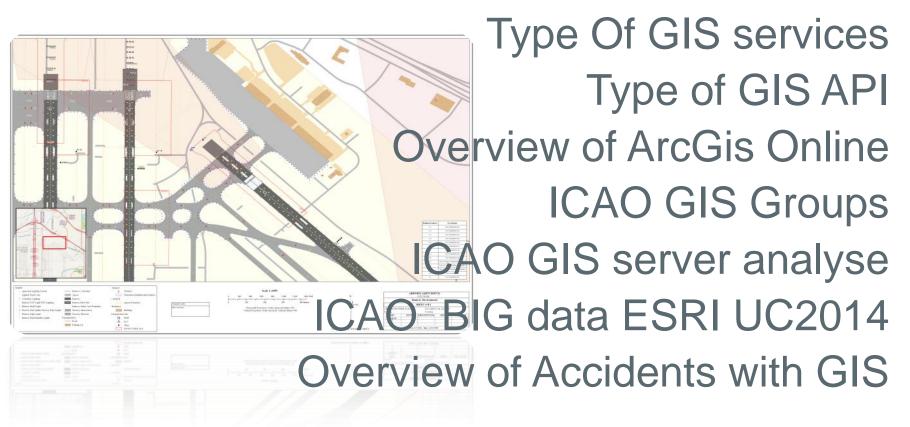
ICAO GIS system presentation

By Gilbert Lasnier
Aeronautical GIS Officer



Overview of the ICAO GIS site



ICAO GIS site presentation



Old GIS servers to new
Old GIS services
to recent GIS services
Slides and live services

Gilbert Lasnier Magda Morawski



and College to servelor and College Puts servelor and Arcide Puts serve

Est with West deseropped the tool

GIS Is Focused on Integration

Tabular ICAO data Web template

Bringing Together Our Complex Data and Knowledge



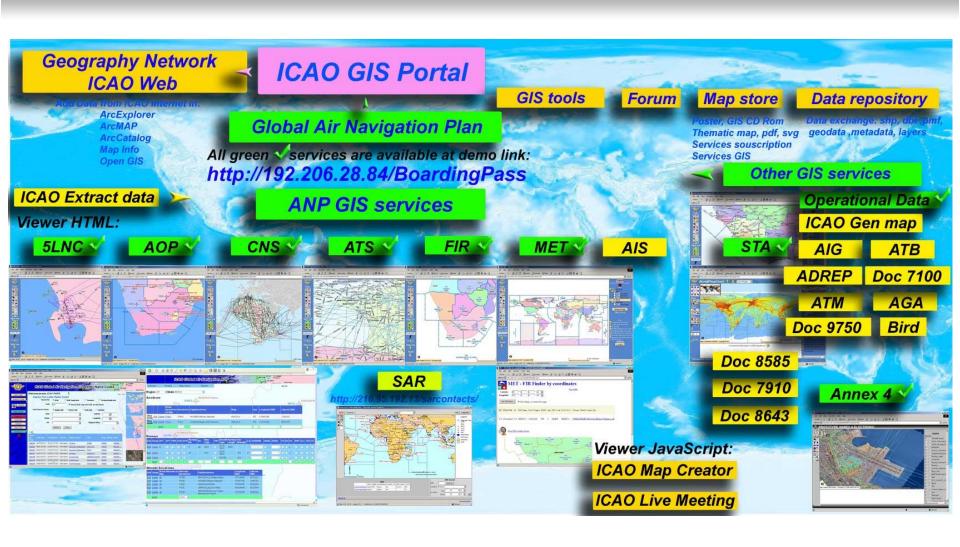
ICAO applications

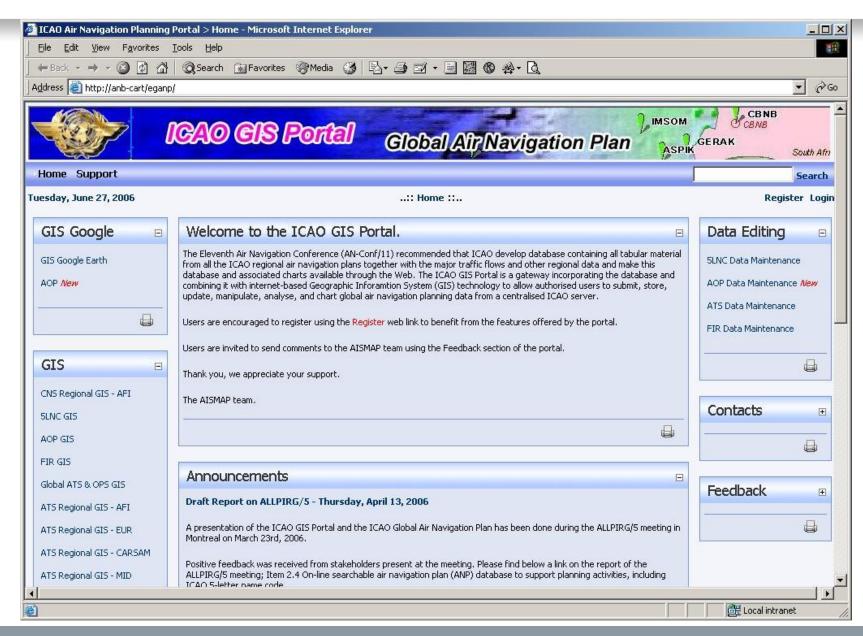


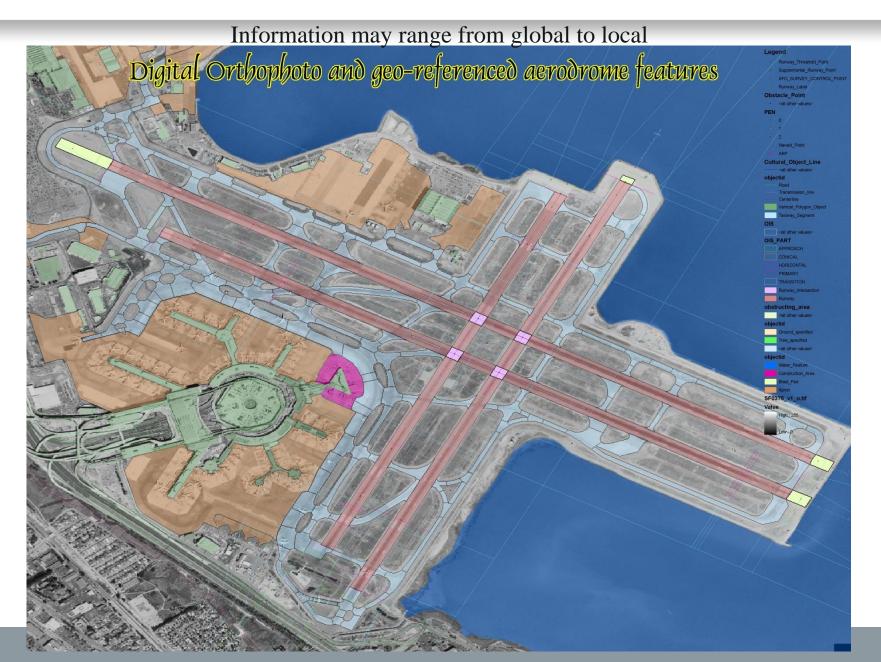
ICAO Web Server

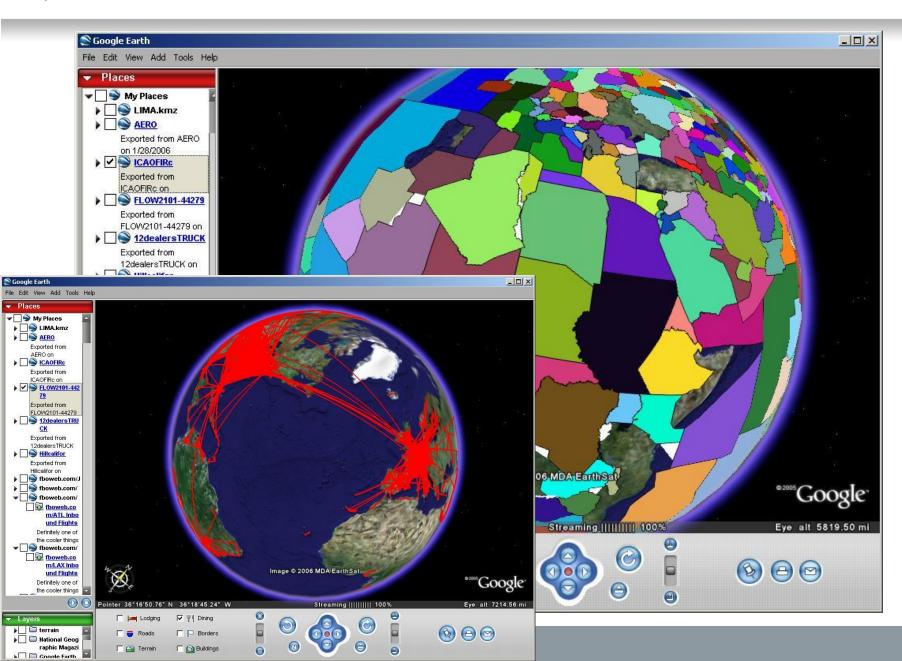


... And Making It Accessible

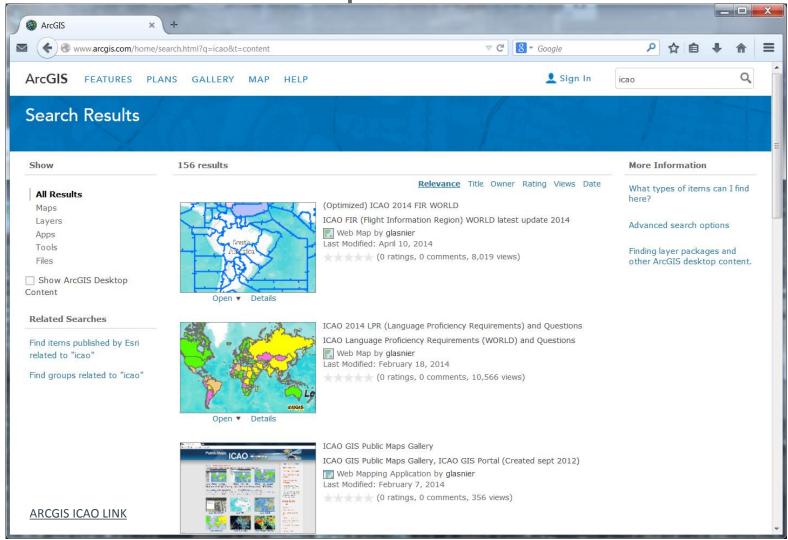




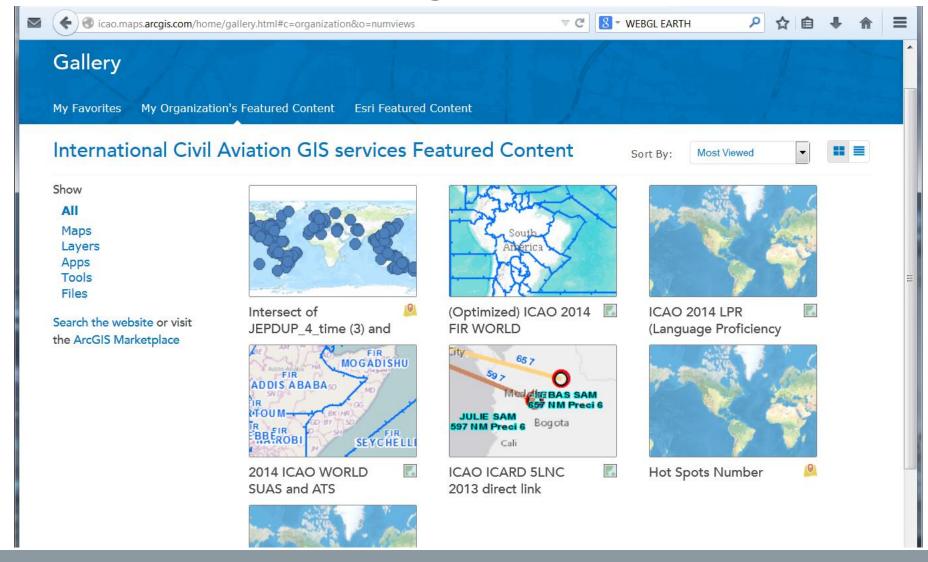




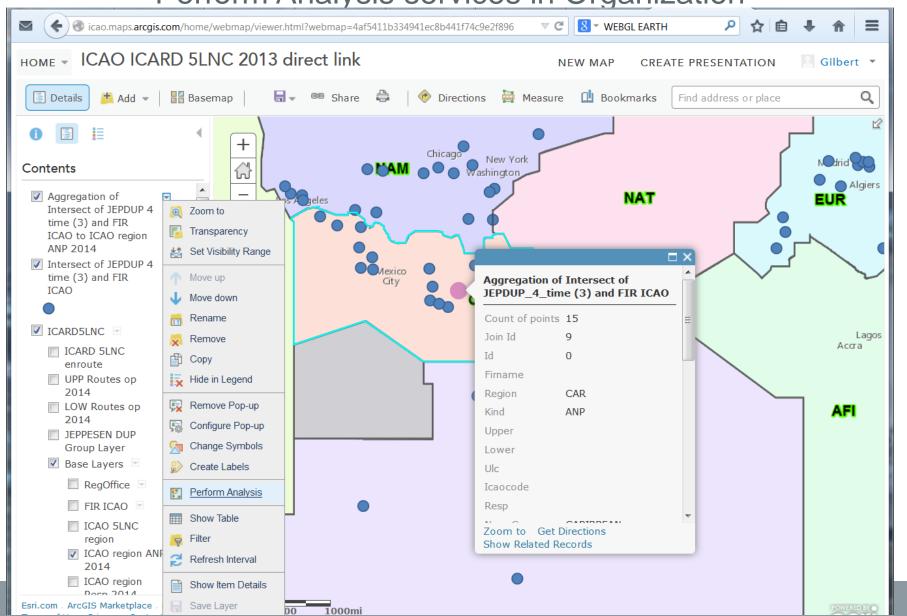
156 services personal account



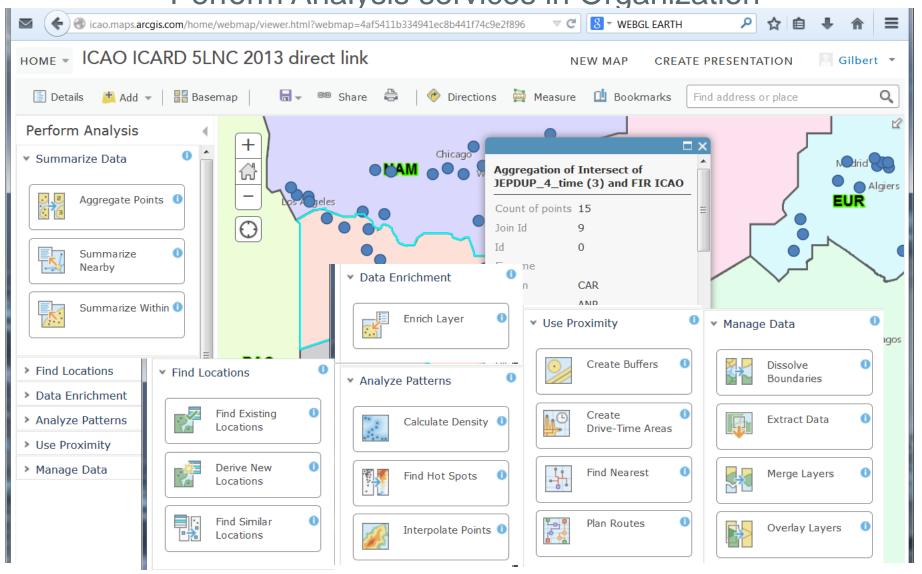
4 services Organization account



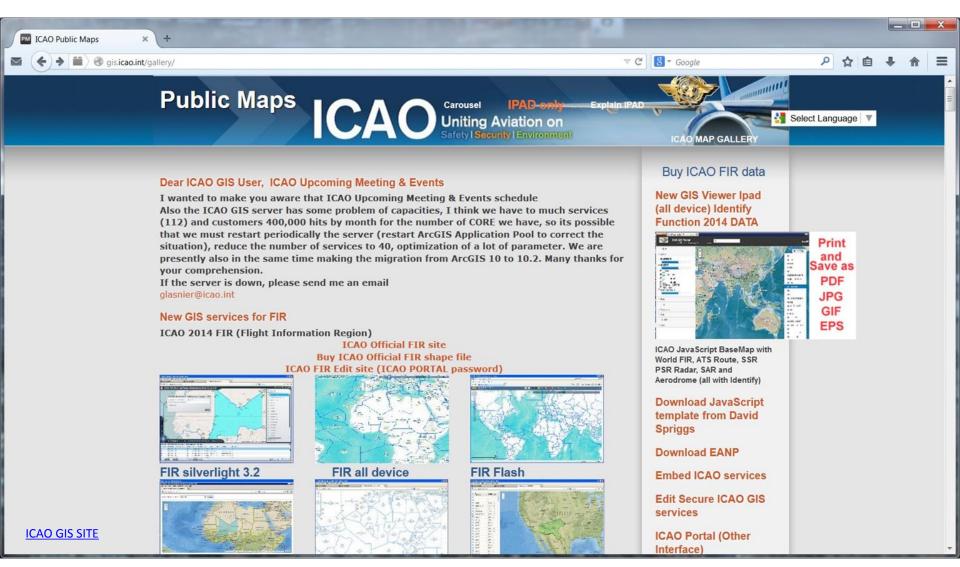
Perform Analysis services in Organization



Perform Analysis services in Organization



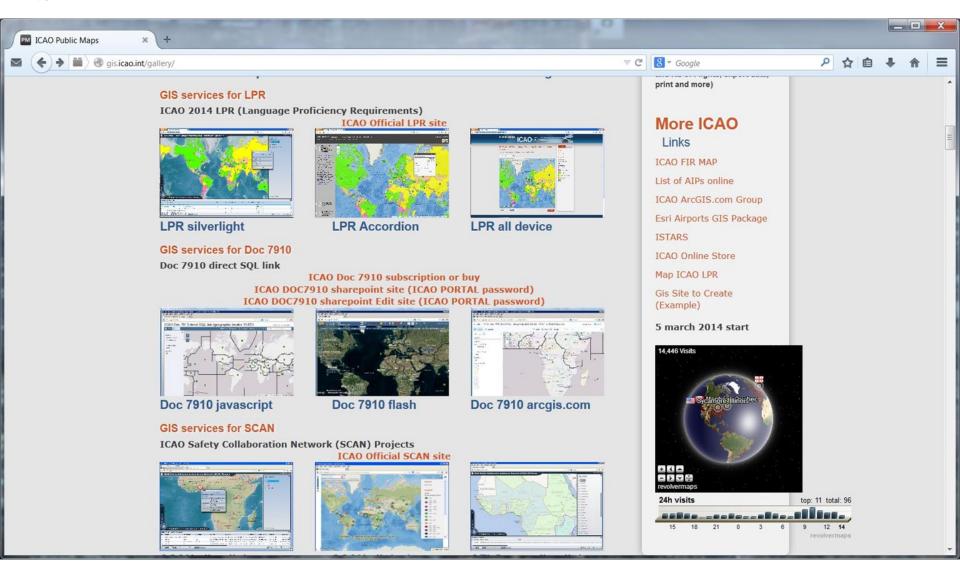




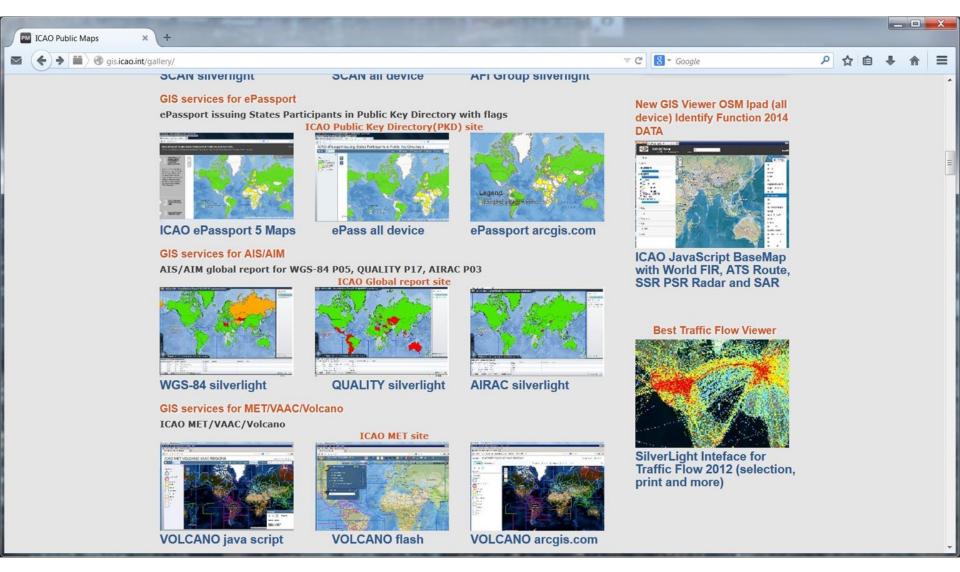




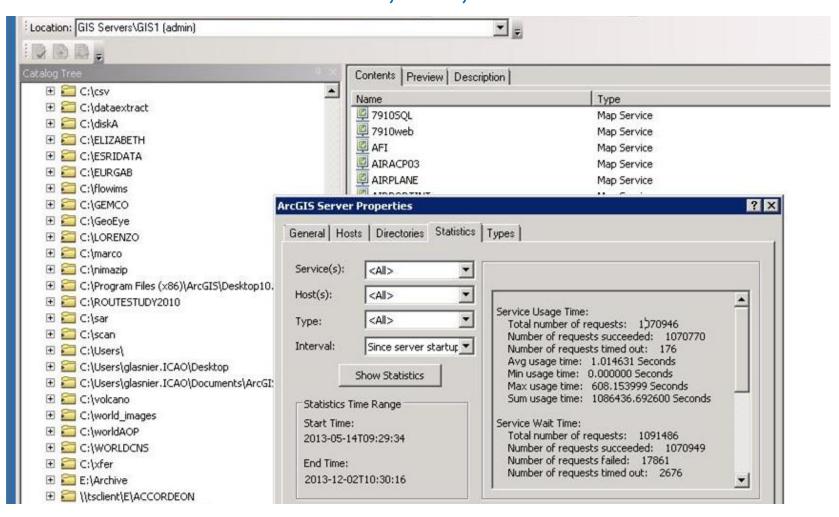






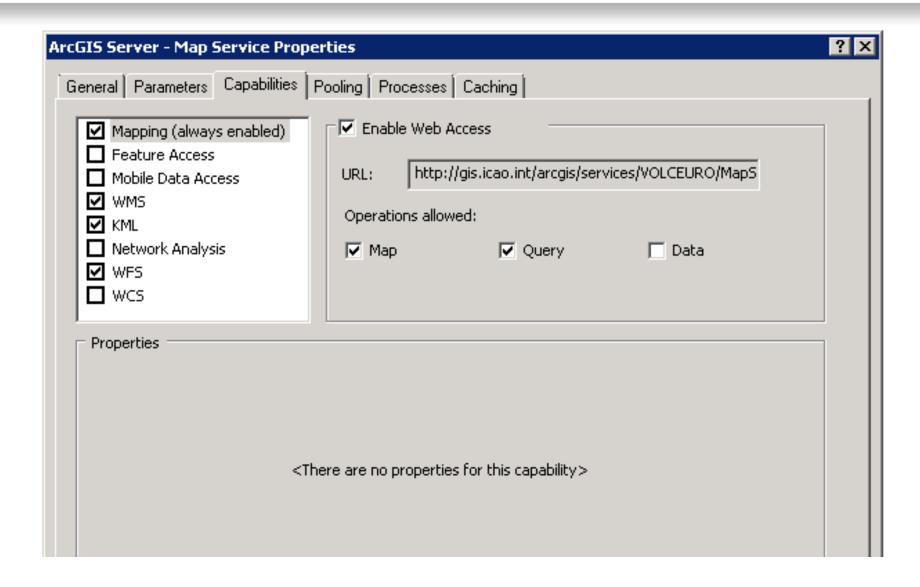


ICAO GIS system number of requests for 7 months: 1,070,946

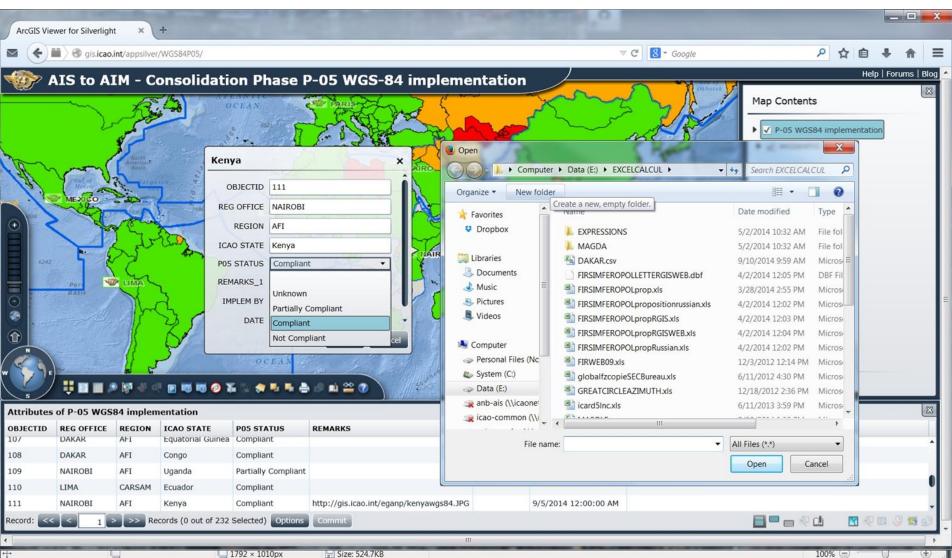


GIS services properties

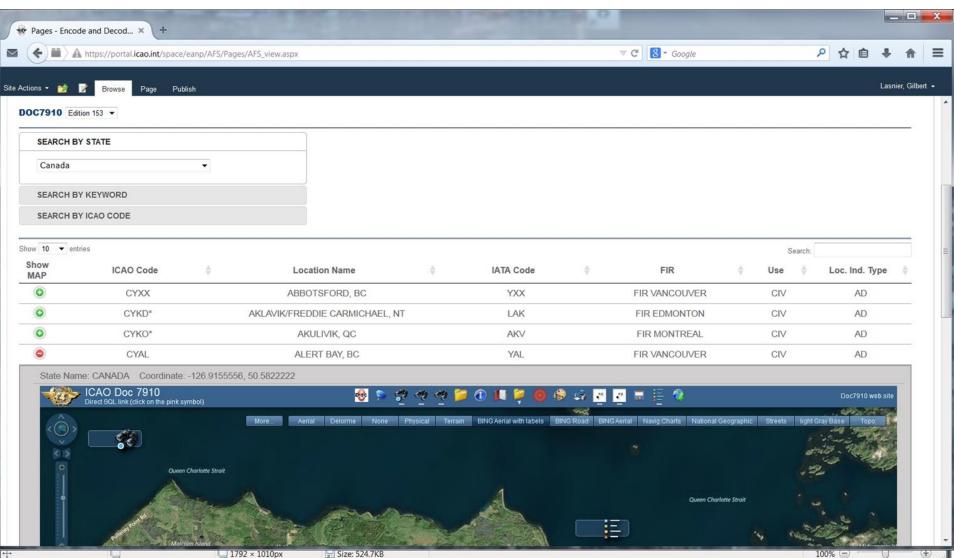
Map services
Feature services
Mobile Data Access
WMS
KML, WFS, WCS
Network Analysis
Demo



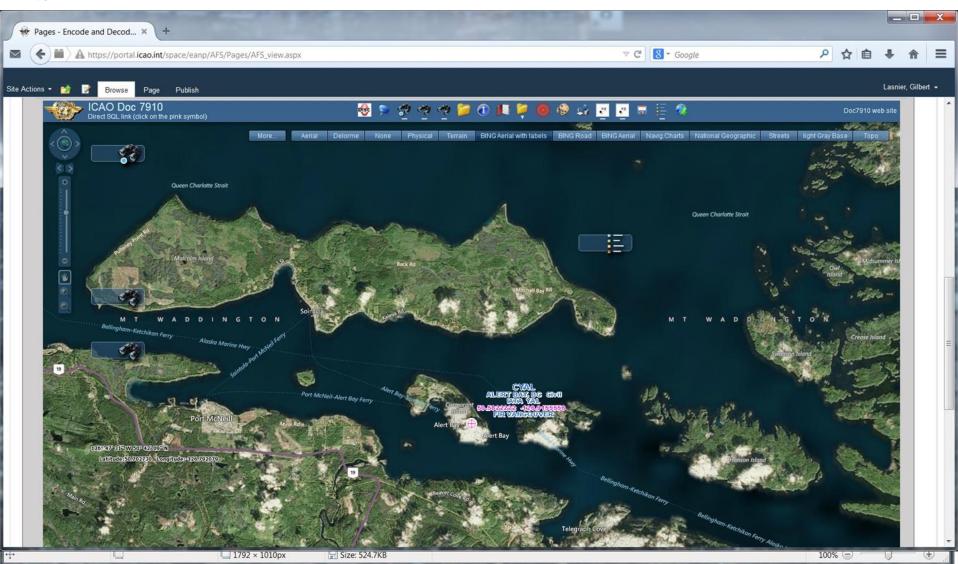
















Global Air Navigation Plan



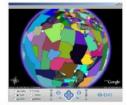


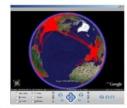










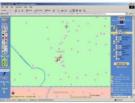


WEB-based ANP tables Editor Reports Amendments



ANP Tools supported by GIS and WEB print service

GIS Server



GIS Info



GIS Link

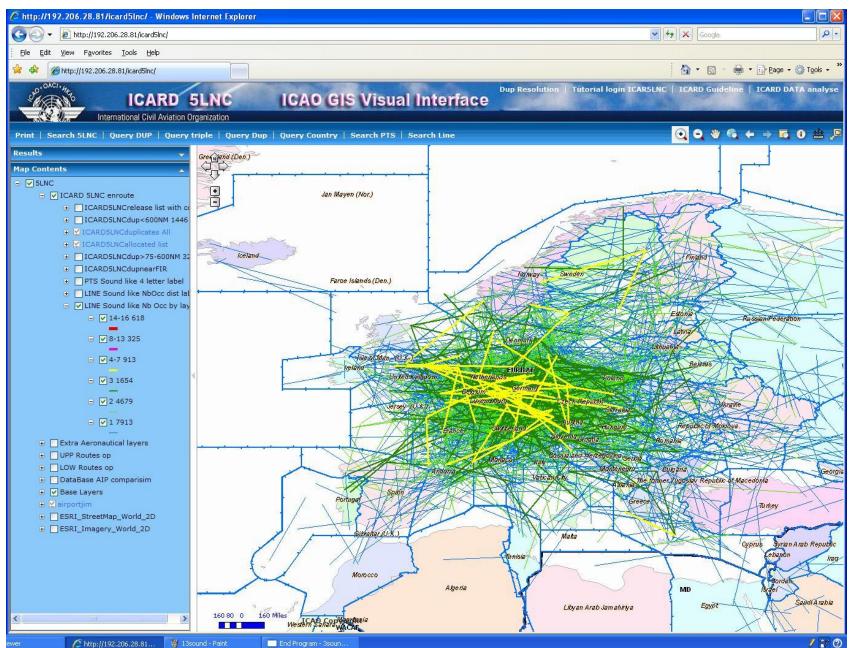




Type of GIS API

Dot net
Flash flex viewer
Silverlight viewer
SharePoint viewer
JavaScript html5
Google api
Open source api : D3 and etc...
Demo Live

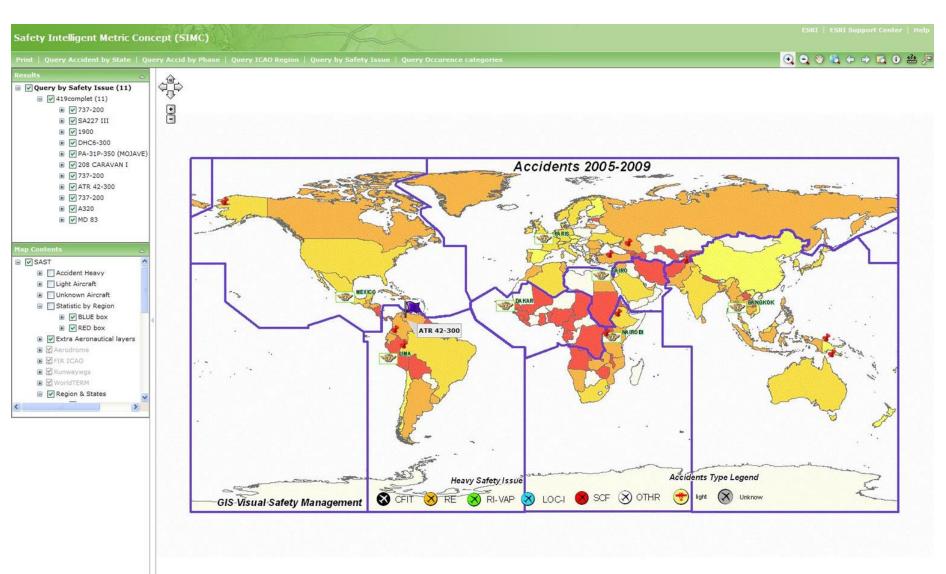




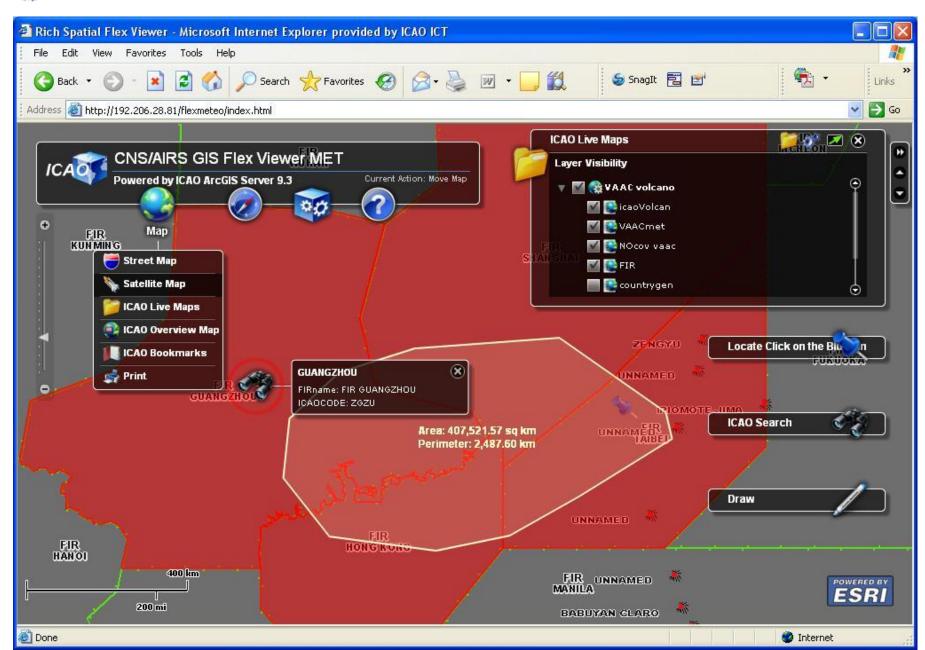


72962.50 725 Miles

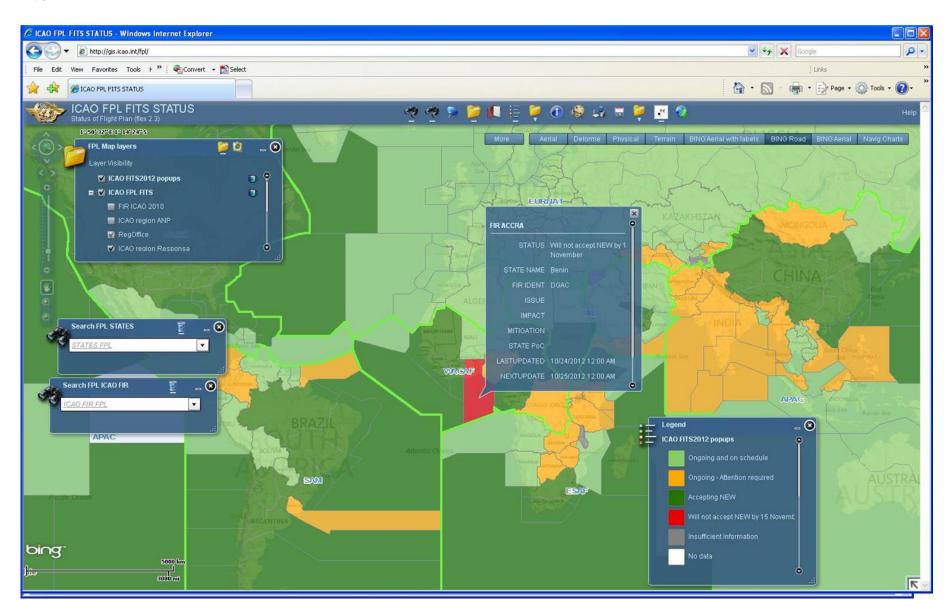
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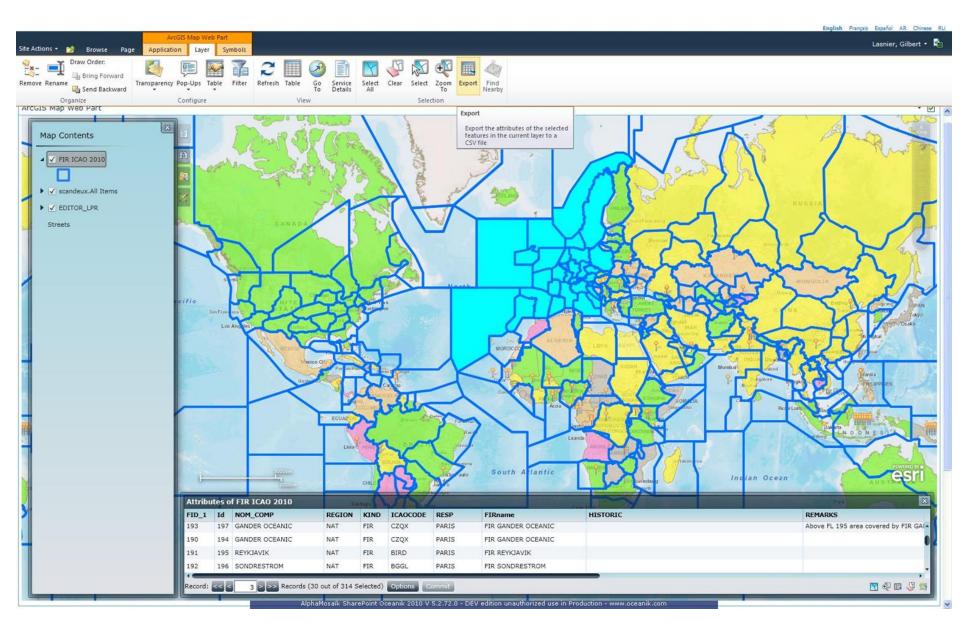








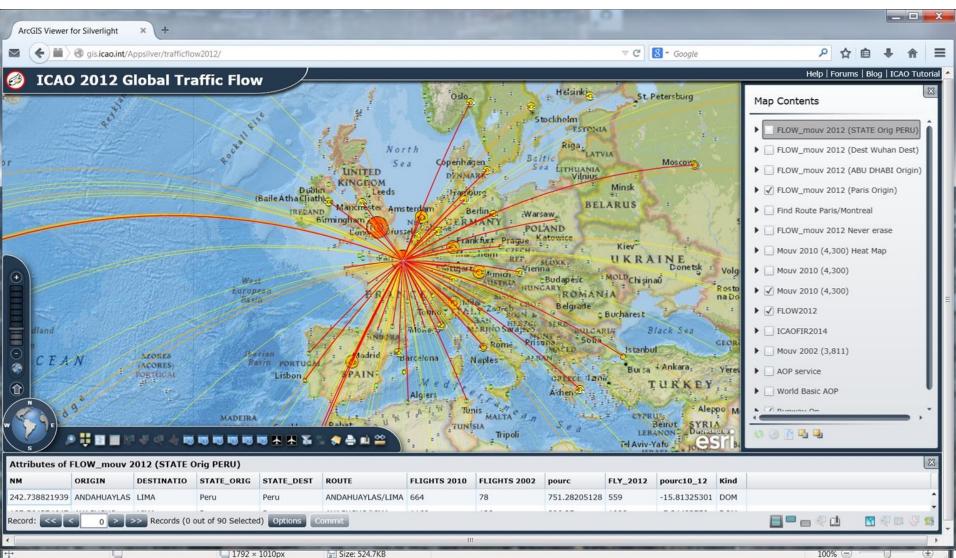




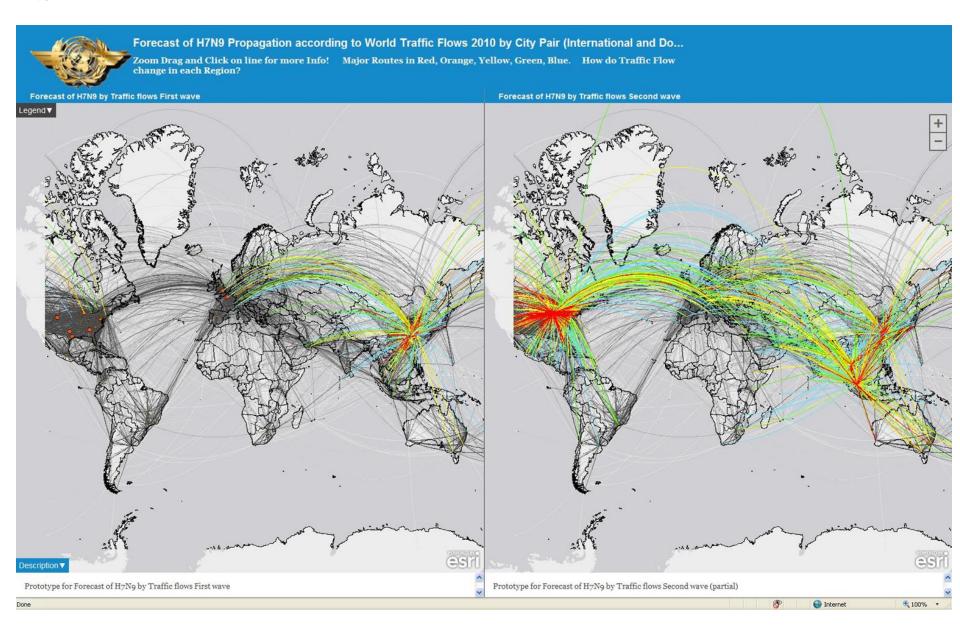




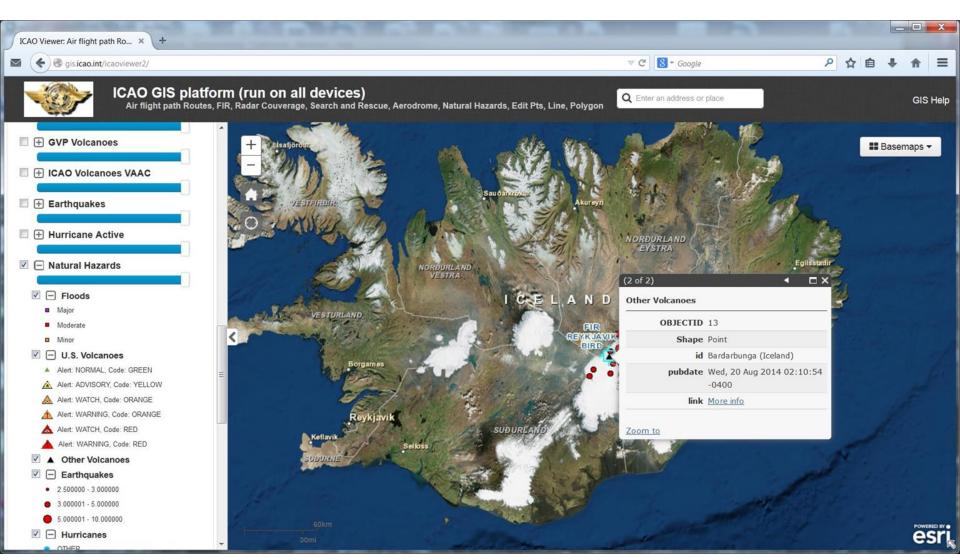










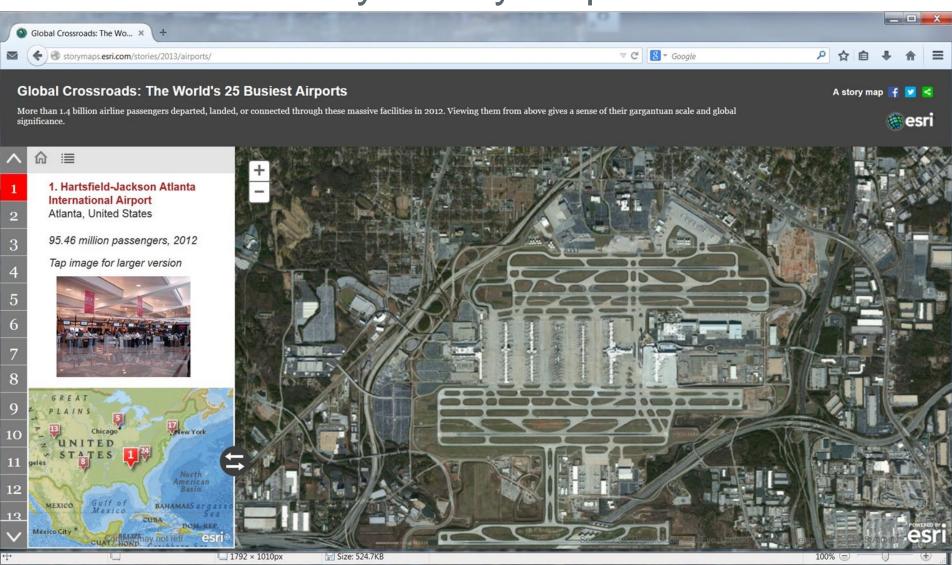


Overview of ArcGis Online

Cloud-based platform
make map, collaborate,
And share with others
Personal free account
Organization with subscription
Demo live

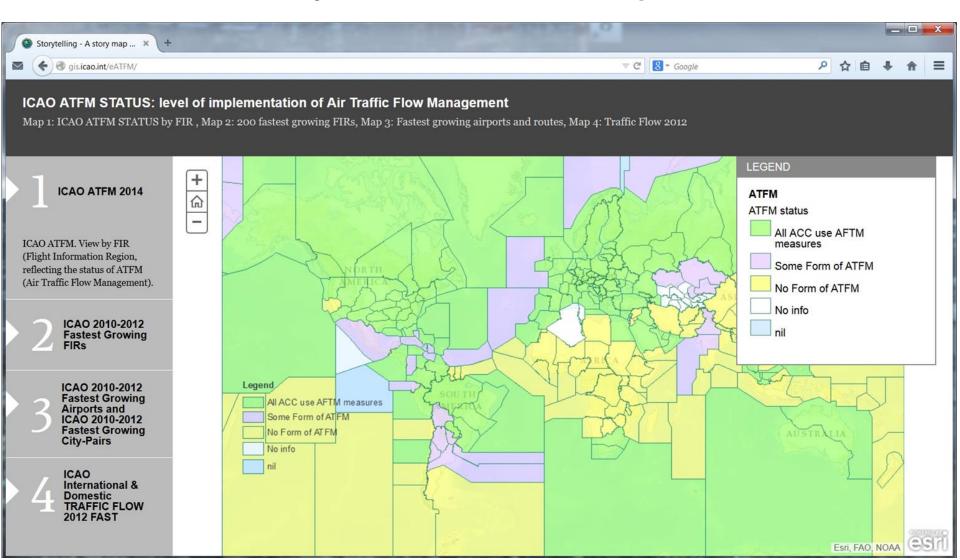


Style story map





Style Accordion map

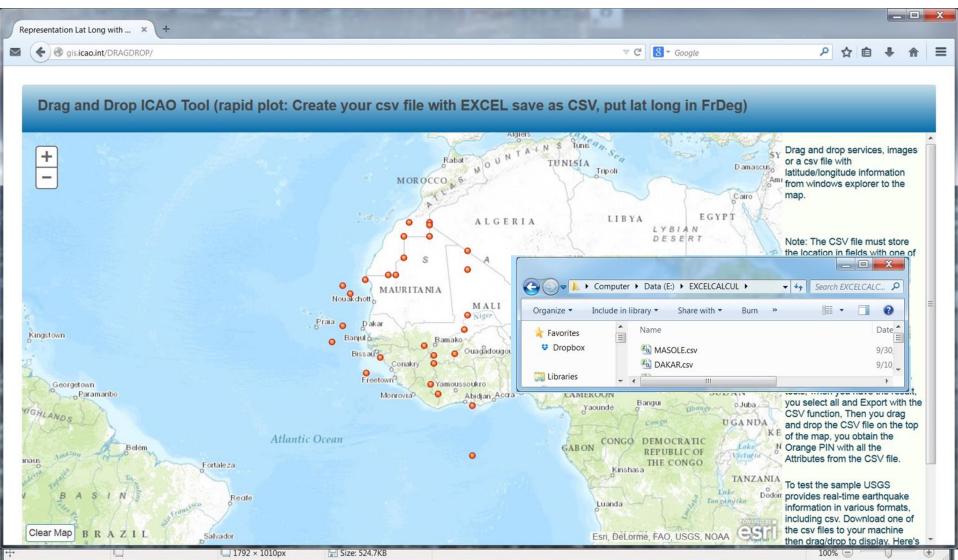




Style Accordion map

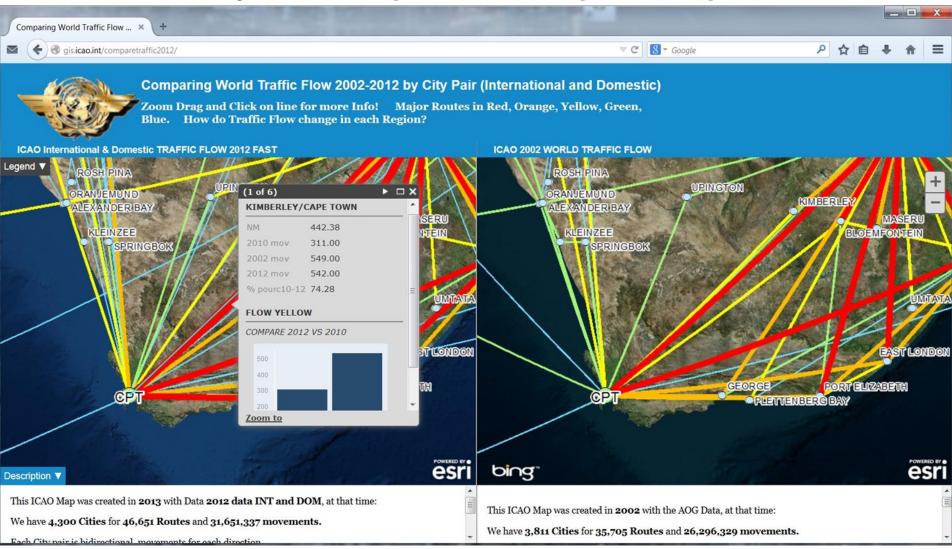






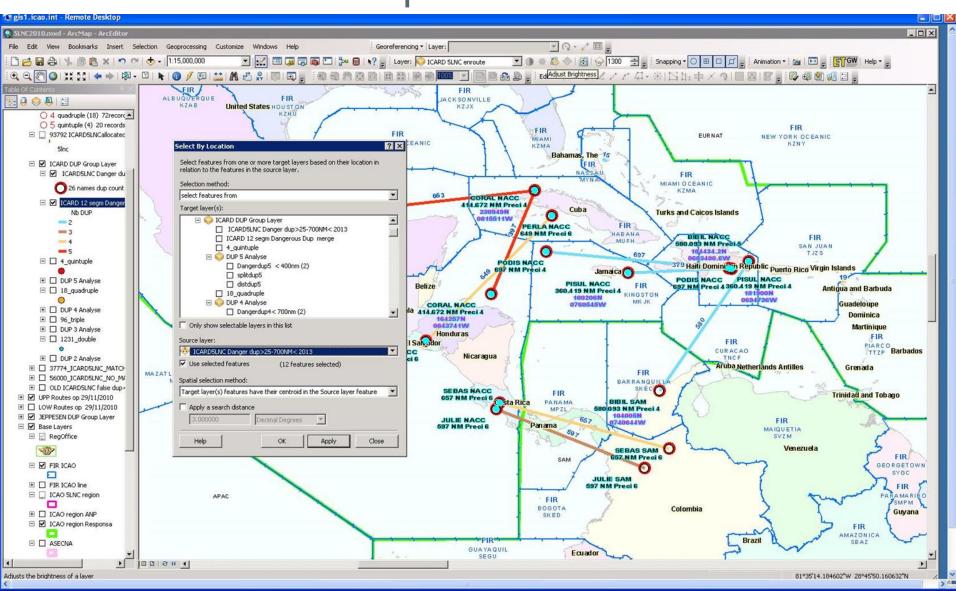


Style Compare multiple map



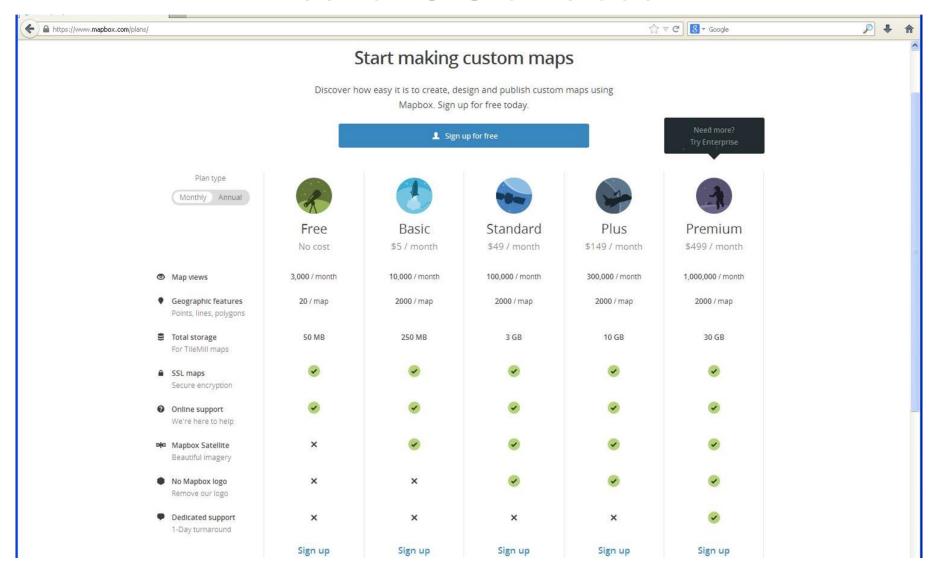


ArcGis desktop Editor creator tools



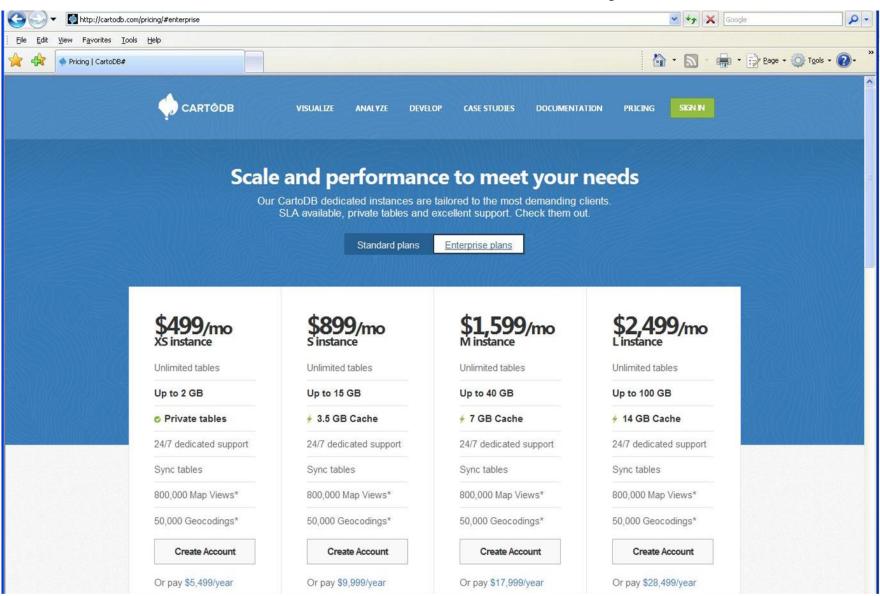


Price for GIS on cloud



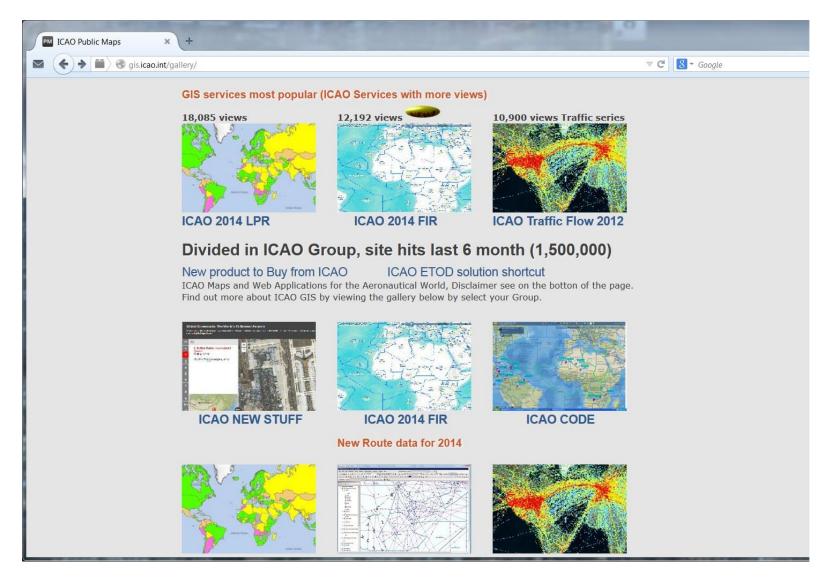


Price for GIS on cloud: 150GB = \$25,000/year for ICAO

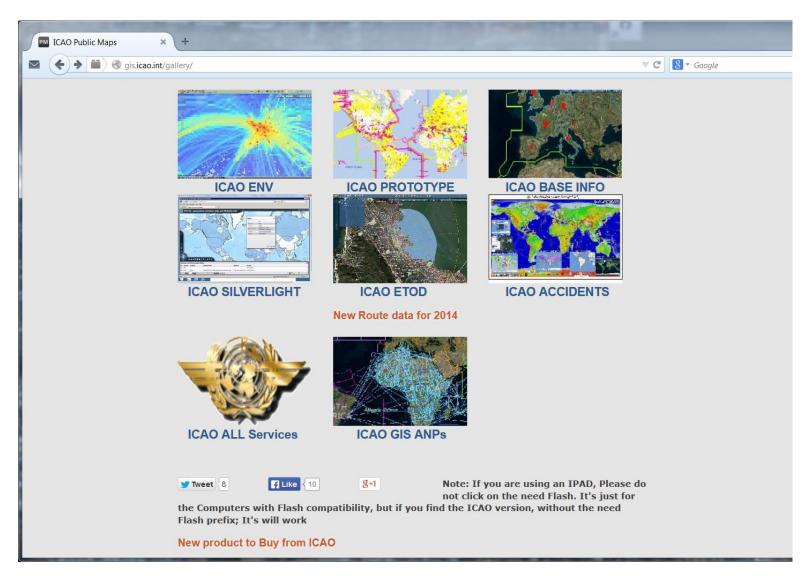


ICAO GIS Groups

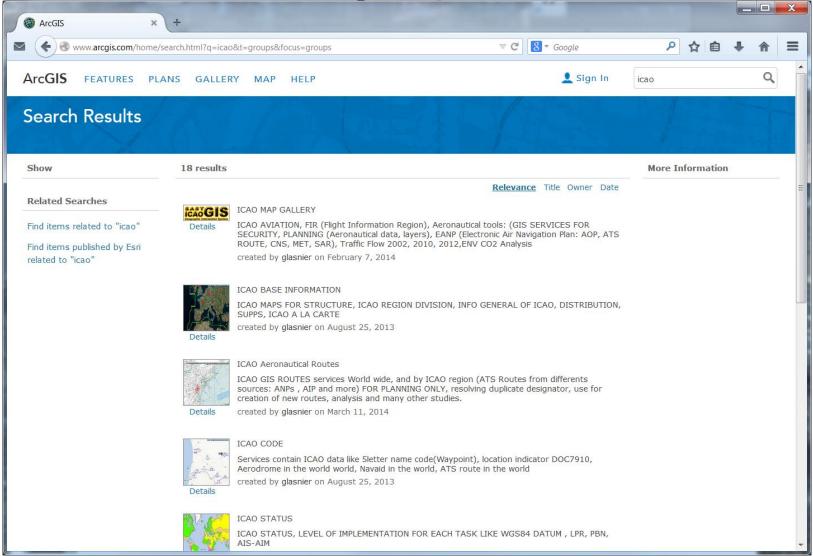
ICAO MAP GALLERY
ICAO BASE INFORMATION
ICAO CODE
ICAO STATUS
ICAO FIR
ICAO TRAFFIC FLOW
ICAO SILVERLIGHT
ICAO ENV
ICAO ETOD Demo
ICAO GIS ANPs
Demo live





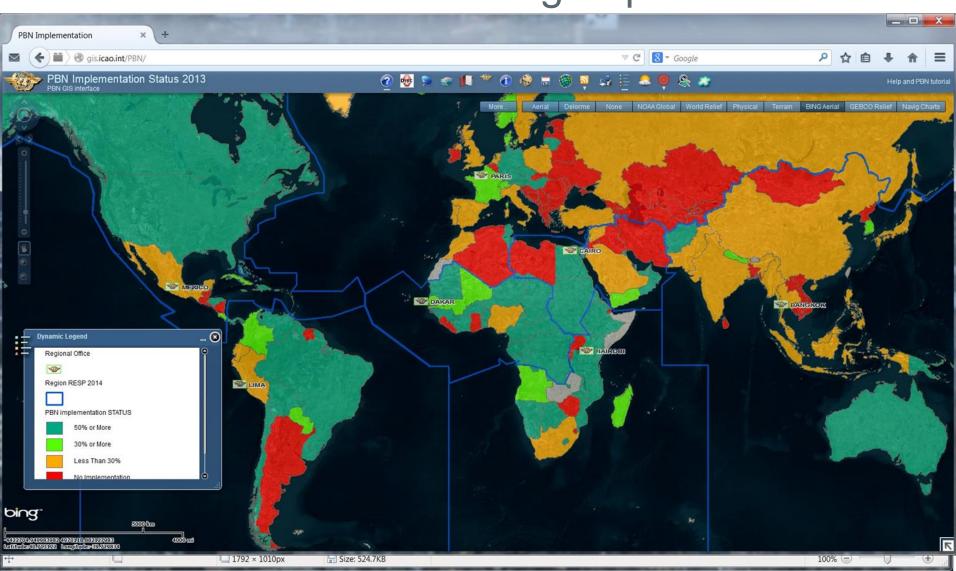


18 groups



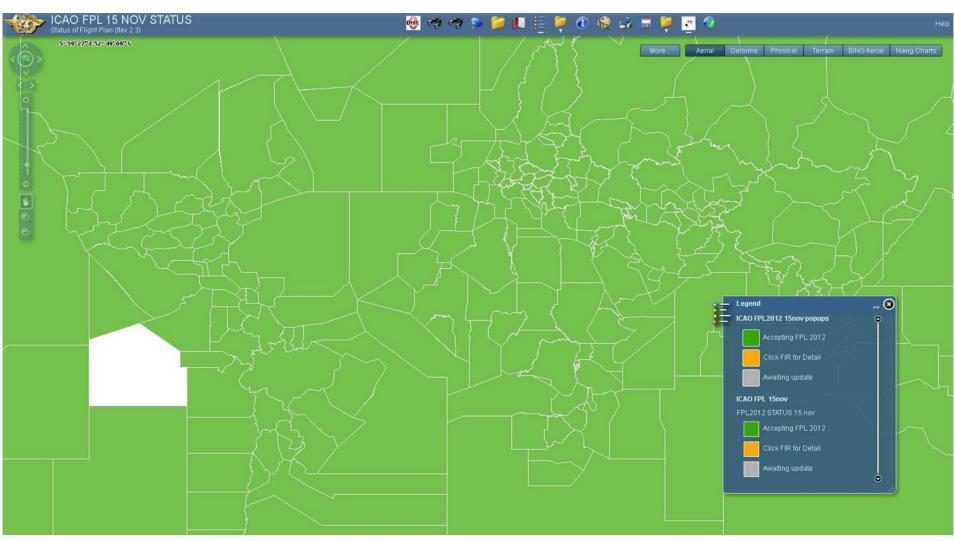


ICAO Status group



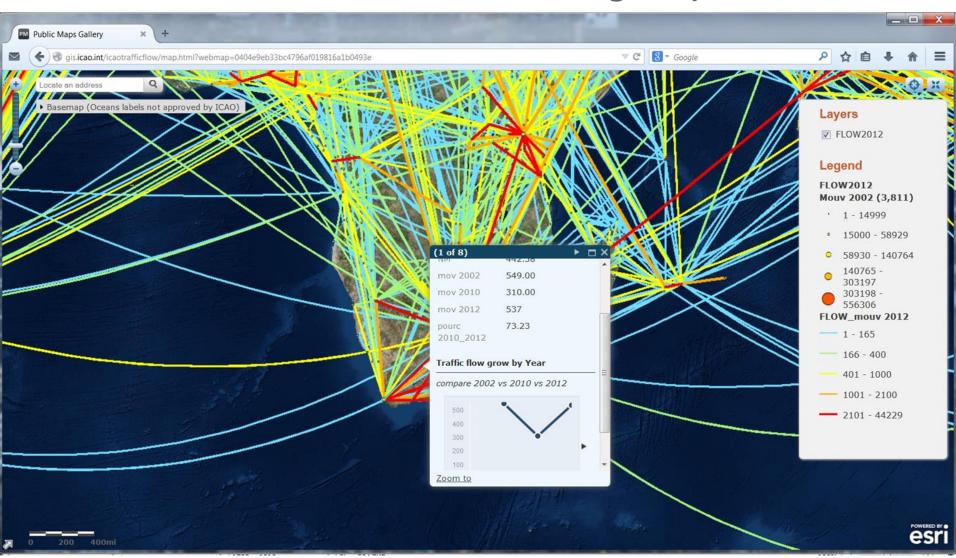


ICAO FLY PLAN status completed



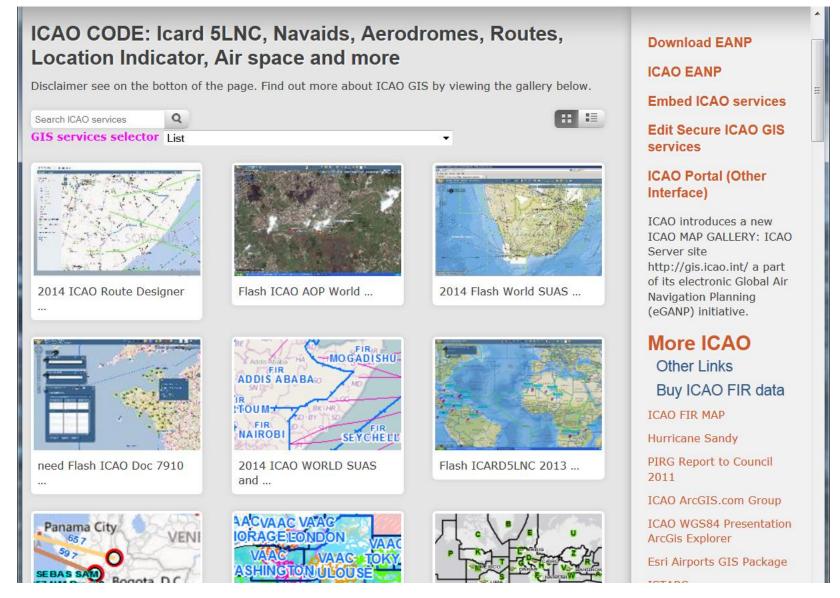


ICAO Traffic flow group



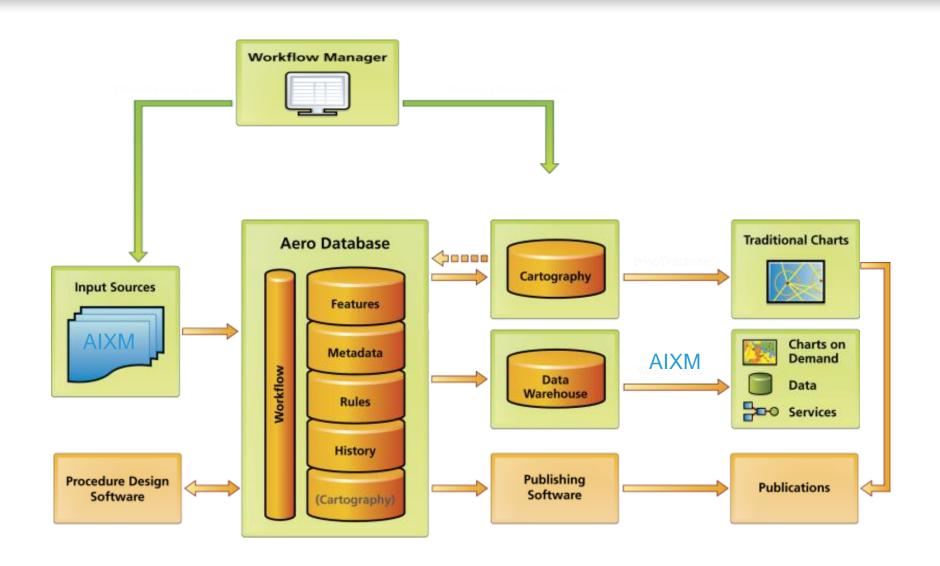


ICAO code group



ICAO GIS server analyse

Story about the Servers
Statistics on the last server
Number of Instances and app.
Capacity for GIS services
Cost for GIS Organization
GIS Cloud analyse



Relative Storage Cost-LAS vs GDB

One LAS file

LAS file (with attributes)
 44MB

Shapefile (geometry only)
 52MB

- PersonalGDB (geometry only) 40MB

FileGDB (geometry only)
 7MB

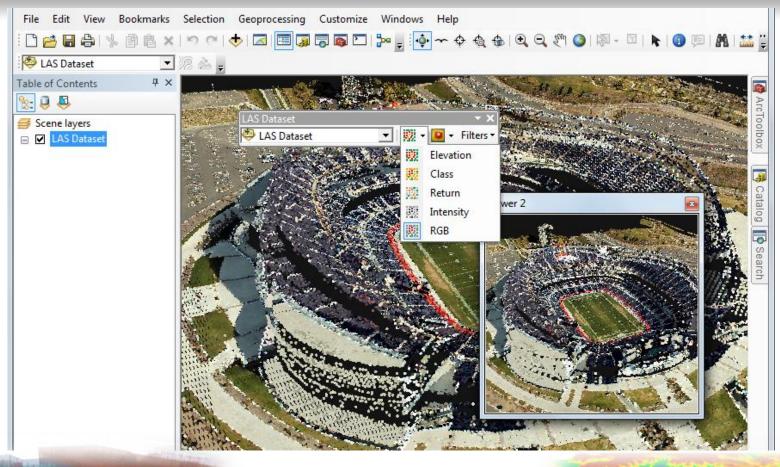
Project of many LAS files

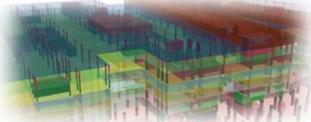
- 338 LAS files 12.5GB

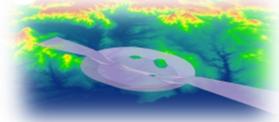
- Bare earth terrain dataset with embedded data

in FileGDB 1.3GB

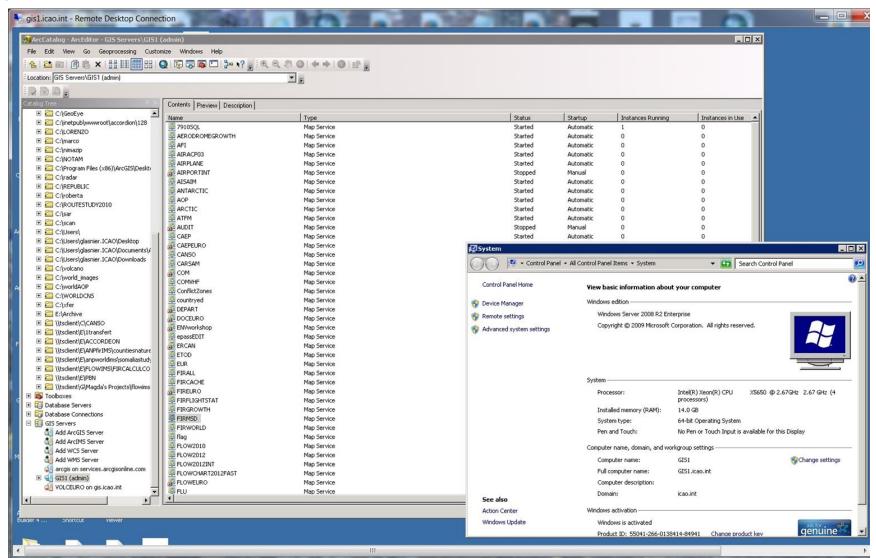
ICAO UNITING AVIATION



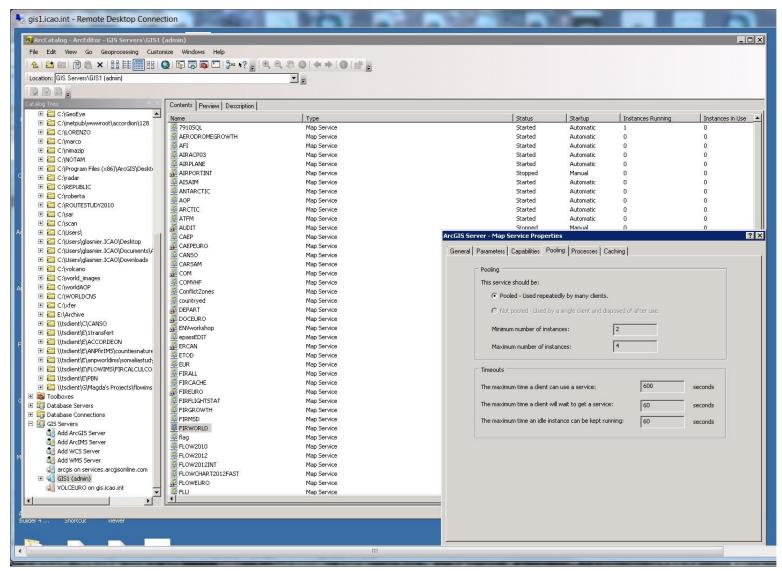




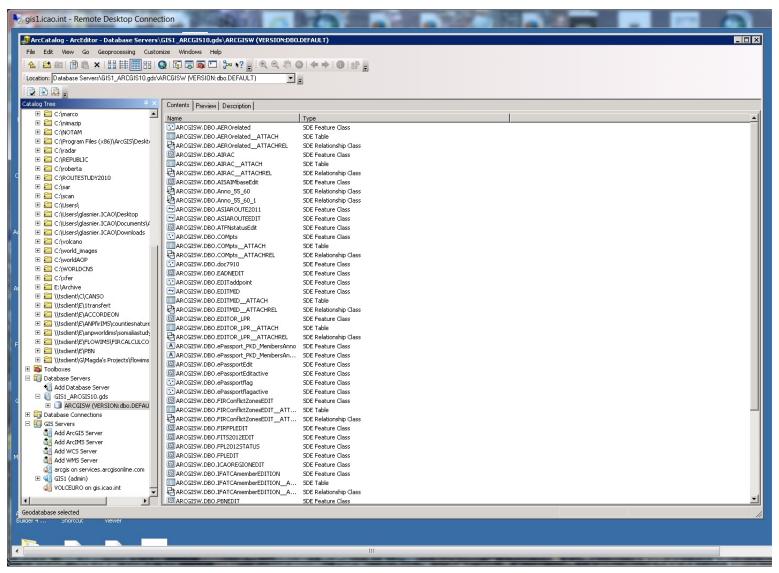




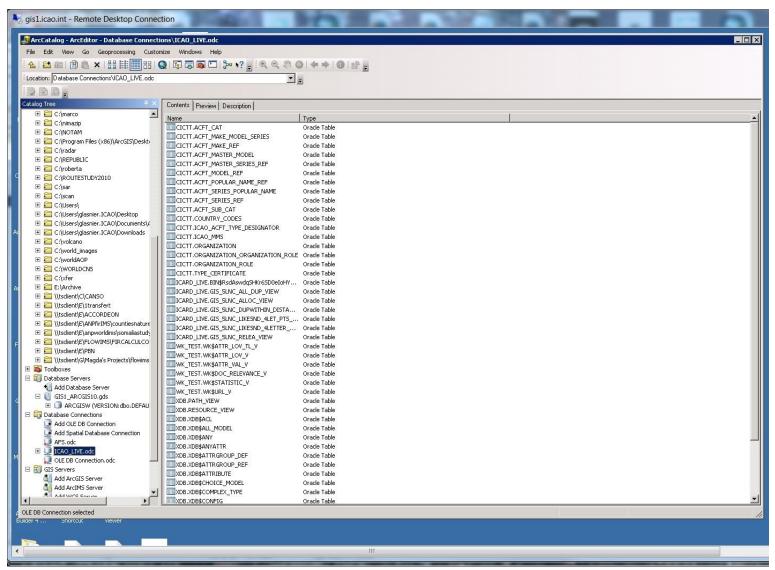




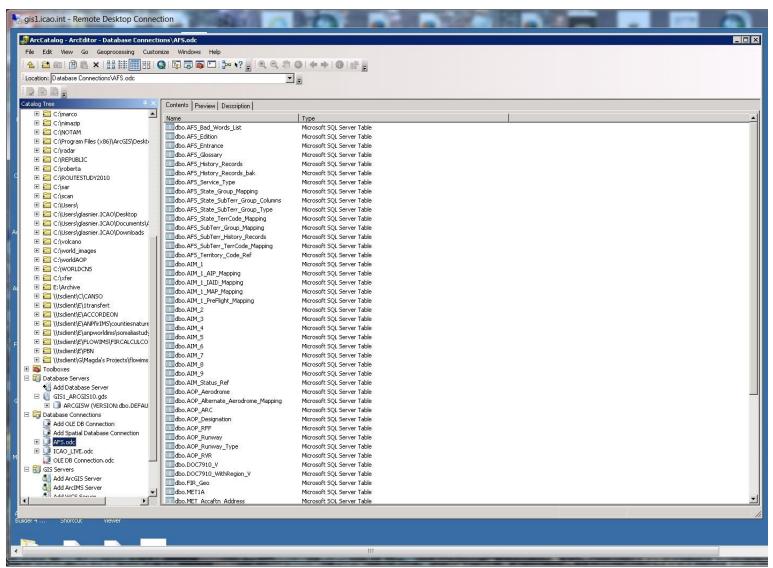




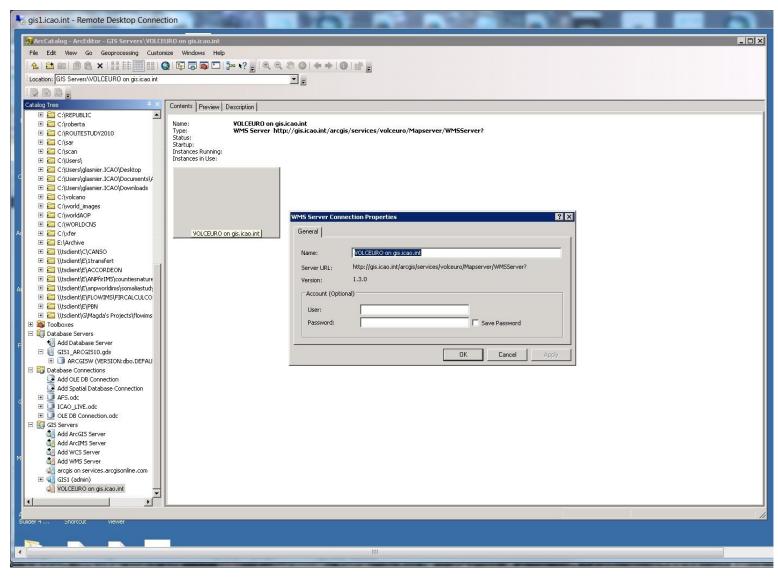




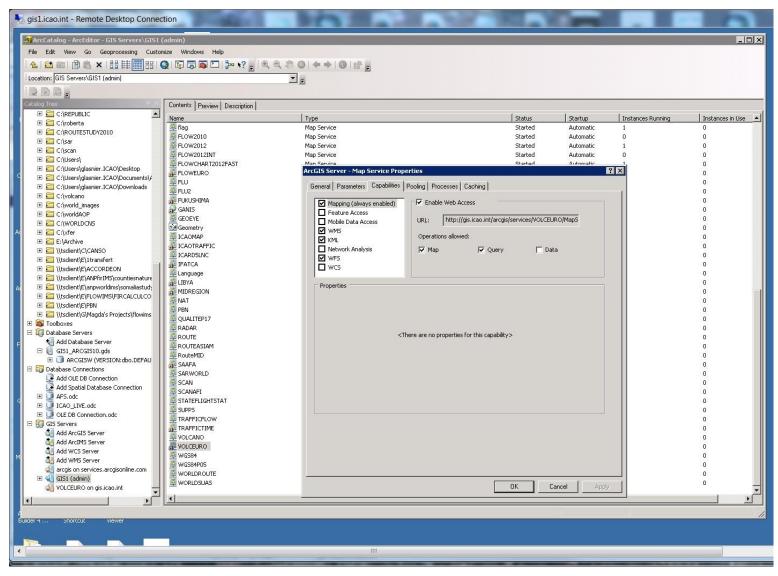




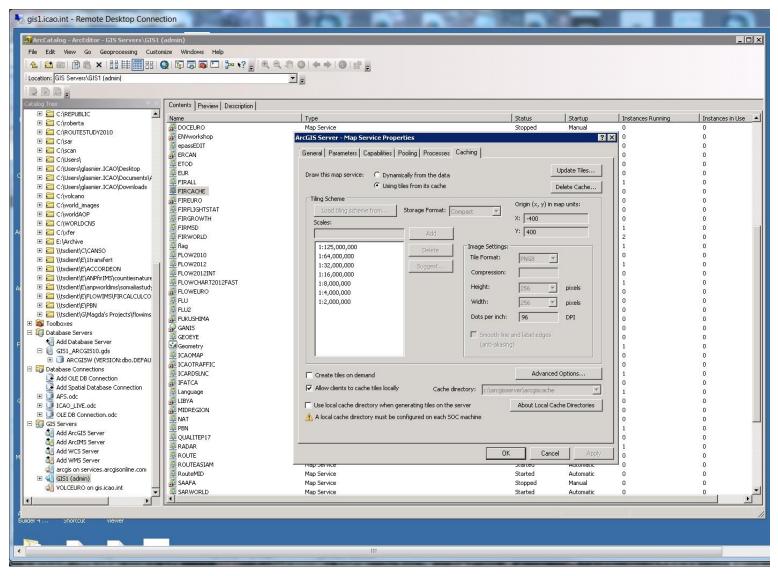




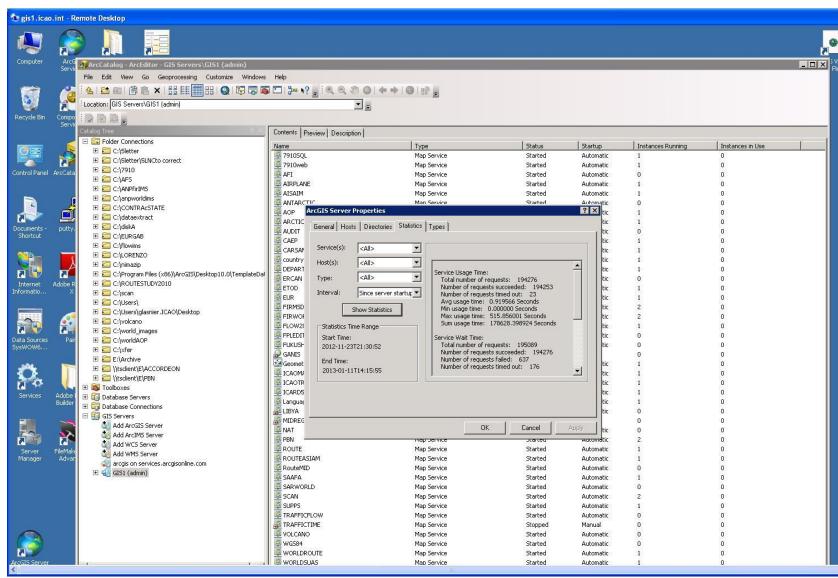




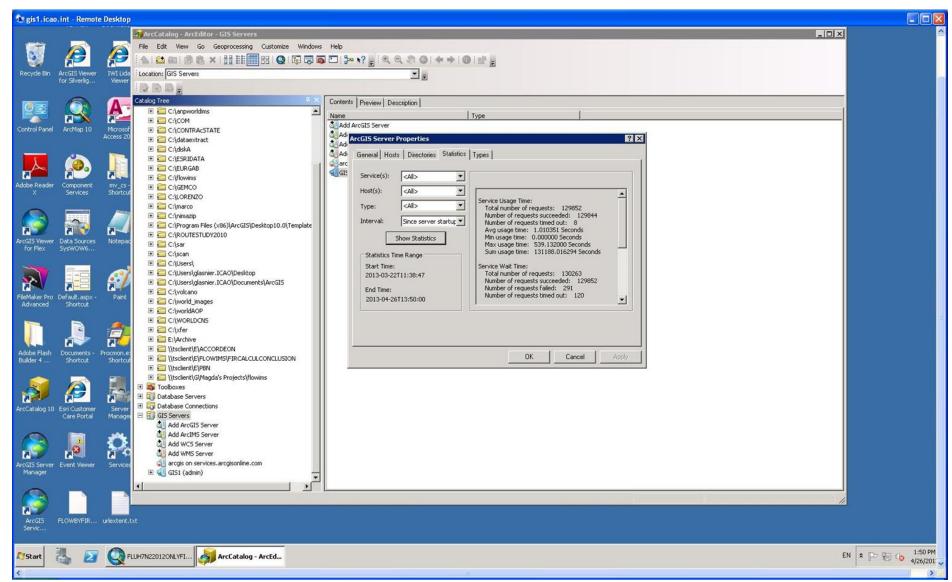




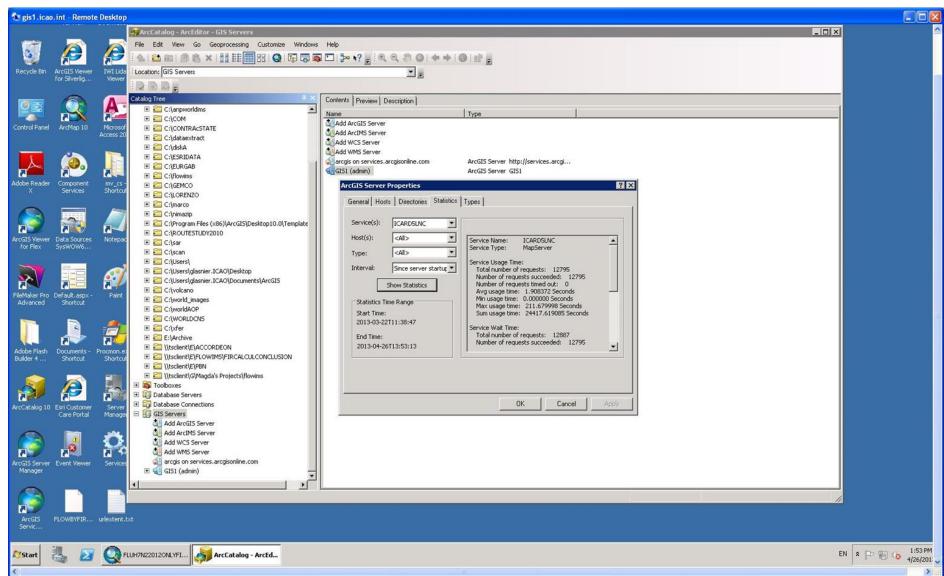












ICAO GIS Big Data ESRI UC 2014

Big Data and Analytics
Big Data and Analytics with ArcGis
Big Data and Analytics in Practice



CAO UNITING AVIATION

Big Data

600 - Big Data and Analytics: The Fundamentals

Speakers: Erik Hoel, Mark Janikas, Michael Park

We will present an overview of big data and analytic applications—this involves a discussion of common use cases, architectural patterns, and relevant technologies.

602 - Big Data and Analytics with ArcGIS

Speakers: Erik Hoel, Mark Janikas, Michael Park

This workshop is intended for people who have an understanding of the big data space—this includes common use cases and how solutions may be architected. We will discuss in greater depth the open-source GIS tools for Hadoop, as well as the technology that will be released as part of ArcGIS.

604 - Big Data and Analytics in Practice

Speakers: Mansour Raad

This tech session will be fast-paced. It will describe a cool, real-world problem, discuss some of the technologies used, followed by a discussion of how it was architected.

Top of Track

Top of Page

Geodatabase

608 - Automating Geodatabase Creation with Geoprocessing Tools

Speakers: Russell Brennan, Ian Wittenmyer

Topics discussed in this session will include creating model tools, creating script tools, how to organize your ModelBuilder environment for schema creation, using scripts to read information from tables, automating schema changes; pros and cons of various methods of schema creation.

621 - Geodatabase: An Introduction

Speakers: Jonathan Murphy, David Crawford

This session will explain what a geodatabase is and why you would want to

763 - Managing Your Distributed Geodatabase

Speakers: Gary MacDougall, Heather McCracken

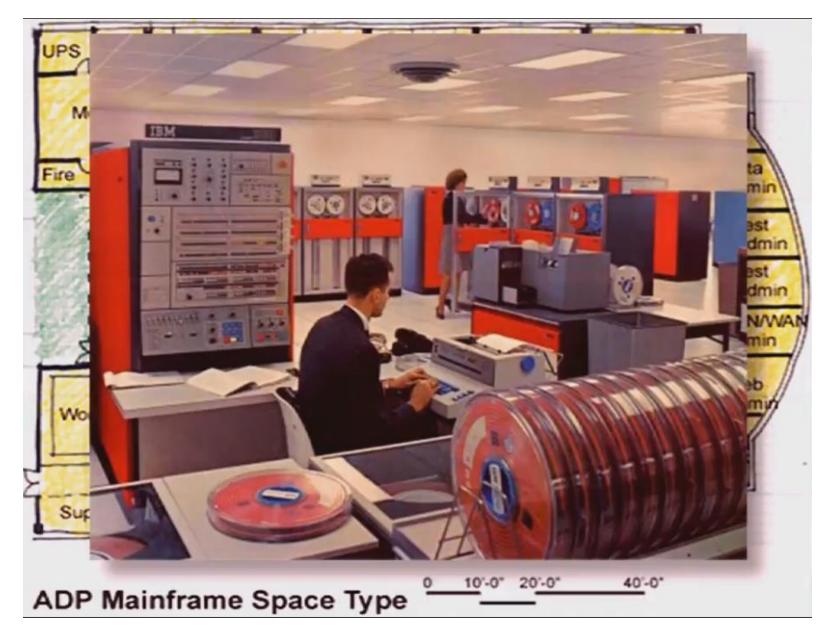
This session will describe data distribution techniques, focusing mainly on geodatabase replication. Geodatabase replication allows you to distribute copies of your data across two or more geodatabases. With geodatabase replication, you can edit the geodatabases independently and synchronize them as needed.

764 - Topology in The Geodatabase: An Introduction

Speakers: Erik Hoel, Colin Zwicker

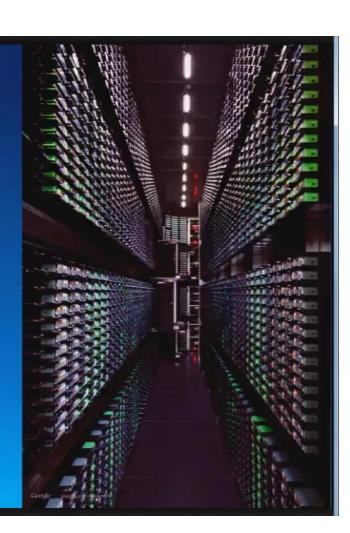
This session will describe how topologies in the geodatabase are defined and



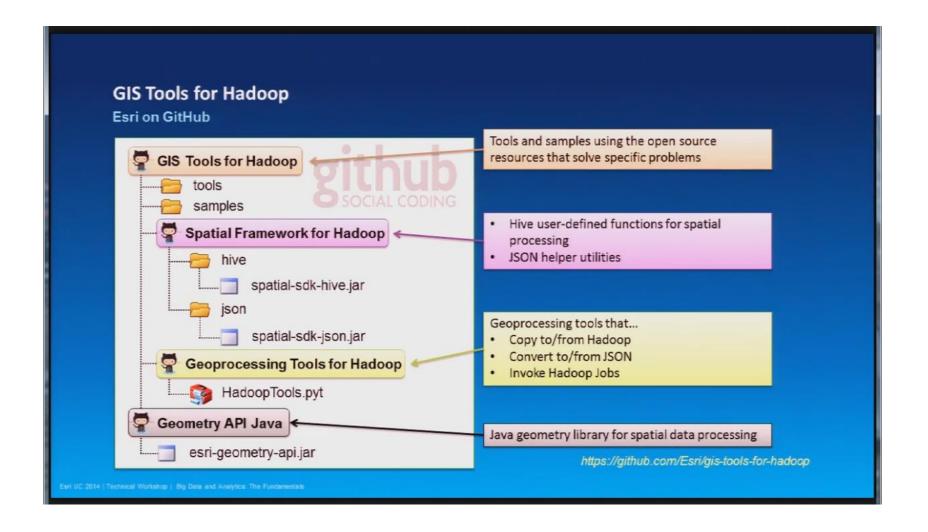


Until Now...

- Google implemented their enterprise on a distributed network of many nodes, fusing storage and processing into each node
- Hadoop and HDFS are open source implementations of the framework that Google has built their business around for many years



Earl UC 2014 | Technical Workshop | Itig Date Using ArcGS with Apache Hadao









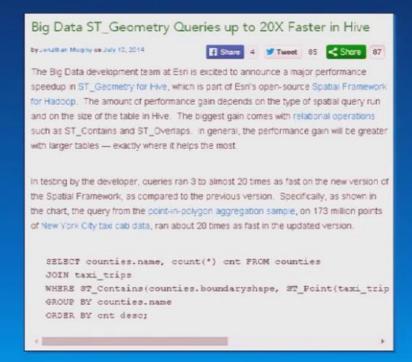






GIS Tools for Hadoop 2.0

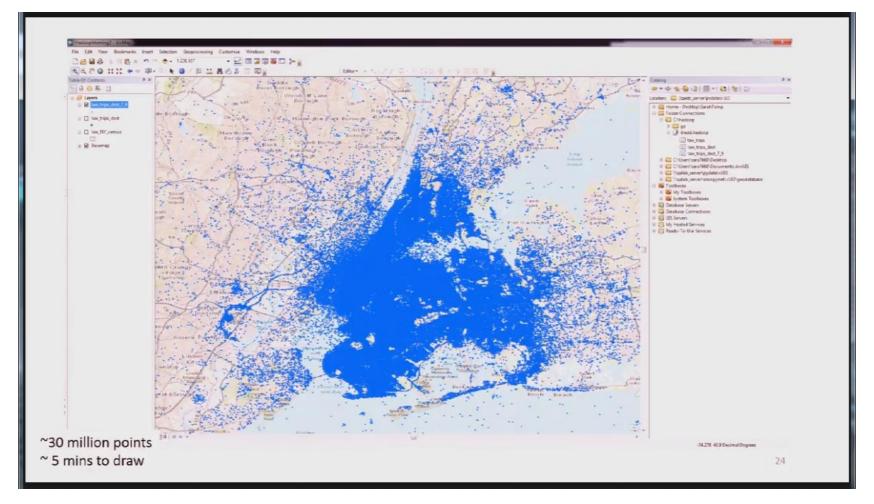
- Significant improvements in performance of certain types of Hive queries
 - Point in polygon aggregation query takes
 4 minutes on 175 million points
 - Previously took 75 minutes



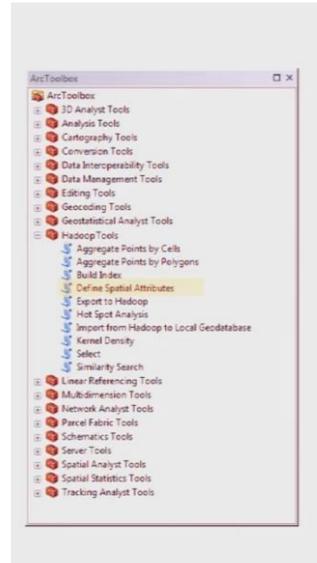
http://blogs.esri.com/esri/arcgis/2014/07/10/big-data-st_geometry-queries-up-to-20x-faster-in-hive/

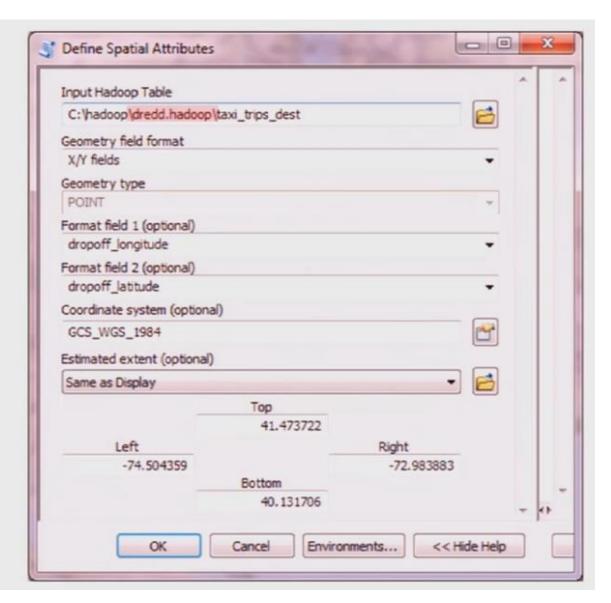


170 million records of NYC taxi from 2013
Each record contains:
Pickup and drop-off location (lat, long)
Pickup and drop-off time, Passenger count
Distance and time travelled

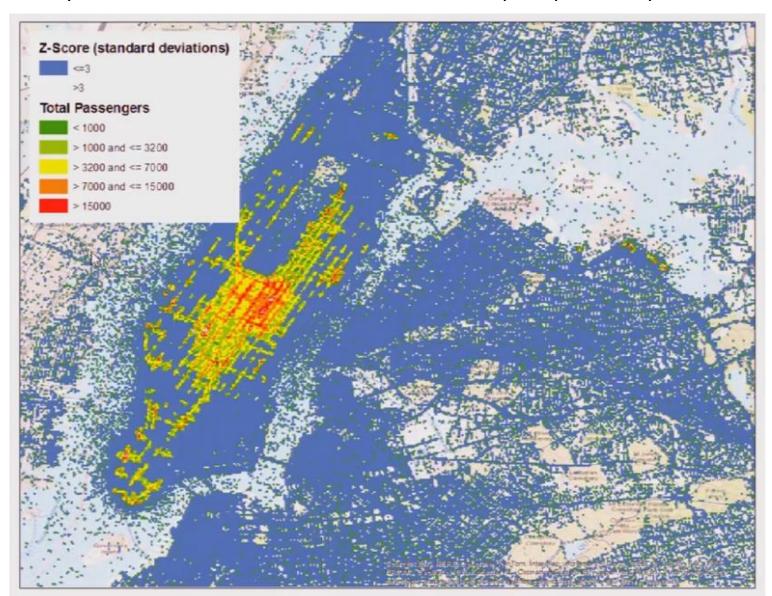








GIS Analyst to determine the best shuttle route, best pickup and drop-off location





Conclusions:

There are ~21 million taxis arriving at their drop-off between 5 and 7 pm 2013 Most of these taxis are arriving in Manhatan

We are in LaGardia

We determined that one of the most popular pickup for taxis heading to Le Gardia is from the Manhattam Cruise Terminal to LaGardia Without Hadoop and Arcgis capabilities, the shuttle company would not have been able to mine this data to determine a shuttle route

www.esriurl.com/spatialstats

Spatial Statistics Resources

by Irosenshein on July 13, 2010

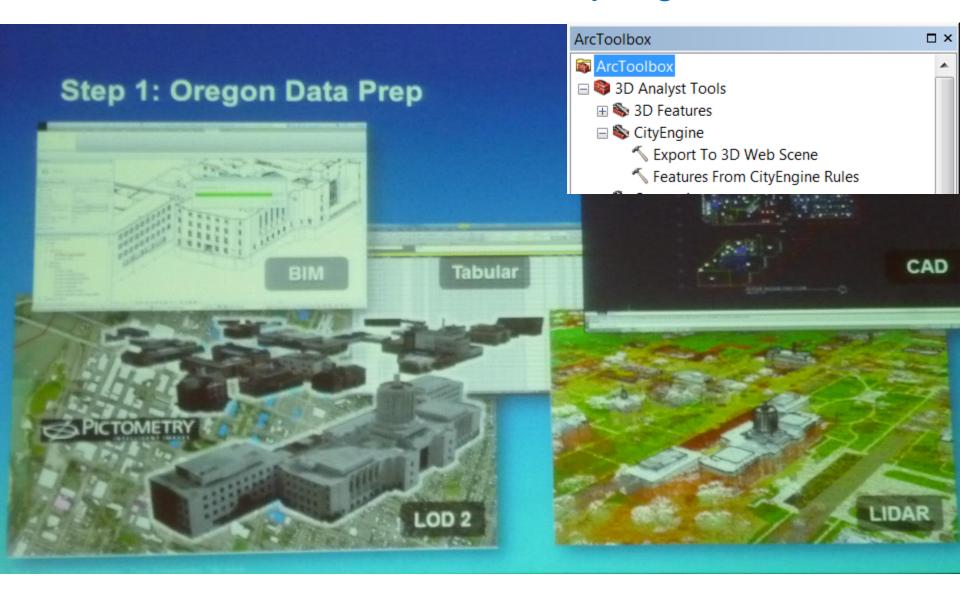
The Spatial Statistics toolbox contains statistical tools for analyzing spatial distributions, paramy be similarities between spatial and non-spatial (traditional) statistics in terms of concern that they were developed specifically for use with geographic data. Unlike traditional non (proximity, area, connectivity, and/or other spatial relationships) directly into their mathem

There are a ton of resources about using and understanding Spatial Statistics, and here

that are property to the state of the state

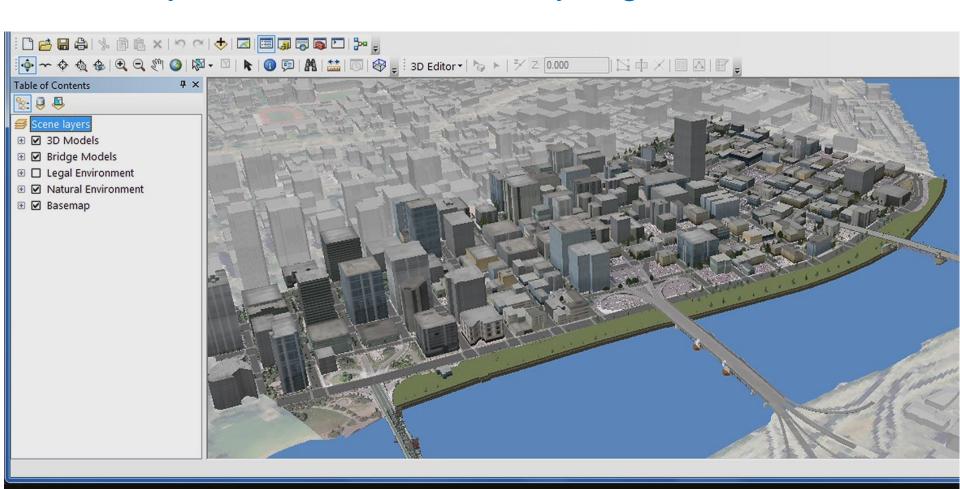


Photo from UC2014 CityEngine





3Dcityscene ArcScene to CityEngine Web Viewer



Portland 3D



Geographic information systems invade big data

By Drew Robb - Tech Page One Jul 28 2014

Shar









Geographic information systems (GIS), which are best known for their mapping functions, are invading big data. These systems have reached new levels through their ability to provide locational context to vast pools of information.

GIS can now isolate patterns, adjust strategies and pinpoint the biggest opportunities for businesses.

"Much of the discussion on big data is focusing on volume — the hours of video on the Web, social media interactions — but the challenge is to present the ocean of data as a pool of useful facts," said Simon Thompson, director of commercial solutions at GIS vendor Esri. "GIS is a natural way to connect data, control its size and make it more relevant and usable."



The biggest users of GIS so far have been government planners and policy makers, said Matt Felton, president of Datastory

Businesses such as Shell, General Motors, Walmart, Starbucks and Nike are now using this potent technological combo better to understand customer behavior and align marketing campaigns to buying patterns.

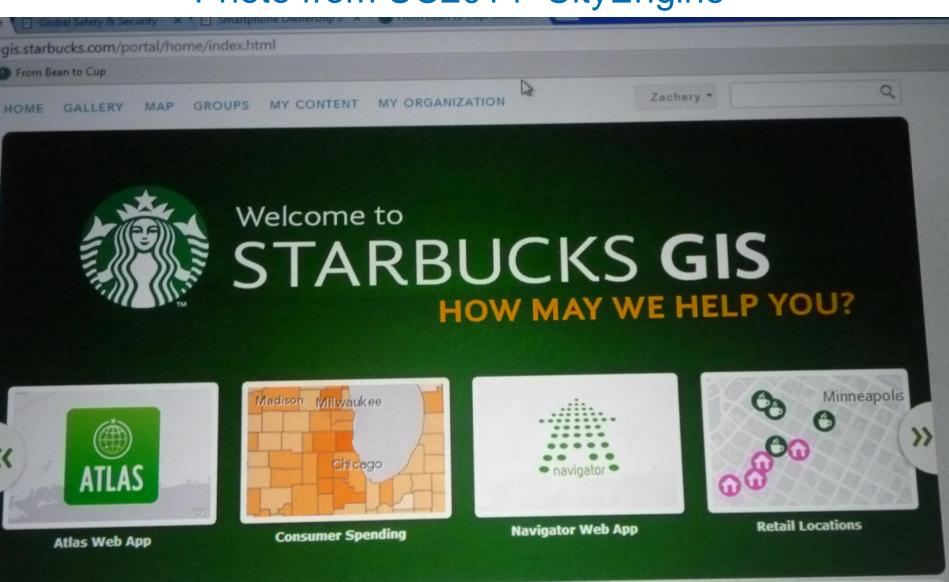
GIS can convert data into maps, which makes it easier to visualize trends than via a spreadsheet. "Geography is one of the most natural, logical and intuitive ways to discover, visualize, overlay, compare, slice, sort and apply big data to a problem," said Thompson.

But it's telecommunications companies that have been making the most significant use of GIS. Paul Ramsey, vice president, product management, at open-source geospatial software and services vendor Boundless, said that geographic locations have become a key element in analyzing new data streams because mobile devices are constantly changing positions. This has required companies to look with increasing scrutiny at where consumers are downloading information and photos and making purchases.

"GIS used to be about the analysis of relatively static institutional data, but new data streams mean that today's GIS problems look very much the same as today's big data problems: extract meaningful information from a fire hose of inputs," said Ramsey.



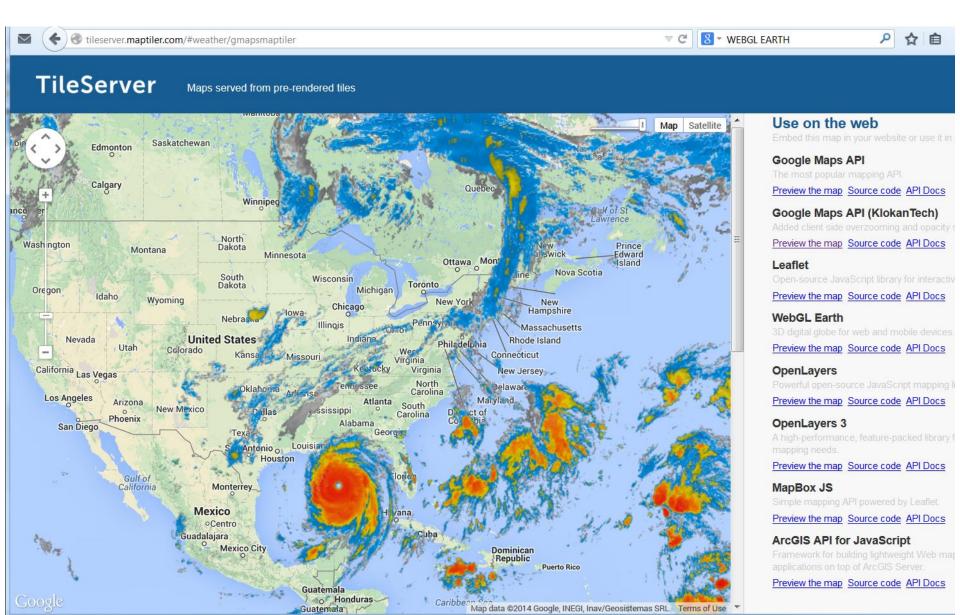
Photo from UC2014 CityEngine















A high-performance, feature-packed library for all your mapping needs.

ALATEST

OpenLayers 3.0 is here! Check out the docs and the examples to get started. The full distribution can be downloaded from the v3.0.0 release page.

If you've come here looking for OpenLayers 2.x information, you'll find everything you need on the 2.x page.

FEATURES

Tiled Layers

Pull tiles from OSM, Bing, MapBox, Stamen, MapQuest, and any other XYZ source you can find. OGC mapping services and untiled layers also supported.



Vector Layers

Render vector data from GeoJSON, TopoJSON, KML, GML, and a growing number of other formats.



Fast & Mobile Ready

Mobile support out of the box. Build lightweight custom profiles with just the components you need.

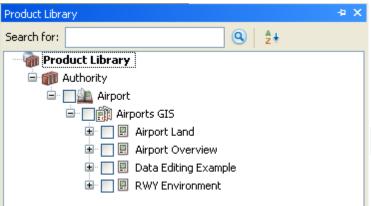


Cutting Edge & Easy to Customize

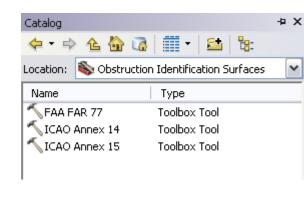
Map rendering leverages WebGL, Canvas 2D, and all the latest greatness from HTML5. Style your map controls with straightforward CSS.



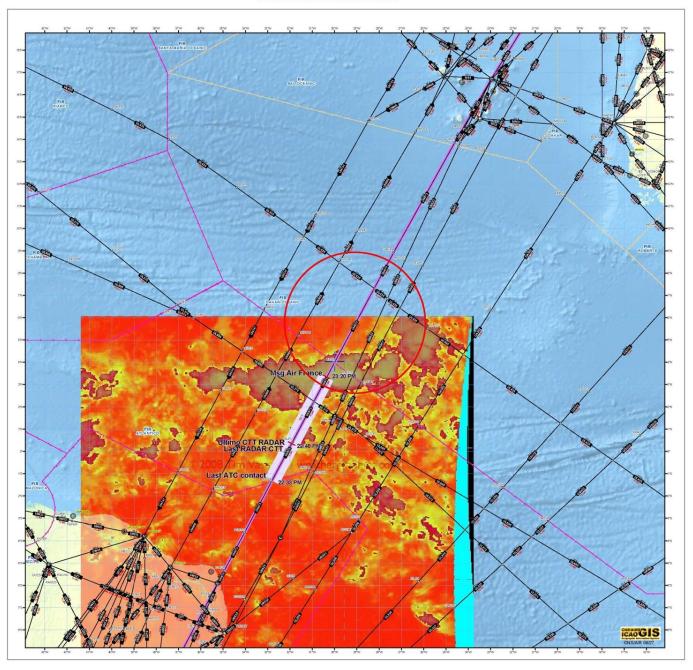
Overview of ICAO works: Aviation Accidents with GIS and tools

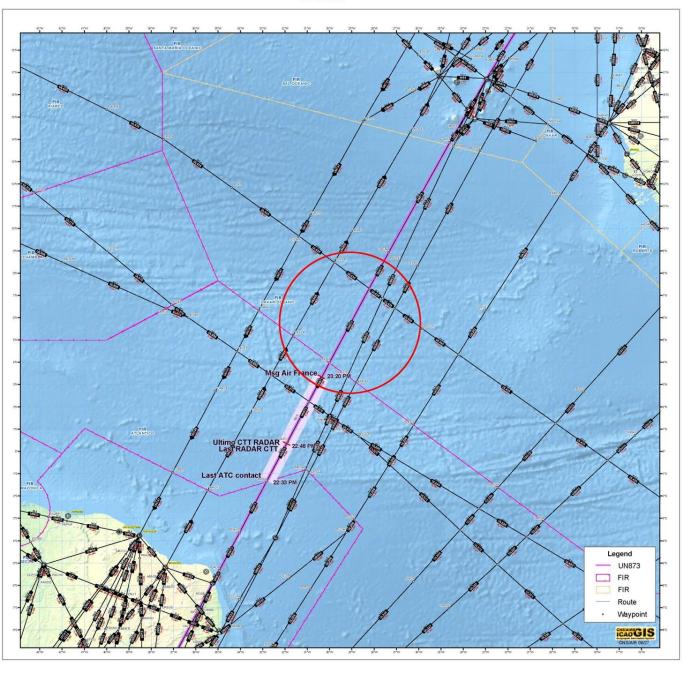


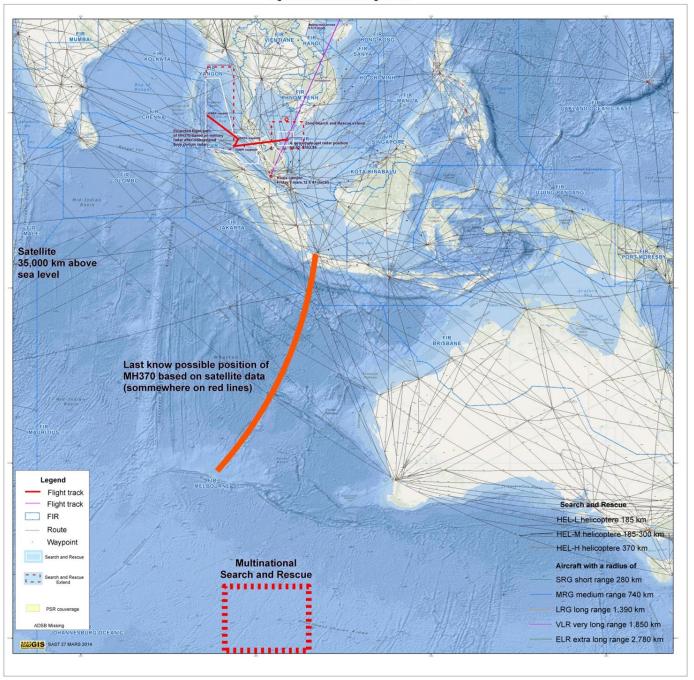
AF447
MH370
Network analyst
Model Builder

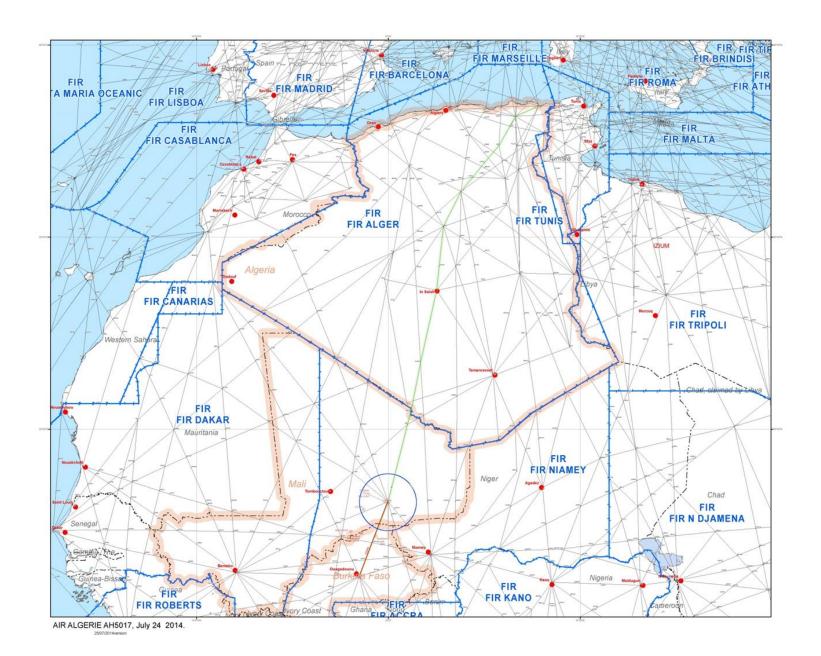


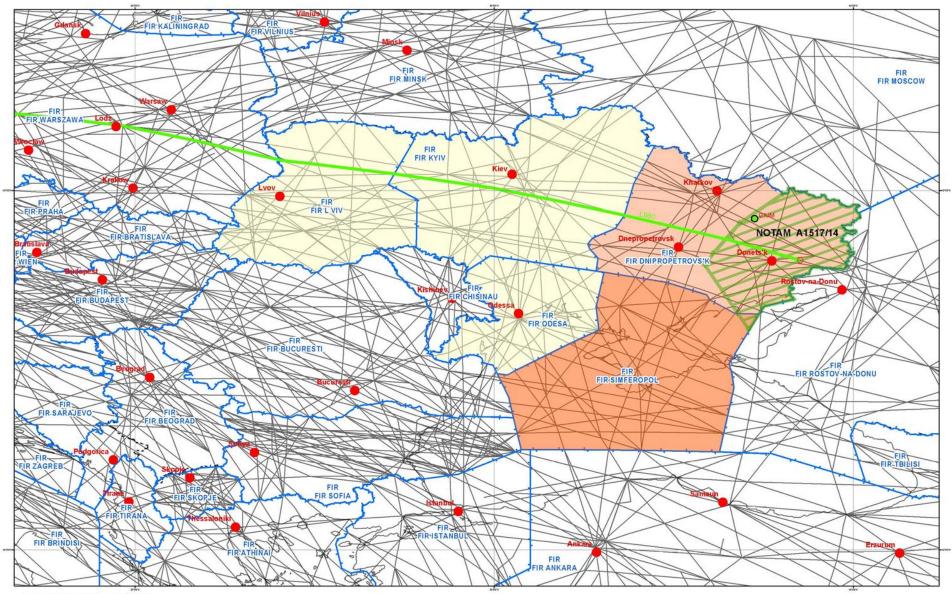
Contingency and usual work like EBOLA, Volcanoes, Conflicts





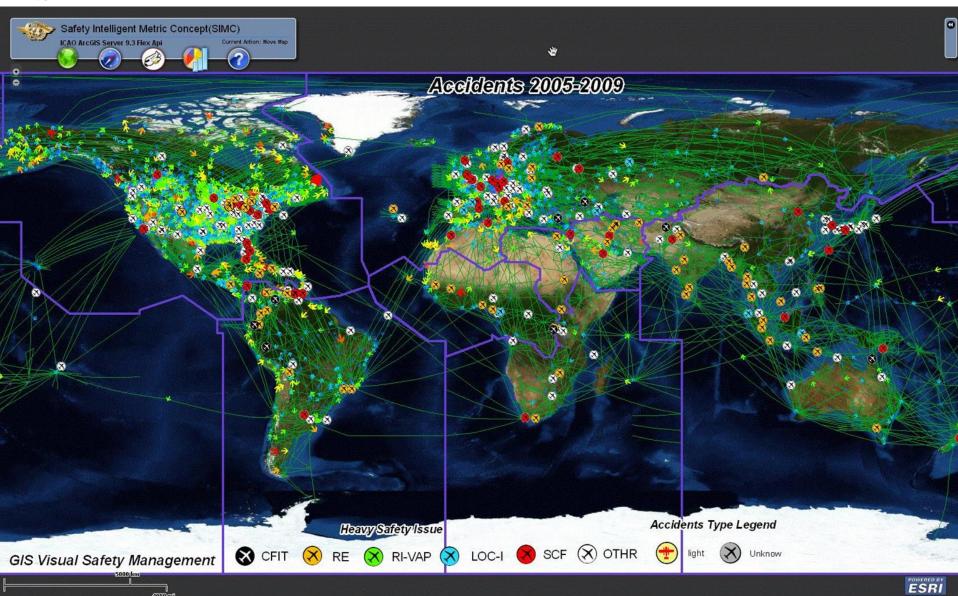




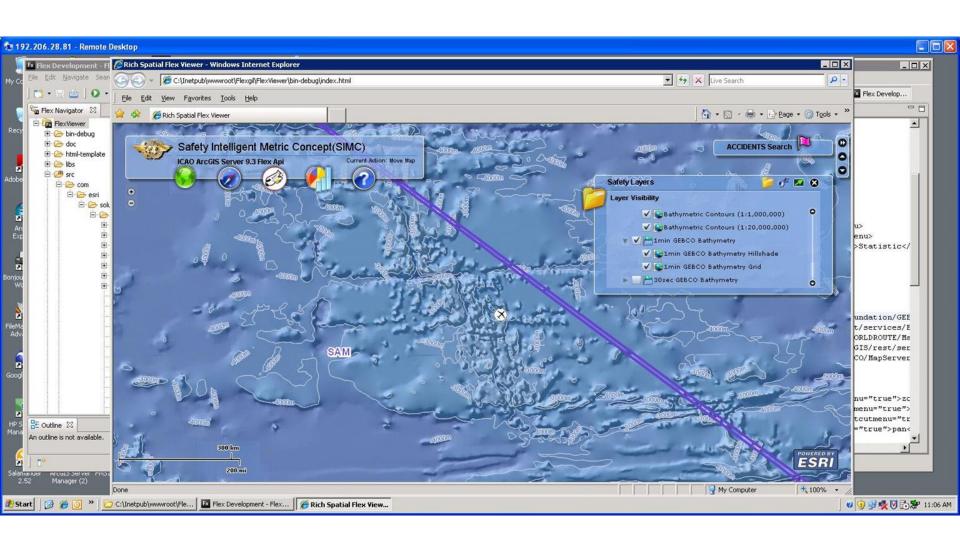


Malaysia Airline MH17, July 17 2014.



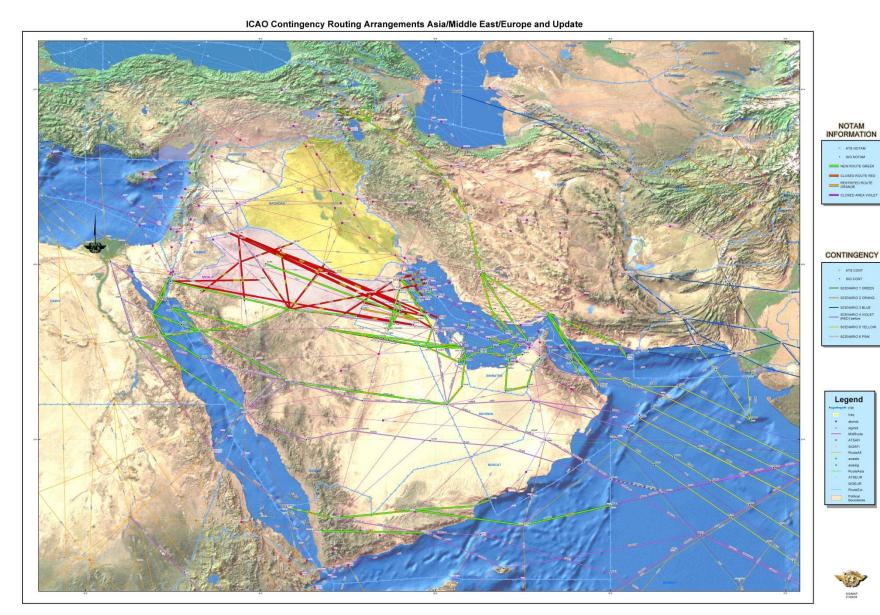








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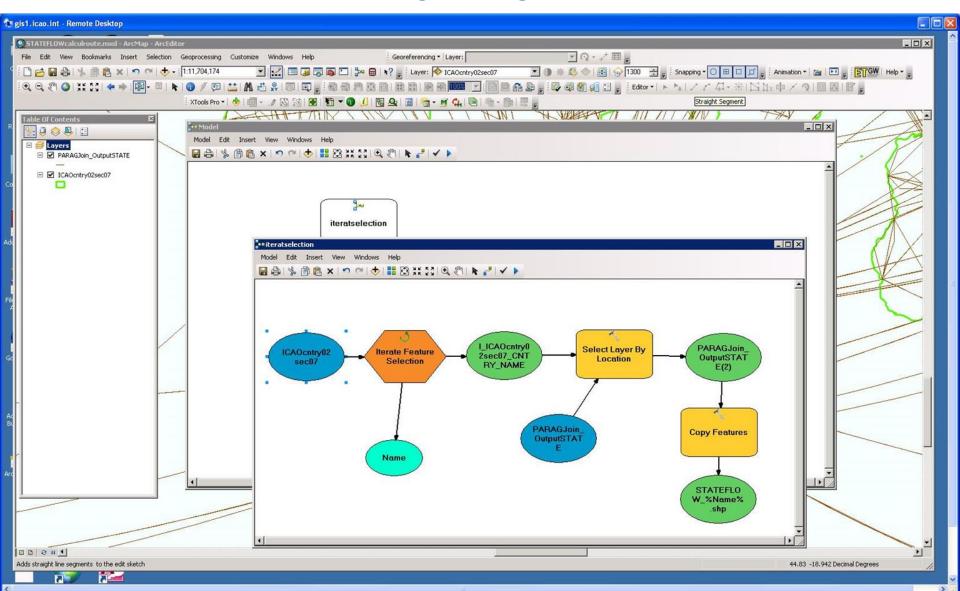




Legend

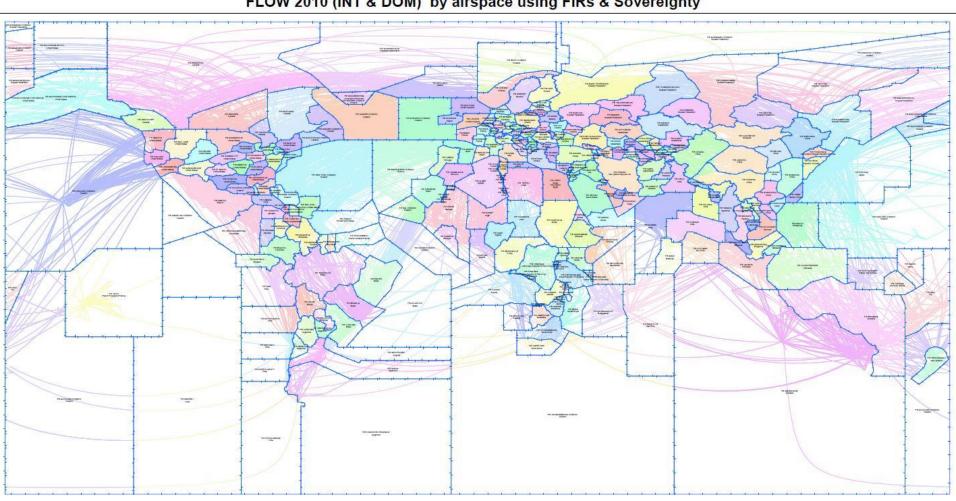


Geoprocessing using model Builder

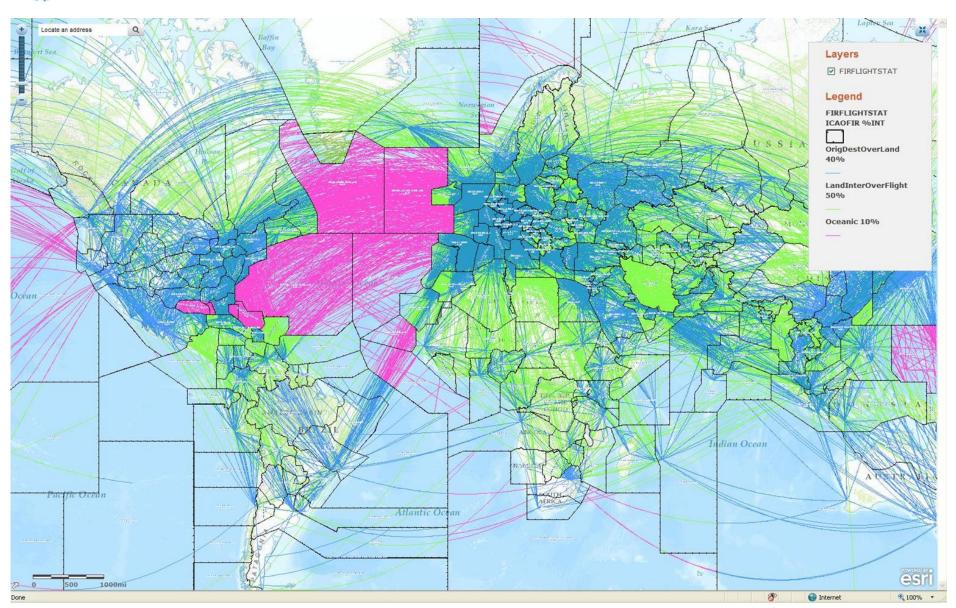


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FLOW 2010 (INT & DOM) by airspace using FIRs & Sovereignty

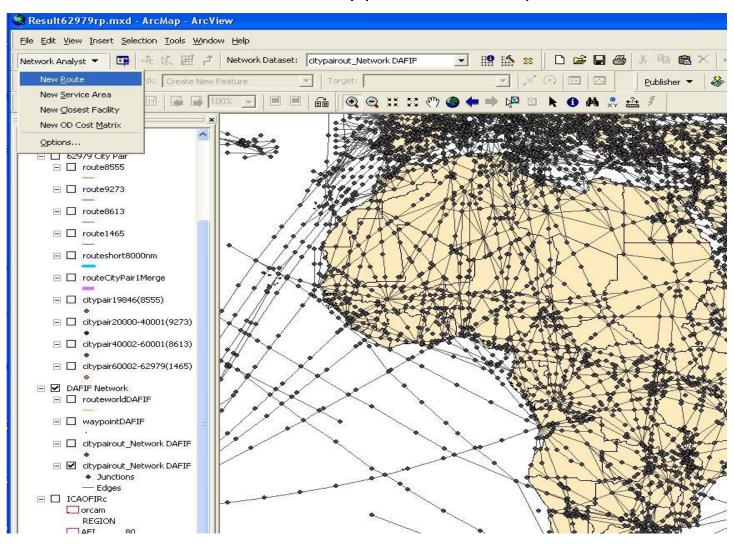






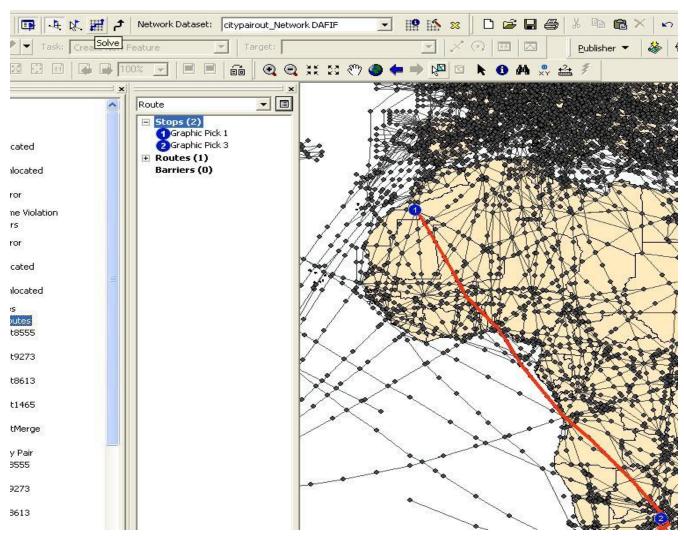


CAEP ICAO GIS work Network Analyst Shortest route between City pair and DAFIF operational Data



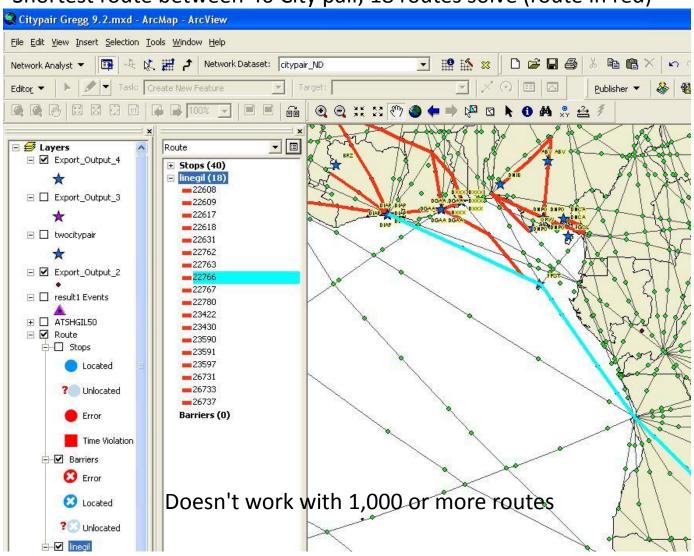


CAEP ICAO GIS work Network Analyst Shortest route between City pair and DAFIF operational Data





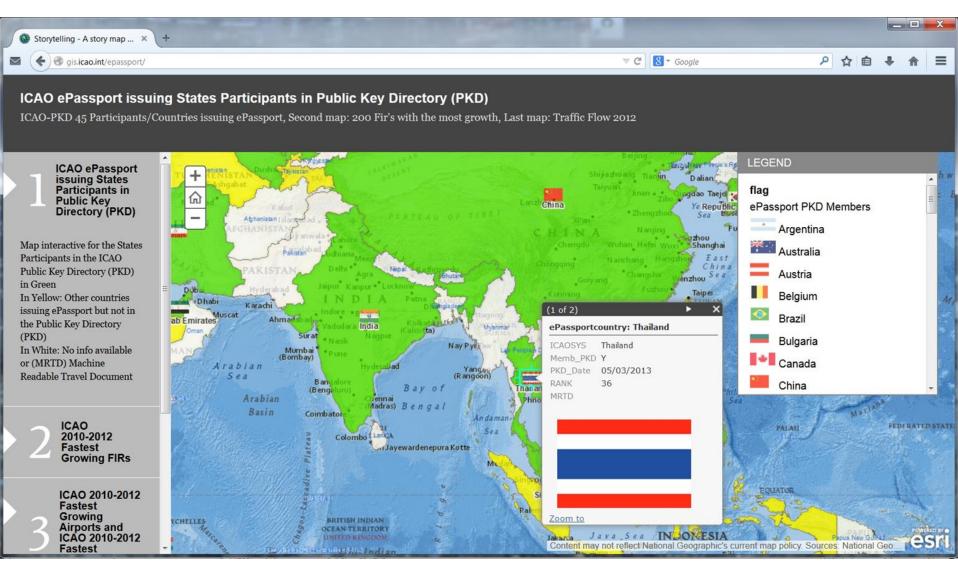
CAEP ICAO GIS work Network Analyst Shortest route between 40 City pair, 18 routes solve (route in red)

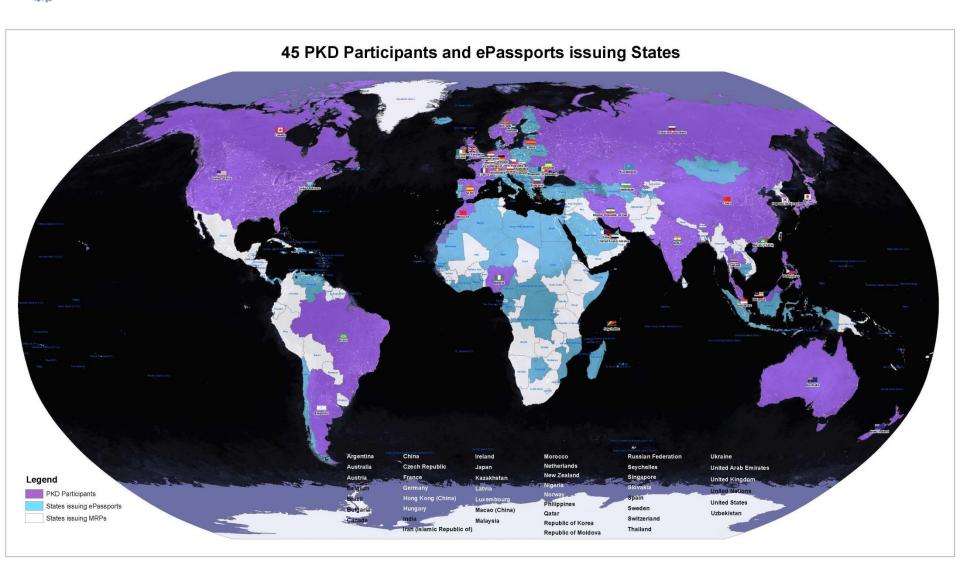






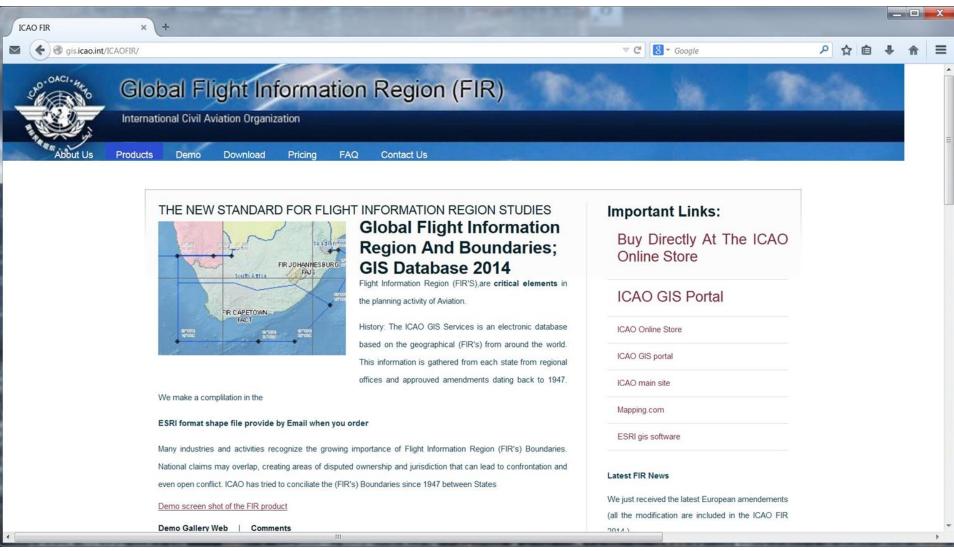




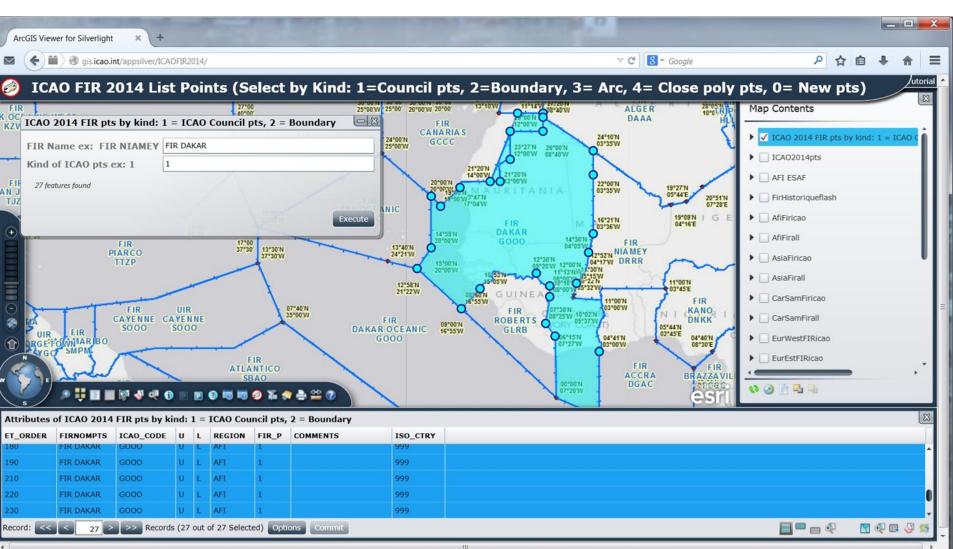




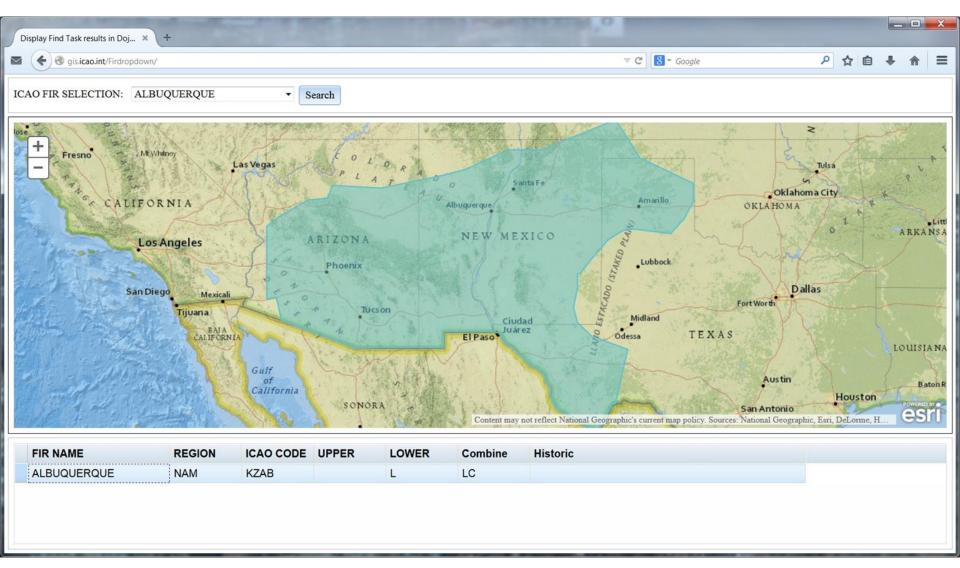
Product to buy from ICAO



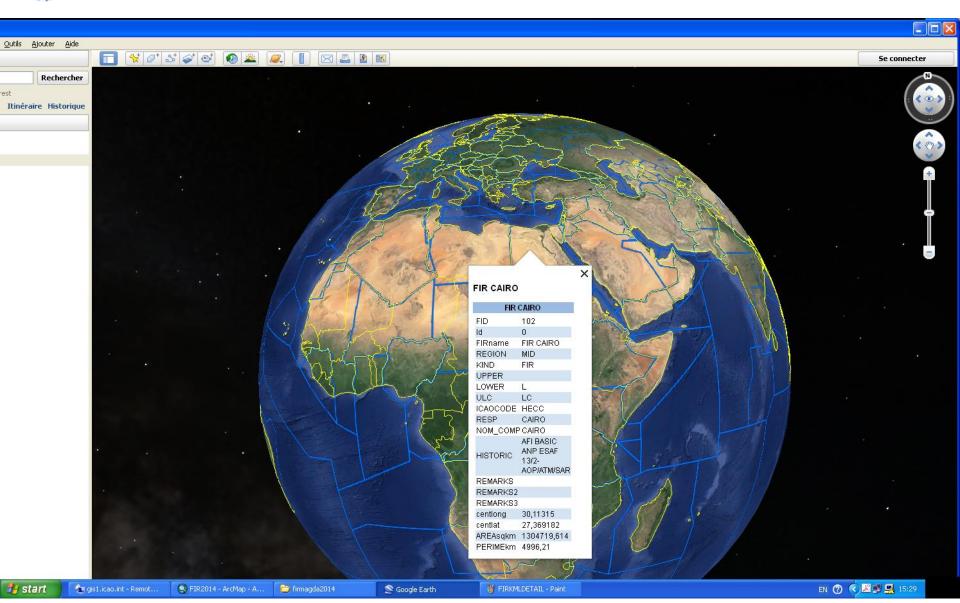






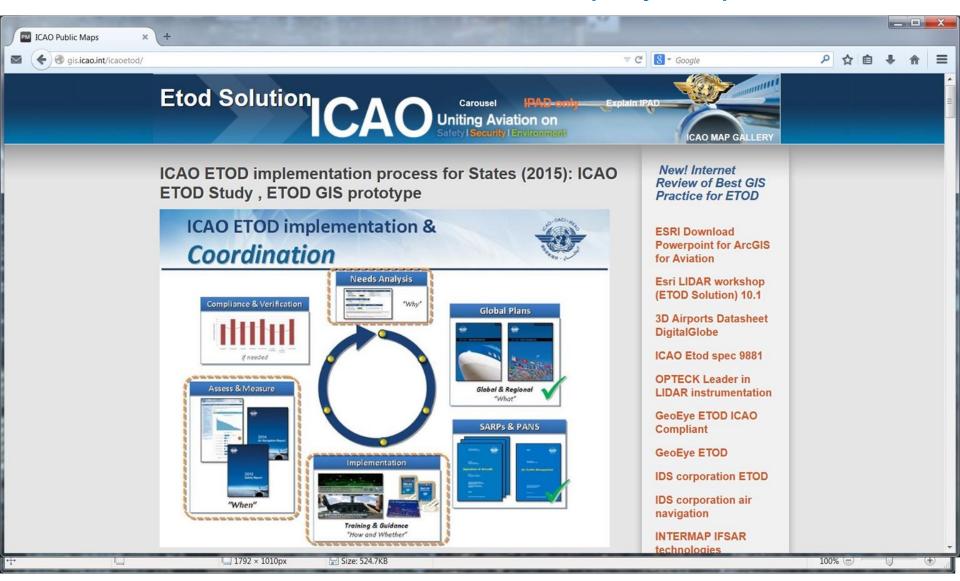




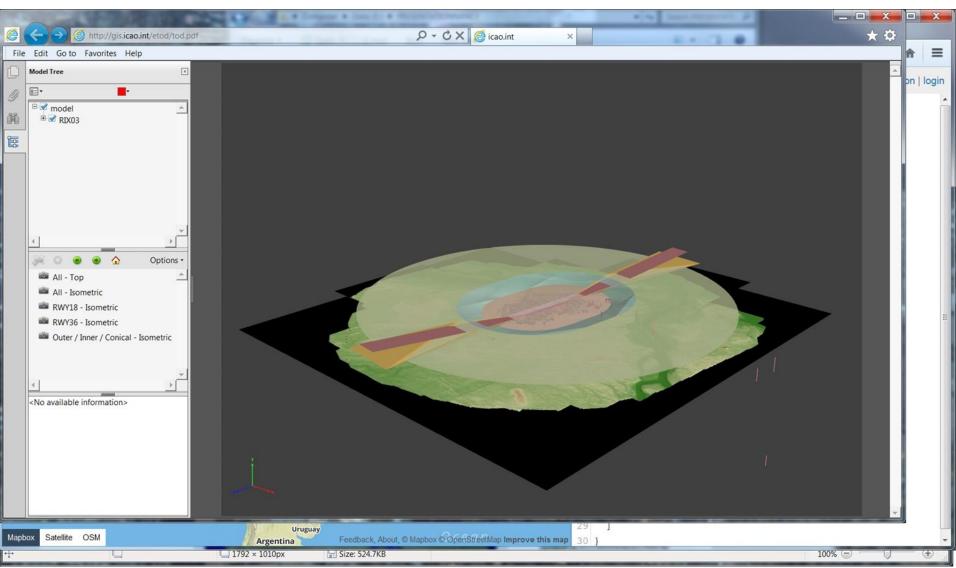


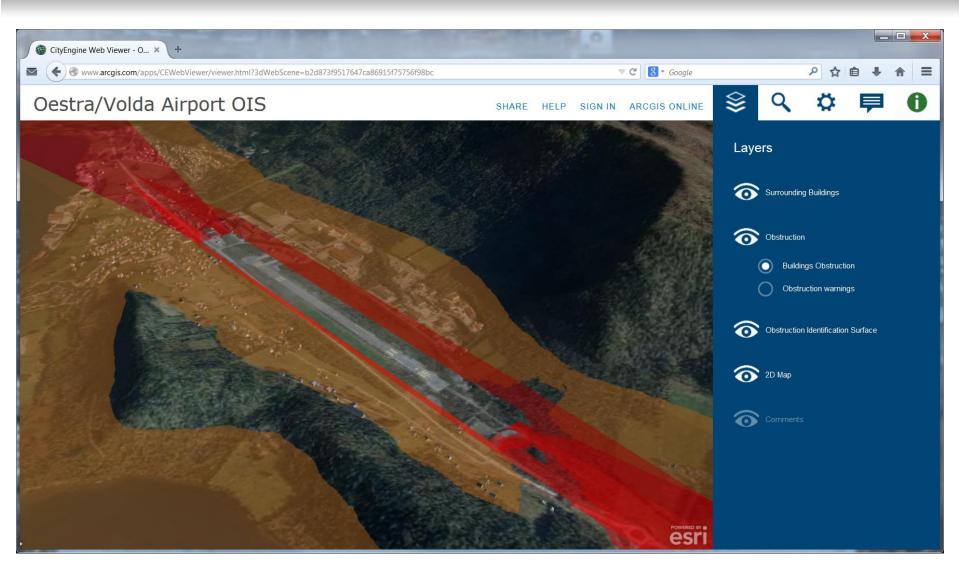


ICAO ETOD solution step by step





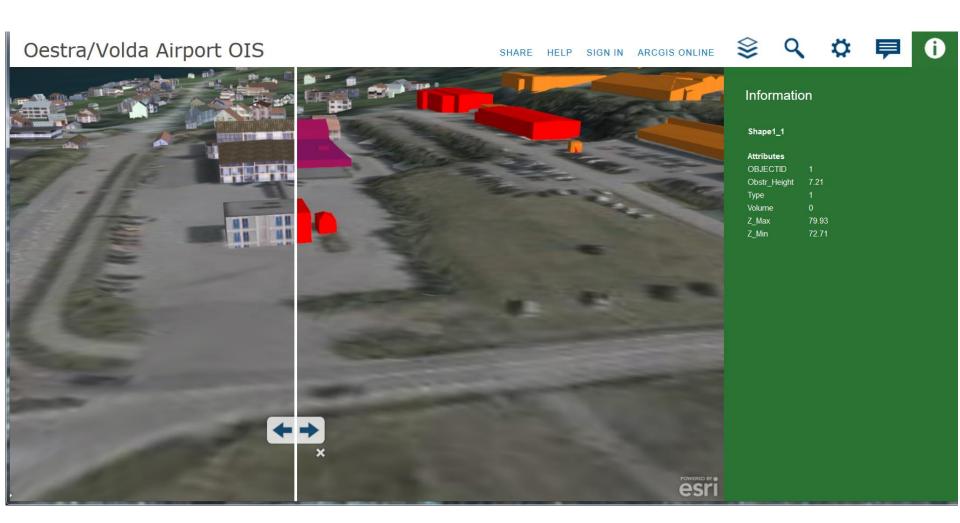




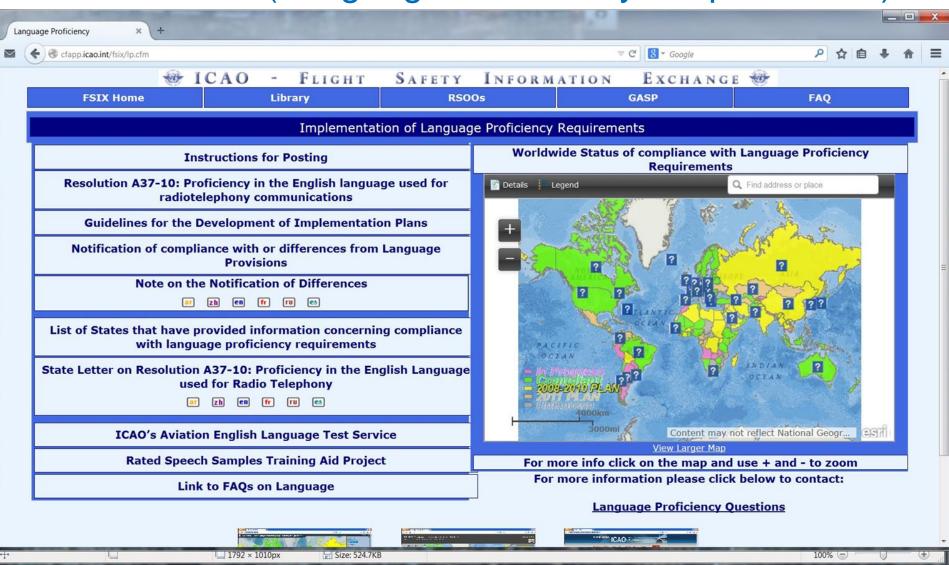
ETOD DEMO ESRI SITE



ICAO UNITING AVIATION

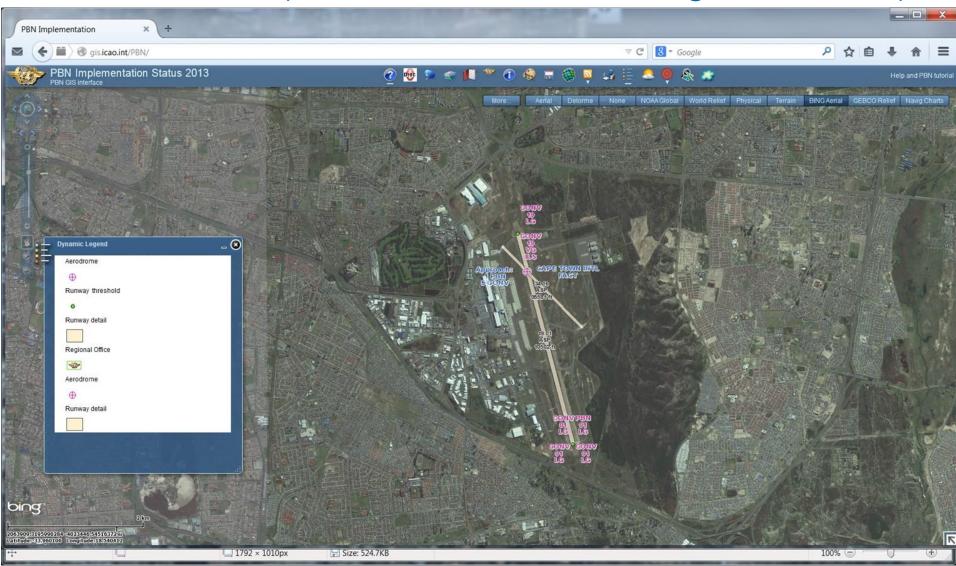


ICAO LPR (Language Proficiency Requirements)

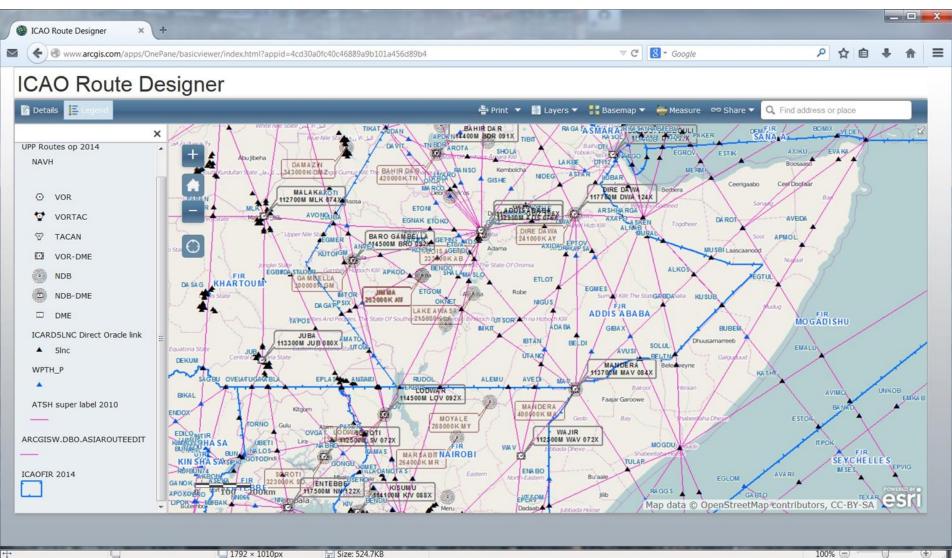




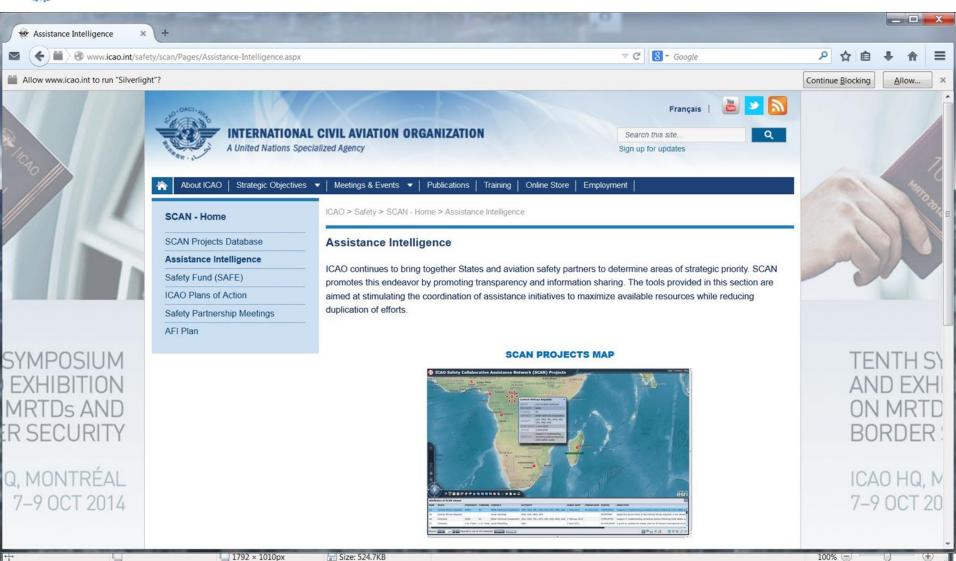
ICAO PBN (Performance Base Navigation status)





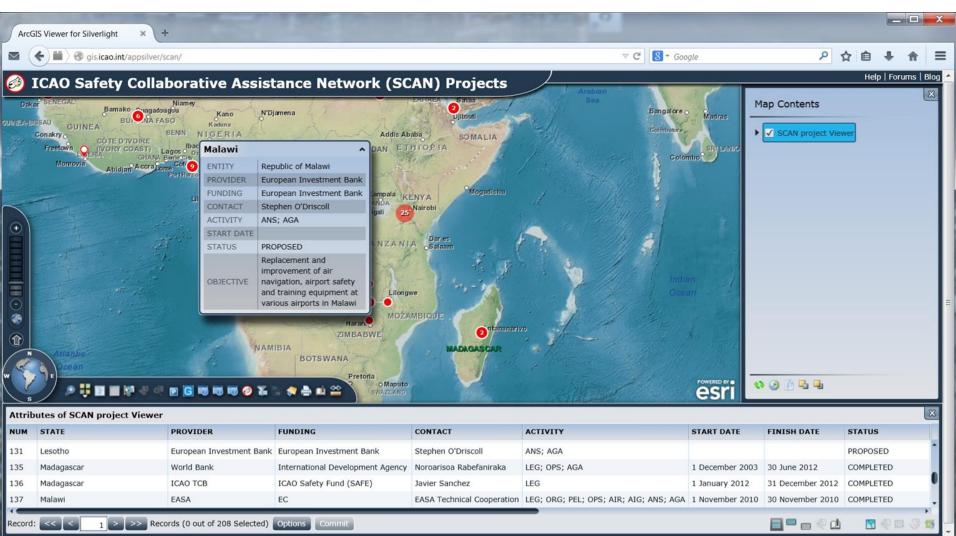






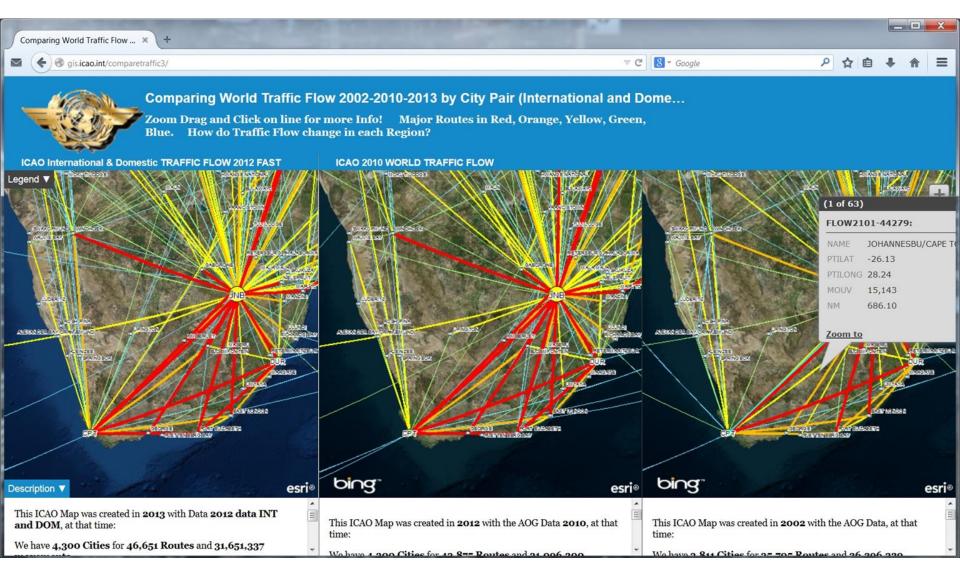


ICAO SCAN (Safety Collaborative Assistance Network)





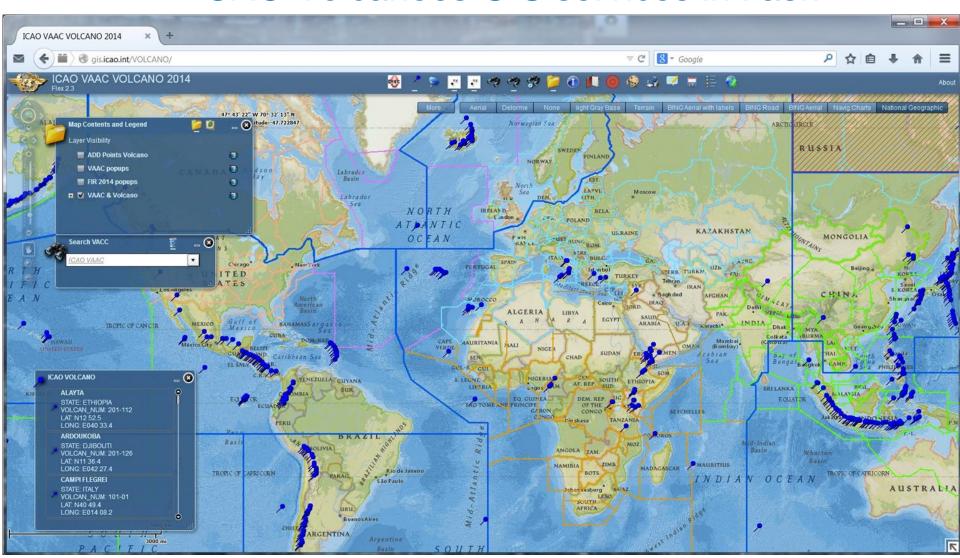




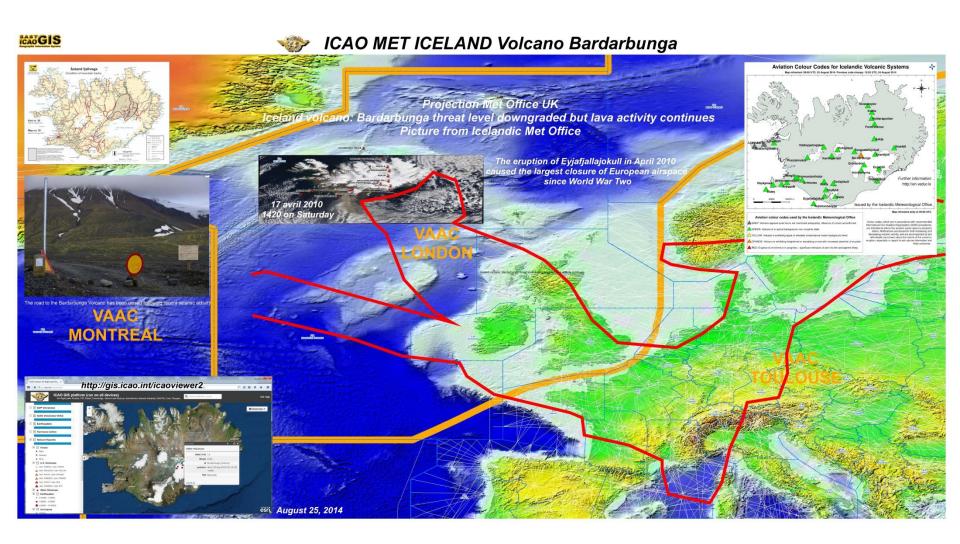
Compare Traffic site



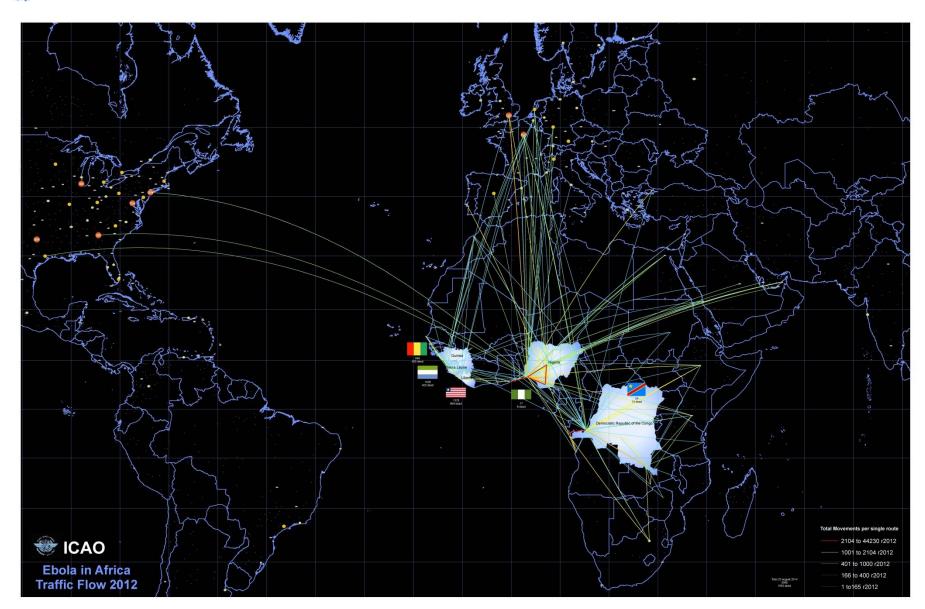
ICAO Volcanoes GIS services in flash







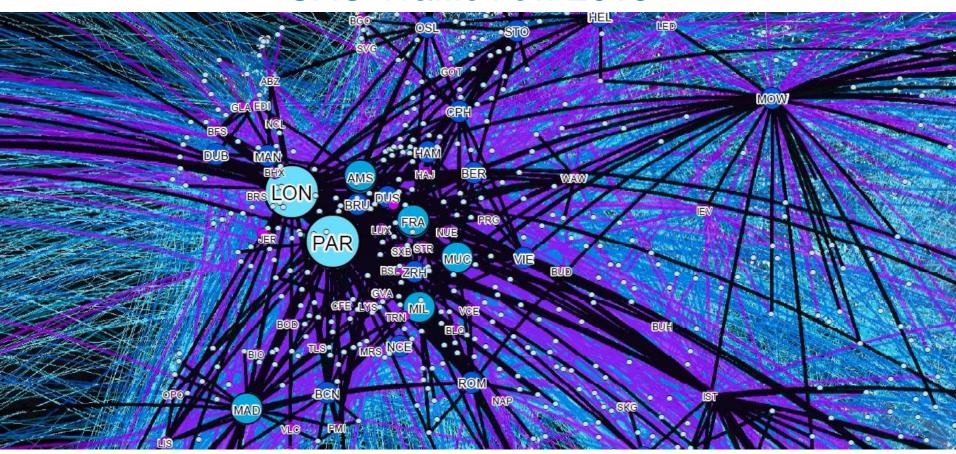


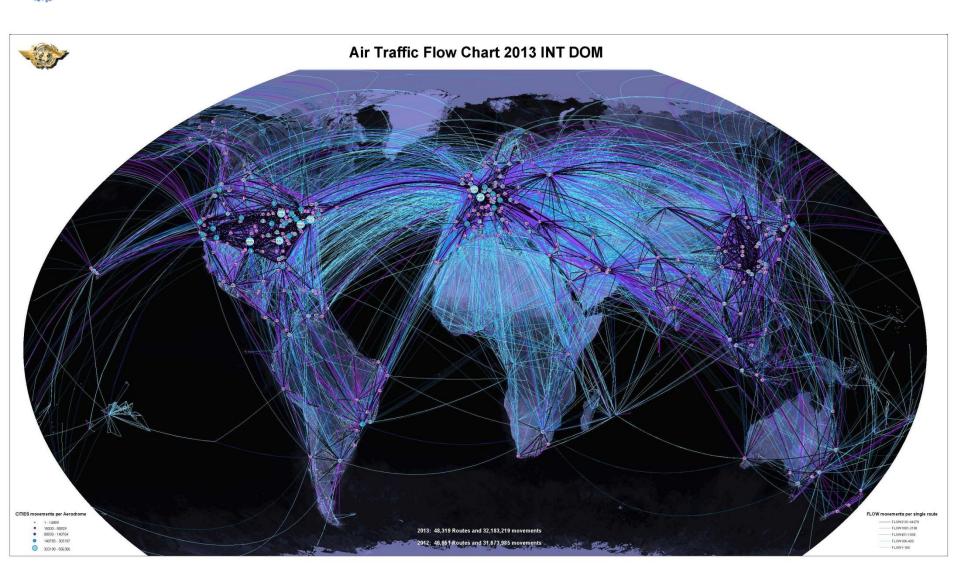




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ICAO Traffic flow 2013













Air Traffic Flow Chart 2012

More Info: http://gis.icao.int/comparetraffic



Air Traffic Flow Chart 2002



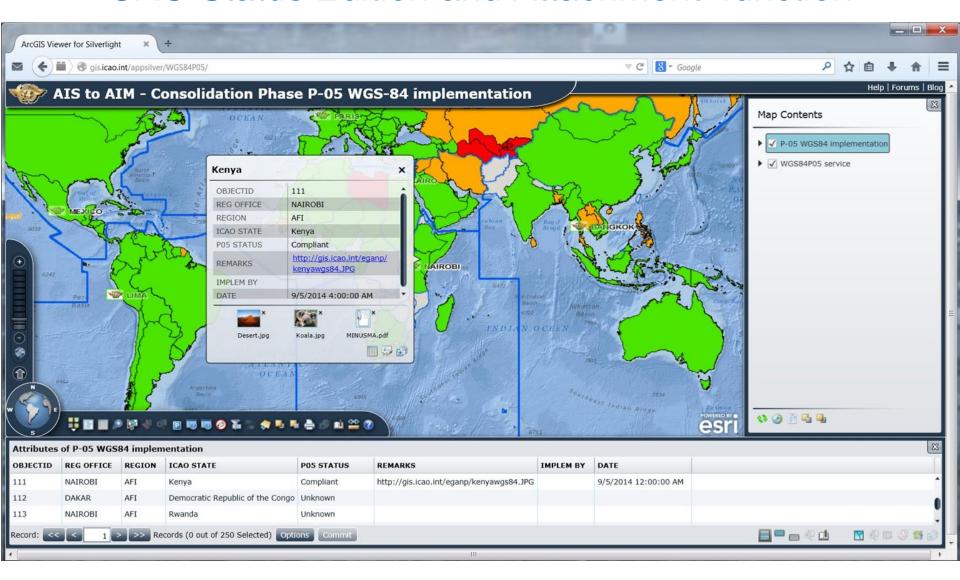
Legend
IES mov FLOW mov
1 - 14899 FLOWG101-14279
10003 - 58509 FLOWG101-1200
148793 - 201187 FLOWG1-1200
148793 - 201187 FLOWG8-1400
201198 - 168509 FLOWG-140

2012: 4,300 Cities for 46,651 Routes and 31,673,958 movements 2002: 3,811 Cities for 35,705 Routes and 26,296,329 movements

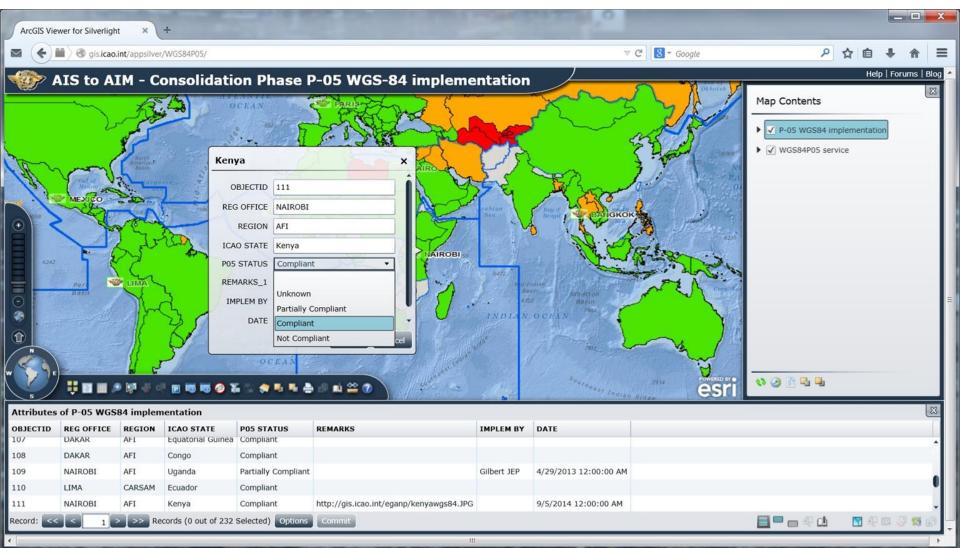


ICAO UNITING AVIATION

ICAO Status Edition and Attachment function

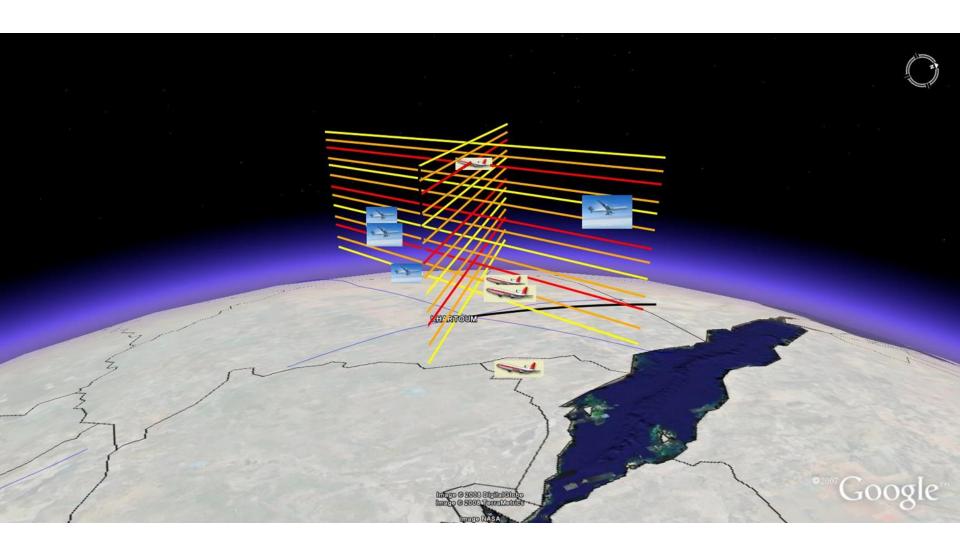






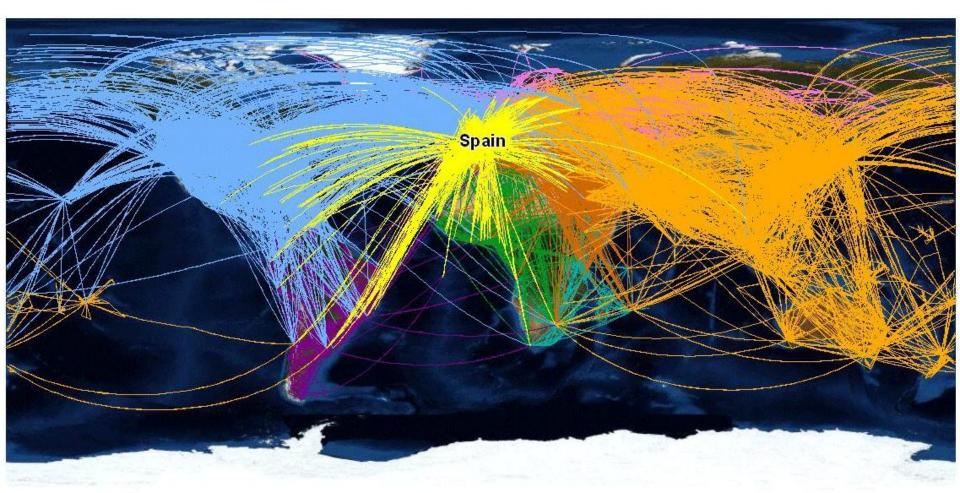


OLD view 3D Google Earth plane separation



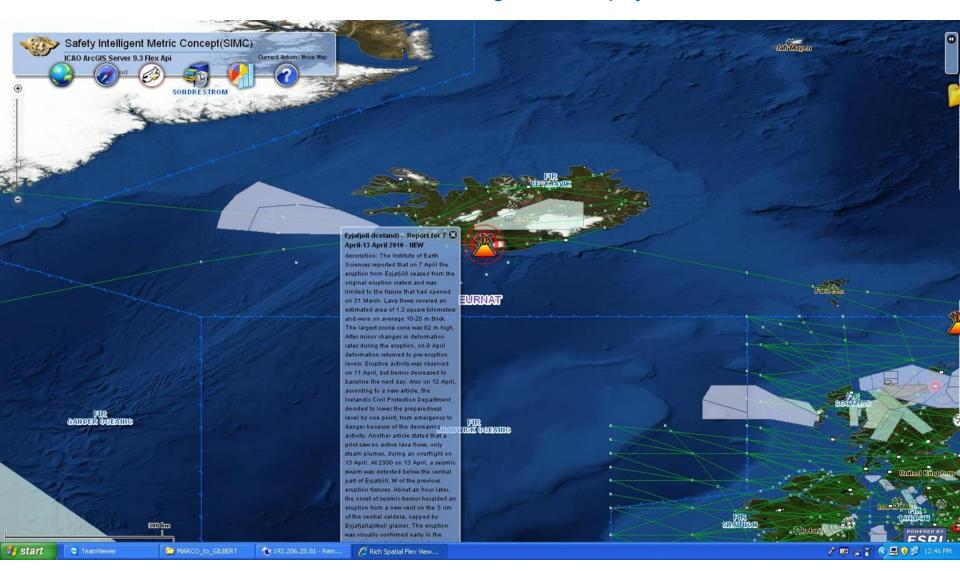


Spain traffic flow

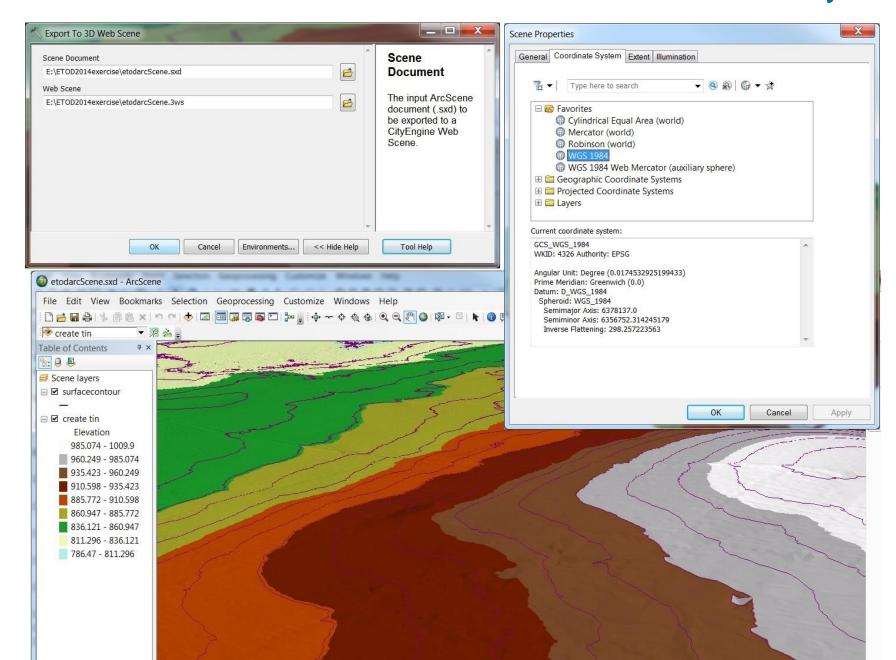




GeoRSS feed are now missing we must pay to obtain the link...

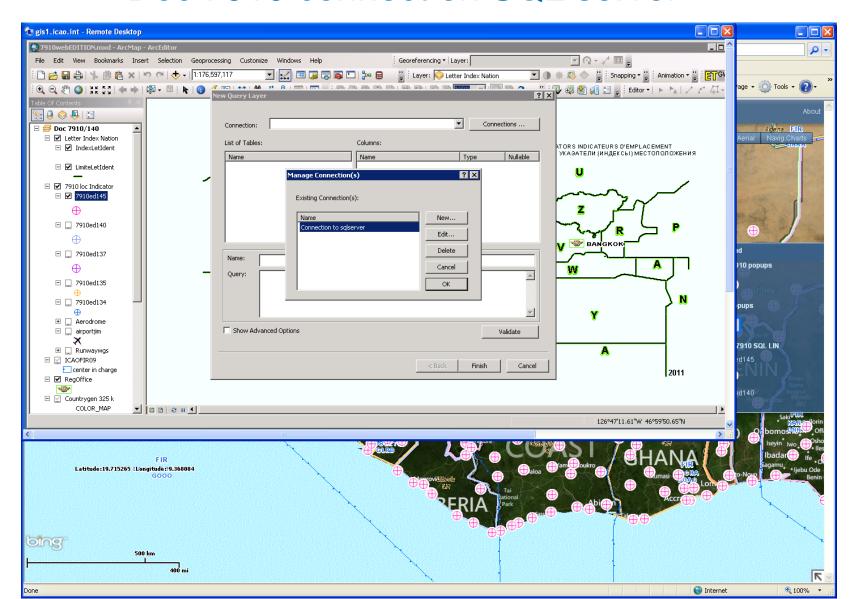


ICAO Etod contour creation via Las files 3D analyst



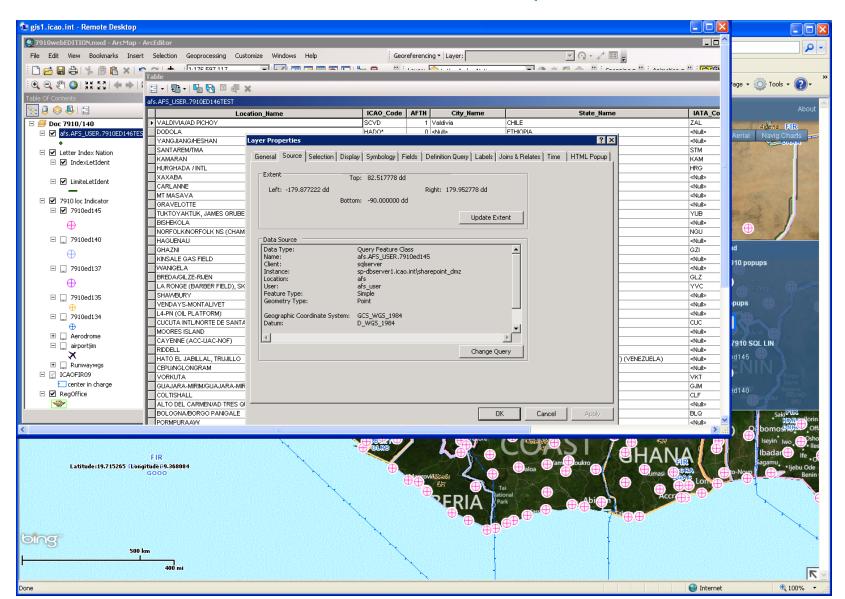


Doc 7910 connect on SQL server

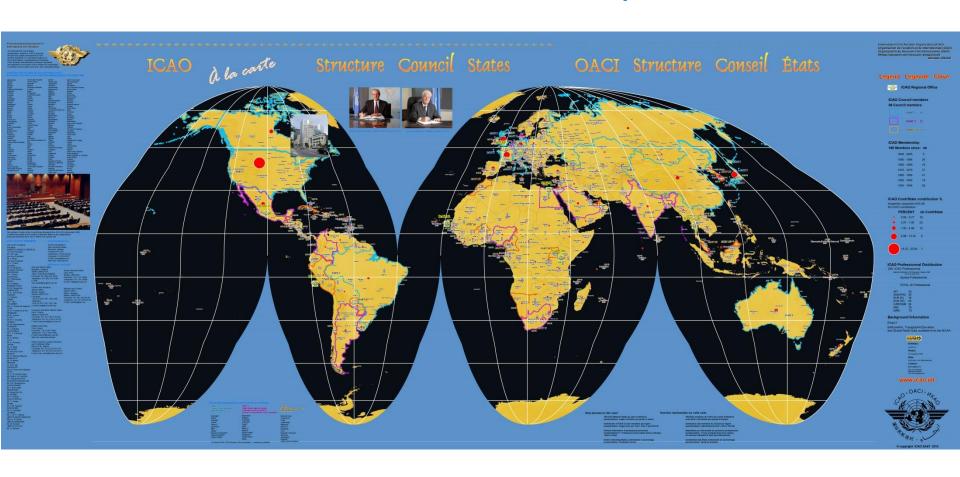




Doc 7910 connect on SQL server

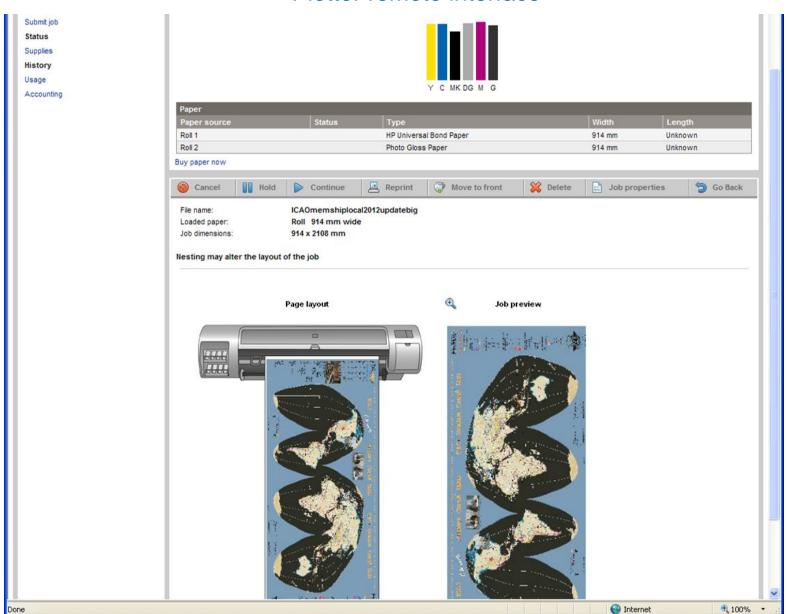


ICAO 2010 membership structure





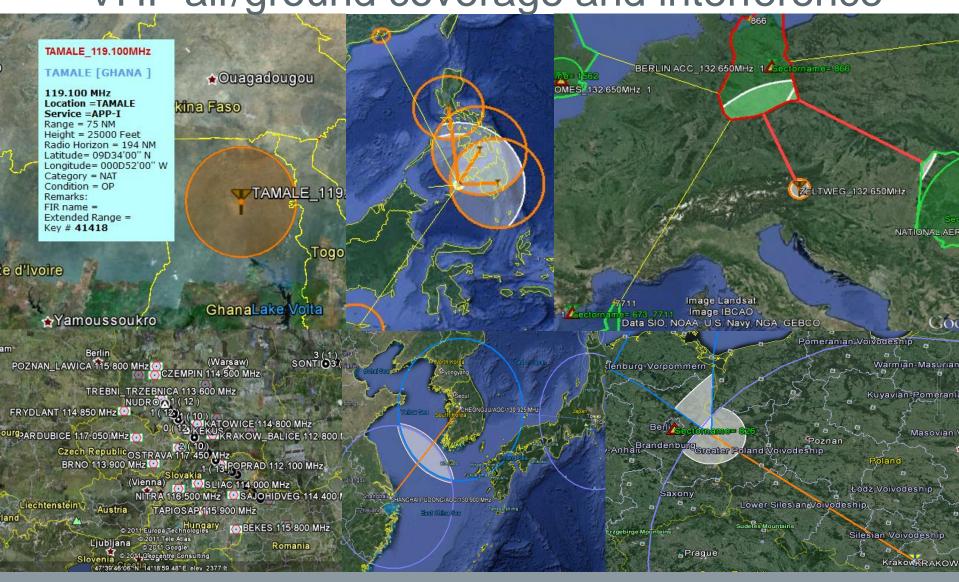
Plotter remote interface



VHF air/ground communication frequencies



VHF air/ground coverage and interference

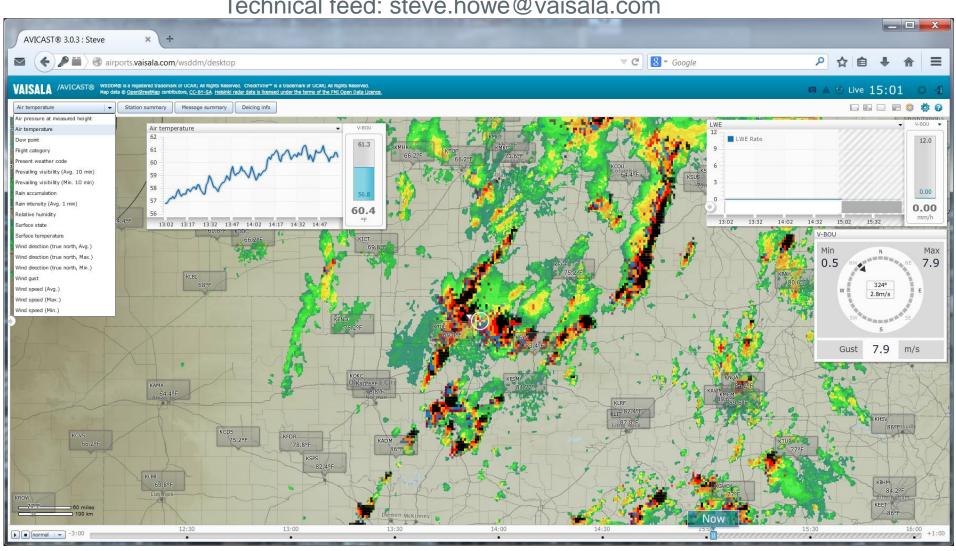




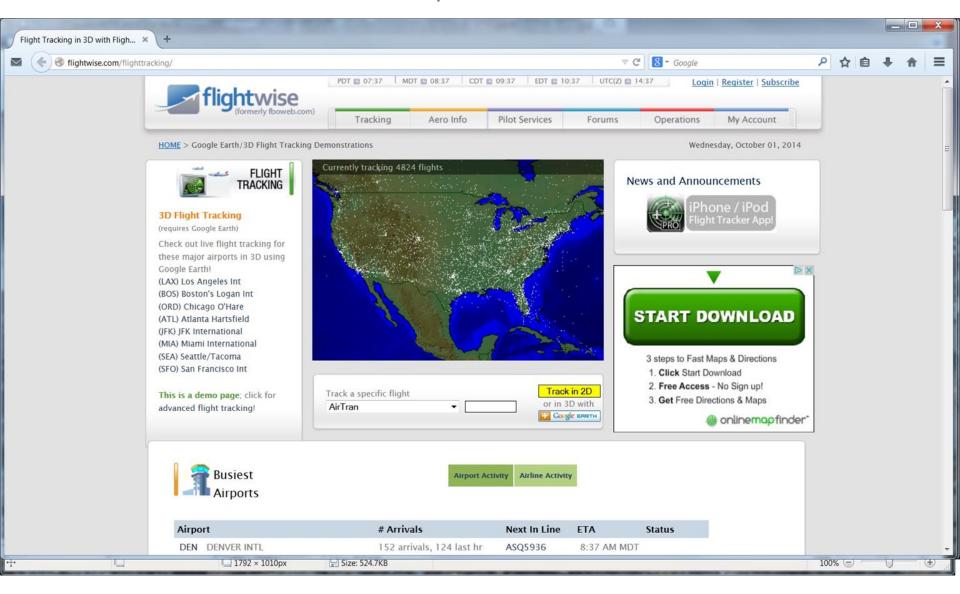
Weather services: Contact site: www.vaisala.com/en/airports

Contact: nick.demetriades@vaisala.com

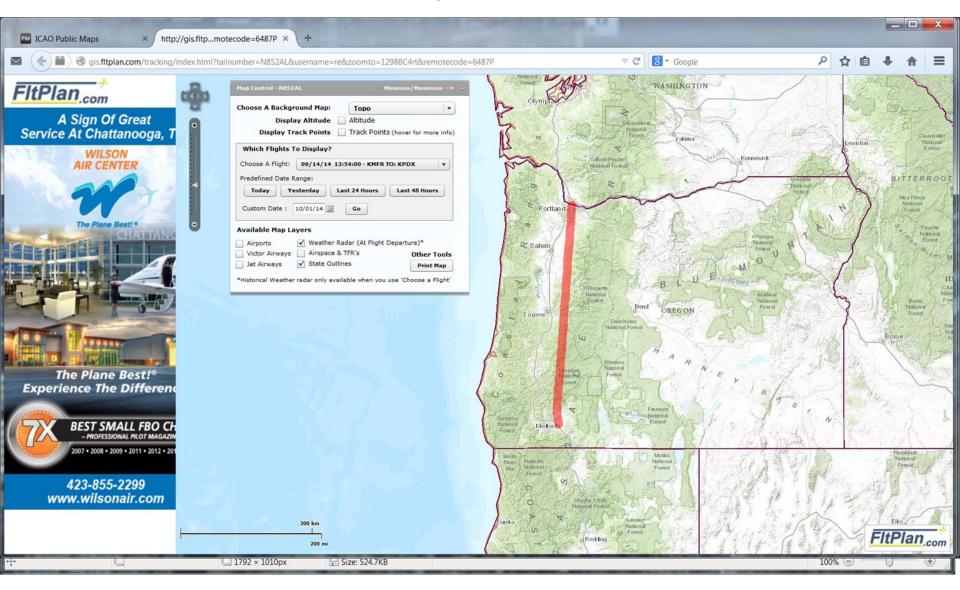
Technical feed: steve.howe@vaisala.com



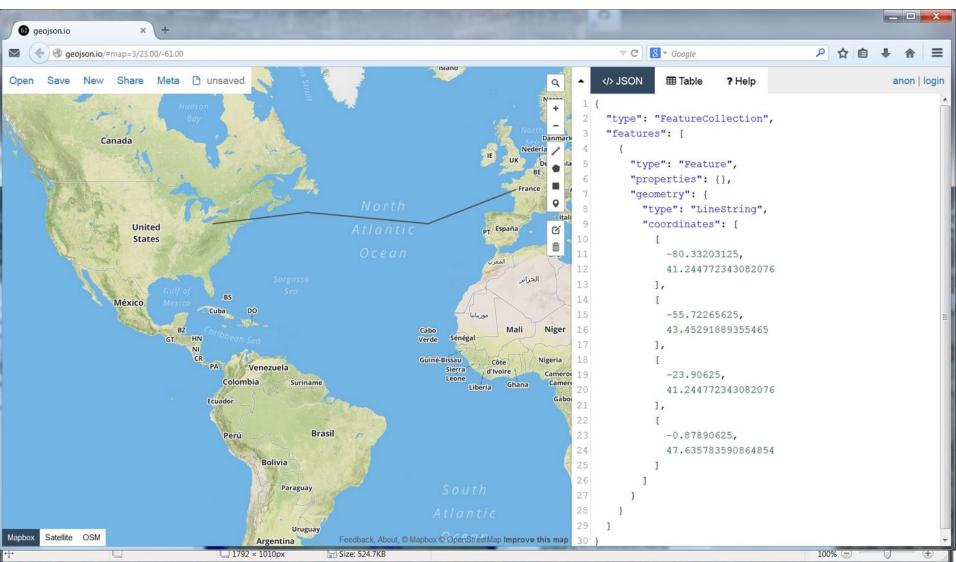
Traffic flow services example



Traffic flow services example

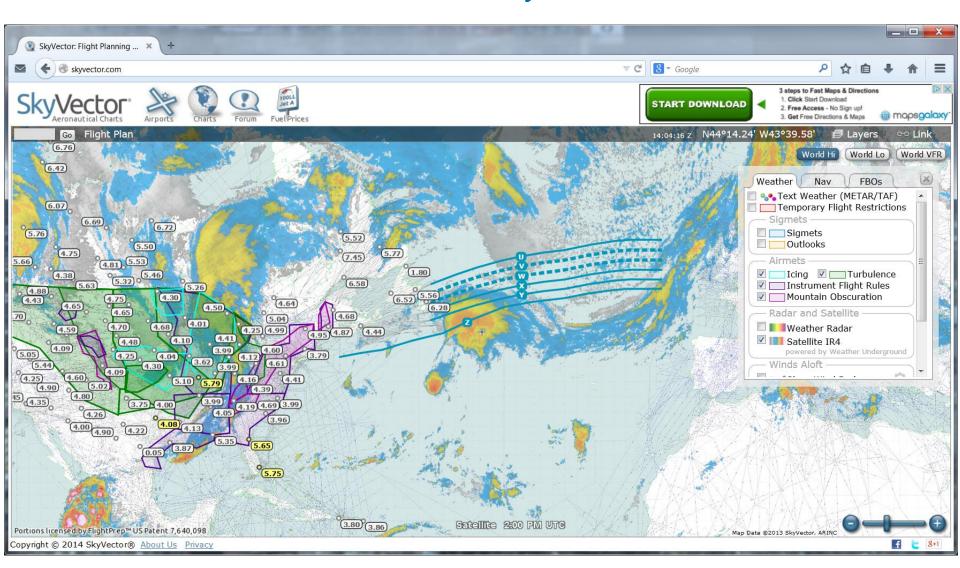




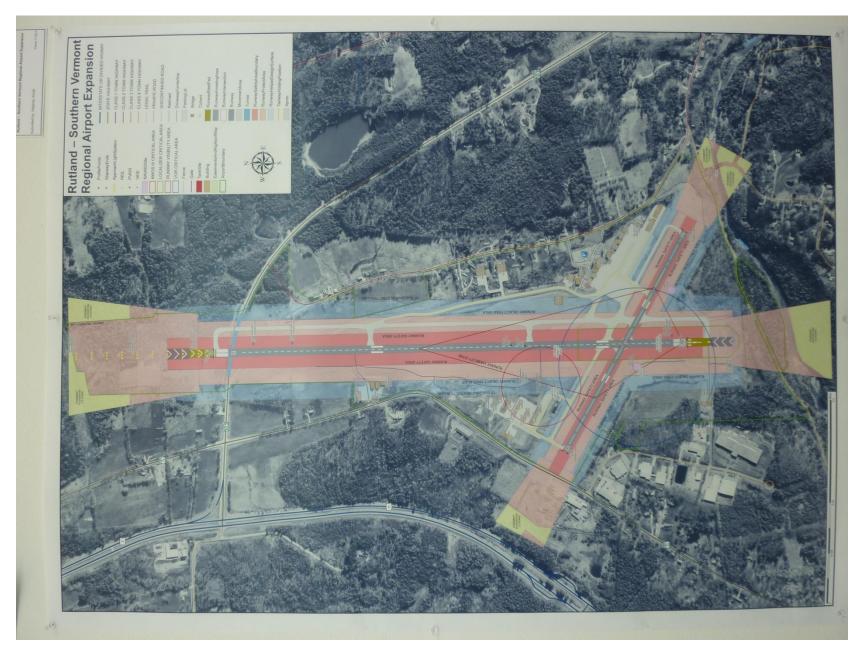




GIS services SkyVector



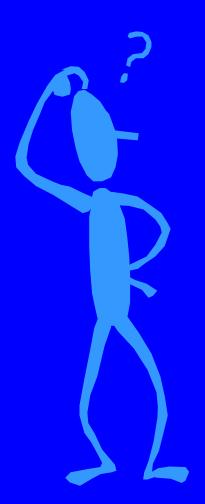








Questions and Comments





Created by Gilbert Lasnier
Special thanks to ICAO ICT, Magda Morawski
ESRI
esri

and NGA



for the support an more...