

What's happening...

waterRIDE™

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www.waterRIDE.net

The waterRIDE™ development team have been busy with the impending release of a new tool, waterRIDE™ TERRAIN. Designed to make ready use of massive ALS/LiDAR derived terrain datasets, it simplifies the process of building the highest quality DEM(s) to match user requirements, without the need for specialised training or system requirements. Whilst in “pre-release” testing at present, the tool is already in use at a number of organisations. Please feel free to contact us to discuss how this tool may help you utilise your ALS/LiDAR data.

waterRIDE™ TERRAIN: Creating “On Demand” DEM's From Massive ALS/LiDAR Datasets

waterRIDE™ TERRAIN was developed to create usable Digital Elevation Models (DEM's) from *very large* ALS or LiDAR terrain datasets, on demand. It's origins started in a tool developed to facilitate custom tiled DEM creation for Moreton Bay Regional Council (MBRC) as part of their Regional Floodplain Database project. Council had some 50 GB of LiDAR XYZ data in nearly 3,000 tiles (approximately 1.6 billion points!).

MBRC had varying DEM resolution requirements relating to different intended uses of the DEM's (eg flood modelling, terrain analysis, hydrologic modelling etc). As such, traditional approaches of preparing tiled DEM's matching the LiDAR tiles could not provide the desired flexibility and would prove cumbersome to manage.

waterRIDE™ TERRAIN employs an innovative approach to developing DEM's through it's “*Dynamic Elevation Assignment Approach*”.

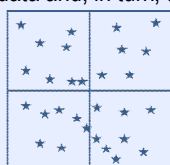
Users specify properties of their desired DEM, including:

- Extents, Cell size (resolution), and desired tiling (if any)
- Output file format (ASCII grid, waterRIDE raster etc)
- TUFLOW hydraulic model Z-Points file (if desired)

waterRIDE™ TERRAIN will then extract data points from the base LiDAR/ALS datasets matching these requirements and assign elevations to each cell in the output DEM using the dynamic approach.

For each cell, the tool will assess the *relative density* of source data (ie the number of data points in each cell). Where the relative density is low, the tool will interpolate the elevations from a triangulated TIN surface. Where the relative density is high (a number of data points in each cell), the tool will assign elevations using an averaging function, thereby overcoming traditional sampling errors in dense source data.

The figure below shows how, for the same base ALS/LiDAR data, the output DEM cell size (say, 5m vs 2m) governs the “relative density” of the source data and, in turn, the best processing method.



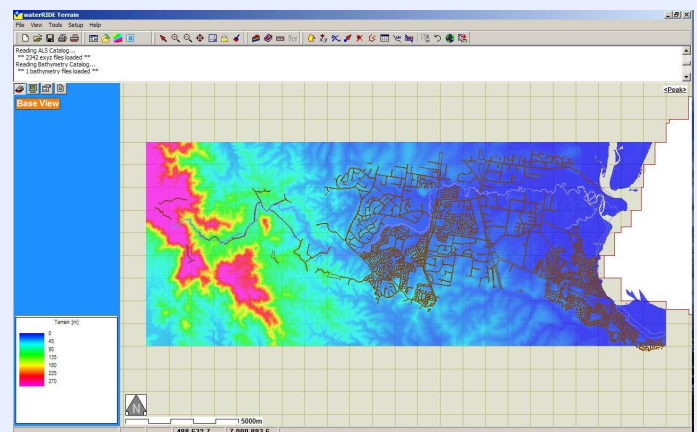
High Relative Density
(many points per cell)



Low Relative Density
(few points per cell)

In this sense, the DEM is built to provide the best quality for the specified output cell size, on a cell by cell basis. As this can vary between the intended use of the DEM, the tool provides a very simple and flexible way of generating the best DEM to match your requirements.

Through it's simple interface, users can extract a DEM to suit their requirements as/when required, without the need for expert involvement.



Alternatively, experienced users can batch process DEM's to serve common uses, whilst maintaining flexibility to readily handle specific requests.

waterRIDE™ TERRAIN automatically handles your source data, including integrating bathymetry and updated data into your DEM's, ensuring that you will always have access to the most current information.

It processes the datasets “in the background”, ensuring that very large datasets are managed seamlessly, without falling over!

WorleyParsons are also using the tool to prepare DEM's for clients, with a very quick turnaround.

To tool has not been added to the www.waterRIDE.net website yet, so please feel free to contact us if you wish to learn more.

Quick Tip: Exporting High Quality JPEG's

Did you know that you can export high quality JPEG's of the current view using the Tools->Export->Export View menu? Simply change the file type filter to “Custom Bitmap Size” and you can then adjust the number of pixels in your output JPEG. Ideal for high quality, large size print outs!

