

# Quasi-simultaneous radio/X-ray observations of the newly discovered AMXP SRGA J144459.2-604207

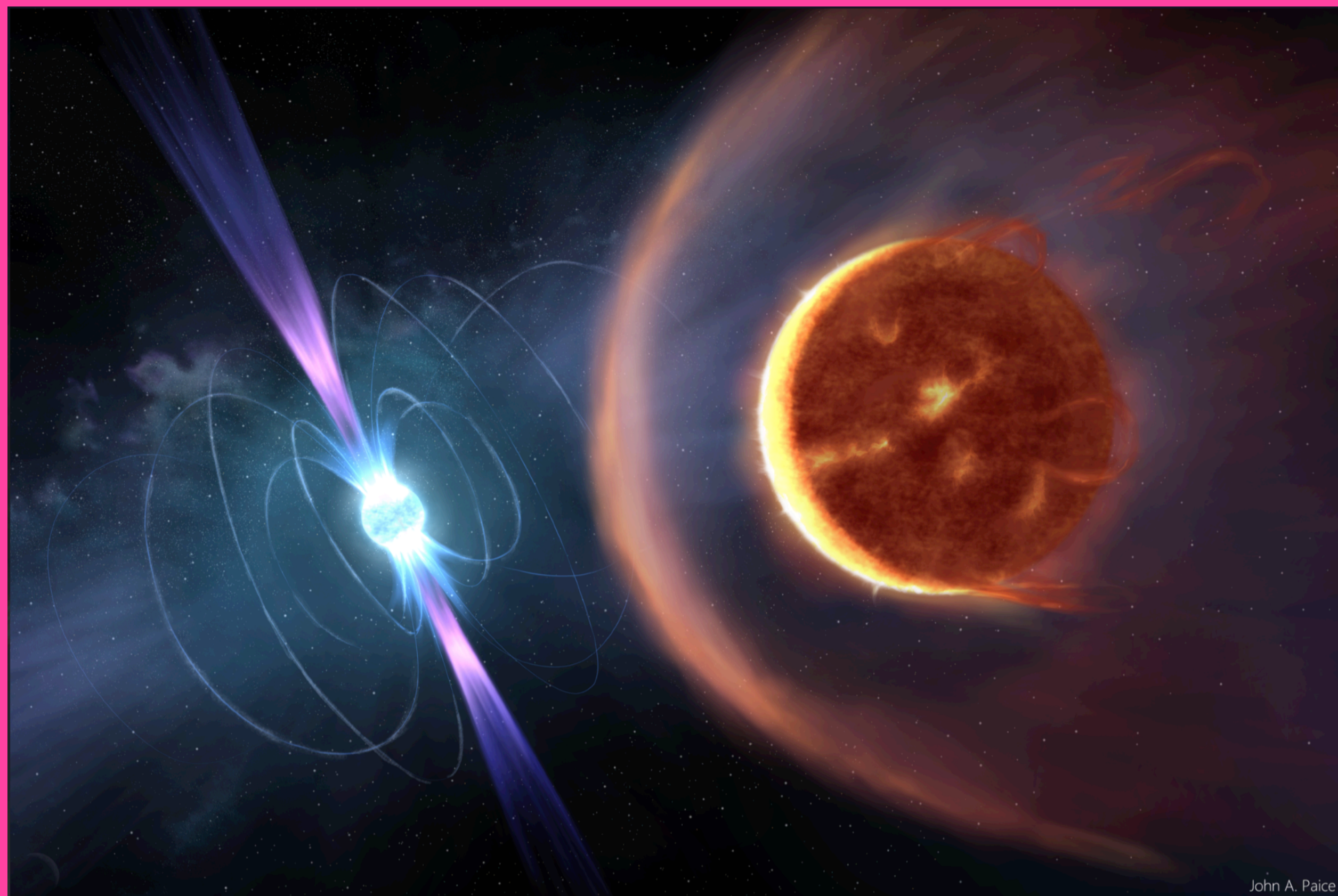


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## Introduction



### Accreting Millisecond X-ray Pulsars (AMXPs)

- Neutron star + companion star
- Accretion of matter → accretion disk (X-rays)
- Ejection of matter → jet (radio)
- X-ray pulsations → matter funnelled onto the magnetic dipole
- SRGA J144459.2-604207 discovered on Feb 21, 2024

## Methods and analysis



### X-ray follow-up

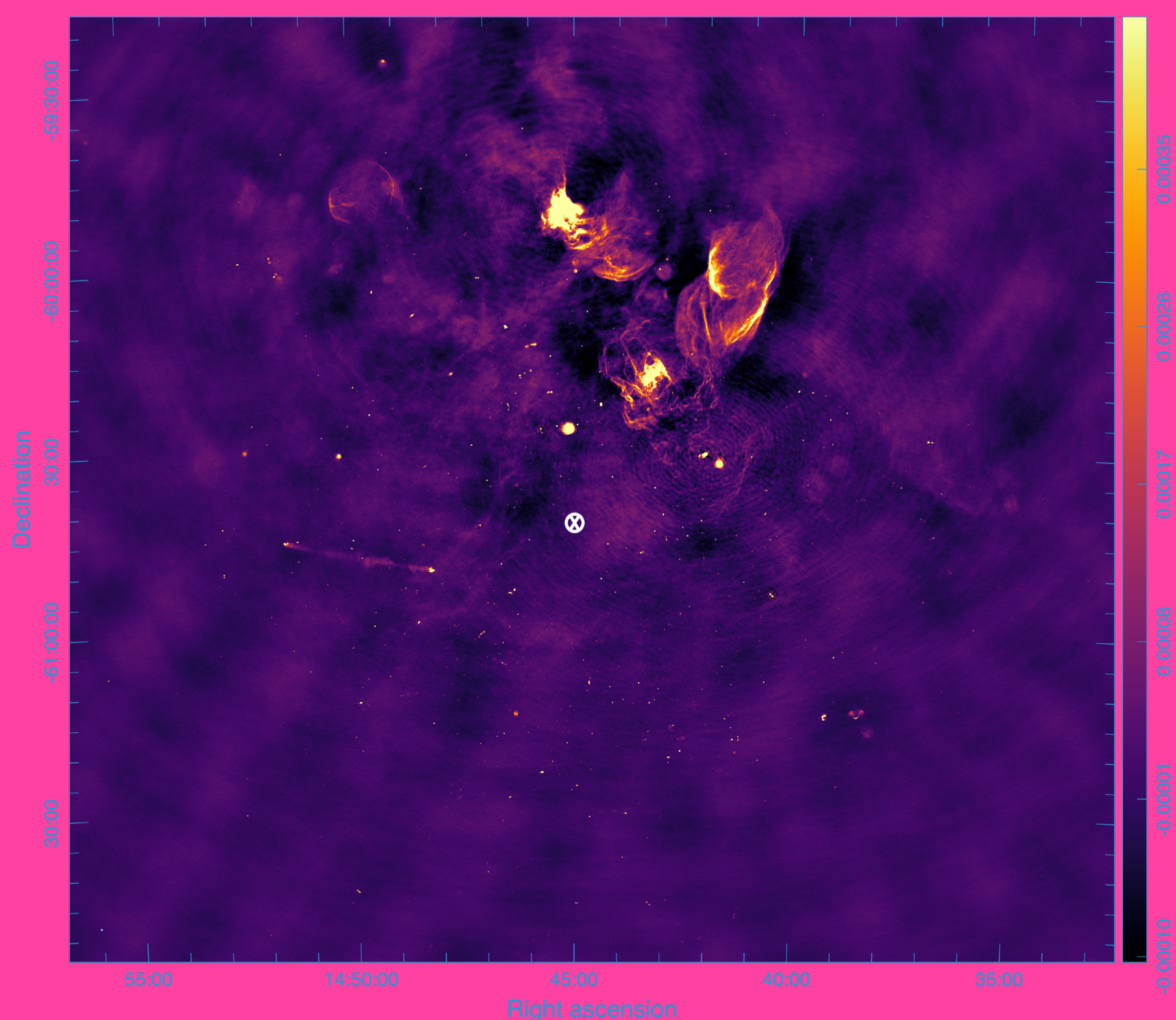
- Swift (SwiftKAT programme)
- Feb 22, 2024, XRT:
  - 500 s PC mode +
  - 500 s WT mode
- Type-I X-ray burst
- Absorbed power-law spectrum pre/post burst



### Radio follow-up

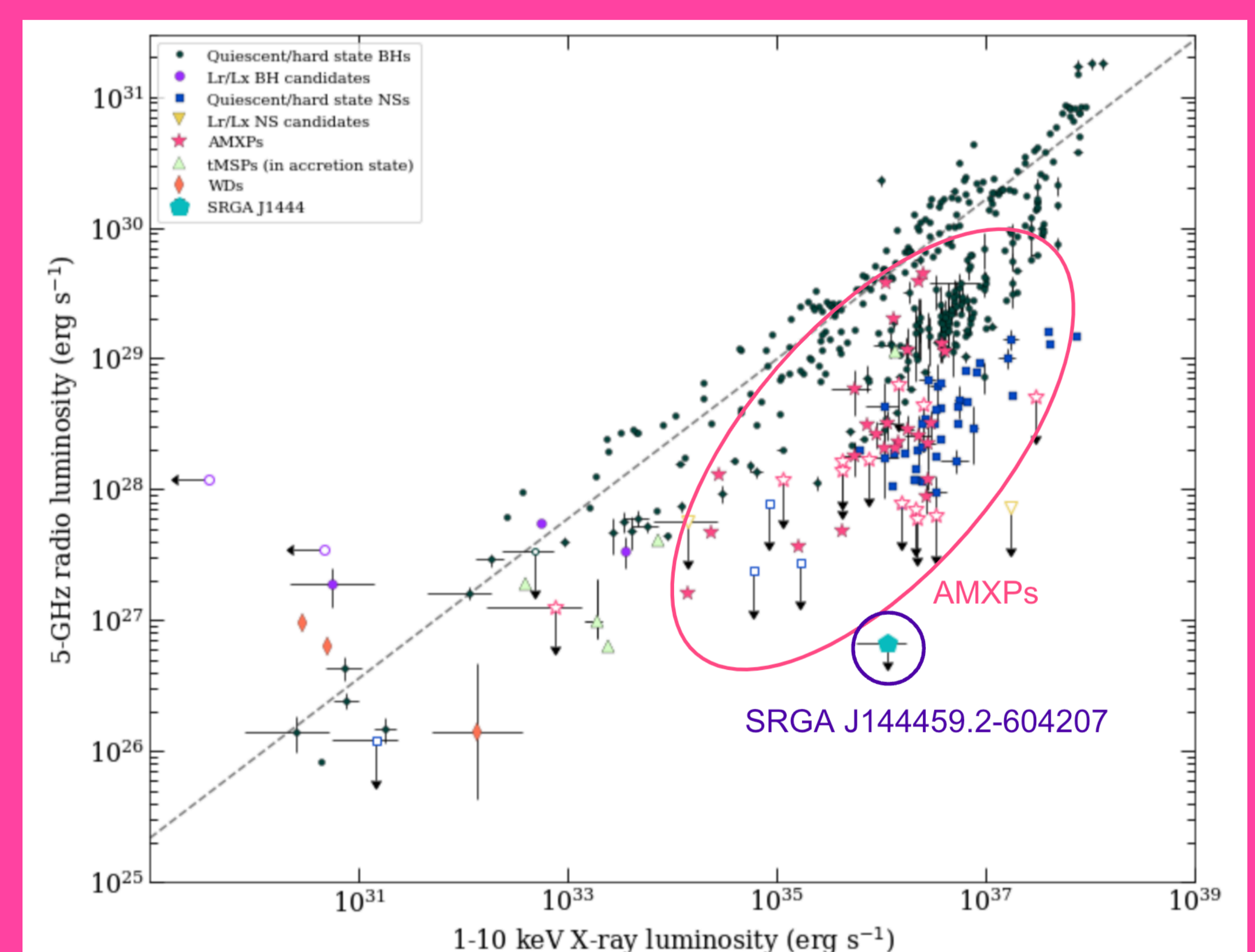
- MeerKAT (X-KAT programme)
- 5 observations from 22 Feb to 16 Mar, 2024
- 1.28GHz, 15 min on-target each
- SRGA J144459.2-604207 undetected:
  - Upper limits ~ 170  $\mu$ Jy

## Results



### The radio upper limit

- MeerKAT large field (~1.5 deg<sup>2</sup>) displayed above
- 5 observations stacked image, 1h15min exposure on target
- SRGA J144459.2-604207 (RA, DEC J2000 = 14:44:59, -60:41:56) undetected
- From 170  $\mu$ Jy single images to **28 $\mu$ Jy** stacked image upper limit



### The $L_x$ vs $L_{radio}$ relation

- X-ray and radio → accretion/ejection coupling
- Proposed 2MASS counterpart at 2.0 $\pm$ 0.5 kpc
- Calculated the corresponding luminosities in X-ray and radio
- SRGA J144459.2-604207 **fainter in radio** than other AMXPs