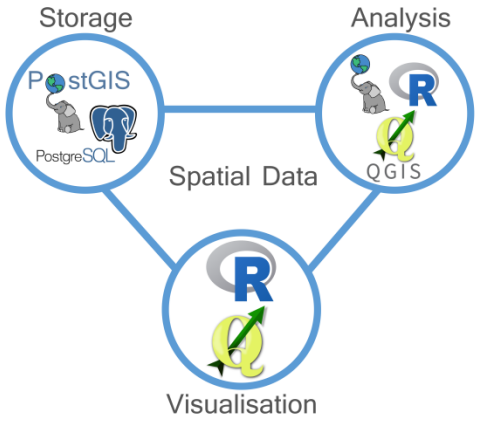
atlas

UNDERSTANDING DEEP ATLANTIC ECOSYSTEMS



Storage, Analysis & Visualisation of Spatial Data : A workflow to support MSP in Rockall

ATLAS AGM, Mallorca, 10th April 2018

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The Scottish Government

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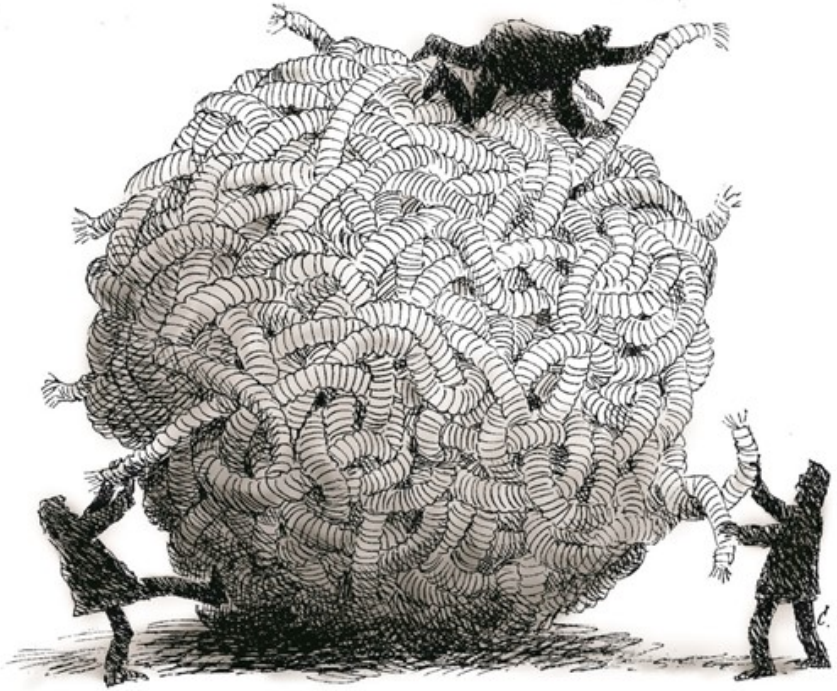
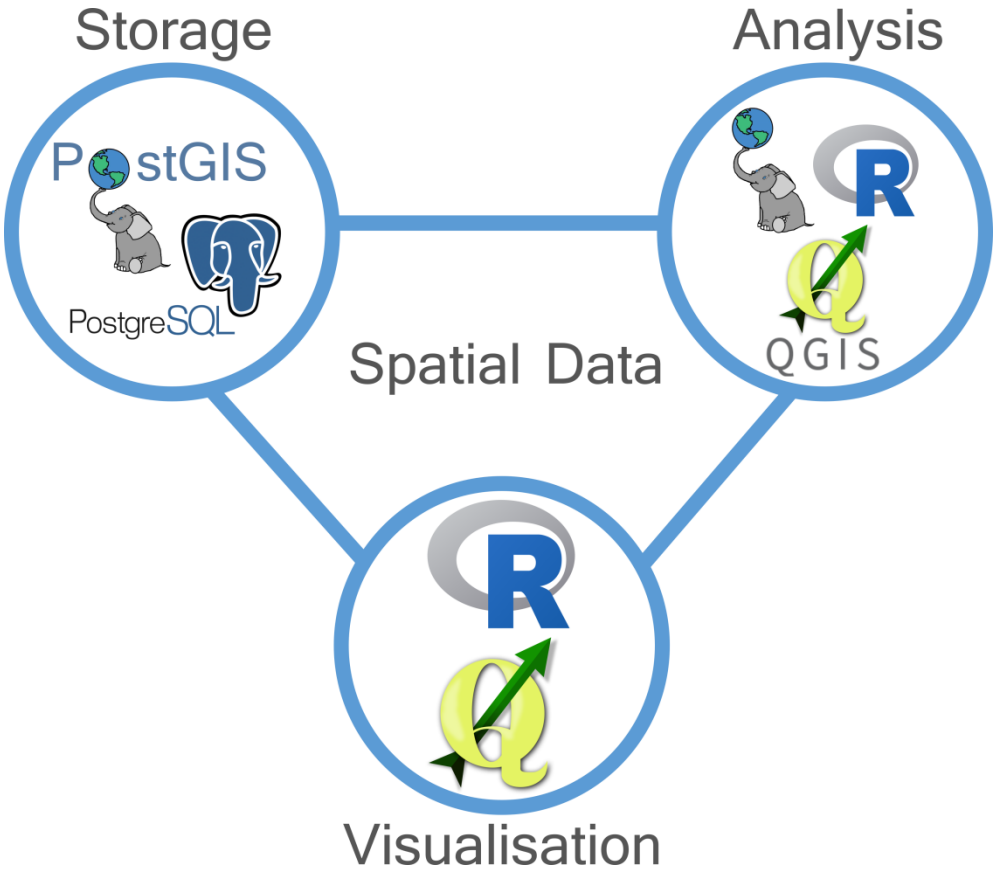
Talk structure

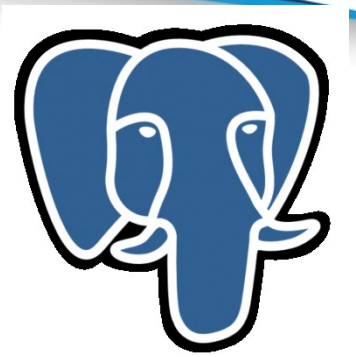
- Present the tools we've used in our workflow
  - Very brief outline of each software
- Demo video

Workflow established in an effort to avoid:



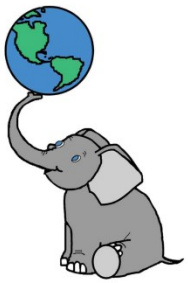

Storage
Analysis
PostGIS
PostgreSQL
R
QGIS
Spatial Data
R
Visualisation

PostgreSQL



- Powerful object-relational database system (> 15 yr dev)
- Award winning & **open source** (PostgreSQL license)
- Active PostgreSQL DBs managing > 4 TB
- Built to be **extensible**
- Strongly conforms to the ANSISQL:2008 standard
- Cross platform with GUI database design and admin tools

PostGIS



- Adds support to PostgreSQL for geographic objects
- Allows it to be used as backend spatial DB for GIS
- Includes geospatial processing & analysis functions
- High performance spatial searching
- **Open source** (GNU GPL)
- Geometry and raster data functionality

- Statistical programming language & environment
- **Open source** (GNU GPL)
- Extensible : compatible with PostgreSQL & PostGIS through packages (e.g. RPostgreSQL & RPostGIS)
- Excellent packages available for spatial analysis
- Powerful graphics capabilities
- IMO not so great for interactively plotting and viewing lots of spatial data

- A **free, open source** desktop GIS application
- Processing toolbox that includes algorithms from GRASS, SAGA, GDAL etc.
- Includes access to hundreds of handy ‘plugins’
- Ever improving map making (print composer)
- Native support for PostgreSQL & PostGIS
- ‘QGIS not just a software – it’s a community’
  - Excellent user support and documentation

Demo video:

- Using ICES VMS data as an example:
  - Read shapefiles into PostgreSQL / PostGIS
  - Add to and visualise in QGIS
  - R – connect to PostgreSQL / PostGIS
  - Read in data, clip and visualise
  - Aggregate VMS data over a grid
  - Write layers out to PostgreSQL / PostGIS DB
  - Read aggregated layers into QGIS and visualise
  - Some results for Rockall