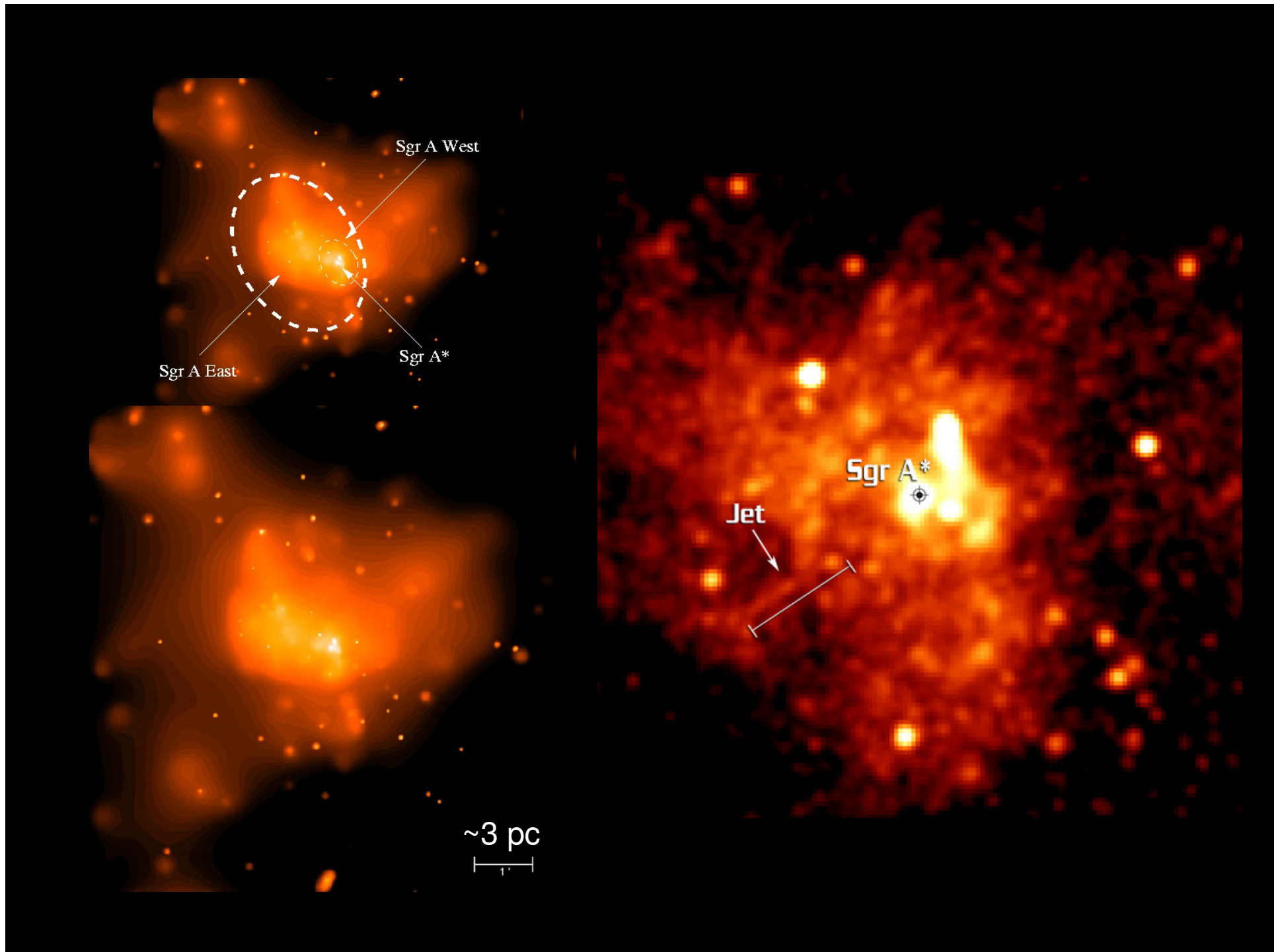


The background image is a detailed simulation of the accretion disk around the supermassive black hole Sgr A\*. It features a central bright yellow-white point representing the black hole, surrounded by a glowing, multi-layered disk. The inner disk is bright yellow, transitioning to orange and then red as it moves further out. The disk exhibits complex, swirling patterns and a prominent vertical jet of light extending upwards from the center. The overall appearance is that of a turbulent, high-energy environment.

**Sgr A\*:**  
**To jet or not to jet?**

Bubu

Ref: ApJ 673:251 2008  
Muno et al.



**Is Sgr A\* special?**



**Does observed  
spectrum indicates  
a jet component?**

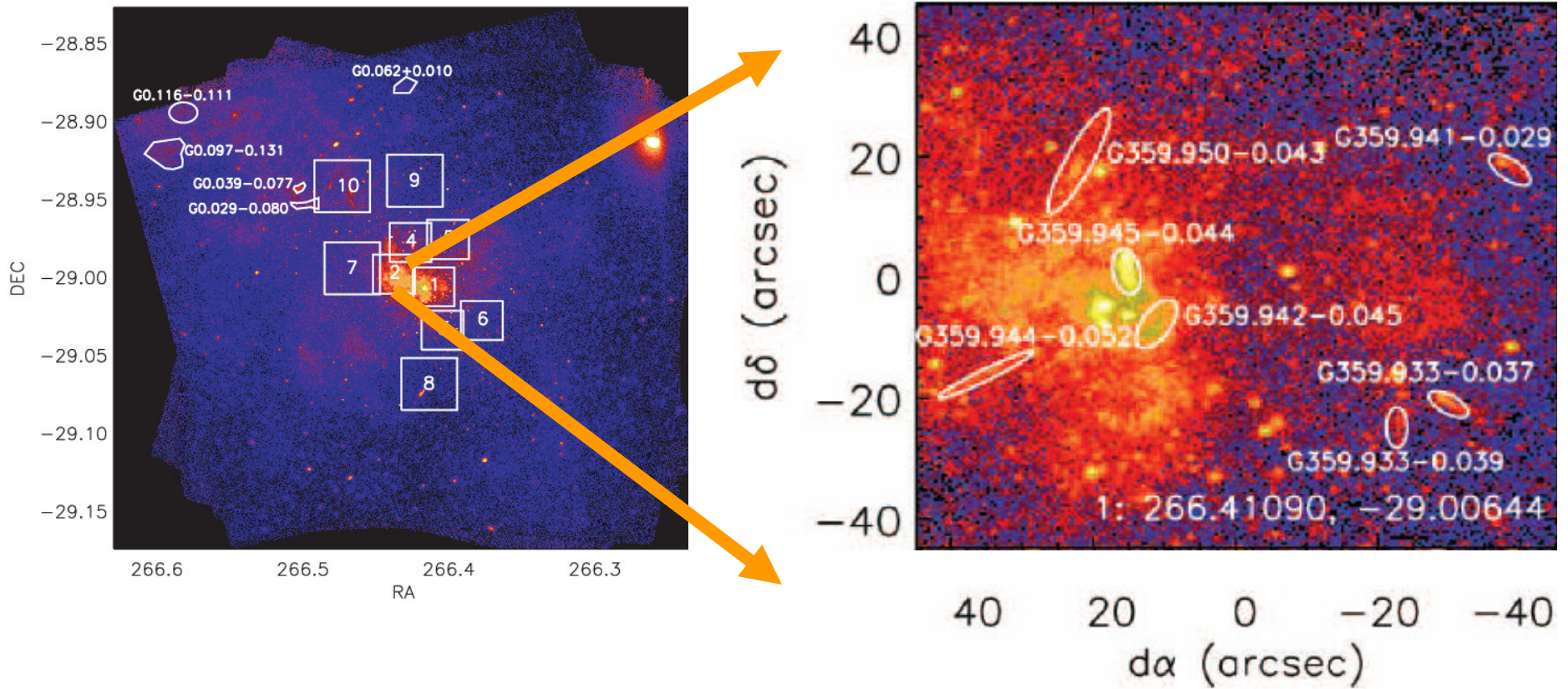
# From 2000~2005 Chandra data

OBSERVATIONS OF THE INNER 20 pc OF THE GALAXY

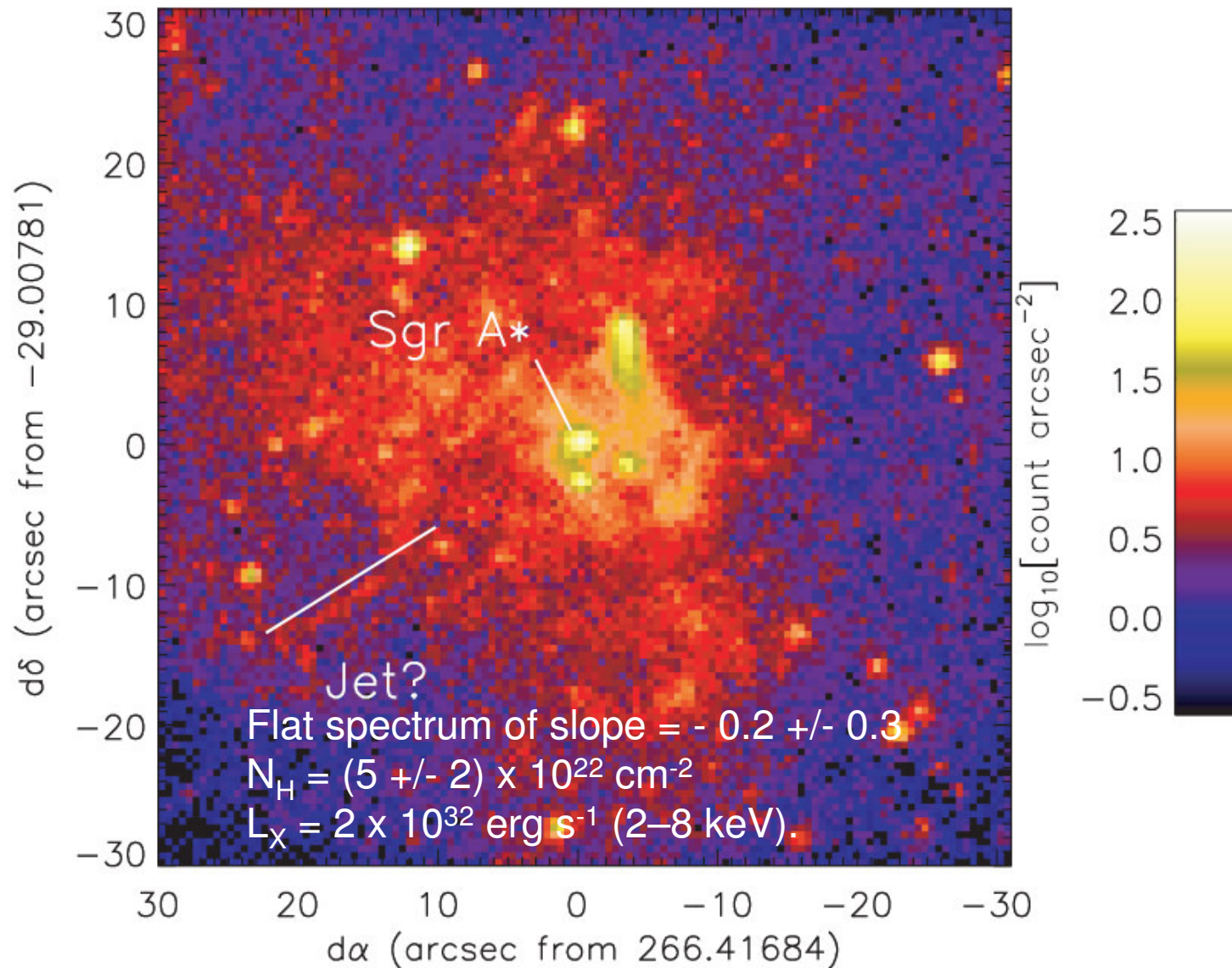
START TIME (UT)	SEQUENCE	EXPOSURE (s)	AIM POINT		ROLL (deg)
			R.A. (J2000.0; deg)	Decl. (J2000.0; deg)	
2000 Oct 26 18:15:11.....	1561	35705	266.41344	-29.0128	265
2001 Jul 14 01:51:10.....	1561	13504	266.41344	-29.0128	265
2001 Jul 17 14:25:48.....	2284	10625	266.40417	-28.9409	284
2002 Feb 19 14:27:32.....	2951	12370	266.41867	-29.0033	91
2002 Mar 23 12:25:04.....	2952	11859	266.41897	-29.0034	88
2002 Apr 19 10:39:01.....	2953	11632	266.41923	-29.0034	85
2002 May 07 09:25:07.....	2954	12455	266.41938	-29.0037	82
2002 May 22 22:59:15.....	2943	34651	266.41991	-29.0041	76
2002 May 24 11:50:13.....	3663	37959	266.41993	-29.0041	76
2002 May 25 15:16:03.....	3392	166690	266.41992	-29.0041	76
2002 May 28 05:34:44.....	3393	158026	266.41992	-29.0041	76
2002 Jun 03 01:24:37.....	3665	89928	266.41992	-29.0041	76
2003 Jun 19 18:28:55.....	3549	24791	266.42092	-29.0105	347
2004 Jul 05 22:33:11.....	4683	49524	266.41605	-29.0124	286
2004 Jul 06 22:29:57.....	4684	49527	266.41597	-29.0124	285
2004 Aug 28 12:03:59.....	5630	5106	266.41477	-29.0121	271
2005 Feb 27 06:26:04.....	6113	4855	266.41870	-29.0035	91
2005 Jul 24 19:58:27.....	5950	48533	266.41520	-29.0122	277
2005 Jul 27 19:08:16.....	5951	44586	266.41514	-29.0122	276
2005 Jul 29 19:51:11.....	5952	43125	266.41509	-29.0122	275
2005 Jul 30 19:51:11.....	5953	45360	266.41508	-29.0122	275
2005 Aug 01 19:54:13.....	5954	18069	266.41505	-29.0122	275



The candidate jet [G359.944-0.052](#) is found by the **wavelet algorithms**, it is unlikely to be an artifact produced by a chance alignment of point sources



# Spectrum of G359.944-0.052



# Conclusion

- The candidate jet is **not detected in the radio**, with an upper limit of <45 mJy at 6 cm (5 GHz)
- The relative strength of the **radio and X-ray emission** from the **synchrotron-emitting jets** of quasars can be quantified using the logarithmic slope

$$\alpha_{R-X} = -\frac{\log(S_x / S_R)}{\log(\nu_x / \nu_R)}$$

$S$  : flux density

$\nu$  : the frequency at which the flux density is computed

- **Future radio observations** could help to make a useful comparison between the jet feature near Sgr A and quasar jets, which have values of  $\alpha_{R-X}$  between 0.9 and 1.1

**Thank you**



- 34 diffuse features:
- 7 are associated with a complex of molecular clouds that exhibits fluorescent line emission,
- 4 are superimposed on the supernova remnant Sgr A East
- 2 are coincident with radio features that are thought to be the shell of another supernova remnant
- 1 is thought to be a pulsar wind nebula only a few arcseconds in projection from Sgr A.