Participatory Map Services Using Advanced Models

by Jochgem Gunneman

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Introduction (1)

Jochgem Gunneman

Graduated in 2010 in Earth Observation (Geodesy), Delft University of Technology, the Netherlands.

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Introduction (2)

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Jochgem Gunneman

Started in June 2014 Gunneman GIS & Geomatics.

Specialized in the transformation of existing
data to useful geographical information.

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Introduction (3)

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Jochgem Gunneman

I am here to learn.
I am here to meet.
I am here to do business.

Please do feel free to contact me.

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- Participatory Map Services
- Definition of Catalogued Measures
- Relation to Advanced Models
- An Assignment
- An Example of Catalogued Measures
- The Data
- The Results
- Another Example
- Conclusions

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Participatory Map Services Using Advanced Models

Participatory Map Services (1)

Authorities providing map services to participants in decision making processes.

Participants

- Authorities
- Stakeholders
- Civilians
- (Geospatial experts)

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Participatory Map Services (2)

Authorities providing map services to participants in decision making processes.

Motivation

- Enhanced communication with map services as the media;
- Transparant decision making;
- Based on **Catalogued Measures**. (Within regulation and guidelines)

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Definition of Catalogued Measures

Some regulations and guidelines are quantified in measures and can often be found in catalogues.

These measures I name Catalogued Measures. Catalogued measures can be a driving force to generate maps.

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Relation to Advanced Models

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Participatory Map Services need an engine.

Participatory Map Services → # of Users ↑ → Information Traffic ↑ → Data Processing ↑

Call for Automatic Processing

Scripting   *vs*   Modeling ✓

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An Assignment

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To generate lines of minimum sight for ship navigation according to catalogued measures and based on existing vector management data.
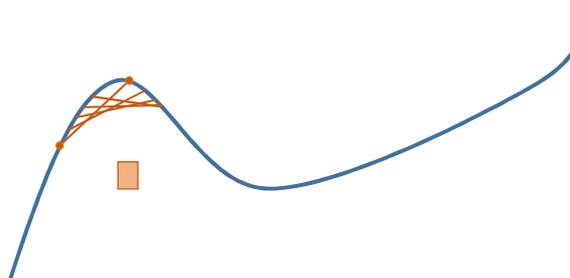
To generate a map of obstructing objects that may block the view.
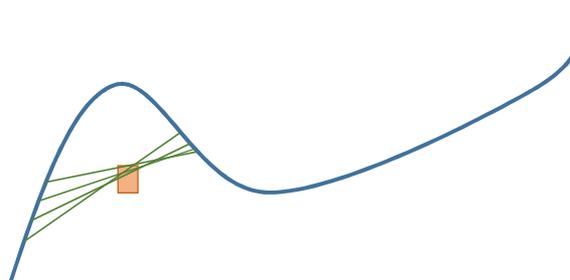
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Example of Catalogued Measures (1)

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CEMT Class	Minimum Sight [m]
I	38.5
II	55
III	70
IV	85
Va	85
Vb	105

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Example of Catalogued Measures (2)

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CEMT Class	Minimum Sight [m]
I	38.5
II	55
III	70
IV	85
Va	85
Vb	105

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The Data (1)

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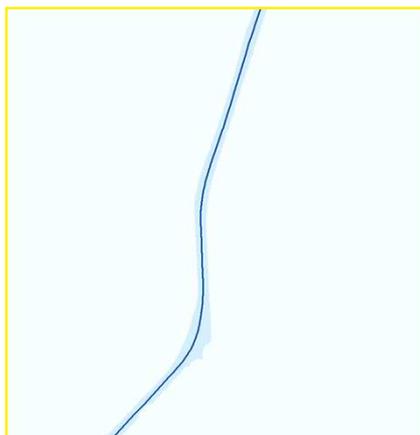
provincie ZUID HOLLAND

The Waterways governed by the Province of South Holland (in red)

Total length:
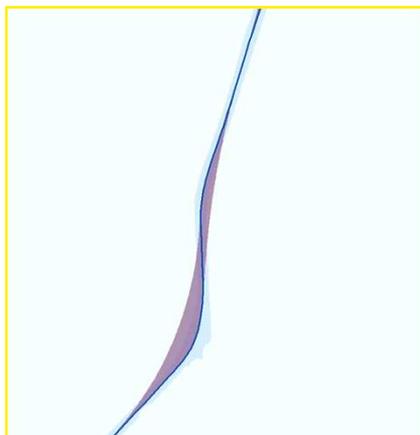160 km

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The Data (2)

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Management
(vector) data
+
(Lidar) Height Data

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The Results (1)

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The Results (2)
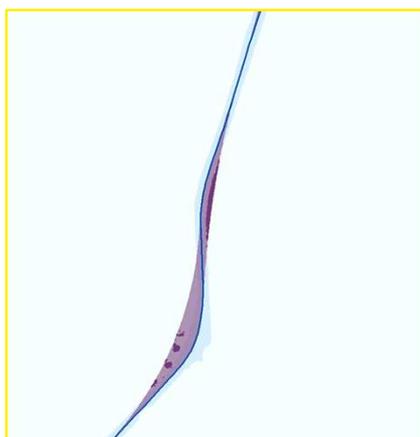
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The Results (3)

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The Results (4)

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Result: 70.000 lines of minimum sight in 2 hours processing time.
               2.000 obstructing objects in 4 hours processing time.

Increased insight for all participants.

(Authorities, Stakeholders and Civilians)

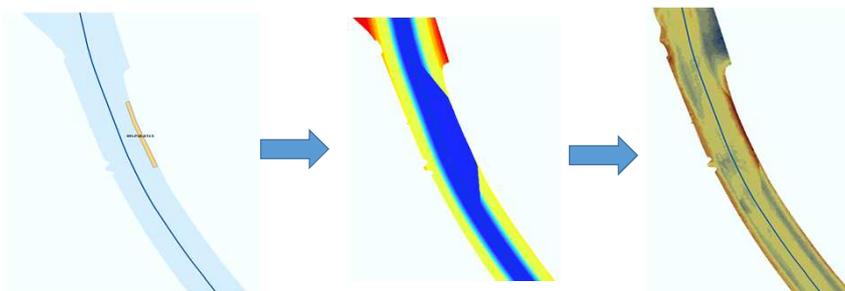Participatory Map Services Using Advanced Models

Another example (1)

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Minimum Water Depth Maps
Where is dredging needed?

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Another example (2)

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Minimum Water Depth Maps
Where is dredging needed?

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Conclusions

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Catalogued Measures can be useful in Participatory Map Services to increase insight.

Advanced Models can be a powerful engine for Participatory Map Services.

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Thank you!

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Questions and Answers

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???

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Sources

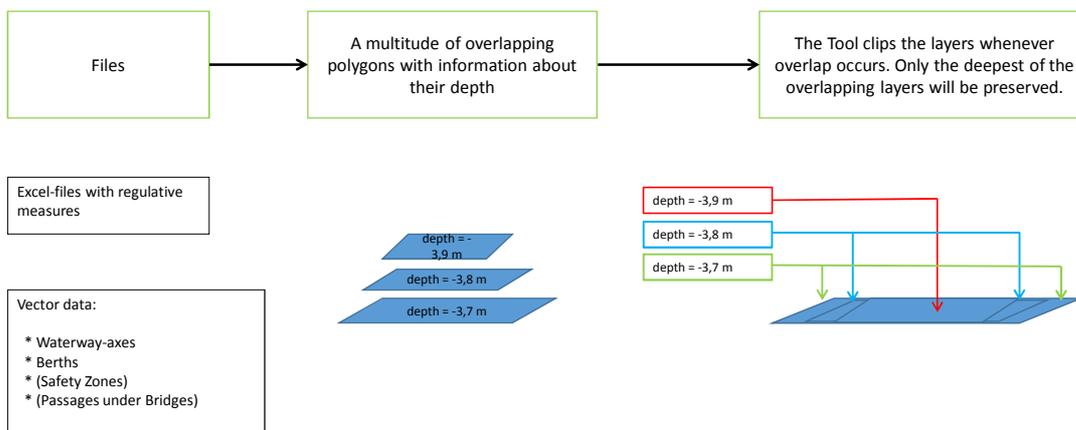**Gunneman**
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Image Dredging

http://www.werkhavenhitland.nl/weblog/files/tag-baggeren.html

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Scripting versus Modeling

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|	Scripting	vs	Modeling
	✓		✓
Reproducibile?			
Development Skills needed?	Programming Skills		Modeling Skills
Sensitive to syntax (errors)?	Yes ▬		No ✚
Easy to learn by someone else?	No ▬		Yes ✚
Easy to adjust by someone else?	No ▬		Yes ✚
Technical limitations	Sky is the limit ✚		Preprogrammed ▬
			(Including script reading) ✚

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The Model in short

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| Files | → | A multitude of overlapping polygons with information about their depth | → | The Tool clips the layers whenever overlap occurs. Only the deepest of the overlapping layers will be preserved. |

Excel-files with regulative measures

depth = -3,9 m
depth = -3,8 m
depth = -3,7 m

Vector data:

 * Waterway-axes
 * Berths
 * (Safety Zones)
 * (Passages under Bridges)

depth = -3,9 m
depth = -3,8 m
depth = -3,7 m

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(Meeting the) Challenges (1)

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Generating the berth lane layers automatically.
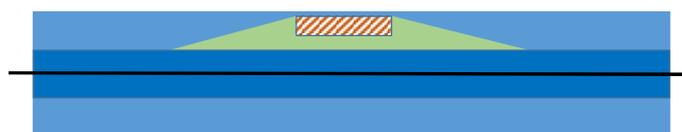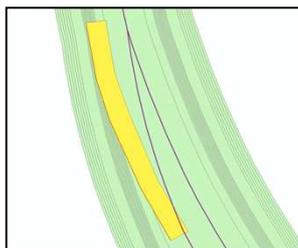
16% of the Berth Lane polygons needed manual drawing/adjustment.

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