

`cube_combine_plus`

This program combines an arbitrary number of data cubes into a single final cube, using three different methods: sum, mean or median. For the correct execution of this program, it's necessary that the initial data cubes have headers with the parameters "CRVAL3", "CRPIX3" and "CDELTA3" (related to the wavelength calibration). If that is not the case, then, these parameters can be added to the data cubes' headers using the program "header_correct_plus". Actually, these three parameters will only be used to compose the header of the final data cube generated by the combination and won't be useful for anything else in this program. It's important to mention that all data cubes that will be combined by the program must have the same dimensions. To use this program, first of all, it's necessary to provide the following parameters (which must be added to the section "input parameters" in the program's script):

`infolder`: directory containing ALL files that will be used during the execution of the program.

`cubelist`: name of the file containing the list of data cubes that will be combined. All these cubes must be located in the directory indicated by the parameter "infolder" and this file must be configured in the following way:

```
cube1.fits  
cube2.fits  
.  
.  
.  
cubeN.fits
```

where `cube1.fits`, `cube2.fits`, ... and `cuben.fits` are the names of
the data cubes that will be combined by the program

`cubenum`: number of data cubes to be combined by the program.

`extension`: value of the extension of the data cubes that will be used in the combination process. If the data cubes have only one extension, then it must be taken the value 0 for this parameter.

`logfile`: name of the logfile (full path) to be created.

`finalcube`: name of the final data cube (full path) to be created by the program.

After providing these parameters, the program shall be initiated. The following question will, then, appear to the user:

"What combination type do you want to use (average/median/sum)? "

(1)

The possible answers to this question are "average", "median" or "sum" (the answers "a", "m" or "s" will also be accepted by the program). If the user's answer is "average", the program will calculate the mean of the data cubes identified in the file indicated by the parameter "cubelist". If the user's answer is median, the program will calculate the median of the data cubes and if the answer is "sum", then, the program will calculate the sum of the data cubes.