

skyscapeR v0.4b

<https://app.skyscaper.net>

User Guide  
v0.4b (17 IV 2017)

*skyscapeR* (pronounced *sky-scaper*) is an online app focused on the visualization and analysis of archaeoastronomical data.

It is built in *R* using *RStudio* and *Shiny*. It also uses the *R* packages *astrolibR* and *palinsol* for its astronomical calculations.



<https://www.r-project.org/>



<https://www.rstudio.com>



<https://shiny.rstudio.com>

It is run on an Amazon Web Services E2 Compute Cloud server.

It is optimised (thanks to *Shiny*) to run on any device (desktops, laptops, tablets and phones)!

This is still under construction: help pages, more information and more modules will be added later. You are all part of the closed beta testing programme. If the site is offline, if something isn't clear, if something doesn't work or if you'd like some facility to be added, email me!!

This is the main page. It shows the typical panels that are found throughout *skyscapeR*:

skyscapeR v0.4b

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## Welcome to the skyscapeR app

v0.4 (13 IV 2017) – beta build

**skyscapeR** is an online app focused on the visualization and analysis of archaeoastronomical data. It is built in **R** using **RStudio** and **Shiny**. It also uses the R packages **astrolibR** and **palinsol** for its astronomical calculations.

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Lampeter



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**University of Wales**  
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Navigation Panel (top)

Welcome to the skyscapeR app

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Options Panel (left)



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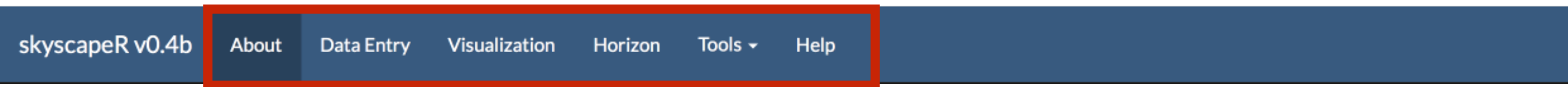


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Data Panel (right)

The Navigation panel shows the different *Modules* (or pages) that are available.



**Data Entry:** allows users to either: a) choose a published dataset, which is useful to learn how to use the app, or b) upload their own field data

**Visualization:** allows for visualization of the data entered as a) data points, b) a histogram and/or c) a curvigram

**Horizon:** allows the user to download a previously created HeyWhatThat panorama into skyscapeR and display orbits of celestial objects, as well as measurements on top of it

**Tools:** smaller apps to assist the skyscape researcher

**Help:** a help page — out-of-date and will be replaced by this pdf soon!!

## The Data Entry module

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This is the Data Entry page

## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

### Choose from a published dataset

none ▾

### or Upload your own Data

Browse...

No file selected

*Note* : Make sure the datafile follows the template which [can be downloaded here](#)

⬇ Download Data

### data

Please upload or select a dataset

This is the Data Entry page

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Navigation Panel (top)

Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

No file selected

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

Options Panel (left)

data

Please upload or select a dataset

Data Panel (right)

Lets take a closer look at the Options Panel

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## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...
No file selected

Note : Make sure the datafile follows the template which [can be downloaded here](#)

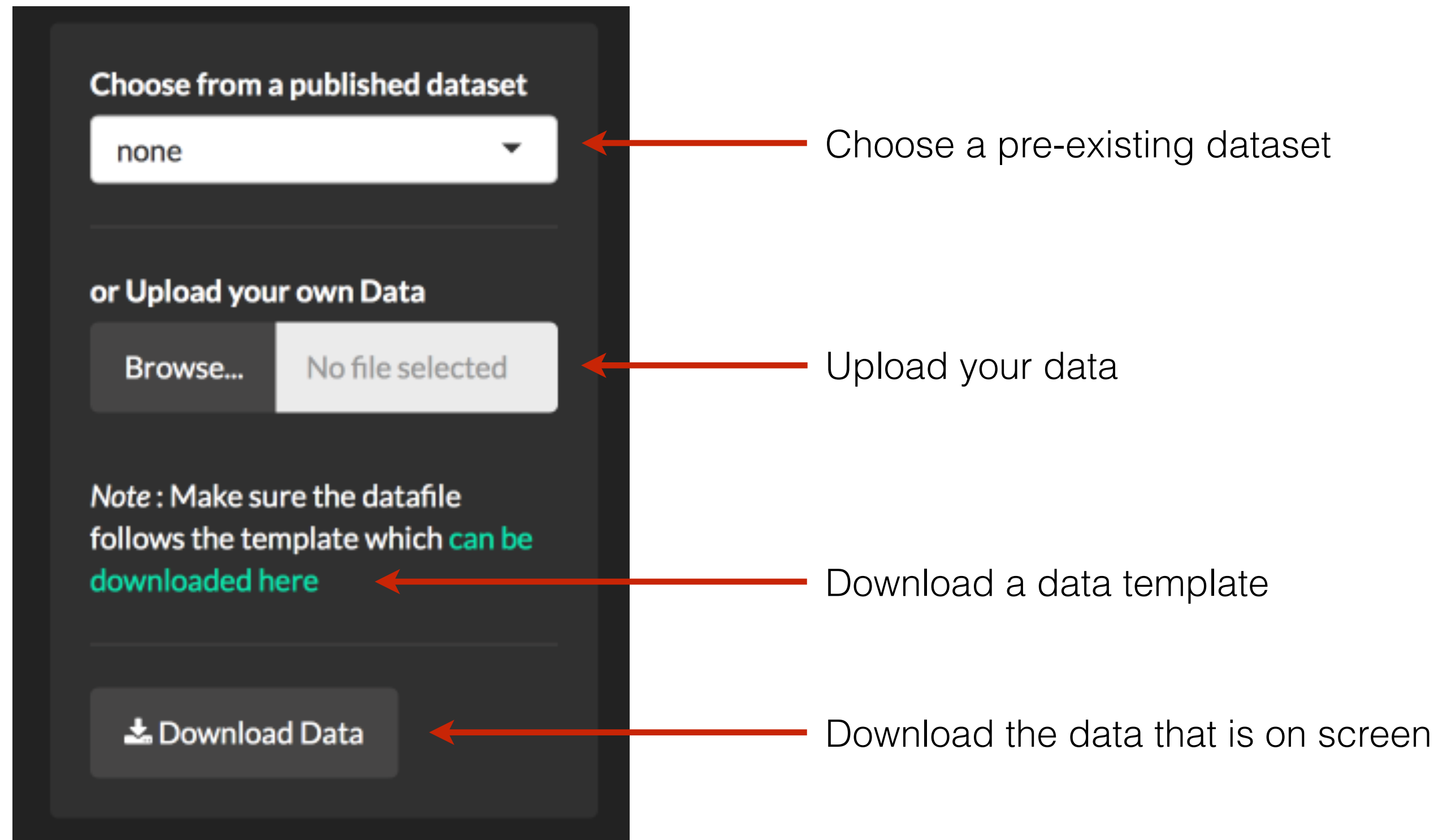
Download Data

data

Please upload or select a dataset

Options Panel (left)

This is the Options Panel for the Data Entry module. With it you can:



The screenshot shows the Options Panel for the Data Entry module. It features a dark grey background with white text. At the top, there is a section titled "Choose from a published dataset" with a dropdown menu currently set to "none". Below this is a section titled "or Upload your own Data" which includes a "Browse..." button and a "No file selected" button. A note below these buttons states: "Note : Make sure the datafile follows the template which [can be downloaded here](#)". At the bottom of the panel is a "Download Data" button with a download icon. Four red arrows point from text labels on the right to the corresponding UI elements: the first arrow points to the dropdown menu, the second to the "Browse..." button, the third to the "can be downloaded here" link, and the fourth to the "Download Data" button.

**Choose from a published dataset**

none

Choose a pre-existing dataset

**or Upload your own Data**

Browse... No file selected

Upload your data

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download a data template

Download Data

Download the data that is on screen

This is the Options Panel for the Data Entry module. With it you can:

### Choose from a published dataset

none

none

Ruggles RSC

Hoskin ALEN

Belmonte Egypt

**Choose a pre-existing dataset**

1) Scottish Recumbent Stone Circle (RSC) data from Ruggles 1999

2) Alentejan (ALEN) Seven-Stone *Anta* data from Hoskin 2001

3) Egyptian Temple data from Belmonte and Shaltout 2009

These datasets include only declinations (so you can't display them on the Horizon module, for which azimuths and altitudes are needed, as we will see later)

When you click on one of these, the Data panel (right side) will display the data

When you click on a dataset, the Data panel will display the data. You can scroll down to see it all.

## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

Ruggles RSC ▾

or Upload your own Data

Browse...

No file selected

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID    | Dec    |
|-------|--------|
| RSC5  | -19.40 |
| RSC6  | -31.60 |
| RSC7  | -29.40 |
| RSC11 | -30.80 |
| RSC12 | -32.20 |
| RSC17 | -32.20 |
| RSC20 | -31.60 |
| RSC23 | -24.80 |
| RSC24 | -31.20 |
| RSC25 | -31.80 |
| RSC37 | -29.00 |
| RSC39 | -31.00 |
| RSC47 | -30.80 |
| RSC48 | -30.20 |
| RSC49 | -26.80 |
| RSC54 | -32.60 |
| RSC55 | -27.80 |
| RSC56 | -24.20 |
| RSC57 | -30.80 |

Data Panel (right)

To upload your own data the process is slightly different:

To upload your own data the process is slightly different:

Choose from a published dataset

none

or Upload your own Data

Browse...
No file selected

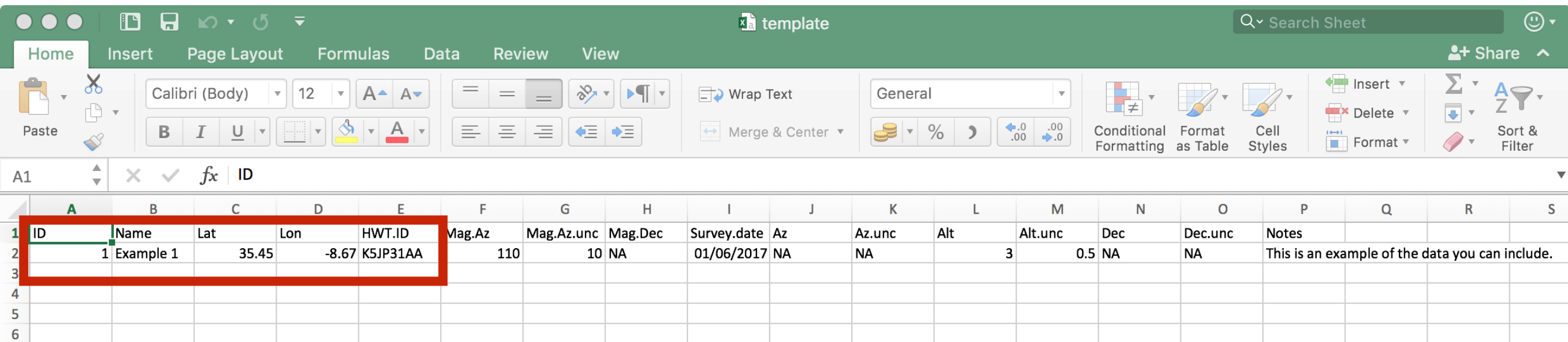
Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

**First, download the data template**

[illegible]

The data template is a spreadsheet you can open with Microsoft Excel, Apple Numbers or Google Docs. It looks like this:



|   | A  | B         | C     | D     | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P                                               | Q | R | S |
|---|----|-----------|-------|-------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------------------------------------------------|---|---|---|
| 1 | ID | Name      | Lat   | Lon   | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes                                           |   |   |   |
| 2 | 1  | Example 1 | 35.45 | -8.67 | K5JP31AA | 110    | 10         | NA      | 01/06/2017  | NA | NA     | 3   | 0.5     | NA  | NA      | This is an example of the data you can include. |   |   |   |
| 3 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 4 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 5 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 6 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |

Site Information and Location (first 5 columns):

**ID:** a number or code to identify each measurement

**Name:** a label to identify each measurement (e.g. name of site)

**Lat:** latitude of site

**Lon:** longitude of site

} these need to be in decimal point format, with negative sign for S latitudes and W longitudes

**HWT.ID:** HeyWhatsThat ID code to retrieve landscape data

The data template is a spreadsheet you can open with Microsoft Excel, Apple Numbers or Google Docs. It looks like this:

template

Search Sheet

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Formulas

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</

Magnetic Compass Survey data (next 4 columns):

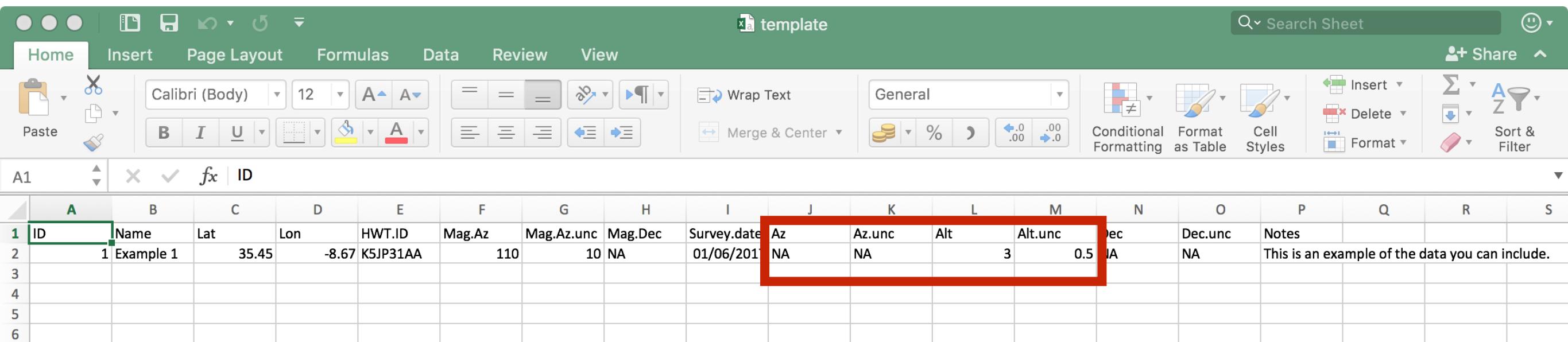
**Mag.Az:** magnetic azimuth

**Mag.Az.unc:** uncertainty associated with magnetic measurement

**Mag.Dec:** magnetic declination

**Survey.date:** date of survey in day/month/year format

The data template is a spreadsheet you can open with Microsoft Excel, Apple Numbers or Google Docs. It looks like this:



|   | A  | B         | C     | D     | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P                                               | Q | R | S |
|---|----|-----------|-------|-------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------------------------------------------------|---|---|---|
| 1 | ID | Name      | Lat   | Lon   | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes                                           |   |   |   |
| 2 | 1  | Example 1 | 35.45 | -8.67 | K5JP31AA | 110    | 10         | NA      | 01/06/201   | NA | NA     | 3   | 0.5     | NA  | NA      | This is an example of the data you can include. |   |   |   |
| 3 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 4 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 5 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 6 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |

True Azimuth and Altitude data (next 4 columns):

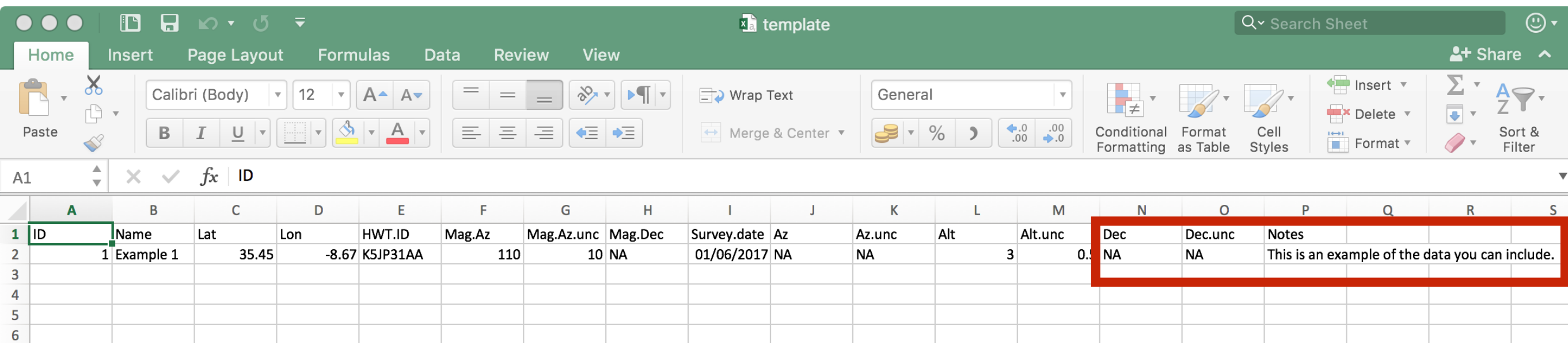
**Az:** true azimuth

**Az.unc:** uncertainty associated with true azimuth

**Alt:** altitude

**Alt.unc:** uncertainty associated with altitude

The data template is a spreadsheet you can open with Microsoft Excel, Apple Numbers or Google Docs. It looks like this:



|   | A  | B         | C     | D     | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P                                               | Q | R | S |
|---|----|-----------|-------|-------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------------------------------------------------|---|---|---|
| 1 | ID | Name      | Lat   | Lon   | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes                                           |   |   |   |
| 2 | 1  | Example 1 | 35.45 | -8.67 | K5JP31AA | 110    | 10         | NA      | 01/06/2017  | NA | NA     | 3   | 0.0     | NA  | NA      | This is an example of the data you can include. |   |   |   |
| 3 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 4 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 5 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |
| 6 |    |           |       |       |          |        |            |         |             |    |        |     |         |     |         |                                                 |   |   |   |

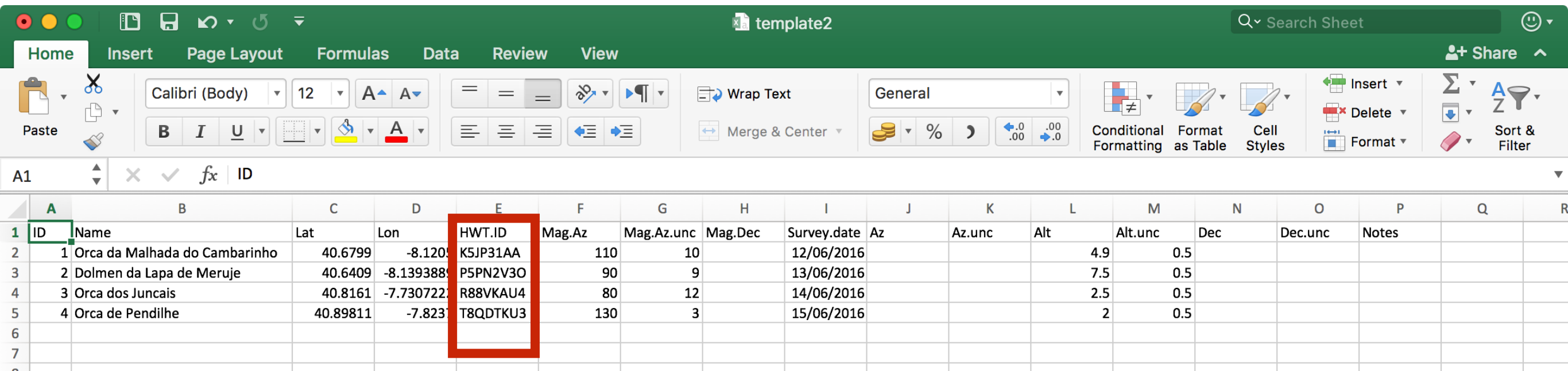
Declination and Notes (last 3 columns):

**Dec:** declination

**Dec.unc:** uncertainty associated with declination

**Notes:** free-form text field to enter any notes or comments

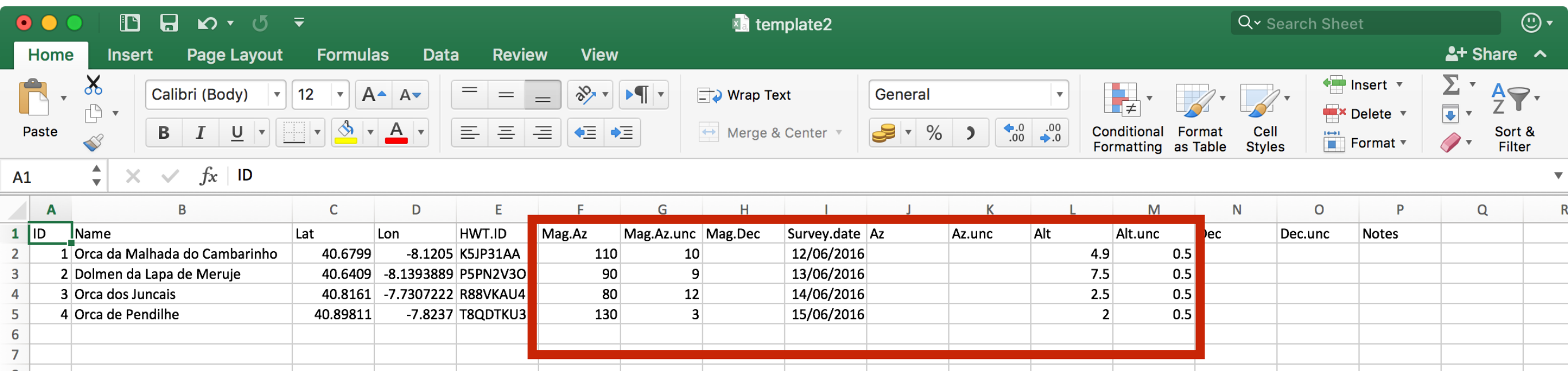
Fill it with your own data (use the Tools module if necessary) and save it somewhere where you will remember later



|   | A  | B                             | C        | D         | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P     | Q | R |
|---|----|-------------------------------|----------|-----------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------|---|---|
|   | ID | Name                          | Lat      | Lon       | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes |   |   |
| 1 | 1  | Orca da Malhada do Cambarinho | 40.6799  | -8.1208   | K5JP31AA | 110    | 10         |         | 12/06/2016  |    |        | 4.9 | 0.5     |     |         |       |   |   |
| 2 | 2  | Dolmen da Lapa de Meruje      | 40.6409  | -8.139388 | P5PN2V3O | 90     | 9          |         | 13/06/2016  |    |        | 7.5 | 0.5     |     |         |       |   |   |
| 3 | 3  | Orca dos Juncais              | 40.8161  | -7.730722 | R88VKAU4 | 80     | 12         |         | 14/06/2016  |    |        | 2.5 | 0.5     |     |         |       |   |   |
| 4 | 4  | Orca de Pendilhe              | 40.89811 | -7.8237   | T8QDTKU3 | 130    | 3          |         | 15/06/2016  |    |        | 2   | 0.5     |     |         |       |   |   |
| 5 |    |                               |          |           |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 6 |    |                               |          |           |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 7 |    |                               |          |           |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 8 |    |                               |          |           |          |        |            |         |             |    |        |     |         |     |         |       |   |   |

**HWT.ID** is not necessary but if included can help streamline work in the Horizon module

Fill it with your own data (use the Tools module if necessary) and save it somewhere where you will remember later

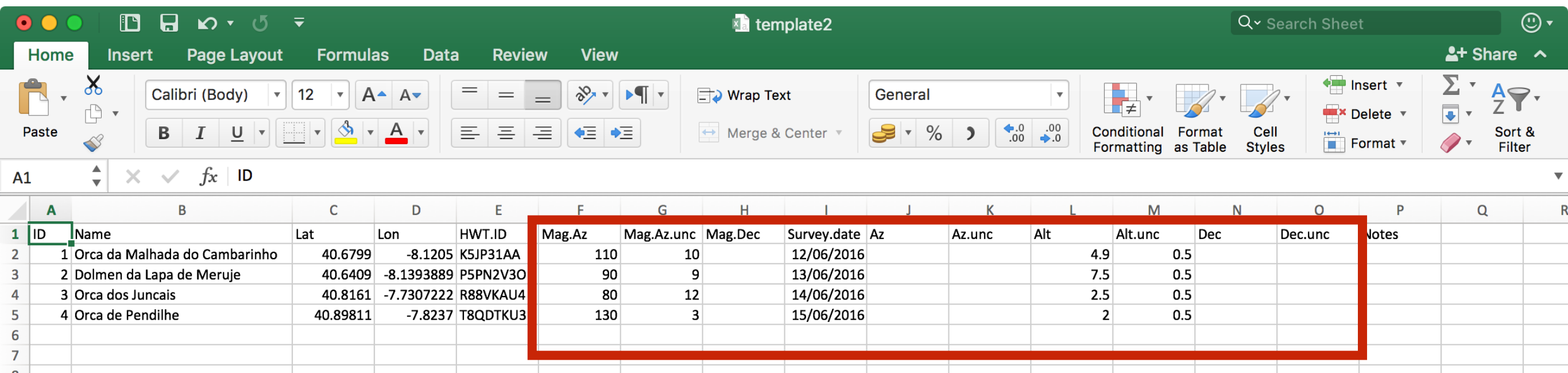


|   | A  | B                             | C        | D          | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P     | Q | R |
|---|----|-------------------------------|----------|------------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------|---|---|
|   | ID | Name                          | Lat      | Lon        | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes |   |   |
| 1 | 1  | Orca da Malhada do Cambarinho | 40.6799  | -8.1205    | K5JP31AA | 110    | 10         |         | 12/06/2016  |    |        | 4.9 | 0.5     |     |         |       |   |   |
| 2 | 2  | Dolmen da Lapa de Meruje      | 40.6409  | -8.1393889 | P5PN2V3O | 90     | 9          |         | 13/06/2016  |    |        | 7.5 | 0.5     |     |         |       |   |   |
| 3 | 3  | Orca dos Juncais              | 40.8161  | -7.7307222 | R88VKAU4 | 80     | 12         |         | 14/06/2016  |    |        | 2.5 | 0.5     |     |         |       |   |   |
| 4 | 4  | Orca de Pendilhe              | 40.89811 | -7.8237    | T8QDTKU3 | 130    | 3          |         | 15/06/2016  |    |        | 2   | 0.5     |     |         |       |   |   |
| 5 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 6 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 7 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 8 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |

**HWT.ID** is not necessary but if included can help streamline work in the Horizon module

In this example only field measurements with compass and clinometer are included. No magnetic declination is given, but the survey date is included.

Fill it with your own data (use the Tools module if necessary) and save it somewhere where you will remember later



|   | A  | B                             | C        | D          | E        | F      | G          | H       | I           | J  | K      | L   | M       | N   | O       | P     | Q | R |
|---|----|-------------------------------|----------|------------|----------|--------|------------|---------|-------------|----|--------|-----|---------|-----|---------|-------|---|---|
|   | ID | Name                          | Lat      | Lon        | HWT.ID   | Mag.Az | Mag.Az.unc | Mag.Dec | Survey.date | Az | Az.unc | Alt | Alt.unc | Dec | Dec.unc | Notes |   |   |
| 1 | 1  | Orca da Malhada do Cambarinho | 40.6799  | -8.1205    | K5JP31AA | 110    | 10         |         | 12/06/2016  |    |        | 4.9 | 0.5     |     |         |       |   |   |
| 2 | 2  | Dolmen da Lapa de Meruje      | 40.6409  | -8.1393889 | P5PN2V3O | 90     | 9          |         | 13/06/2016  |    |        | 7.5 | 0.5     |     |         |       |   |   |
| 3 | 3  | Orca dos Juncais              | 40.8161  | -7.7307222 | R88VKAU4 | 80     | 12         |         | 14/06/2016  |    |        | 2.5 | 0.5     |     |         |       |   |   |
| 4 | 4  | Orca de Pendilhe              | 40.89811 | -7.8237    | T8QDTKU3 | 130    | 3          |         | 15/06/2016  |    |        | 2   | 0.5     |     |         |       |   |   |
| 5 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 6 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 7 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |
| 8 |    |                               |          |            |          |        |            |         |             |    |        |     |         |     |         |       |   |   |

**HWT.ID** is not necessary but if included can help streamline work in the Horizon module

In this example only field measurements with compass and clinometer are included. No magnetic declination is given, but the survey date is included.

Once uploaded, skyscapeR will automatically calculate and populate the following fields:

**Mag.Dec**: based on Lat, Lon and Survey.date and using the IGRF model (same as NOAA website)

**Az**: as  $\text{Mag.Az} + \text{Mag.Dec}$

**Az.unc**: same as Mag.Az.unc

**Dec**: including aberration refraction and nutation corrections

**Dec.unc**: based on Az.unc and Alt.unc (when available)

To upload your own data the process is slightly different:

Choose from a published dataset

none

or Upload your own Data

Browse...

No file selected

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

**Then, click on Browse**

Go to the folder where you placed the spreadsheet and click on it

If something went wrong, you will be told what is wrong with the data. Follow the instructions, change the spreadsheet and try to upload again.

## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

### Choose from a published dataset

none ▾

### or Upload your own Data

Browse...

skyscapeR\_data.csv

Upload complete

*Note* : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

Non-numeric latitudes found in row(s) 3. Please ensure there are no N or S symbols or other characters.  
Non-numeric longitudes found in row(s) 3. Please ensure there are no W or E symbols or other characters.  
Non-numeric azimuths found in row(s) 2. Please ensure the Mag.Az field contains only numbers.  
No azimuth data found in row(s) 2. Please ensure that at least one of the Az fields are populated.  
No altitude data found in row(s) 2. Please ensure that the Alt field is populated.  
No Mag.Dec, Survey.date or Az data found in row(s) 1. Please ensure that at least one of these fields is populated.

If nothing went wrong, this is what you should see

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## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
|----|-------------------------------|-------|-------|----------|--------|--------|------|---------|--------|---------|
| 1  | Orca da Malhada do Cambarinho | 40.68 | -8.12 | K5JP31AA | 107.68 | 10     | 4.90 | 0.50    | -10.12 | 7.64    |
| 2  | Dolmen da Lapa de Meruje      | 40.64 | -8.14 | P5PN2V3O | 87.67  | 9      | 7.50 | 0.50    | 6.56   | 7.13    |
| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

If nothing went wrong, this is what you should see

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## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the data file follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
|----|-------------------------------|-------|-------|----------|--------|--------|------|---------|--------|---------|
| 1  | Orca da Malhada do Cambarinho | 40.68 | -8.12 | K5JP31AA | 107.68 | 10     | 4.90 | 0.50    | -10.12 | 7.64    |
| 2  | Dolmen da Lapa de Meruje      | 40.64 | -8.14 | P5PN2V3O | 87.67  | 9      | 7.50 | 0.50    | 6.56   | 7.13    |
| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

**Your data should be displayed in this panel**

**This says 'Upload complete'**

If nothing went wrong, this is what you should see

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## Data Entry

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Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
|----|-------------------------------|-------|-------|----------|--------|--------|------|---------|--------|---------|
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| 2  | Dolmen da Lapa de Meruje      | 40.64 | -8.14 | P5PN2V3O | 87.67  | 9      | 7.50 | 0.50    | 6.56   | 7.13    |
| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

Note the fields that were automatically calculated for you

If nothing went wrong, this is what you should see

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## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
|----|-------------------------------|-------|-------|----------|--------|--------|------|---------|--------|---------|
| 1  | Orca da Malhada do Cambarinho | 40.68 | -8.12 | K5JP31AA | 107.68 | 10     | 4.90 | 0.50    | -10.12 | 7.64    |
| 2  | Dolmen da Lapa de Meruje      | 40.64 | -8.14 | P5PN2V3O | 87.67  | 9      | 7.50 | 0.50    | 6.56   | 7.13    |
| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

**Not all fields are displayed (no need to see the magnetic measurements anymore)**

This is what you should see

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## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
|----|-------------------------------|-------|-------|----------|--------|--------|------|---------|--------|---------|
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| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

You can download the entire spreadsheet, including magnetic data and newly calculated entries by clicking this button.

Save it in a safe place, not only it has your calculations of declination but it should also be your starting point for any future work in skyscapeR with this data

You can now move on to the Visualisation module

## Data Entry

In this page you can choose a dataset from the literature or upload your own data (please use the provided template).

Choose from a published dataset

none ▾

or Upload your own Data

Browse...

template2.csv

Upload complete

Note : Make sure the datafile follows the template which [can be downloaded here](#)

Download Data

| ID | Name                          | Lat   | Lon   | HWT.ID   | Az     | Az.unc | Alt  | Alt.unc | Dec    | Dec.unc |
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| 2  | Dolmen da Lapa de Meruje      | 40.64 | -8.14 | P5PN2V3O | 87.67  | 9      | 7.50 | 0.50    | 6.56   | 7.13    |
| 3  | Orca dos Juncaís              | 40.82 | -7.73 | R88VKAU4 | 77.80  | 12     | 2.50 | 0.50    | 10.68  | 9.35    |
| 4  | Orca de Pendilhe              | 40.90 | -7.82 | T8QDTKU3 | 127.76 | 3      | 2.00 | 0.50    | -26.31 | 2.40    |

## The Visualisation module

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This is the Data Visualisation page

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## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☒ Data Points

Uncertainty

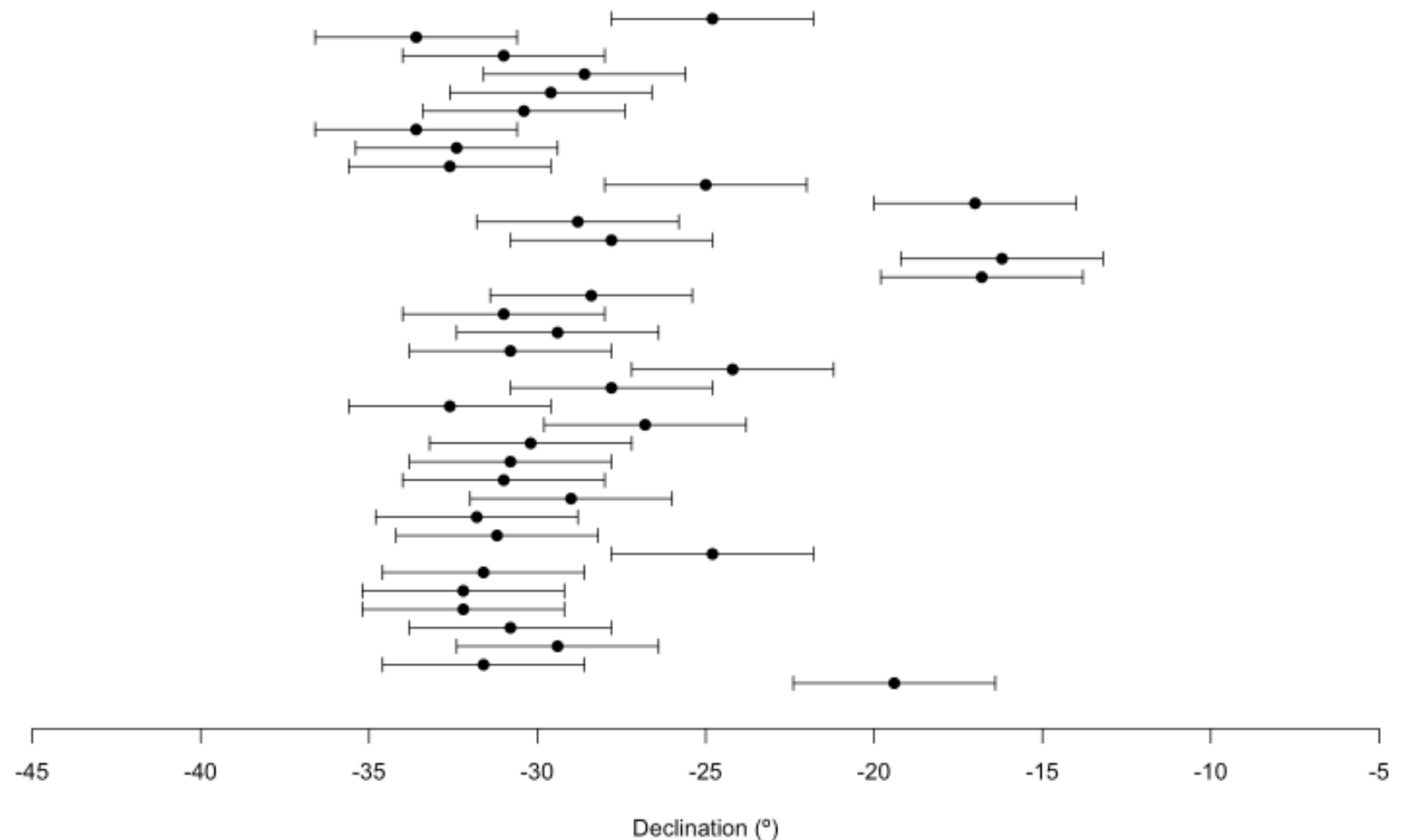
3

☐ Histogram

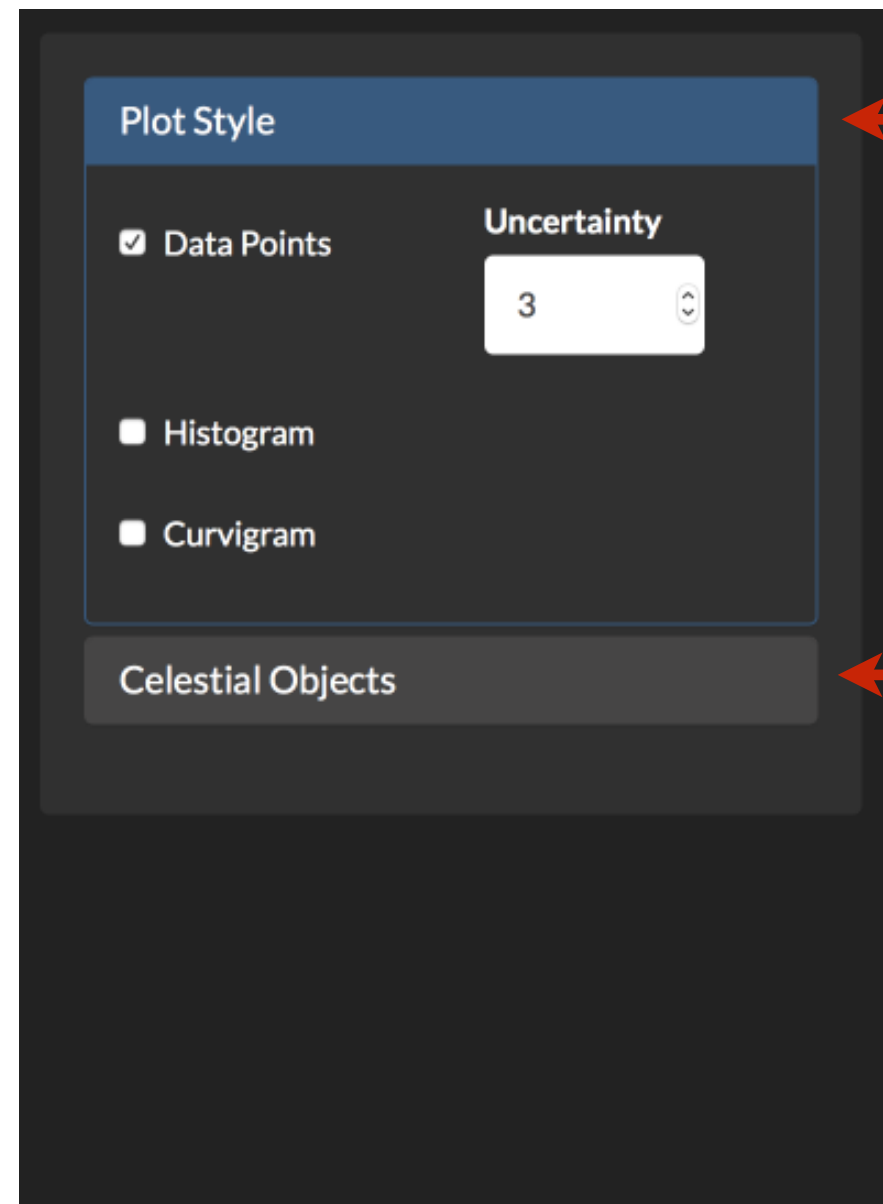
☐ Curvigram

Celestial Objects

skyscapeR v0.4 Fabio Silva (2017)



Lets take a closer look at the Options Panel

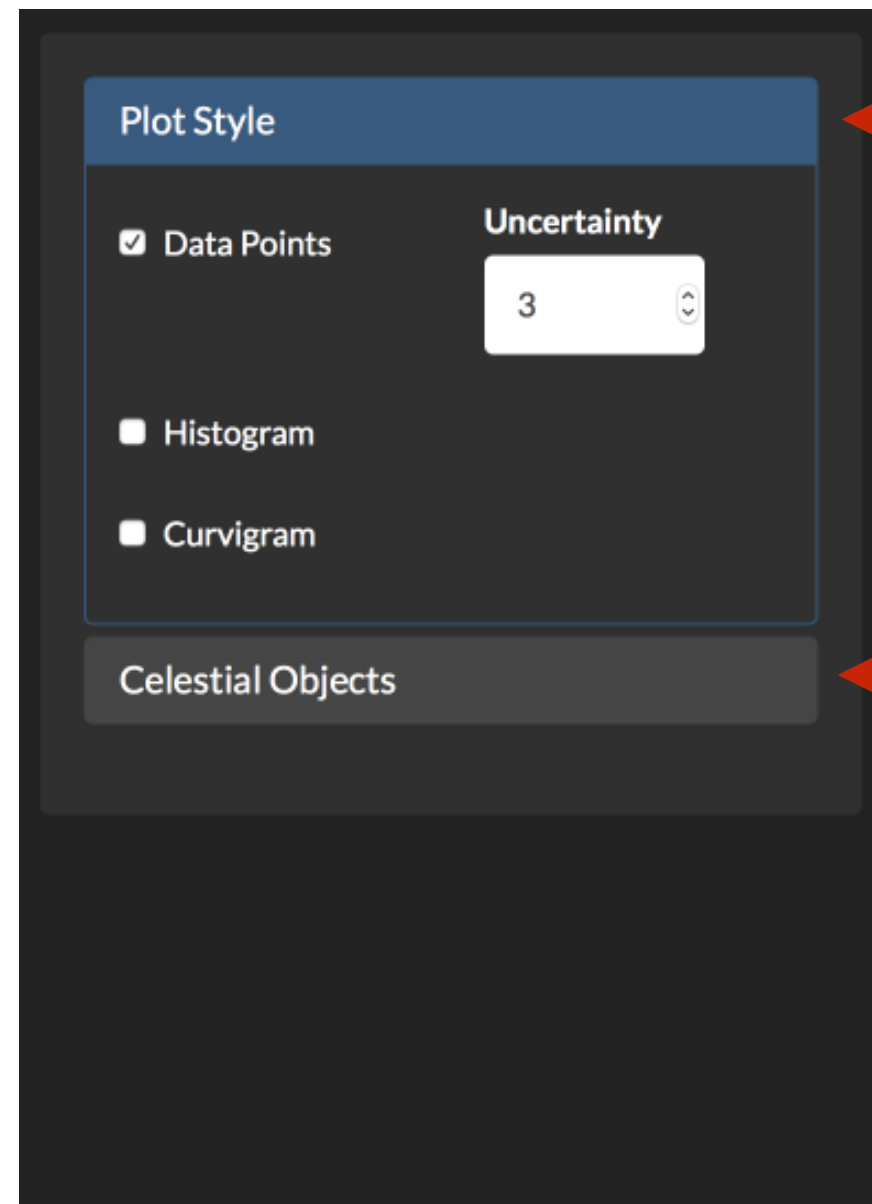


The screenshot shows the 'Options Panel' of the skyscapeR application. It features two main sections, both of which are highlighted with red arrows and text indicating they are collapsible:

- Plot Style**: This section is currently expanded and contains:
  - ☒ Data Points
  - Uncertainty**: A numeric input field set to 3.
  - ☐ Histogram
  - ☐ Curvigram
- Celestial Objects**: This section is currently collapsed, shown as a grey bar with the text 'Celestial Objects'.

Meaning that you can click on them to open or close them

Lets take a closer look at the Options Panel

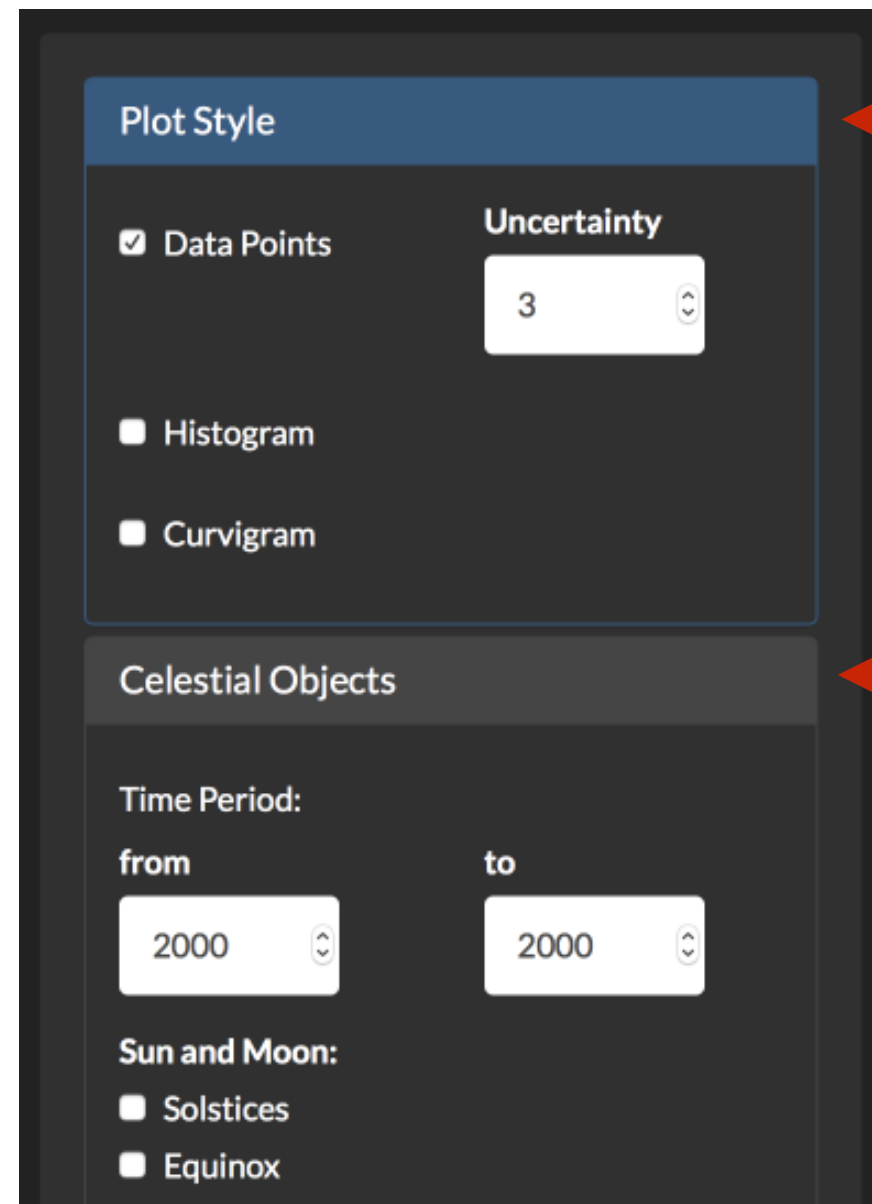


This is an open collapsible panel

This is a closed collapsible panel

Meaning that you can click on them to open or close them

Lets take a closer look at the Options Panel



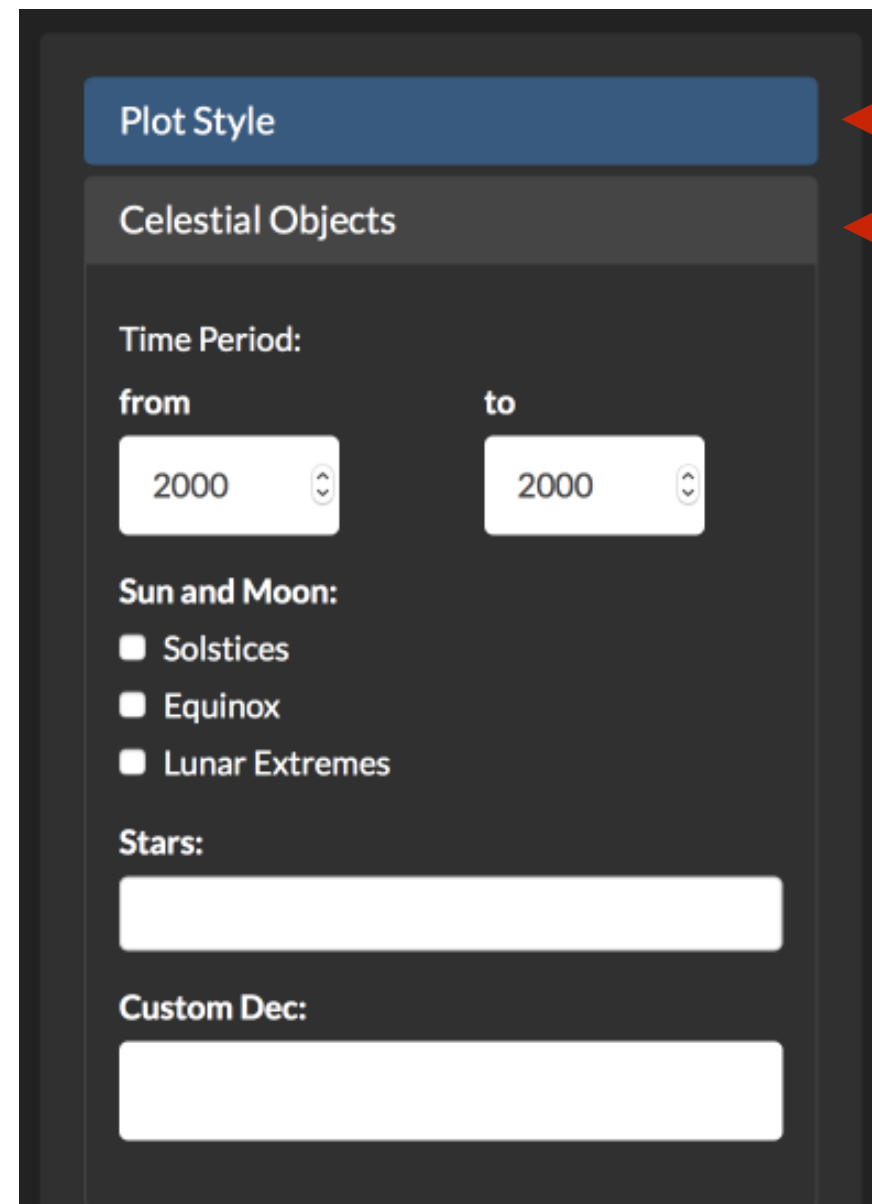
The image shows a dark-themed user interface for the 'skyscapeR' application. It features two main sections: 'Plot Style' and 'Celestial Objects'. The 'Plot Style' section is highlighted with a blue header and contains three options: 'Data Points' (checked), 'Histogram' (unchecked), and 'Curvigram' (unchecked). There is also an 'Uncertainty' input field set to '3'. The 'Celestial Objects' section has a grey header and contains a 'Time Period' section with 'from' and 'to' date pickers both set to '2000', and a 'Sun and Moon' section with 'Solstices' and 'Equinox' checkboxes.

This is an open collapsible panel

This is now open

Meaning that you can click on them to open or close them

Lets take a closer look at the Options Panel

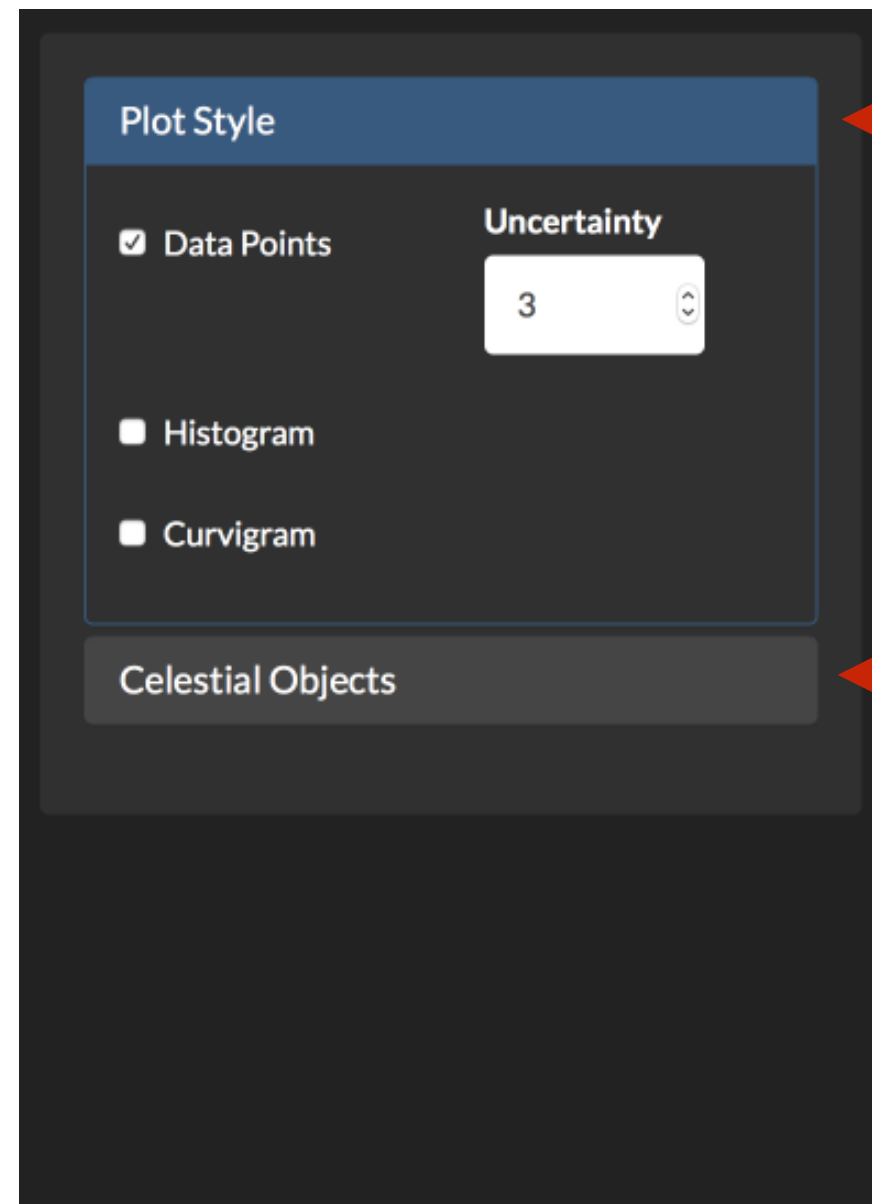


This is now closed

This is open

Meaning that you can click on them to open or close them

Lets take a closer look at the Options Panel



This lets you choose what visualisation style you want

This lets you display celestial objects on top of your data

This is what the **Data Points** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☒ Data Points

Uncertainty

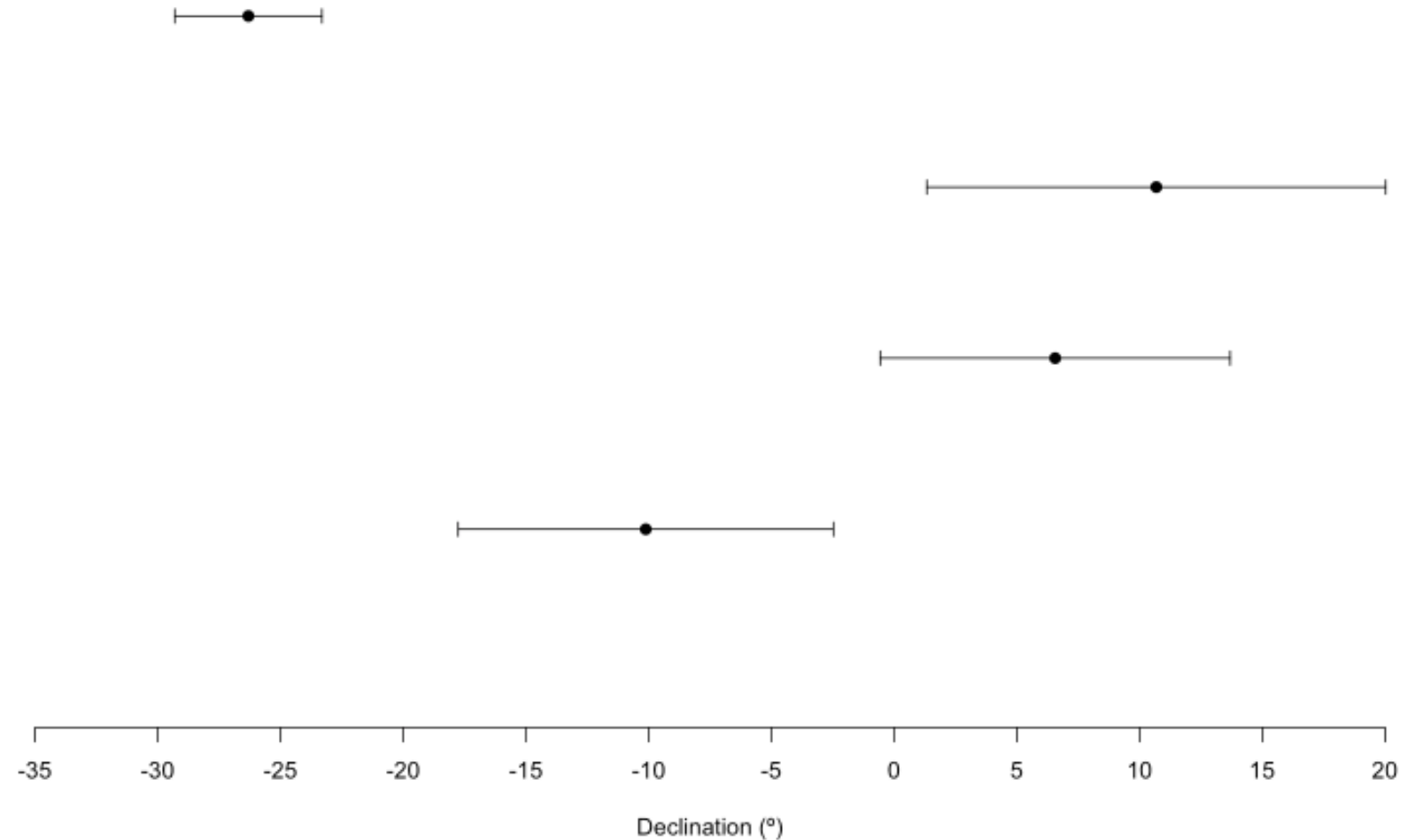
3

☐ Histogram

☐ Curvigram

Celestial Objects

skyscapeR v0.4 Fabio Silva (2017)



This is what the **Data Points** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

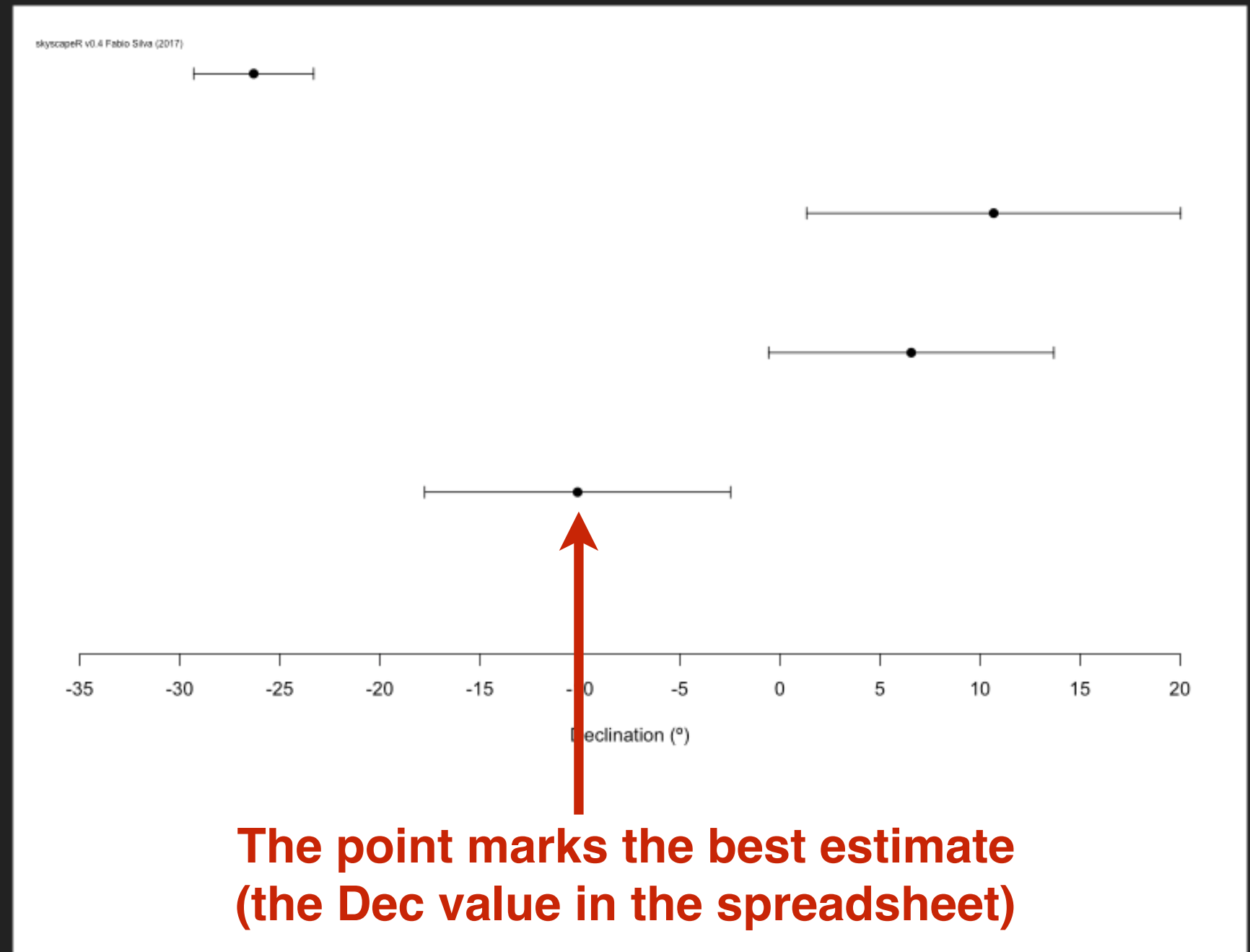
☒ Data Points
 

Uncertainty
 

3

☐ Histogram
   
☐ Curvigram

Celestial Objects



This is what the **Data Points** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

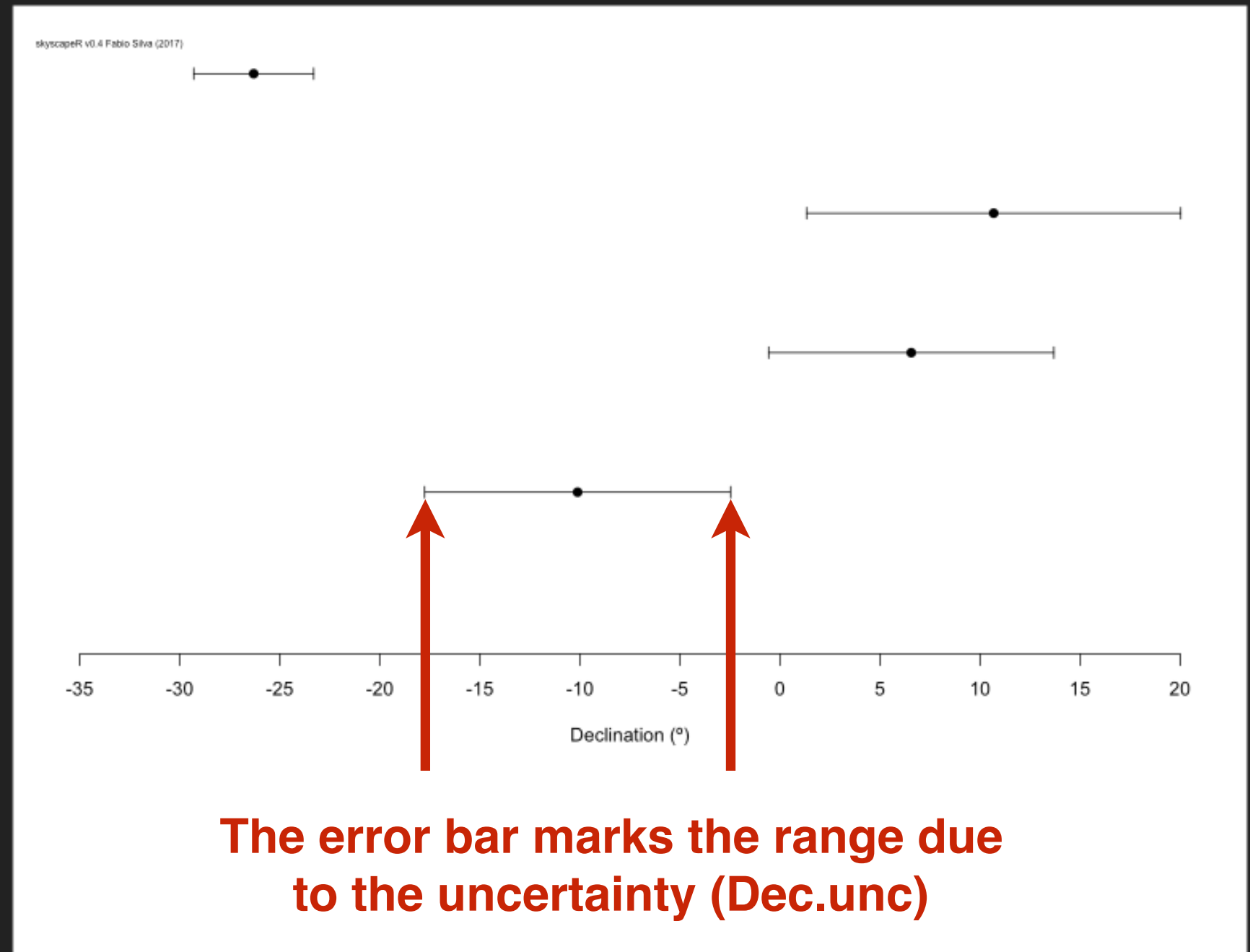
☒ Data Points
 

Uncertainty
 

3

☐ Histogram
   
☐ Curvigram

Celestial Objects



This is what the **Data Points** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

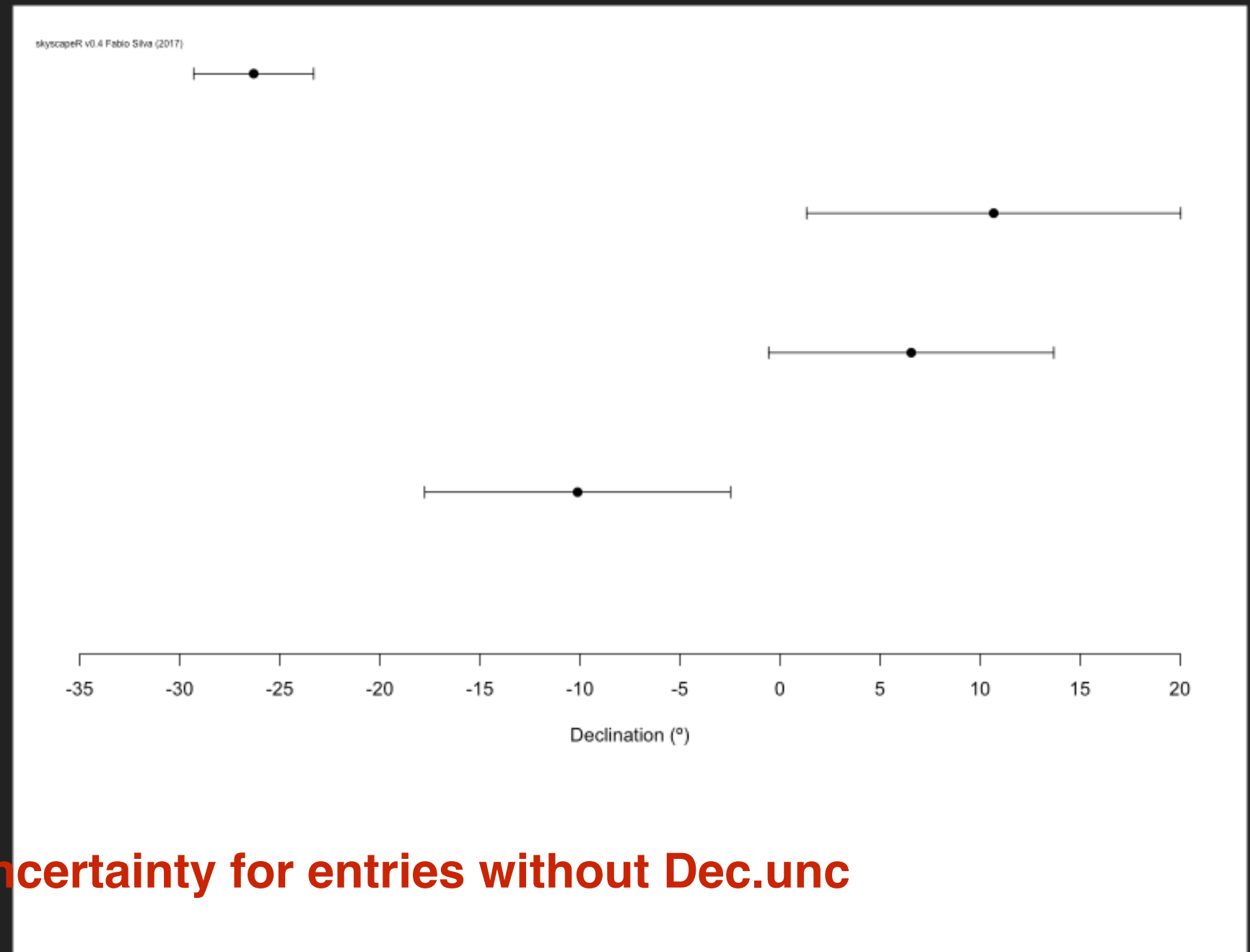
☒ Data Points
 

Uncertainty
 

3

☐ Histogram
   
☐ Curvigram

Celestial Objects



This box controls the uncertainty for entries without Dec.unc

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☐ Data Points

☒ Histogram

Bin Size

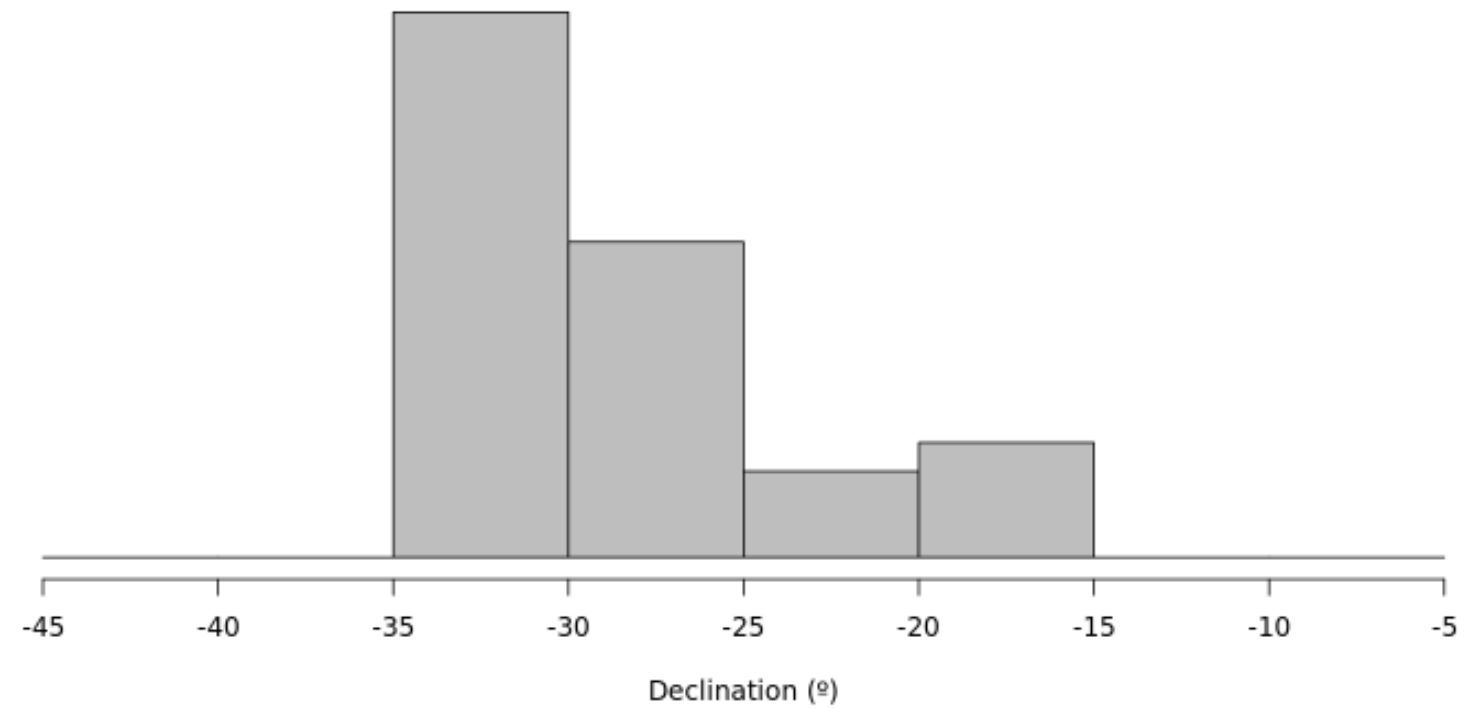
5

Bin Start

0

☐ Curvigram

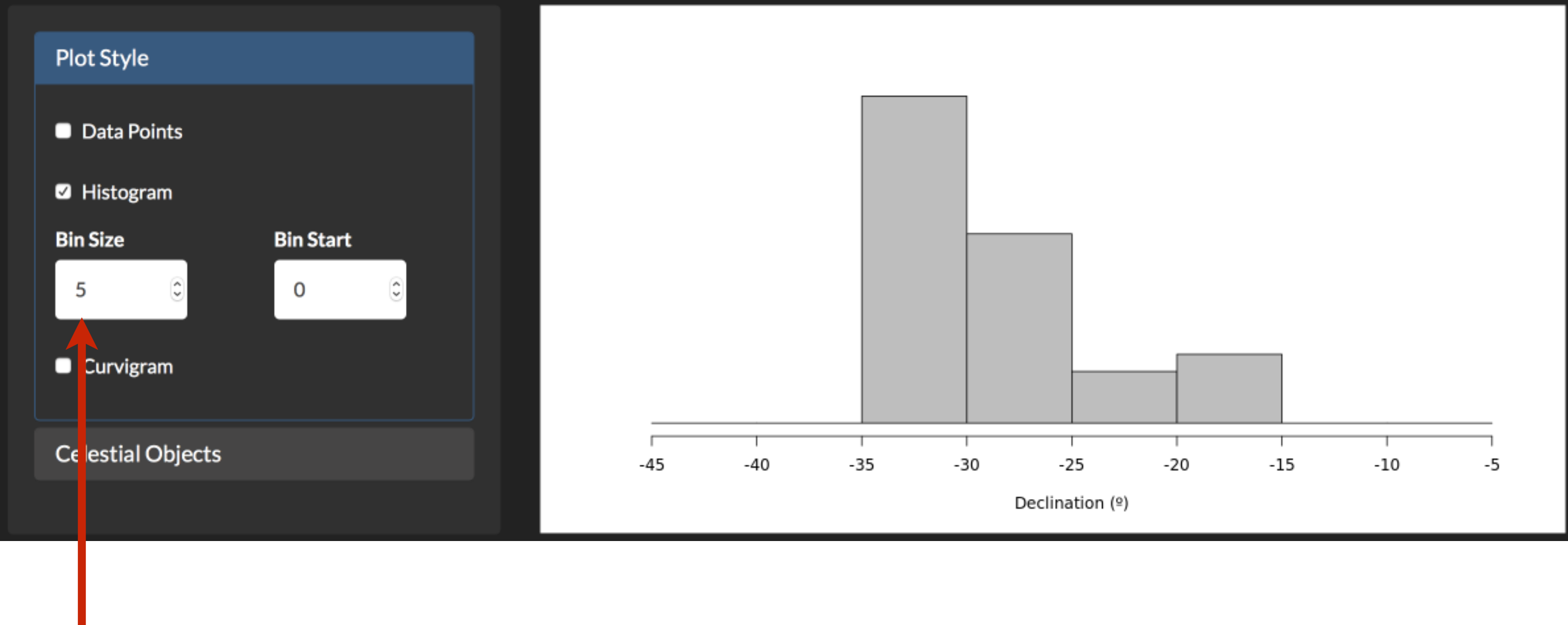
Celestial Objects



This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.



**Bin size controls the width of each bar (which should be related to the uncertainty)**

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

☐ Data Points
   
☒ Histogram
   

Bin Size

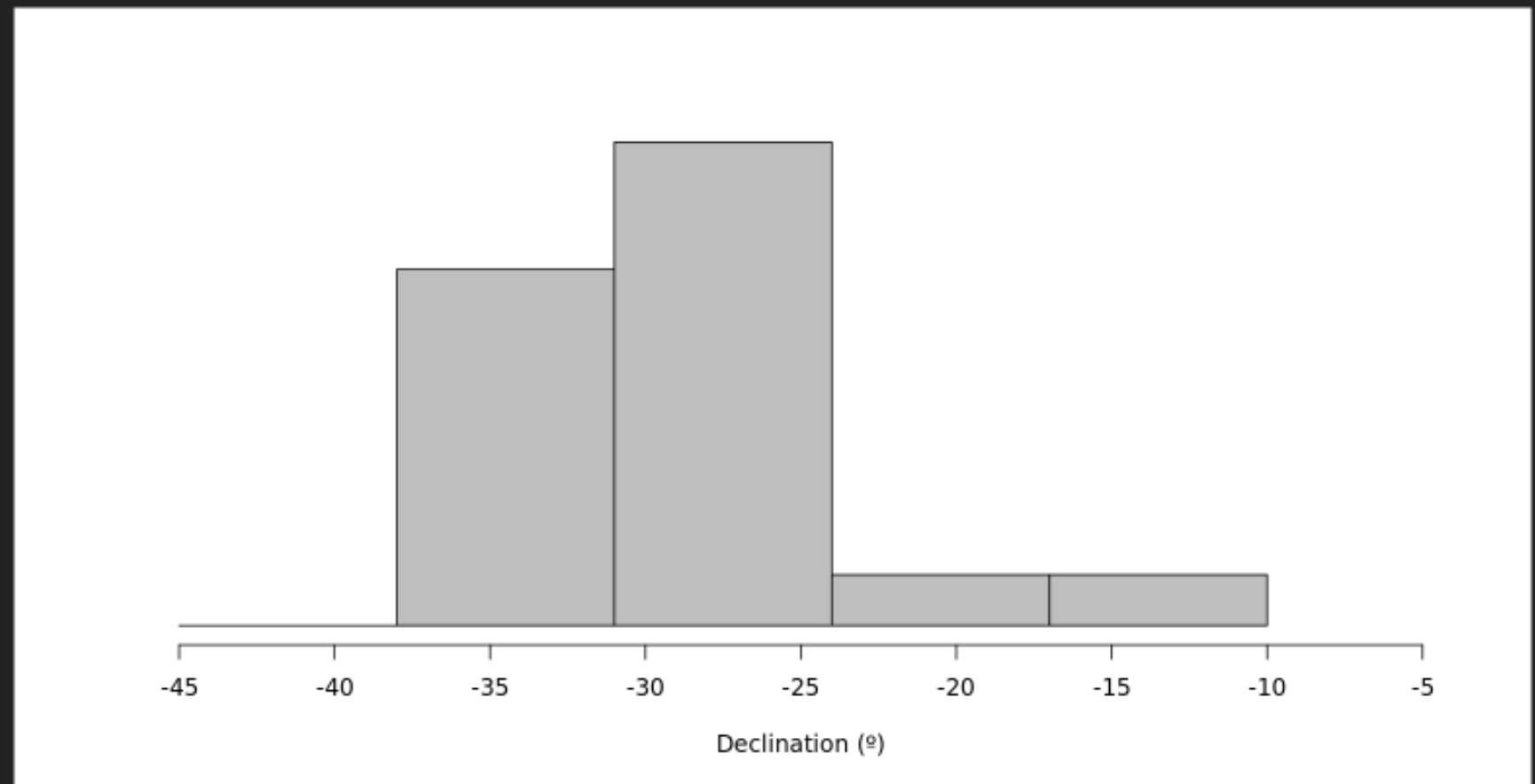
7

Bin Start

0

  
☐ Curvigram

Celestial Objects

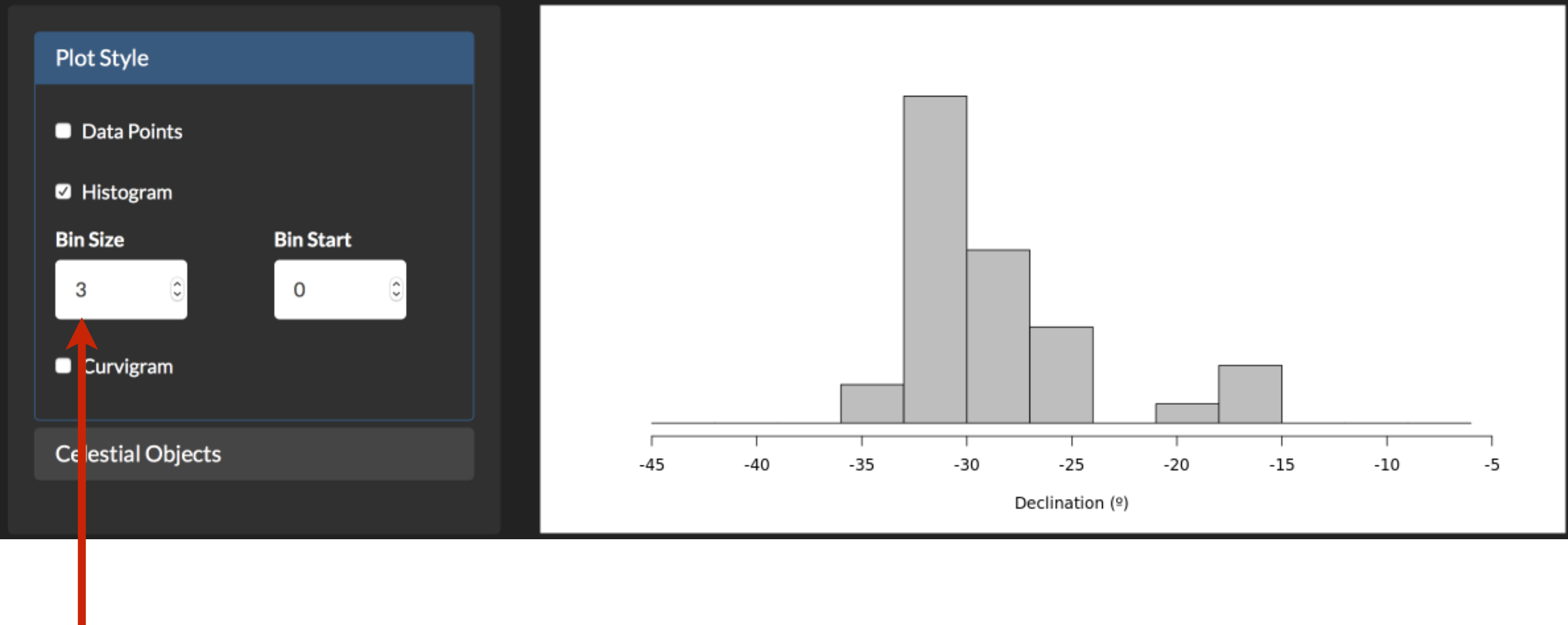


**Bin size controls the width of each bar (which should be related to the uncertainty)**

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

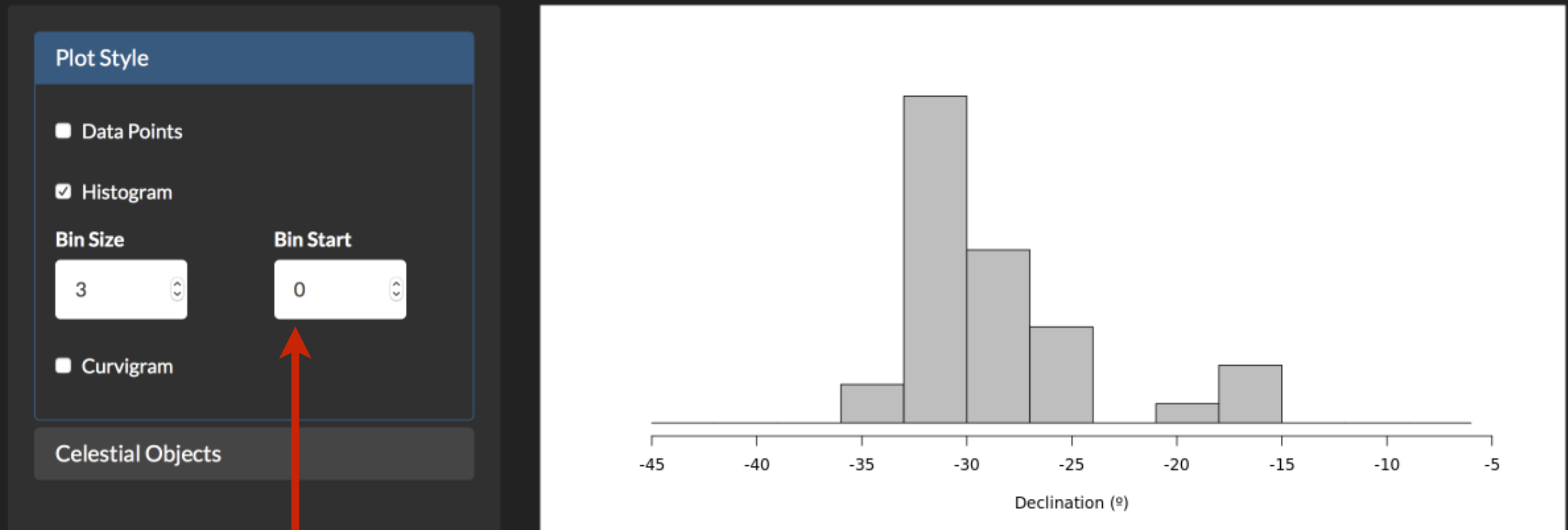


**Bin size controls the width of each bar (which should be related to the uncertainty)**

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

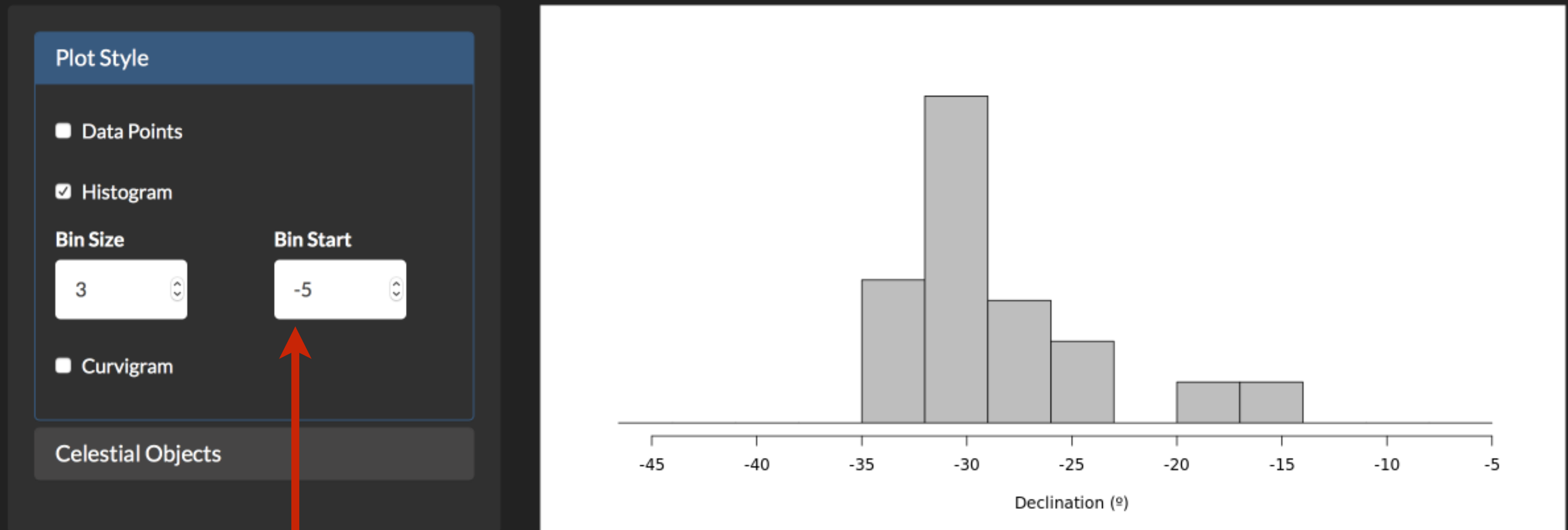


**Bin Starts controls where each bar starts**

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

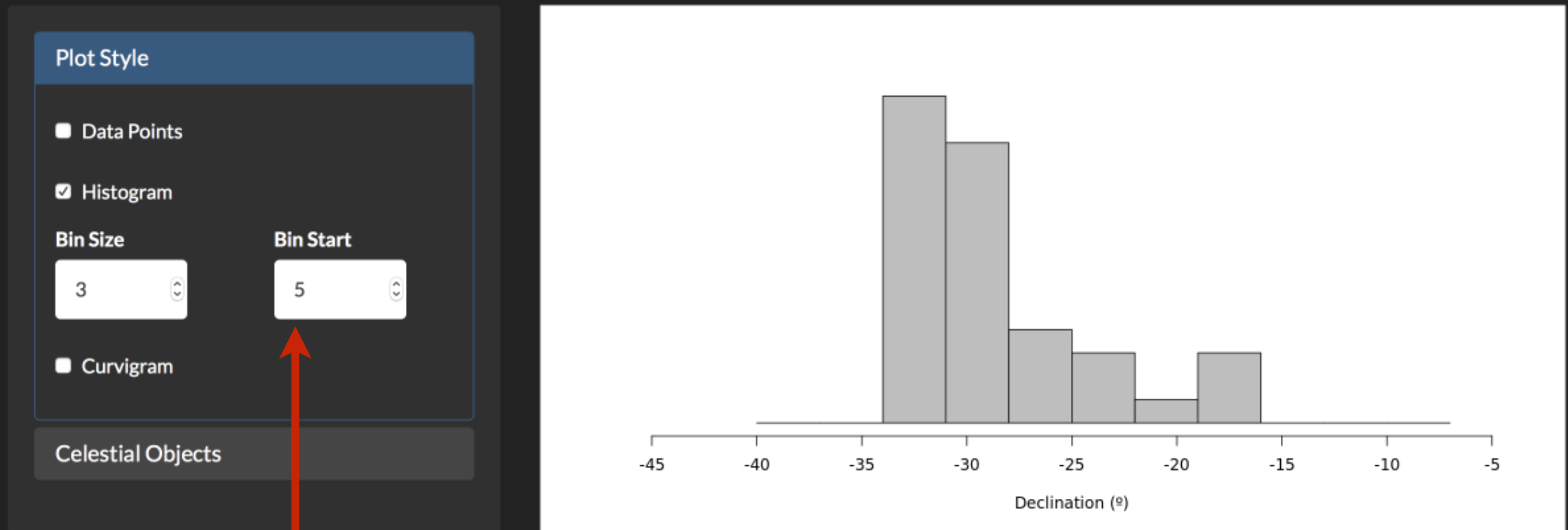


**Bin Starts controls where each bar starts**

This is what the **Histogram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.



**Bin Starts controls where each bar starts**

This is what the **Curvigram** style looks like

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☐ Data Points

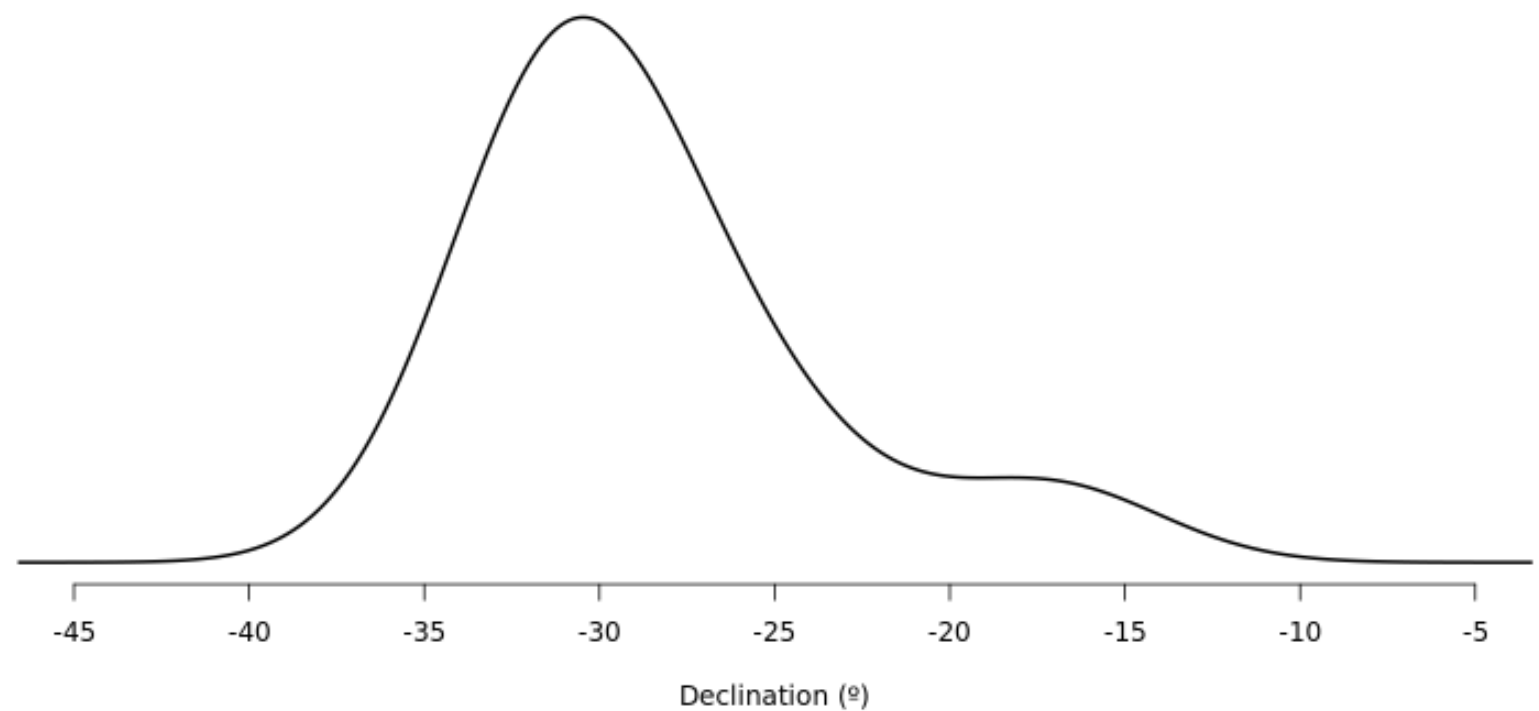
☐ Histogram

☒ Curvigram

Uncertainty

3

Celestial Objects



This is what the **Curvigram** style looks like

## Data Visualization

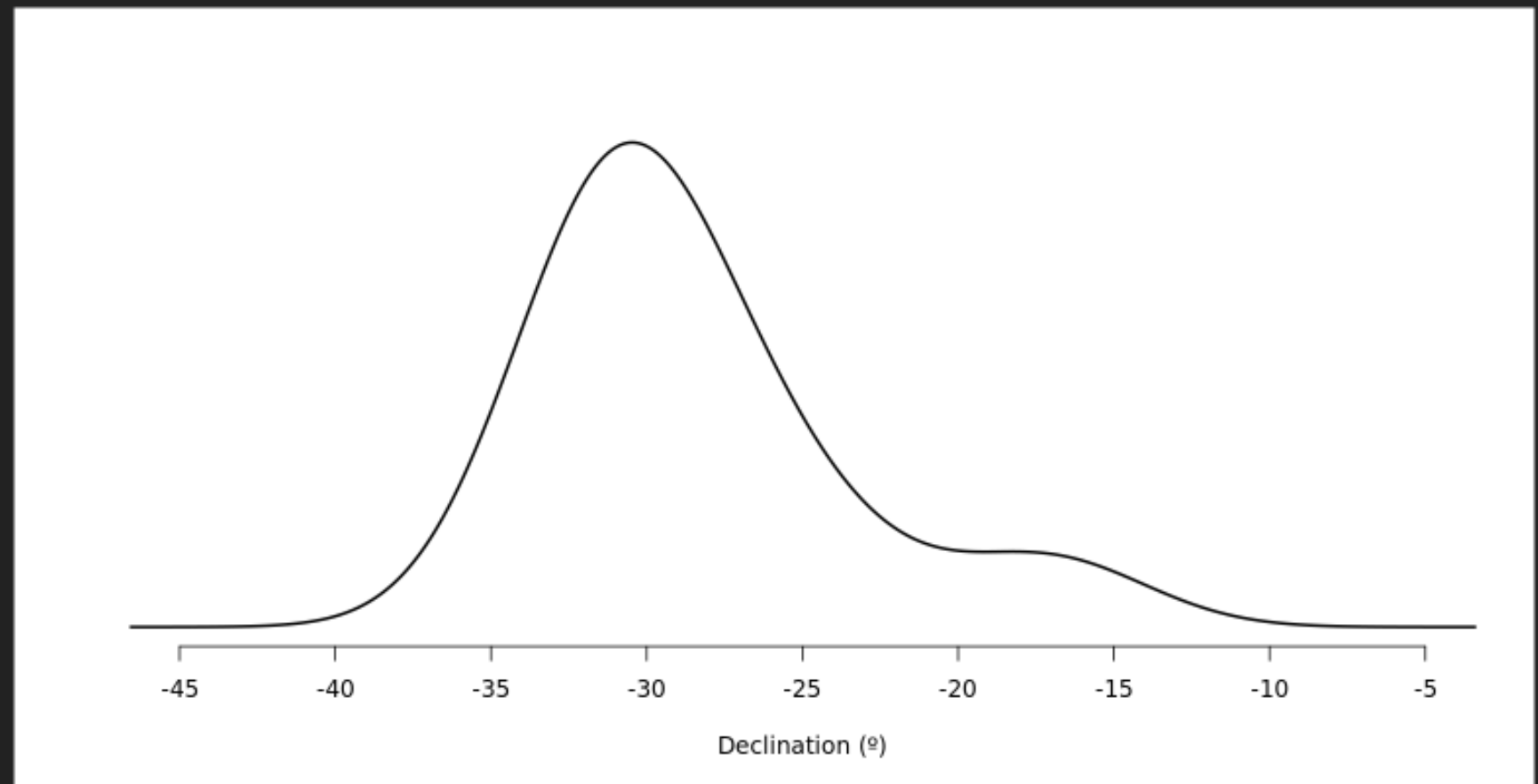
In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

☐ Data Points
 ☐ Histogram
 ☒ Curvigram

Uncertainty

Celestial Objects



**Uncertainty controls the size of the error bar used in the curvigram calculation**

This is what the **Curvigram** style looks like

## Data Visualization

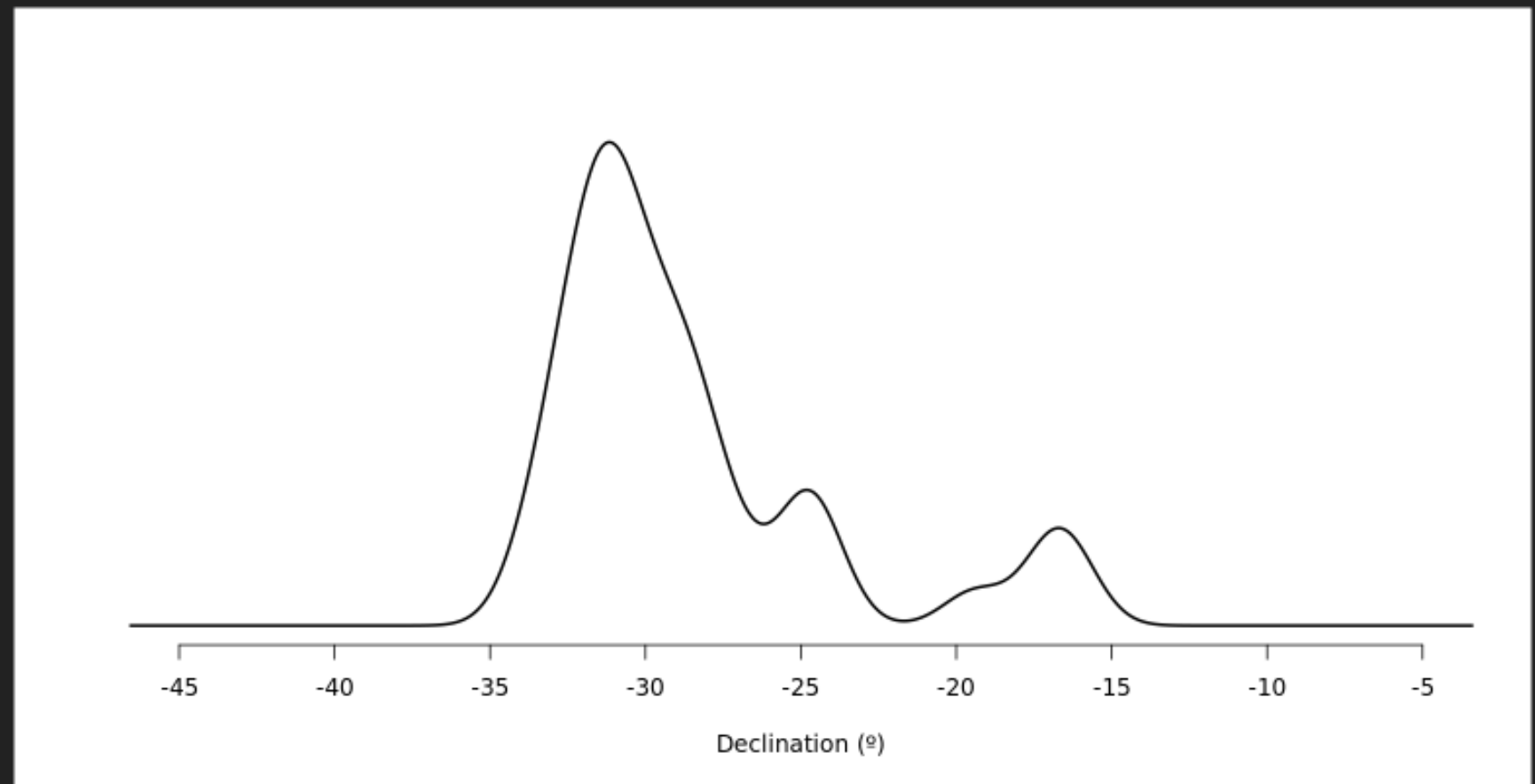
In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

☐ Data Points  
☐ Histogram  
☒ Curvigram

Uncertainty  
1

Celestial Objects



**Uncertainty controls the size of the error bar used in the curvigram calculation**

This is what the **Curvigram** style looks like

## Data Visualization

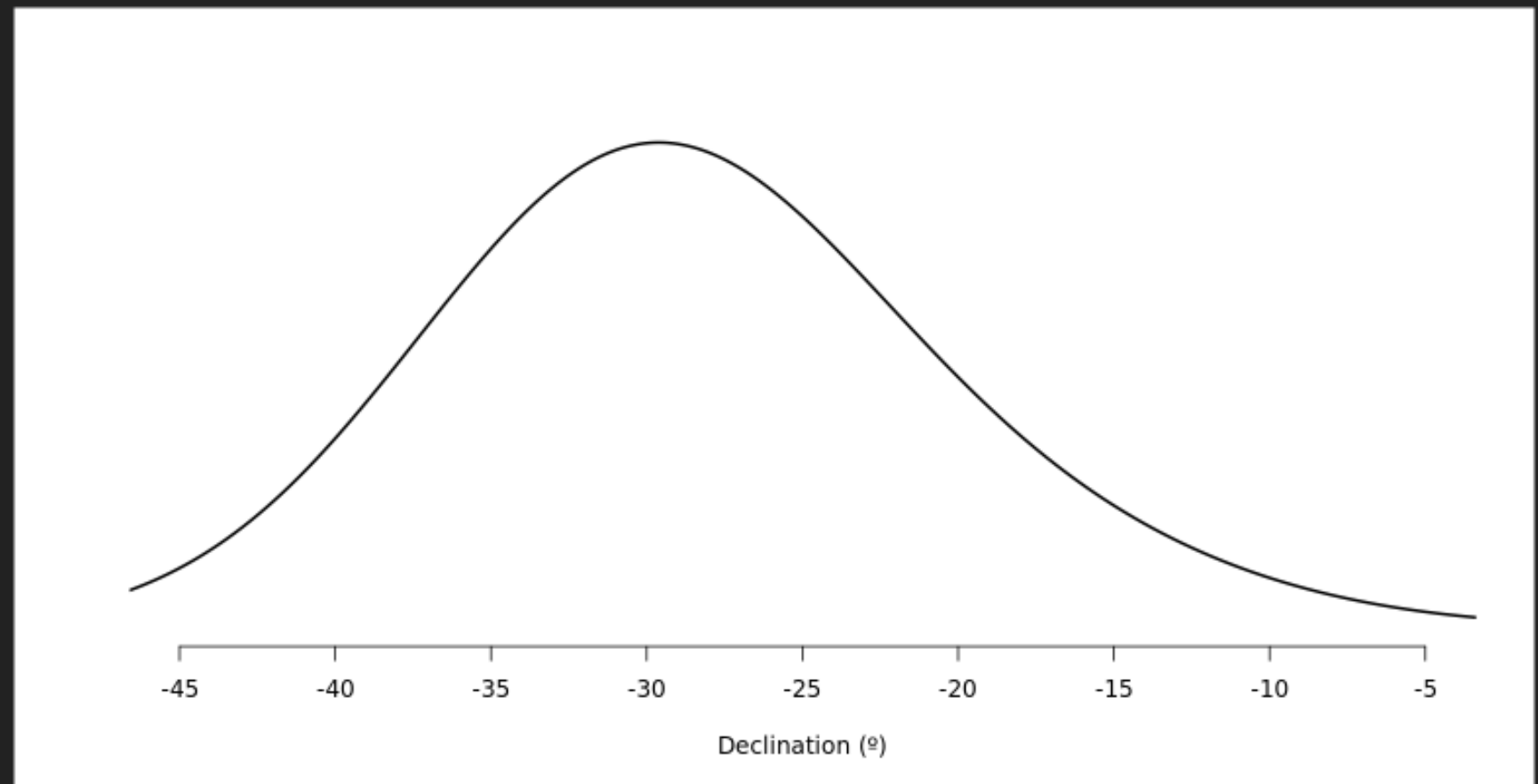
In this page you can visualize the data selected in the 'Data Entry' page.

Plot Style

☐ Data Points
 ☐ Histogram
 ☒ Curvigram

Uncertainty

Celestial Objects



**Uncertainty controls the size of the error bar used in the curvigram calculation**

You can mix and match them

## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☒ Data Points

Uncertainty

3

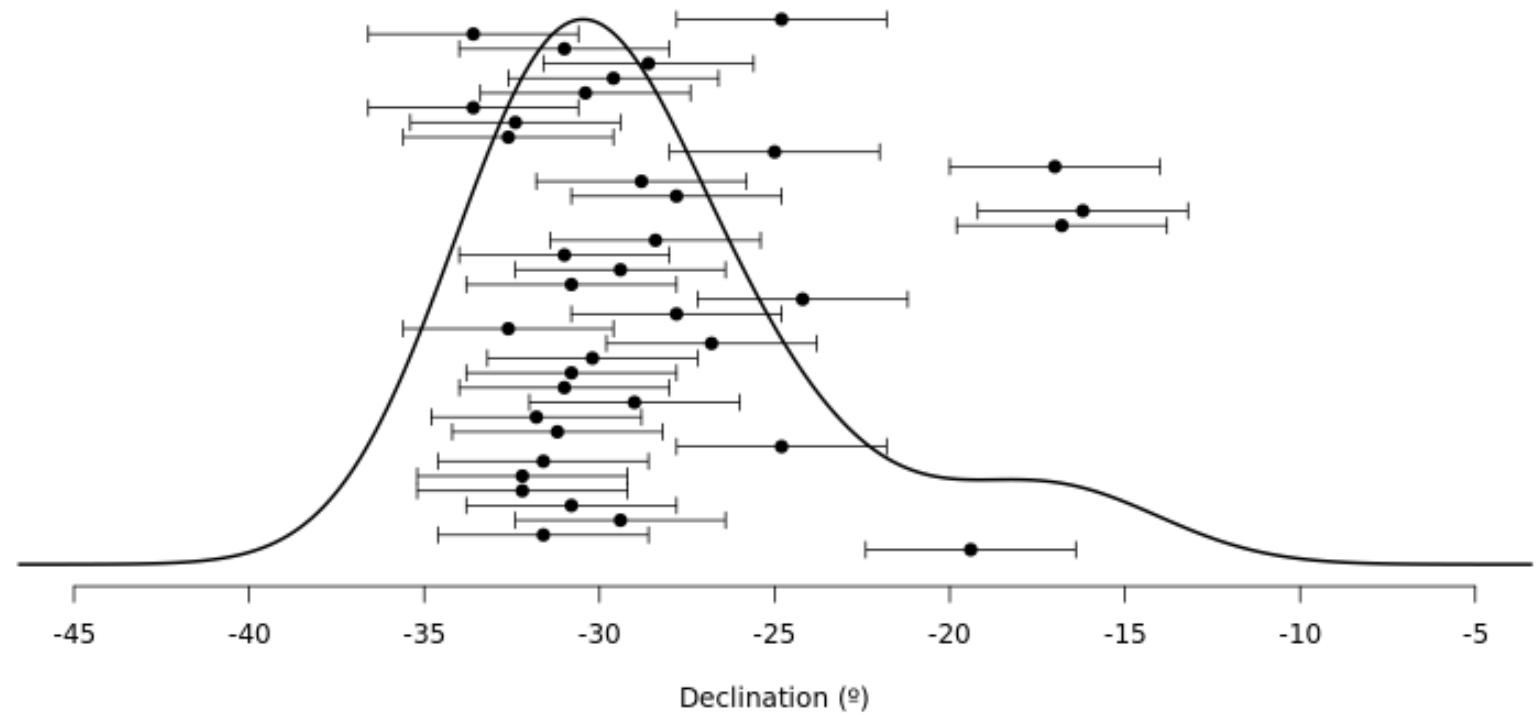
☐ Histogram

☒ Curvigram

Uncertainty

3

Celestial Objects



To help you check whether any identified patterns might align with celestial objects, use the Celestial Objects collapsible panel

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## Data Visualization

In this page you can visualize the data selected in the 'Data Entry' page.

### Plot Style

☐ Data Points

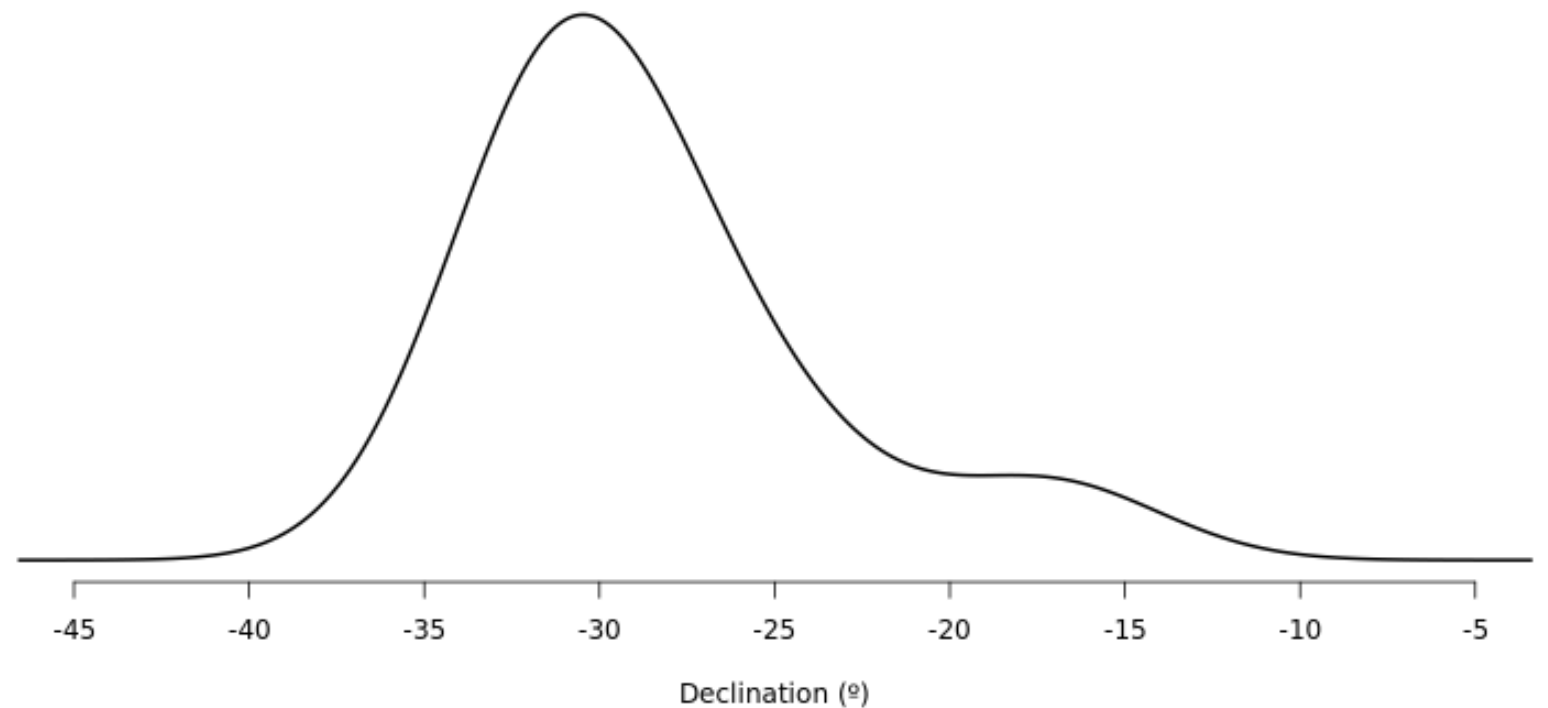
☐ Histogram

☒ Curvogram

Uncertainty

3

Celestial Objects



To help you check whether any identified patterns might align with celestial objects, use the Celestial Objects collapsible panel

**Celestial Objects**

Time Period:

from

2000

to

2000

Sun and Moon:

☐ Solstices

☐ Equinoxes

☐ minor Lunar Extremes

☐ major Lunar Extremes

☐ Spring Full Moon

☐ Autumn Full Moon

Stars:

Custom Dec:

Choose the time period of interest

Leave them equal if interested in single year. Use negative numbers for BCE

To help you check whether any identified patterns might align with celestial objects, use the Celestial Objects collapsible panel

Celestial Objects

Time Period:

from

2000

to

2000

Sun and Moon:

☐ Solstices
☐ Equinoxes
☐ minor Lunar Extremes
☐ major Lunar Extremes
☐ Spring Full Moon
☐ Autumn Full Moon

Stars:

Custom Dec:

Choose to display solstices, equinox, lunar extremes (standstill) and equinoctial full moon declinations

To help you check whether any identified patterns might align with celestial objects, use the Celestial Objects collapsible panel

**Celestial Objects**

Time Period:

from

2000

to

2000

Sun and Moon:

☐ Solstices

☐ Equinoxes

☐ minor Lunar Extremes

☐ major Lunar Extremes

☐ Spring Full Moon

☐ Autumn Full Moon

Stars:

Custom Dec:

Click here and choose from the list or type to search through a list of bright stars (up to magnitude 3)



To help you check whether any identified patterns might align with celestial objects, use the Celestial Objects collapsible panel

Celestial Objects

Time Period:  
from  
2000
to  
2000

Sun and Moon:  
☐ Solstices  
☐ Equinoxes  
☐ minor Lunar Extremes  
☐ major Lunar Extremes  
☐ Spring Full Moon  
☐ Autumn Full Moon

Stars:

Custom Dec:

Type any declination value you wish to display



Coloured lines will appear on your plot so you can look for possible celestial targets

In this page you can visualize the data selected in the 'Data Entry' page.

## Plot Style

### Celestial Objects

Time Period:

from

-2500

to

-2500

Sun and Moon:

- ☒ Solstices
- ☐ Equinoxes
- ☒ minor Lunar Extremes
- ☒ major Lunar Extremes
- ☒ Spring Full Moon
- ☐ Autumn Full Moon

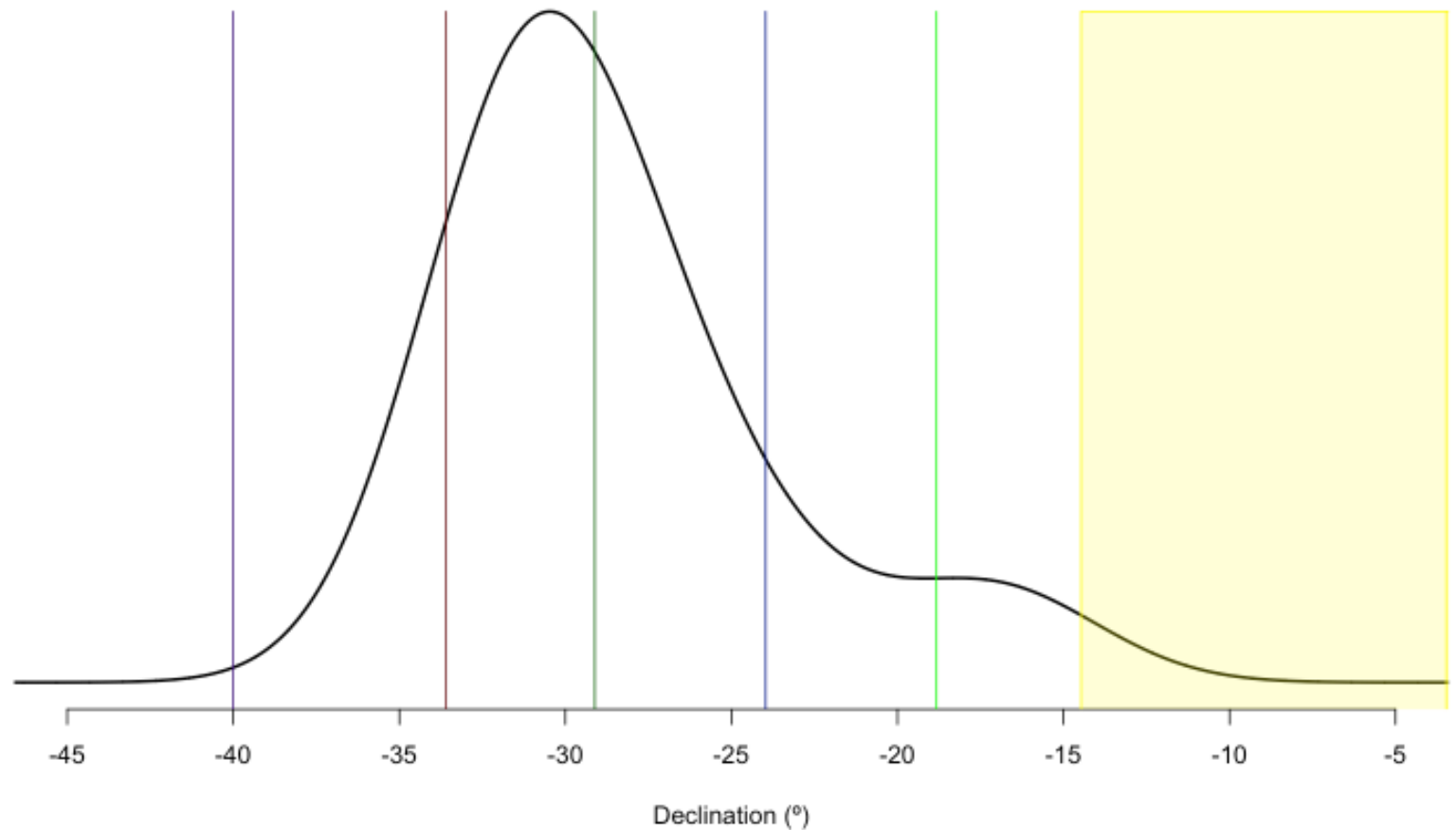
Stars:

Gacrux

Custom Dec:

-40

skyscapeR v0.4 Fabio Silva (2017)



☒ Solstices    ☒ minor Lunar Extremes    ☒ major Lunar Extremes    ☒ Spring Full Moon    ☒ Gacrux    ☒ Custom: -40

Coloured lines will appear on your plot so you can look for possible celestial targets

In this page you can visualize the data selected in the 'Data Entry' page.

## Plot Style

### Celestial Objects

Time Period:

from

-2500

to

-2500

Sun and Moon:

- ☒ Solstices
- ☐ Equinoxes
- ☒ minor Lunar Extremes
- ☒ major Lunar Extremes
- ☒ Spring Full Moon
- ☐ Autumn Full Moon

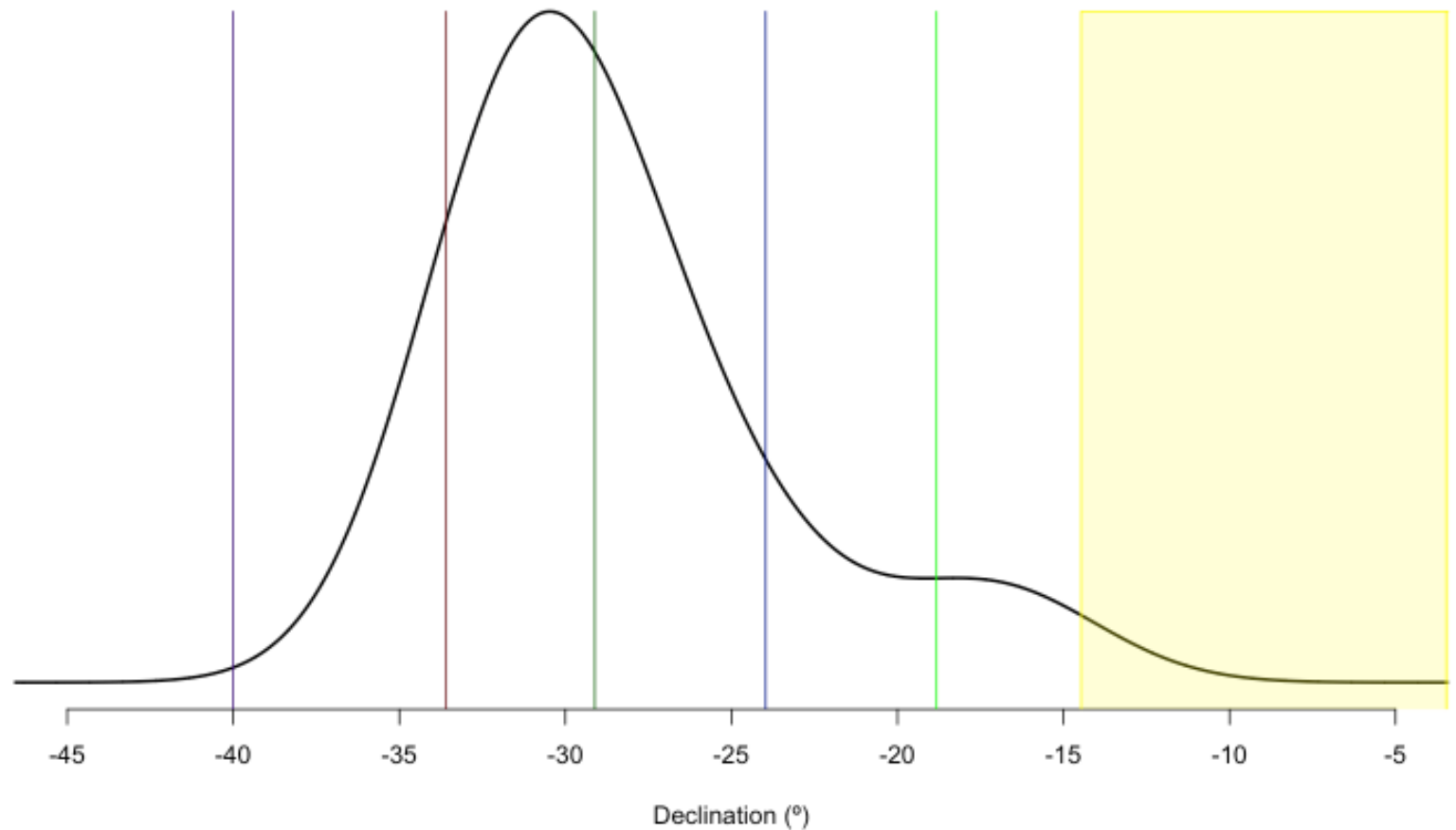
Stars:

Gacrux

Custom Dec:

-40

skyscapeR v0.4 Fabio Silva (2017)



— Solstices
 — major Lunar Extremes
 — Gacrux
 — Custom: -40
 — Spring Full Moon
 — minor Lunar Extremes

The legend explains the colour coding

If a time period is chosen the lines will get thicker due to movement of the celestial objects

In this page you can visualize the data selected in the 'Data Entry' page.

## Plot Style

### Celestial Objects

Time Period:

from

-3500

to

-2500

Sun and Moon:

- ☒ Solstices
- ☐ Equinoxes
- ☒ minor Lunar Extremes
- ☒ major Lunar Extremes
- ☒ Spring Full Moon
- ☐ Autumn Full Moon

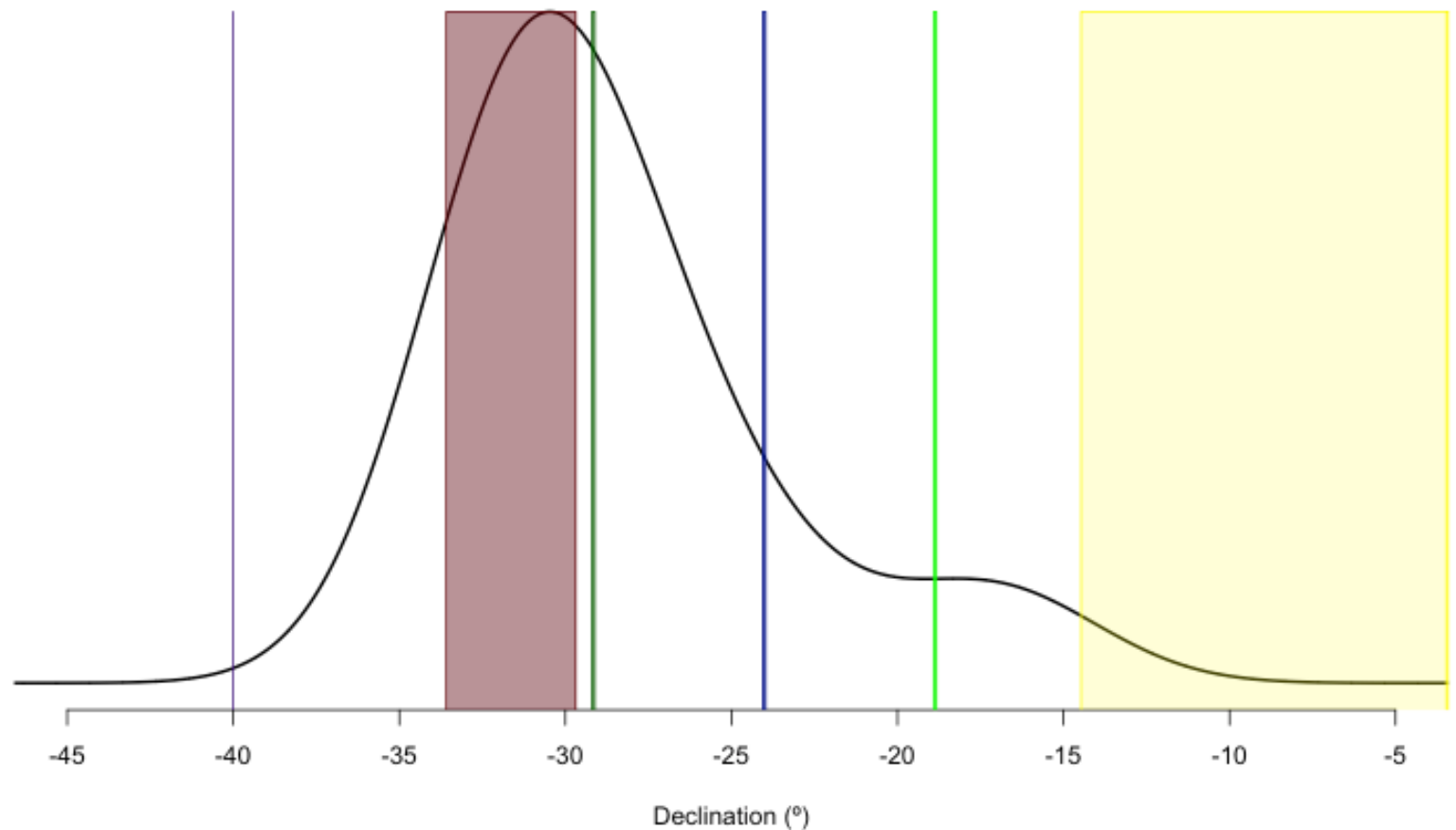
Stars:

Gacrux

Custom Dec:

-40

skyscapeR v0.4 Fabio Silva (2017)



☒ Solstices    ☒ minor Lunar Extremes    ☒ major Lunar Extremes    ☒ Spring Full Moon    ☒ Gacrux    ☒ Custom: -40

This concludes the Data Visualisation tutorial. Happy pattern hunting!

In this page you can visualize the data selected in the 'Data Entry' page.

## Plot Style

### Celestial Objects

Time Period:

from

-3500

to

-2500

Sun and Moon:

- ☒ Solstices
- ☐ Equinoxes
- ☒ minor Lunar Extremes
- ☒ major Lunar Extremes
- ☒ Spring Full Moon
- ☐ Autumn Full Moon

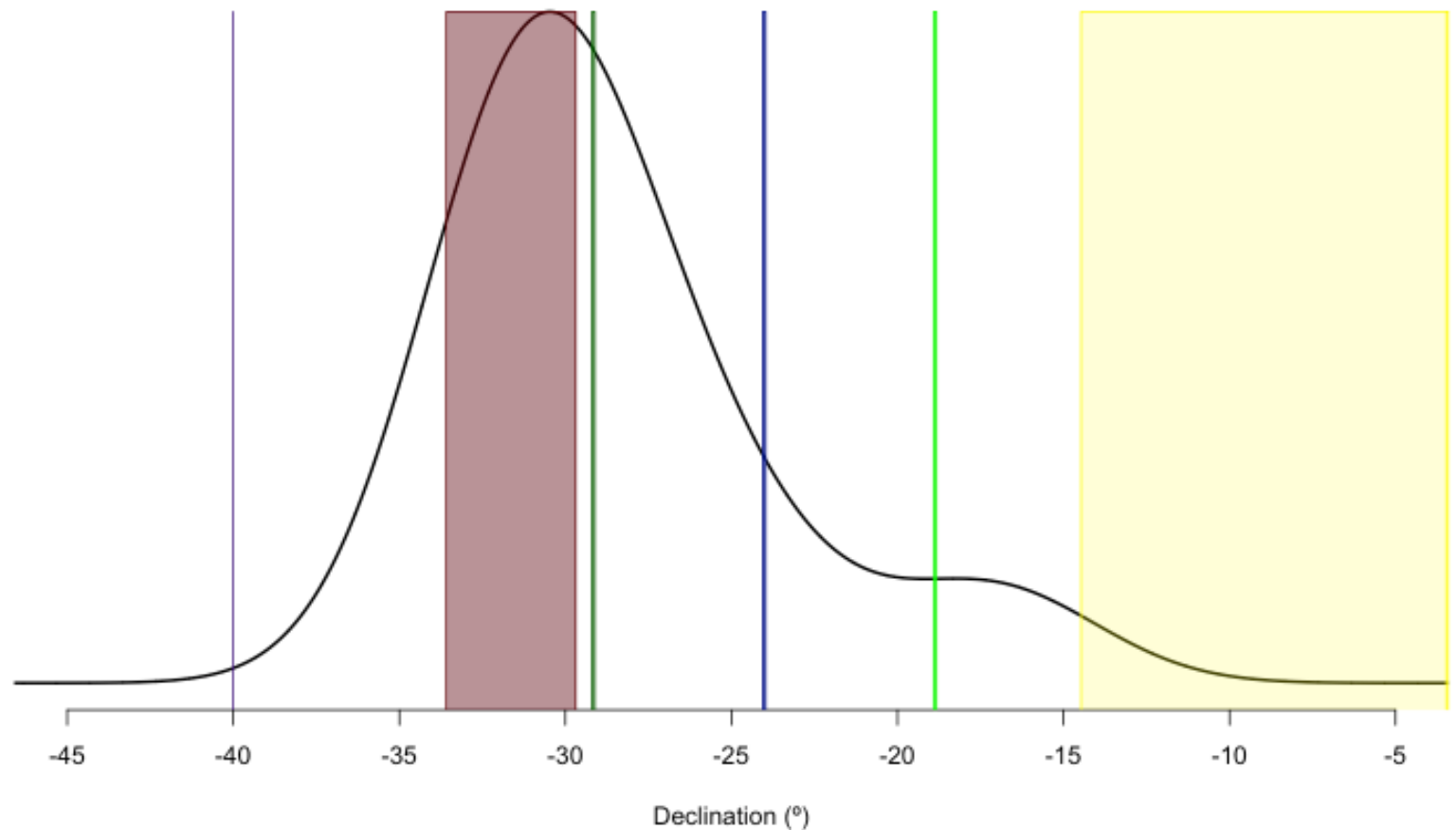
Stars:

Gacrux

Custom Dec:

-40

skyscapeR v0.4 Fabio Silva (2017)



☒ Solstices    ☒ major Lunar Extremes    ☒ Gacrux  
☒ minor Lunar Extremes    ☒ Spring Full Moon    ☒ Custom: -40

## The Horizon module

skyscapeR v0.4b

About

Data Entry

Visualization

Horizon

Tools ▾

Help

This is the Horizon page. Not much to look at.

## Horizon Visualization

In this page you can visualize and handle horizon data.

Select or type in a HeyWhatsThat ID

Please enter a valid HWT ID



By clicking this box you can either select a site from the Data you uploaded (if HWT.ID field has been populated) or type in a new ID

## Horizon Visualization

In this page you can visualize and handle horizon data.

Select or type in a HeyWhatsThat ID

Please enter a valid HWT ID



skyscapeR will then download the horizon data from HeyWhatsThat. After a few seconds you should see something like this

skyscapeR v0.4b About Data Entry Visualization Horizon Tools ▾ Help

## Horizon Visualization

In this page you can visualize and handle horizon data.

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho ▾

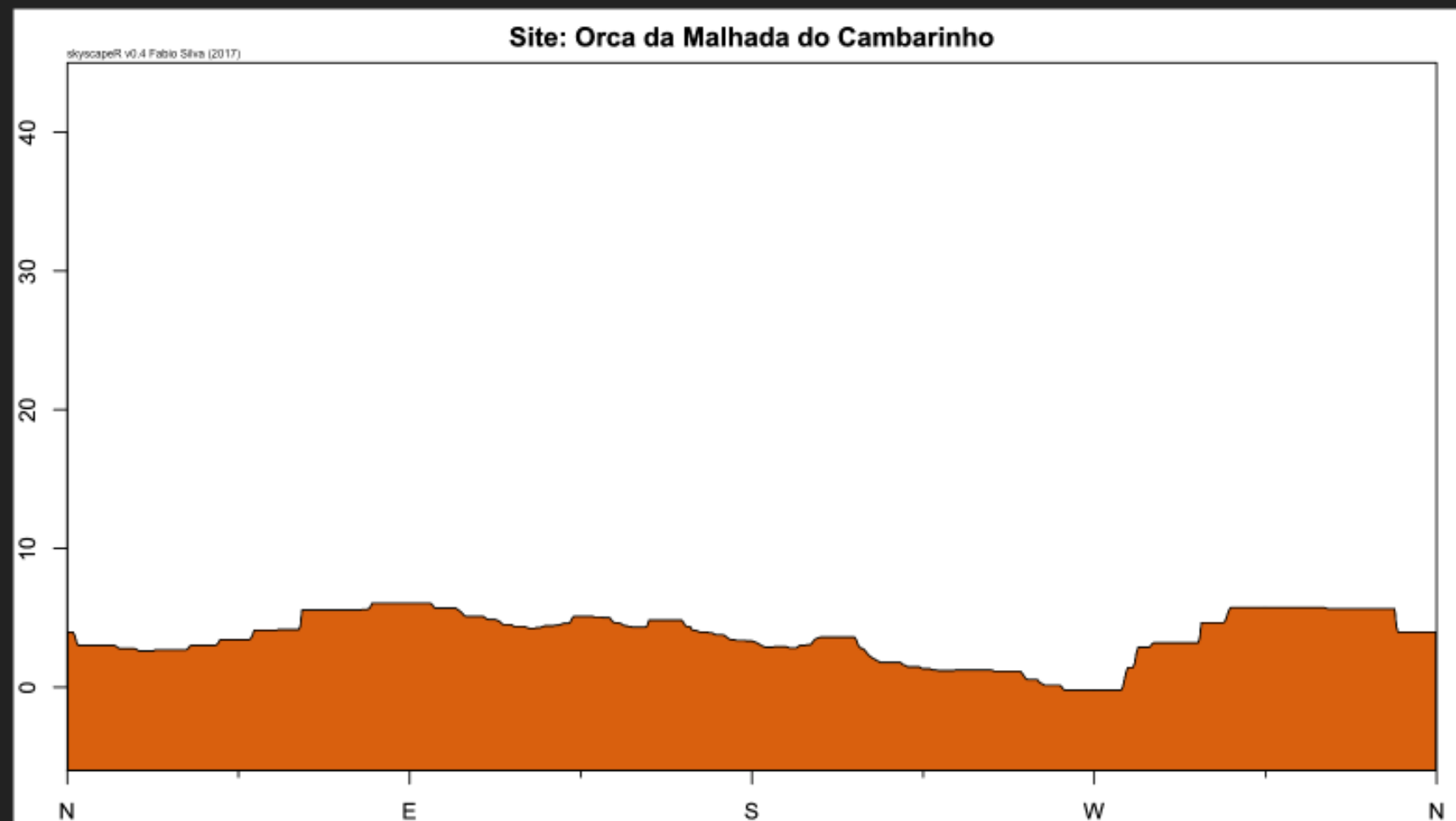
### Horizon Info

Site: Orca da Malhada do Cambarinho  
Latitude: 40.6799 N  
Longitude: 8.1205 W  
Elevation: 787.2 m  
ID: K5JP31AA

Download Horizon

Celestial Objects

Display Measurements



skyscapeR will then download the horizon data from HeyWhatsThat. After a few seconds you should see something like this

skyscapeR v0.4b

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## Horizon Visualization

In this page you can visualize and handle horizon data.

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho ▾

Horizon Info

Site: Orca da Malhada do Cambarinho

Latitude: 40.6799 N

Longitude: 8.1205 W

Elevation: 787.2 m

ID: K5JP31AA

Download Horizon

Celestial Objects

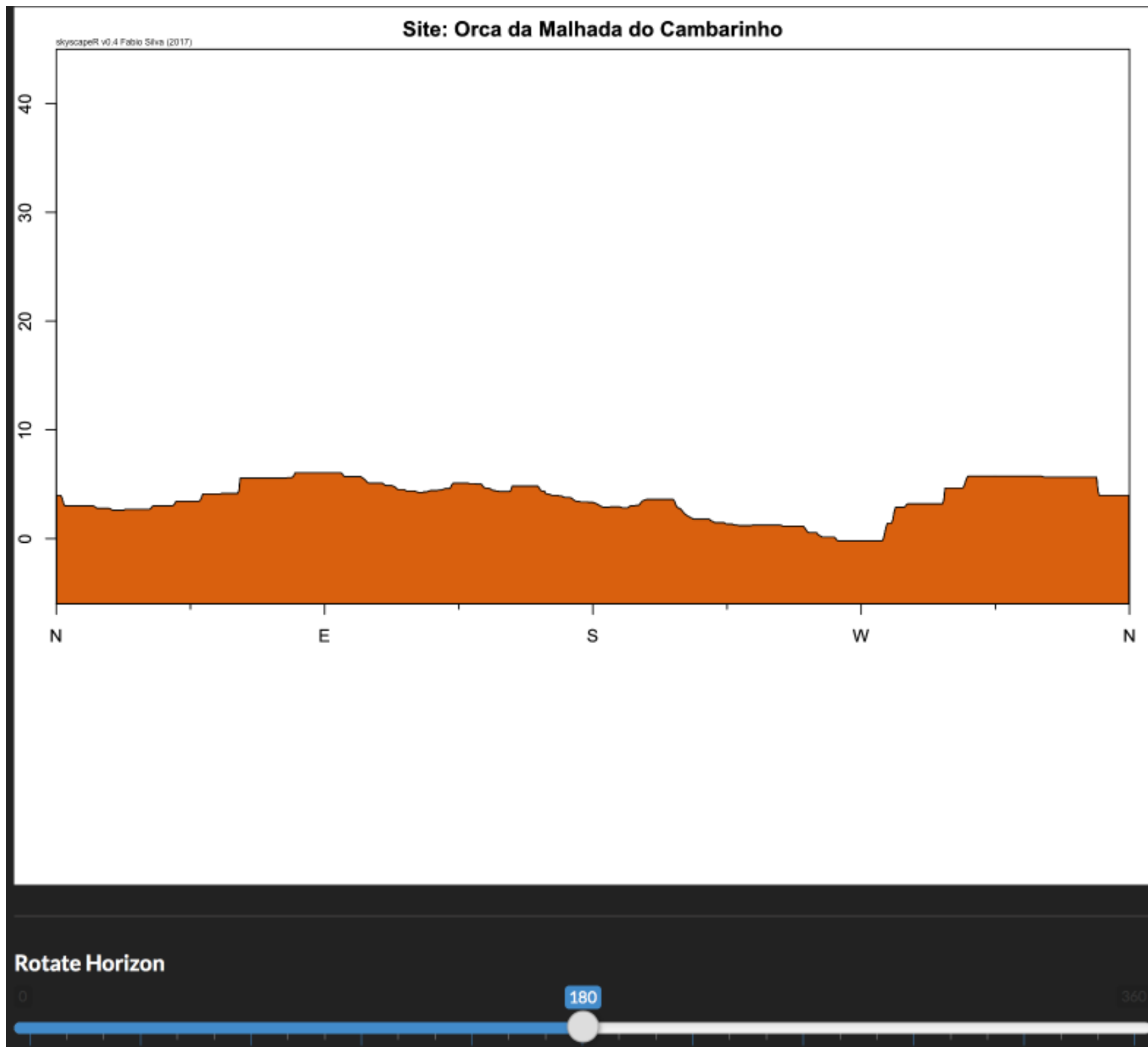
Display Measurements

Site: Orca da Malhada do Cambarinho

Horizon Panel (right)

Options Panel (left)

Let's look at the Horizon panel first



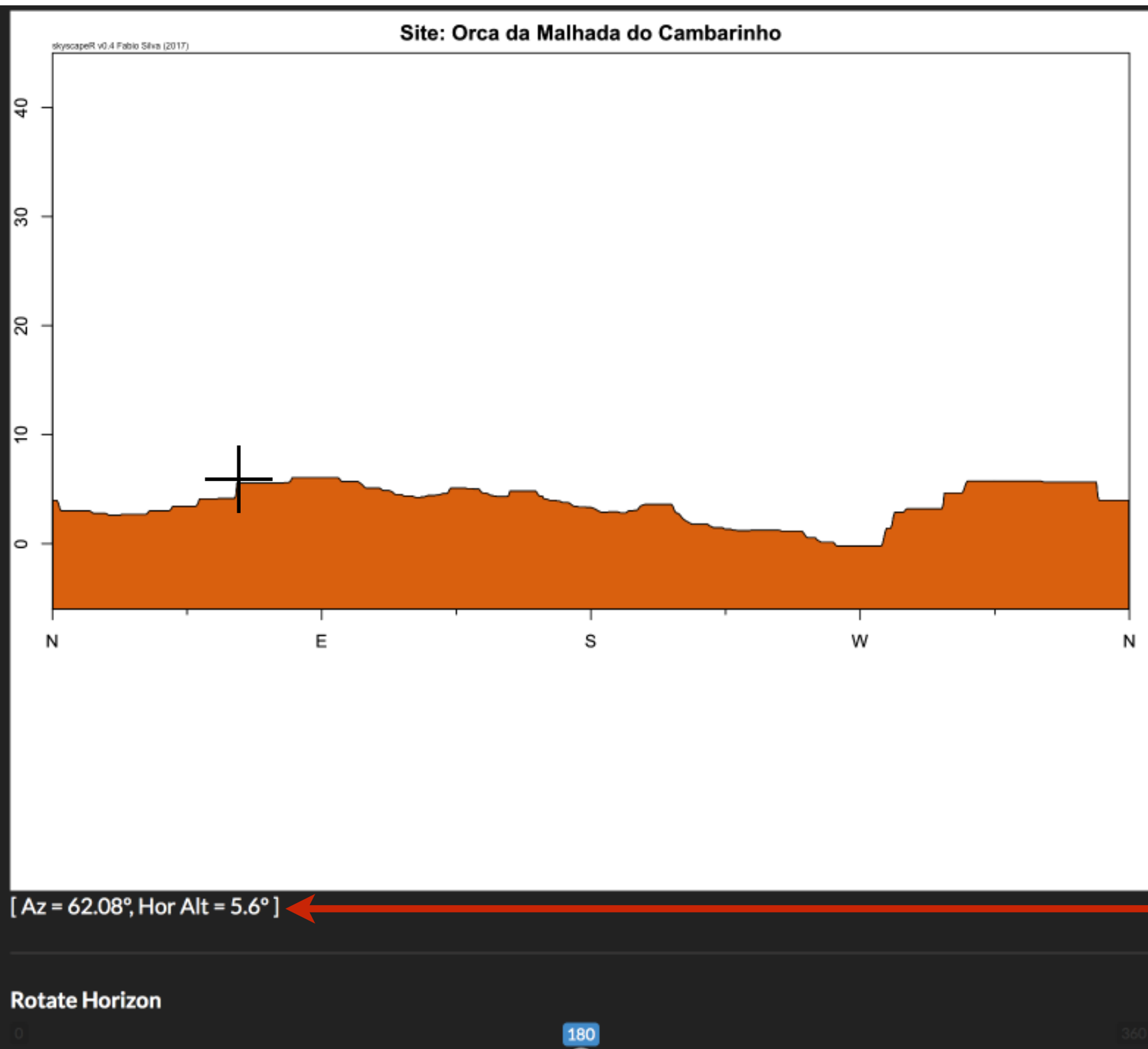
This gives you a view of the horizon at your site, not unlike that of HeyWhatsThat

It uses HeyWhatsThat data

You can see the cardinal points at the bottom, and the altitude on the left

You can also rotate the horizon by using the slider at the very bottom

Let's look at the Horizon panel first



If you click inside the plot the azimuth of the point you clicked will appear beneath the plot together with the horizon altitude that corresponds to that azimuth

Now, the Options panel

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho ▼

## Horizon Info

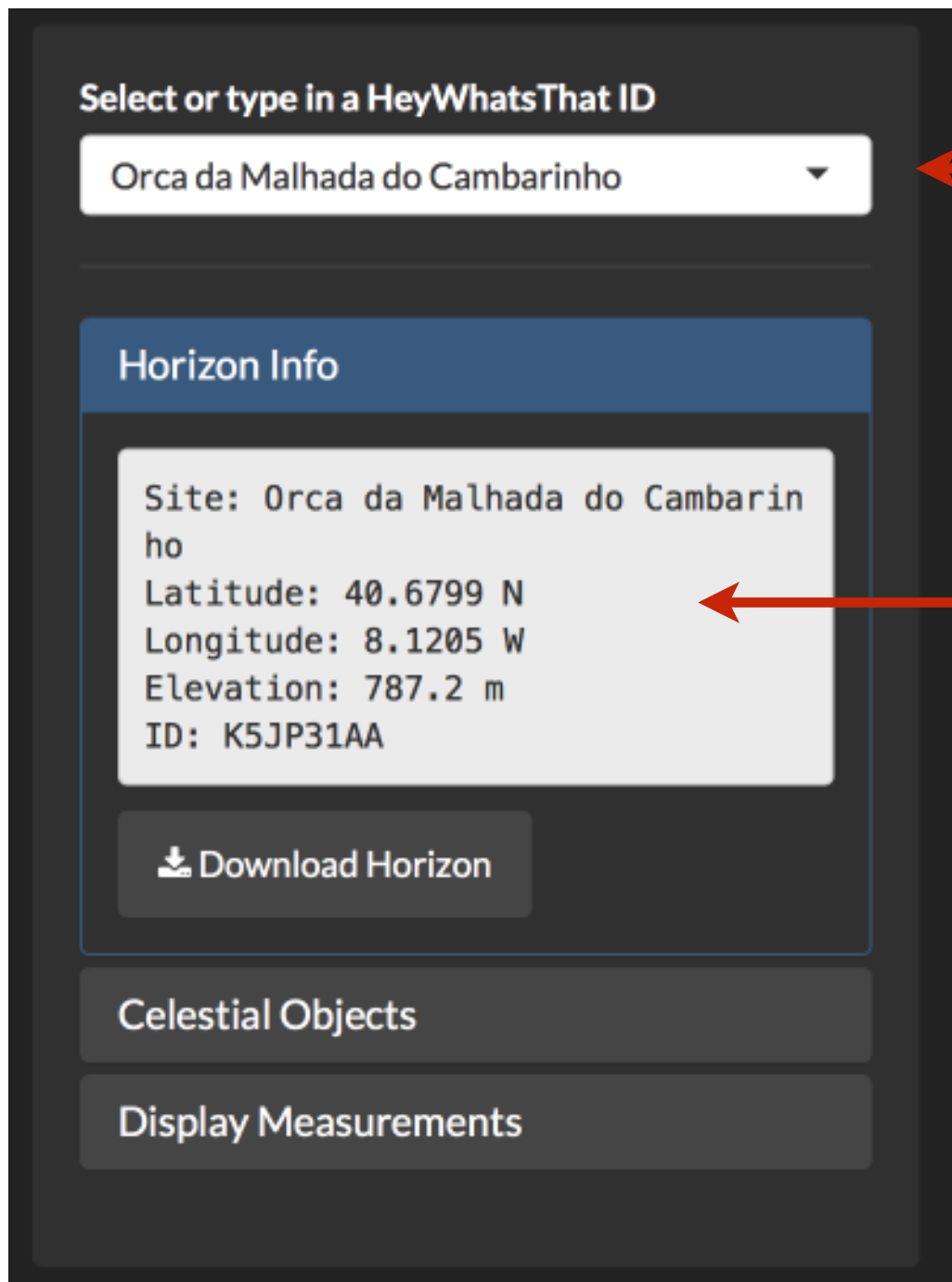
Site: Orca da Malhada do Cambarinho  
Latitude: 40.6799 N  
Longitude: 8.1205 W  
Elevation: 787.2 m  
ID: K5JP31AA

Download Horizon

Celestial Objects

Display Measurements

Now, the Options panel

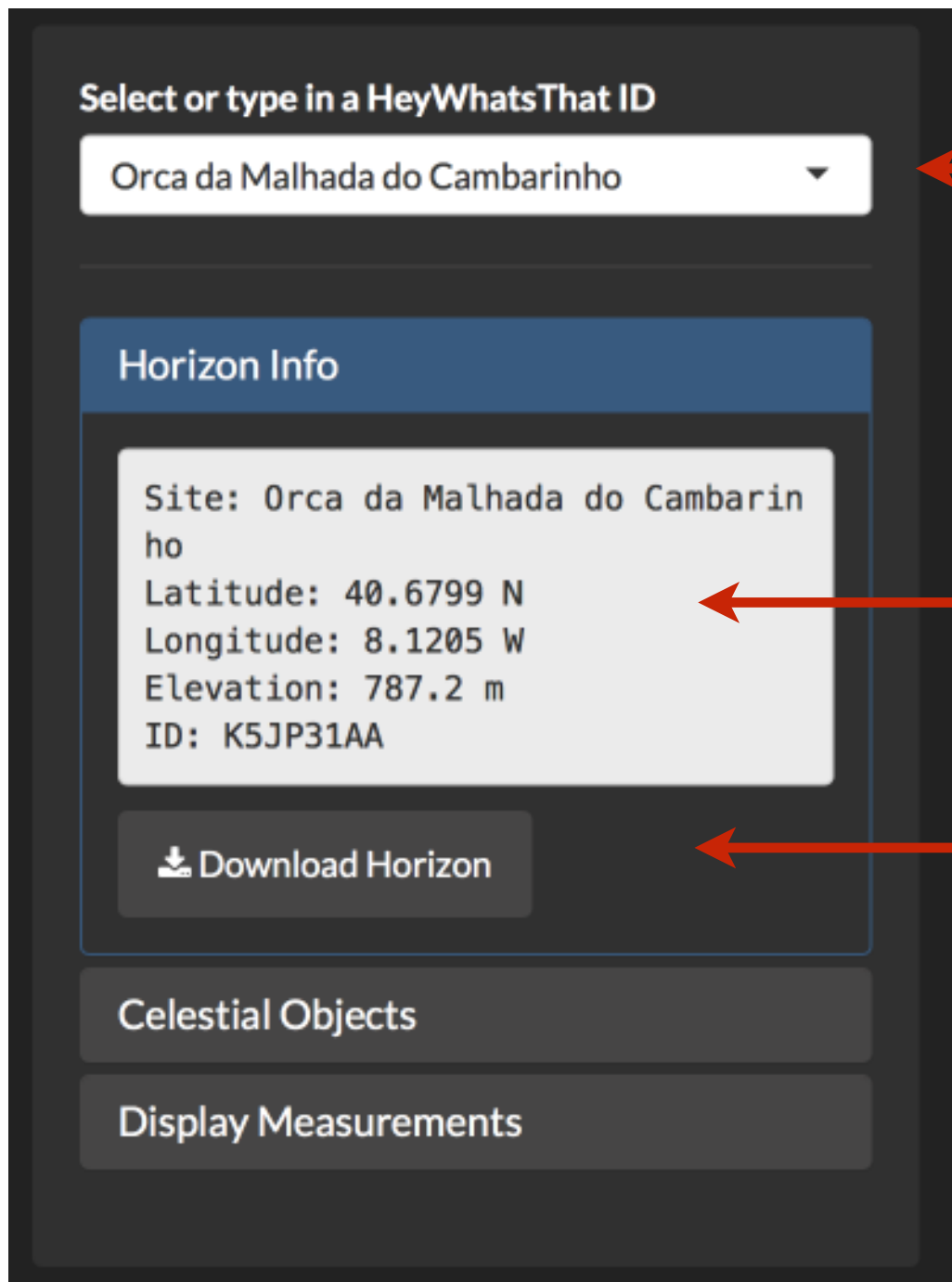


The screenshot shows the 'Options' panel of the skyscapeR application. At the top, there is a section titled 'Select or type in a HeyWhatsThat ID' with a dropdown menu currently showing 'Orca da Malhada do Cambarinho'. Below this is a 'Horizon Info' section, which contains a light gray box displaying site details: 'Site: Orca da Malhada do Cambarinho', 'Latitude: 40.6799 N', 'Longitude: 8.1205 W', 'Elevation: 787.2 m', and 'ID: K5JP31AA'. A 'Download Horizon' button with a download icon is positioned below the info box. At the bottom of the panel are two buttons: 'Celestial Objects' and 'Display Measurements'.

← You can import a different horizon

← This gives you the information from HeyWhatsThat

Now, the Options panel



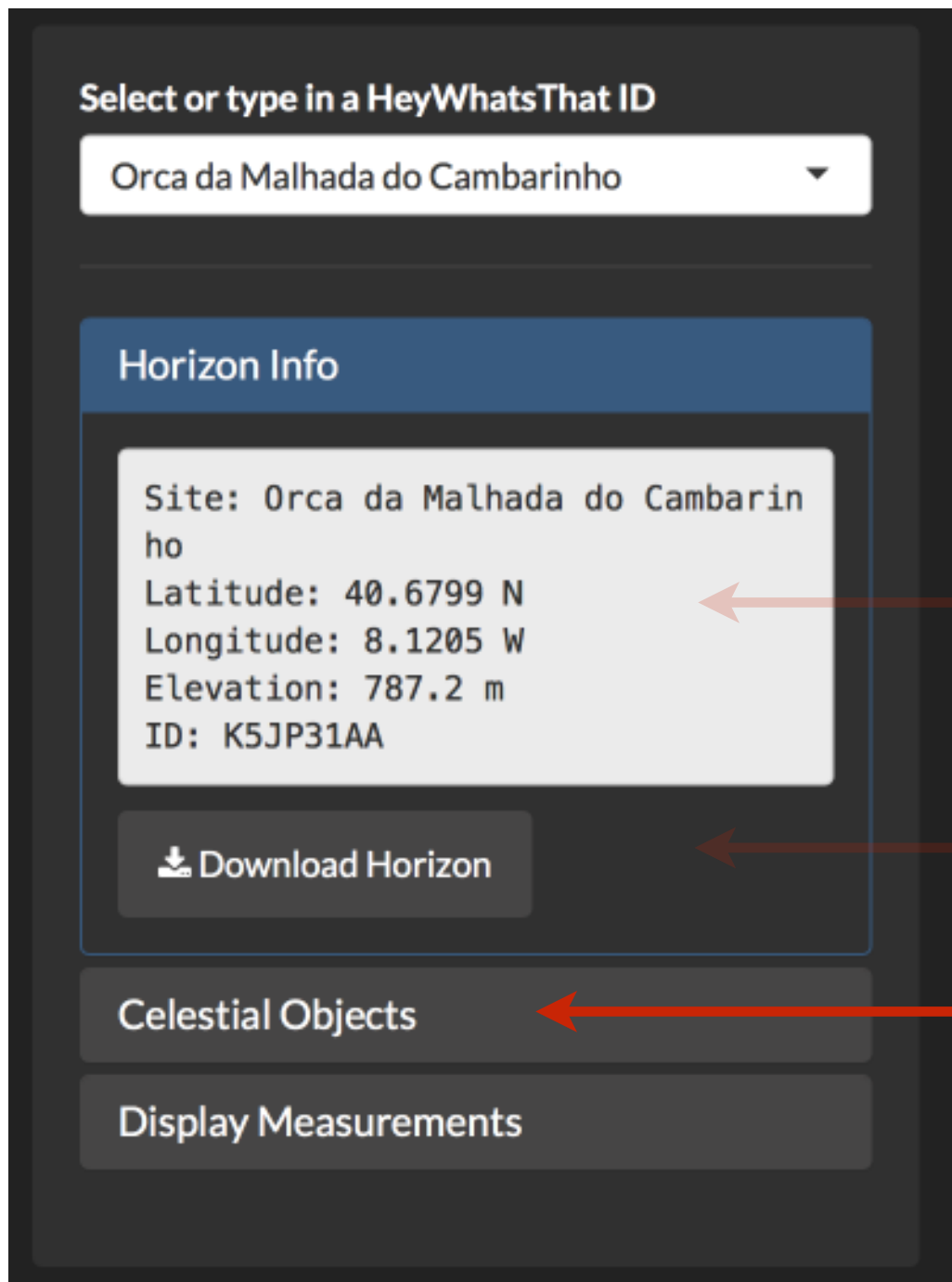
The screenshot shows the 'Options' panel of the skyscapeR application. At the top, there is a section titled 'Select or type in a HeyWhatsThat ID' with a dropdown menu currently showing 'Orca da Malhada do Cambarinho'. Below this is a 'Horizon Info' section, which is highlighted with a blue header. Inside this section, a light gray box displays the following information: 'Site: Orca da Malhada do Cambarinho', 'Latitude: 40.6799 N', 'Longitude: 8.1205 W', 'Elevation: 787.2 m', and 'ID: K5JP31AA'. Below the info box is a button labeled 'Download Horizon' with a download icon. At the bottom of the panel are two more buttons: 'Celestial Objects' and 'Display Measurements'.

← You can import a different horizon

← This gives you the information from HeyWhatsThat

← You can download the horizon in a format ready to be imported into Stellarium

Now, the Options panel



The screenshot shows the 'Options' panel of the skyscapeR application. At the top, there is a section titled 'Select or type in a HeyWhatsThat ID' with a dropdown menu currently showing 'Orca da Malhada do Cambarinho'. Below this is a 'Horizon Info' section with a light blue header. Inside this section, a white box displays the following information: 'Site: Orca da Malhada do Cambarinho', 'Latitude: 40.6799 N', 'Longitude: 8.1205 W', 'Elevation: 787.2 m', and 'ID: K5JP31AA'. Below the white box is a button labeled 'Download Horizon' with a download icon. At the bottom of the panel are two buttons: 'Celestial Objects' and 'Display Measurements'.

← You can import a different horizon

← This gives you the information from HeyWhatsThat

← You can download the horizon in a format ready to be imported into Stellarium

← This lets you display celestial objects on top of your horizon

You can plot the orbit(s) of celestial objects on your horizon data

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho

Horizon Info

Celestial Objects

Time Period:

from

2000

to

2000

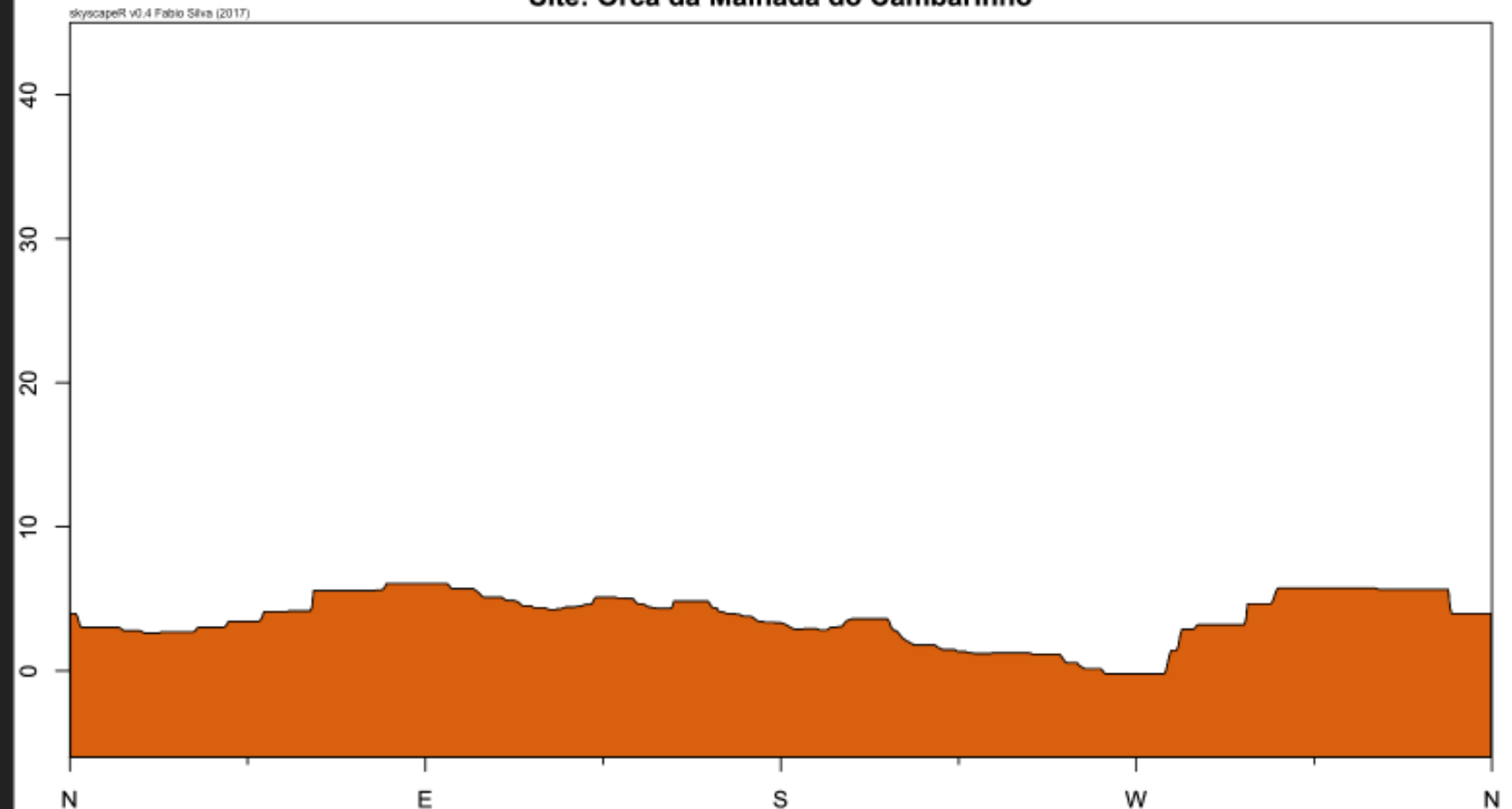
Sun and Moon:

- ☐ Solstices
- ☐ Equinoxes
- ☐ minor Lunar Extremes
- ☐ major Lunar Extremes
- ☐ Spring Full Moon
- ☐ Autumn Full Moon

Stars:

Custom Dec:

Site: Orca da Malhada do Cambarinho



Rotate Horizon



You can plot the orbit(s) of celestial objects on your horizon data

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho

Horizon Info

Celestial Objects

Time Period:

from

-4300

to

-3700

Sun and Moon:

☒ Solstices

☒ Equinoxes

☒ minor Lunar Extremes

☒ major Lunar Extremes

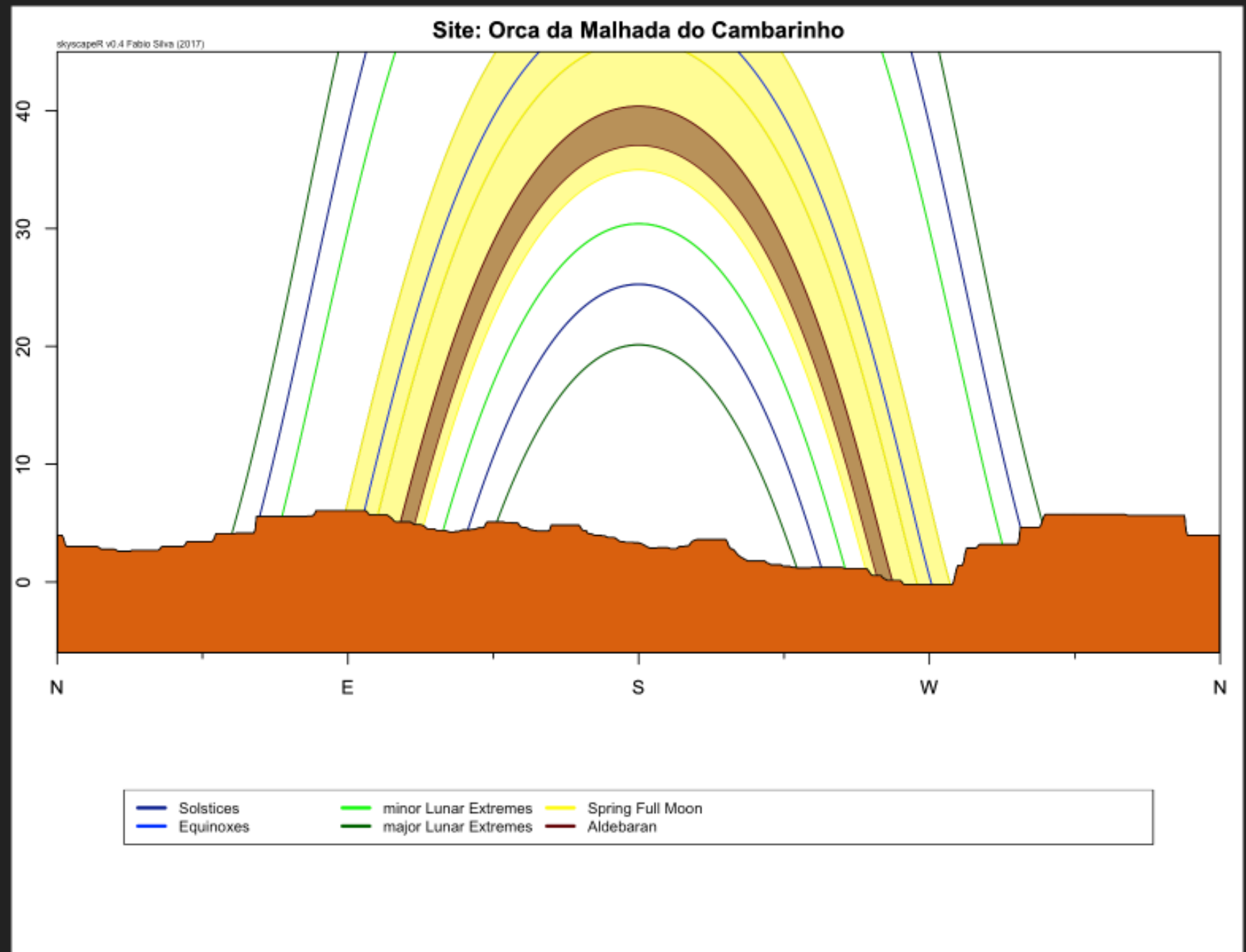
☒ Spring Full Moon

☐ Autumn Full Moon

Stars:

Aldebaran

Custom Dec:

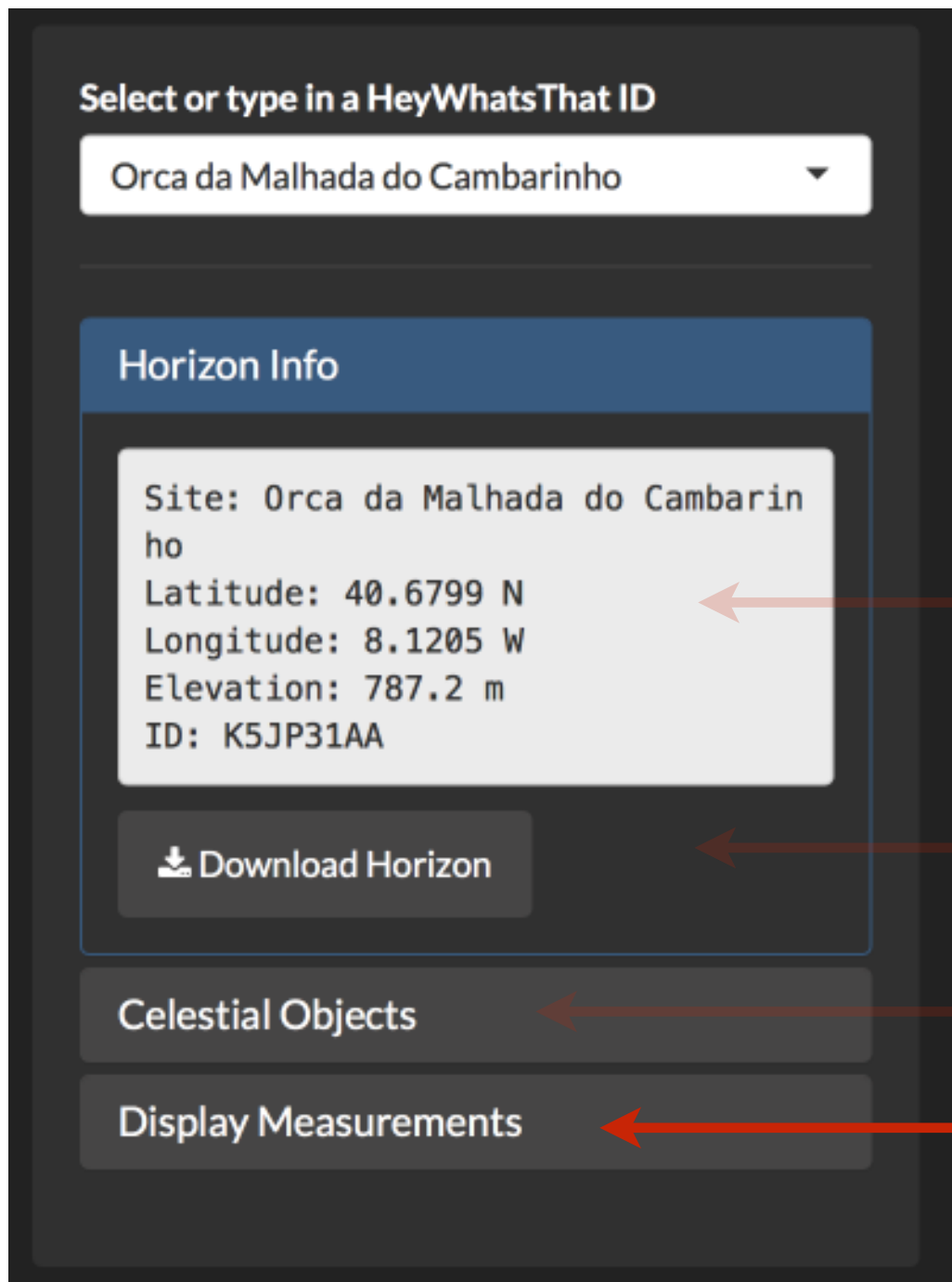


Rotate Horizon

180

360

Now, the Options panel



The screenshot shows the 'Options' panel of the skyscapeR application. At the top, there is a section titled 'Select or type in a HeyWhatsThat ID' with a dropdown menu currently showing 'Orca da Malhada do Cambarinho'. Below this is a 'Horizon Info' section, which contains a box with the following details: 'Site: Orca da Malhada do Cambarinho', 'Latitude: 40.6799 N', 'Longitude: 8.1205 W', 'Elevation: 787.2 m', and 'ID: K5JP31AA'. A 'Download Horizon' button with a download icon is located below the info box. At the bottom of the panel are two buttons: 'Celestial Objects' and 'Display Measurements'.

← You can import a different horizon

← This gives you the information from HeyWhatsThat

← You can download the horizon in a format ready to be imported into Stellarium

← This lets you display celestial objects on top of your horizon

← This lets you display your uploaded data on top of your horizon

This lets you display your uploaded data on top of your horizon

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho

Horizon Info

Celestial Objects

Display Measurements

Choose Measurements:

Orca da Malhada do Cambarinho

Uncertainty in  
Azimuth:

3

Uncertainty in  
Altitude:

3

Show uncertainty as:

- ☒ error-bar
- ☐ window

Automatically selects measurement whose HWT.ID matches that of the Horizon being displayed. Click here to remove and/or add others

This lets you display your uploaded data on top of your horizon

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho

Horizon Info

Celestial Objects

Display Measurements

Choose Measurements:

Orca da Malhada do Cambarinho

Uncertainty in Azimuth:

3

Uncertainty in Altitude:

3

Show uncertainty as:

☒ error-bar
☐ window

Automatically selects measurement whose HWT.ID matches that of the Horizon being displayed. Click here to remove and/or add others

Uncertainty, used for measurements without uncertainty, or if larger than that of measurement

This lets you display your uploaded data on top of your horizon

Select or type in a HeyWhatsThat ID

Orca da Malhada do Cambarinho

Horizon Info

Celestial Objects

Display Measurements

Choose Measurements:

Orca da Malhada do Cambarinho

Uncertainty in Azimuth:

3

Uncertainty in Altitude:

3

Show uncertainty as:

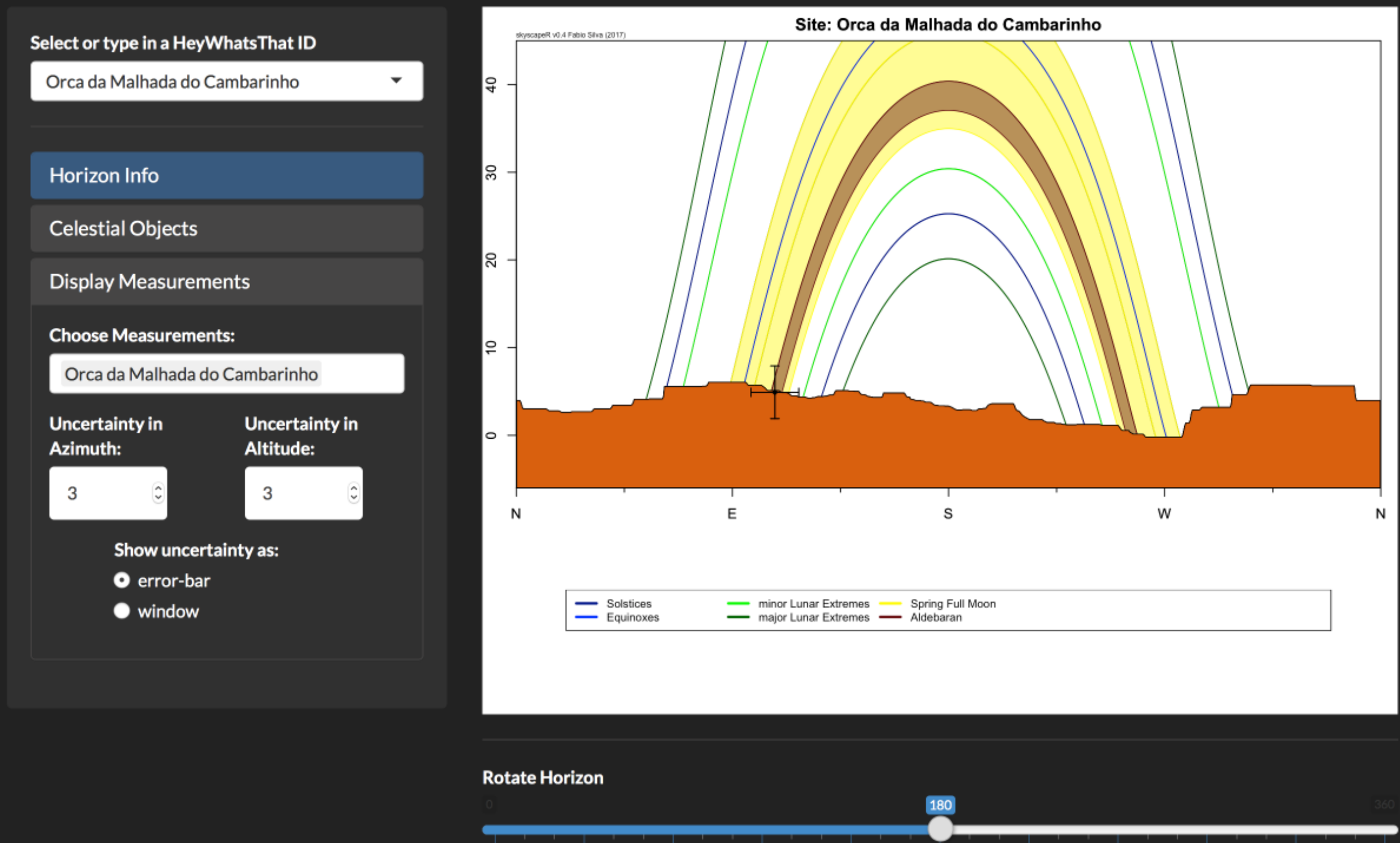
☒ error-bar
☐ window

Automatically selects measurement whose HWT.ID matches that of the Horizon being displayed. Click here to remove and/or add others

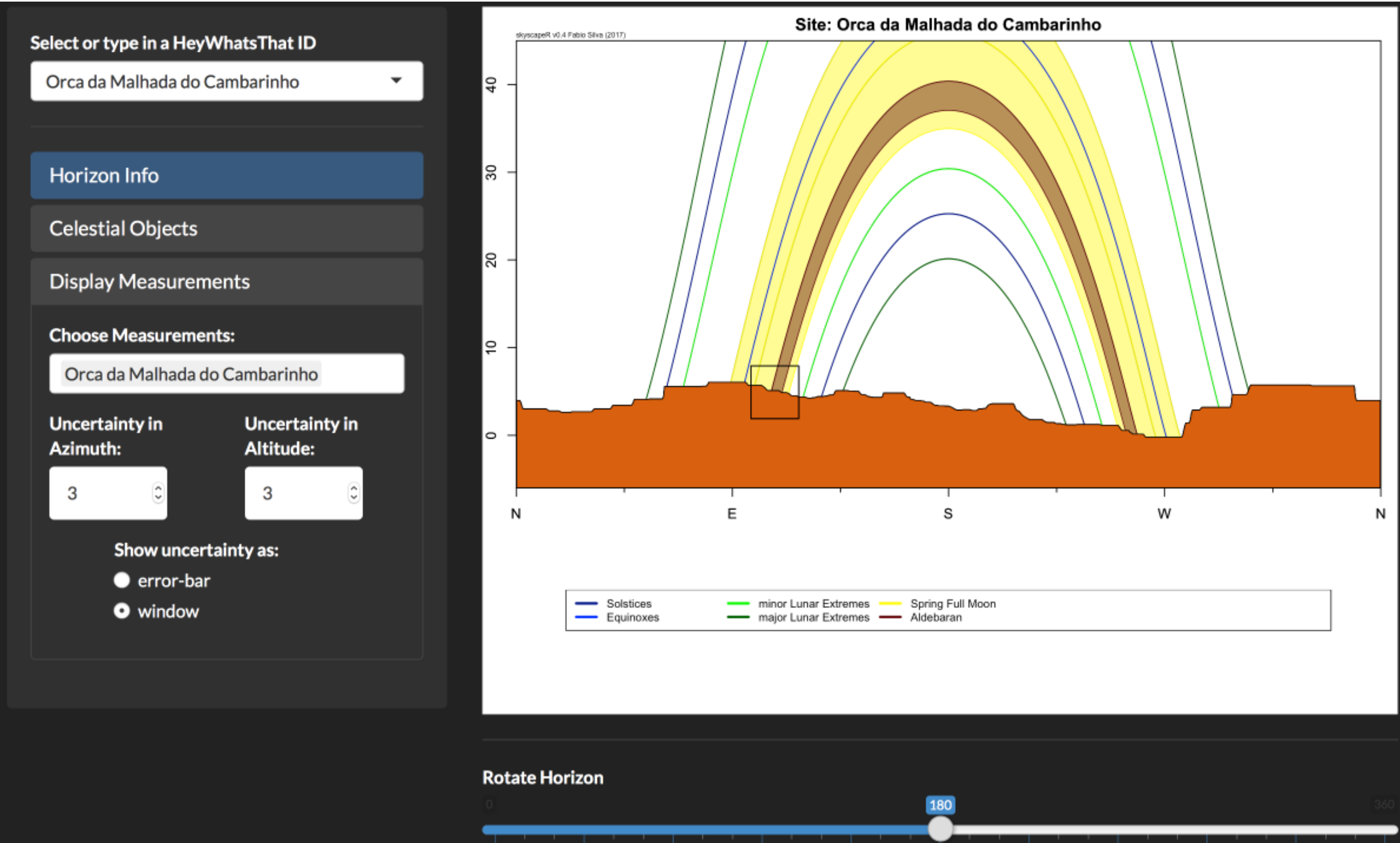
Uncertainty, used for measurements without uncertainty, or if larger than that of measurement

How to display Measurement

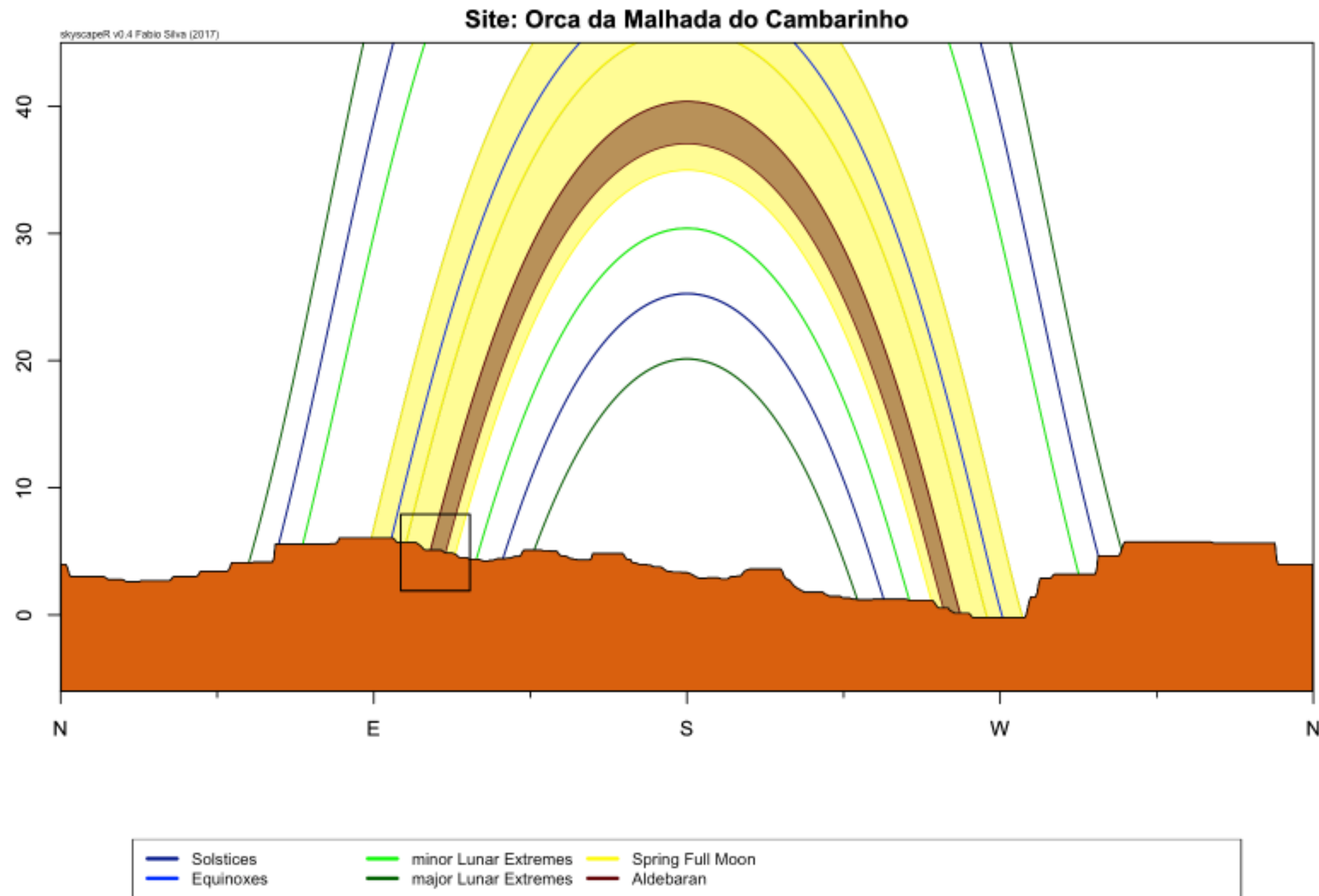
This is what a error-bar representation looks like:



This is what a window representation looks like

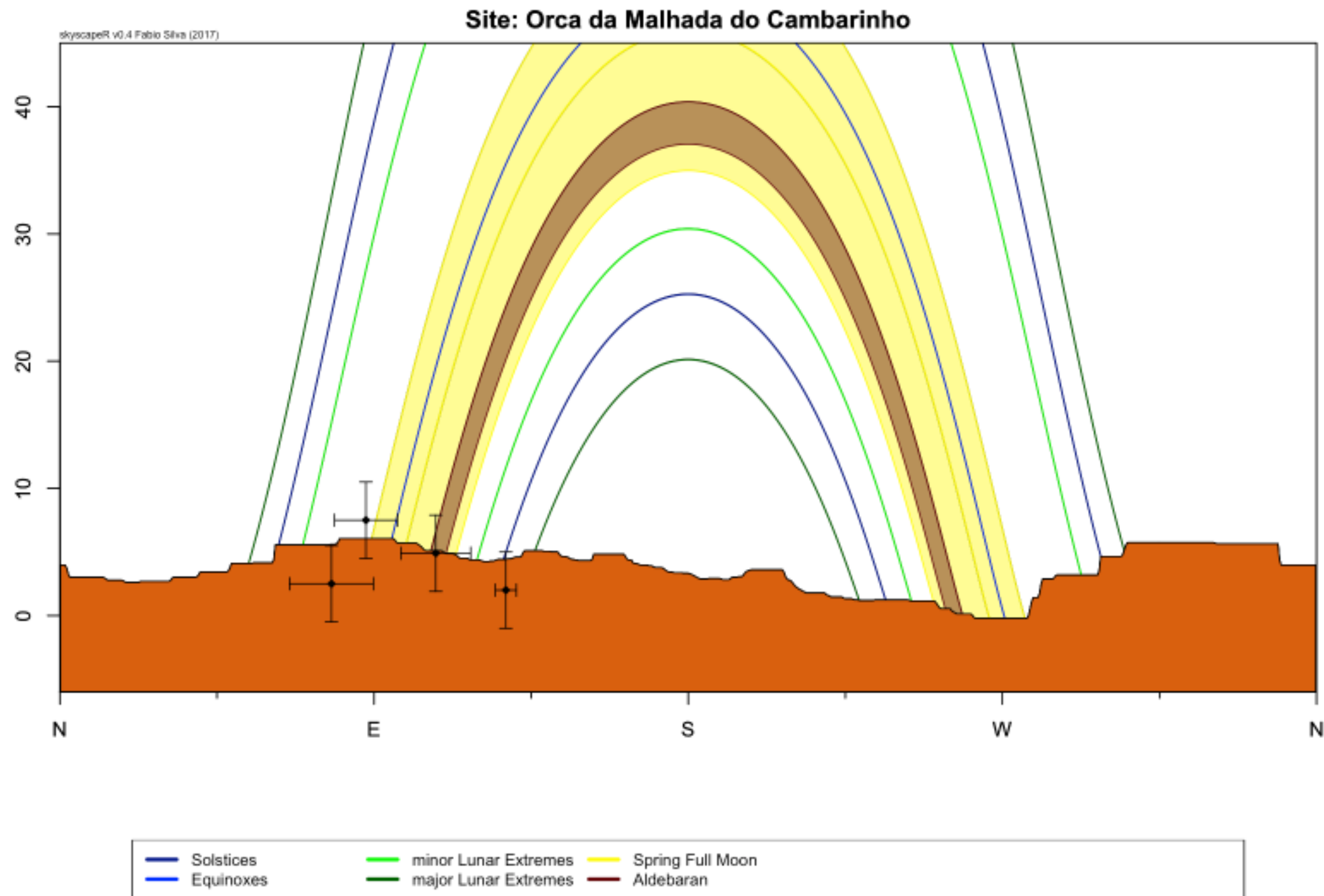


You can use this to identify potential celestial targets:



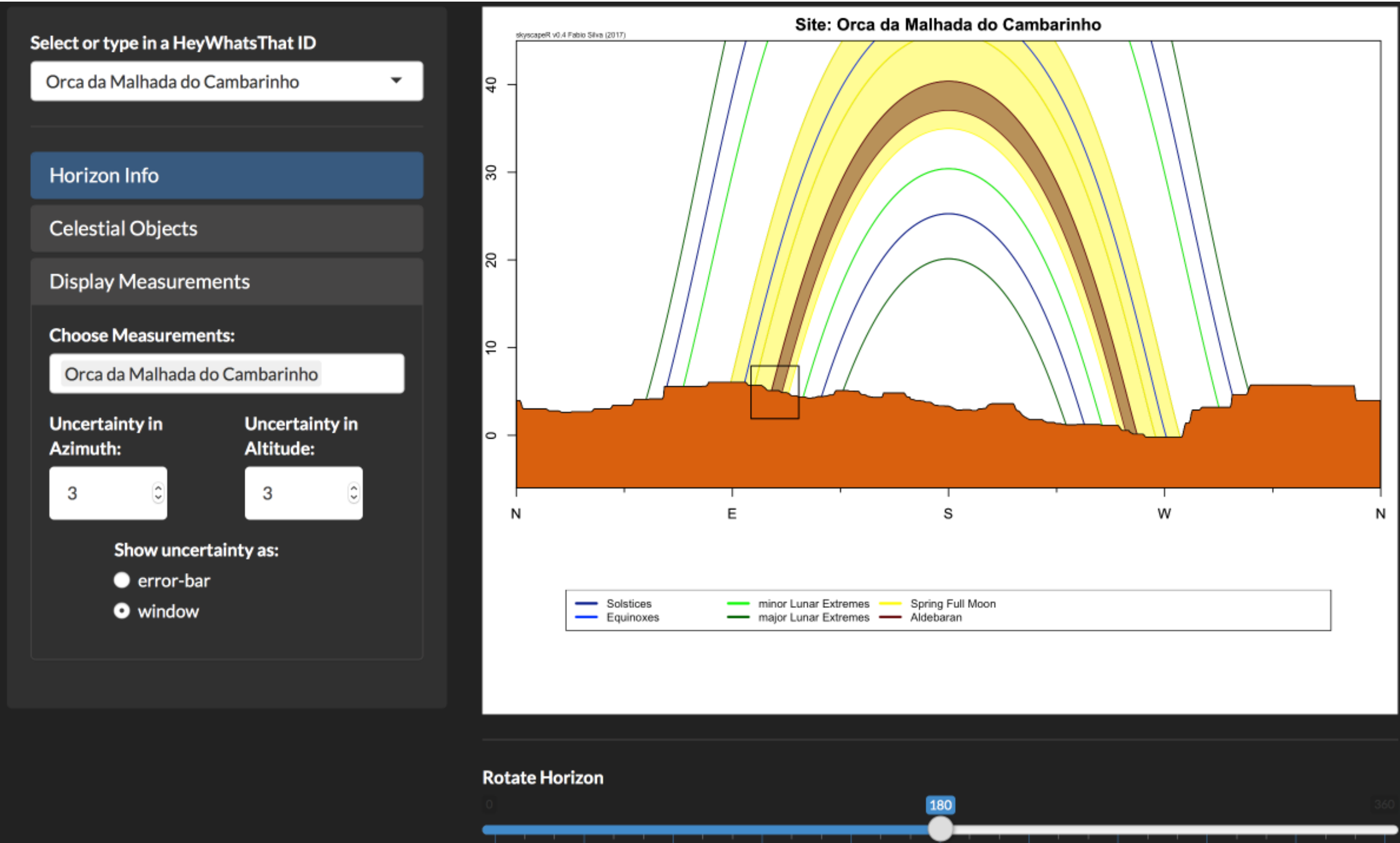
You can look for what objects rise (or set) within a specific window...

You can use this to identify potential celestial targets:

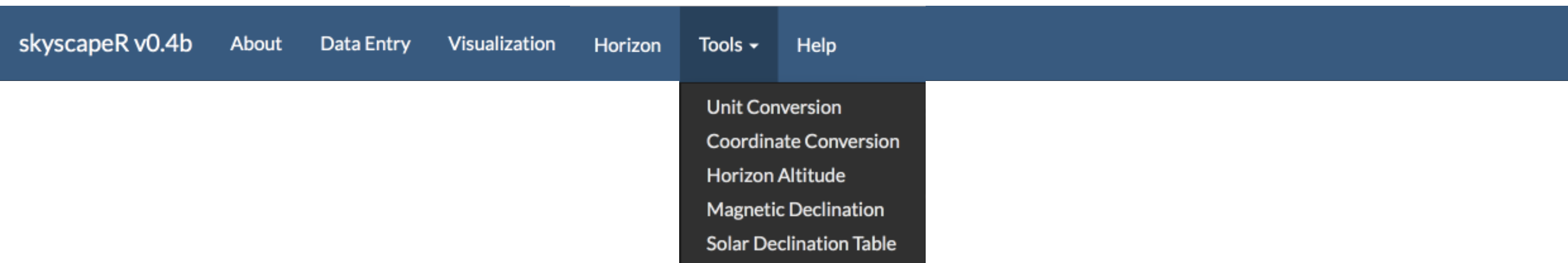


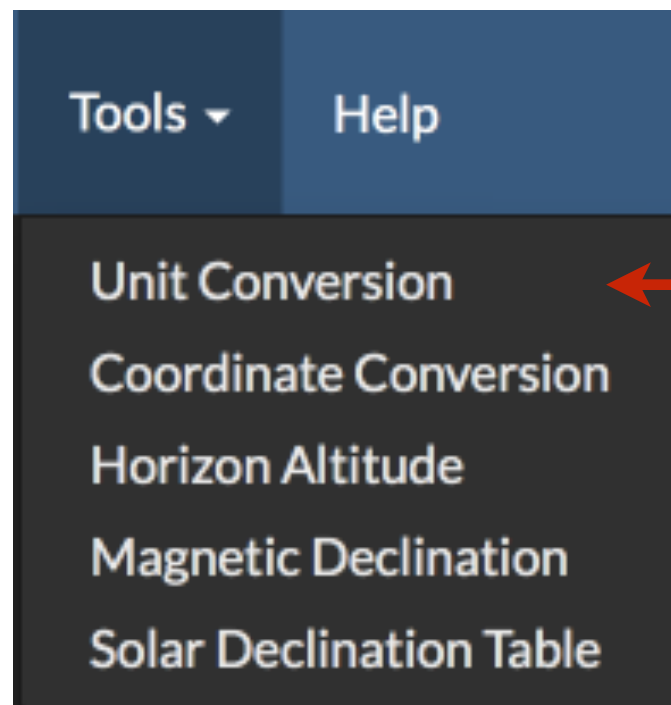
... or what objects rise (or set) in alignment with multiple stones at one site

This concludes the Horizon tutorial. Happy celestial object hunting!



## The Tools module





Convert between degrees in .° and ° ‘ “ formats

Convert between degrees in  $^{\circ}$  and  $^{\circ} \, ' \, ''$  formats

## Tools :: Unit Conversion

This tool converts degrees between the  $xx^{\circ} yy' zz''$  form and the decimal-point form (ie  $xx.yyzz$ )

Degree ( $^{\circ}$ )

Arcminute ( $'$ )

Arcsecond ( $''$ )

V

^

Degree with decimal  
point( $^{\circ}$ )

Convert between degrees in  $^{\circ}$  and  $^{\circ} \prime \prime$  formats

### Tools :: Unit Conversion

This tool converts degrees between the  $xx^{\circ} yy' zz''$  form and the decimal-point form (ie  $xx.yyzz$ )

Degree ( $^{\circ}$ )

Arcminute ( $'$ )

Arcsecond ( $''$ )

V

^

Degree with decimal point( $^{\circ}$ )

Either...

(1) Type your values here

(2) Click here

(3) Converted value appears here

Convert between degrees in  $^{\circ}$  and  $^{\circ} \prime \prime$  formats

### Tools :: Unit Conversion

This tool converts degrees between the  $xx^{\circ} yy' zz''$  form and the decimal-point form (ie  $xx.yyzz$ )

Degree ( $^{\circ}$ )

Arcminute ( $'$ )

Arcsecond ( $''$ )

V

^

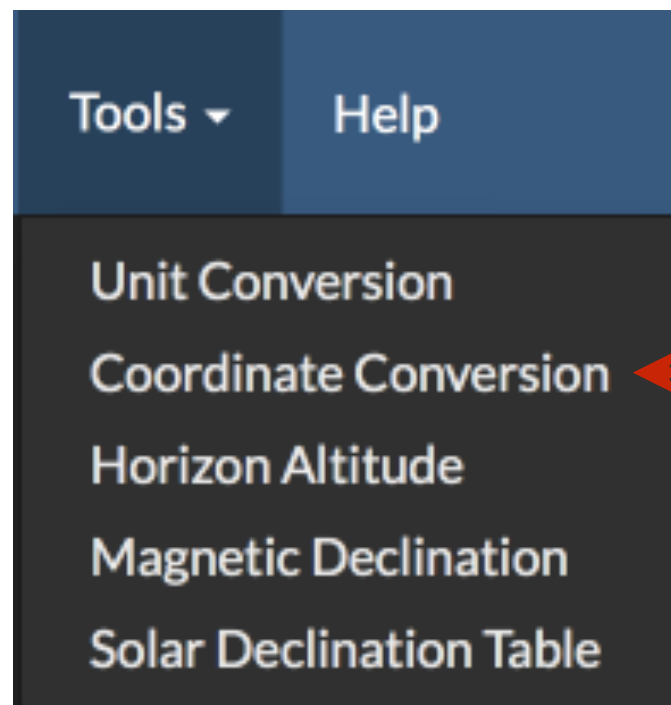
Degree with decimal point( $^{\circ}$ )

...Or

(3) Converted values appears here

(2) Click here

(1) Type your value here



Convert between horizontal and equatorial coordinates

i.e. convert between az/alt and ra/dec

Convert between horizontal and equatorial coordinates

## Tools :: Coordinate Conversion

This tool converts between horizontal (azimuth, altitude) and equatorial (declination, right ascension) coordinates.

### Parameters

- ☒ Nutation correction
- ☒ Refraction correction
- ☒ Aberration correction

Latitude (°)

0

Longitude (°)

0

Elevation (m)

0

Azimuth (°)

0

Altitude (°)

0

V

^

Declination (°)

0

Right Ascension (°)

0

## Convert between horizontal and equatorial coordinates

Latitude (°)
Longitude (°)
Elevation (m)

0
0
0

Azimuth (°)
Altitude (°)

0
0

Declination (°)
Right Ascension (°)

0
0

V
^

Insert location values here

longitude and elevation are necessary only for refraction correction

Horizontal values here

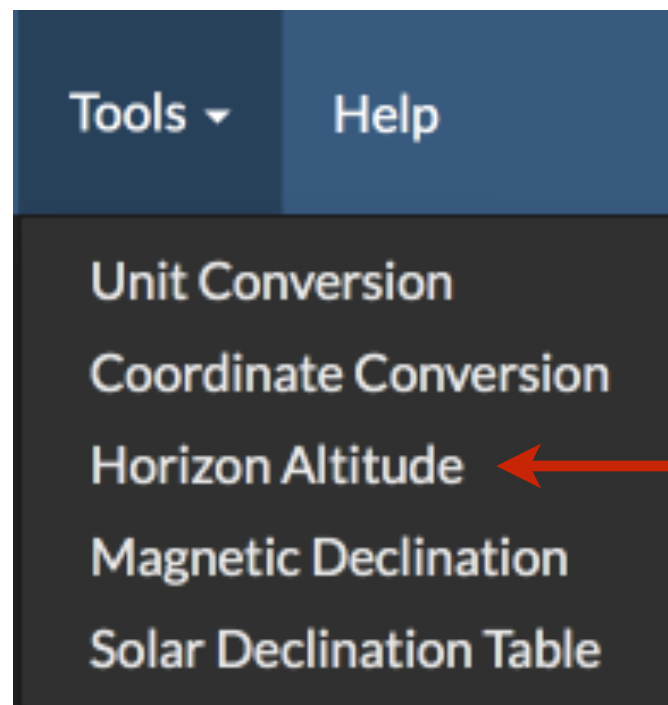
Use this button as in other Tools

Equatorial values here

### Parameters

- ☒ Nutation correction
- ☒ Refraction correction
- ☒ Aberration correction

These checkboxes control whether to apply these corrections or not. By default, they are all applied and this is the recommended setting.



Calculate horizon altitude from  
two elevation measurements

Calculate horizon altitude from two elevation measurements

## Tools :: Horizon Altitude

This tool calculates horizon altitudes from two elevation measurements (site and horizon point).

Site Elevation (m)

0

Horizon Elevation (m)

0

Horizon Distance (m)

0

Calculate

?

Click here for more information

Horizon Altitude (°)

Calculate horizon altitude from two elevation measurements

## Tools :: Horizon Altitude

This tool calculates horizon altitudes from two elevation measurements (site and horizon point).

Site Elevation (m)

0

Horizon Elevation (m)

0

Horizon Distance (m)

0

Calculate

?

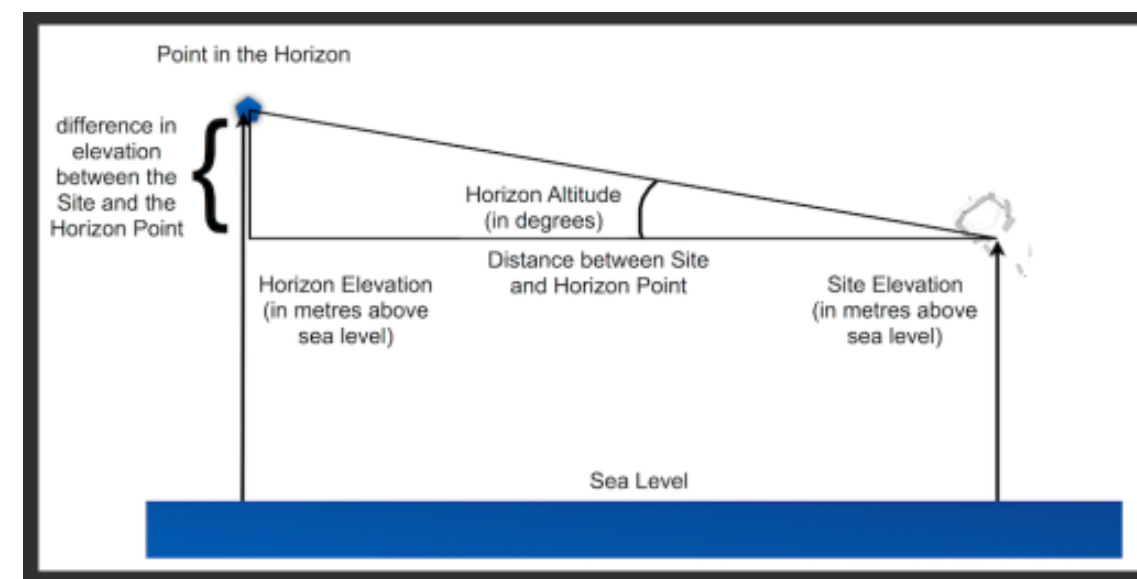
Horizon Altitude (°)

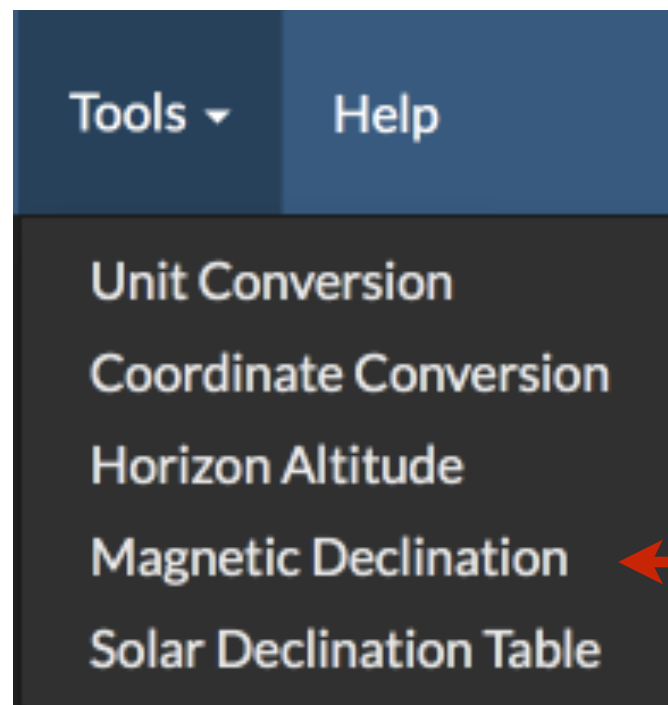
Click here for more information

Distance between  
horizon point and site

Elevation of horizon point

Elevation of your site





Estimate the magnetic declination at a site

Estimate the magnetic declination at a site

## Tools :: Magnetic Declination

This tool helps you estimate the magnetic declination (difference between magnetic and true north) using a variety of methods.

Latitude

0

Longitude

0

Date

17/03/2017

Enter details here

IGRF Model

Mag Dec: -5.13°

[For more information click here](#)

IGRF model estimate  
(same as NOAA website)

Radial Technique

Estimate the magnetic declination at a site

## Tools :: Magnetic Declination

This tool helps you estimate the magnetic declination (difference between magnetic and true north) using a variety of methods.

Latitude Longitude Date

0 0 17/03/2017

IGRF Model

Radial Technique

Read Me First!

Insert the geo-coordinates of your reference points, as well as their azimuth (as measured from the site)

Latitude Longitude Azimuth

0 0 0

+ Calculate

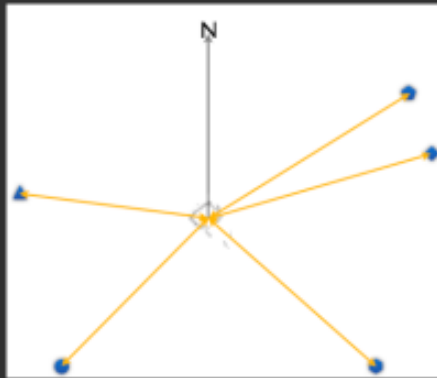
Enter details here

Radial technique  
Click here for more details

## Estimate the magnetic declination at a site

### Instructions :: Radial Technique

This tool estimates the magnetic declination (difference between magnetic and true north) using the radial GPS technique of Silva (2010).



In the field:

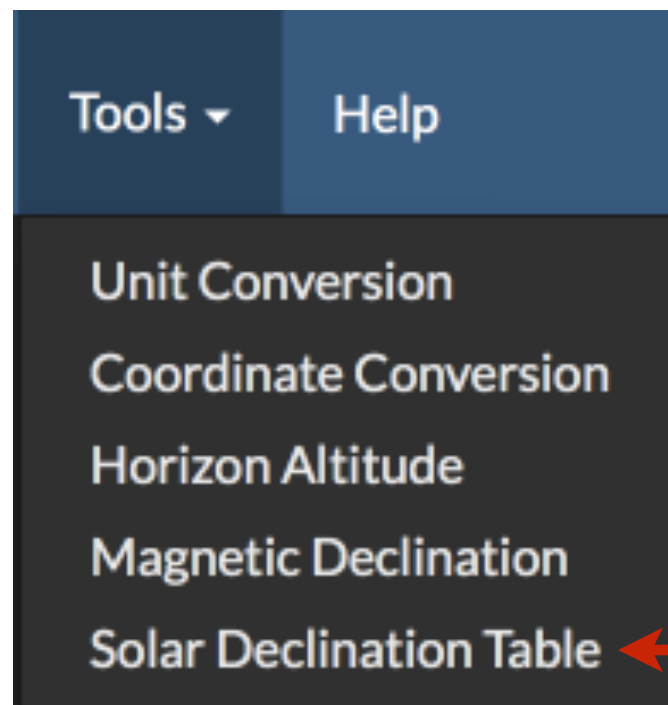
- (1) With the site of interest at the centre choose four or more markers (the reference points) in the local landscape (the blue shapes in the figure above). The more you choose the better, but four to six seems to give good results. Still at your site, measure their azimuths with your compass;
- (2) Move to each of the markers you've chosen and take their GPS coordinates. (Remember to measure the azimuth from each of these markers to your site as well to check, and correct for, local anomalies);

On *skyscapeR*:

- (3) Insert the GPS coordinates of your site at the top of the *skyscapeR* tool page;
- (4) Insert the GPS coordinates and azimuth to your first reference point in the appropriate section;
- (5) Click on the + button to add another marker;
- (6) Repeat steps (4) and (5) until all of your reference point data has been input;
- (7) Press the Calculate button.

Reference:

Silva, Fabio (2010). A New Survey of Neolithic Dolmens in Central Portugal. *Journal of Cosmology* 9: 3094-3106. Available online [here](#)



Displays a table of the sun's declination for every day in a typical year

Displays a table of the sun's declination for every day in a typical year. You can download it using the button provided.

skyscapeR v0.4b   About   Data Entry   Visualization   Horizon   Tools ▾   Help

Epoch:

2000

Download

Declination values calculated for noon on given day. Dates given in the proleptic Gregorian calendar.

|    | Jan    | Feb    | Mar   | Apr  | May   | Jun   | Jul   | Aug   | Sep  | Oct   | Nov    | Dec    |
|----|--------|--------|-------|------|-------|-------|-------|-------|------|-------|--------|--------|
| 1  | -23.03 | -17.21 | -7.74 | 4.38 | 14.95 | 22    | 23.13 | 18.12 | 8.43 | -3.03 | -14.29 | -21.74 |
| 2  | -22.95 | -16.93 | -7.36 | 4.77 | 15.25 | 22.13 | 23.07 | 17.87 | 8.07 | -3.41 | -14.61 | -21.89 |
| 3  | -22.86 | -16.64 | -6.98 | 5.15 | 15.55 | 22.26 | 22.99 | 17.61 | 7.7  | -3.8  | -14.93 | -22.04 |
| 4  | -22.76 | -16.34 | -6.6  | 5.53 | 15.85 | 22.38 | 22.91 | 17.35 | 7.33 | -4.19 | -15.24 | -22.18 |
| 5  | -22.65 | -16.04 | -6.21 | 5.92 | 16.13 | 22.5  | 22.82 | 17.08 | 6.96 | -4.57 | -15.55 | -22.31 |
| 6  | -22.54 | -15.74 | -5.82 | 6.3  | 16.42 | 22.61 | 22.73 | 16.81 | 6.59 | -4.96 | -15.85 | -22.44 |
| 7  | -22.42 | -15.43 | -5.44 | 6.67 | 16.7  | 22.71 | 22.63 | 16.53 | 6.22 | -5.34 | -16.15 | -22.56 |
| 8  | -22.29 | -15.12 | -5.05 | 7.05 | 16.98 | 22.81 | 22.52 | 16.25 | 5.85 | -5.72 | -16.45 | -22.67 |
| 9  | -22.16 | -14.8  | -4.66 | 7.42 | 17.25 | 22.9  | 22.4  | 15.97 | 5.47 | -6.1  | -16.74 | -22.77 |
| 10 | -22.01 | -14.48 | -4.27 | 7.8  | 17.51 | 22.98 | 22.28 | 15.68 | 5.09 | -6.48 | -17.02 | -22.87 |
| 11 | -21.86 | -14.15 | -3.87 | 8.17 | 17.77 | 23.05 | 22.16 | 15.39 | 4.71 | -6.86 | -17.3  | -22.96 |
| 12 | -21.71 | -13.83 | -3.48 | 8.53 | 18.03 | 23.12 | 22.02 | 15.09 | 4.33 | -7.24 | -17.58 | -23.04 |
| 13 | -21.54 | -13.49 | -3.09 | 8.9  | 18.28 | 23.19 | 21.88 | 14.79 | 3.95 | -7.62 | -17.85 | -23.12 |
| 14 | -21.37 | -13.16 | -2.69 | 9.26 | 18.53 | 23.24 | 21.74 | 14.49 | 3.57 | -7.99 | -18.11 | -23.18 |
| 15 | -21.19 | -12.82 | -2.3  | 9.62 | 18.77 | 23.29 | 21.59 | 14.18 | 3.19 | -8.36 | -18.37 | -23.24 |

At the moment the app doesn't allow users to save their data or settings (an implementation of this is in the works, however).

The best way to work with it is to keep the spreadsheet of your data in a folder where you should easily retrieve it in the future and upload if and when necessary. You can use the Tools module to help you build your own spreadsheet, if necessary. Include corresponding HWT IDs in this spreadsheet (for instance in the Notes column). This is good research practice anyway, particularly if you are working with several sites.

You then have all the information you need in the Data Entry page (including the HWT IDs which you can simply copy from there and paste into the Horizon page).

Graphical analyses (e.g. in the Visualisation or Horizon modules) can be saved to your computer by right-clicking on the image and saving it (as you do with any online image).

Have fun playing with the beta version of skyscapeR

If you encounter any bugs, if the website is down, if something is not clear or if you want to suggest some new functionalities... **email me!**

**You are helping to develop the app and making it easy to use.**

If you use it in your research, you should cite it as software (not website!). Make sure you include the version number and author. Below is an example in Chicago 16 style:

Silva, Fabio (2017) *skyscapeR* v0.4b.