
Electronic Departure Approval Requests in ATD-2 Daily Operations

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Departure Approval Requests

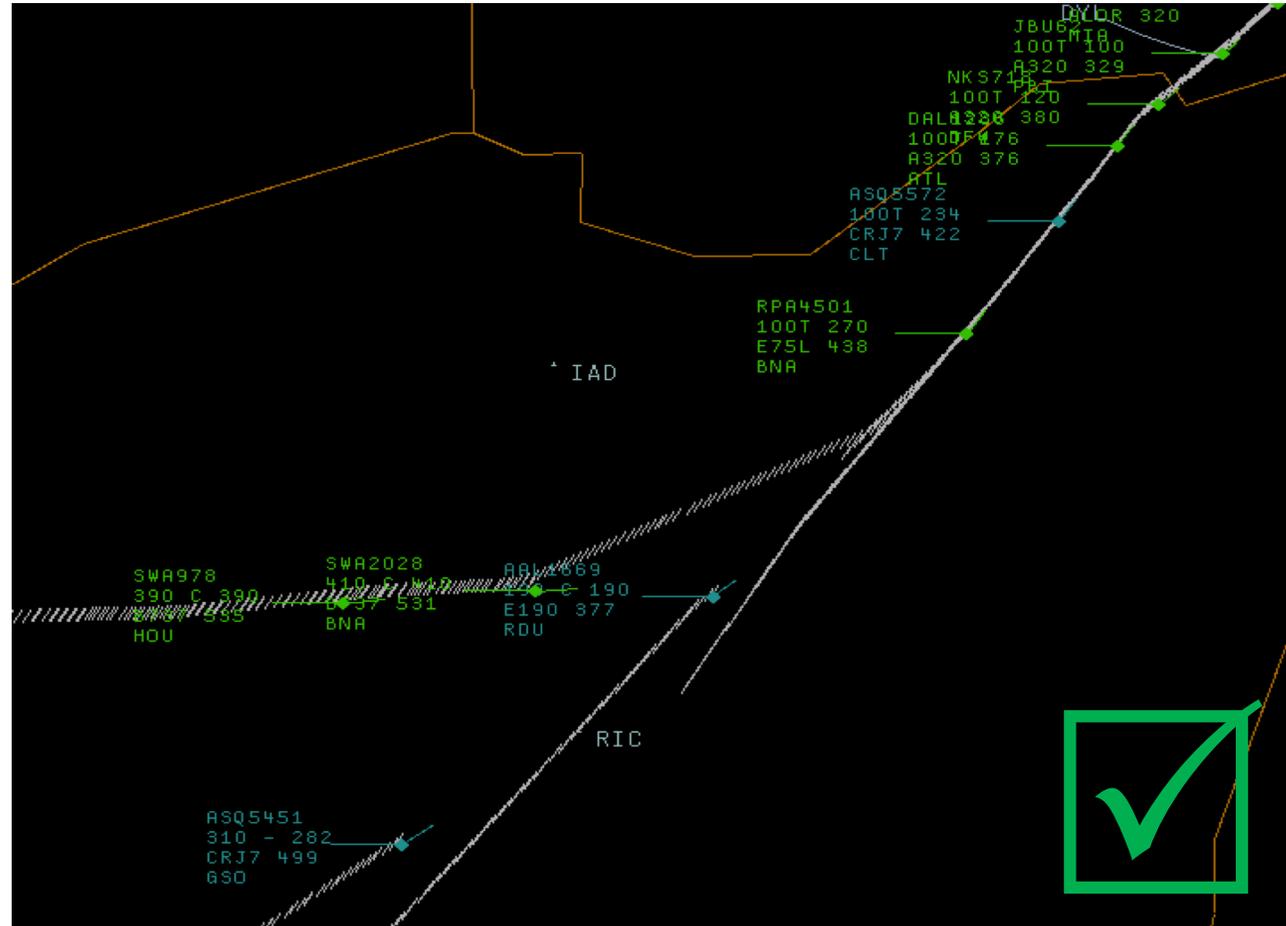
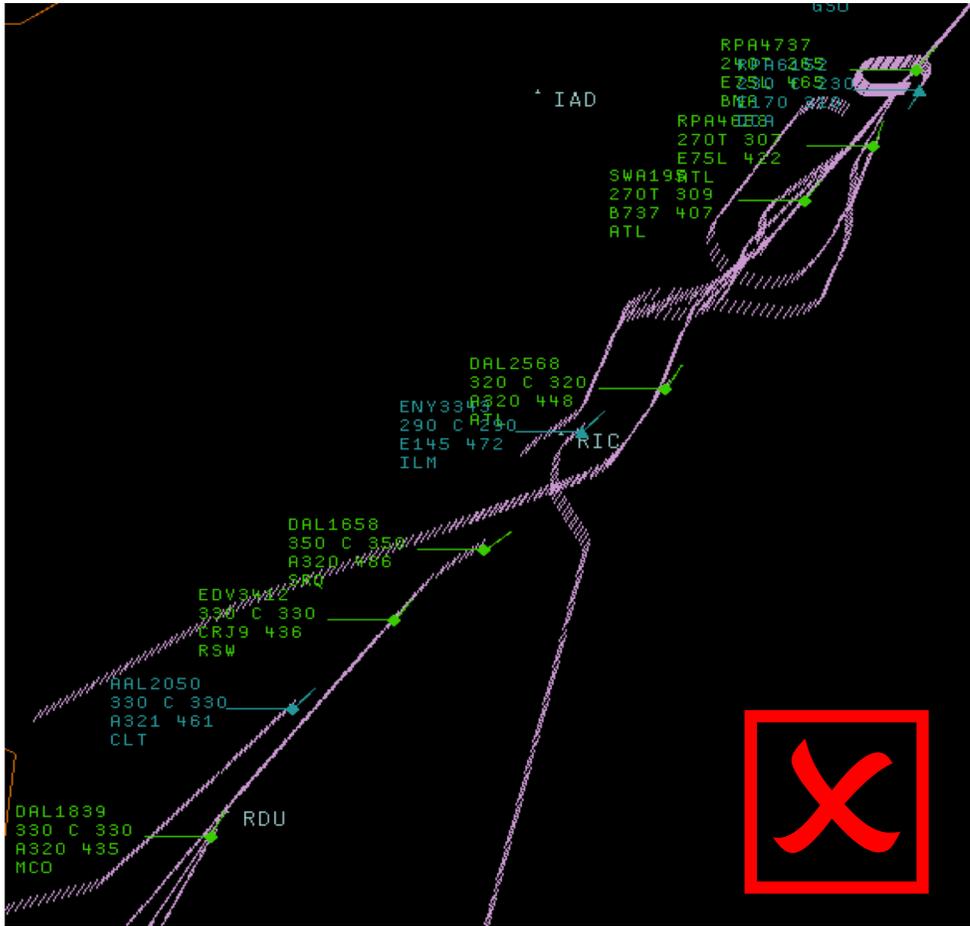
APREQ

- Traffic management initiative for applying tactical departure delay
- Traditional method: 'Call-For-Release'

Compliance Window:

Two minutes earlier to one minute later

Stream Insertion

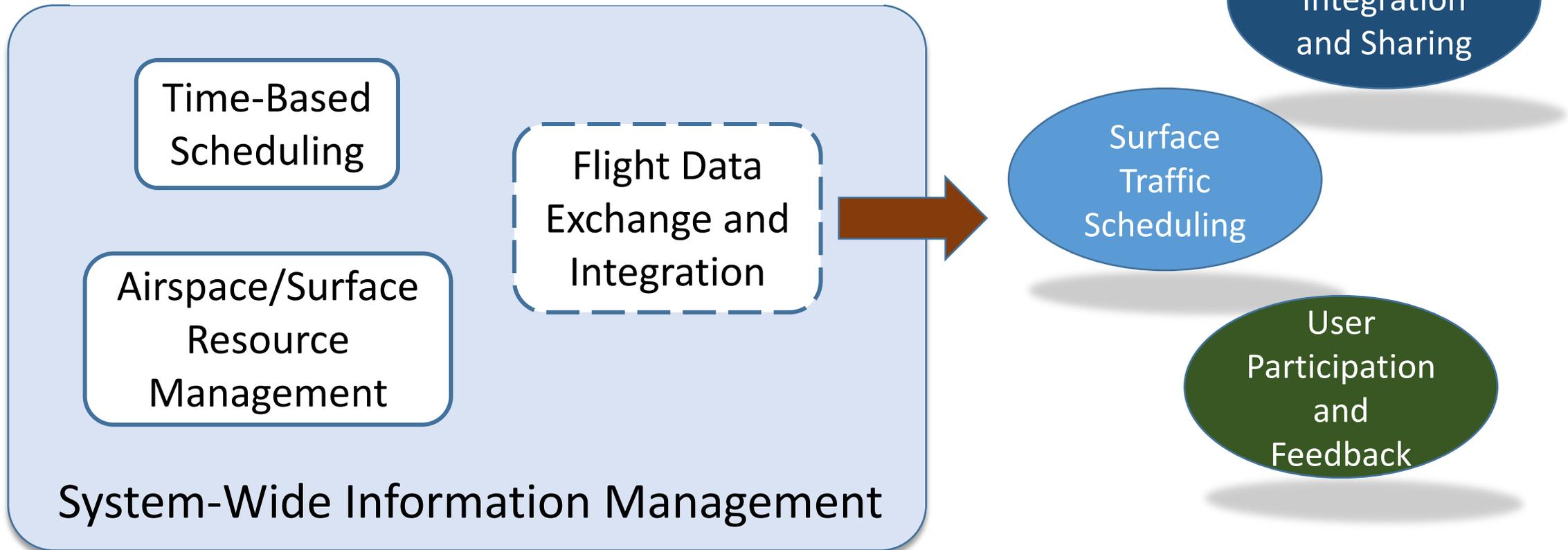


Outline



- NASA Airspace Technology Demonstration 2 (ATD-2)
- Electronic APREQ negotiation
- Charlotte APREQ flights Jan 2018-Feb 2019

Integrated Arrival-Departure-Surface Air Traffic Management

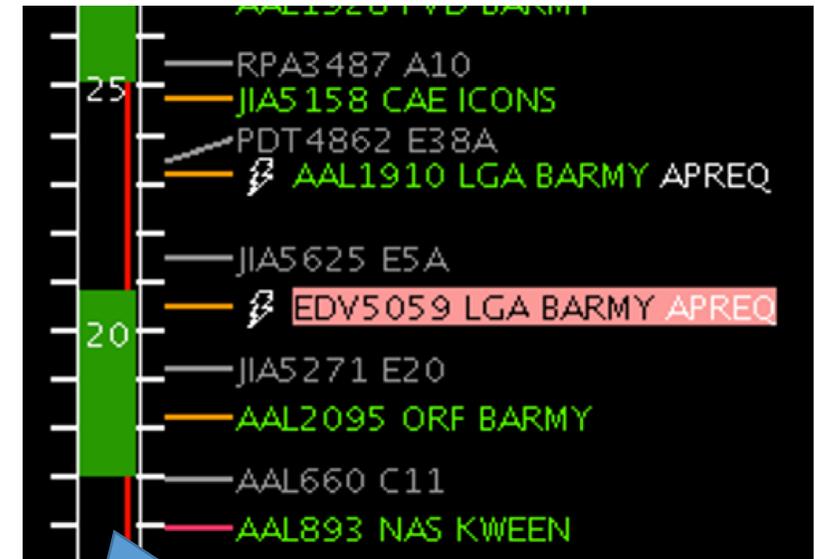


Electronic APREQ Negotiation



- APREQ flights & eligibility for electronic negotiation
- Release time request methods
 - ‘Select Slot on Timeline’
 - ‘Request Release Time’
- Projected compliance
- Semi-automatic or automatic response mode

‘STBO Client’ Timeline



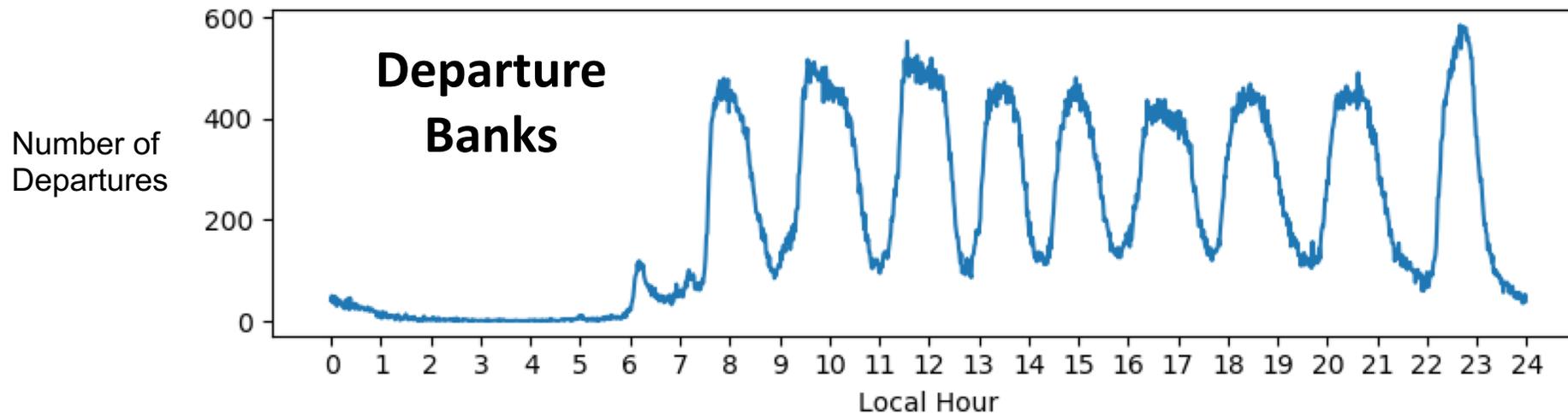
Slot-Availability
Indications

Charlotte Operations Jan 2018-Feb 2019



- 303,729 departures over 402 days (21 low-departure days removed)

593 to 865 Departures per day:
Mean 755.5 (S.D. 52.3)
Median 764

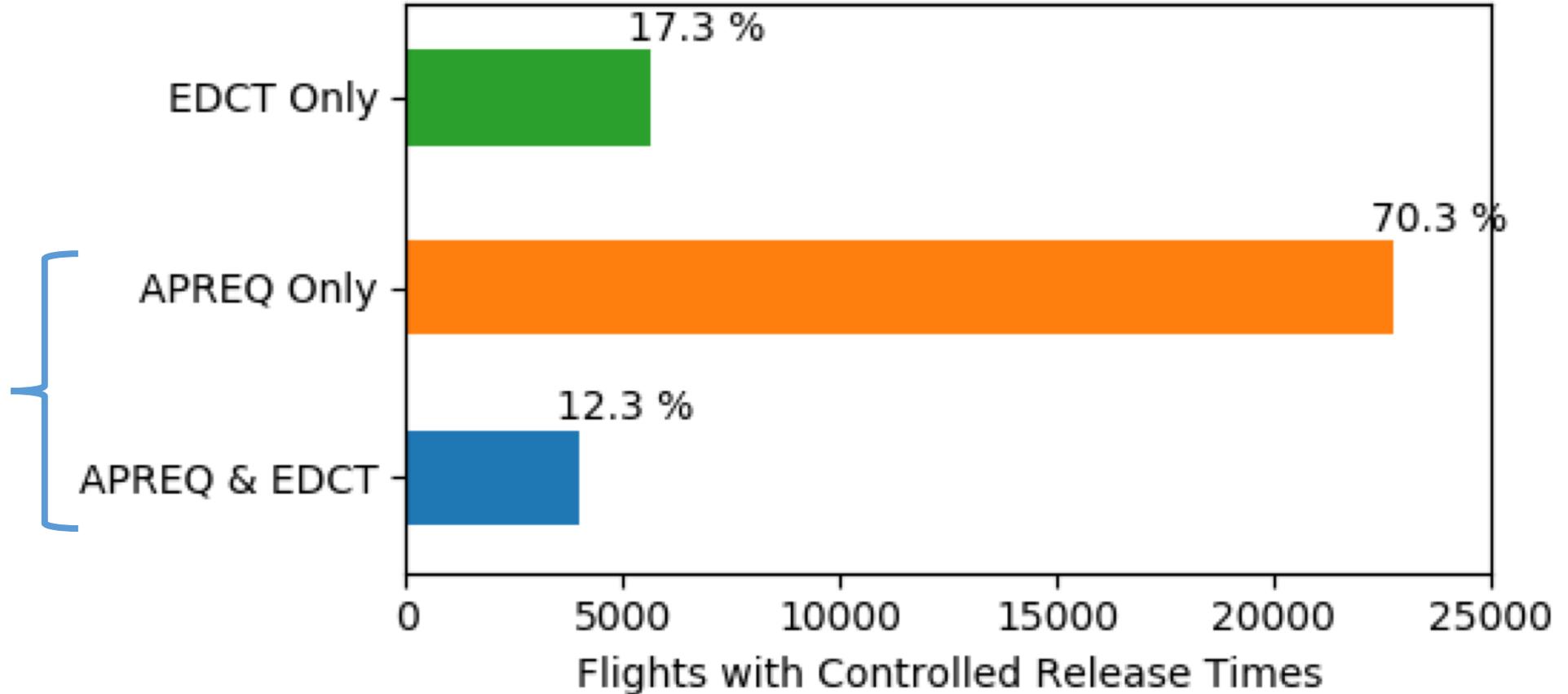


- Top-10 destinations frequently subject to APREQs

Controlled Release Times



26,733 flights
(8.8% of all
departures)



Release Requests: Washington Center

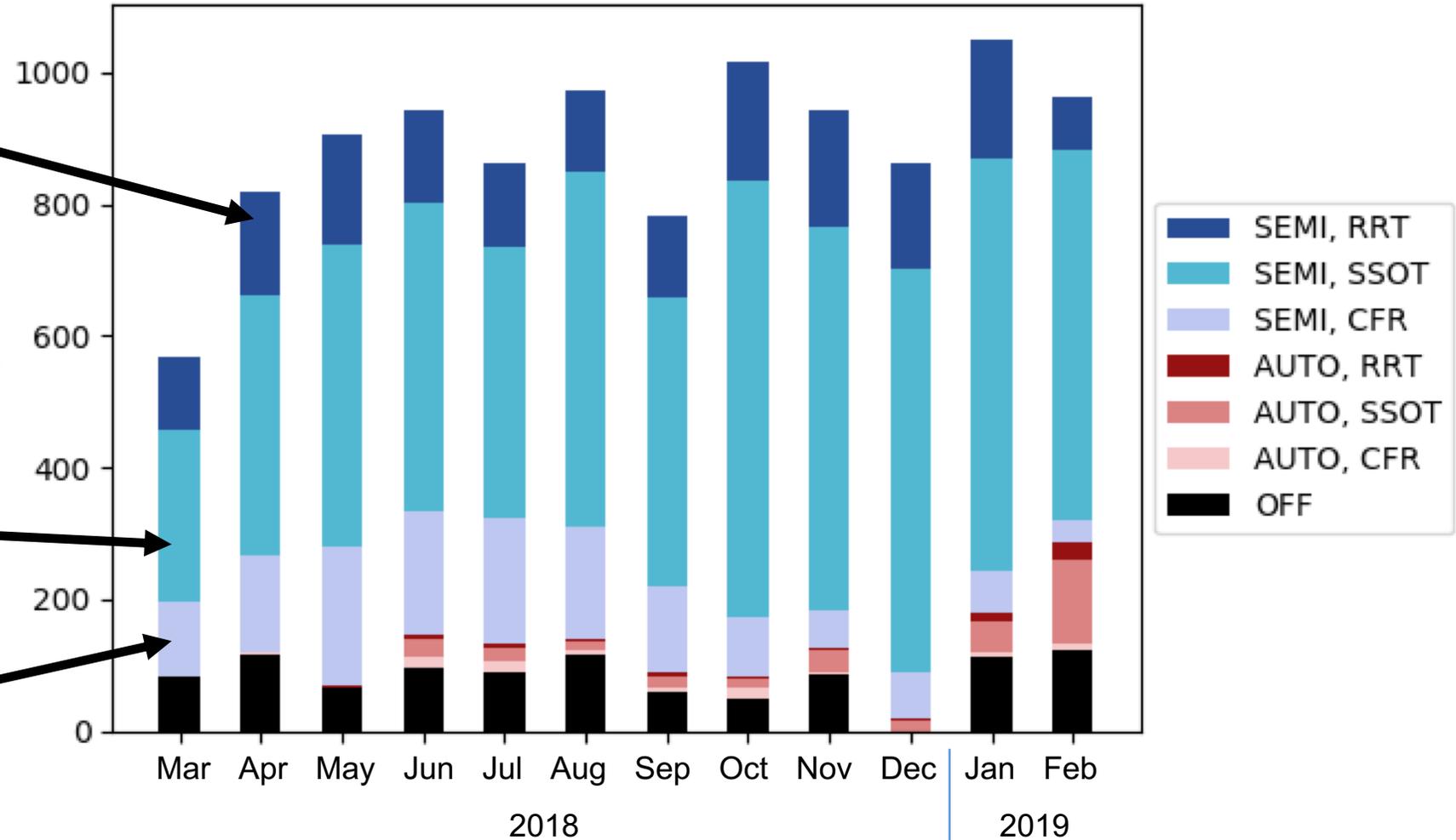


Request Release
Time

Number of
Washington
Center
APREQ Flights

Select Slot on
Timeline

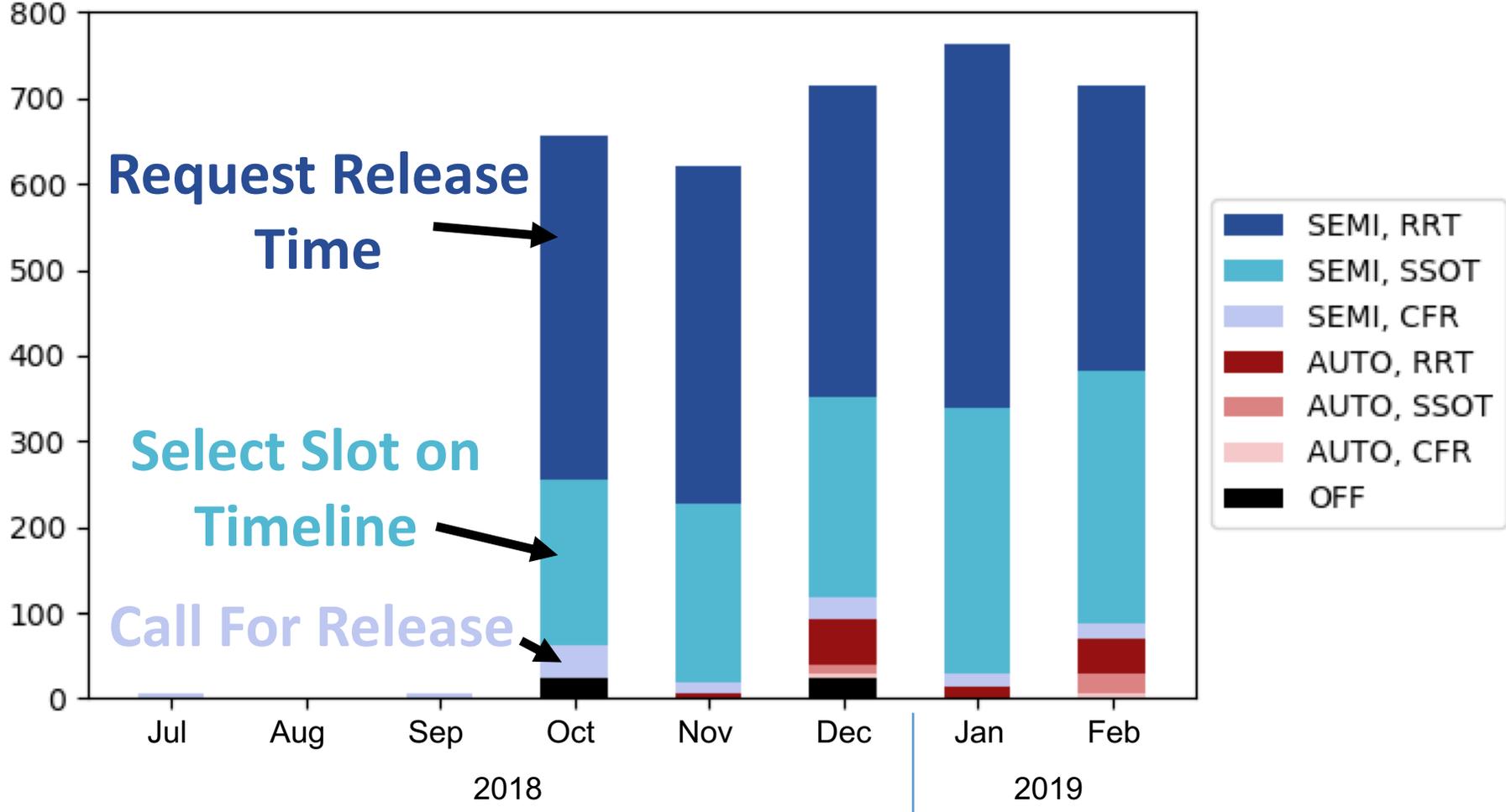
Call For Release



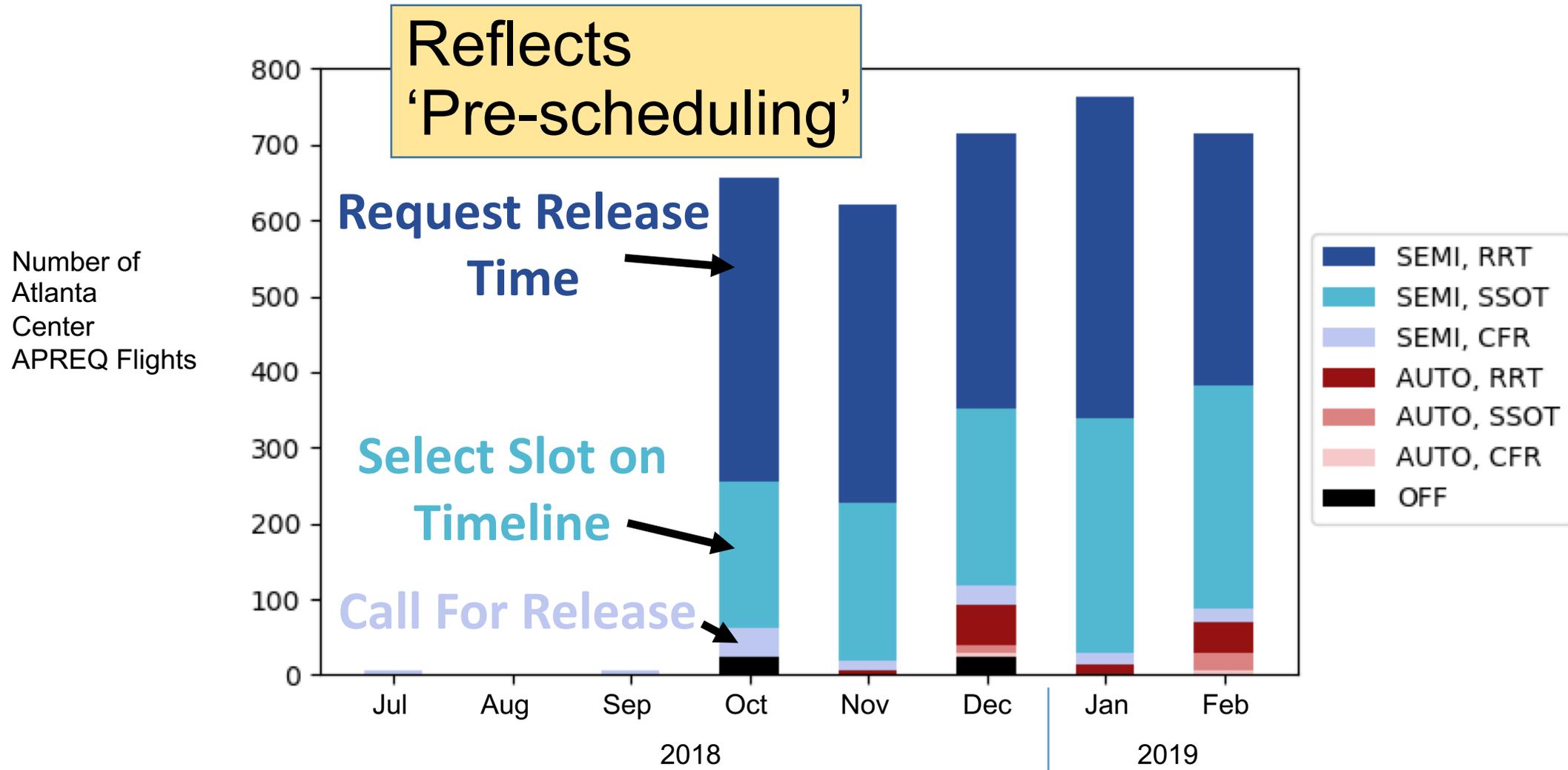
Release Requests: Atlanta Center



Number of
Atlanta
Center
APREQ Flights



Release Requests: Atlanta Center



APREQ Rescheduling

- New release times negotiated for 25.9% of APREQ flights
- Of these, 30.4% received an earlier release time

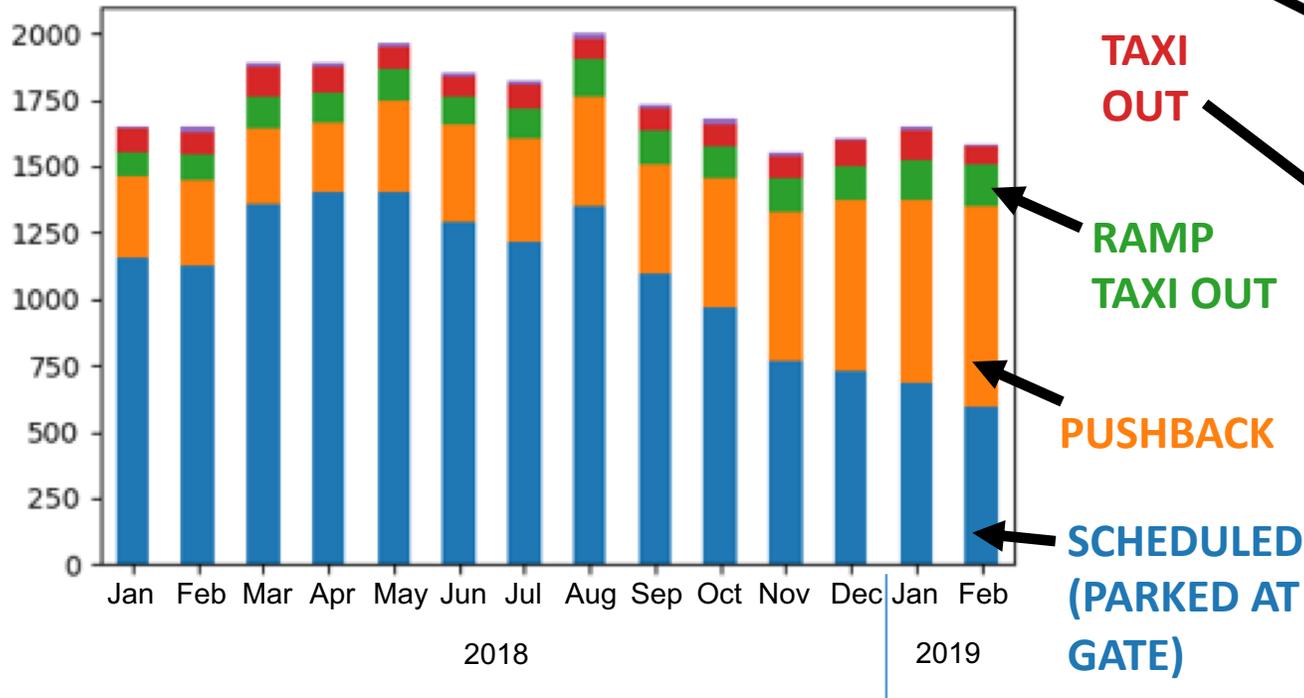
Delay Savings: 73.8 hours

APREQ Aircraft Locations



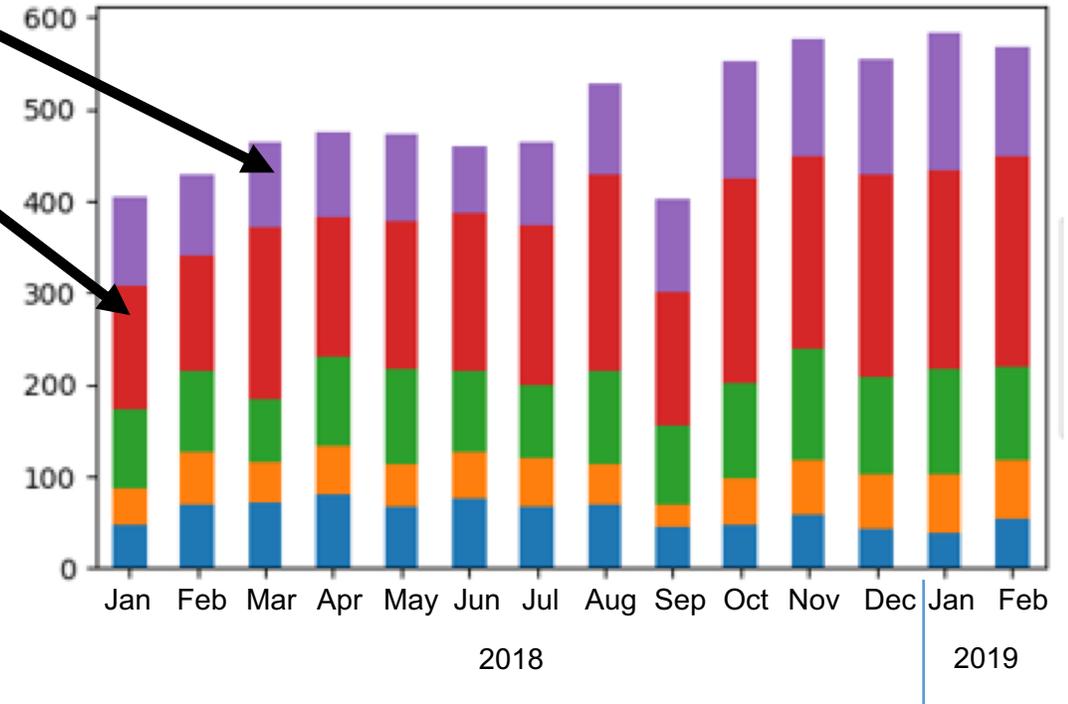
Locations at Initial Approval
(Non-prescheduled Flights)

Number of Flights



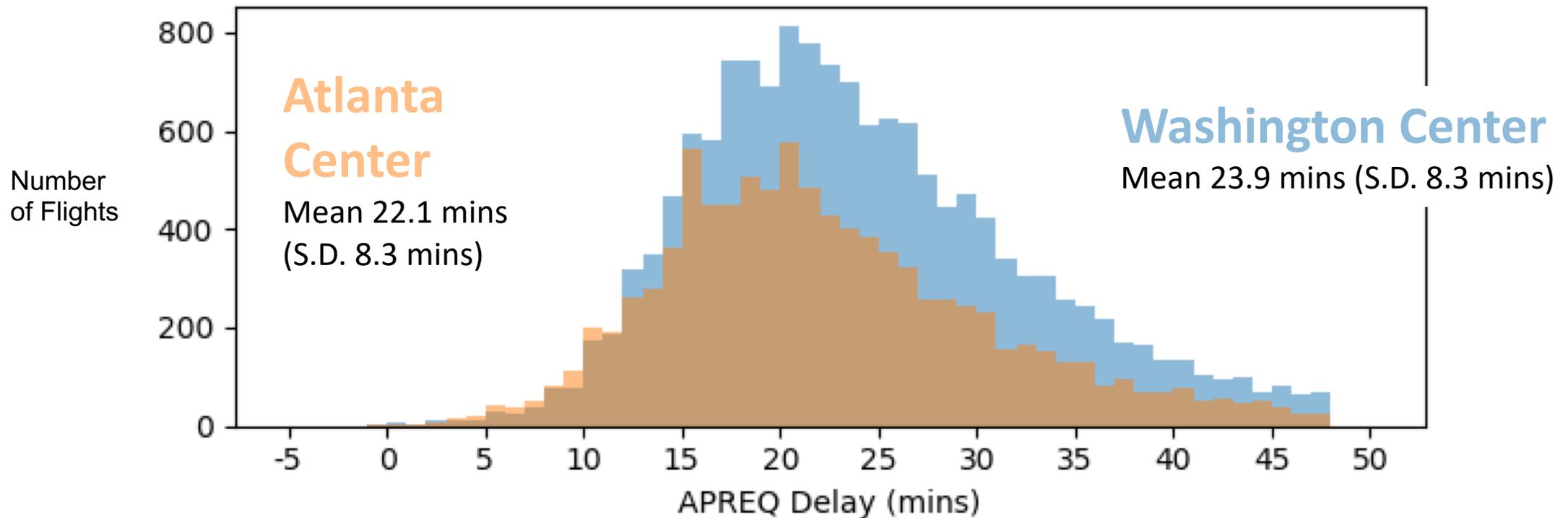
Locations at Final Approval
(Rescheduled Flights)

Number of Flights



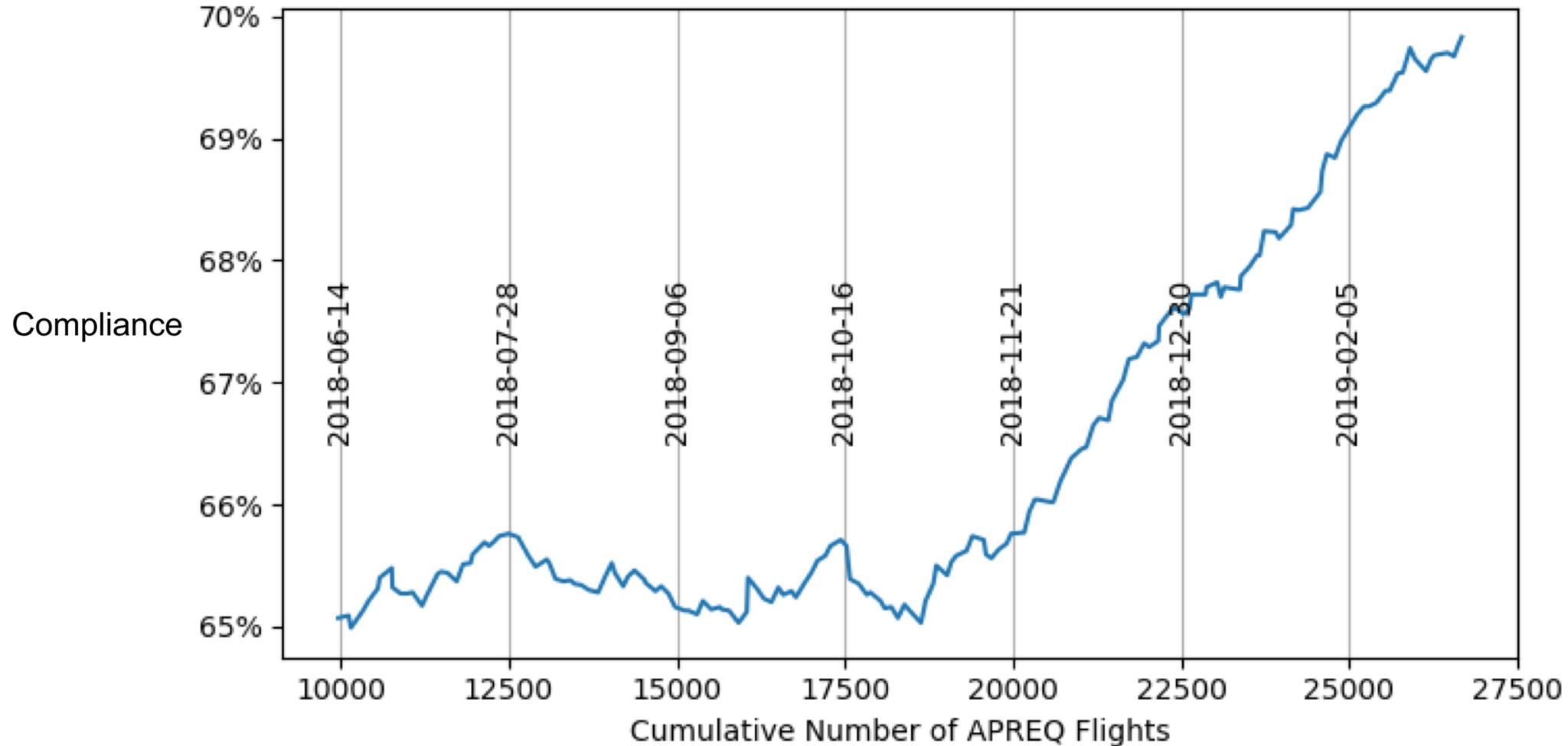
Assigned Delay

APREQ Delay = Final Approved Release Time - Ltime



APREQ Flights with valid Ltimes; outliers removed: 90.8% of APREQ flights

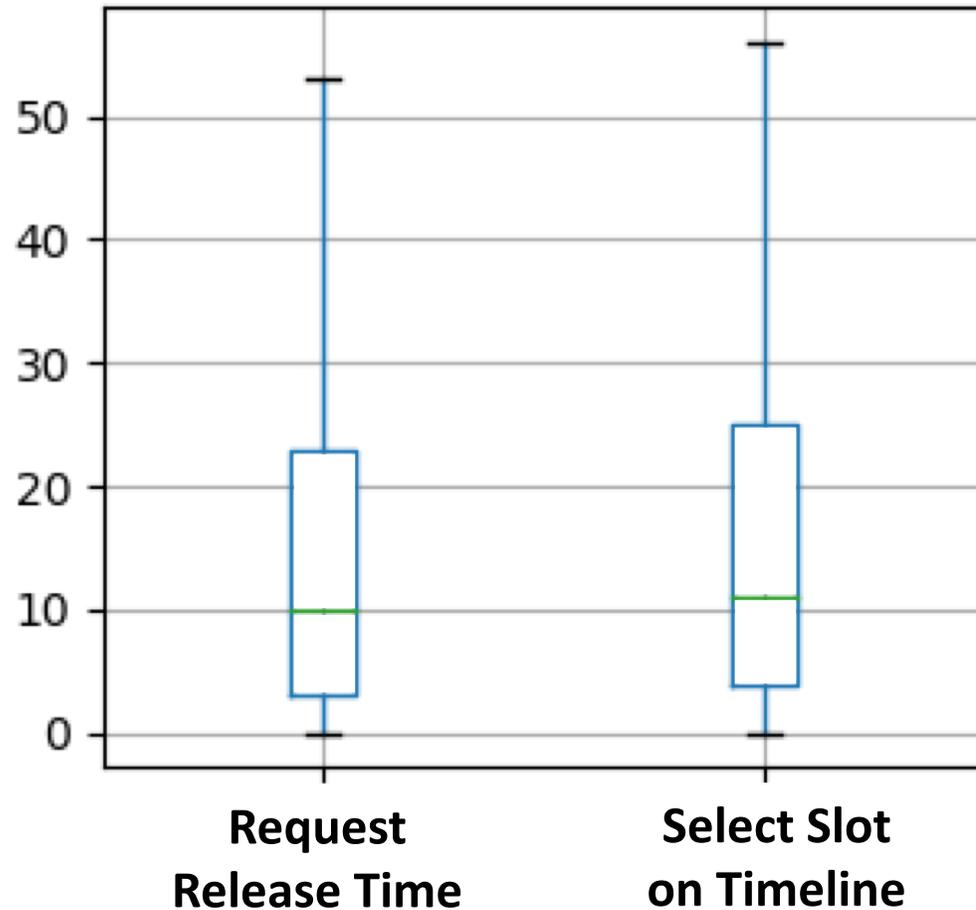
APREQ Compliance



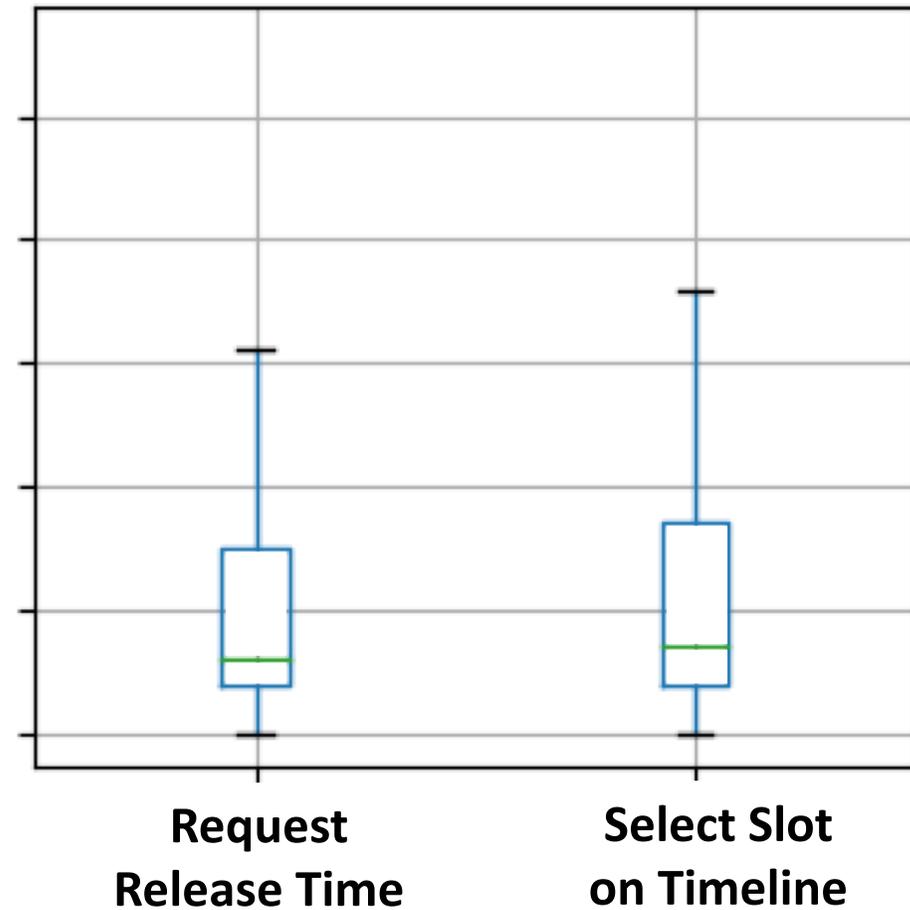
APREQ Negotiation Response Times



Washington Center



Atlanta Center



Approval
Response
Time (secs)

Conclusions

- 8.8% of Charlotte departures are APREQ flights
- ATD-2 STBO Client supports full range of APREQ management functions
- Most APREQs now negotiated electronically
 - Fast response times
 - Rescheduling flexibility
 - Information sharing
- Compliance is improving
- Results support broader future deployment of similar capabilities