Gope

March 27, 2025

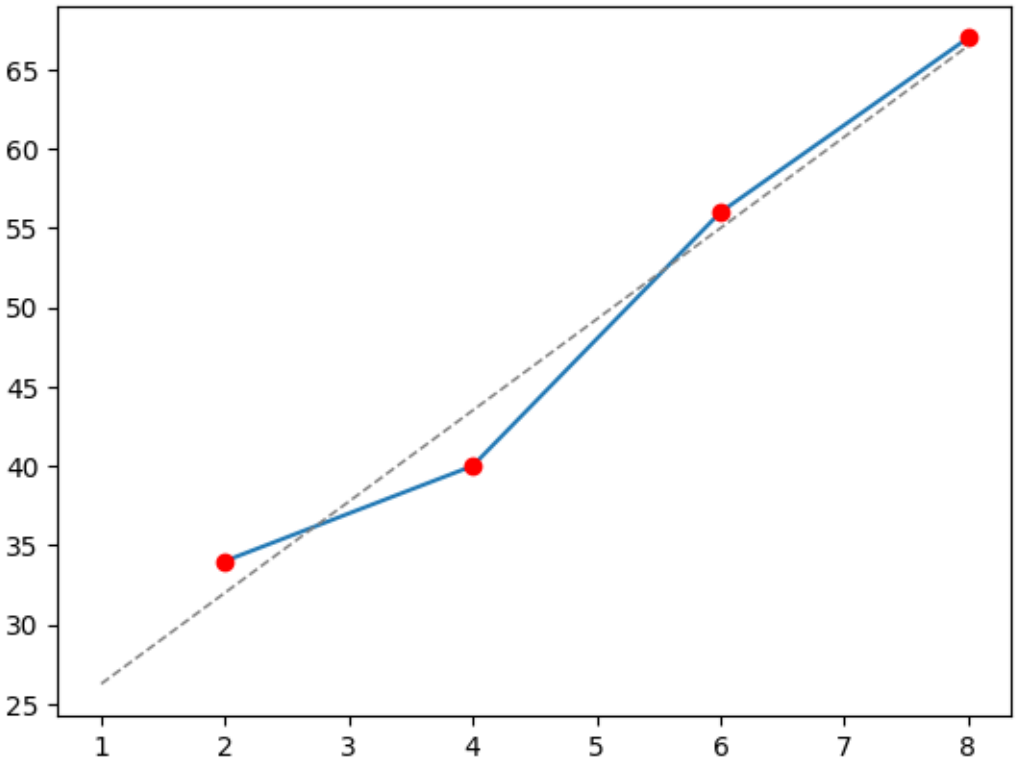
[1]:
```
import numpy as np
import matplotlib.pyplot as plt
import scipy as sci
from astropy.io import fits
from astropy.io import ascii
```

[2]:
```
a = np.mean([2,4,6,8])
b=[2,4,6,8]
a = np.mean(b)
c=[34, 40, 56, 67]
plt.figure()
plt.plot(b,c)
plt.plot(b,c,ls='', color='red', marker='o')

m, inter = np.polyfit(b,c,1)
x = np.linspace(1,8,10)
# y = np.linspace(20,70,10)
print(x)
print(m)
print(inter)
plt.plot(x, (m*x + inter), ls='--', c='gray', lw=1)
```

```
[1.         1.77777778 2.55555556 3.33333333 4.11111111 4.88888889
 5.66666667 6.44444444 7.22222222 8.        ]
5.749999999999999
20.5
```

[2]:
```
[<matplotlib.lines.Line2D at 0x2b4db02bed0>]
```



[3]:
```
f = fits.open("C:/Users/Georgi/Downloads/NGC_3660_I_IIIaJ_dss1.fits")
f.info()
im=f[0].data
hdr=f[0].header
print(hdr)
plt.figure()
plt.imshow(im, cmap='magma', vmin=5689, vmax=19900)
```

```
Filename: C:/Users/Georgi/Downloads/NGC_3660_I_IIIaJ_dss1.fits
No.    Name      Ver    Type      Cards   Dimensions   Format
  0  PRIMARY       1 PrimaryHDU     106   (283, 283)   int16
SIMPLE  =                    T /FITS header
BITPIX  =                   16 /No.Bits per pixel
NAXIS   =                    2 /No.dimensions
NAXIS1  =                  283 /Length X axis
NAXIS2  =                  283 /Length Y axis
DATE    = '12/12/96          ' /Date of FITS file creation
ORIGIN  = 'CASB -- STScI     ' /Origin of FITS image
PLTLABEL= 'J 8546            ' /Observatory plate label
PLATEID = '0449              ' /GSSS Plate ID
REGION  = 'S713              ' /GSSS Region Name
DATE-OBS= '09/05/83          ' /UT date of Observation
```

```
UT      = '09:52:00.00       ' /UT time of observation
EPOCH   =  1.9833518066406E+03 /Epoch of plate
PLTRAH  =                   11 /Plate center RA
PLTRAM  =                   22 /
PLTRAS  =  3.1749320000000E+01 /
PLTDECSN= '-                 ' /Plate center Dec
PLTDECD =                   10 /
PLTDECM =                   16 /
PLTDECS =  2.7791330000000E+01 /
EQUINOX =  2.0000000000000E+03 /Julian Reference frame equinox
EXPOSURE=  6.0000000000000E+01 /Exposure time minutes
BANDPASS=                    0 /GSSS Bandpass code
PLTGRADE=                    2 /Plate grade
PLTSCALE=  6.7200000000000E+01 /Plate Scale arcsec per mm
SITELAT = '-31:16:24.00      ' /Latitude of Observatory
SITELONG= '+149:03:42.00     ' /Longitude of Observatory
TELESCOP= 'UK Schmidt (new optics)' /Telescope where plate taken
CNPIX1  =                 6306 /X corner  (pixels)
CNPIX2  =                10285 /Y corner
DATATYPE= 'INTEGER*2         ' /Type of Data
SCANIMG = 'S713_0449_00_00.PIM' /Name of original scan
SCANNUM =                    0 /Identifies scan of the plate
DCHOPPED=                    F /Image repaired for chopping effects
DSHEARED=                    F /Image repaired for shearing effects
DSCNDNUM=                    0 /Identifies descendant of plate scan image
XPIXELSZ=  2.5284450000000E+01 /X pixel size microns
YPIXELSZ=  2.5284450000000E+01 /Y pixel size microns
PPO1    =  0.0000000000000E+00 /Orientation Coefficients
PPO2    =  0.0000000000000E+00 /
PPO3    =  1.7634953642038E+05 /
PPO4    =  0.0000000000000E+00 /
PPO5    =  0.0000000000000E+00 /
PPO6    =  1.7704301422986E+05 /
AMDX1   =  6.7214558020608E+01 /Plate solution x coefficients
AMDX2   = -6.0629636860839E-03 /
AMDX3   =  1.3348605140114E+00 /
AMDX4   = -1.0338300943011E-06 /
AMDX5   =  5.7287269701872E-06 /
AMDX6   = -1.6520505170050E-05 /
AMDX7   =  0.0000000000000E+00 /
AMDX8   =  2.3076896194398E-06 /
AMDX9   = -9.5956263020853E-09 /
AMDX10  =  2.2136713488666E-06 /
AMDX11  = -2.9503463404063E-08 /
AMDX12  =  0.0000000000000E+00 /
AMDX13  =  0.0000000000000E+00 /
AMDX14  =  0.0000000000000E+00 /
AMDX15  =  0.0000000000000E+00 /
```

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AMDX16  =  0.0000000000000E+00 /
AMDX17  =  0.0000000000000E+00 /
AMDX18  =  0.0000000000000E+00 /
AMDX19  =  0.0000000000000E+00 /
AMDX20  =  0.0000000000000E+00 /
AMDY1   =  6.7221065417288E+01 /Plate solution y coefficients
AMDY2   = -2.2950262529661E-03 /
AMDY3   = -1.6874425724033E+00 /
AMDY4   =  2.1429933168656E-05 /
AMDY5   = -1.8194694748011E-05 /
AMDY6   =  2.3661994868025E-05 /
AMDY7   =  0.0000000000000E+00 /
AMDY8   =  2.0276127791945E-06 /
AMDY9   =  9.8115732466048E-08 /
AMDY10  =  2.3600839327751E-06 /
AMDY11  =  1.4273609656712E-07 /
AMDY12  =  0.0000000000000E+00 /
AMDY13  =  0.0000000000000E+00 /
AMDY14  =  0.0000000000000E+00 /
AMDY15  =  0.0000000000000E+00 /
AMDY16  =  0.0000000000000E+00 /
AMDY17  =  0.0000000000000E+00 /
AMDY18  =  0.0000000000000E+00 /
AMDY19  =  0.0000000000000E+00 /
AMDY20  =  0.0000000000000E+00 /
Based on photographic data obtained using The UK Schmidt Telescope.
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Investigators using these scans are requested to include the above
acknowledgements in any publications.
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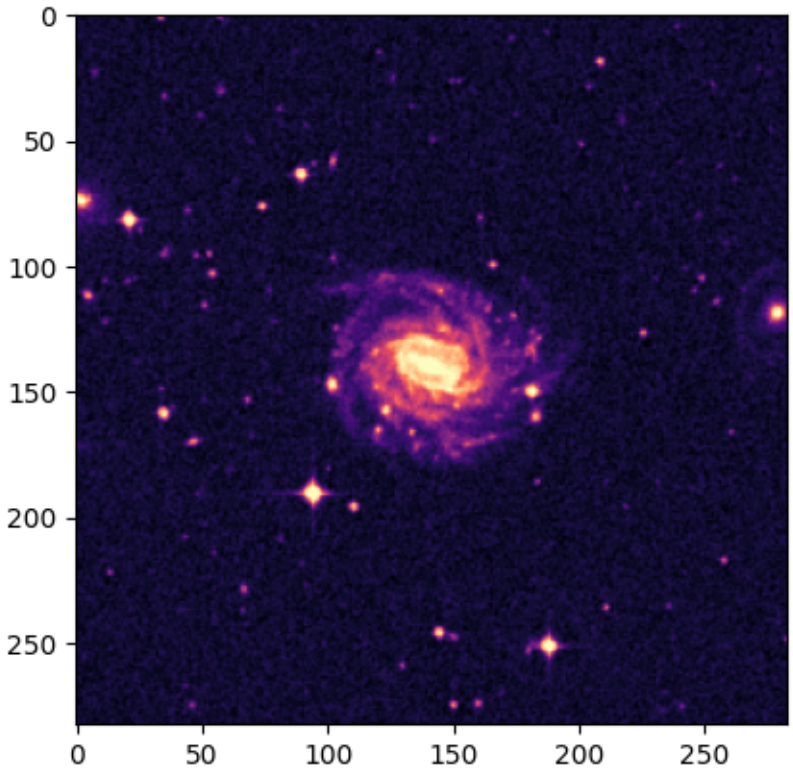
Astronomy, Inc.  All rights reserved.                                   DATAMAX
=                20867 /Maximum data value                              DATAMIN
=                 5689 /Minimum data value                              OBJECT
= 'NGC 3660'                                                           OBJCTRA
= '11 23 32.217      ' /Object Right Ascension (J2000)
OBJCTDEC= '-08 39 29.60      ' /Object Declination (J2000)
OBJCTX  =              6447.32 /Object X on plate (pixels)
OBJCTY  =             10426.08 /Object Y on plate (pixels)
END
```

[3]: <matplotlib.image.AxesImage at 0x2b4db0392b0>



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