



Interaction Between Strategic and Local Traffic Flow Controls

Operational Need

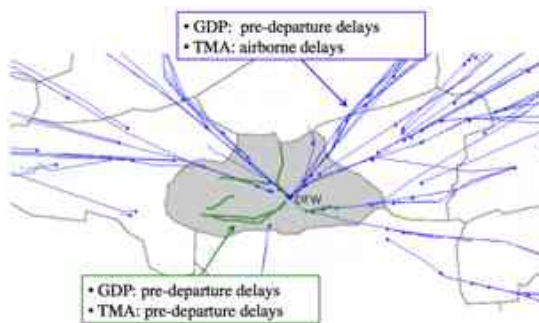
The loosely coordinated set of traffic flow management initiatives that are operationally implemented at the national- and local-levels have the potential to under, over, and inconsistently control flights.

Approach

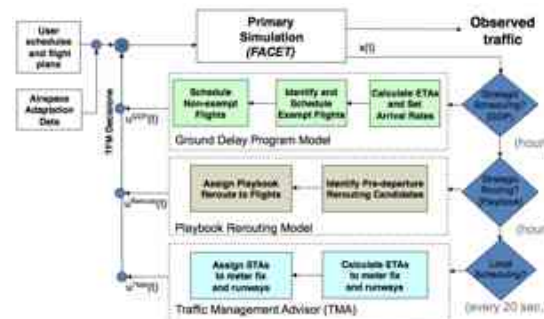
- Integrated NASA's Future ATM Concepts Evaluation Tool (FACET) with NASA's Traffic Management Advisor (TMA)
- Integrated system used to investigate the interactions between Ground Delay Programs and arrival scheduling, playbook rerouting and arrival scheduling and TMA Flow Programs and arrival scheduling

Benefits

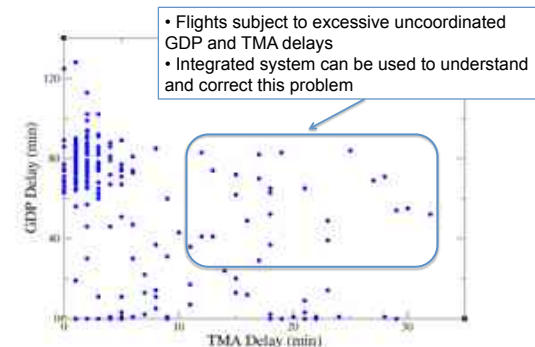
- Better coordinated strategic and local traffic flow controls
- More equitable distribution of delays
- Reduced unnecessary delay and fewer delayed flights



Dallas/Fort Worth International arrivals controlled by an uncoordinated Ground Delay Program and arrival scheduling



Integrated system developed to explore interactions between strategic and local traffic flow controls



Dallas/Fort Worth scenario showing 52% of all arrivals receiving uncoordinated GDP and arrival scheduling delays



Interaction Between Strategic and Local Traffic Flow Controls

Efficiency

Airspace

Systems
Integration

NextGen

Technology
Transition

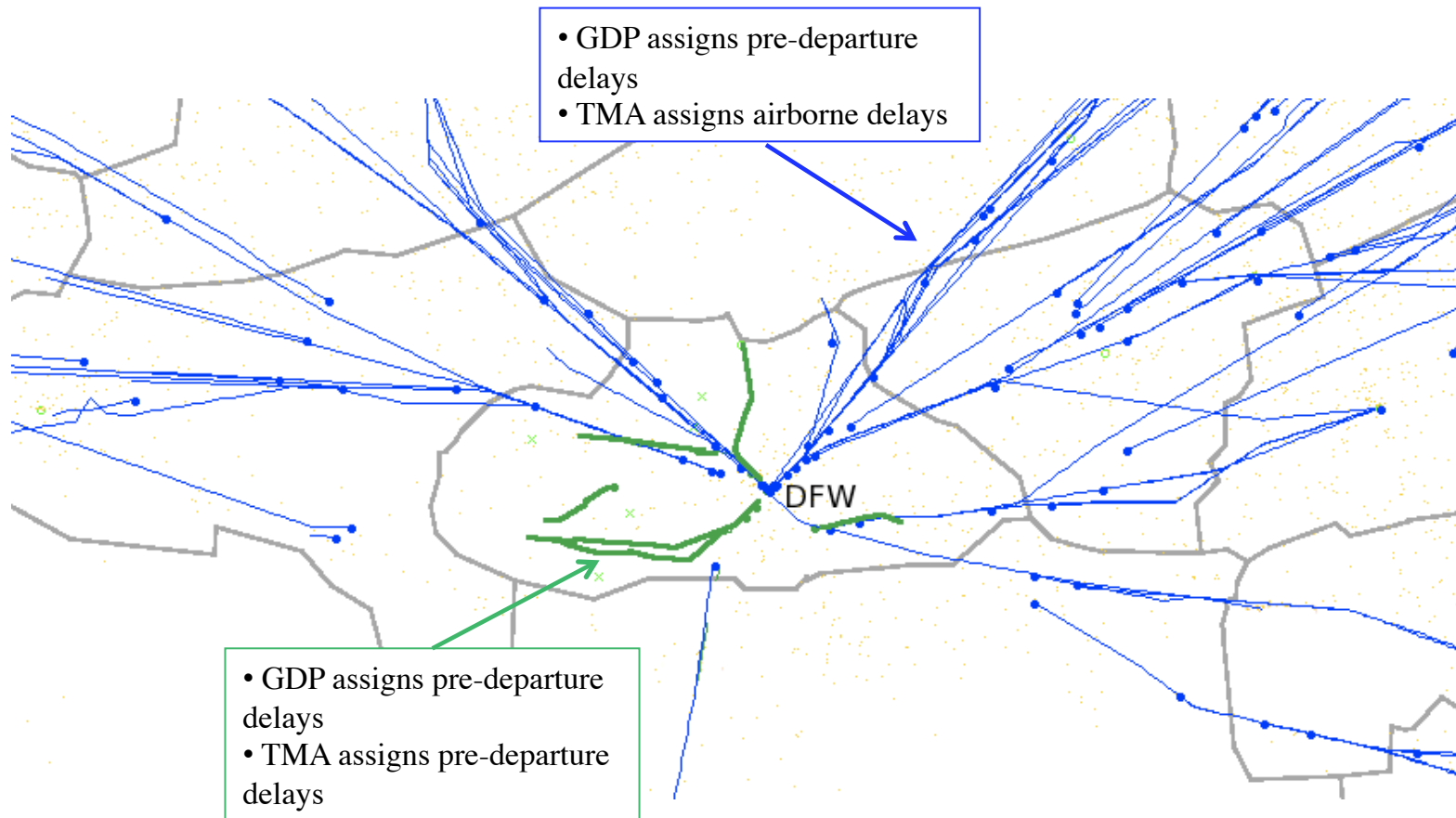
Shon Grabbe

Airspace Systems Program
2011 Industry Day
March 28–31 2011
San Diego, CA
www.nasa.gov





Motivation





Key Messages

- Integrated environment under development to explore and improve the interaction of national, regional and local level Traffic Flow Management controls
- Systems used to identify potential sources of inequity (“double penalization”) in the National Airspace System



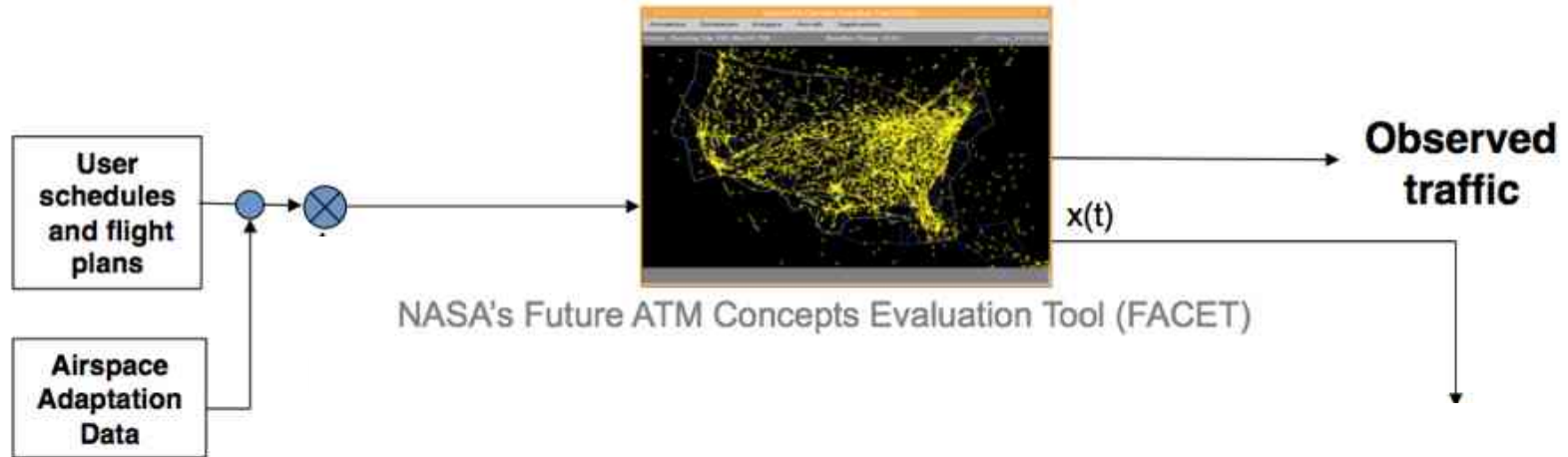
Technical Challenges

- Traffic Flow Management consists of a loosely coordinated set of ground holding, airborne holding and rerouting controls
- Integrated impact of these controls are not well understood
- Controls tend to under, over and inconsistently control traffic flows



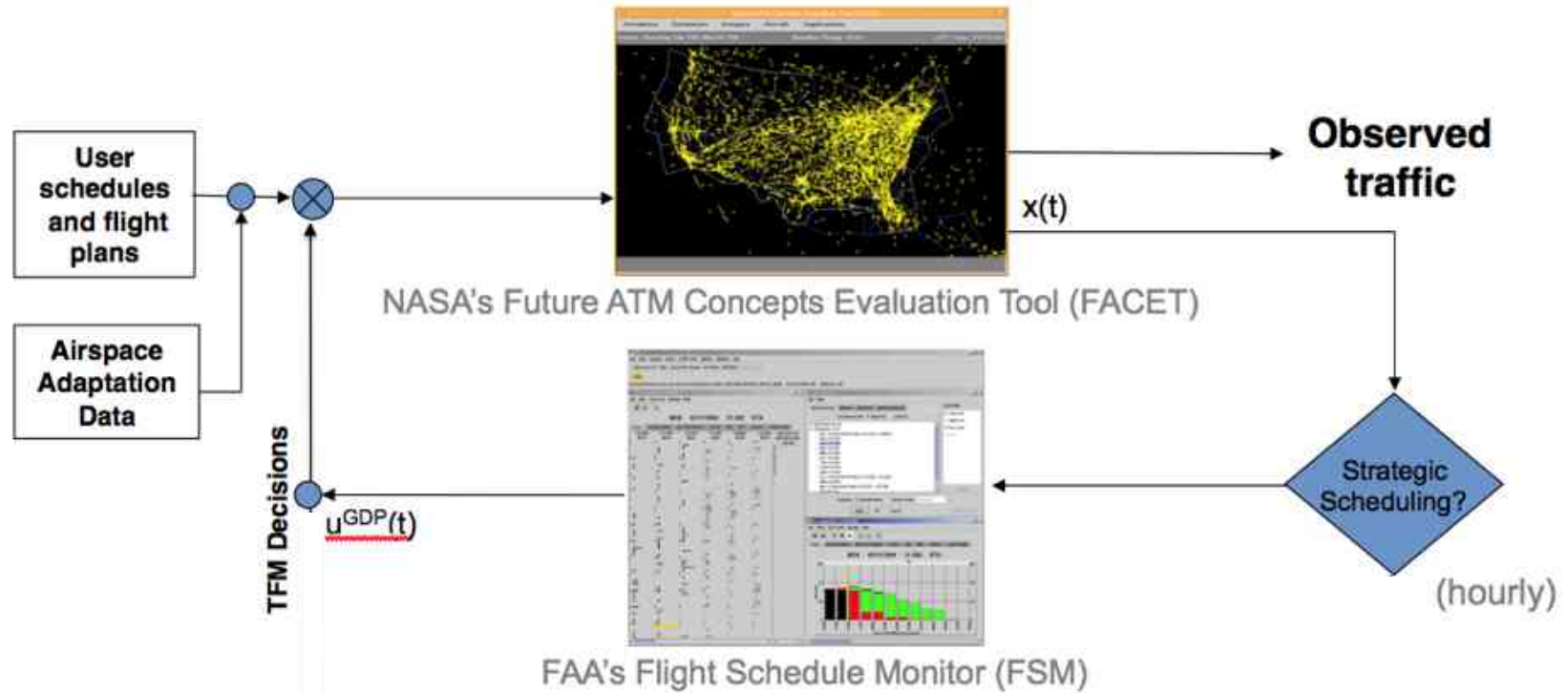


Integrated Simulation Environment



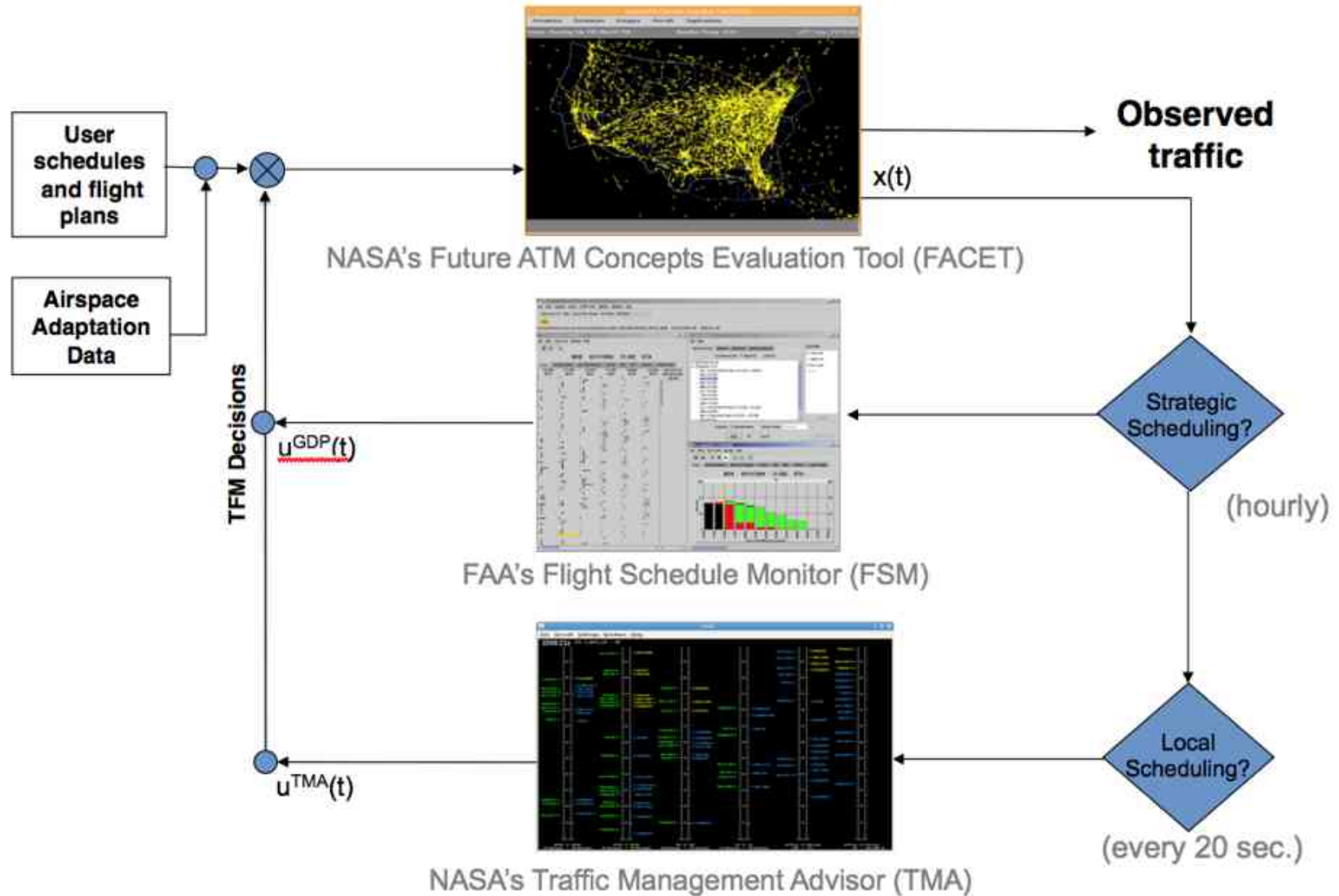


Integrated Simulation Environment





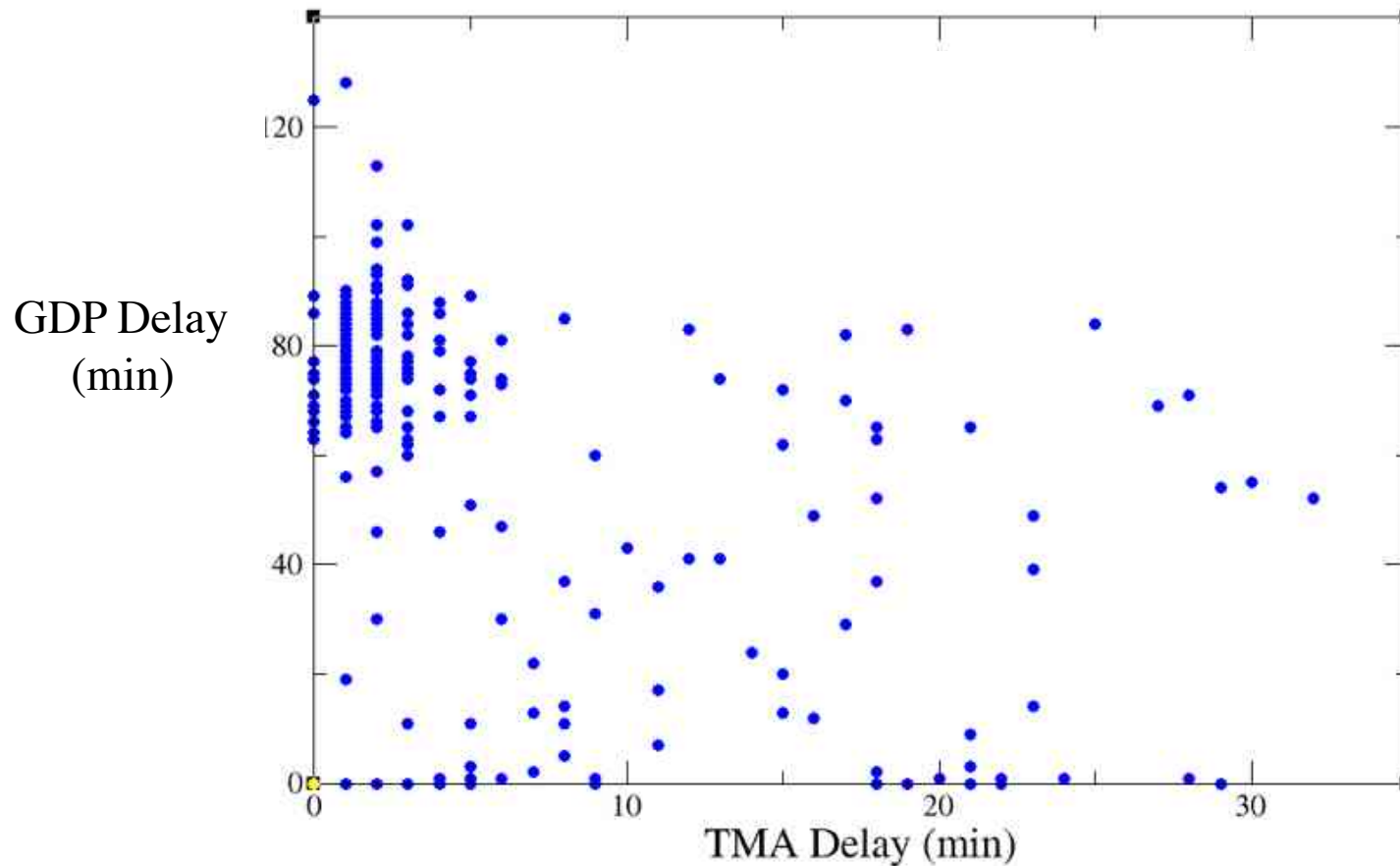
Integrated Simulation Environment





Sample Results

Operational Ground Delay Program Scenario at DFW

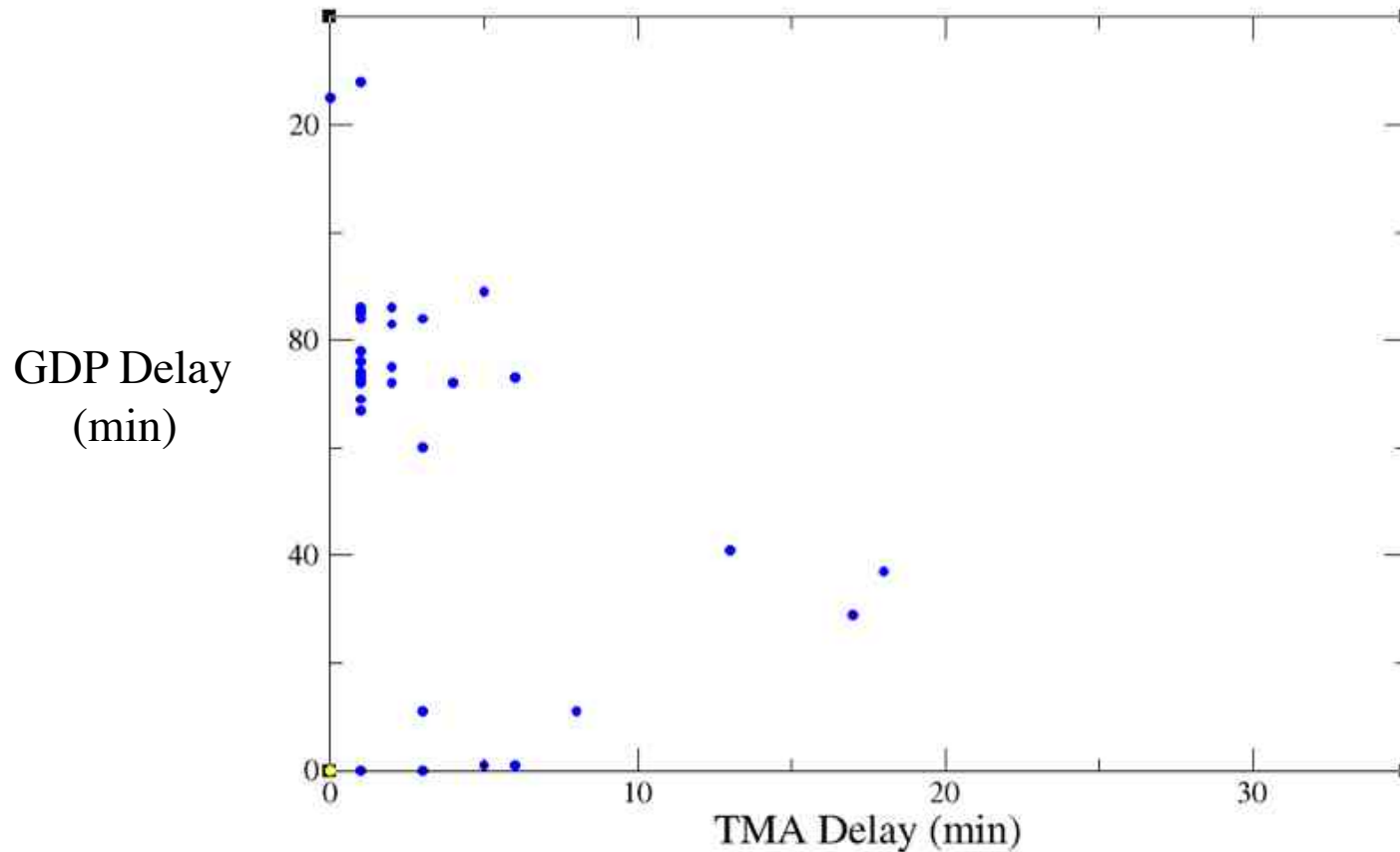


52% of all flights receive both TMA and GDP delays



Sample Results

Operational Ground Delay Program Scenario at DFW



64% of internal departures received ground delays from the Ground Delay Program and the Traffic Management Advisor



Potential Benefits

- Reduction in avoidable delays and better use of NAS resources
- Improved coordination at the national-, regional and local-levels
- Better distribution of delays amongst all airline operators
- More consistently controlled and predictable traffic flows



Next Steps

- Integration with operational decision support tools (e.g., FSM, RRIA, TMA, CTOP, etc.)
- Enhance weather integrated decision making at the national-, regional- and local-levels
- Identify areas of collaboration with the service provider, industry and airline operators



Concluding Remarks

- Integrated environment under development to explore and improve the interaction of national, regional and local level Traffic Flow Management controls
- Systems used to identify potential sources of inequity (“double penalization”) in the National Airspace System