



ArcGIS Predictive Analysis Tools

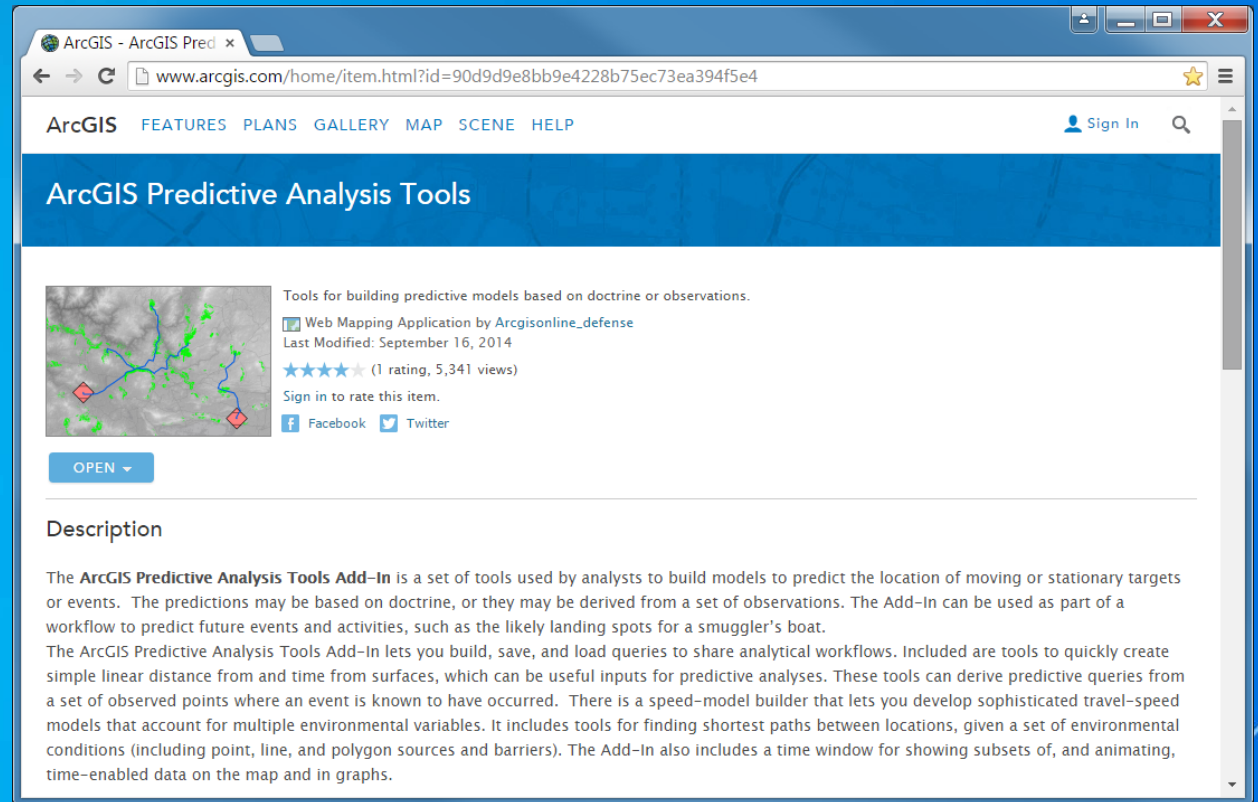
Ian Campbell

Robert Feuerstein

Overview

Predictive Analysis Tools

- ArcGIS Desktop Addin --- FREE
- Set of tools to include:
 - Raster-based analytic tools
 - Geoprocessing tools for creating data
 - Temporal analysis tools
- Web widgets (in development)



ArcGIS - ArcGIS Pred x

www.arcgis.com/home/item.html?id=90d9d9e8bb9e4228b75ec73ea394f5e4

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ArcGIS Predictive Analysis Tools

Tools for building predictive models based on doctrine or observations.

Web Mapping Application by Arcgisonline_defense
Last Modified: September 16, 2014

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Description

The **ArcGIS Predictive Analysis Tools Add-In** is a set of tools used by analysts to build models to predict the location of moving or stationary targets or events. The predictions may be based on doctrine, or they may be derived from a set of observations. The Add-In can be used as part of a workflow to predict future events and activities, such as the likely landing spots for a smuggler's boat.

The ArcGIS Predictive Analysis Tools Add-In lets you build, save, and load queries to share analytical workflows. Included are tools to quickly create simple linear distance from and time from surfaces, which can be useful inputs for predictive analyses. These tools can derive predictive queries from a set of observed points where an event is known to have occurred. There is a speed-model builder that lets you develop sophisticated travel-speed models that account for multiple environmental variables. It includes tools for finding shortest paths between locations, given a set of environmental conditions (including point, line, and polygon sources and barriers). The Add-In also includes a time window for showing subsets of, and animating, time-enabled data on the map and in graphs.

Capabilities

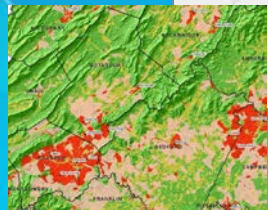
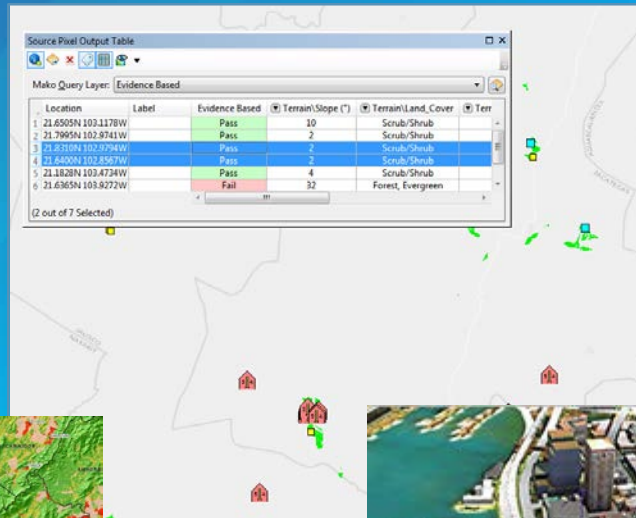
Predictive Analysis Tools

- **Predict suitable locations, and travel routes**
- **Extremely fast to accommodate iterative analysis**
- **Auto-generate analysis based on historic data**
- **Repeatable and shareable workflows**
- **Easy to use**

Versatility

Predictive Analysis Tools

Defense and Intel Finding Enemy Targets

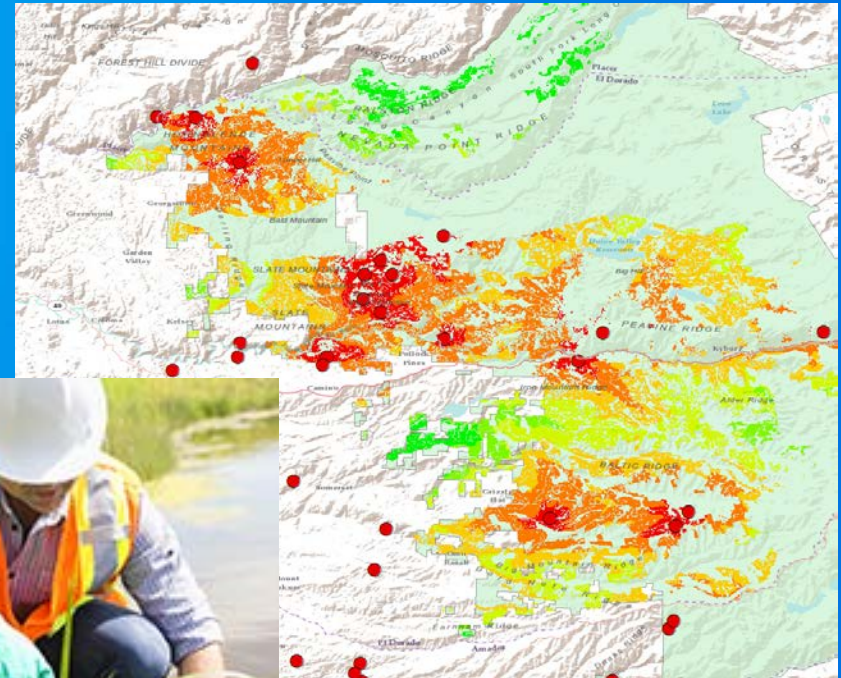


Landscape Architecture Sustainability



GeoDesign Urban Planning

Law Enforcement Fighting Drug Production



Environmental Management Preservation

Predicting Drug Trafficking Locations and Movements

Demo Scenario

- Where will they likely have a farm site?
- How quickly can they transport their product?
- Use doctrinal knowledge to set movement constraints
- Use past data to optimize searching for farms
- Auto-generate search criteria
- Find likely travel routes from the farms to the ocean

Predicting Drug Trafficking Locations and Movements

Ian Campbell



Road Ahead



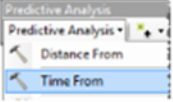
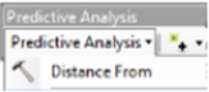





Predictive Analysis Tools

- **Web based widgets**
- **ArcGIS Web App Builder integration**
- **ArcGIS for Portal integration**



Predictive Analysis Web Application

Ian Campbell

Icon	Tool	Definition
	Query Expression Editor	Build queries using one or more single-band rasters
	Query Inspector	Investigate the output of the Query Expression Editor at specific locations to determine why they meet or fail the query parameters.
	Time From Tool	Find how long it would take to travel from a set of known points, lines, or polygons to any other location using a cost surface.
	Distance From Tool	Find how far a set of known points, lines, or polygons are from any other location in the area of interest.
	Query Generator	This tool builds out a query expression based on known sighting or event points. Run the query to see where other events might occur.
	Speed Model Builder	Build cost surfaces using one or more single-band rasters with multiple input factors to accurately model travel speed. This tool works very much like the Query Expression Editor.
	Route Finder	Find the shortest path from one or more locations within your Time From or Distance From to the area of interest to the nearest source locations.
	Time Analysis Window	Manage, filter, graph, analysis, and play time-enabled data to visualize predictions, tracks, events, patterns, and other values that change over time.
	Distance/Speed Tool	Model the distance, bearing, speed and time of a user defined route.



Understanding our world.