Title

twoway contourline — Twoway contour-line plot

Syntax

twoway contourline z y x [if] [in] [, options]

options

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ccuts()</strong> list of values for contour lines or cuts</td>
</tr>
<tr>
<td><strong>levels()</strong> number of contour levels</td>
</tr>
<tr>
<td><strong>minmax</strong> include contour lines for minimum and maximum of z</td>
</tr>
<tr>
<td><strong>format()</strong> display format for ccuts() or levels()</td>
</tr>
<tr>
<td><strong>colorlines</strong> display contour lines in different colors</td>
</tr>
<tr>
<td><strong>crule()</strong> rule for creating contour-line colors</td>
</tr>
<tr>
<td><strong>scolor()</strong> starting color for contour rule</td>
</tr>
<tr>
<td><strong>ecolor()</strong> ending color for contour rule</td>
</tr>
<tr>
<td><strong>ccolors()</strong> list of colors for contour lines</td>
</tr>
<tr>
<td><strong>clwidths()</strong> list of widths for contour lines</td>
</tr>
<tr>
<td><strong>reversekey</strong> reverse the order of the keys in contour-line legend</td>
</tr>
<tr>
<td><strong>interp()</strong> interpolation method if (z, y, x) does not fill a regular grid</td>
</tr>
</tbody>
</table>

**twoway_options** titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.


**crule**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>hue</strong> use equally spaced hues between scolor() and ecolor(); the default</td>
</tr>
<tr>
<td><strong>chue</strong> use equally spaced hues between scolor() and ecolor(); unlike hue, it uses 360 + hue of the ecolor() if the hue of the ecolor() is less than the hue of the scolor()</td>
</tr>
<tr>
<td><strong>intensity</strong> use equally spaced intensities with ecolor() as the base; scolor() is ignored</td>
</tr>
<tr>
<td><strong>linear</strong> use equally spaced interpolations of the RGB values between scolor() and ecolor()</td>
</tr>
</tbody>
</table>

**interpmethod**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>thinplatespline</strong> thin-plate-spline interpolation; the default</td>
</tr>
<tr>
<td><strong>shepard</strong> Shepard interpolation</td>
</tr>
<tr>
<td><strong>none</strong> no interpolation; plot data as is</td>
</tr>
</tbody>
</table>

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Menu

Graphics > Twoway graph (scatter, line, etc.)

Description

twoway contourline displays \( z \) as contour lines in \((y,x)\).

Options

ccuts(), levels(), minmax, and format() determine how many contours are created and the values of those contours.

cuts(numlist) specifies the \( z \) values for the contour lines. Contour lines are drawn at each value of numlist.

levels(#) specifies the number of contour lines to create; \# − 1 contour lines will be created.

minmax is a modifier of levels() and specifies that contour lines be drawn for the minimum and maximum values of \( z \). By default, lines are drawn only for the cut values implied by levels, not the full range of \( z \).

format(%fmt) specifies the display format used to create the labels in the contour legend for the contour lines.

cuts() and levels() are different ways of specifying the contour cuts and may not be combined.

colorlines, crule(), scolor(), ecolor(), ccolors(), and clwidths() determine the colors and width that are used for each contour line.

colorlines specifies that the contour lines be drawn in different colors. Unless the ccolors() option is specified, the colors are determined by crule().

crule(crule) specifies the rule used to set the colors for the contour lines. Valid crules are hue, chue, intensity, and linear. The default is crule(hue).

scolor(colorstyle) specifies the starting color for the rule. See [G-4] colorstyle.

ecolor(colorstyle) specifies the ending color for the rule. See [G-4] colorstyle.

ccolors(colorstylelist) specifies a list of colorstyles for each contour line. If RGB, CMYK, HSV, or intensity-adjusted (for example, red*.3) colorstyle is specified, they should be placed in quotes. Examples of valid ccolors() options include ccolors(red green magenta) and ccolors(red "55 132 22" ".3 .9 .3 hsv" blue). See [G-4] colorstyle.

clwidths linewidthstylelist specifies a list of linewidthstyles, one for each contour line. See [G-4] linewidthstyle.

reversekey specifies that the order of the keys in the contour-line legend be reversed. By default, the keys are ordered from top to bottom, starting with the key for the highest values of \( z \). See plegend_option in [G-3] legend_options.

interp(interpmethod) specifies the interpolation method to use if \( z \), \( y \), and \( x \) do not fill a regular grid. Variables \( z \), \( y \), and \( x \) fill a regular grid if for every combination of nonmissing \((y,x)\), there is at least one nonmissing \( z \) corresponding to the pair in the dataset. For example, the following dataset forms a \( 2 \times 2 \) grid.
. input z y x
  z y x
1. 1 1 1
2. 2 4 1
3. 3 4 1
4. 1 1 2
5. 1 4 2
6. end

If there is more than one z value corresponding to a pair of (y, x), the smallest z value is used in plotting. In the above example, there are two z values corresponding to pair (4, 1), and the smallest value, 2, is used.

. input z y x
  z y x
1. 1 1 1
2. 2 2 1
3. 1 1 2
4. end

does not fill a regular grid because there is no z value corresponding to the pair (2, 2).

twoway_options are any of the options documented in [G-3] twoway_options. These include options for titling the graph (see [G-3] title_options); for saving the graph to disk (see [G-3] saving_option); for controlling the labeling and look of the axes (see [G-3] axis_options); for controlling the look, contents, position, and organization of the legend (see [G-3] legend_options); for adding lines (see [G-3] added_line_options) and text (see [G-3] added_text_options); and for controlling other aspects of the graph’s appearance (see [G-3] twoway_options).

Remarks and examples

Remarks are presented under the following headings:

Controlling the number of contour lines and their values
Controlling the colors of the contour lines
Choose the interpolation method
Controlling the number of contour lines and their values

We could draw a contour-line plot with default values by typing

```
. use http://www.stata-press.com/data/r13/sandstone
(Subsea elevation of Lamont sandstone in an area of Ohio)
. twoway contourline depth northing easting
```

We add the `colorlines` option to display the values of cuts in the contour legend. We also include the `levels()` option to create \#−1 contour lines equally spaced between \( \min(\text{depth}) \) and \( \max(\text{depth}) \).

```
. twoway contourline depth northing easting, colorlines levels(10)
```
The `ccuts()` option gives you the finest control over creating contour lines. Here we use it to draw a contour-line plot with 6 cuts at 7500, 7600, 7700, 7800, 7900, and 8000.

```
    . twoway contourline depth northing easting, colorlines ccuts(7500(100)8000)
```

Controlling the colors of the contour lines

`crule()`, `scolor()`, and `ecolor()` control the colors for each contour line. Typing

```
    . twoway contourline depth northing easting, level(10) format(%9.1f)
    > colorlines scolor(green) ecolor(red)
```
draws a contour-line plot with lines of 9 equally spaced \( z \) values between \( \text{min}(\text{depth}) \) and \( \text{max}(\text{depth}) \). The starting color for lines is green and the ending color for lines is red. Also, the legend labels’ display format is \%9.1f.

`ccolors()` specifies a list of colors to be used for each contour line.

```
    . twoway contourline depth northing easting, ccuts(7600(100)8000)
    > colorlines ccolors(red green magenta blue yellow)
```

Choose the interpolation method


Also see

[G-2] graph twoway contour — Twoway contour plot with area shading

[G-2] graph twoway line — Twoway line plots

[G-2] graph twoway connected — Twoway connected plots