



AHELP for CIAO 3.4

# viewpoint

Context: [chips](#)

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## Synopsis

Controls the rotation angle of a surface plot.

## Syntax

```
chips> [D #] [C #] VIEWPOINT <theta> <phi> <l>
```

## Description

```
Argument: D #
Description: drawing area number designation
Options: integer numbers
Default: current drawing area
```

See the D command for more information about this argument.

```
Argument: C #
Description: curve number designation
Options: integer number
Default: current curve
```

See the C command for more information about this argument.

```
Argument: <l>
Description: angle l in degrees
Options: real numbers
Default: -1.0
```

```
Argument: <phi>
Description: angle phi in degrees
Options: real numbers
Default: -10.0
```

```
Argument: <theta>
Description: angle theta in degrees
Options: real numbers
Default: 30.0
```

The angles <theta>, <phi>, and <l> are defined in ChIPS the same way as they are defined in the SM engine: Surfaces are drawn from a direction (<theta>,<phi>), and projected onto a surface passing through the origin. The projection is from a point <l> away from the nearest corner of the cube containing the image. If <l> is:

- positive – a perspective projection is used
- zero (0) – the viewpoint is taken to be infinitely far from the surface

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- negative – an axonometric projection is used (i.e. the surface is projected from infinity onto the X–Z plane)

The coordinate system is right–handed and is oriented such that the Z–axis is  $\langle\theta\rangle = 90$  and  $(\langle\theta\rangle,\langle\phi\rangle)=(0,0)$ . Angles are taken to be in degrees, with  $\theta$  lying in  $(-90,90)$  and  $\phi$  lying in  $(-180,180)$ . The nearest corner of the cube containing the surface is projected onto the point  $(0,0)$ .

## Example

```
chips> D 1 SURFACE data/example3D.sorted.dat 0.0 10.0
chips> VIEWPOINT 10.0 10.0 10.0
```

The data file `data/example3D.sorted.dat` is plotted as a surface plot. The `VIEWPOINT` command then changes the rotation angle and distance at which the surface plot is viewed.

## Bugs

See the [bugs page for ChIPS](#) on the CIAO website for an up–to–date listing of known bugs.

## See Also

*chips*

[contour](#), [curve](#), [display](#), [surface](#)

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URL:  
<http://cxc.harvard.edu/ciao3.4/viewpoint.html>  
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