Multi-wavelength overlay with AIPS

DATA required for session:

1. radio data - 3c391.im.fits
2. pre-processed ROSAT data - ROSAT_3C391_0.625arcmin.FITS

start aips

load the radio data

load the X-ray data (ROSAT data)

mc

```
AIPS 1: Catalog on disk  1
AIPS 1:  Cat Usid Mapname      Class   Seq  Pt     Last access      Stat
AIPS 1:    1  123 0003-066    .RRCLN .    1 MA 18-APR-2009 16:46:38
AIPS 1:    2  123 3C391 C1    .ICL001.    1 MA 14-OCT-2010 14:53:41
AIPS 1:    3  123 RIDGE 1     .IMAP  .    1 MA 13-OCT-2010 10:56:15
AIPS 1:    4  123 RIDGE 1     .HGEOM .    1 MA 14-OCT-2010 14:47:23
```

getn cat no; tvin; tvlo

tvfid;

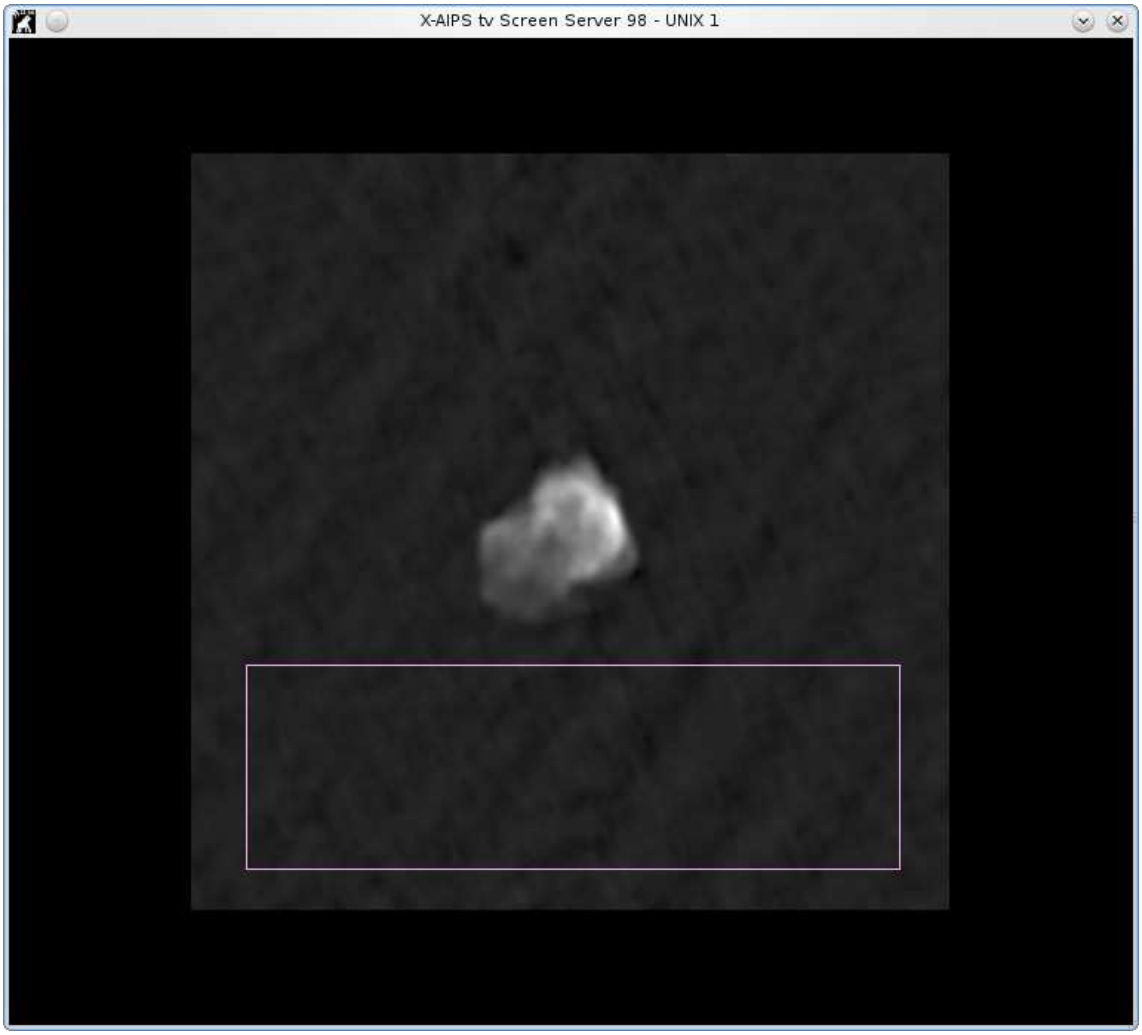
task 'hgeo' defau

getn Xray
get2n radio
go

task 'kntr' defau # for peak

>getn 2
>get2n 4
>docont 1
>dogrey 2
>dovec -1

>tvin;tvlo
>tvwin;doin -1; imstat



AIPS 1: Set B.L.C. : button A, B, or C to change to T.R.C.
AIPS 1: Button D to kill and exit
AIPS 1: Set T.R.C. : button A or B to repeat B.L.C.
AIPS 1: Button C or D to exit
AIPS 1: BLC = 48.00 32.00 1.00 1.00 1.00 1.00 1.00
AIPS 1: TRC = 474.00 174.00 1.00 1.00 1.00 1.00 1.00
AIPS 1: Mean=-5.801E-06 **rms= 6.558E-04** JY/BEAM over 610610. pixels
AIPS 1: Maximum= 2.5866E-03 at 290 148 1 1 1 1 1
AIPS 1: Skypos: RA 18 49 15.176 DEC -01 02 56.58
AIPS 1: Skypos: IPOL 4599.000 MHZ
AIPS 1: Minimum=-2.3962E-03 at 309 116 1 1 1 1 1
AIPS 1: Skypos: RA 18 49 10.108 DEC -01 05 04.58
AIPS 1: Skypos: IPOL 4599.000 MHZ
AIPS 1: Flux density = -7.9943E-03 Jy. Beam area = 44.31 pixels

>clev 3*rms of noise i.e. 3* **6.558E-04**

tvwin;doin -1; imstat

AIPS 1: Set B.L.C. : button A, B, or C to change to T.R.C.
AIPS 1: Button D to kill and exit
AIPS 1: Set T.R.C. : button A or B to repeat B.L.C.
AIPS 1: Button C or D to exit
AIPS 1: BLC = 179.00 175.00 1.00 1.00 1.00 1.00 1.00
AIPS 1: TRC = 323.00 326.00 1.00 1.00 1.00 1.00 1.00
AIPS 1: Mean= 1.737E-02 rms= 3.510E-02 JY/BEAM over 220400. pixels
AIPS 1: Maximum= **2.6992E-01** at 286 266 1 1 1 1 1
AIPS 1: Skypos: RA 18 49 16.243 DEC -00 55 04.58
AIPS 1: Skypos: IPOL 4599.000 MHZ
AIPS 1: Minimum=-3.1654E-03 at 302 228 1 1 1 1 1
AIPS 1: Skypos: RA 18 49 11.976 DEC -00 57 36.58
AIPS 1: Skypos: IPOL 4599.000 MHZ
AIPS 1: Flux density = 8.6406E+00 Jy. Beam area = 44.31 pixels

>print 2.6992E-01/clev
AIPS 1: 181.4344177
>lev -1 1 2 3 4 6 8 12 16 24 32 48 64 96 128
>ofmfile 'rainbow' # **explain ofmfile**
>dotv 1

tvwin **# to select your window**

OR # say we want to make a 2arcmin x 2 armin image around our centre,
 # we can specify the bottom left corner (blc) and top right corner (trc)

blc 256-(120/4) 256-(120/4) 1 #
trc 256+(120/4) 256+(120/4) 1 **# where 4 is the cells size 4 arcsec**

go kntr

tget kntr

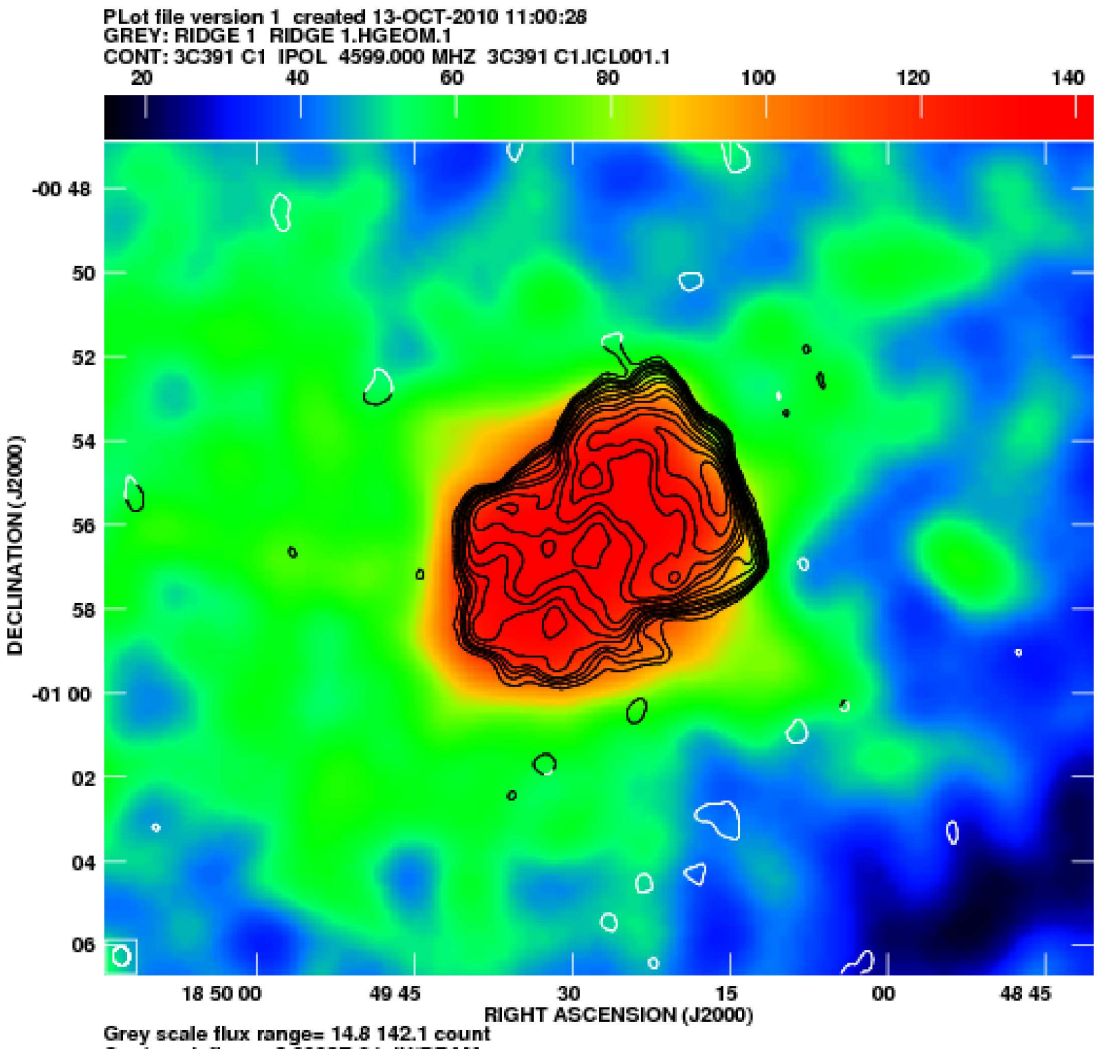
dotv -1 **# to make a plot file**

imh

>task 'lwpla' defau
>getn 2;imh
AIPS 1: Got(1) disk= 1 user= 123 type=MA 3C391 C1.ICL001.1
AIPS 1: Image=3C391 C1 (MA) Filename=3C391 C1 .ICL001. 1
AIPS 1: Telescope=EVLA Receiver=EVLA
AIPS 1: Observer=Dr. Jame User #= 123
AIPS 1: Observ. date=24-APR-2010 Map date=09-OCT-2010
AIPS 1: Minimum=-3.16538592E-03 Maximum= 2.69915104E-01 JY/BEAM
AIPS 1: ----------
AIPS 1: Type Pixels Coord value at Pixel Coord incr Rotat
AIPS 1: RA---SIN 512 18 49 24.244 256.00 -4.000 0.00
AIPS 1: DEC--SIN 512 -00 55 40.580 257.00 4.000 0.00
AIPS 1: FREQ 1 4.5990000E+09 1.00 1.2800000E+08 0.00
AIPS 1: STOKES 1 1.0000000E+00 1.00 1.0000000E+00 0.00
AIPS 1: ----------
AIPS 1: Coordinate equinox 2000.00
AIPS 1: Map type=NORMAL Number of iterations= 50000
AIPS 1: Conv size= 27.13 X 23.06 Position angle= 7.14
AIPS 1: Rest freq 0.000 Vel type: OPTICAL wrt YOU
AIPS 1: Alt ref. value 0.00000E+00 wrt pixel 0.00
AIPS 1: Maximum version number of extension files of type HI is 1
AIPS 1: Maximum version number of extension files of type CC is 1
AIPS 1: Maximum version number of extension files of type CG is 1
AIPS 1: Maximum version number of extension files of type **PL is 1**
AIPS 1: Keyword = 'WTNOISE ' value = 1.124940E+00
AIPS 1: Keyword = 'SUMWTIN ' value = 8.100586E+07
AIPS 1: Keyword = 'CCFLUX ' value = 8.641389E+00
AIPS 1: Keyword = 'CCTOTAL ' value = 8.641389E+00
AIPS 1: Keyword = 'MAXABSU ' value = -1.000000E+00
AIPS 1: Keyword = 'SOURNAM1' value = '3C391 C1'
AIPS 1: Keyword = 'SOURNAM2' value = ' '

NOTE: A plot file has been created PL version 1

>dparm 0
>dparm(5) 1; dparm(6) 4;dparm(8) 10 **# see explain lwpla for these parameters used**
>outfil 'fits:Radio_Rosat.PS' **# Here the plot file will be saved in where_you_install_aips/FITS/**
>**go lwpla**



Grey scale flux range= 14.8 142.1 count
Cont peak flux = 2.6992E-01 JY/BEAM
Levs = 1.488E-03 * (1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 64, 96, 128)