Data Processing School :: Exercise 52

Source directory	/data/lofarschool/data/exercise 52
Contact person	Joe Masters, Casey Law

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.