Weekly Report

LIU Honghao

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Information about input, output and questions.

Input

.ms folder

The input data is a .ms folder including information about a saved in tables.

Visibility

In the code, visibility is a class with objects like uvw, vis, frequency, time, flag, weight, channel_bandwidth, antenna_1, antenna_2 and image_weight. See Table 1.

Object	Type	Shape	Description
uvw	numpy array	(n,3)	wavelength information in three different axes
vis	complex array	(n,1)	value of visibility
frequency	numpy array	(n,1)	?
time	numpy array	(n,1)	time of observation related to earth rotation
flag	numpy array	(n,1)	?
weight	numpy array	(n,1)	weight of each visibility?
image_weight	numpy array	(n,1)	?
channel_bandwidth	numpy array	(n,)	maximum frequency?
antenna_1	numpy array	(n,1)	index of first antenna
antenna_2	numpy array	(n,1)	index of second antenna
integration time	numpy array	(n,)	exposure time[1]

Table 1: Objects

channel_bandwidth - number of times of detection in integration time?

Output

Image

The output are images saved in numpy or astropy.wcs format (frequency, polarisation, latitude, longitude) in angular coordinate.

[1] An observation is done by "integrating" over some integration time. i.e. average the power over time τ.

Questions

1. Why do different frequencies or channels have different images?
2. What is the content in the .ms file?
3. Questions related to Visibility class.