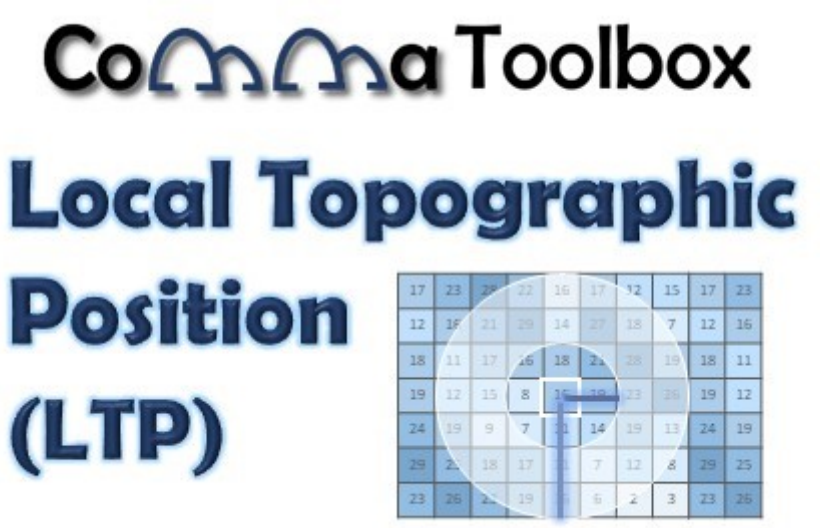
Mean LTPs

Title Mean LTPs

Description

The **"Mean Local Topographic Position (LTP)"** provides access to two different algorithms that compare the elevation of each cell in a DEM to the mean elevation of a specified neighbourhood around that cell.

Illustration



Usage

The **"Mean Local Topographic Position (LTP)"** tool allows the calculation of the BPI or DEV of the provided DEM, according to the window of analyses set by the user.

The **Bathymetry Position Index (BPI)**: BPI measures the vertical position of a pixel relative to the mean elevation (μ) of a user-defined neighbourhood.

The **Deviation from mean elevation (DEV)**: DEV measures the vertical position relative to the neighbourhood mean elevation (μ), but also normalizes by the standard deviation (σ) of the neighbourhood elevation distribution, effectively expressing local topographic position as a z-score.

Syntax

PI_calculator_ (inputDEM, filt_type, inner_radius, outer_radius, outRas)

Parameter	Explanation	Data Type
inputDEM	Dialog Reference The DEM that will be used as input. There is no python reference for this parameter.	Raster Layer
filt_type	Dialog Reference Type of position index to be calculated. • BPI (Bathymetry Position Index) or • DEV (Deviation from mean elevation) There is no python reference for this parameter.	String
inner_radius	Dialog Reference	Long

	The Inner radius of the annulus-shaped neighbourhood, that will be included in the LTP calculation. This can also be referred to as skip distance and is the distance in cells to the internal circle, after which the cell values will be included in processing the neighbourhood. There is no python reference for this parameter.	
outer_radius	Dialog Reference The outer radius of the annulus-shaped neighbourhood, that will be included in the LTP calculation. This can also be referred to as search distance and is the distance in cells to the external circle, after which the cell values will not be included in the analysis neighbourhood. There is no python reference for this parameter.	Long
outRas	Dialog Reference Output raster name. There is no python reference for this parameter.	Raster Dataset

Code Samples

There are no code samples for this tool.

Tags

Data Preparation

Credits

Arosio, R., Gafeira, J. & De Clippele, L. (2023) CoMMa Toolbox - Version 1.0 (https://github.com/ricarosio/CoMMa/tree/main)

Riccardo Arosio (University College Cork) and Joana Gafeira (British Geological Survey) conceived the original idea of the new ArcGIS Pro based on a previous toolbox created by Joana Gafeira, the BGS Seabed Mapping Toolbox (Gafeira, J., 2017). Riccardo Arosio wrote the Python scripts while Joana Gafeira and Laurence De Clippele performed extensive testing.
The tools development was mainly funded by INFOMAR through the Irish Marine Institute's research grant PDOC 19/08/03. The British Geological Survey and iAtlantic have also supported the creation of the toolbox.

Use limitations

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