Blom Aerofilms Limited

EuroSDR Workshop - October 20th 2015

Creation of 3D models
Overview of the Blom Group

- Europe’s largest aerial survey company
- Offices in 6 European countries
  - Head office in Oslo, Norway
  - Approx. 400 highly qualified staff
- Access to the latest technology
  - 6 aerial survey aircraft and 2 helicopters
  - 10 LiDAR systems and 6 aerial survey cameras
- Partnerships with leading global companies
  - Microsoft
  - Here
  - Tom Tom
Blom Aerofilms Company History

- Commenced trading in 1965
- Acquired Hunting Aerofilms in 1997
- Ordnance Survey Framework
- Highways Agency Framework
- Environment Agency Framework
- MoD Framework
- National Mapping in Denmark, Sweden, Netherlands and Belgium
- Infrastructure and Utility Projects
- BSI Certification
  - ISO:9001
  - ISO:14001
  - OHSAS:18001
Blom3D™ is a database of over 360 urban models (12,000 km²) and details more than 20 million buildings across Europe.

Applications
- City modelling and planning
- Telecommunications radio mapping
- Tourism guides and visualisation
- Navigation (primary use)

Benefits
- Efficient models for fast display
- Scales to all types of display device
- Various levels of detail (LOD)
- Quick to create from existing oblique datasets
Blom3D City Models – Global coverage:
Blom 3D - why a bespoke flowline?

- Flowline to be hosted at offshore production facilities
- Long term production schedules and development
- Deliverables tailored to client requirements
- Imagery sourcing costs
- Global coverage
Primary Use - Navigation:

- Multiple levels of detail for different devices
- Clean models – flat colour, basic texture
- Rapid production and revision
- Simple geometry – light data
- Global coverage
Blom3D™

- Levels of detail – **LOD1**
- Colour extracted from oblique image library
- Basic “shoebox” model.

Munich, Germany
Blom3D™

- Levels of detail – LOD2
- Roof geometry represented
- Wall colour from oblique
- Roof colour from Nadir imagery

Munich, Germany
- Levels of detail – **LOD3**
- Generic texture applied according to “style” attribution
- Restricted colour palette applied
- Roof geometry represented

Munich, Germany
Blom3D™

- Levels of detail – LOD4
- Texture alignment improvement applied
- Oblique imagery rendered model
- Full geometry representation

Munich, Germany
2008 – 2010

- Manual vector measurement and attribution collection
- Models produced from oblique datasets
- Focus on LOD4 photo-realistic models
Source imagery development – Oblique systems:

- Pictometry
- A3
- Midas
- RCD30
2010 – Today

- Stereo Imagery, vector and DTM generation
- Oblique used to create LOD4 models
- Mono vector collection
- Aerial stereo imagery
- Satellite imagery
Global coverage:

- World View
- GeoEye

Kuala Lumpur, Malaysia
Vector collection:

- Largely outsourced due to capture volume
- Simple roof line geometry
- Simple footprint
- Shape file format
- Model parameters controlled through attribution
Blom Oblique Plugin:

- ArcMap
- AutoCAD
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(Semi) Template geometry:

Through collection of two height measurements the majority of geometry can be represented.
Roof Builder - 2D shape geometry, plus DTM as input.

- Shape file output
  “Roof” and “Building” layers generated

London, England
QC Tools – “VRML Preview”:

Arc Map module that allows on the fly generation of VRML data.
Automated height assignment:

- DSM generation from aerial stereo imagery
- Vector data height assignment
- Confidence calculation
B.I.R.T.

- Anaglyph image generation:
- Ortho rectification

London, England
Manual Height Assignment / Correction:

- Automated height confidence
- Stereo image match
- Assisted match
- Manual match
- Roof and eave height return
- Vector display
- Production management
3D Landmarks – Integration:

- Blom has a library of over 6k 3DLM models.
- Models can be integrated with the 3DCM data
Elevated and raised structures:

- Pedestrian bridges
- Raised entrances
- Tunnels
Model Pre-Texture QC:

- Projection of vectors over oblique and nadir imagery
- Adjustment of attributes
- Adjustment of texture
- Adjustment of vector
Model Build: - Automated Process

- Automated generation of VRML / Collada
- Input: vector / DTM / imagery
- Automated texture extraction
- Automated colour extraction
- Tiled generation
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Texture / Colour Extraction:

- Vector data projected over imagery
- Imagery cut from oblique
- LOD1 and 2 Colour derived from texture extraction
- Individual façade textures stored in texture maps
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LOD4 Blom3D™ model of Oslo in Norway
Blom3D™

LOD4 Blom3D™ model of Sydney in Australia
Blom3D™

LOD2 Blom3D™ model of Paris in France
BlomURBEX™ is our online geoserver, developed to allow instant access to Blom’s archive imagery and 3D model products.

Delivered via a suite of applications, APIs and SDKs, clients can build custom software, apps or webpage integrations that have; search, navigation, measurement and export functionality, all within the imagery or 3D model environment.

Applications
- Local Government enforcement
- Emergency services response
- Urban planning
- Telecommunications
- Multimedia guides for education or tourism

Customers
- 1881.no (Norway)
- Vodafone Italy and ENEL (Italy)
- Many UK Councils – inc. Bristol, Bournemouth, RBKC
BlomURBEX 3D™ is an online platform capable of hosting and serving 3D models in a quick and efficient manner. It is built to deliver a high quality solution available for any potential user and can be adapted for both online and offline use.

With BlomURBEX 3D™ customers save time and the expense of having to invest in storage, server hardware and proprietary 3D viewer licenses to serve their 3D models.

BlomURBEX 3D™ lets you add new 3D models on the fly from standard 3D formats and also has the capability to add third party 3D models to be hosted and served from the platform.
Blom3D™ models are uploaded and stored on the BlomURBEX ™ server in 256x256px tiles, in Spherical Mercator (EPSG:3857) projection. This allows for fast and efficient viewing online.

Utilising our bespoke, in-house software, we can export models directly into .3DS, .OBJ, .VRML and COLLADA formats.

By creating a simply polygon of the area, the software retrieves the data tile by tile and stitches it together into an offline version ready to be used in any 3D software package.

Large areas can be tiled into different sections to make handling easier.
The models can be exported in varying resolutions, as well as in different options, for example:

- **LOD** (Level of detail) 1 to 4
- With or without ground layer (orthophoto)
- Year of orthophoto used
- Using the default DTM or a highly-detailed custom one

**LOD2 Wireframe**

**LOD4 Photorealistic Textures**
Thank you – any questions?

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