Creating a Sunpy Function

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To create one function in Sunpy similar to *rot_map* in ssw.
Unresolved: To implement this function in libraries of Sunpy.

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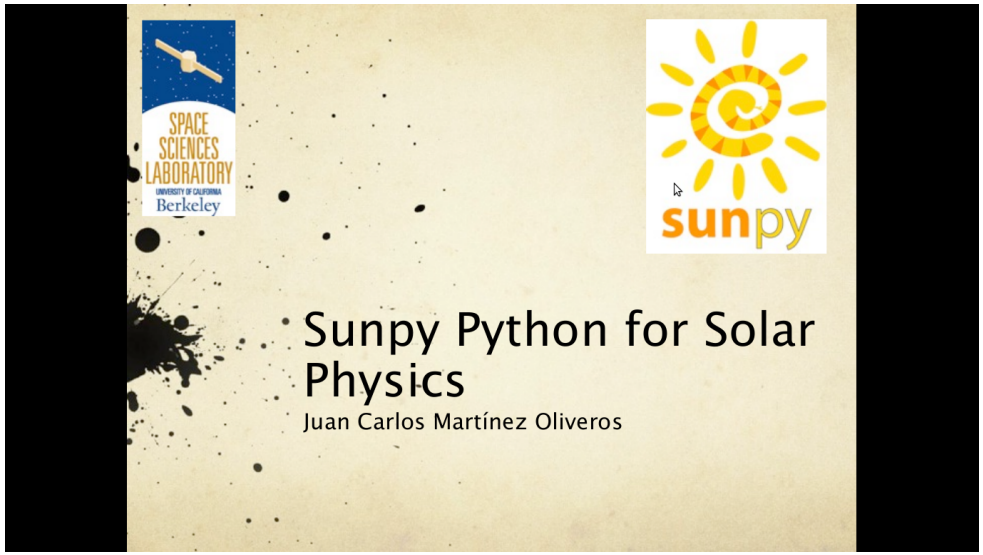
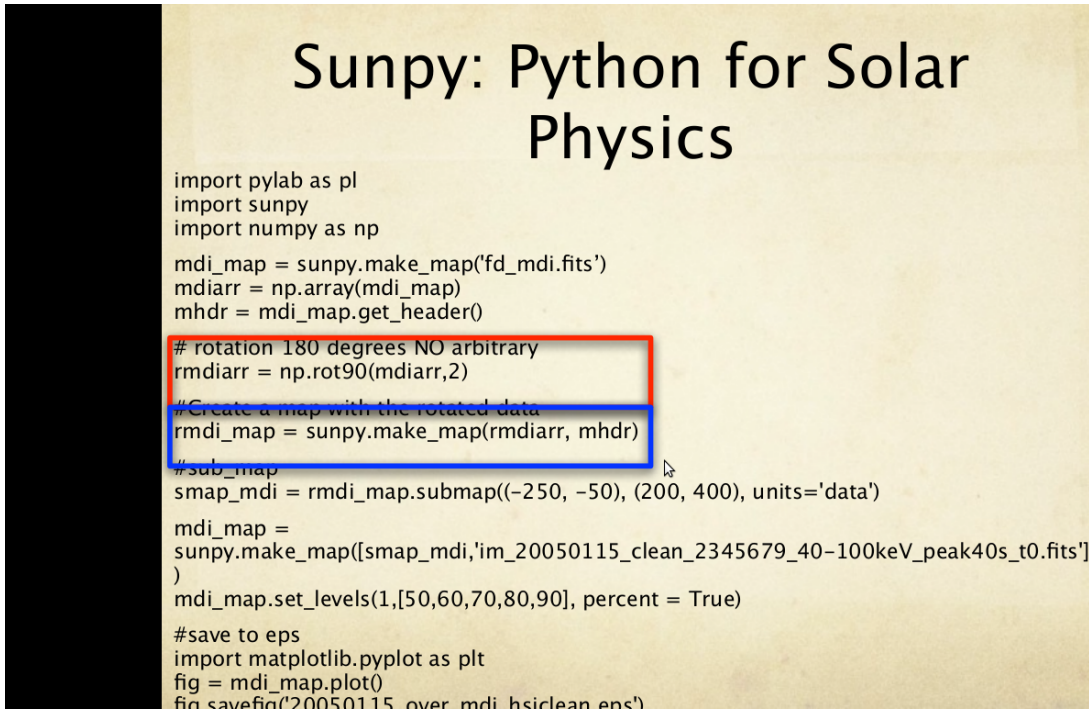
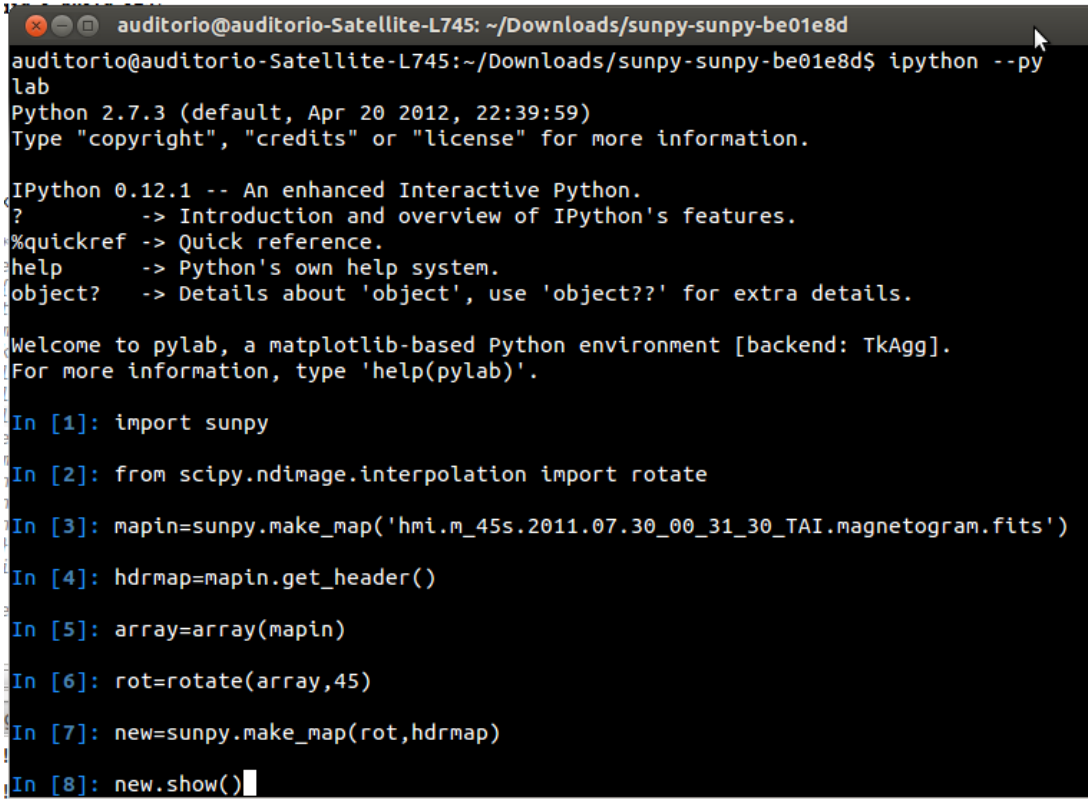
- In Juan Carlos presentation (Sunpy, the future of the Solar Physics)



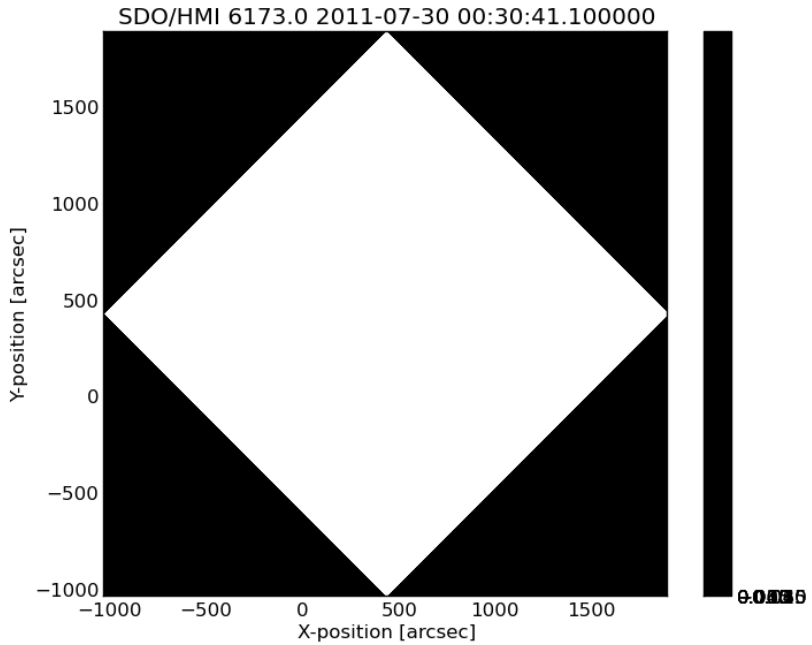
- In Juan Carlos presentation (Sunpy, the future of the Solar Physics)
- He use numpy.rot90 routine



- In Juan Carlos presentation (Sunpy, the future of the Solar Physics)
- He use numpy.rot90 routine
- Using Scipy libraries (Scientific tools for python), scipy.ndimage.interpolation rotate function.



We obtain:



- What's up?

What am I doing wrong?

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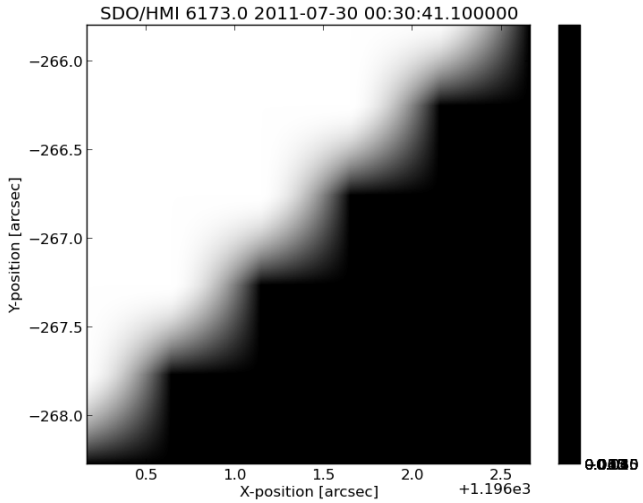
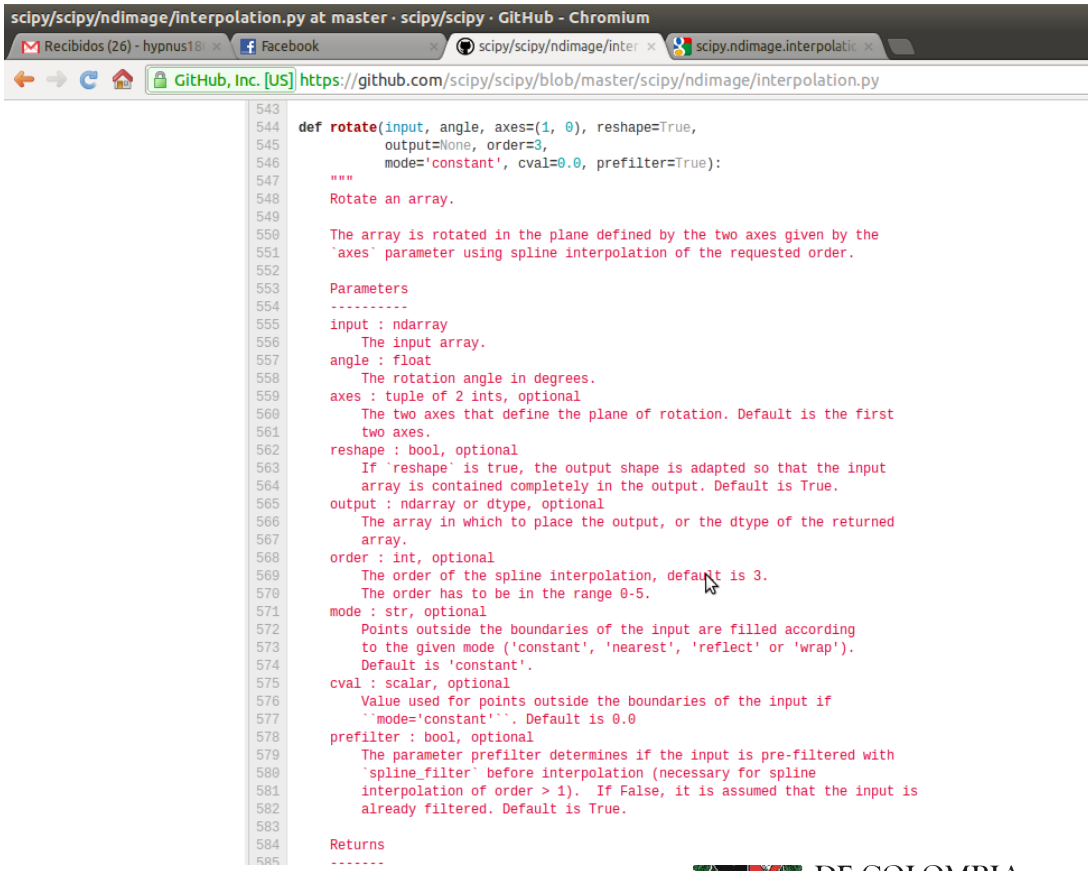
What am I doing wrong?

- So, I look through the routine rotate



What am I doing wrong?

- So, I look through the routine rotate
- Change to False prefilter and reshape



What am I doing wrong?

- So, I look through the routine rotate
- Change to False prefilter and reshape
- The new image obteined

```
auditorio@auditorio-Satellite-L745: ~/Downloads/sunpy-sunpy-be01e8d
In [1]: import sunpy

In [2]: from scipy.ndimage.interpolation import rotate

In [3]: mapin=sunpy.make_map('hmi.m_45s.2011.07.30_00_31_30_TAI.magne
')

In [4]: hdrmap=mapin.get_header()

In [5]: array=array(mapin)

In [6]: rot=rotate(array,45)

In [7]: new=sunpy.make_map(rot,hdrmap)

In [8]: new.show()

In [9]: rot=rotate(array,45,prefilter=False,reshape=False)

In [10]: new=sunpy.make_map(rot,hdrmap)
```

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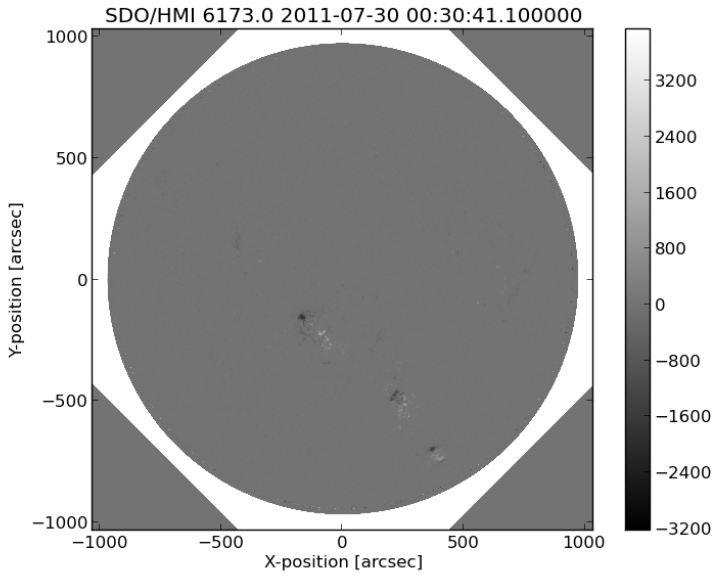
What am I doing wrong?

- So, I look through the routine rotate
- Change to False prefilter and reshape
- The new image obteined
- new.show()



```
from sunpy import *
from scipy.ndimage.interpolation import rotate
import numpy as np


def rot_map(mapin,degrees):
    mapinhdr=mapin.get_header()
    array=np.array(mapin)
    arrayrotate=rotate(array,degrees,prefilter=False,;
    reshape=False)
    maprotate=sunpy.make_map(arrayrotate,mapinhdr)
    return maprotate
```

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- Running the new function

```
auditorio@auditorio-Satellite-L745: ~/Downloads/sunpy-sunpy-be01e8d
auditorio@auditorio-Satellite-L745:~/Downloads/sunpy-sunpy-be01e8d$ ipython --pylab
Python 2.7.3 (default, Apr 20 2012, 22:39:59)
Type "copyright", "credits" or "license" for more information.

IPython 0.12.1 -- An enhanced Interactive Python.
?         -> Introduction and overview of IPython's features.
%quickref -> Quick reference.
help      -> Python's own help system.
object?   -> Details about 'object', use 'object??' for extra details.

Welcome to pylab, a matplotlib-based Python environment [backend: TkAgg].
For more information, type 'help(pylab)'.

In [1]: import sunpy

In [2]: import rot_map

In [3]: mapin=sunpy.make_map('hmi.m_45s.2011.07.30_00_31_30_TAI.magnetogram.fits')

In [4]: imrot=rot_map.rot_map(mapin,45)

In [5]: imrot.show()

In [6]:
```

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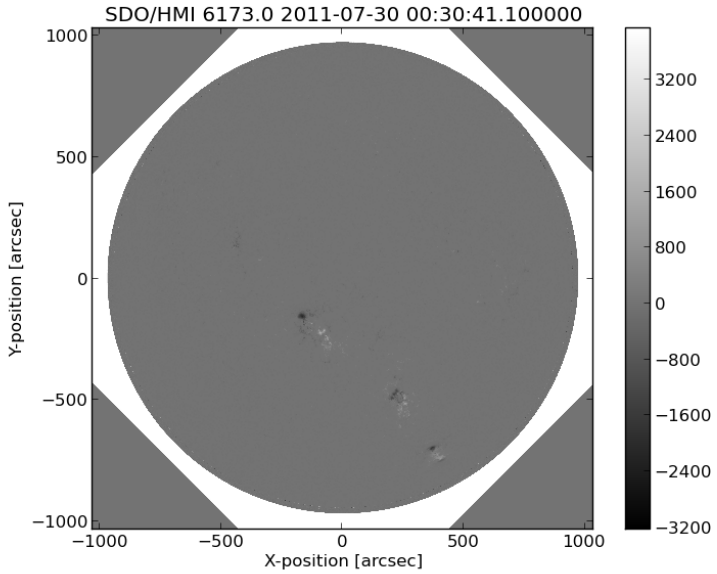
- Running the new function
- We can obtein the same image



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Tasks

- To improve the actual function
- To implement $\mathrm{rot}_{m}apfunctioninSunpyrepositoriesSunpy'steamsetusachallenge$: $DifferentialrotationoftheSun$.

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- **THANKS!!!**

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