example1

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1 Calling recipes from python

This is an example code showing the use of recipes directly from python. The files are ficitous however so this code will not run

```
In [5]: # import recipe
        import cal_DARK_spirou
```

Now we define some fake files. These could be input as below or as a call to a directory/text file listing many hundreds of files:

```
In [17]: # define some directories
         night_names = ['20170710', '20170710', '20170711', '20170711',
                        '20170712', '20170712', '20170713', '20170713',
                        '20180101', '20180101', '20180102', '20180102',
                        '20180105', '20180105', '20180106', '20180106']
         # define some dark files (one for each directory above)
         dark_files = ['dark_file1.fits', 'dark_file2.fits',
                       'dark_file3.fits', 'dark_file4.fits',
                       'dark_file5.fits', 'dark_file6.fits',
                       'dark_file7.fits', 'dark_file8.fits',
                       'dark_file9.fits', 'dark_file10.fits',
                       'dark_file11.fits', 'dark_file12.fits',
                       'dark_file13.fits', 'dark_file14.fits',
                       'dark_file15.fits', 'dark_file16.fits']
```

```
In [18]: #### Notebook example code only (ONLY NEEDED IN IPYNB)
         # real files:
         night_names = ['20170710']
         dark_files = ['dark_dark02d406.fits']
         # set prog manually (notebook example only)
         import sys
         sys.argv = ['cal_DARK_spirou.py']
```

One could imagine wanting to loop around each one of these files and running a recipe on each. This is easy with a call to python (Though one may want to disable plotting in the configuration files before running).

```
In [19]: # loop around directories
         for it in range(len(night_names)):
             # get iteration night name (should be a string)
             it_night_name = night_names[it]
             # get iteration filenames (should be a list of strings)
             it_files = [dark_files[it]]
             # call dark function
             ll = cal_DARK_spirou.main(night_name=it_night_name,
                                       files=it_files)
```

```
14:38:09.0 -    || ****************************************
14:38:09.0 -    || * SPIROU @(#) Geneva Observatory (0.1.028)
14:38:09.0 -    || ****************************************
14:38:09.0 -    ||(dir_data_raw)     DRS_DATA_RAW=/scratch/Projects/spirou_py3/data/raw
14:38:09.0 -    ||(dir_data_reduc)   DRS_DATA_REDUC=/scratch/Projects/spirou_py3/data/reduced
14:38:09.0 -    ||(dir_calib_db)     DRS_CALIB_DB=/scratch/Projects/spirou_py3/data/calibDB
14:38:09.0 -    ||(dir_data_msg)     DRS_DATA_MSG=/scratch/Projects/spirou_py3/data/msg
14:38:09.0 -    ||(print_level)      PRINT_LEVEL=all        %(error/warning/info/all)
14:38:09.0 -    ||(log_level)        LOG_LEVEL=all          %(error/warning/info/all)
14:38:09.0 -    ||(plot_graph)       DRS_PLOT=1             %(def/undef/trigger)
14:38:09.0 -    ||(used_date)        DRS_USED_DATE=undefined
14:38:09.0 -    ||(working_dir)      DRS_DATA_WORKING=/scratch/Projects/spirou_py3/data/tmp
14:38:09.0 -    ||                   DRS_INTERACTIVE is not set, running on-line mode
14:38:09.0 -    ||                   DRS_DEBUG is set, debug mode level:1
14:38:09.0 -    |cal_DARK_spirou|Now running : cal_DARK_spirou on file(s):
14:38:09.0 -    |cal_DARK_spirou|On directory /scratch/Projects/spirou_py3/data/raw/20170710
14:38:09.0 -    |cal_DARK_spirou|ICDP_NAME loaded from: /scratch/Projects/spirou_py3/spirou_py3/I
14:38:09.0 - * |cal_DARK_spirou|Correct type of image for dark (dark_dark)
14:38:09.0 - * |cal_DARK_spirou|Now processing Image TYPE UNKNOWN with cal_DARK_spirou recipe
14:38:09.0 -   |cal_DARK_spirou|Reading Image /scratch/Projects/spirou_py3/data/raw/20170710/dar
14:38:09.0 -   |cal_DARK_spirou|Image 2048 x 2048 loaded
14:38:09.0 - * |cal_DARK_spirou|Dark Time = 597.489 s
14:38:09.0 -   |cal_DARK_spirou|Doing Dark measurement
14:38:09.0 - * |cal_DARK_spirou|In Whole det: Frac dead pixels= 14.7 % - Median= 0.35 ADU/s - Pe
14:38:09.0 - * |cal_DARK_spirou|In Blue part: Frac dead pixels= 1.0 % - Median= 0.15 ADU/s - Per
14:38:09.0 - * |cal_DARK_spirou|In Red part : Frac dead pixels= 20.5 % - Median= 2.11 ADU/s - Pe
14:38:09.0 - * |cal_DARK_spirou|Frac pixels with DARK > 100.0 ADU/s = 4.3 %
14:38:09.0 - @ |python warning Line 141  warning reads: invalid value encountered in greater|
14:38:09.0 - * |cal_DARK_spirou|Total Frac dead pixels (N.A.N) + DARK > 100.0 ADU/s = 18.9 %
14:38:10.0 - * |cal_DARK_spirou|QUALITY CONTROL SUCCESSFUL - Well Done -
14:38:10.0 -   |cal_DARK_spirou|Saving Dark frame in 20170710_dark_dark02d406.fits
14:38:10.0 - @ |python warning Line 980  warning reads: Card is too long, comment will be trunca
14:38:10.0 -   |cal_DARK_spirou|Saving Bad Pixel Map in 20170710_dark_dark02d406_badpixel.fits
14:38:10.0 - @ |python warning Line 980  warning reads: Card is too long, comment will be trunca
14:38:10.0 - * |cal_DARK_spirou|Updating Calib Data Base with DARK
14:38:11.0 - * |cal_DARK_spirou|Updating Calib Data Base with BADPIX
14:38:11.0 - * |cal_DARK_spirou|Recipe cal_DARK_spirou has been successfully completed
```

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