CROSS-BORDER AND CROSS-DOMAIN INTEGRATION OF CONTENT IN A EUROPEAN GEOSPATIALLY ENABLED ECOSYSTEM

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GEOE3 ACTION

• Geospatially Enabled Ecosystem for Europe (GeoE3)
• Funded by Connecting Europe Facility (CEF)
• Duration: three years
• Budget: 2.6M€
• 12 partners
• Five national mapping or cadastral agencies
  • Finland, Norway, Estonia, The Netherlands, Spain
• Coordinated by National Land Survey of Finland
GEOE3 GOALS

• Use case –oriented approach for service development
• Cross-border content integration
  • Across five participating countries
• Cross-domain content integration
  • Geospatial with statistical, meteorological
• Implement modern service interfaces
  • OGC API Features, Coverages, Processes, Records
• Presenting 3D geodata in browser
• On-the-fly data enhancements
CLOUD PLATFORM

- Linux, Apache2, WSGI
- Django
- pygeoapi
- rasterio
- GDAL/OGR
- owslib

- CSC Cloud Platform cPouta
  - In Kajaani, Finland

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CSC Cloud, cPouta, Kajaani
GeoCubes VRT

Apache

OAPIC DSM

Coverage FI

rasterio Provider

GeoCubes VRT

Coverage NO

WCS 1.0.0 Provider

KARTV WCS 1.0.0

Coverage NL

WCS 2.0.1 Provider

KADASTER WCS 2.0.1

GEOProcessing'2021

July, 2021
FEATURE DASHBOARD

• HTML-formatted OAPIF response as a feature dashboard
  • f=html

• Collection of visual components describing the feature
  • 2D map, 3D model, attributes

• OGC API Features html browsing rethought
  • Maintaining map-browsing metaphor
APPLICATION-SPECIFIC FEATURE DASHBOARD

• For instance analysis of sun energy potential on rooftop
• Building footprint and Digital Surface Model
  • OGC API Features, Coverages
• Application-specific formatting
  • f=html-se: html –formatted representation of content destined for sun energy-related applications)
  • f=json-se (the same, but json –formatted)
• Example
  • WhiteboxTools: TimeInDaylight
Finland

Zoom in to see the items in this collection.
OAPIF CROSS-COLLECTION QUERY

- Essential from the cross-border interoperability point of view
- OAPIF – Part 3, Chapter 6.4

https://.../geoe3/buildings/search?
collections=buildings_FI,buildings_NO
bbox=26.998585,69.903087,27.061414,69.920908
&f=json
&limit=1000
OAPIC CROSS-COVERAGE QUERY

• Essential from the cross-border interoperability point of view
• Experimental, not standardized

• https://.../geoe3/dsm/search?
  collections=DSM_NO,DSM_FI
  &subset=x(1756108.1:3748915.4),y(10110879.3:11705125.2)
  &scaleSize=x(1000),y(800)
  &f=png
OAPIC CROSS-COVERAGE QUERY

• Server runs two background queries for DSM (Finland, Norway)
  • Finland in ETRS-TM35FIN (EPSG:3067)
  • Norway in UTM Zone 33 (EPSG:25833)
• Transformation to Pseudo Mercator (EPSG:3857)
  • Harmonization of resolution
  • Nodata areas
• Merging arrays together
• Masking of the nodata areas
• Rendering to PNG image
CONCLUSION

• GeoE3 action commenced in CEF programme
  • Use case -oriented

• Aims at cross-border and cross-domain data integration
  • Five countries, integration of statistical and meteorological data

• Applies modern service interface standards
  • OGC API Features, Coverages, Processes, Records

• Focus on 3D presentation of geodata in browser

• Rethinking of OGC API Features html output
THANK YOU!

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