GIS Applications in Professional Archaeology

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Wessex Archaeology

- Educational Charity
- UK-wide
- 125 staff
- Coastal & Marine/Heritage
- Time Team
Heritage Objectives

1. Avoidance – project design/micrositing
2. Mitigation works – fieldwork/recording
3. Positive impacts - research
Standards and Legislation

Scottish Planning Policy (SPP)
EU Directive on EIA
Marine Act 2010
Professional standards (IfA/HS/EH etc)
GIS Hardware/Software in Wessex

- ArcGIS 9.3/10 + other
- 25 ‘floating’ licences
- Dedicated workstations
- GIS Databanks
GIS Applications in Wessex

• Field Data Capture
• Data synthesis
• Spatial Analysis
• Graphic outputs
• Training
Field Data Capture

- EDM/GNSS Surveys
- Mobile GIS
- DIVA
Heathrow Terminal 5
PDA

- Low cost + portable
- Basic positioning
- Data capture + access
Smartphone

- ArcGIS Online
- GPS capable
- Data access and creation
- Basemapping
DIVA - Diver Tracking

- Real-time tracking
- Accurate Recording
- Control + Safety
- Background data
Spatial Data Collation

Scottish Marine Data Audit

Characterising Scotland's Marine Archaeological Resource

Palaeolandsapes Audit
National Library of Scotland 1st + 2nd ed OS maps  
Multispectral coverage
Data Synthesis for planning

- Desk-Based Assessment
- Environmental Impact Assessment
- Strategic Environmental Assessment
Synthesis of defined sources

- Historic Environment Records
- Remote Sensing
- Environmental data (cores, samples, logs)
- Ethnohistorical (museums, archives)
- Community sources
- Published Sources
- Cartographic Sources
- Web resources
- Field Data
GIS Heritage Data Providers
Data Workflow for planning studies

Collate

Synthesise

Geodatabase

Gazetteer  Shapefiles  Graphics
Spatial Data Analysis

- Georeferencing/Accuracy Analysis
- Viewshed analysis
- Interpolation
- Raster-Based Analysis
Map Georeferencer home page
Online map georeferencing pilot programme

http://geo.nls.uk/maps/georeferencer/
c. 2,000 images

40 Million points +

50 metres diameter
Viewsheds (ZTI / ZTV)

- Setting impacts
- Based on Elevation
- Versatile technique
- Only a model
Viewsheds (ZTI/ZTV)

Visible / Not Visible
Cumulative Viewsheds


http://www.wessexarch.co.uk/
Intervisibility between Walsh castles in the Derrylacky valley.

No views outside valley.

Few views to non-Walsh castles.

Highest values at lip of valley.
Visibility/Prominence
Havant Landscape Sensitivity Assessment
Interpolation (topography)

Allean Cottages ringfort, Loch Tummel
## Interpolation (topography)

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<th>C</th>
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• Tidal correction (date needed)
• Map coords
• Transform WGS84 > UTM30N
• Interpolation
• Symbolise
• Contour
Olympic Park

By River, Fields and Factories: The Making of the Lower Lea Valley
Archaeological and cultural heritage investigations on the site of the London 2012 Olympic and Paralympic Games

By Andrew R. Powell
Late Pleistocene topography and palaeo-channels
Raster-based Analysis

RSL Factors
- Isostasy
- Eustasy
- Bathymetry
- Deposition/Erosion

England’s Historic Seascapes: Liverpool Bay

http://www.wessexarch.co.uk/
WA Training and GIS services

- Short Courses
- GIS Outsourcing
- Project Specific Commissions
Issues

• Data providers staff + services
• Software + Data costs
• Decentralised data
• Trained graduates
• Collaboration
Take home message

• Heritage data - Geographic character
• Core skill
• Range of skill levels
• Growth Area
• Varied and Rewarding
Thanks for watching

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For more information see
www.wessexarch.co.uk