

# Global Air Traffic Operations Research GATOR™

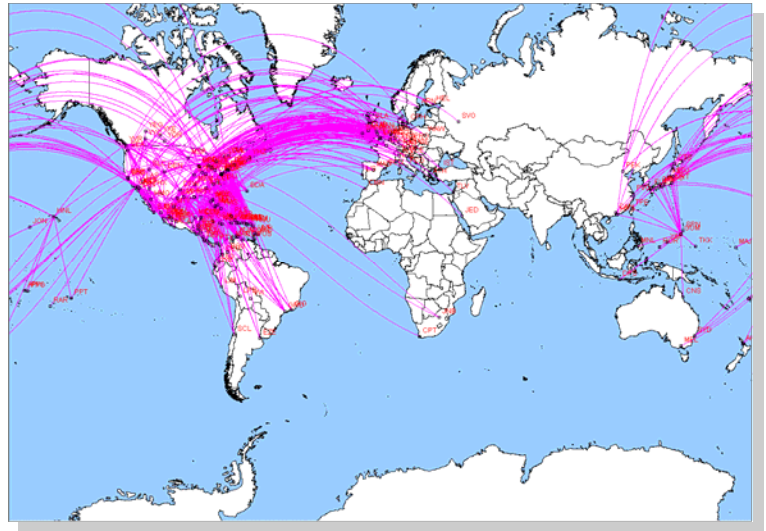
JTA developed GATOR to meet its need for complex air traffic operations analysis on a global scale.

**Multiple Source Data** GATOR ingests flight data from a wide variety of sources such as published airline schedules, repetitive flight plan data, and actual air traffic control (ATC) surveillance data. GATOR is able to plot and display a flight's location at any given instant in time. Where actual flight data is available, that position information is used. Otherwise, GATOR will calculate the four-dimensional position based on the flight plan or by calculating the Great Circle route and time based on the schedule.

**Air Traffic Statistical Analysis** JTA uses GATOR in the performance of much of its air traffic statistical analysis. JTA is able to quickly ascertain the types of aircraft and frequency of operations for a given area of interest, such as a specific airport or a selected airspace.

**Macroscopic Airspace Analysis** With GATOR, JTA airspace system planners and designers gain a macroscopic perspective of air traffic operations on a regional or global scale, and for hourly, weekly, or monthly timelines. JTA is able to analyze the effects on air traffic due to scenarios such as air traffic growth or airspace redesign.

**Air Traffic Operations Simulation** JTA uses GATOR to conduct simulations of air traffic operations. JTA airspace analysts can “run” air traffic operations in model-time set at any multiple or fraction of real time. GATOR is able to perform extremely sophisticated simulations with the availability of actual data or with flight plans augmented with detailed operational parameters such as aircraft performance and upper air winds.



*The GATOR tool supports sophisticated air traffic operations analysis and simulation, such as peak airspace system traffic load. This image depicts all of the international scheduled passenger flights originating or terminating in the U.S.*

**ASET** Aviation System Engineering Tools

**Jerry Thompson & Associates, Inc.**

**AIRPORT and AVIATION SYSTEMS Planners, Designers, Engineers**



# At JTA, the Tools Make the Difference

## **ASET Aviation Systems Engineering Tools:**

**Master Mapper** - The Master Map begins with an accurate map of the physical world. Hundreds of political and aviation information layers can be added: sovereign and delegated airspace assigned by the International Civil Aviation Organization (ICAO); the world's flight information regions (FIRs); great circle routes between selected city pairs; airport locations; air routes; communication, navigation and radar facility coverage. Operational and technical details for a country or region can be added as required and the map can be projected in any traditional view.

**Communication, Navigation, Surveillance (CNS) Coverage Tool** - CNS Coverage Tool calculates the theoretical coverage of ground-based CNS facilities. The CNS Coverage Tool compensates and adjusts for elevation of the site, height of the antenna, and screening angles.

**NAS Design Tool** - NAS Design Tool enables the traceability of procedural, communication, and machine-functional requirements from an Operations Concept. The tool describes how people, procedures, and machines provide the required air navigation services to aviation users.

### **Air Traffic Analysis Models**

*Demand/Capacity Model* determines the current scheduled traffic through a selected airspace, as well as other traffic that would benefit by gaining access to that airspace. When this tool is used with the Master Map, detailed airspace analysis based on demand and capacity projections can be conducted.

*Revenue and Cost Model* projects operating revenues and costs attributed to the levels of Air Navigation Services provided.

*Air Traffic Control (ATC) Staffing Model* projects the air traffic staffing required to support the projected demand using the planned sectorization scheme.

*Technical Staffing Model* helps in planning for the number of maintenance and operations personnel and their base locations.

**The Performance Analysis System (PAS)** - The processes and capabilities developed in support of TMA Performance Analysis evolved into a system that helps analysts quickly retrieve and analyze data, and report results in customized formats. PAS provides the capability to analyze and report the performance of the National Airspace System (NAS) utilizing relational GIS and Oracle data bases and dynamic processes that can deliver results world-wide through the use of web based automation.

**Flight Plan Management and Billing (FPM+B)<sup>®</sup>** - Automatically "captures" flight data from sources and generates flight progress strips and invoices for airspace use and communications charges.

## **Excellence through Innovation and Hard Work**

### **Jerry Thompson & Associates, Inc.**

**AIRPORT and AVIATION SYSTEMS Planners, Designers, Engineers**

10 Post Office Road, Suite 000  
Forest Glen, Maryland 20910-1103  
USA

Phone +1 301-565-8000  
Facsimile #1 301-585-8680  
[www.jta-atc.com](http://www.jta-atc.com)

