Processing Raw Output Data From Noise and Air Quality Modelling
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Environmental Resources Management (ERM) is a leading global provider of environmental, health, safety, risk, and social consulting services.

- Oil & Gas
- Transport
- Renewables
- Mining
- Power
About Noise and Air Quality Modelling

Noise and air quality assessments form an integral part of Environmental, Social and Health Impact Assessment.

- What are noise and air quality assessments?
- Why do we do them?
  - Standards and regulations.
  - Funding prerequisites.
The Benefits and Challenges of Using GIS

Modelling of emission/transmission has a geography, it is spatial data.

However, there are challenges…

■ Data volume.
■ Data complexity.
■ Interoperability.

But the benefits are significant…

■ Geoprocessing
■ Customization
■ Versatility
■ Visualization
There are 4 steps which I am going to focus on:

1. Providing specialists with input data for modelling
2. Receiving modelling outputs from specialists
3. Processing of raw output data
4. Presenting data in a clear and effective manner

The Ultimate Goal:

To provide the client with clear, informative, and attractive visualizations of air quality/noise dispersion…

…as cost effectively as possible.
Step 1: Providing Modelling Inputs

Noise and air quality modelling is carried out using specialist software:

AERMOD     CALPUFF     FLARES

SoundPLAN   PREDICTOR

The input data required includes:

Bullet Transmission/emission source locations
Bullet Project design
Bullet Local topography
Step 2: Receiving Modelling Outputs

Different modelling software provide various different options for outputs.
Step 3: Processing of Model Outputs

The main benefits of x,y,z data as an output are:

- Low storage requirements
  - High resolution modelling can output grids of 50,000+ points
- Ability to manipulate the raw data
  - Potential application of complex formulae
- Ability to combine scenarios into single GIS point layer
- Ability to generate any required format for visualization

Once you have a point grid in GIS format you can begin to process the data to meet your specific needs…
Step 3: Processing of Model Outputs... cont.

ModelBuilder can be used to automate the process for generating rasters from the point data for multiple pollutants:
Step 3: Processing of Model Outputs…cont.

From the rasters you can generate contours:

By using ModelBuilder you can significantly reduce the time that it takes to generate rasters and contours for all required dispersion datasets.
Step 4: Presenting the data

Now that we have our data in a suitable format for use in GIS, we can look at how to present as effectively as possible.

- Classified…
- Or Stretched…
- Customizable colours…
- Customizable basemap…
- Source and receptor locations…
- Other map elements…
Conclusions

Streamlining processes is a very effective way of saving time and subsequently reducing costs on projects.

However, there are challenges to this workflow.
  - Data errors and interpolation.
  - Responsibility.

But the positives outweigh the negatives.
  - Time/Cost saving.
  - Consistency.
  - Scalability.
Any Questions?
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