ZeissDataReader_tmp

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[1]:
```
# -*- coding: utf-8 -*-
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#
#   Authored by:    Hannah Robarts (STFC-UKRI)
```

1 Load and visualise data with ZeissDataReader

This how-to shows how to use the `ZeissDataReader` to load data from Zeiss .txrm files and quickly visualise the data and geometry

Get the example dataset `dataexample.WALNUT` using `download_data()`.

[2]:
```
from cil.utilities import dataexample
dataexample.WALNUT.download_data(data_dir='.', prompt=False)
```

```
Dataset folder already exists in .
```

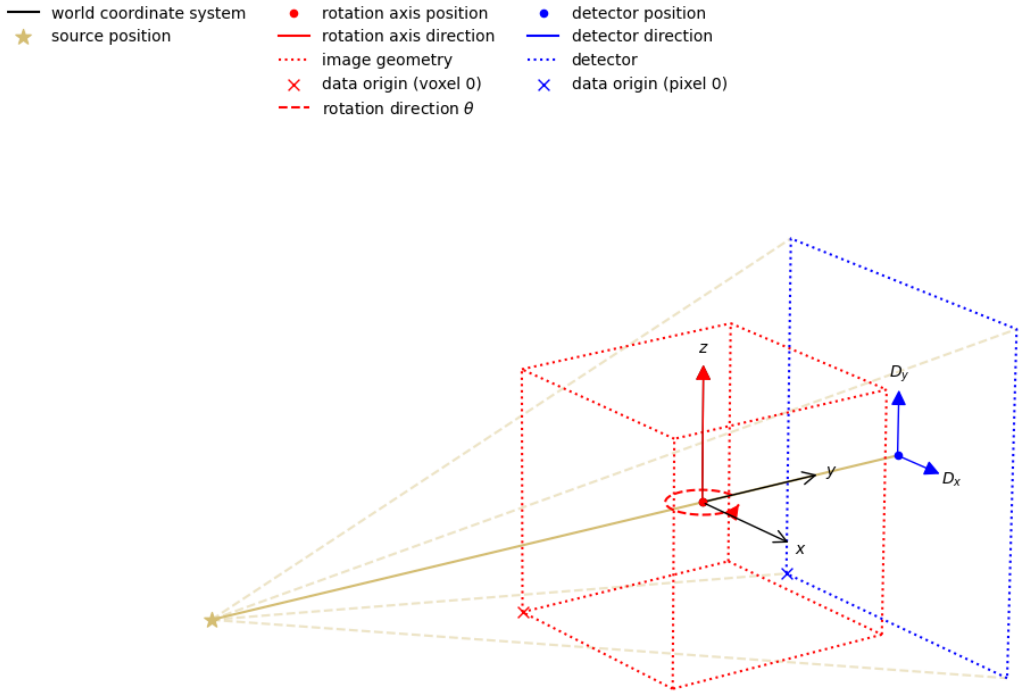
Now load a file from the dataset using the `ZEISSDataReader()`

We specify the file to load using `file_name = '.walnut/valnut/valnut_2014-03-21_643_28/tomo-A/valnut_t`

[3]:
```
from cil.io import ZEISSDataReader
file_name = "./walnut/valnut/valnut_2014-03-21_643_28/tomo-A/valnut_tomo-A.txrm"
data_reader = ZEISSDataReader(file_name=file_name)
data = data_reader.read()
```

View the geometry with `show_geometry` to display information about the source and detector setup

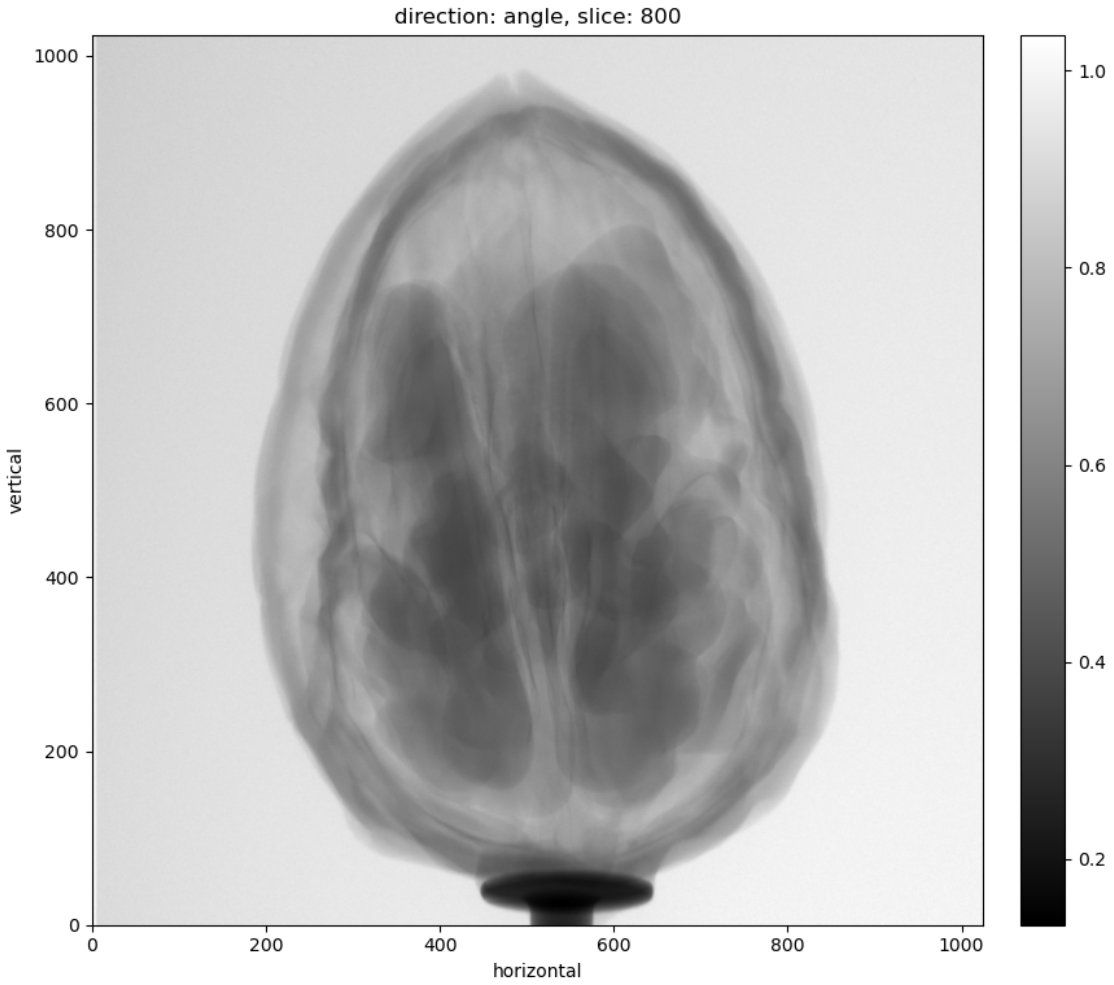
[4]:
```
from cil.utilities.display import show_geometry
show_geometry(data.geometry)
```



[4]:
```
<cil.utilities.display.show_geometry at 0x7f08ce3afb00>
```

View the data with `show2D`

[5]:
```
from cil.utilities.display import show2D
show2D(data)
```

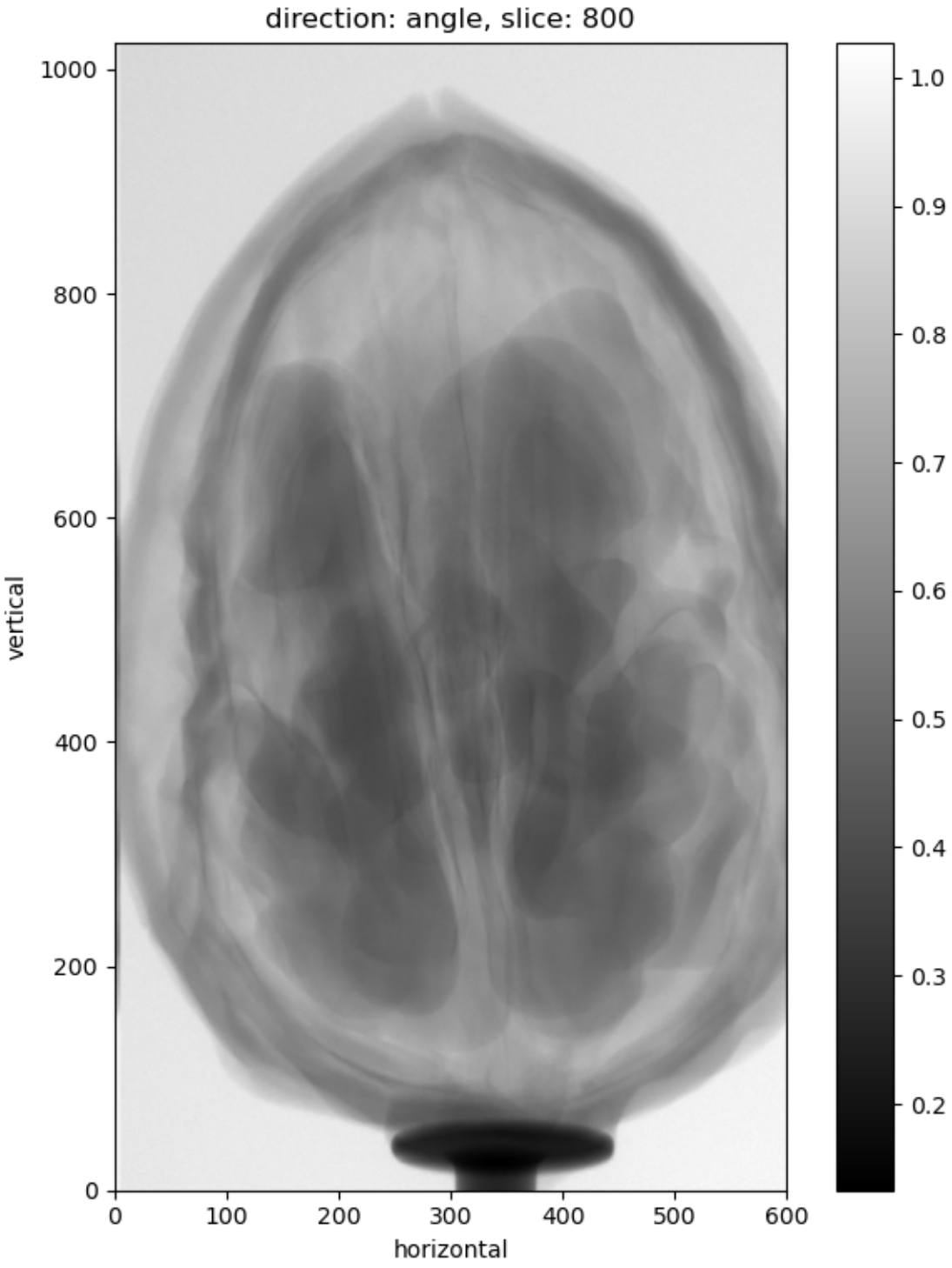


[5]: <cil.utilities.display.show2D at 0x7f08cc7ecec0>

Use the `roi` argument to load a subset of the data. `roi`should be passed as a dictionary e.g. `{'axis_labels_1': (start, end, step),'axis_labels_2': (start, end, step)}` with axis labels that describe the data dimension labels

To load a cropped subset of the data, change the start and end values. 'axis_label': -1 is a shortcut to load all elements along the axis.

[6]:
```
roi = {'horizontal':(200, 800, 1), 'vertical':-1}
data_reader = ZEISSDataReader(file_name=file_name, roi=roi)
data = data_reader.read()
show2D(data)
```

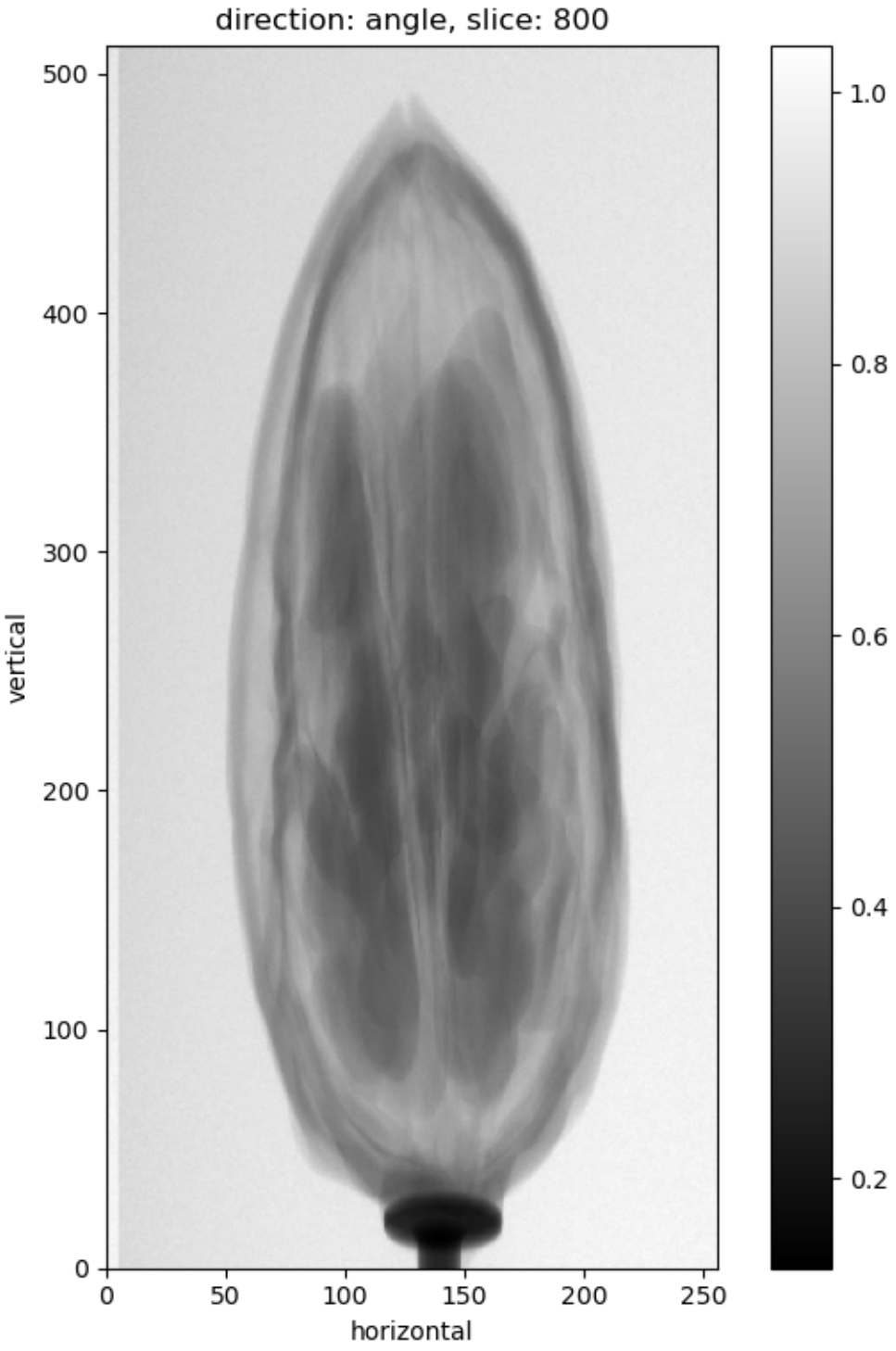


[6]: <cil.utilities.display.show2D at 0x7f08ce728cb0>

To load a binned subset of the data, change the step value. Here we use different binning for the

horizontal and vertical dimensions which results in a different aspect ratio

[7]:
```
roi = {'horizontal':(None, None, 4), 'vertical':(None, None, 2)}
data_reader = ZEISSDataReader(file_name=file_name, roi=roi)
data = data_reader.read()
show2D(data)
```



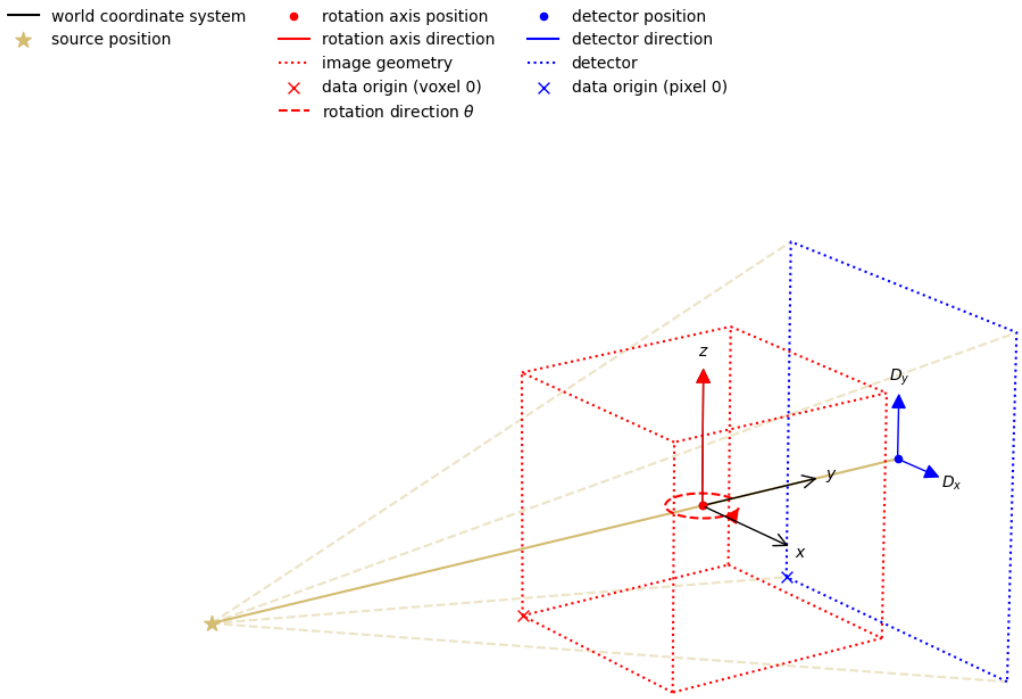
[7]: <cil.utilities.display.show2D at 0x7f08c2df2f60>

Sometimes we might want to just read the geometry from a Zeiss file, for example if we want to

load the raw TIFF files separately but get the correct geometry from the .txrm file. We can do this by instantiating the data reader and using the `get_geometry()` method

[8]:
```
data_reader = ZEISSDataReader(file_name=file_name)
ag = data_reader.get_geometry()
```

[9]:
```
show_geometry(ag)
```



[9]: `<cil.utilities.display.show_geometry at 0x7f08c2b86a50>`