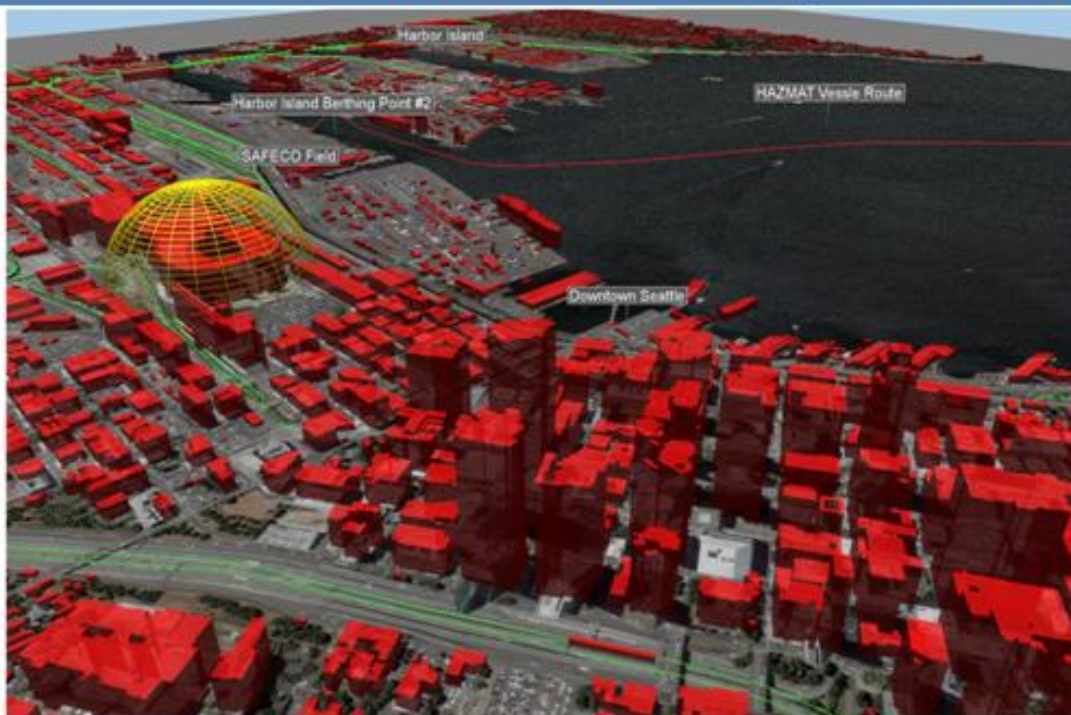


2015 GeoINT

Using LIAR Data to Perform Seaport Risk and Vulnerability Assessment



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USING LIDAR DATA TO PERFORM SEAPORT RISK AND VULNERABILITY ASSESSMENTS

USGIF GEOINT Symposim 2015:

Training Material submission

Created and presented by Jonathan D Gale

Textron Geospatial Solutions

NEEDS ASSESSMENT

Given the operational tempo that analysts are faced with today, having a reliable workflow for quickly defining, describing and evaluating the operational environment using remote sensing data is paramount. This course will look at how LIDAR can be used to create on-the-fly, 3D terrain products that are essential components in creating intelligence overlays in the GeoINT Operations Process cycle. Participants will learn how to use a standardized workflow to incorporate LIDAR into an intelligence gathering cycle and quickly produce fused GeoINT products for dissemination.

LEARNING OUTCOMES

By the end of the course the participant should be able to:

- Discuss GeoINT Processing methodology and name and explain the 4 steps of the Geospatial Intelligence Operations Process for developing overlays
- Discuss the role of LIDAR in the intelligence cycle
- Discuss the importance of cataloging and querying data resources
- Explain Integrated processing workflow using LIDAR and imagery
- Explain the role of automated feature extraction in the intelligence cycle
- Identify the key data layers that can be created with LIDAR.
- Discuss the essentials of a quality control plan and what tools can be used to perform an accuracy assessment
- Identify 5 GeoINT product that can be extracted from LIDAR
- Know where to locate software and technical resources demonstrated in the course

PREREQUISITES

Software used for this course. Participants can download and evaluate any of the programs used in this course. A copy of the full online course guide with step by step tutorials is also available to participants of this course.

[ArcGIS 10.2.2](#)

COURSE OUTLINE

Introduction

Part 1: Overview of GeoINT Operational Processing and Configuration of Desktop Environment

- Overview of GeoINT Operational Processing and IPOE
- Desktop Configuration

Part 2: Rapid Geospatial Assessment

- Key components of an RGA

Direction

1. HIMV Scenario
2. Known facts
3. Geospatial Aspect
4. Key assumptions
5. Methodology

 10 MINUTE BREAK

Step 1: Collection: Data Discovery and Data Management: Define the Operational Environment

- Data Discovery and Data Management: What data sources do we have and are they in a useable format?
- Defining the Operational Environment: Who, what, when, where, and why?
- Quality Control and Accuracy
 1. Develop a quality control plan
 2. Onboard tools for quality control

Step 2: Processing and Exploitation: Describe the Operational Environment

1. Surface Configuration overlay
2. Surface Materials overlay
3. Population Status overlay
4. Vegetation overlay
5. Lines of Communication overlay
6. Observation/ Line of Sight Overlay
7. Common Operational Picture/ COP – Situational Awareness

Step 3: Analysis and Production: Evaluate the Situation

- Create, analyze and record likely scenarios and sequences of events
- Divide intelligence into two groups, adversarial and friendly. (Red and Blue)

Step 4: Dissemination and Integration: Determine Courses of Action COA's

Upon completion of evaluation step 3, the J2 Staff evaluate and assess all possible scenarios and then decides on 3 “courses of action”; that an adversary, belligerent or situation will occur.

These are assessed as:

- Most Likely – Course of Action
- Likely – Course of Action
- Least Likely – Course of Action

Modeling and Automation and Simulation

1. Feature Modeler
2. ESRI Model Builder and ArcToolbox
3. Batch Processing
4. Cloud Processing

Wrap up

RESOURCES/ LEARNING SUPPORT & MATERIALS

All learning resources will be provided at the time of the training and will be available online for download.

ATTAINMENT OF LEARNER OUTCOMES/COMPLETION REQUIREMENTS

Course wrap up will include a discussion and review of the following key topics.

- The role of LIDAR in the intelligence cycle
- Cataloging and querying data resources
- Integrated processing workflow using LIDAR and imagery
- Automated Feature Extraction
- Creating operational overlays
- Quality control and accuracy
- Creating fused GeoINT products and reports

Participants should be able to give a quick explanation of the general steps involved in the RGA process and describe which intelligence products were created using LIDAR.

COURSE DESCRIPTION

This is a two hour workshop that teaches participants how to use LIDAR data and imagery to perform a rapid geospatial assessment on a mock-up High Interest Merchant Vessel (HIMV) threat. Given the operational tempo that analysts are faced with today, quickly defining, describing and evaluating the operational environment using remote sensing data is paramount. This course will look at how LIDAR can be used to create on-the-fly terrain products that are essential components in creating intelligence products in the GeoINT Operations Process cycle.

Participants will learn how to quickly incorporate LIDAR into an intelligence gathering cycle and produce fused GeoINT products for dissemination.

Participants will learn about

- The role of LIDAR in the
- Cataloging and querying data resources
- Integrated processing workflow using LIDAR and imagery
- Automated Feature Extraction
- Creating operational overlays
- Quality control and accuracy
- Creating fused GeoINT products and reports