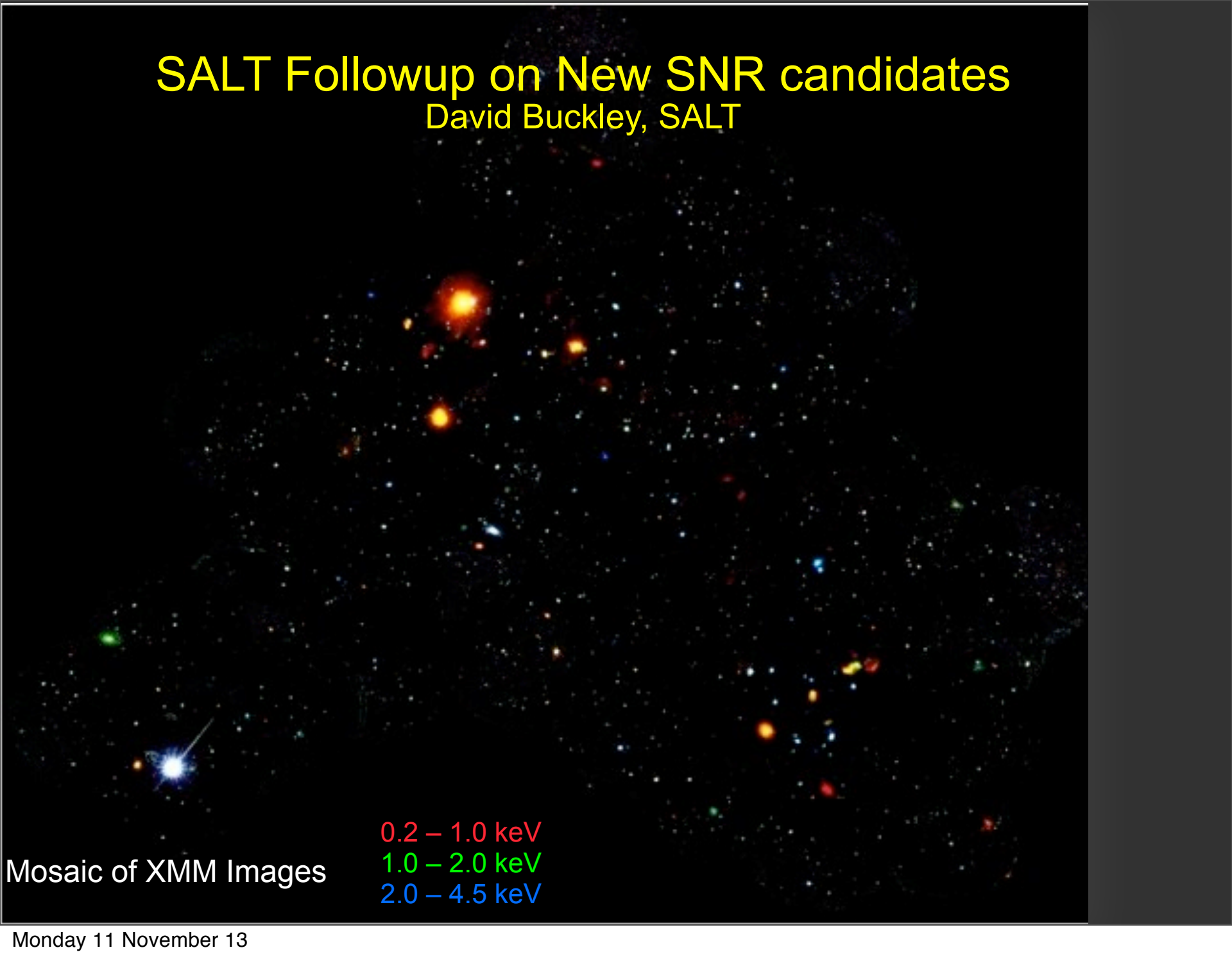


# SALT Followup on New SNR candidates

David Buckley, SALT



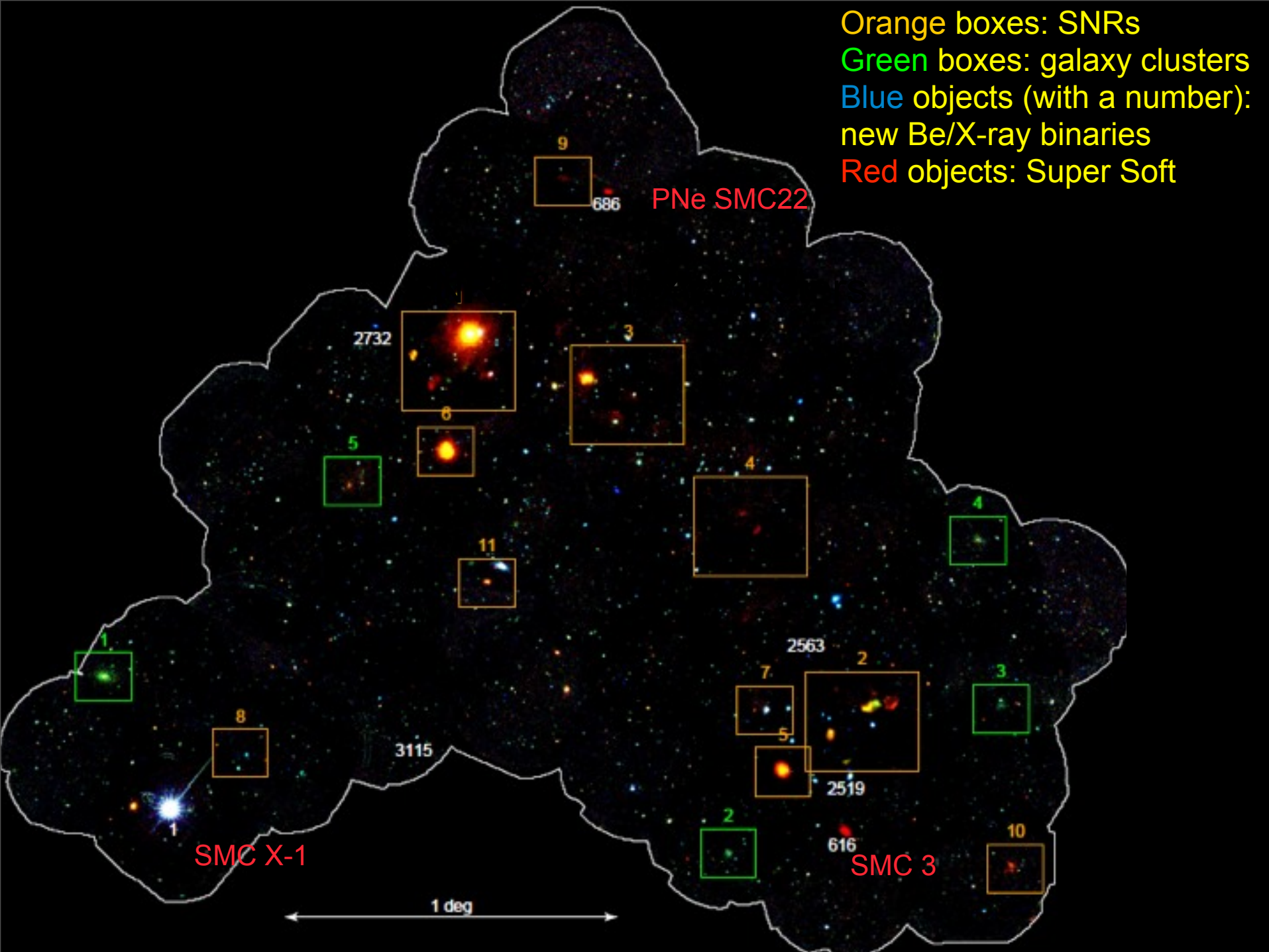
Mosaic of XMM Images

0.2 – 1.0 keV

1.0 – 2.0 keV

2.0 – 4.5 keV

Orange boxes: SNRs  
Green boxes: galaxy clusters  
Blue objects (with a number):  
new Be/X-ray binaries  
Red objects: Super Soft

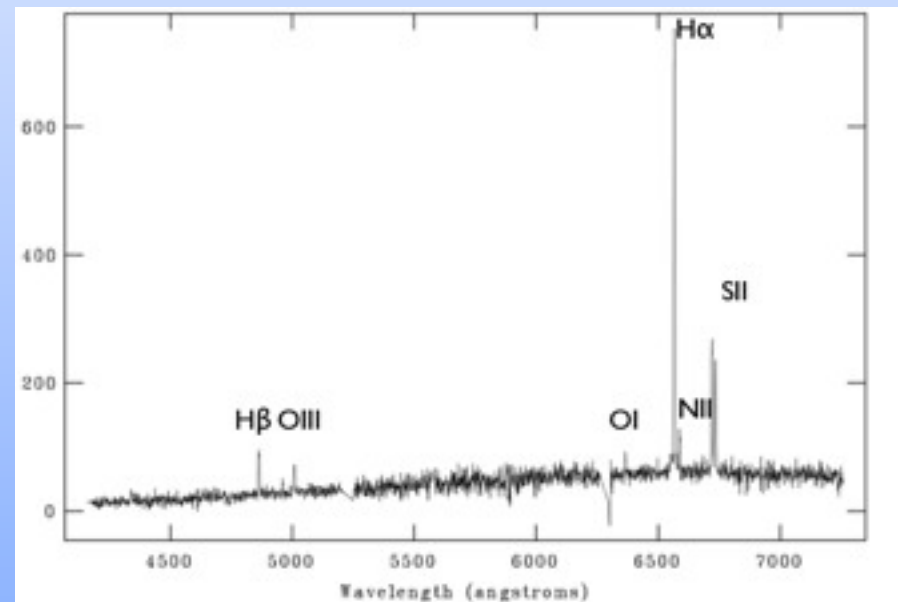
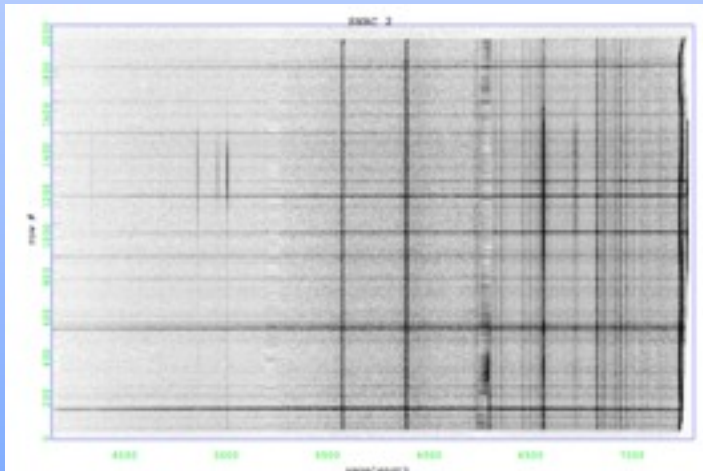




# SALT Followup Spectroscopy of SMC SNRs

Use RSS Long Slit spectroscopy (407 -714nm;  $R \sim 1000$ ) to obtain spectra:

1. To confirm SNR properties
2. Use line diagnostics to obtain physical parameters
3. Identify candidates for more intensive followup (Fabry-Perot imaging)
  - 8 candidates selected from both from the XMM survey and ATCA (radio) candidates
  - 2 “control” objects (i.e. know SNRs)
  - All observations were typically 1000-1300 s
  - look for:
    - $[SII]/H\text{-alpha} > 0.4$
    - $[O I](\lambda 6300 + \lambda 6364)$  and  $[O II](\lambda 3727)$
    - $[O III](\lambda 4959 + \lambda 5007)/[O III](\lambda 4363)$



Known SNR reference: IKT 2

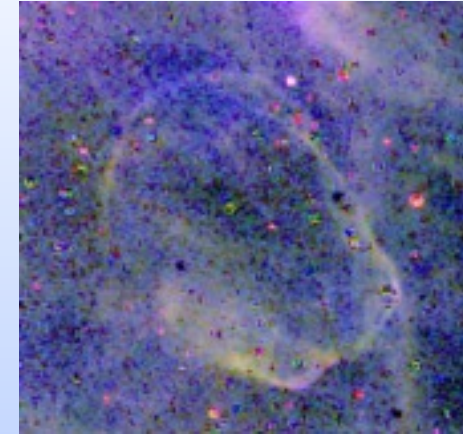
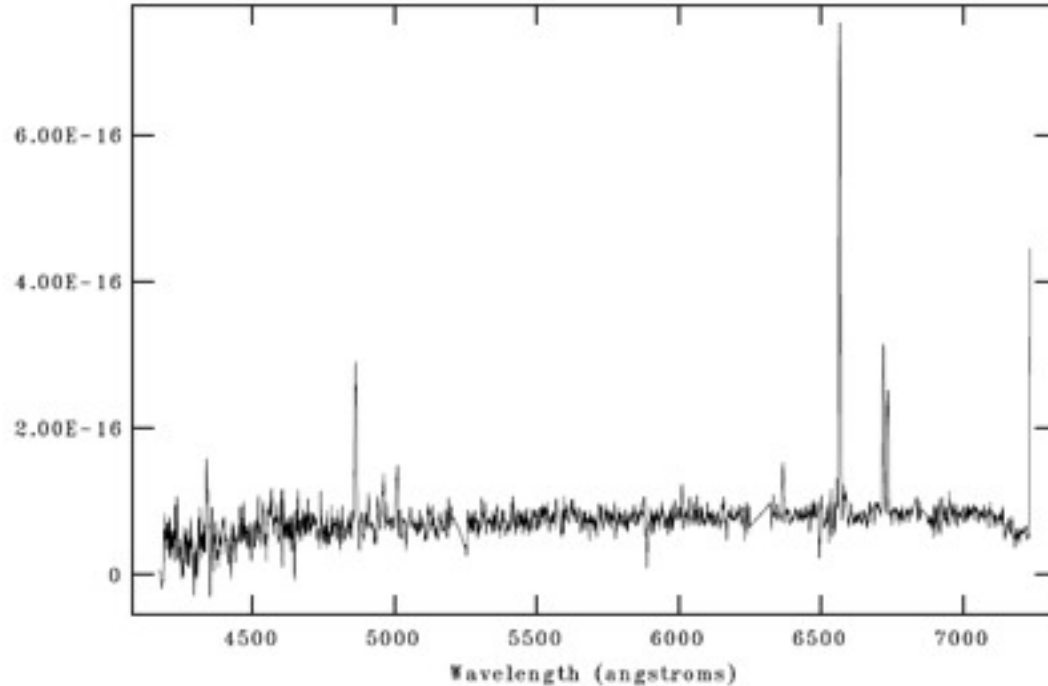
being SNRs (others look more like HII or PNe)



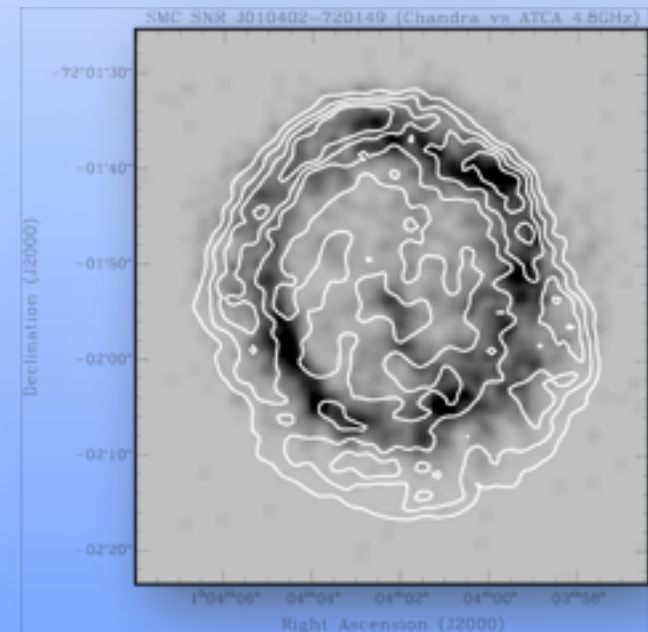
# SALT Followup Spectroscopy of SNRs

Example of SNR confirmation: **SNRC1 = XMMUJ005630.2-7208**

NOAO/IRAF V2.16 heyden\_maclap@58-b0-35-f1-86-2e.lan.uct.ac.za Mon 15:17:17 10-  
[SNRC1.fits[\*560]]: SNRC 1 250. ap:560 beam:0



MC Em Line Survey (MCELS)



SMC 13cm ATCA (Filipovic)

Next step: Fabry-Perot imaging spectroscopy

Morphologies & spatially resolved line ratio of the SNRs in  $H\alpha$ , SII, OIII

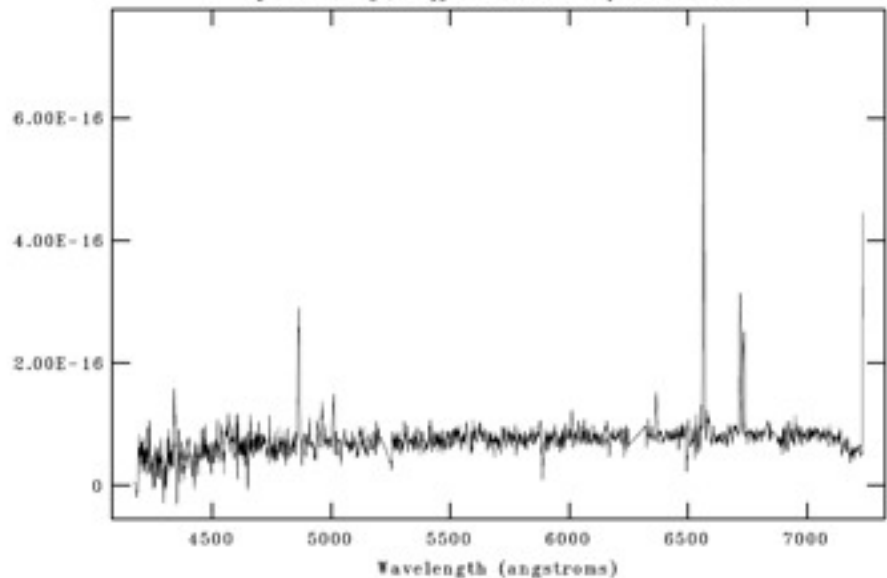
Compare to X-ray/radio morphologies



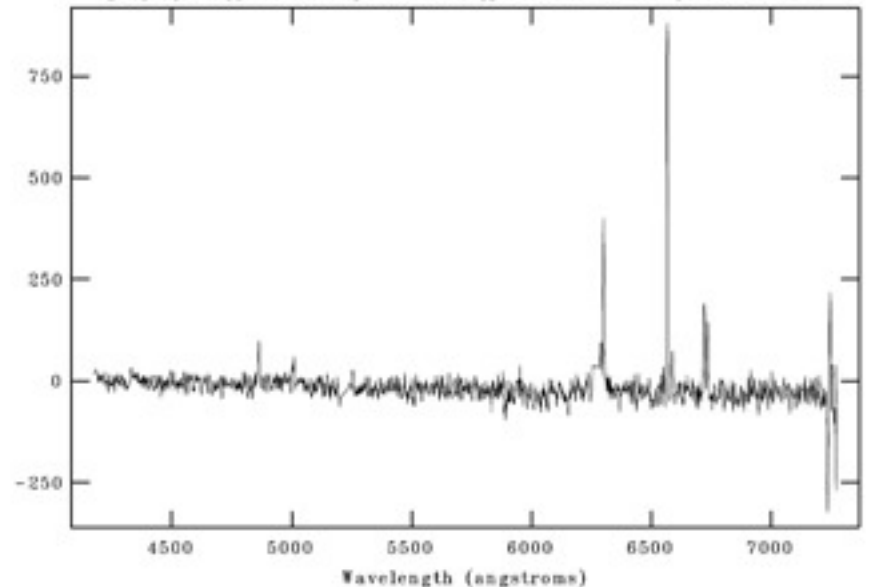
# SALT Followup Spectroscopy of SNRs

RSS LS spectra: likely SNRs

NOAO/IRAF V2.16 heyden\_maclap@58-b0-35-f1-86-2e.lan.uct.ac.za Mon 15:17:17 10-  
[SNRC1.fits[\*560]]; SNRC 1 250. ap:560 beam:0



NOAO/IRAF V2.16 heyden@0-23-df-85-ae-6c.lan.uct.ac.za Thu 14:11:32 23-Aug-2  
[BTgzapmbxgpP0075.fits[\*1146:1235]]; SNRC 6 INDEF ap:1190 beam:0



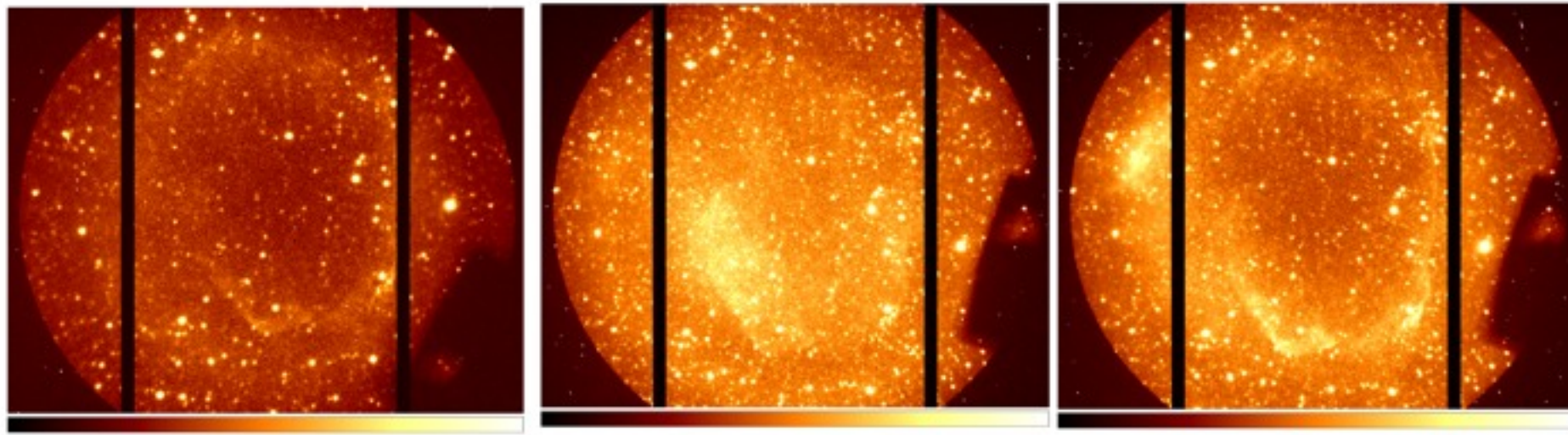
1. SNRC 1 = XMMUJ005630.2-720812
2. SNRC 6 = ACTA candidate



# SALT Fabry-Perot Observations

2013-1

Buckley (SALT), Van der Heyden (UCT), Hughes (RU), Hovey (RU), Filipovic (U. Western Sydney)

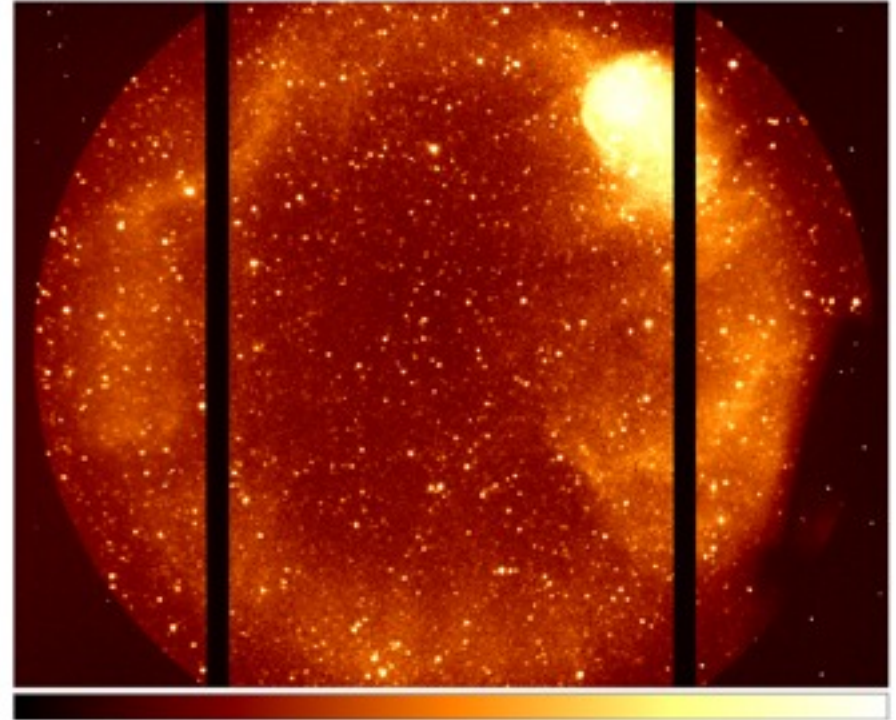
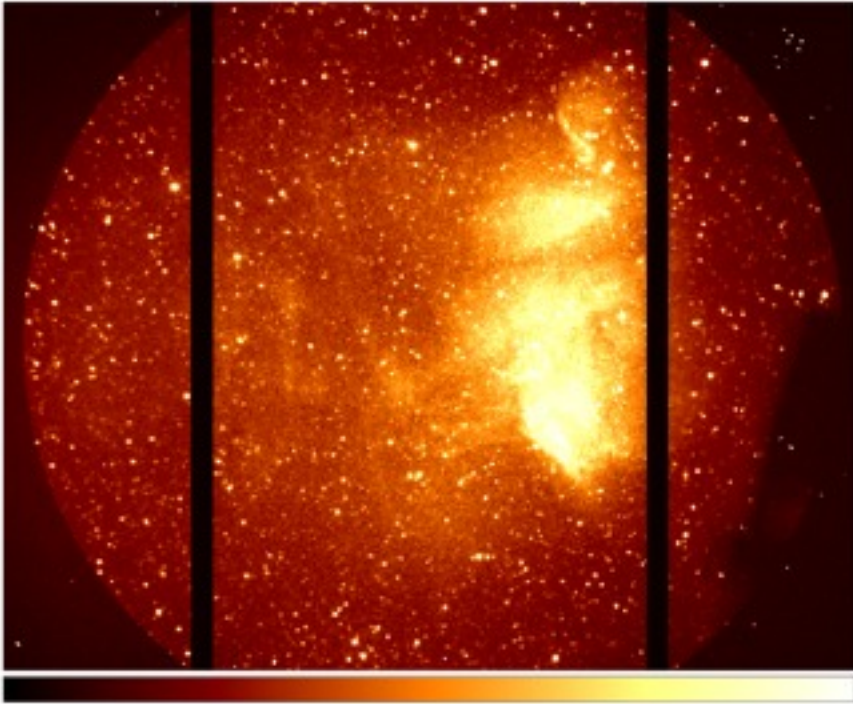


SMC C1 (XMMUJ005630.2-7208)

Low Resolution observations of SNR candidates  
Selected from positive RSS L-S  
Scans of H-alpha, SII, H-beta/OII (5 – 7 x 100 – 150s)

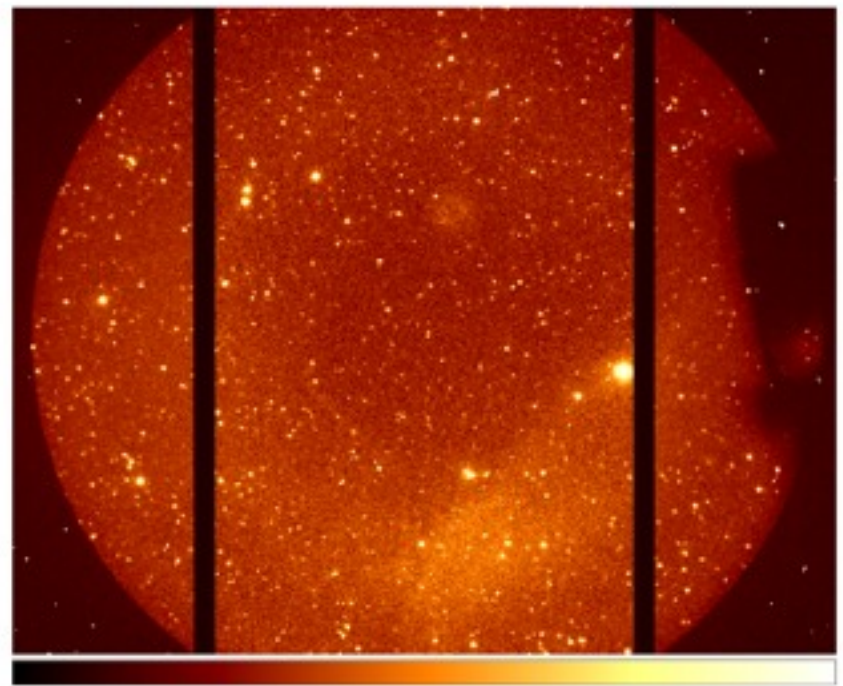
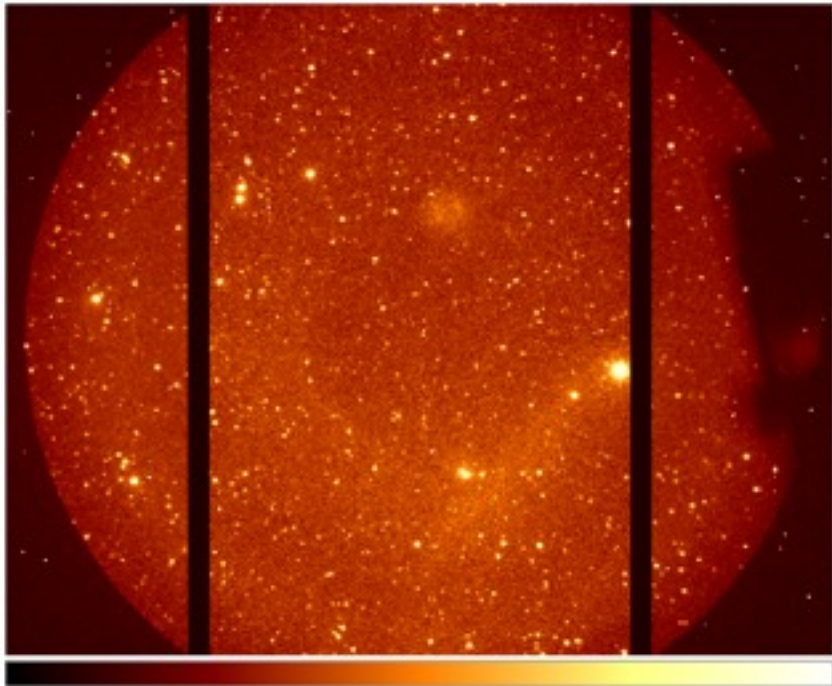


# SMC C2





# SMC C6







XMMUJ0057

