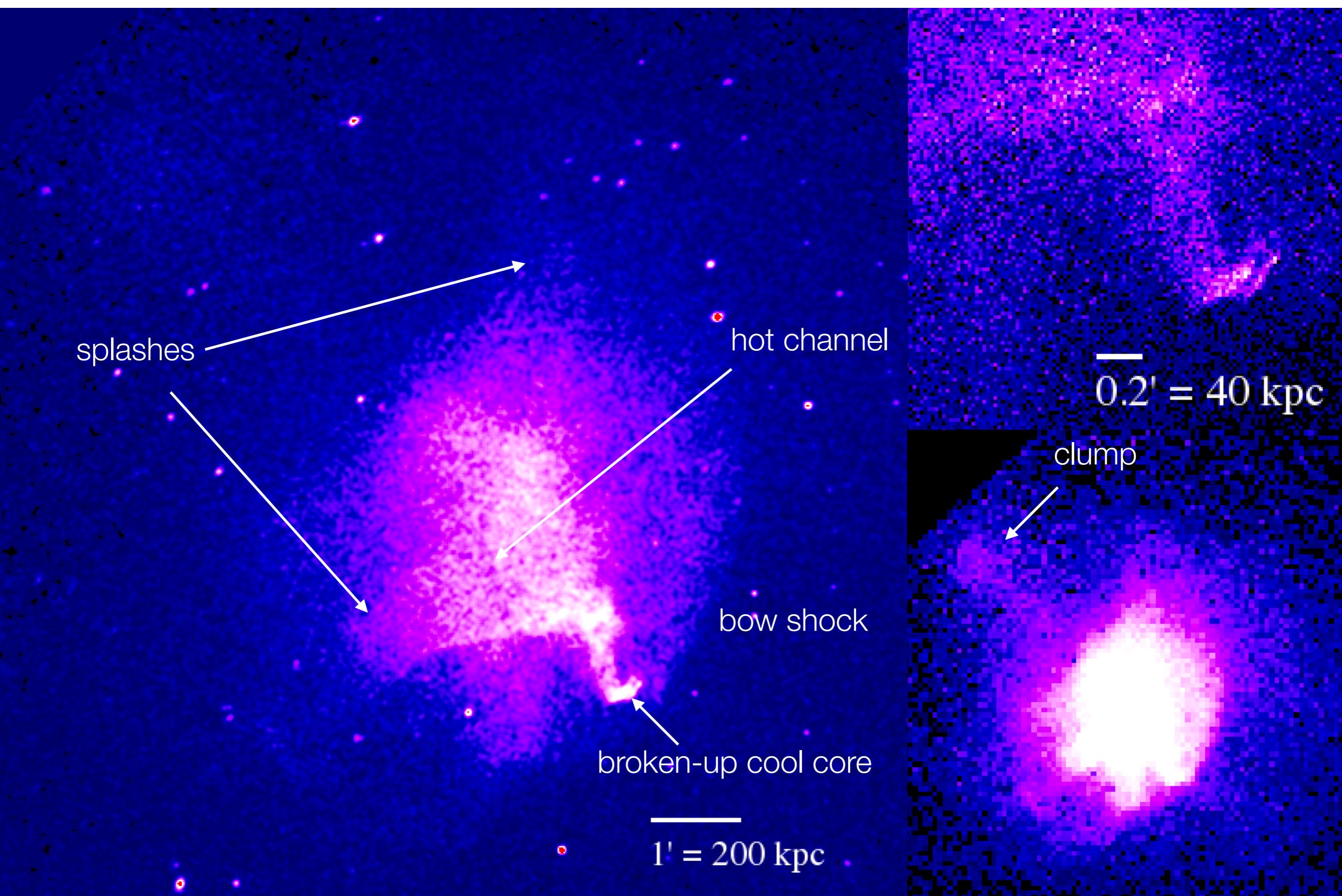


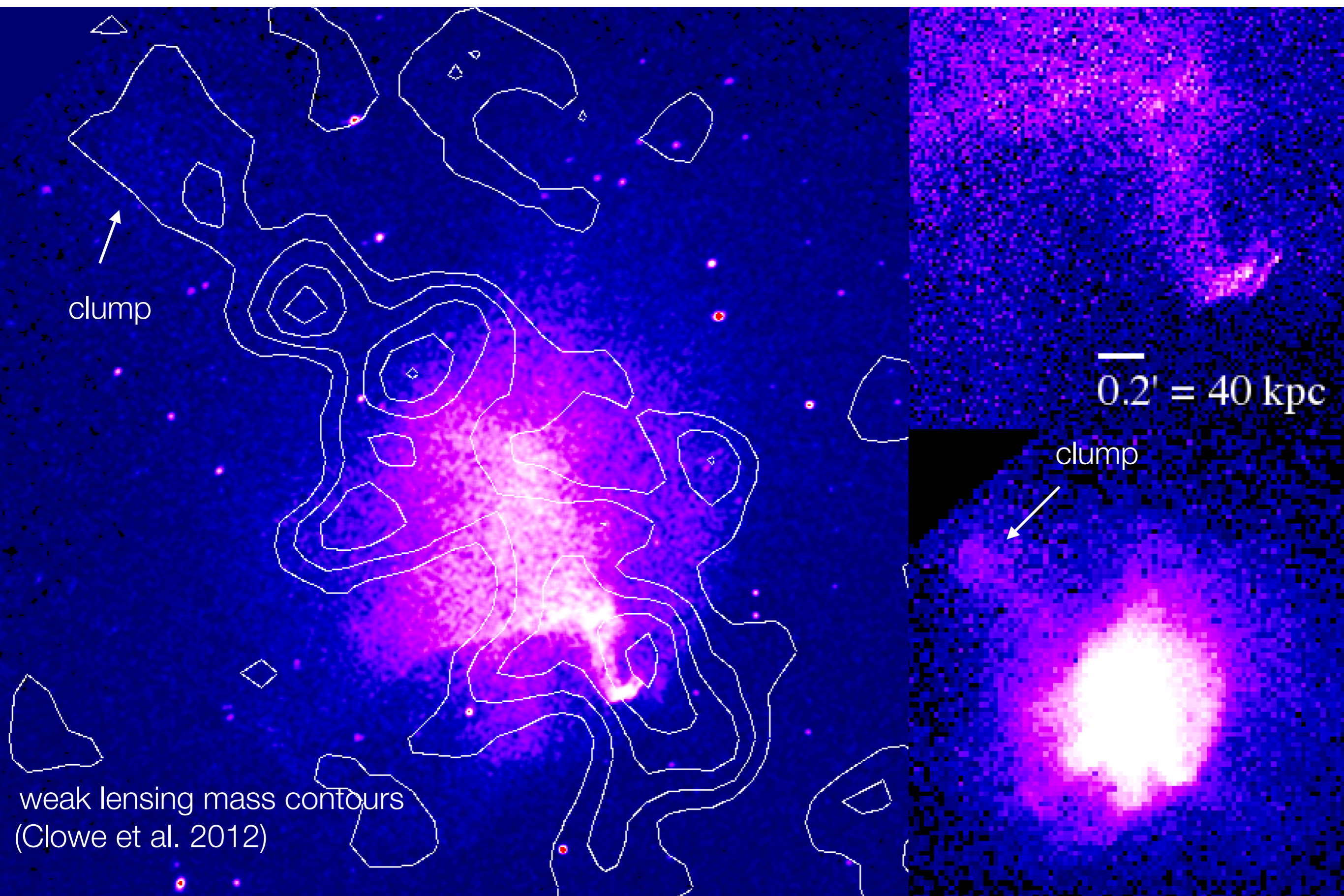
Deep Chandra Observation of Abell 520

Qian Wang (University of Maryland),
Maxim Markevitch, Simona Giacintucci in prep.

X-ray surface brightness features

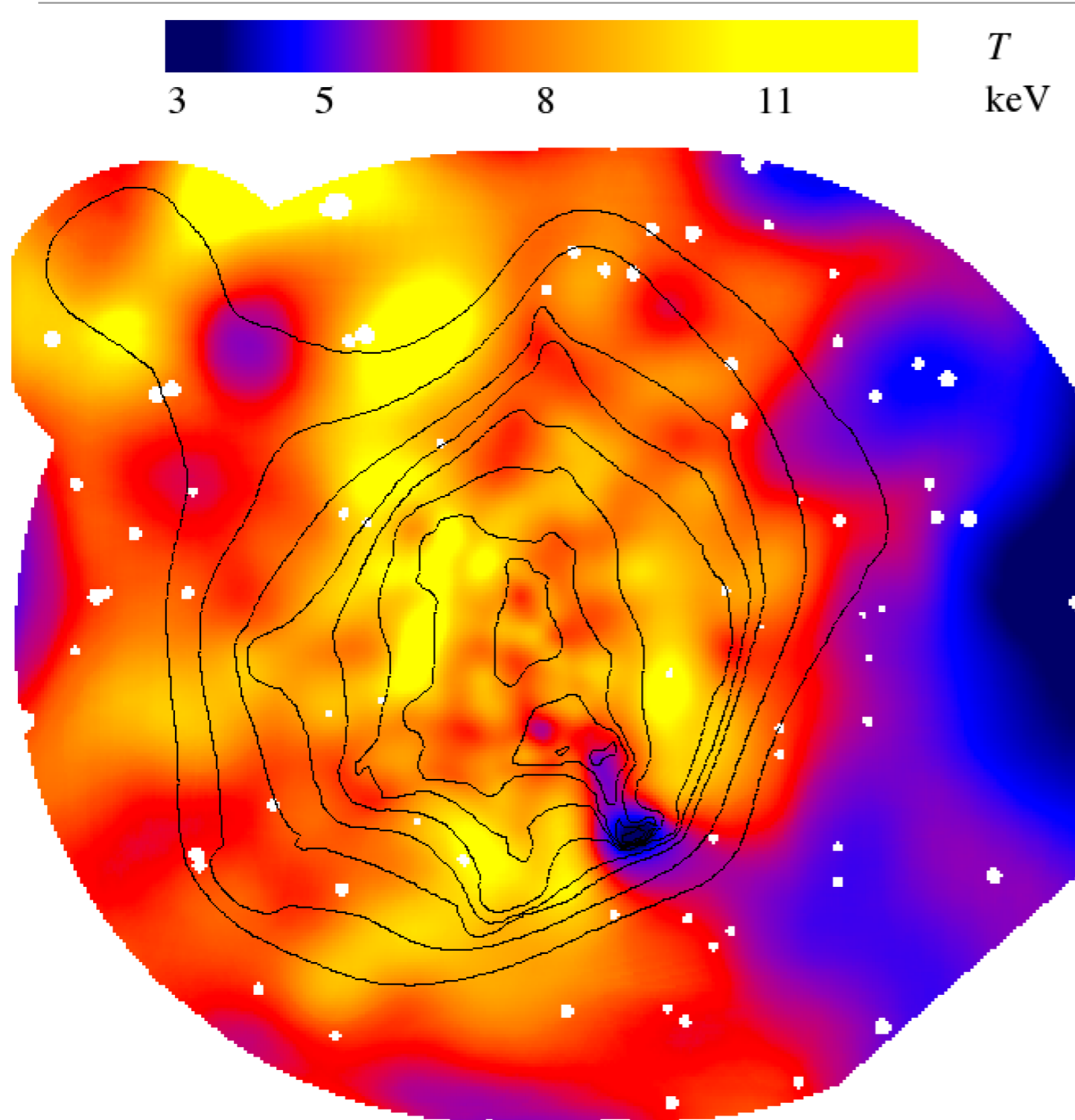


X-ray surface brightness features

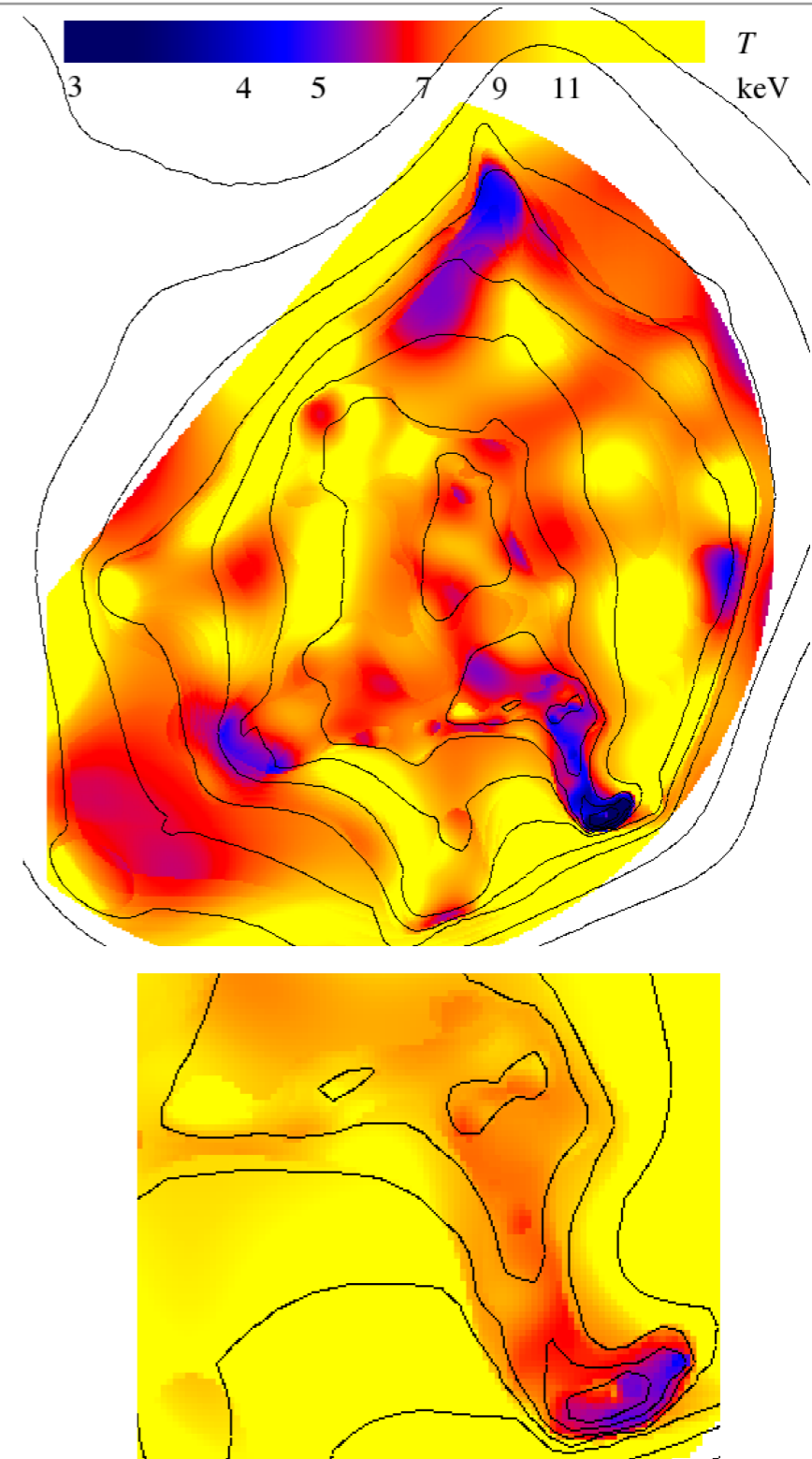


Temperature maps

with X-ray surface brightness contours

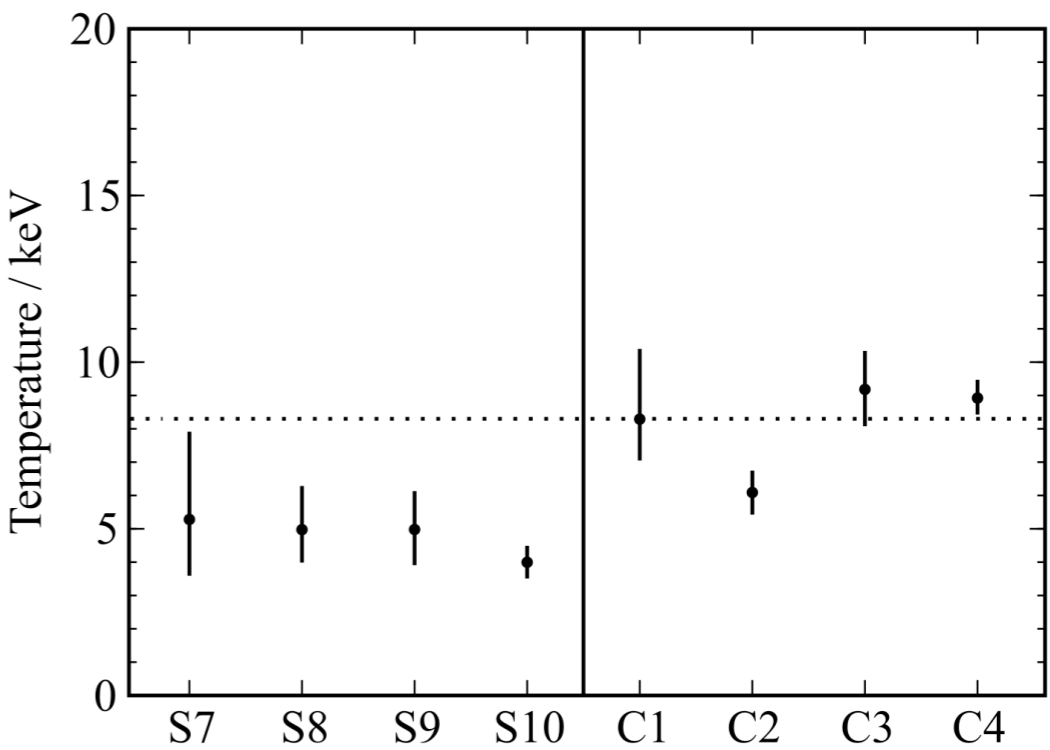
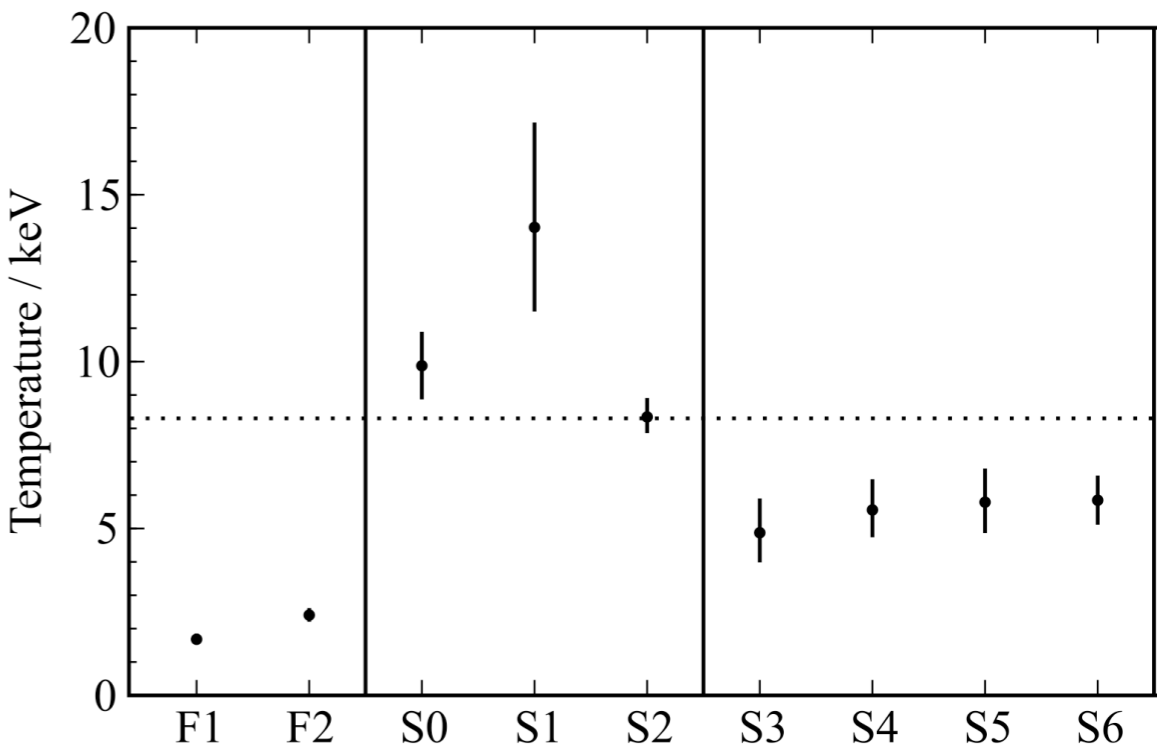
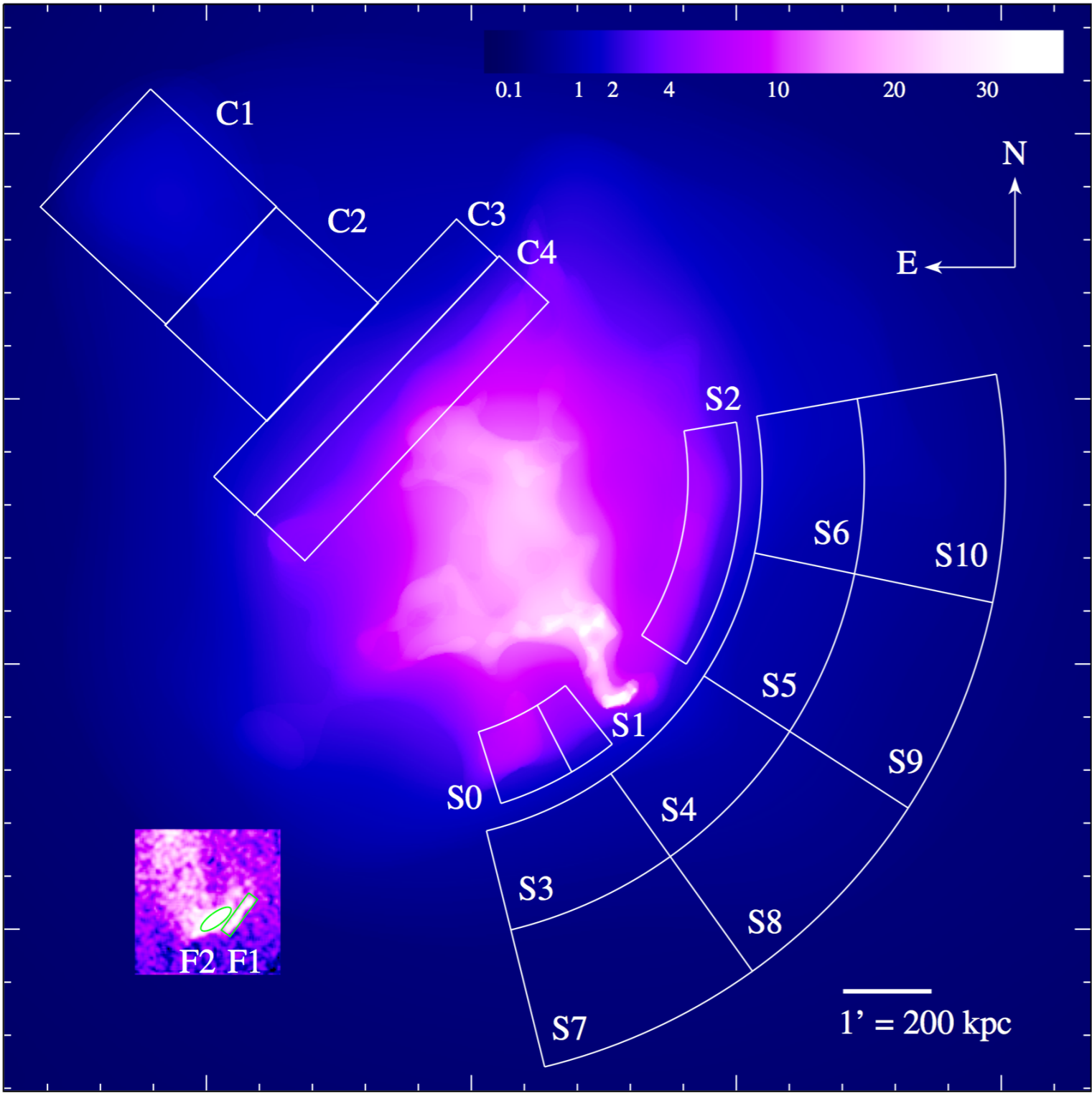


Adaptively smoothed



Wavelet smoothed
(large scales removed)

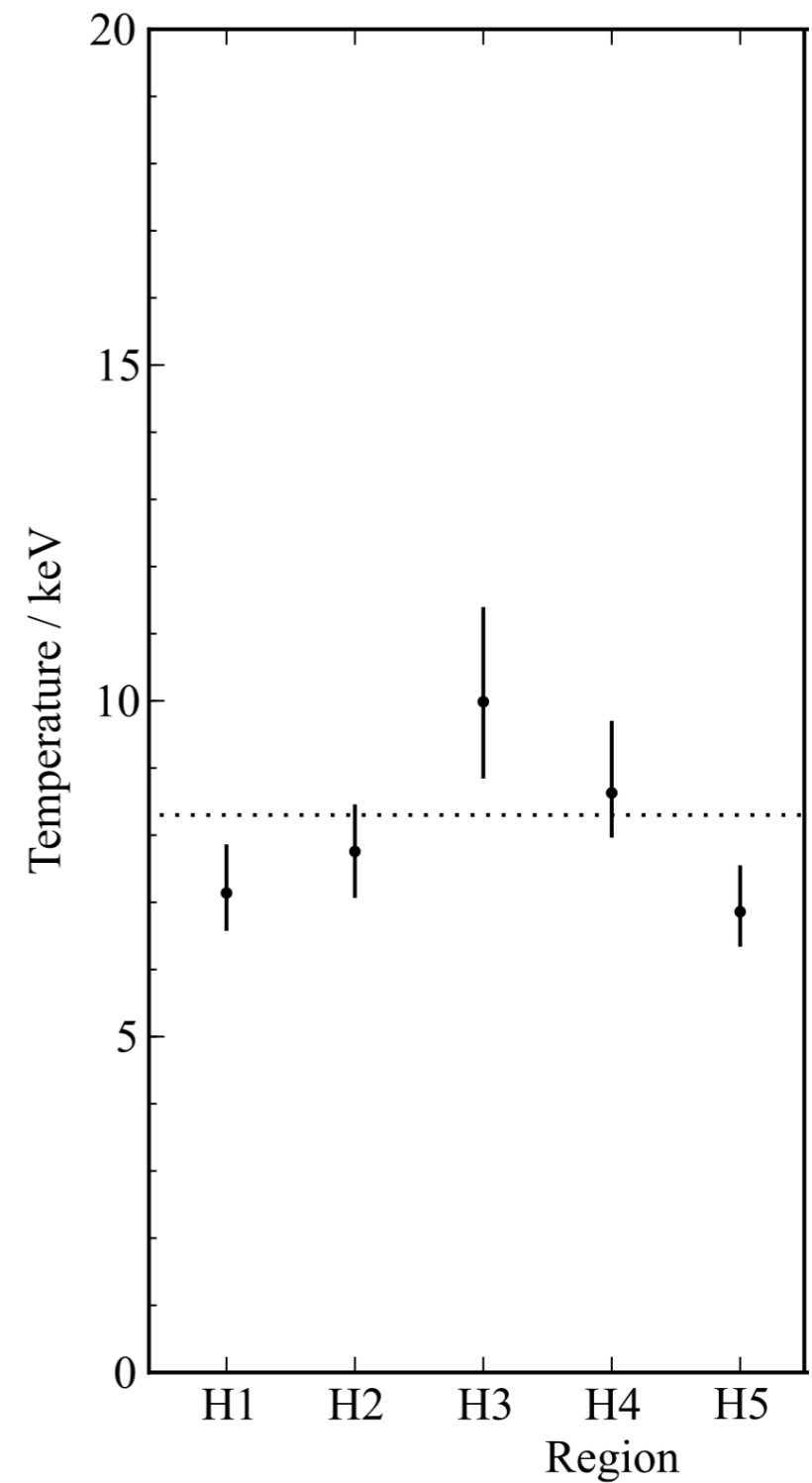
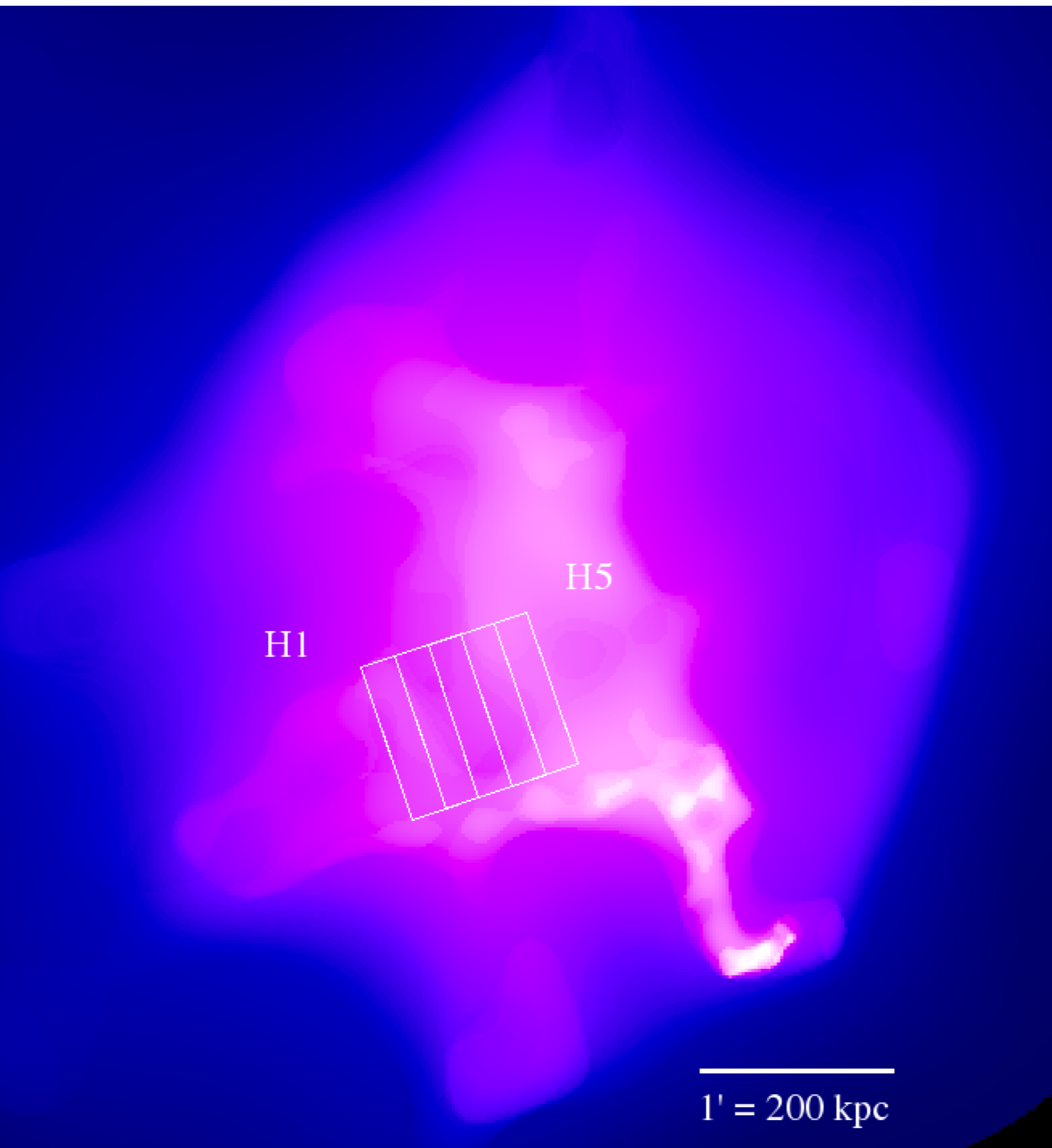
Pre-shock region, cold tip and the tail



Wavelet reconstruction of 0.8-4.0 keV image

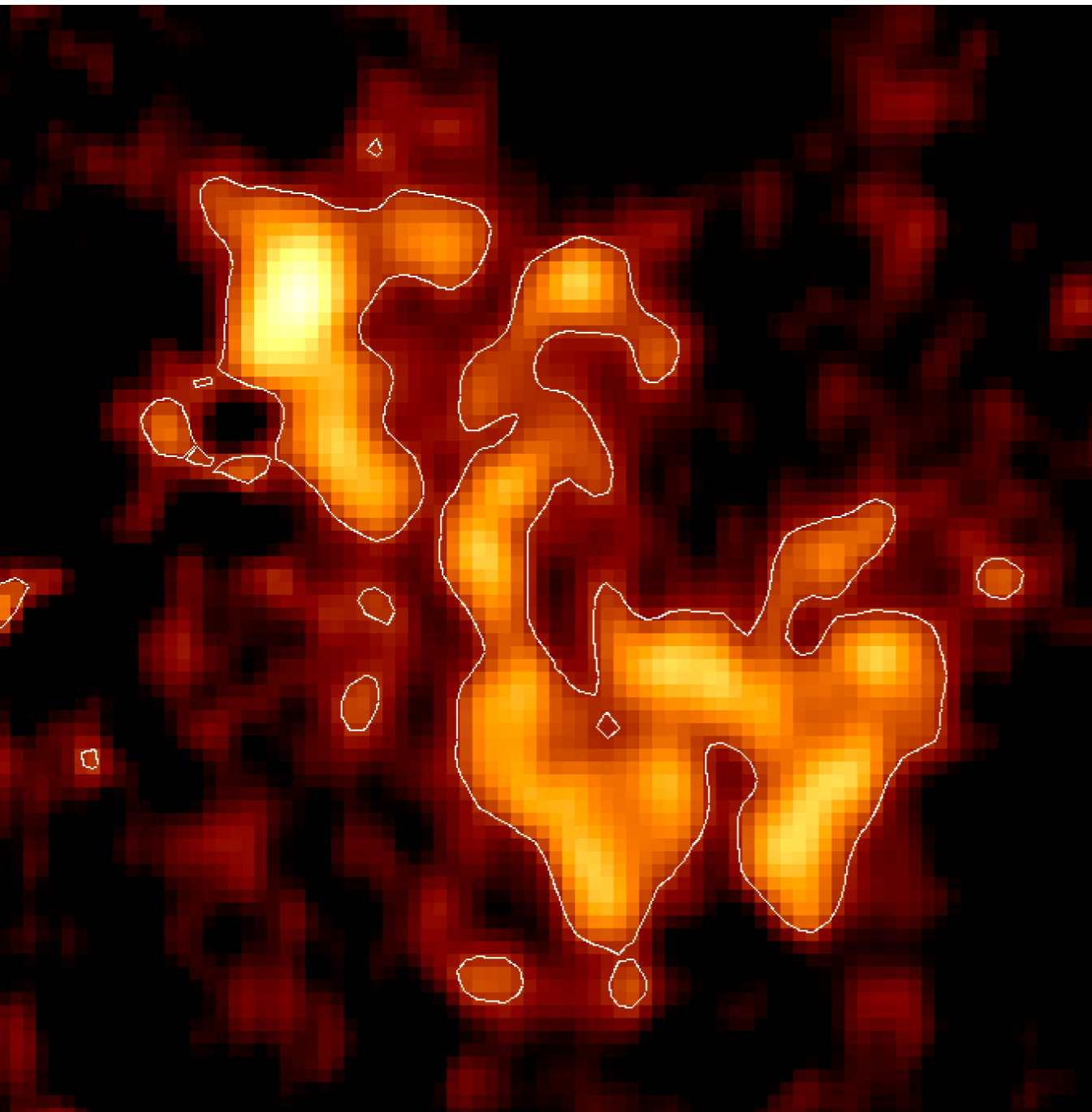
Single temperature fits in XSPEC

Hot channel with X-ray and radio features

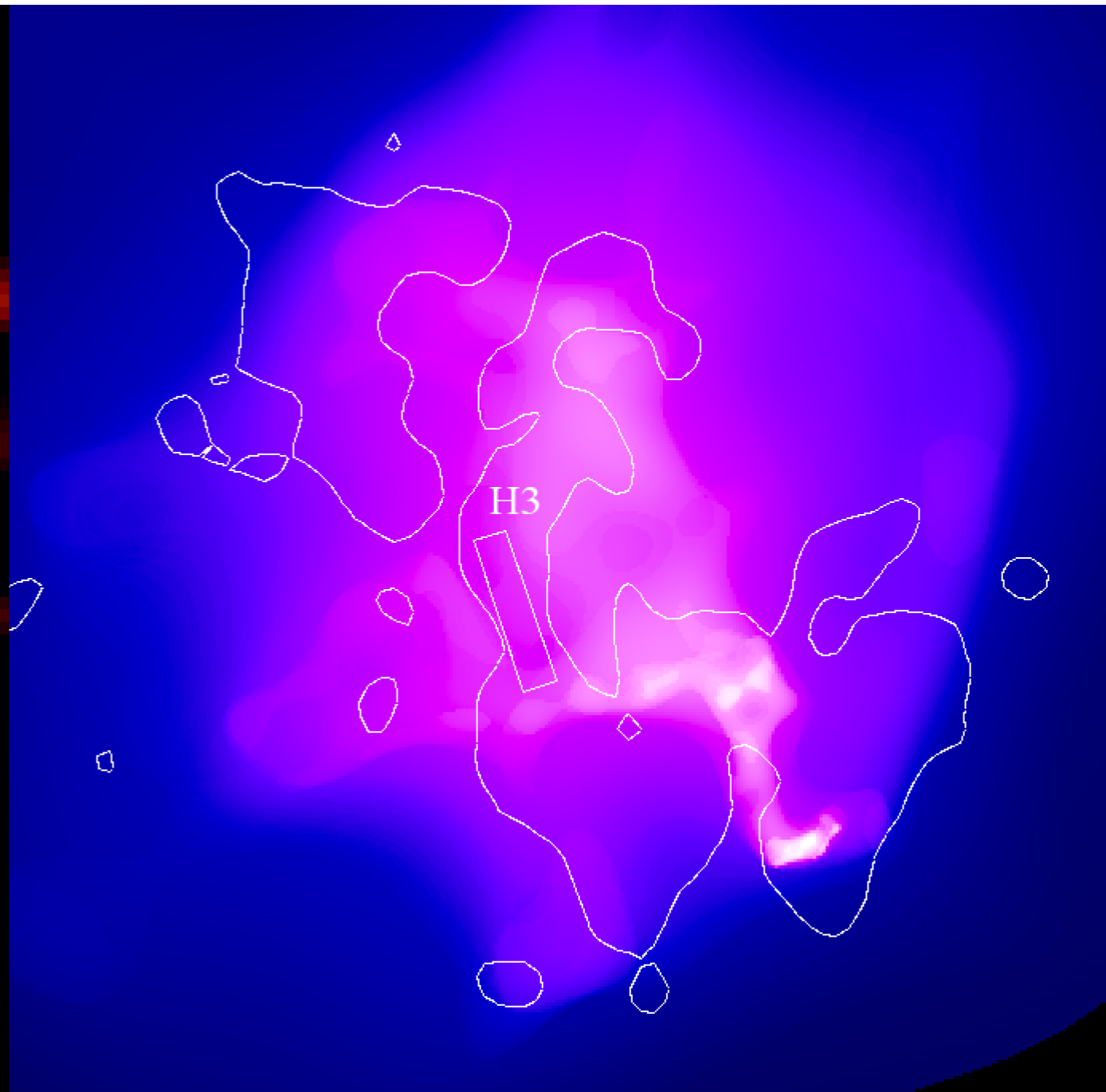


Single temperature fits in XSPEC

Hot channel with X-ray and radio features



Radio emission cleaned of artifacts, VLA 1.4 GHz
(Simona Giacintucci's new analysis
of data of Govoni et al. 2004)



wavelet reconstruction of
0.8-4.0 keV image

Northeast clump - what is it?

- Entropy

$$K = T n_e^{-2/3}$$

- Cluster outskirts:

$$T = 3.7 \text{ keV}$$

$$n_H = 1.4 \times 10^{-4} \text{ cm}^{-3}$$

$$K = 1400 \text{ keV cm}^2$$

- Clump:

$$T = 10.5 \text{ keV}$$

$$n_H = 4 \times 10^{-4} \text{ cm}^{-3}$$

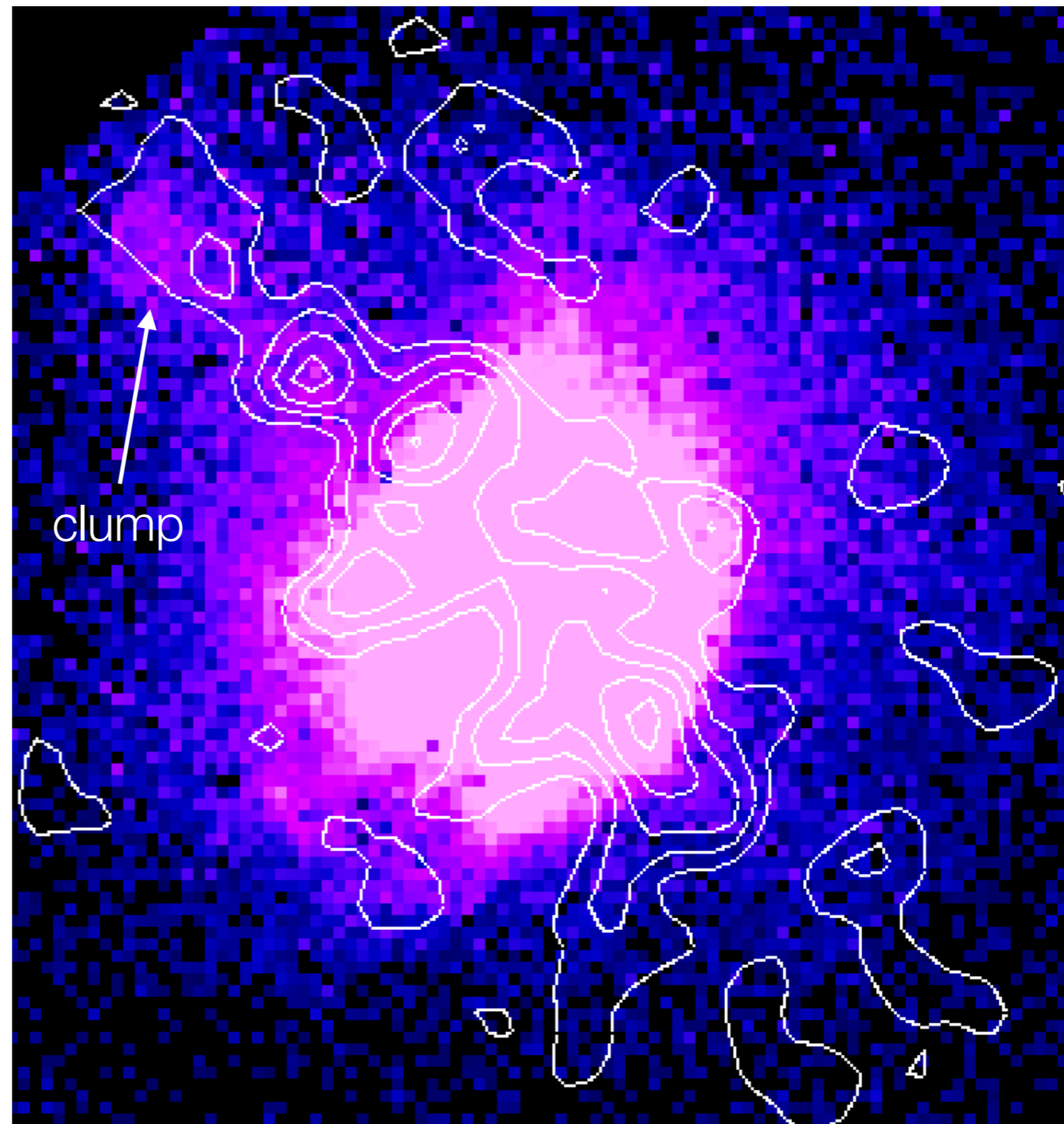
$$K = 1900 \text{ keV cm}^2$$

~10x higher than specific entropy in typical cool core found by Cavagnolo et al. (2009)

- For contrast... cold tip:

$T \sim 2 \text{ keV}$, $n \sim 200\times$ denser

$K \sim 100\times$ smaller than clump



Weak lensing mass contours
(Clowe et al. 2012)

Summary

- We analyzed 500 ks of Chandra observation of A520
- Temperature maps show bow shock, cold fingers and broken off cool core extending from them
- There's a hot radio channel through the center
- Faint bump in X-ray to the northeast appears to be peripheral gas picked up by a mass clump on its way out

Thank you for listening!