

60mas imaging of 3C 273 with NIRI and Altair

J.B.Hutchings

Jeff Stoesz and J-P Veran

HIA, NRC of Canada

F.Rigaut, Gemini Observatory

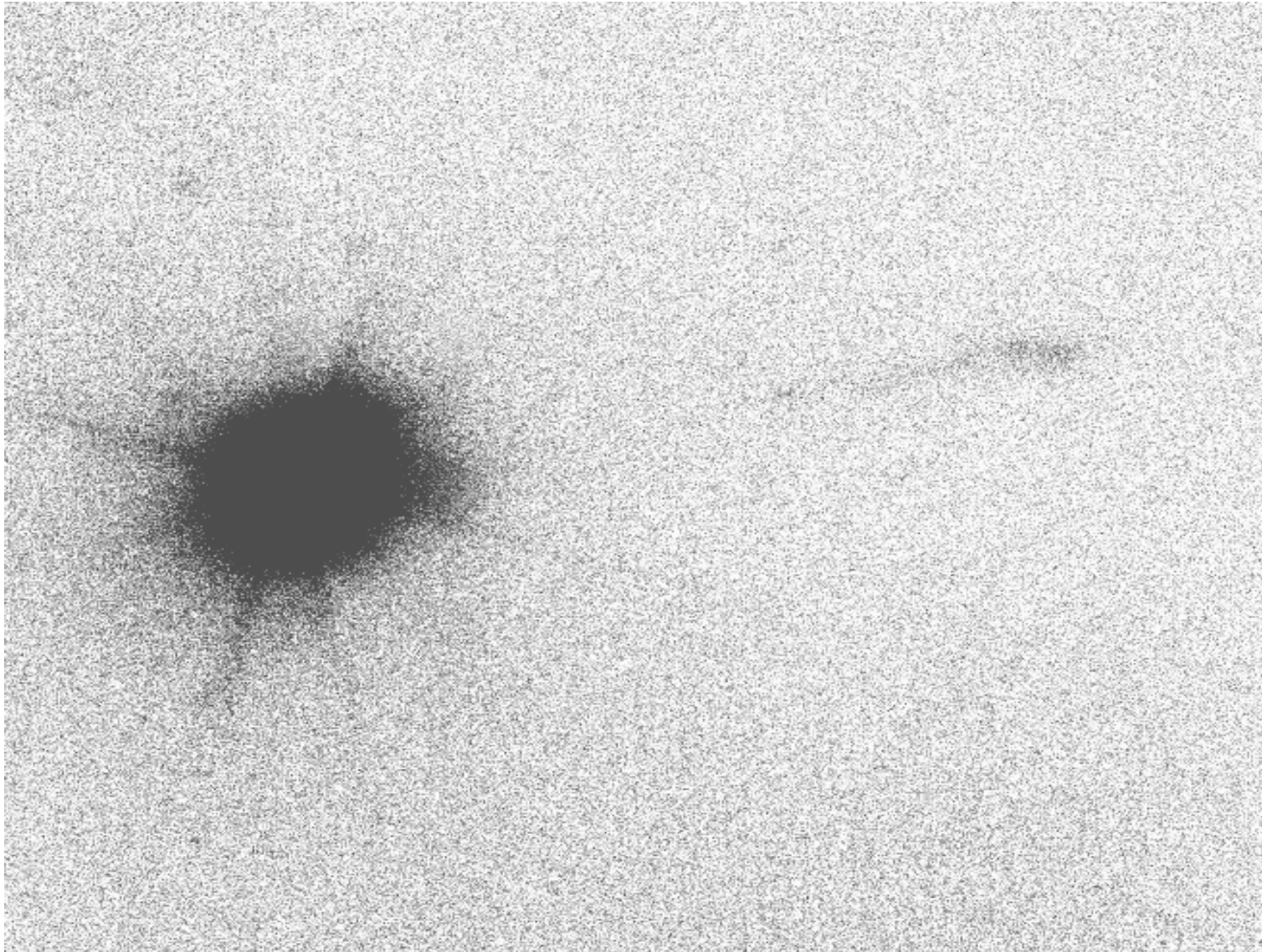
Observations from commissioning run May 10, 2003

Gemini N + NIRC2, with Altair AO system
Guiding on $m \sim 13$ QSO nucleus

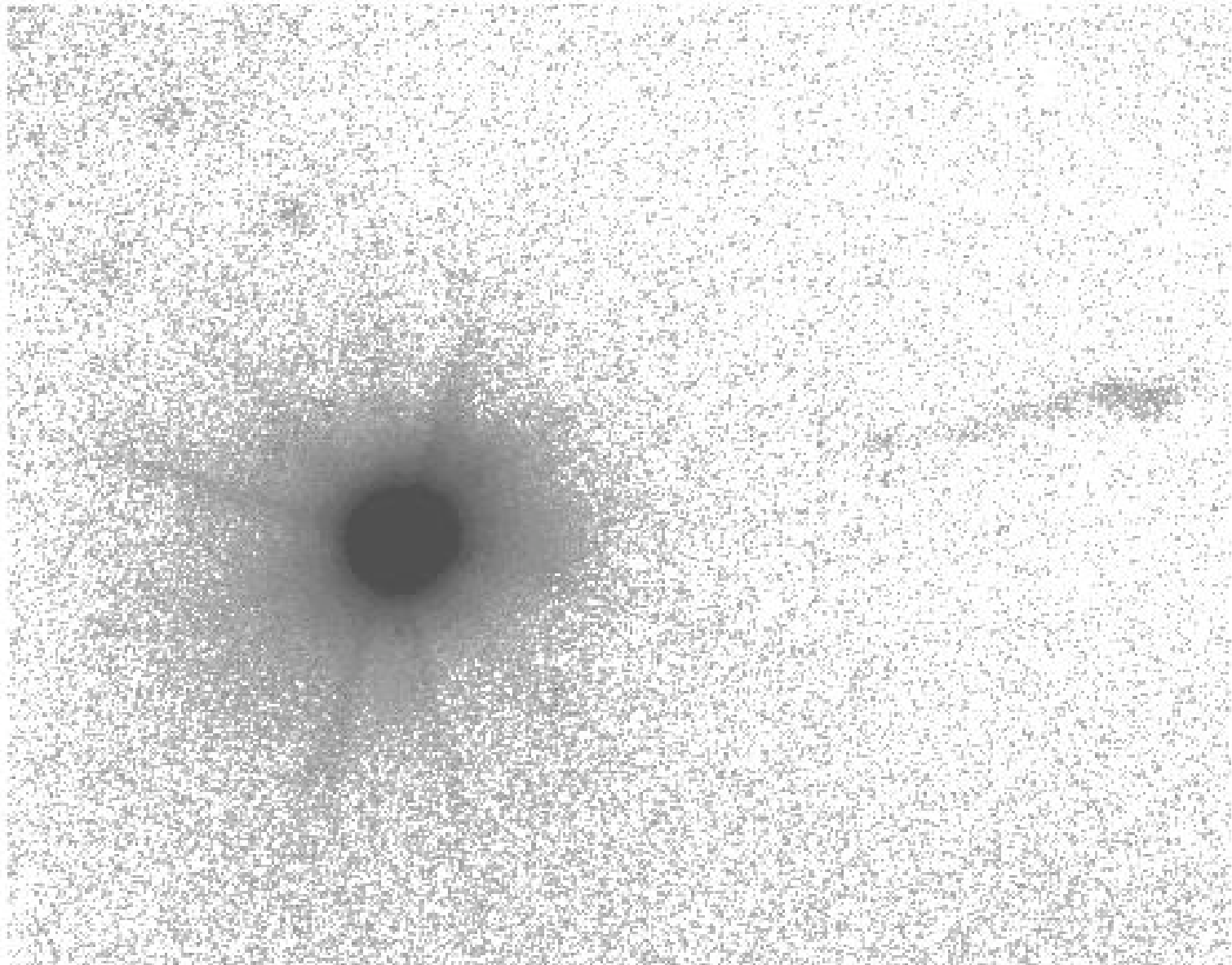
- f/32 (FOV 22 arcsec, pixels 0.0218") J and H
- f/14 (FOV 51 arcsec, pixels 0.050") J

- PSF observations in clusters, not simultaneous.

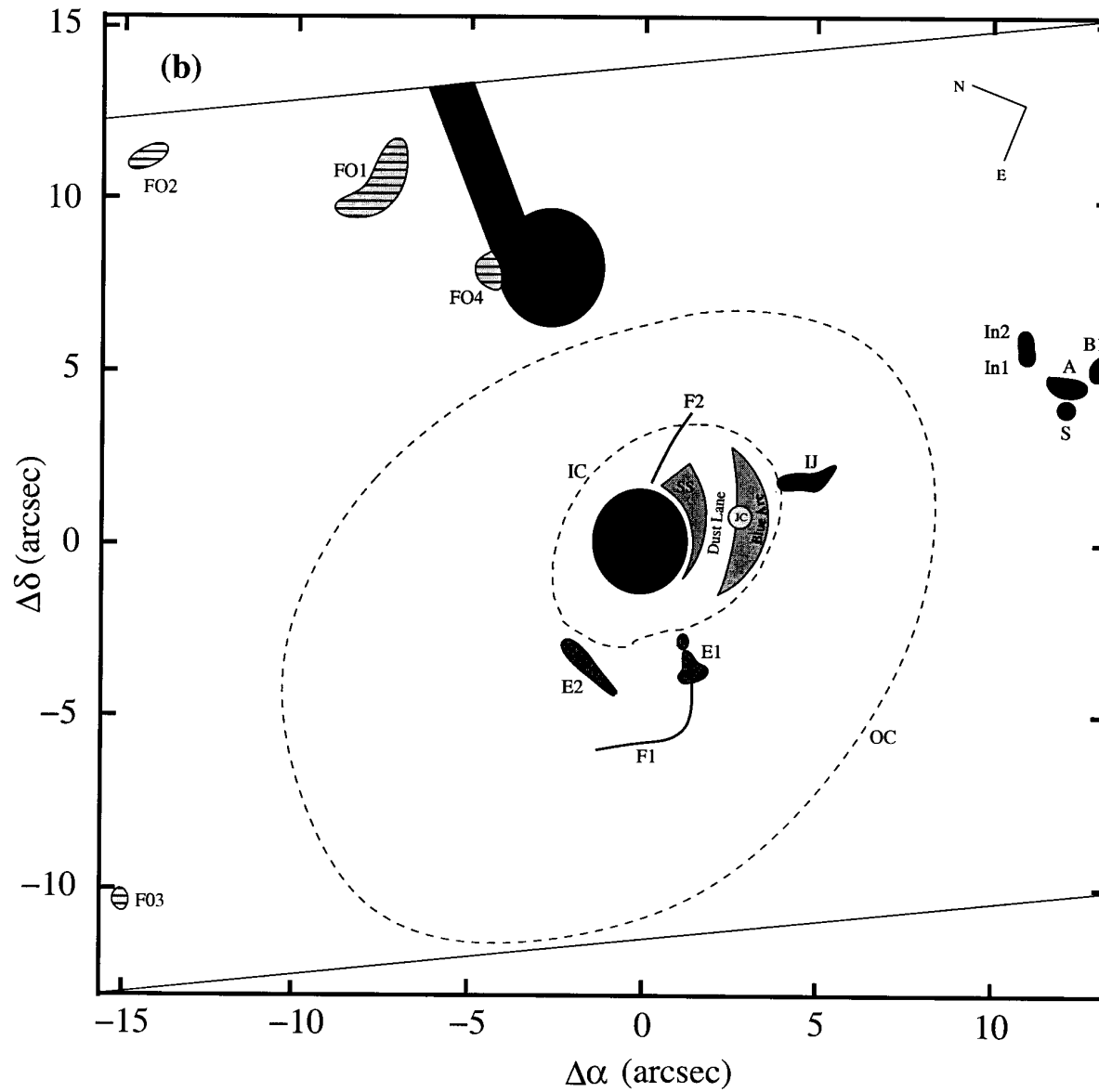
J-band with f/14 camera



Log scale image

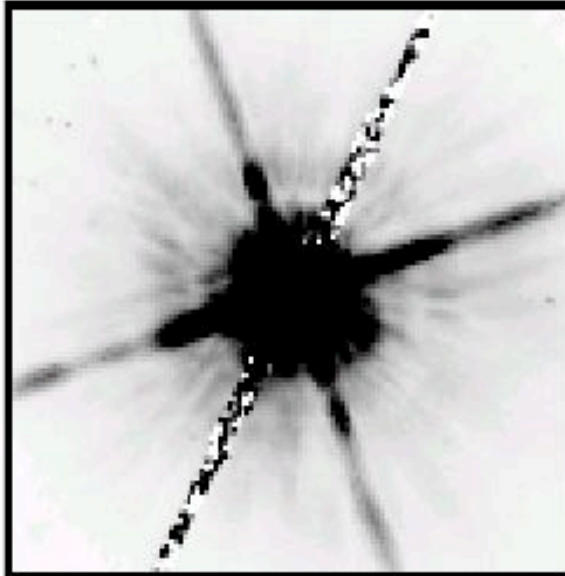


Schematic in visible from ACS

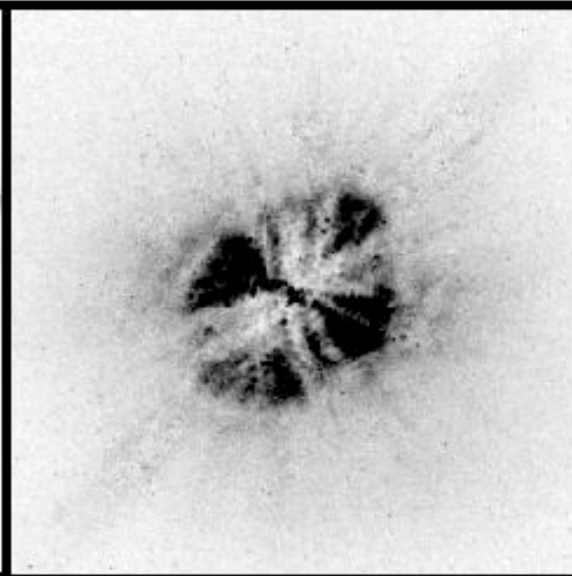


3C 273 with Altair and HST

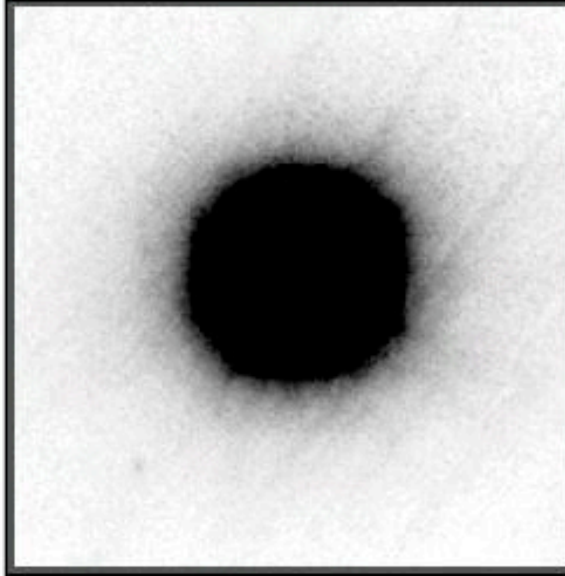
WFPC2



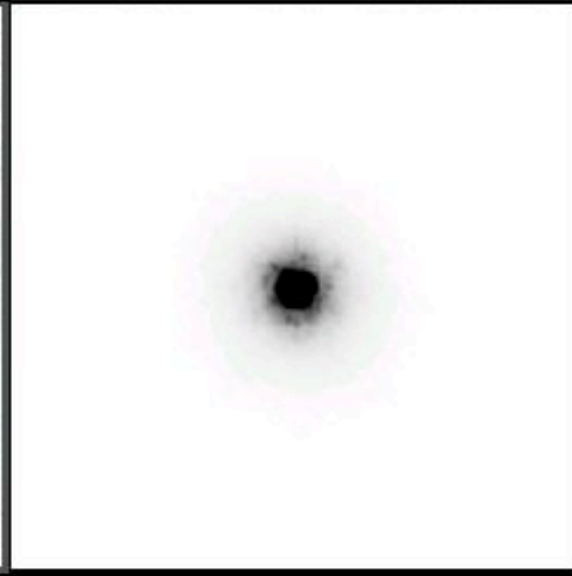
ACS



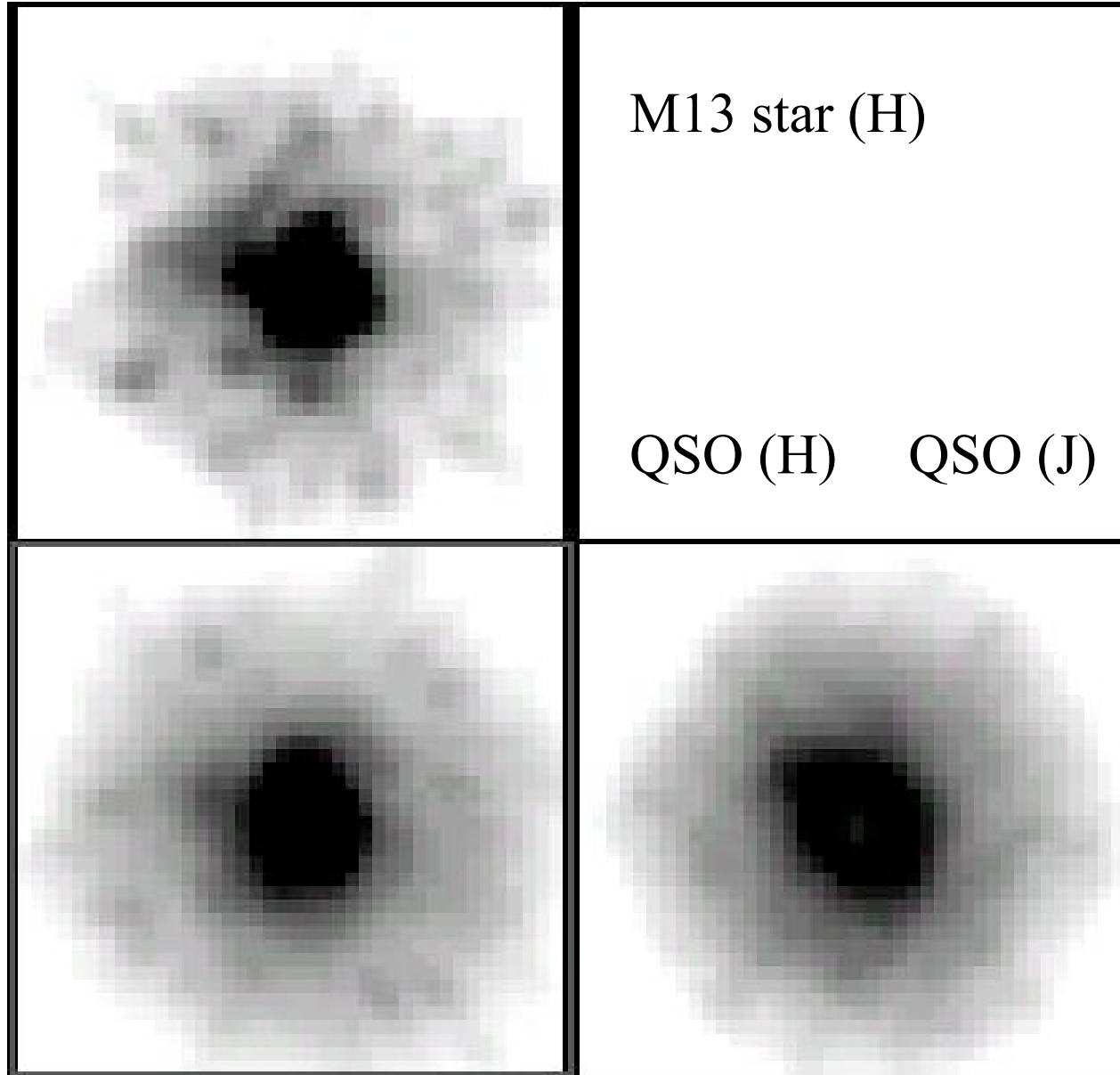
J



H

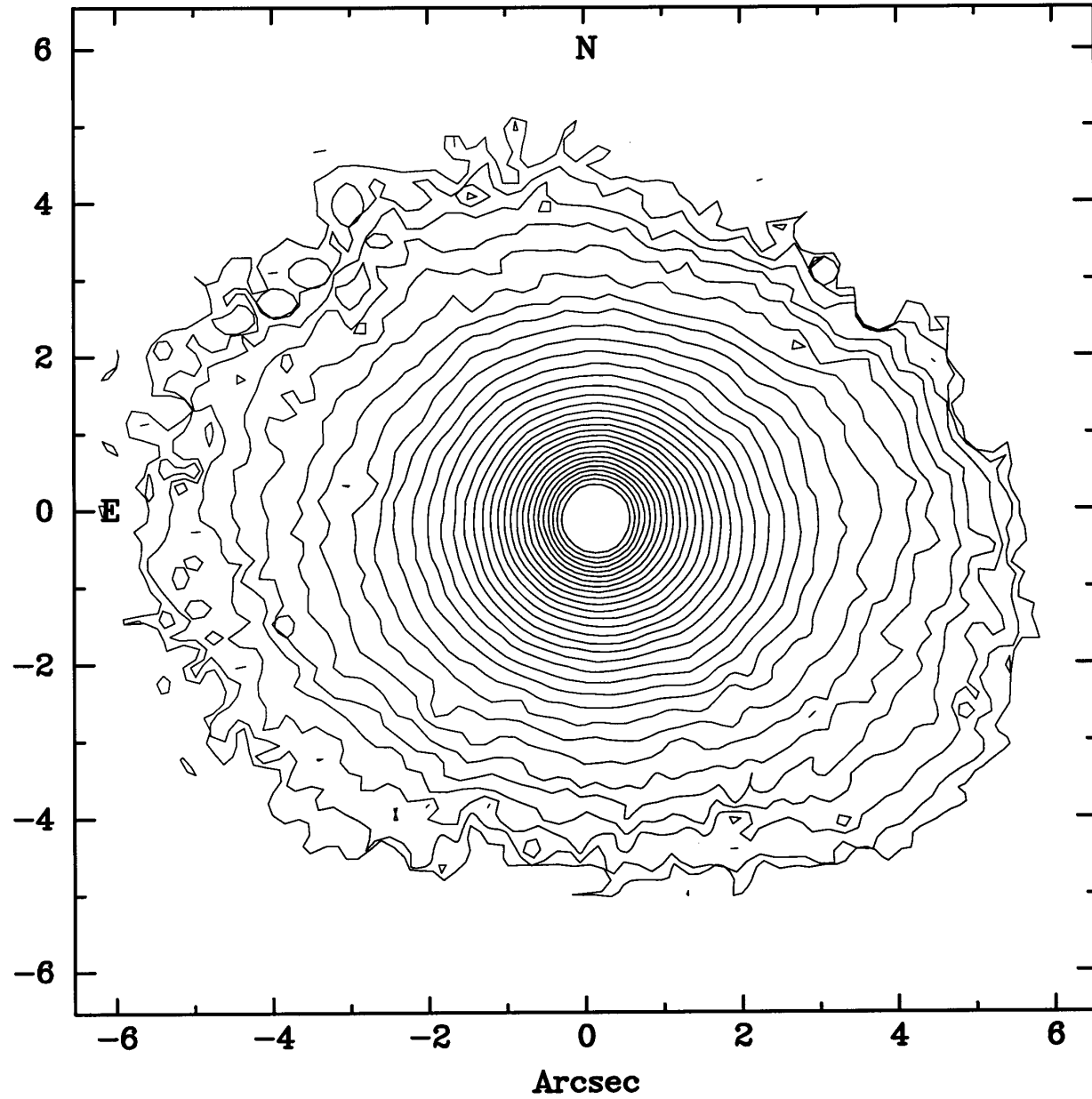


PSF structures: inner 0.8''

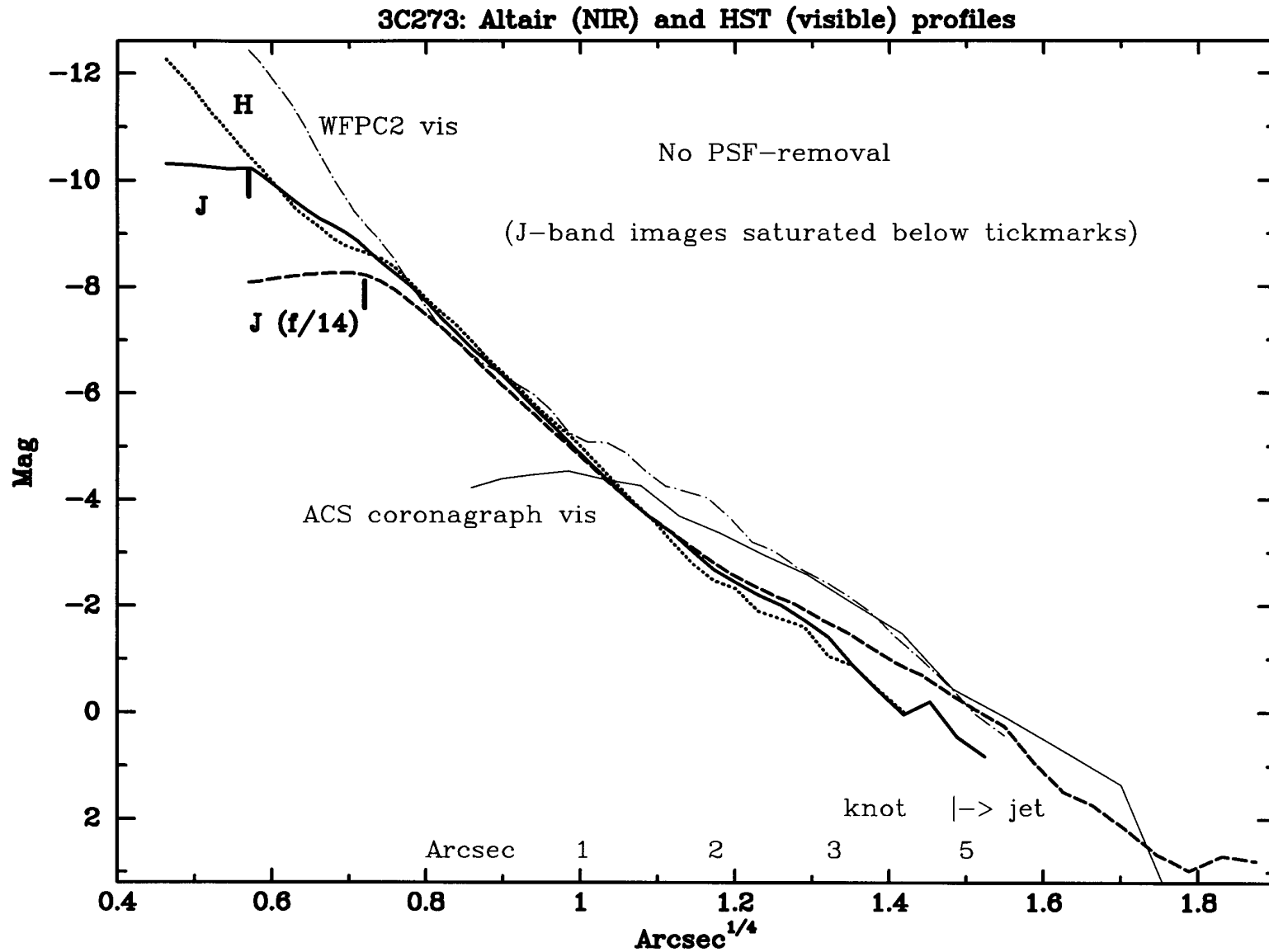


J-band contours

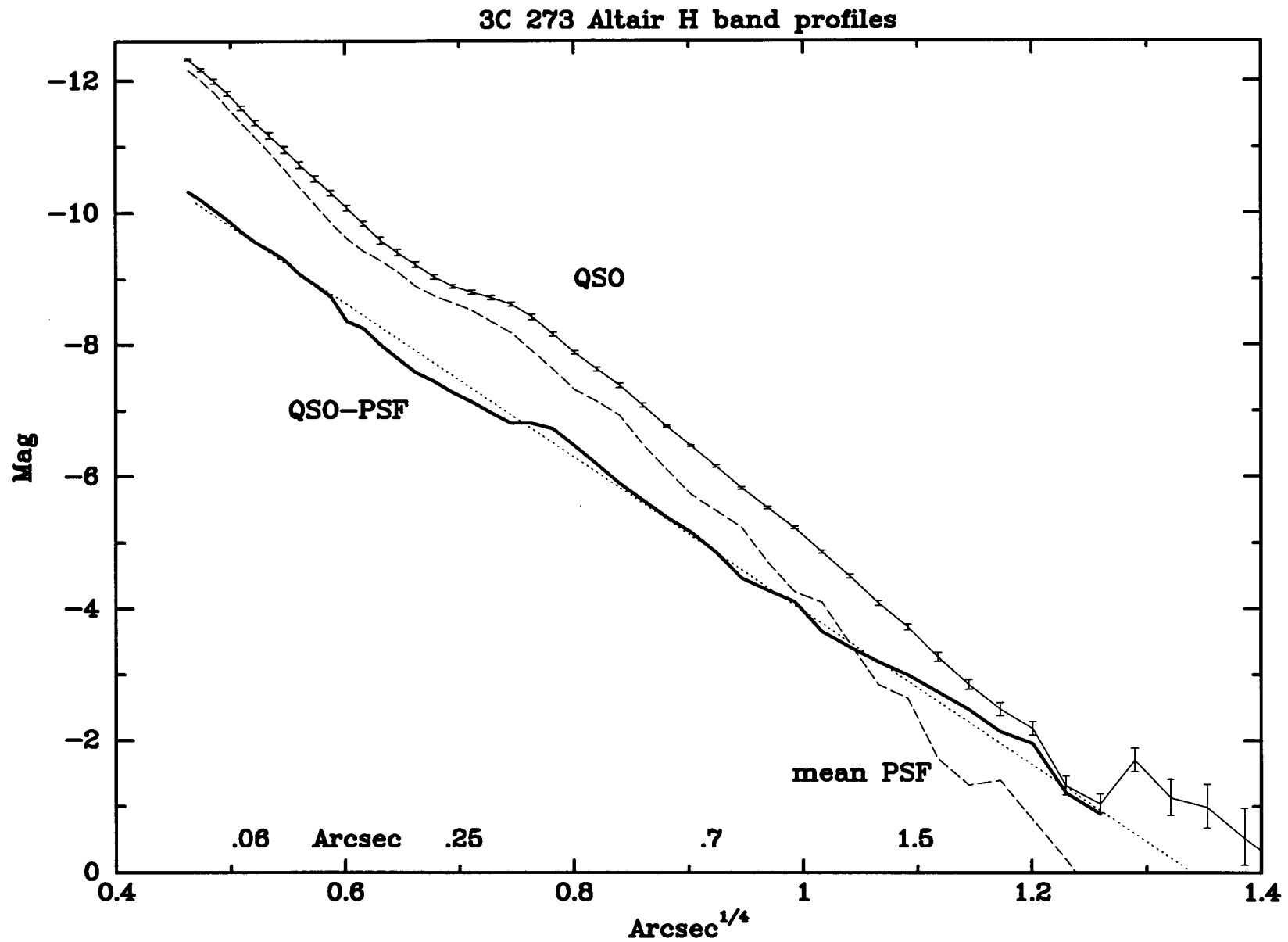
3C 273 J band



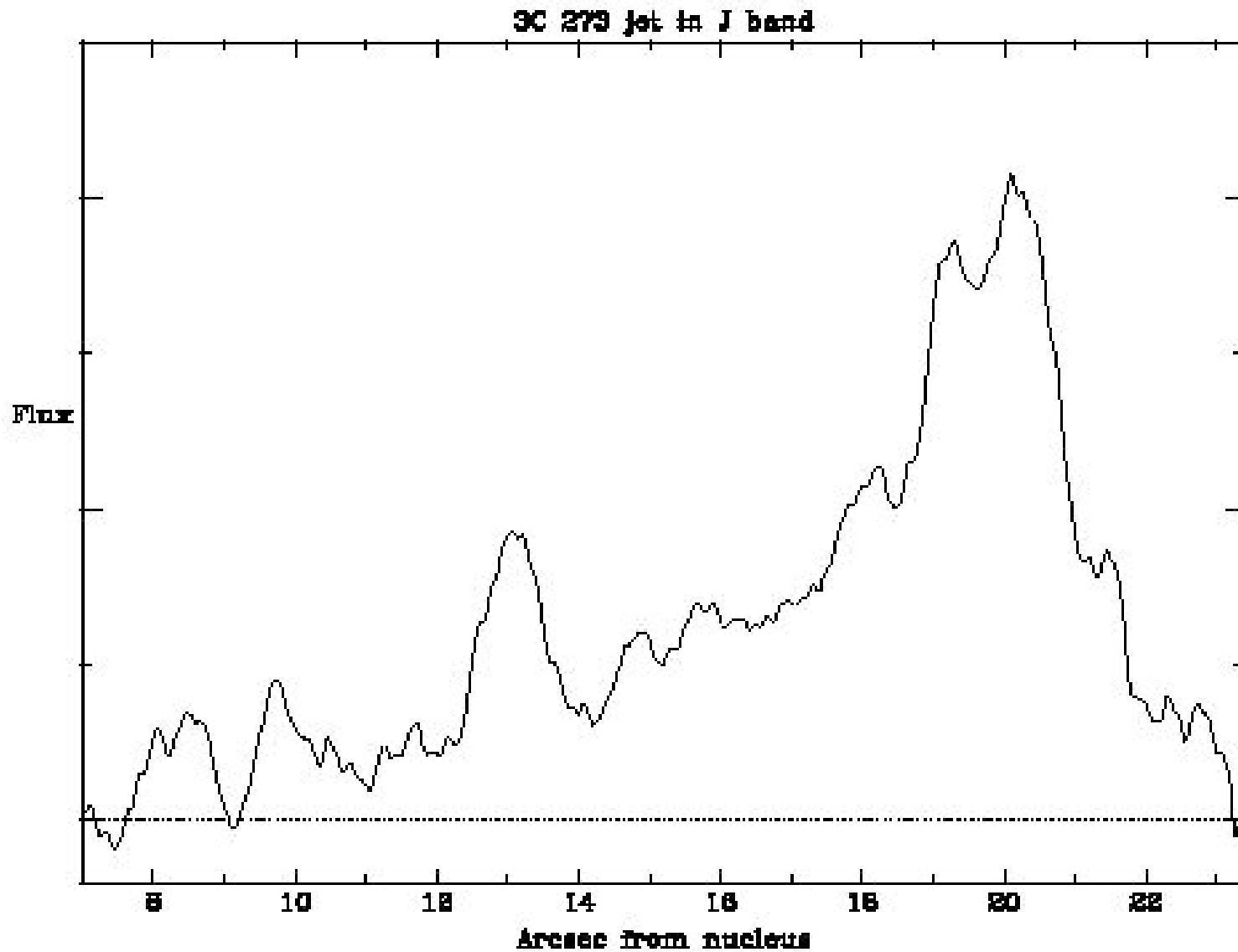
Azimuthally averaged profiles



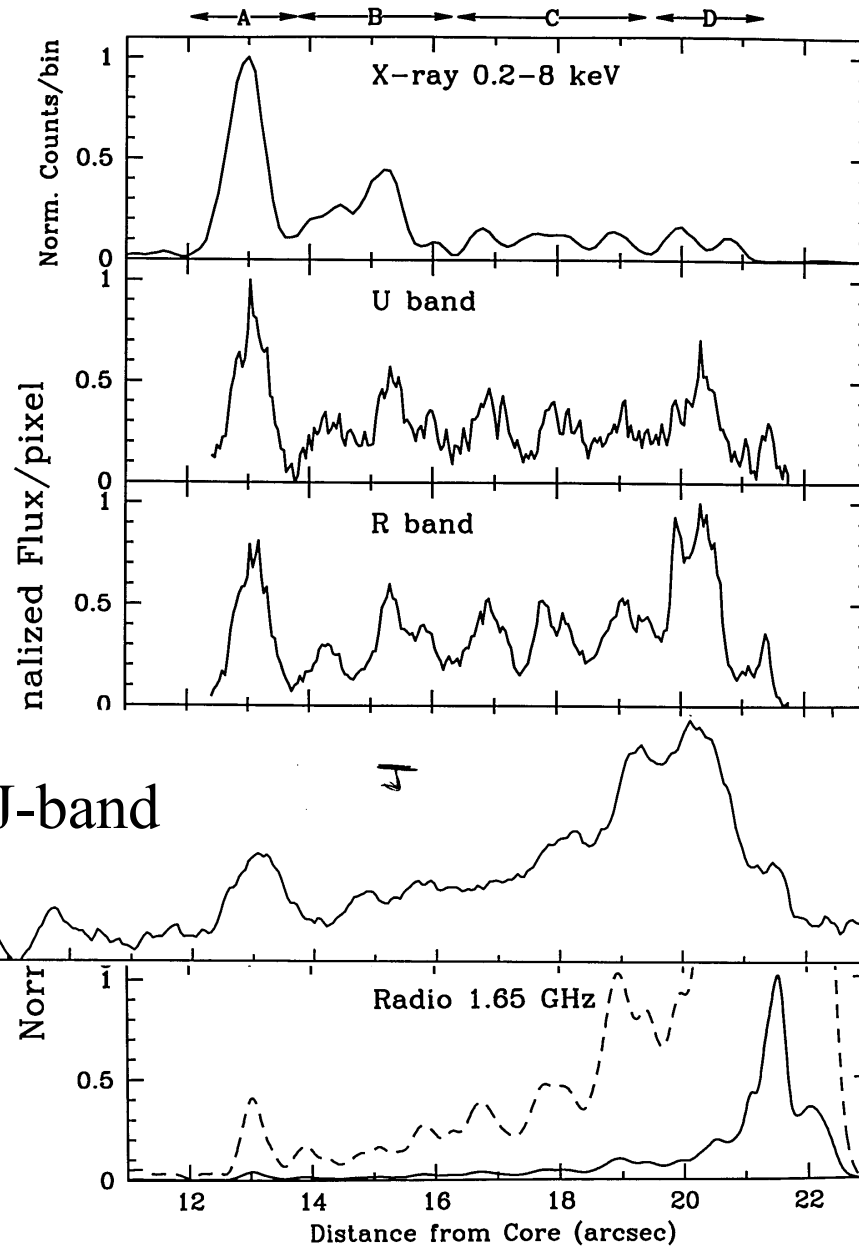
H band PSF-subtraction



J-band jet profile not previously mapped
Fills gap from R to K', in trend seen from X-ray to radio



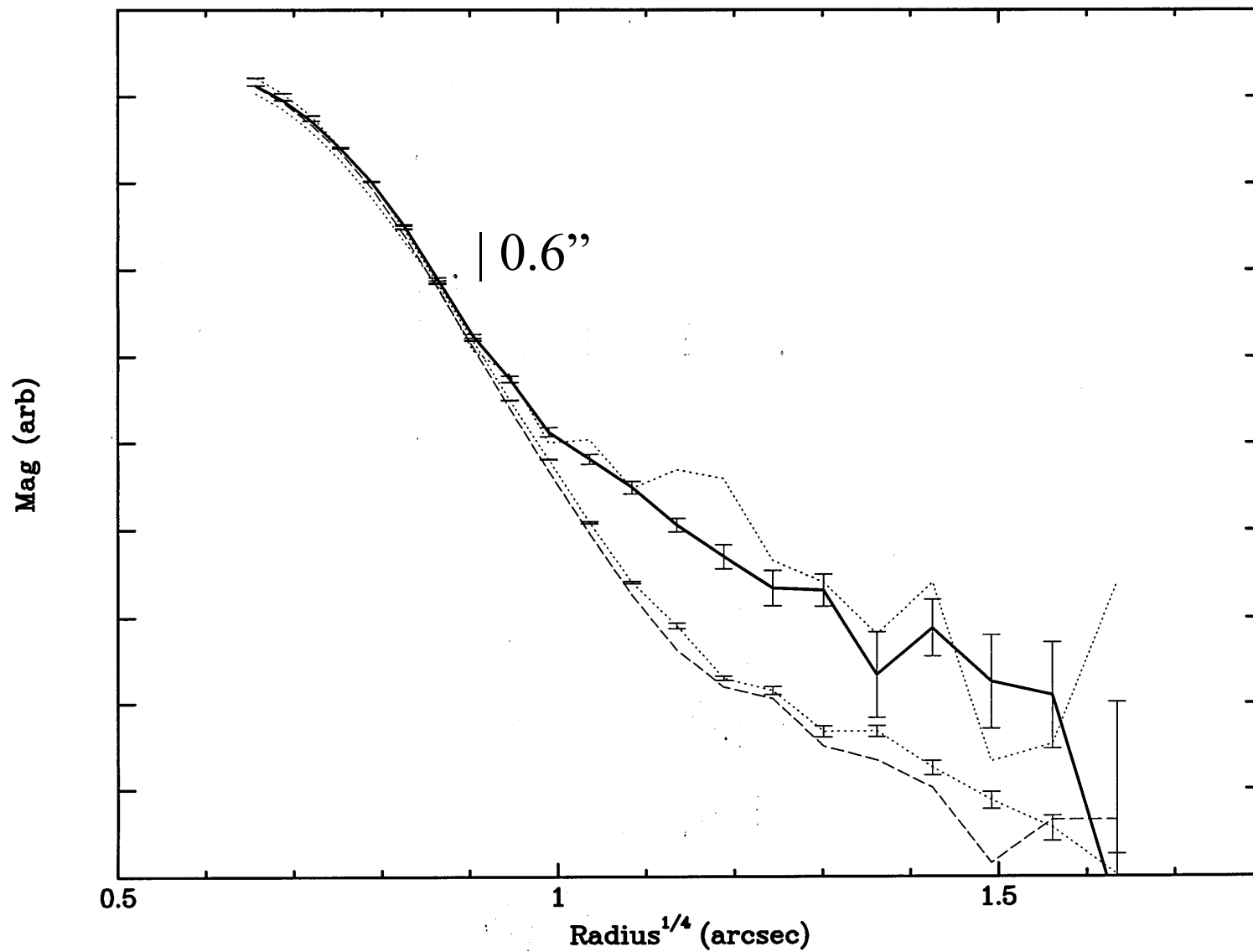
Jet profile changes with wavelength



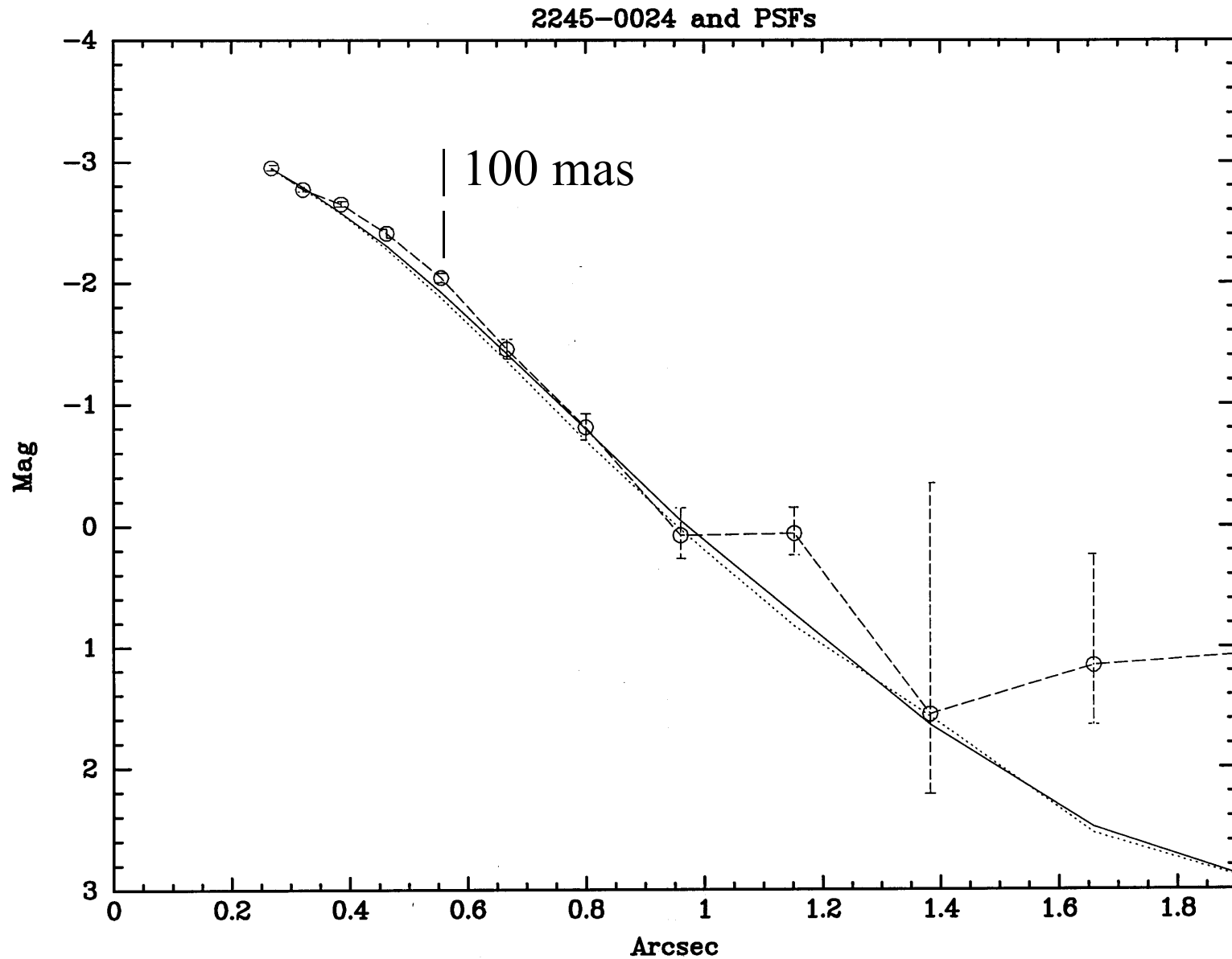
Conclusions

- 3C 273 resolved profile to 40mas radius
- Approx spheroidal profile to 2.5 arcsec
- Host galaxy colour gradient with radius
- Knot and arc seen in J band
- Host galaxy $M_H -22.6$
- J-band jet profile fills wavelength gap
- Proper PSFs will improve all results

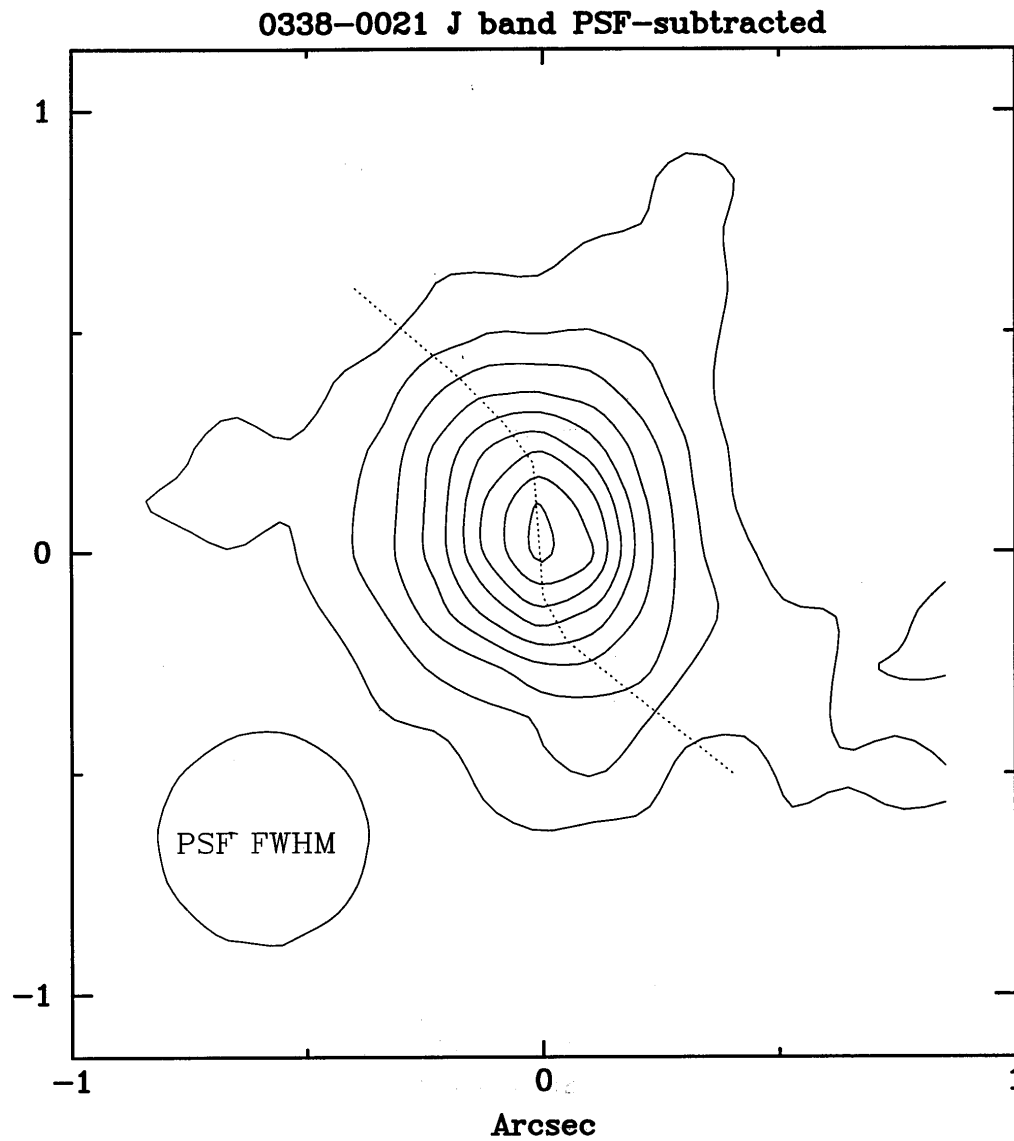
Non-AO imaging of z=5 QSO



Z=5 w/o AO: inner structure needs resolution



Inner structure of $z=5$ QSO w/o AO



BH and bulge formation at $z = 5$?

