Erdas Spatial Modeler functions 英文函数说明

This dialog lets you compose a function definition using the appropriate input objects and available Spatial Modeler functions. The result is an expression that defines your output.
This dialog opens when you double-click a function graphic that has been placed on the Model Maker page, or when you select **Edit > Properties** from the Model Maker menu bar with a function graphic selected.

Available Inputs: All objects that are connected as inputs to this function list here. Each layer of any raster layersets lists separately, as well as the name of the entire layerset.
Click on any input in this list to add it to the function definition that opens at the bottom of the dialog.
If <none defined> opens, then no inputs have been defined for this function definition.

[calculator] Click numeric values and operators as needed in the function definition. Items selected are inserted in the function definition area at the bottom of the dialog.

Functions: Click on the dropdown list button to select a function category. The functions in that category then appear in the scrolling list. Select a function from the scrolling list, and it appears in the function definition, below.
Any prototype arguments that are needed for the selected function appear in **< >** brackets. Be sure to replace these with input objects or values.

Each function is described briefly below. These functions are described in detail in the Analysis section of the Spatial Modeler Language Reference Manual.

Analysis Includes convolution filtering, histogram matching, contrast stretch, principal components, and more.

CLUMP Clump - Contiguity Analysis: performs a contiguity analysis on <raster>, a single layer RASTER.

CONVOLVE Convolution: performs a convolution on <raster> using <kernel> as the convolution kernel.

CORRELATION Correlation Matrix from Covariance Matrix: computes the correlation matrix from the covariance matrix.

CORRELATION Correlation Matrix from Raster: computes the correlation matrix of <raster>.

If any band is a linear combination of other bands, the bands are nonindependent. Using either of the Correlation functions with nonindependent data bands results in an error.

COVARIANCE Covariance Matrix: returns the covariance matrix of <raster>.

DELROWS Delete Rows from Sieved Descriptor Column: outputs a table where the rows corresponding to the 'sieved' values have been deleted.

DIRECT LOOKUP Map Integer Values Through Lookup Table: maps integer values in <arg1> through the lookup table <table>.

EIGENMATRIX Compute Matrix of Eigenvectors: outputs the matrix of eigenvectors derived from the input matrix.

EIGENVALUES Compute Table of Eigenvalues: outputs the eigenvalues of the matrix returned as a table.

HISTMATCH Histogram Matching: determines a lookup table that converts the histogram of one object to resemble the histogram of another object.

HISTOEQ Histogram Equalization: computes a histogram equalization of <raster> using <bincount> bins.

HISTOGRAM Histogram: returns the histogram of <arg1>.

LINEARCOMB Linear Combination: computes the linear combination of <raster> using <arg2> as a transformation matrix.

LOOKUP Map Input Values Through Lookup Table Using Bin Function: if <table> has an associated bin function, the values in <arg1> convert to bin numbers, then the bin number is used as an index into the lookup table <table>.

PRINCIPAL COMPONENTS Principal Components: computes the first <count> principal components of <raster>.

RASTERMATCH Raster Matching: maps <raster1> through a lookup table so that the histogram of each layer of the returned RASTER has approximately the same shape as the histogram of the corresponding layer of <raster2>.

SIEVETABLE Get Sieve Lookup Table: produces a lookup table that can be used to filter out small clumps from a layer which is the output of CLUMP.

STRETCH Stretch: performs a linear scale and shift on the input <raster>.

Each function is described briefly below. These functions are described in detail under Arithmetic in the Spatial Modeler Language Reference Manual.

Arithmetic Perform basic arithmetic functions including addition, subtraction, multiplication, division, factorial, and modulus.

+ (Addition): adds <arg1> and <arg2>.

- (Subtraction): subtracts <arg2> from <arg1>.

- (Negation): negative of <arg1>.

*** (Multiplication):** multiplies <arg1> by <arg2>.

/ **(Division):** divides <arg1> by <arg2>.

MOD Modulus: returns the remainder (modulus) when <arg1> is divided by <arg2>.

! (Factorial): computes <arg1> factorial.

Each function is described briefly below. These functions are described in detail under Bitwise in the Spatial Modeler Language Reference Manual.

Bitwise Use bitwise and, or, exclusive or, and not.

& (Bitwise And): computes the bitwise and of <arg1> and <arg2>.

| (Bitwise Or): computes the bitwise or of <arg1> and <arg2>.

^ (Bitwise Exclusive Or): computes the bitwise exclusive or of <arg1> and <arg2>.

~ (Bitwise Not): reverses the bits of <arg1>.

Each function is described briefly below. These functions are described in detail under Boolean in the Spatial Modeler Language Reference Manual.

Boolean Perform logical functions including and, or, and not.

AND Logical And: true if <arg1> and <arg2> are both nonzero, false otherwise.

&& (Logical And): true if <arg1> and <arg2> are both nonzero, false otherwise.

OR Logical Or: true if either <arg1> or <arg2> is nonzero, false otherwise.

|| (Logical Or): true if either <arg1> or <arg2> is nonzero, false otherwise.

NOT Logical Not: true if <arg1> is zero, false otherwise.

Each function is described briefly below. These functions are described in detail under Color in the Spatial Modeler Language Reference Manual.

Color Manipulate colors to and from RGB and IHS.

COLOR Create Color Scalar: converts either the color name string constant in <colorname>, or the red, green, and blue values input into a COLOR SCALAR.

HUE Get Hue from RGB: computes hue from red, green, and blue values.

IHSTOBLU Get Blue from Intensity, Hue, and Saturation: computes blue from intensity, hue, and saturation values.

IHSTOGRN Get Green from Intensity, Hue, and Saturation: computes green from intensity, hue, and saturation values.

IHSTORED Get Red from Intensity, Hue, and Saturation: computes red from intensity, hue, and saturation values.

IHSTORGB Get Red, Green, and Blue from Intensity, Hue, and Saturation: computes red, green, and blue from intensity, hue, and saturation values contained in <ihs>.

INTENS Get Intensity from RGB: computes intensity from red, green, and blue values.

RGBTOIHS Get Intensity, Hue, and Saturation from Red, Green, and Blue: computes intensity, hue, and saturation from red, green, and blue values contained in <rgb>.

SATUR Get Saturation from RGB: computes saturation from red, green, and blue values.

STACK Convert FLOAT TABLE to COLOR TABLE: converts the RGB values from a float table to a color scalar.

UNSTACK Convert COLOR SCALAR to FLOAT TABLE: outputs a FLOAT TABLE with 3 rows.

Each function is described briefly below. These functions are described in detail under Conditional in the Spatial Modeler Language Reference Manual.

Conditional Run logical tests using conditional statements and either...if...or...otherwise.

CONDITIONAL Conditional: <test1> is converted to BINARY. If true, <arg1> is returned. Otherwise, <test2> is converted to BINARY. If true, <arg2> is returned, etc.

EITHER... IF... OR... OTHERWISE Select on Binary Test: <test> is converted to BINARY. If true, <arg1> is returned. Otherwise, <arg2> is returned.

INDEX Index - Find Matching Item on List: if <test> equals <arg1>, 1 is returned. If <test> equals <arg2>, 2 is returned, etc. If <test> is not equal to any of the arguments on the right, 0 is returned.

PICK Pick - Get nth Item on List: if <number> is 1, <arg1> is returned. If <number> is 2, <arg2> is returned, etc.

Each function is described briefly below. These functions are described in detail under Data Generation in the Spatial Modeler Language Reference Manual.

Data Generation Create raster layers from map coordinates, column numbers, or row numbers. Create a matrix or table from a list of scalars.

MAPX Create Raster Containing X Map Coordinates: returns a raster in which each pixel contains the x map coordinate corresponding to its position.

MAPY Create Raster Containing Y Map Coordinates: returns a raster in which each pixel contains the y map coordinate corresponding to its position.

MATRIX Create Matrix from List of Scalars: returns a matrix <rows> rows by <columns> columns containing the scalar arguments in the order listed across successive rows.

MATRIX Read Matrix from Kernel Library: returns a matrix read from a kernel library.

MATRIX SERIES Create Matrix Containing 2-D Series: returns a matrix having <rows> rows and <columns> columns.

PI Pi: returns the value of pi (3.14159...).

PIXELX Create Raster Containing Column Number: returns a raster in which each pixel contains its column position in the Working Window.

PIXELY Create Raster Containing Row Number: returns a raster in which each pixel contains its row position in the Working Window.

STACKLAYERS Stack Raster Layers: outputs RASTER which includes all the layers from <arg1>, <arg2>, <arg3>, etc.

TABLE Create Table from List of Scalars: creates a table containing the scalar arguments input in the order listed.

TABLE SERIES Create Table Containing Series: creates a table containing <count> elements.

Each function is described briefly below. These functions are described in detail under Descriptor in the Spatial Modeler Language Reference Manual.