

AH<sub>ELP</sub> for CIAO 3.4

# sherpa.regunc

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## Synopsis

Configure REGION–UNCERTAINTY in Sherpa.

## Syntax

```
sherpa.regunc.[field]
```

## Description

The Sherpa configuration variable (also called "state object") `sherpa.regunc` contains settings of REGION–UNCERTAINTY for creating a contour plot of confidence regions using the UNCERTAINTY algorithm in Sherpa. See `ahelp REGION–UNCERTAINTY` for more details.

The `sherpa.regunc` fields are listed in the table:

| Field               | Description  |
|---------------------|--|
| <code>expfac</code> | A multiplicative factor that expands the grid limits estimated by the UNCERTAINTY algorithm, if the grid limits are determined automatically (see <code>arange</code> , and below).                                |
| <code>arange</code> | If 1, the grid limits are to be determined automatically. If 0, the grid limits are specified (see <code>min</code> and <code>max</code> ).  |
| <code>min</code>    | An array of length two giving the grid minima for each plot axis. These are always linear quantities, regardless of the setting of <code>log</code> (see below). The array is ignored if <code>arange = 1</code> . |
| <code>max</code>    | An array of length two giving the grid maxima for each plot axis. These are always linear quantities, regardless of the setting of <code>log</code> (see below). The array is ignored if <code>arange = 1</code> . |
| <code>log</code>    | An array of length two specifying whether to use linear (0) or logarithmic (1) spacing of grid points along each plot axis.  |
| <code>nloop</code>  | An array of length two specifying the number of grid points along each plot axis.  |
| <code>sigma</code>  | An array of arbitrary length specifying the number of sigma for each contour. The length of the array specifies the number of contours.  |

Field values may be set using directly.

If the field does not contain an array, e.g.,

```
sherpa> sherpa.regunc.arange = 0
```

and if it does contain an array, e.g.,

`sherpa.regunc`

```
sherpa> sherpa.regunc.nloop = [25,20]
```

To restore the default settings of the structure at any time, use the Sherpa/S–Lang module function `restore_regunc`.

## Example 1

Set the grid limits for each parameter, e.g. limits of the plot axis.

```
sherpa> sherpa.regunc.arange = 0
sherpa> sherpa.regunc.min=[0.1,1.5]
sherpa> sherpa.regunc.max=[1,2.5]
```

## Example 2

List the current and default values of the regunc structure, and restore the default values:

```
sherpa> sherpa.regunc.arange = 0
sherpa> sherpa.regunc.log = [1,1]
sherpa> sherpa.regunc.sigma = [1,3,5]
sherpa> list_regunc
```

| Parameter | Current | Default | Description                       |
|-----------|---------|---------|-----------------------------------|
| expfac    | 3       | 3       | Expansion factor for grid         |
| arange    | 0       | 1       | Auto-range: 0(n)/1(y)             |
| min       | [0,0]   | [0,0]   | Minimum values, each axis         |
| max       | [0,0]   | [0,0]   | Maximum values, each axis         |
| log       | [1,1]   | [0,0]   | Log-spacing: 0(n)/1(y), each axis |
| nloop     | [40,40] | [40,40] | Number of grid points, each axis  |
| sigma     | [1,3,5] | [1,2,3] | Number of sigma, each contour     |

```
sherpa> restore_regunc

sherpa> list_regunc
```

| Parameter | Current | Default | Description                       |
|-----------|---------|---------|-----------------------------------|
| expfac    | 3       | 3       | Expansion factor for grid         |
| arange    | 1       | 1       | Auto-range: 0(n)/1(y)             |
| min       | [0,0]   | [0,0]   | Minimum values, each axis         |
| max       | [0,0]   | [0,0]   | Maximum values, each axis         |
| log       | [0,0]   | [0,0]   | Log-spacing: 0(n)/1(y), each axis |
| nloop     | [40,40] | [40,40] | Number of grid points, each axis  |
| sigma     | [1,2,3] | [1,2,3] | Number of sigma, each contour     |

## Example 3

Set alias `su` for `sherpa.regunc` and use on the command line.

```
sherpa> variable su = sherpa.regunc
sherpa> su.arange = 0
sherpa> su.sigma = [2,4,6]
```

## Bugs

See the [Sherpa bug pages](#) online for an up-to-date listing of known bugs.

## Ahelp: sherpa.regunc – CIAO 3.4

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