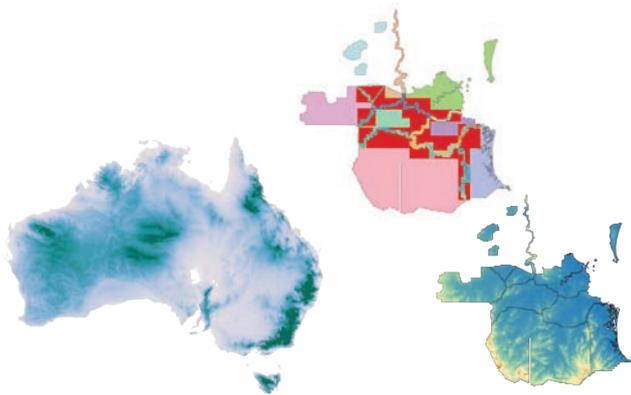
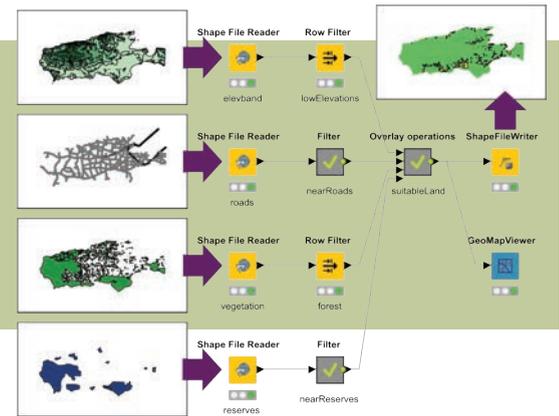


CRC SI P2.23: Open Spatial Analytics

Sharing Spatial Intelligence using Scientific Workflows

Open spatial analytics (OSA) is about sharing of spatial intelligence. The OSA project enables anyone to create, share, adapt, and remix spatial analytics, using scientific workflows. Scientific workflows model an analytics process as a network of operations connected by data flows. The OSA project is augmenting an existing open-source workflow system (Knime) with cloud-based spatial capabilities. The resulting workflows capture human spatial knowledge as executable documentation.



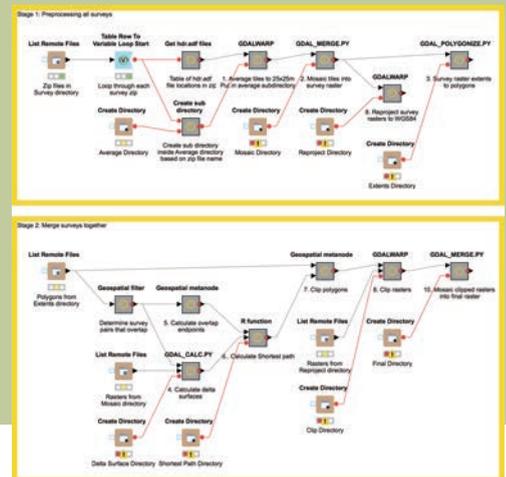
Case Study

Together with project partners Geoscience Australia (GA), the OSA project is capturing the analytics behind the construction of the National DEM. The process involves blending LiDAR data from more than 60 different surveys into a coherent national data set. The results of this case study will increase automation, as well as increase transparency and improve warrantability of GA's data. The approach provides a blueprint for putting "science at the centre" of the foundational spatial data framework (FSDF).

Impacts of Open Spatial Analytics

There are three main benefits of sharing spatial analytics through the OSA platform:

- 1. Reduces duplication:** Today, many different industries and agencies are generating bespoke software solutions to similar problems, costing time and money. OSA makes it easy to capture the knowledge required to reuse and remix a solution many times.
- 2. Increases transparency:** OSA makes spatial data processing more transparent, by making executable documentation. Together with open data, this makes analytics more warrantable, giving industry and government certainty about how exactly data was created and decisions were made.
- 3. Increases scalability:** OSA data and tools live in the cloud, and enable the automation of spatial analytics. The open cloud-based architecture ensures OSA workflows can scale up to big data and national-scale spatial data infrastructure.



Outcomes

The project has already built a cloud-based, open analytics workflow platform that can integrate spatial data and operations from most open-source and proprietary software (including PostGIS, QGIS, GeoTools, Grass, WMS/WFS, R, Docker). Ongoing research is also laying the foundations for exciting new and advanced capabilities for spatial workflows, including: massive parallelisation of spatial operations; scaling to national and big spatial data; managing the provenance of analytics; supporting business workflows and data custodianship; integrat-

ing machine learning capabilities; enabling intuitive user interfaces and self-documentation of workflows; and automated workflow-as-a-service deployment.

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