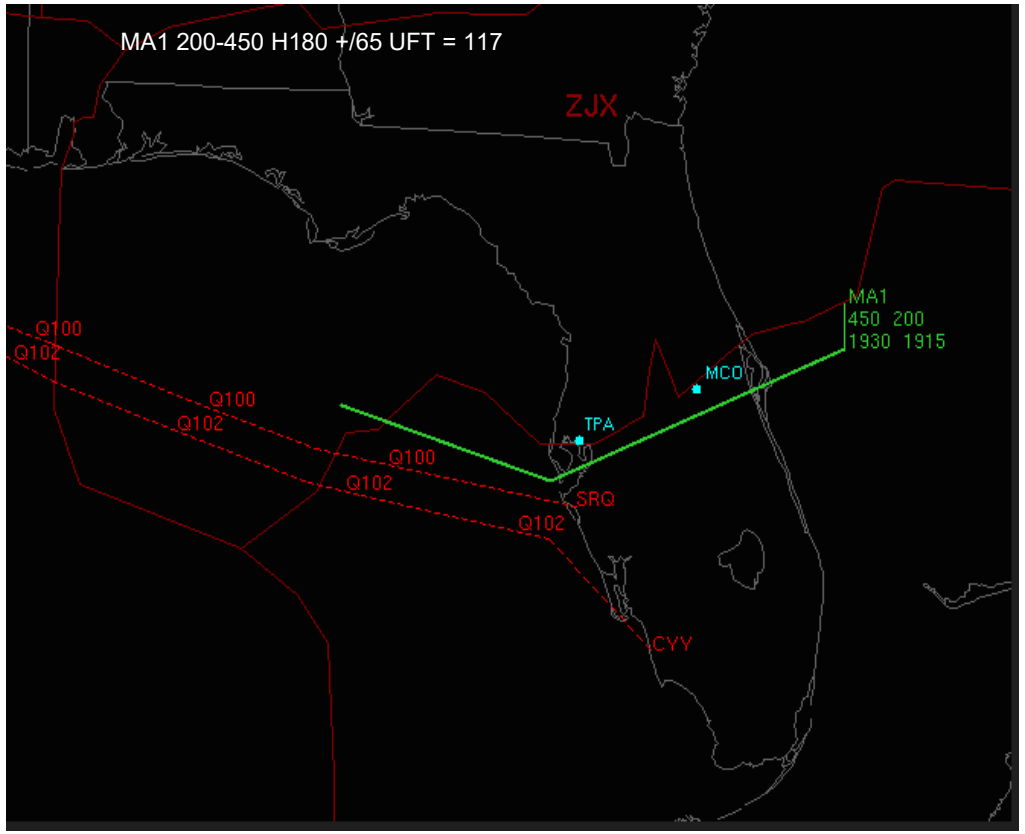
SE AFP Selection Strategies

MA1

- ✓ Used primarily for air mass (Stationary) TSTMs affecting ZMA/South FLA airports.
- ✓ Allows/encourages route-outs via ARs and Q-routes.
- ✓ Consider running in UDP mode



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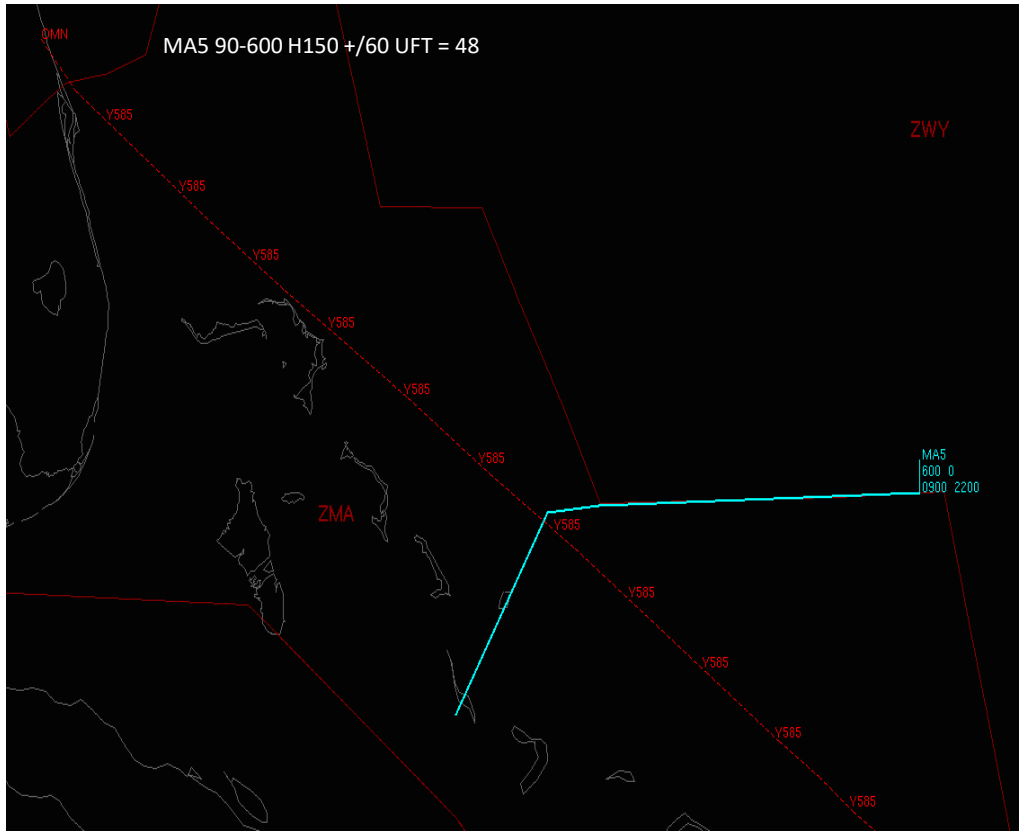
SE AFP Selection Strategies

MA5

- ✓ Used primarily to manage volume issues through ZMA58 associated with Caribbean Traffic during the Snowbird/Holiday season
- ✓ The northbound volume identified in MA6 is a consideration when determining MA5 throughput rates
- ✓ Sometimes used to manage WX events/TSTMs
- ✓ Consider running in UDP mode



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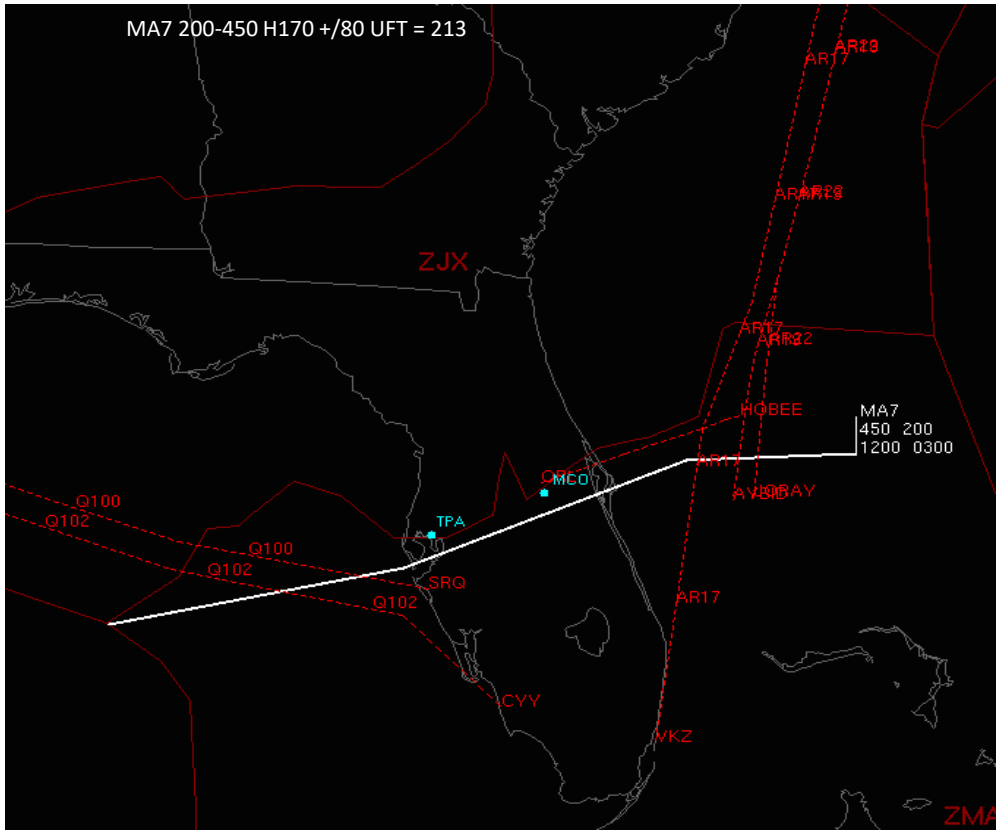
SE AFP Selection Strategies

MA7

- ✓ Used primarily for air mass (Stationary) TSTMs affecting ZMA/South FLA
- ✓ Consider using when TSTMs will affect/shutdown Q-routes and ARs.
- ✓ Consider running in UDP mode



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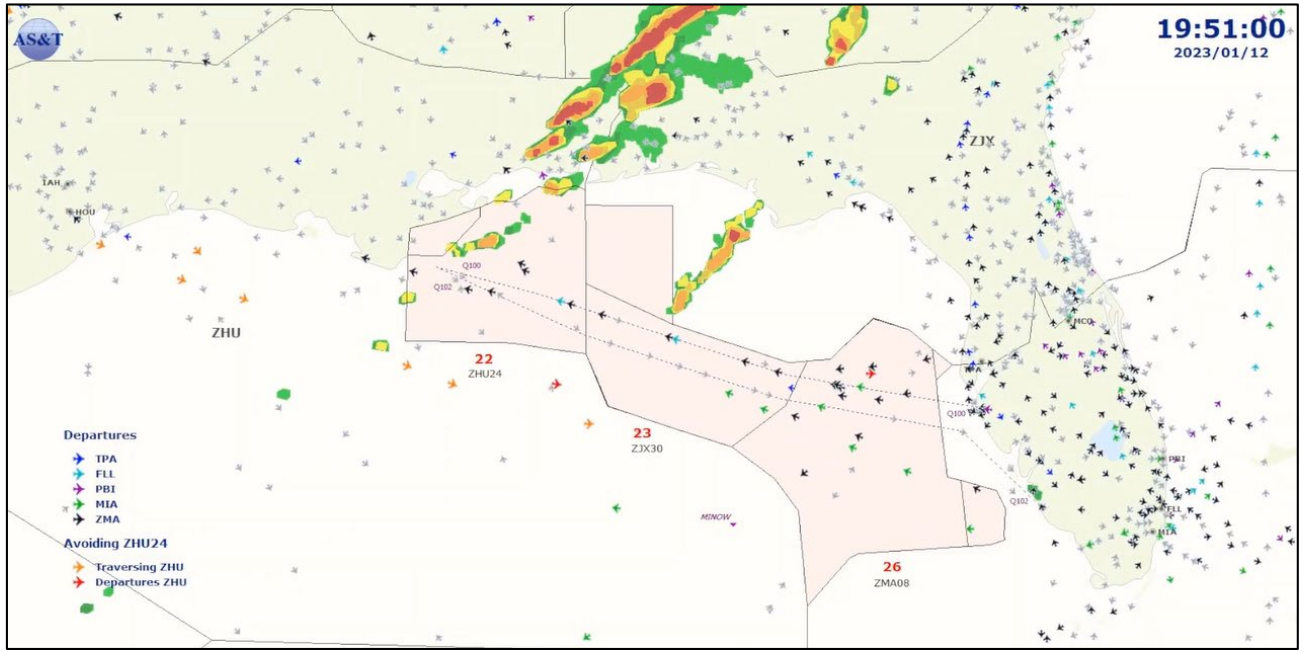
Ad Hoc AFPs for ZHU24/ZJX30/ZMA08?

Ad Hoc AFPs have been used successfully to manage short term seasonal and/or tactical events. Spring and early summer frontal passage SVRWX events with fast moving lines occur annually, with frequency every year, creating challenges for ZHU24/ZJX30 and ZMA08.

This is typically caused by aircraft flanking a weather system into the Gulf of Mexico, resulting in high volume events that create sector volume issues for ZHU24/ZJX30 and ZMA08 until the WX event has subsided.



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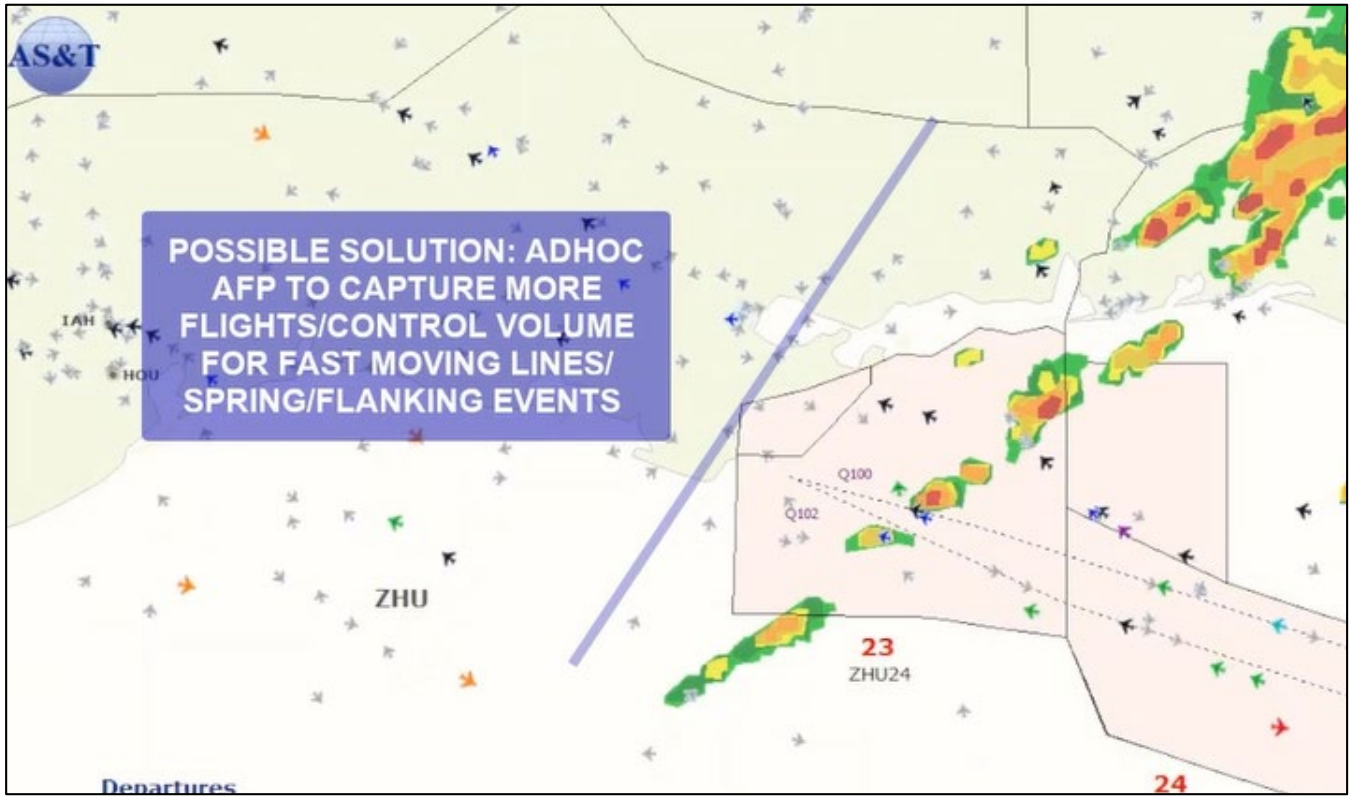
Ad Hoc AFPs for ZHU24/ZJX30/ZMA08?

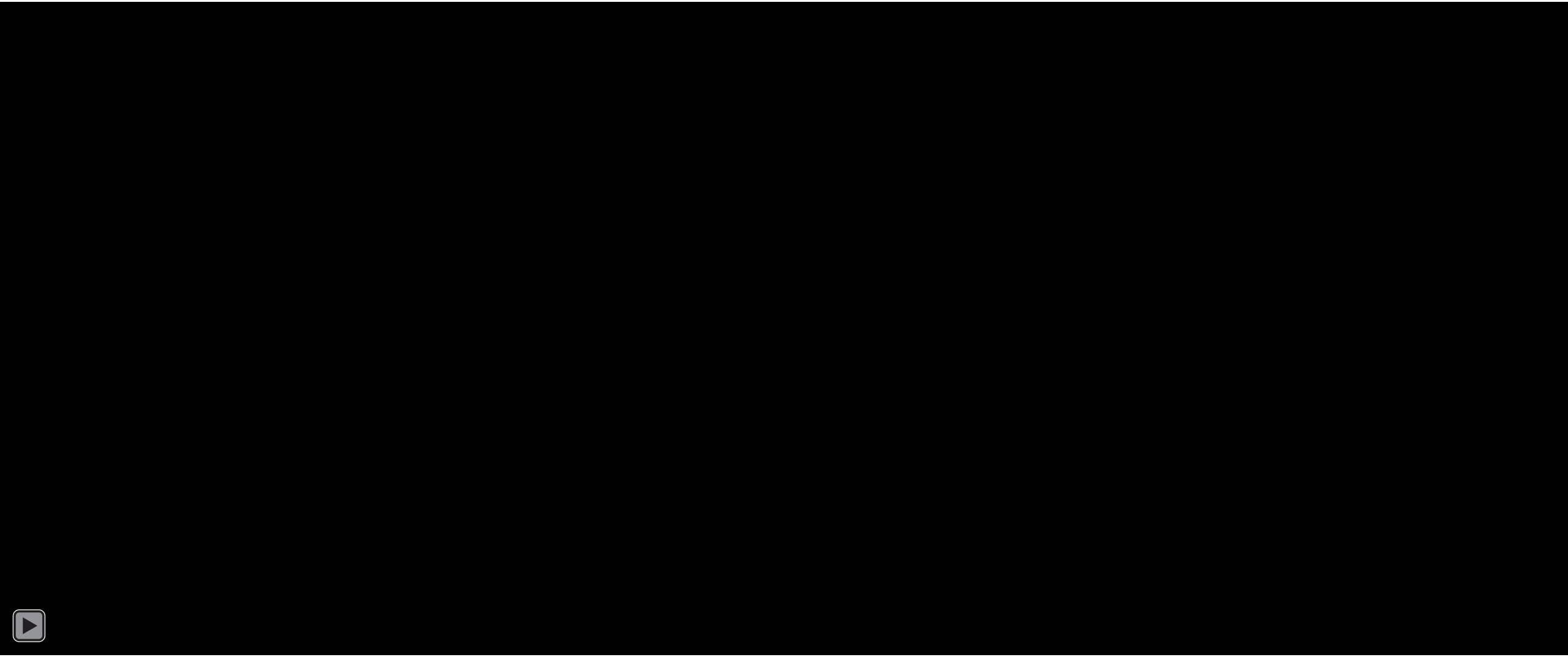
ZJX/ZMA/ZHU and ATCSCC have been working collaboratively on ways to enhance and improve mitigation strategies for this type of specific seasonal event.

An Ad hoc AFP strategy may be utilized in lieu of the predefined JG5 FCA to better manage the Gulf sectors this year and moving forward.



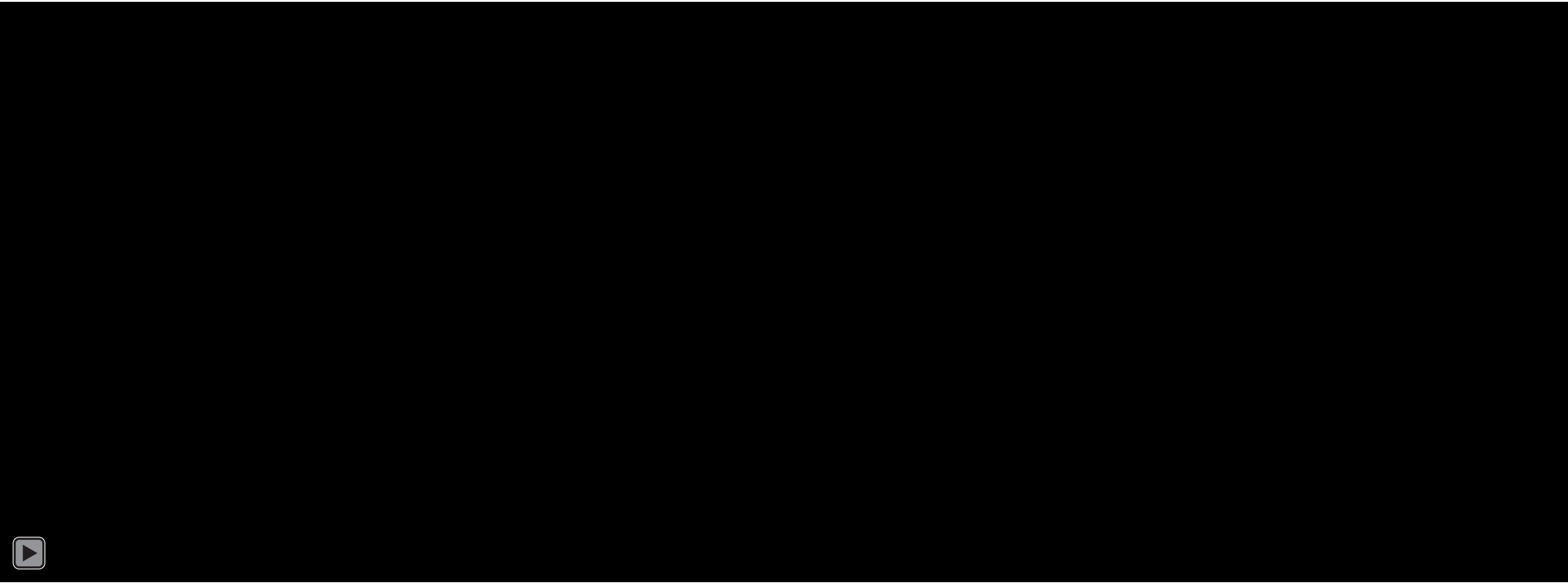
- **January 12, 2023 SE & FL**

Operations Count:
ZMA: 7569
ZJX: 7366
ZTL: 7048



- **March 5, 2023 SE & FL**

Operations Count:
ZMA: 8382
ZJX: 8083
ZTL: 8167



• AR Unavailable

ZJX Strategies

- AFPs or combinations of FEAs JX7, JX5, JG5, JG6, JX1. Rates are negotiated with command center depending on constraints. ZMA, ZDC, ZTL can be conferenced to justify program rates
- Possible capping, tunneling advisory, and MCO/TPA escape playbooks to balance altitude stratums to help increase volume efficiency
- Slowing volume on the east coast of ZJX is most important. This is where AR traffic will route out
- Route structure possibilities:
  - Ohio Valley/Midwest to Florida
- Florida to NE modified playbooks
- North East to Florida playbooks using Q75 or J48 (off east coast)
- Tactical Routes to include:
  - Moving ATL and CLT out of ZMA airspace via the west coast or shutting off east coast gates out of MCO
  - Using the segmented AFP to run an ‘AT RATE’ program for both the east and west sides of ZJX airspace

• AR Unavailable

ZMA Strategies

- ZMA/ZJX often times have mutual constraints and collaboratively work together when making strategic decisions.
- As ZJX stated - AFPs or combinations of FEAs JX7, JX5, JG5, JG6, JX1. Rates are negotiated with command center depending on constraints. ZMA, ZDC, ZTL can be conferenced to justify program rates.
- Departure MIT / Ground Stops may be utilized to control inland sector volume as Caribbean northbound AR traffic and South Florida AR departures are routed over land.

• AR Unavailable

ZTL Strategies

- ZTL15 & 28 (NE Ultra High)- extremely busy when ARs closed
  - Tuck ZTL LTFC from ZID & ZDC AOB FL340
  - Internal departure capping to ZDC AOB FL340
  - Tuck Coastal Carolina/N Florida traffic from ZDC & ZID AOB FL340
  - Tuck MCO/TPA LTFC AOB FL340

• East/West Coast Closures

ZMA Strategies

- When ZJX/ZMA share the weather constraint, ZJX AFPs can be implemented
- When weather constraints are solely in ZMA airspace, MA1 or MA7 AFPs can be implemented allowing TPA/MCO arrivals to arrive unimpeded from the north
- Active military airspace often combines with weather in the summer months to further constrain airspace
  - Capping of military airspace will often be requested
- Departure MIT / Ground Stops and MIT from ZJX may be utilized to control sector volume / complexity.
- South Florida weather is ever-changing and unpredictable.
  - Dynamic initiatives such as departure gate swaps and east / west coast closures are often utilized
  - ZMA will support ZJX playbooks to / from Florida during weather scenarios
- Constant communication between ZJX and Command Center to avoid gridlock situations at South Florida airports.

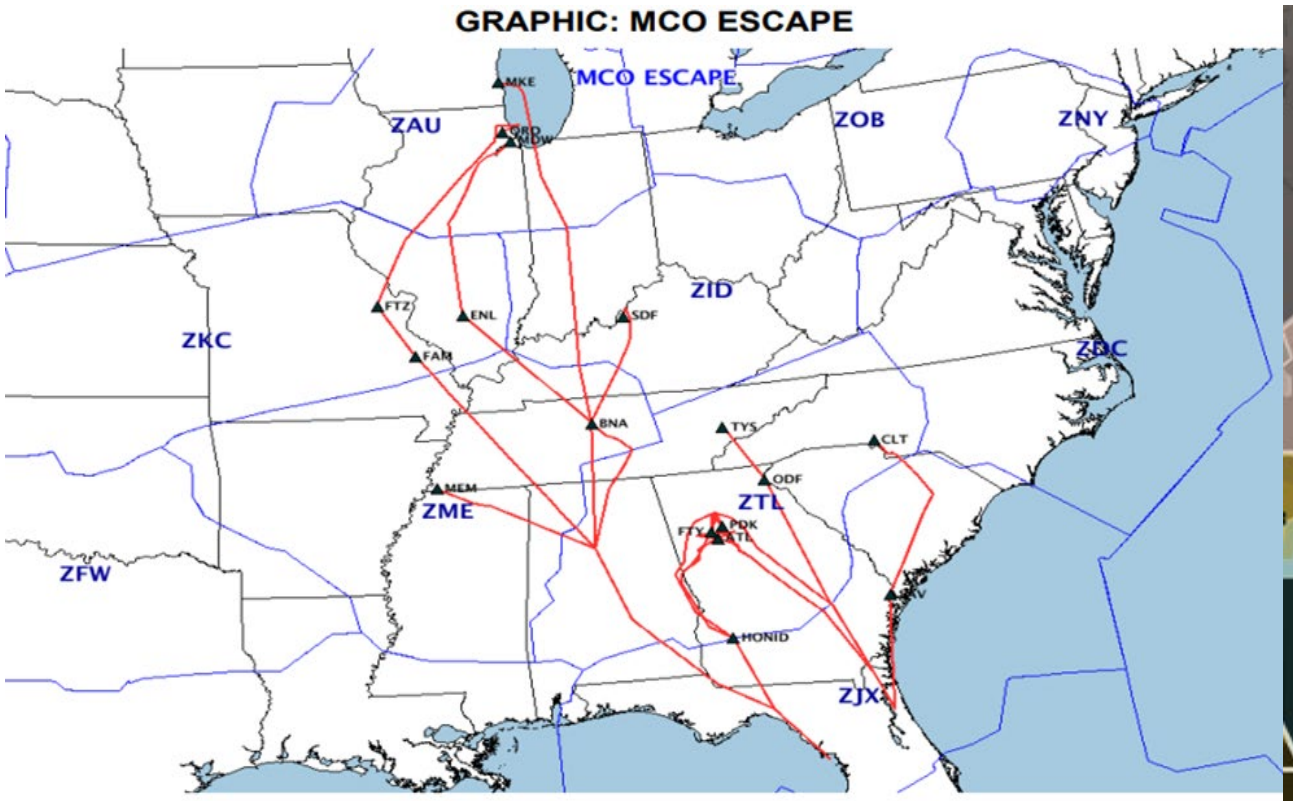
• East/West Coast Closures

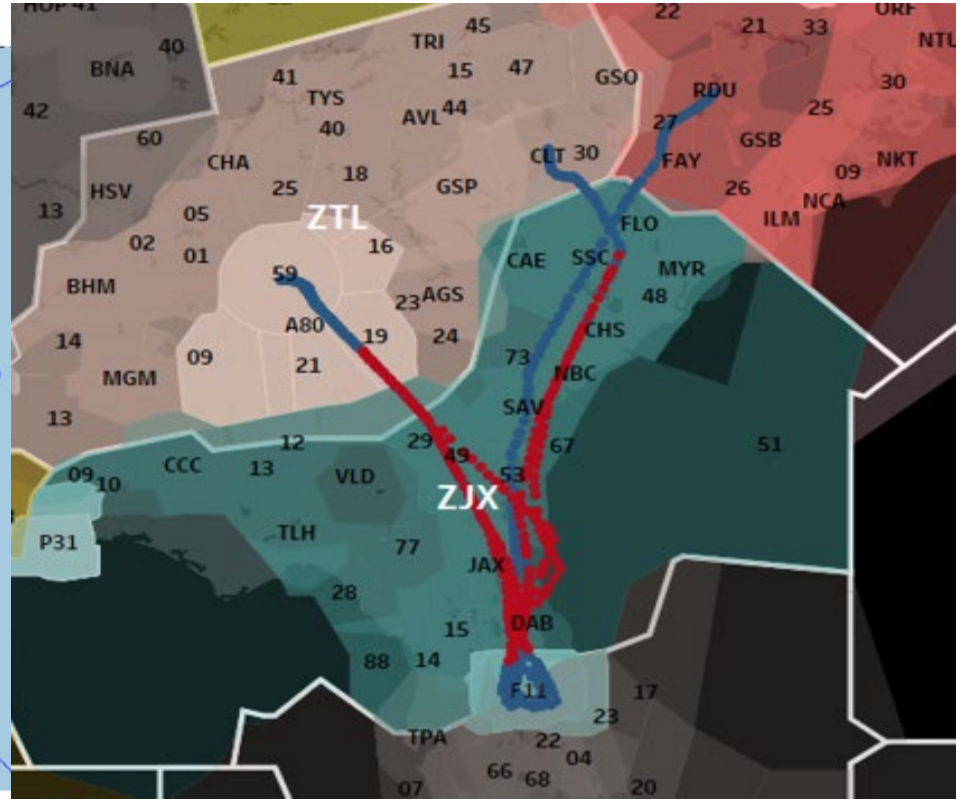
ZJX Strategies

- If no AFP, then mitigating volume with heavier MIT through ZJX and off the ground along the east coast.
- Playbooks to shift traffic east or west. NE to FL options and inverse FL to NE.
- Possible capping and tunneling advisory to allow for more volume on the open coast.
- Segmented AFP of JXE/JXW, if convective activity is moving ZJX utilizes JX1. Expect lower floor due to complexity of convective activity impacting sectors also doing IFR approaches.
- Increased MIT or single stream departures off TPA and MCO
- Departure gate swaps, closing RDSOX moving MCO departures out JEEMY. Closing JEEMY/FATHE and moving departures out RDSOX.
- ZJX has developed many ATC assigned only offload transitions for Florida. Example: BADDD.MAATY-star shifts TPA area traffic from the center of the state to the West Coast.
- Closing departure gates that file the area that is closed
- Conversing with Command about our constraints and making long term plans.

• MCO Escape Playbook

Graphic





- Blue is compliance and Red is non compliance

• East/West Coast Closures

ZTL Strategies

- Multiple playbooks normally used
  - Ohio Valley-FL
  - Midwest-FL
- ZTL27 Ultra High (ATL-ZJX boundary) – extremely busy
  - Tuck BNA LTFC from ZJX AOB FL340
  - Tuck CLT/GSP LTFC from ZME/ZHU AOB FL330
  - Tuck Panhandle LTFC from ZDC AOB FL340
  - Cap ZTL departures AOB FL340 (various origins and destinations)
  - Tuck MCO LTFC from the North AOB FL340
  - Reroute MCO LTFC over BNA/HITMN via DEEDA.GRNCH4 (west of ZTL27)
  - Reroute MCO LTFC from VXV via TEUFL..WHYYT.GRNCH4 (east of ZTL27)
  - Reroute other Florida volume from the VXV area to TEUFL (east of ZTL27)

• Possible Future Concepts

Under Consideration

- Bidirectional AFPS for the Gulf
- NB AFPs
- Metering Arcs for FLA airports to access the Gulf
- New Ultra High Sectors between many facilities in the SE and ZHU
- MIA/FLL currently using IDAC, RSW/TPA/PBI/FXE will be utilizing IDAC by Summer 2023
- ZMA R8 Sector Split Redesign for Gulf mitigation