Customizing Point-Stat and Grid-Stat Output

We'll restrict this discussion to an explanation of masking and interpolation.

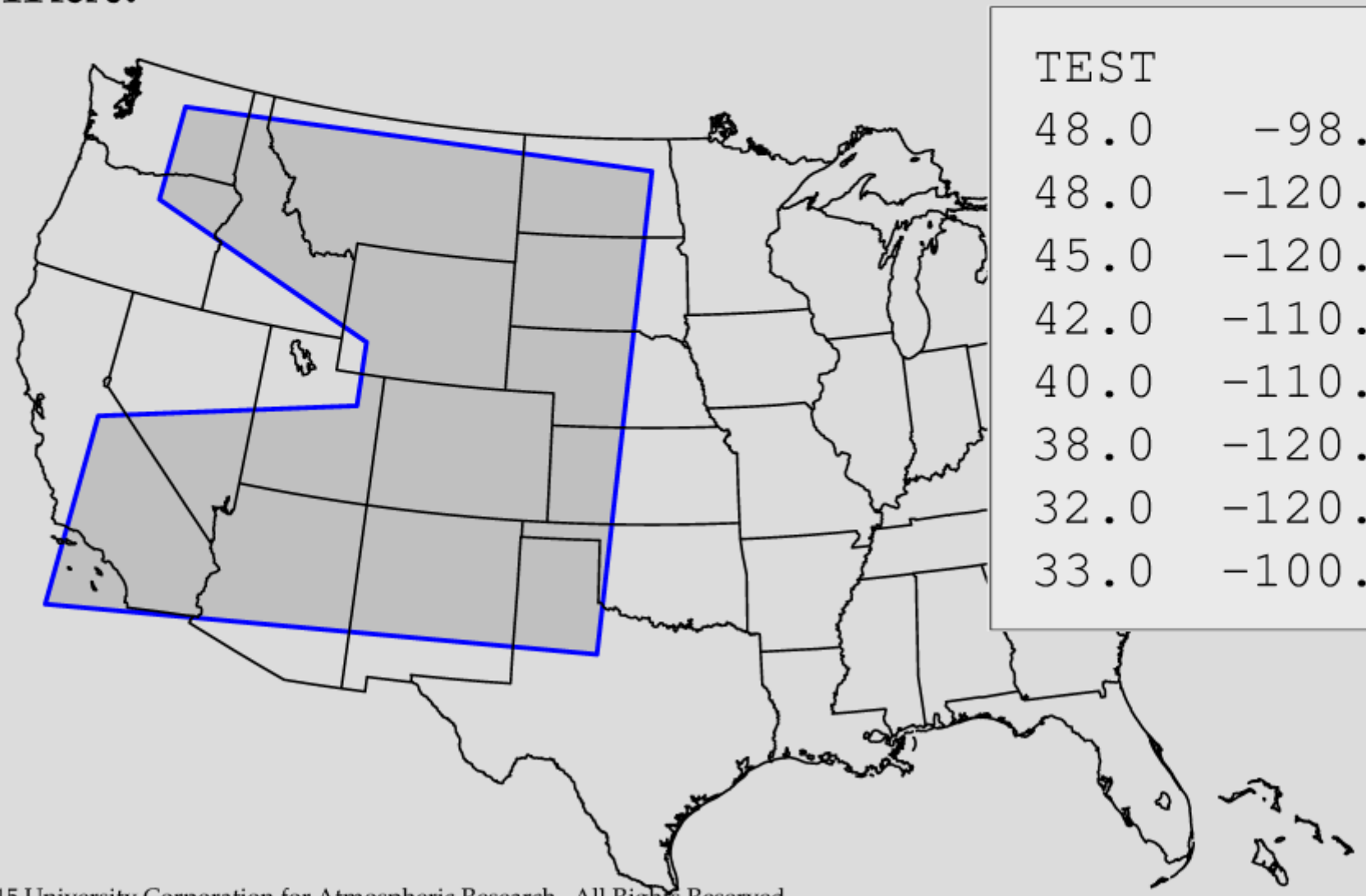
They're the parts that people have the most questions about, it seems.

What is **masking**? Many times you want to restrict your verification to some subregion. The subregion may be specified in several ways.

	Polyline	Grid	Stations	On/Off Bit Map
Point Stat	✓	✓	✓	✓
Grid Stat	✓	✓	N/A	✓

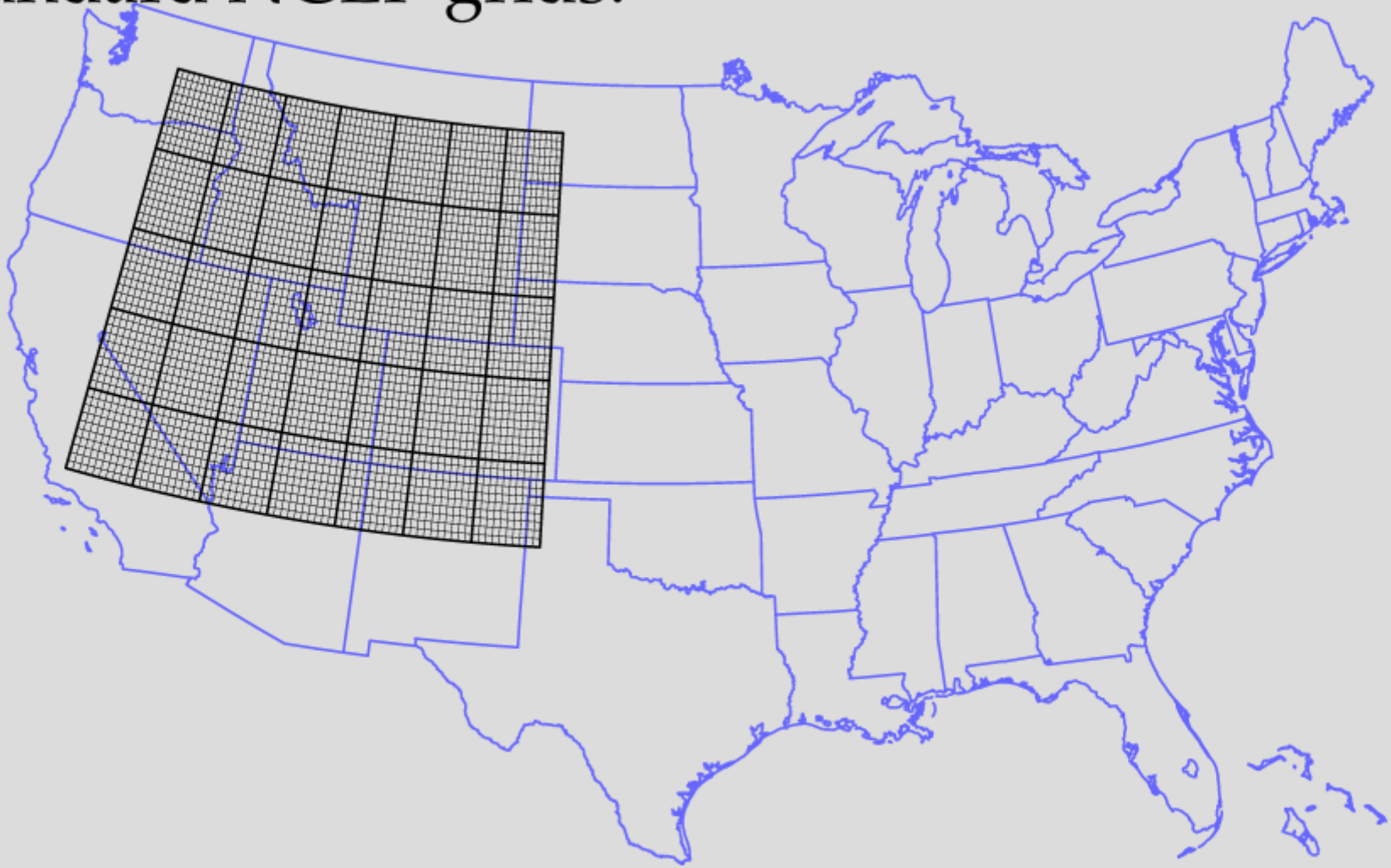
Masking by stations doesn't apply to Grid Stat.

Polyline masking: The user provides a closed lat/lon polyline boundary in a simple ASCII format.



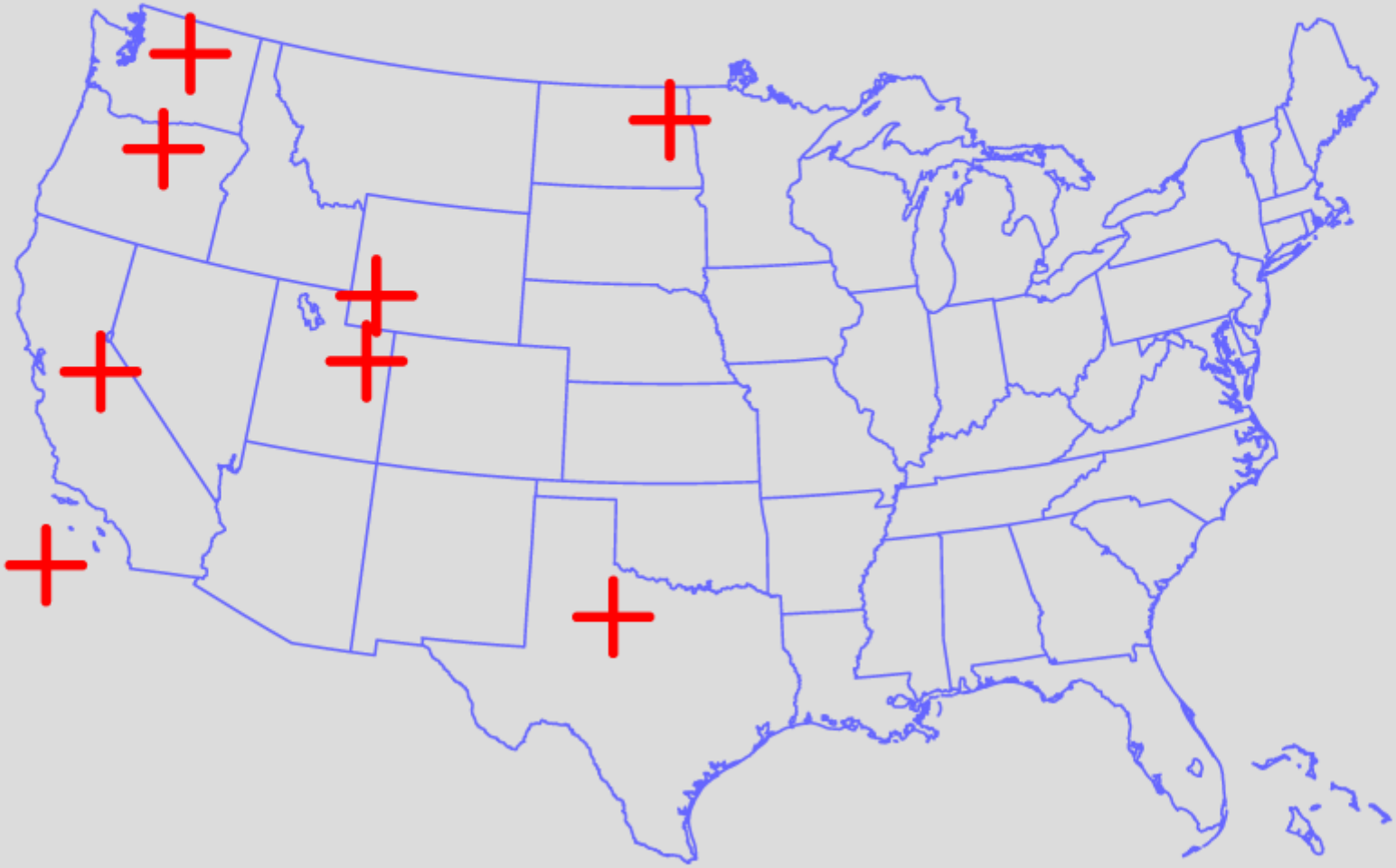
```
TEST
48.0    -98.0
48.0   -120.0
45.0   -120.0
42.0   -110.0
40.0   -110.0
38.0   -120.0
32.0   -120.0
33.0   -100.0
```

Grid Masking: The user can specify one of the standard NCEP grids.

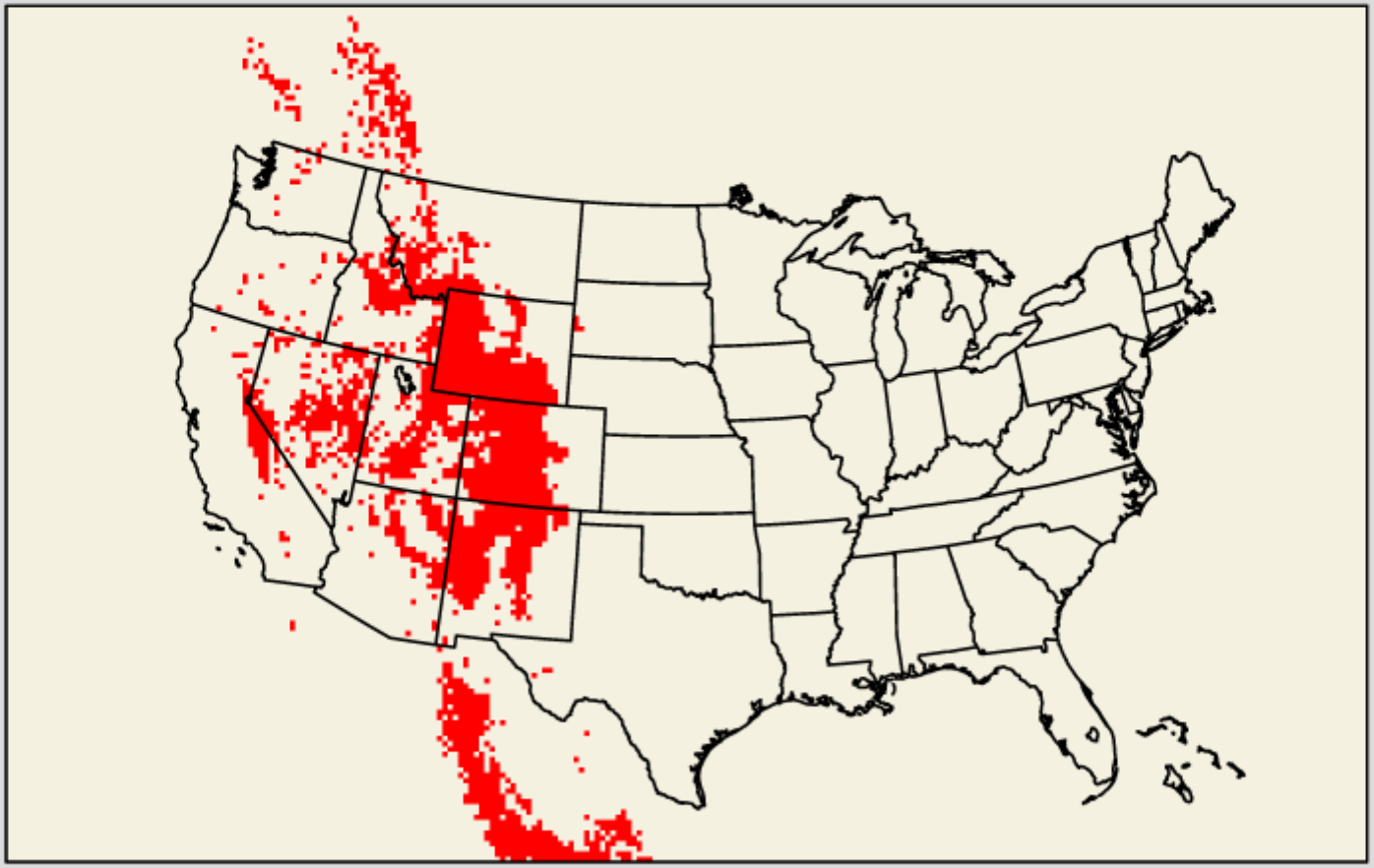


NCEP grids link: www.nco.ncep.noaa.gov/pmb/docs/on388/tableb.html

Station Masking: The user can specify a list of stations and Point-Stat will verify only at those stations.



Data Threshold Masking: The user may specify a threshold on some other data field for masking.



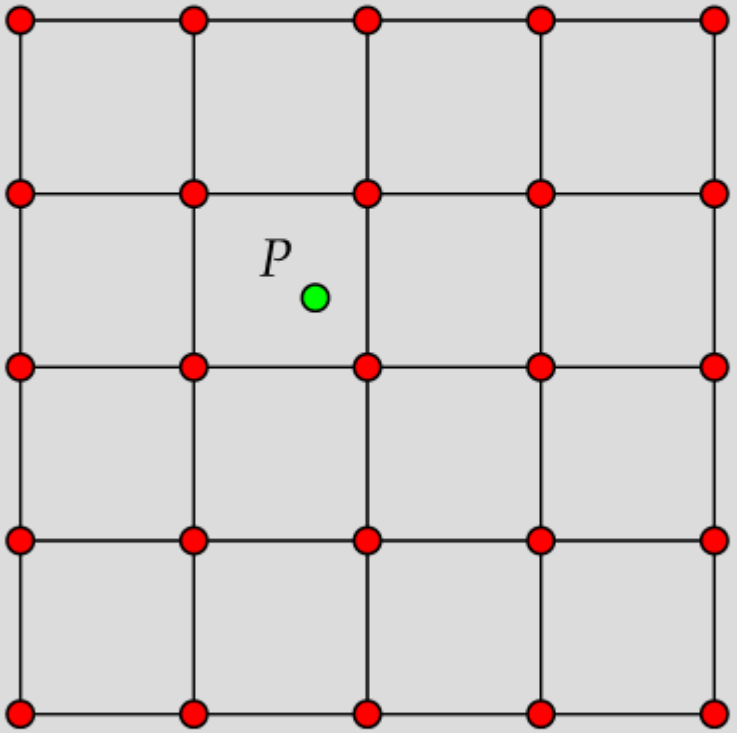
Topography > 6000 feet

Interpolation

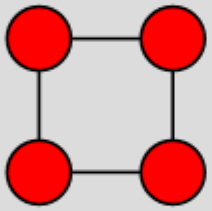
Need to Choose:

(1) Method

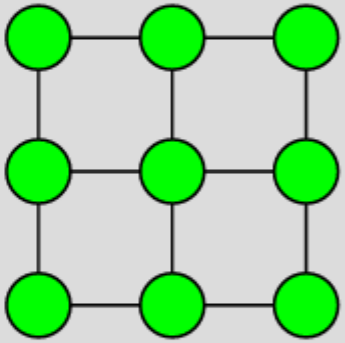
(2) Width



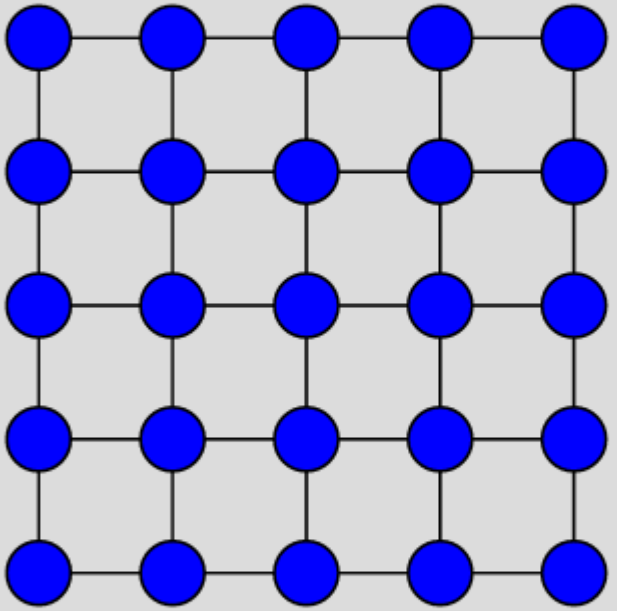
Interpolation Widths



N = 2



N = 3



N = 5

Interpolation Methods

	Min	Max	Median	UW Mean	DW Mean	Nearest Nbr	Least Squares
Point Stat	✓	✓	✓	✓	✓	✓	✓
Grid Stat	✓	✓	✓	✓	N/A	N/A	N/A

For Grid Stat, these are smoothing methods.

Min, Max, Median

Takes minimum, maximum or median of values in interpolation square.

Median separates the upper half of data values from the lower half. This is different from the mean, which is an average.

Nearest Neighbor

Essentially, no interpolation is performed.

Value at interpolation point is simply the data value at the closest grid point.

Unweighted Mean
Distance-Weighted Mean

Unweighted Mean is the average.

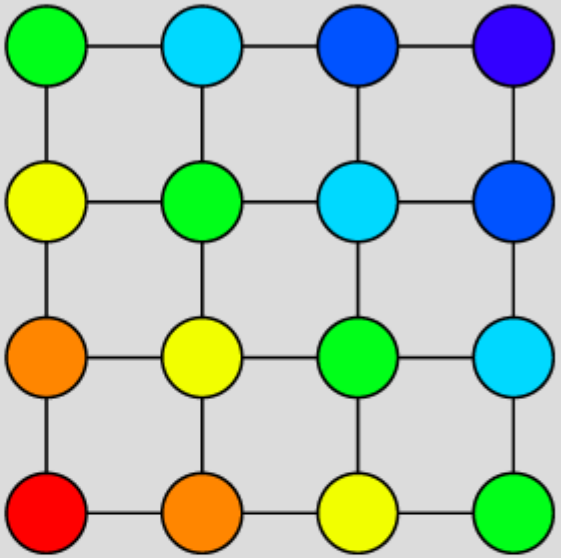
Distance-Weighted Mean is an average weighted according to distance from nearby grid points.

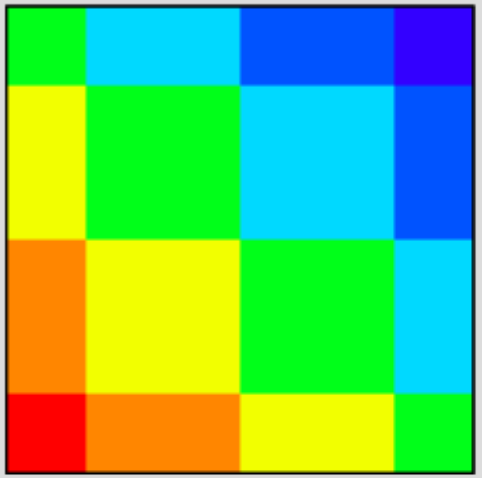
Least Squares

Performs a local Least-Squares linear fit in interpolation square.

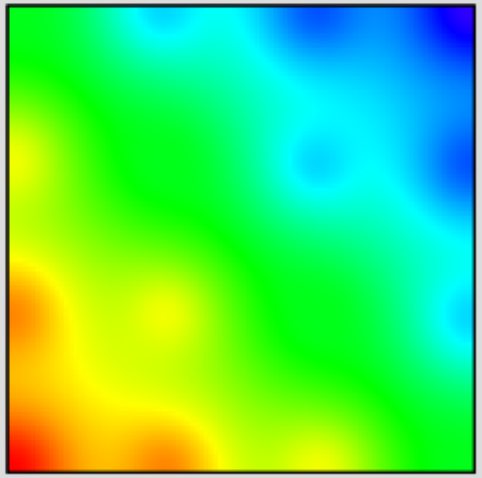
$$z = Ax + By + C$$

Interpolation Examples

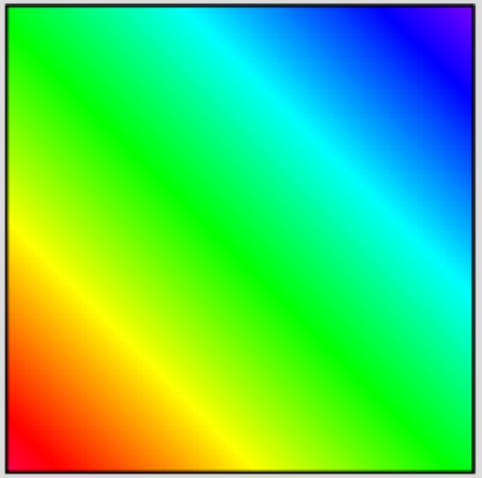




Nearest Neighbor



Distance Weighted Mean



Least Squares