

Data Processing School :: Exercise 52

Source directory	/data/lofarschool/data/exercise 52
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Context

This script demonstrates another way to use PyDAL. In this case, it reads the data into Python and plots the uv coverage of a Measurement Set.

Prerequisite

A little knowledge of shell and python programming (or at least a curiosity to learn).

Description

This exercise shows how to interact with uv data with the PyDAL. The plot will show a point for each integration in the observation in units of wavelengths.

Files & Directories

Here is a list of the files for this exercise:

- 1) L2007_01810_SB18-20_OB20.MS – Measurement set for an LBA observation
- 2) run_script.sh – bash script to run “uv_coverage.py”
- 3) uv-coverage_plot.png – Example output of exercise
- 4) uv_coverage.py – Python script to plot uv coverage

Step-by-step instructions

1) Run “run_script.sh” and answer the following questions:

- a) The plot appears as many lines. Each line is actually a set of points; one point for each integration and each baseline. Use the length of the line to estimate the length of the observation in hours.
- b) What is the length of the longest baseline in wavelengths? What is the size of the synthesized beam for this observation?
- c) Use your knowledge of the physical size of CS1 to estimate the wavelength of this observation.

2) Look at “uv_coverage.py” and find where it selects the data to plot. Now modify the script to plot the u and w coordinates for this observation.

Example outputs

See “uv-coverage_plot.png”.

Outstanding problems

None known.

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