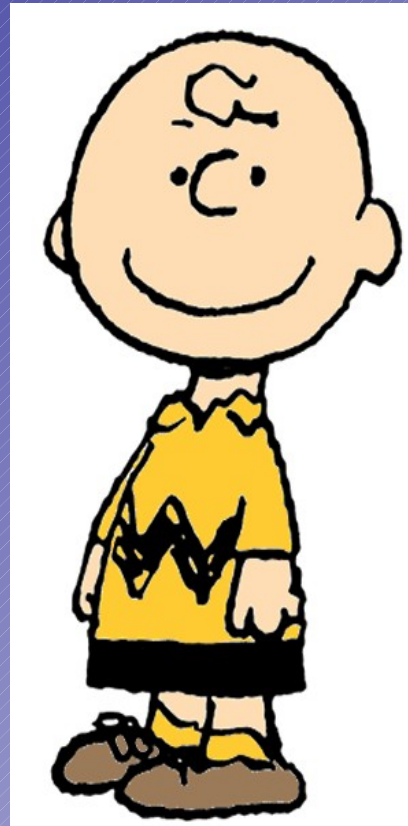
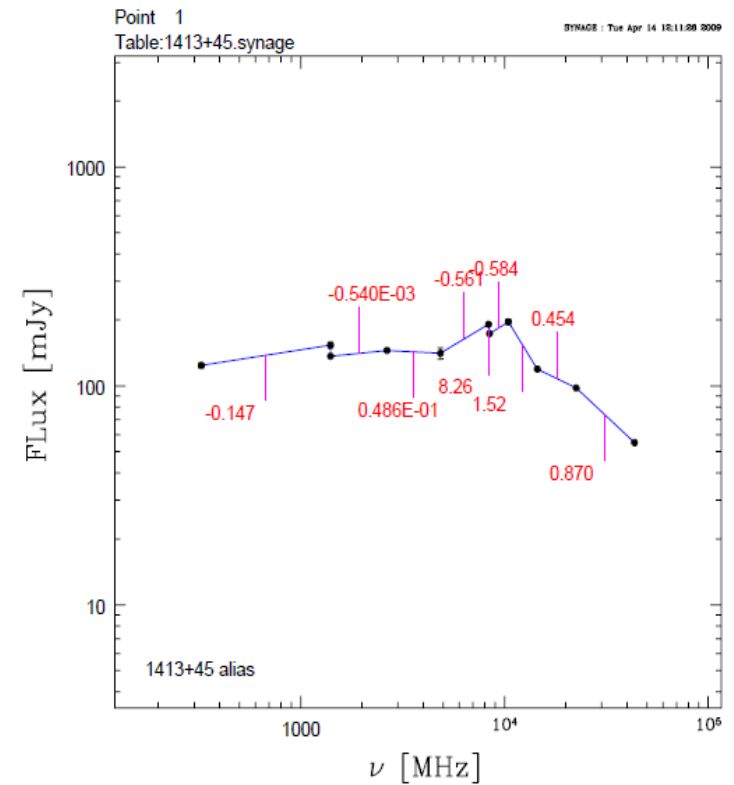


News on Charlie



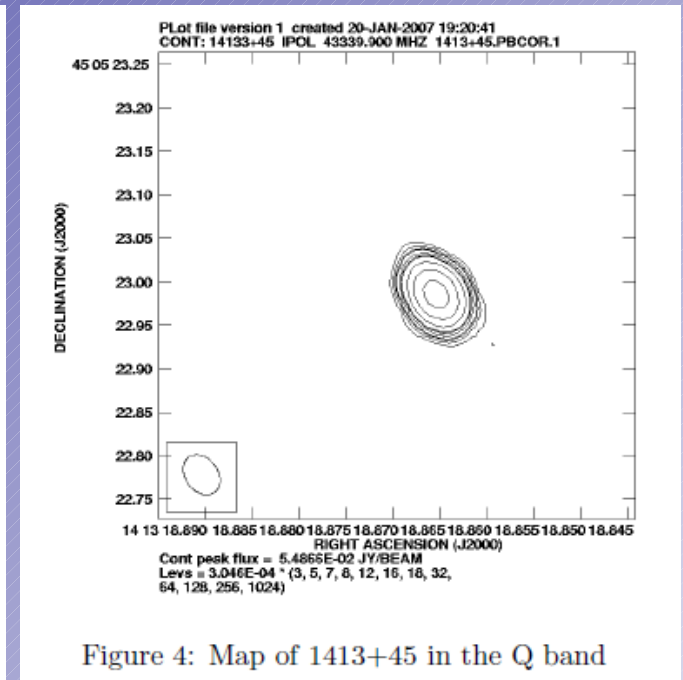
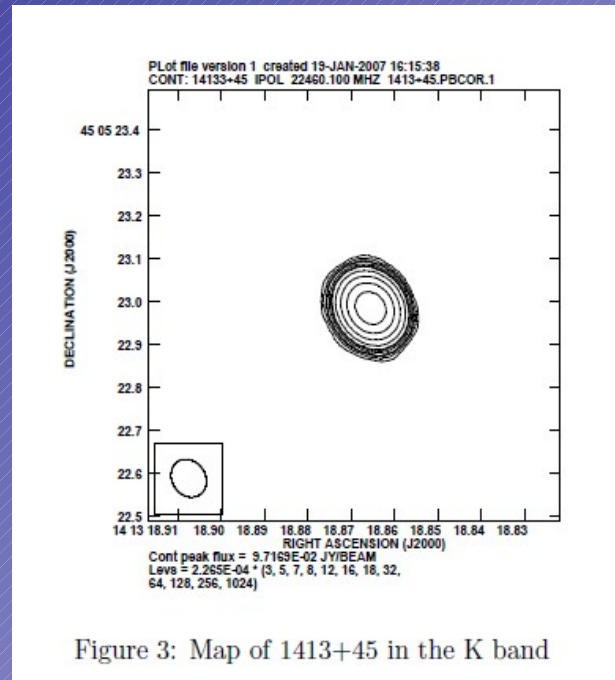
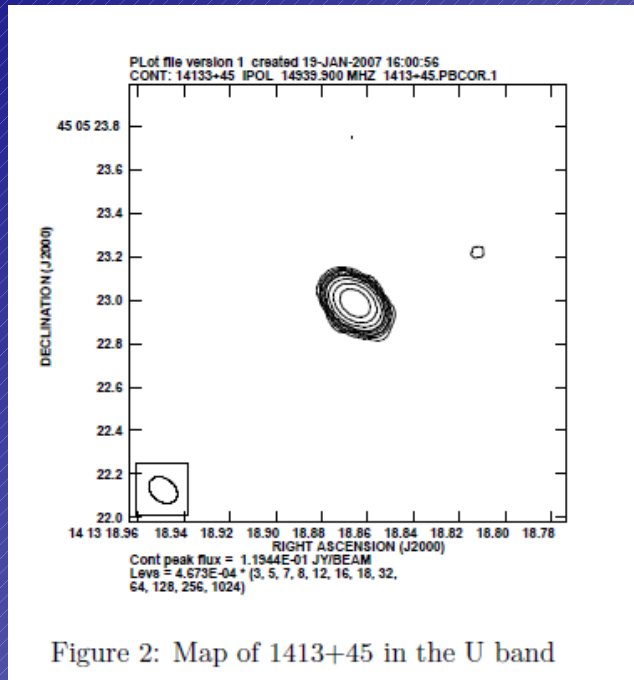
Collected data:

- Effelsberg 2005 - 2006
- Surveys (WENSS, FIRST, NVSS)
- VLA 2006
- VLBA 2007



SED of 1413+45

VLA maps



VLBA maps

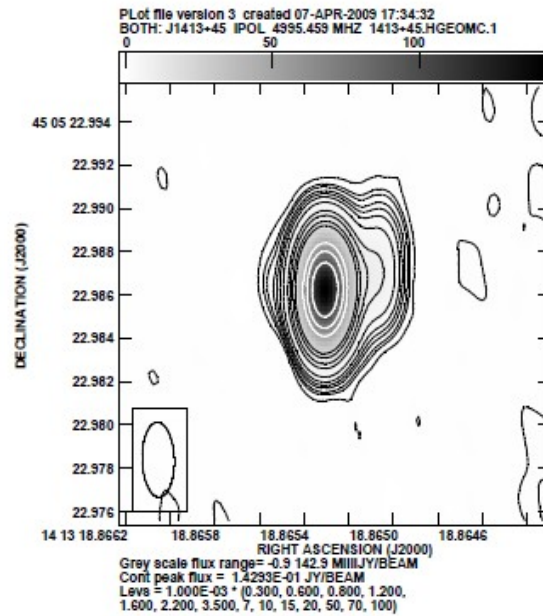


Figure 5: Map of 1413+45 in the C band

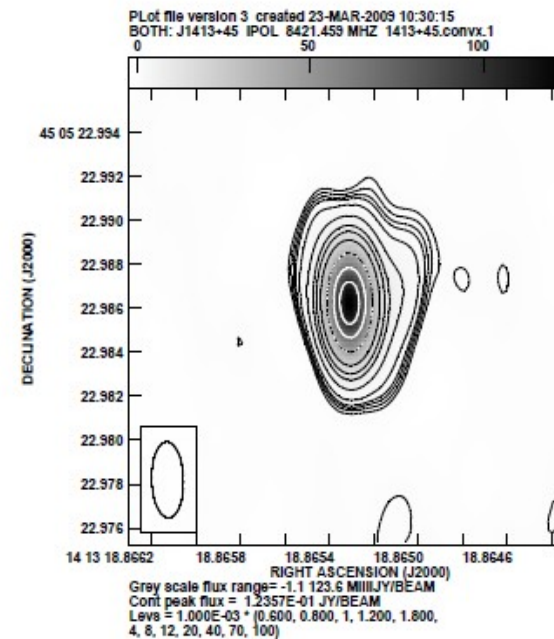
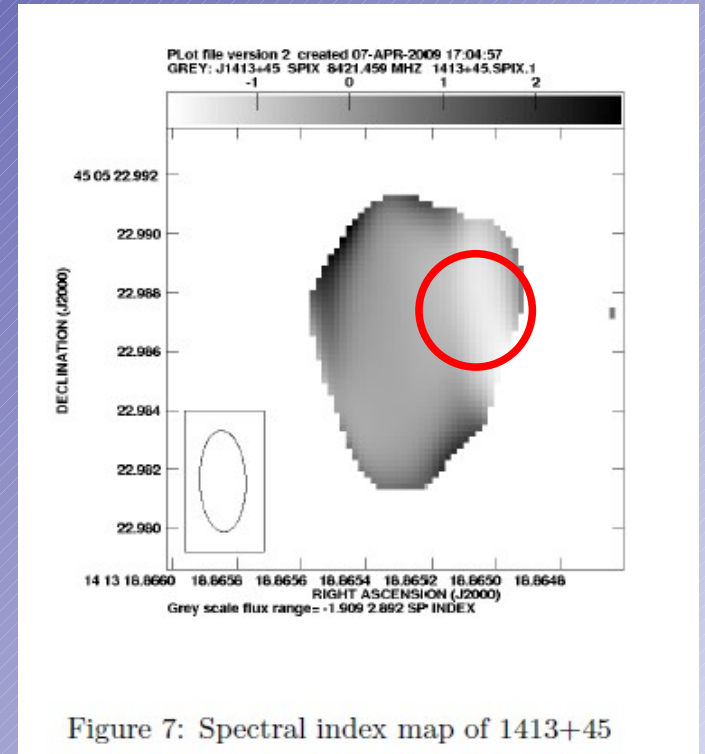


Figure 6: Map of 1413+45 in the X band

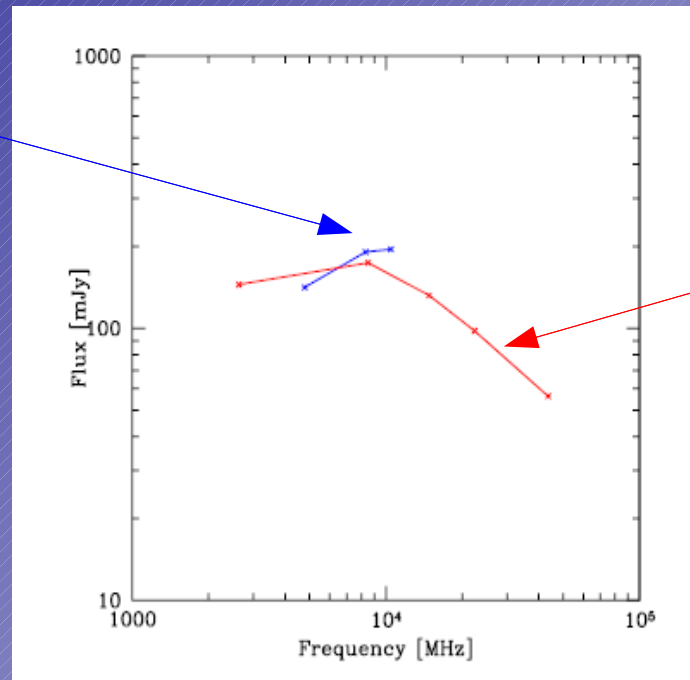
- Region with $\alpha = -1.05$
possible old component
- Central region with $\alpha = -0.23$
Principal emitter at high frequency

$$S = \nu^\alpha$$

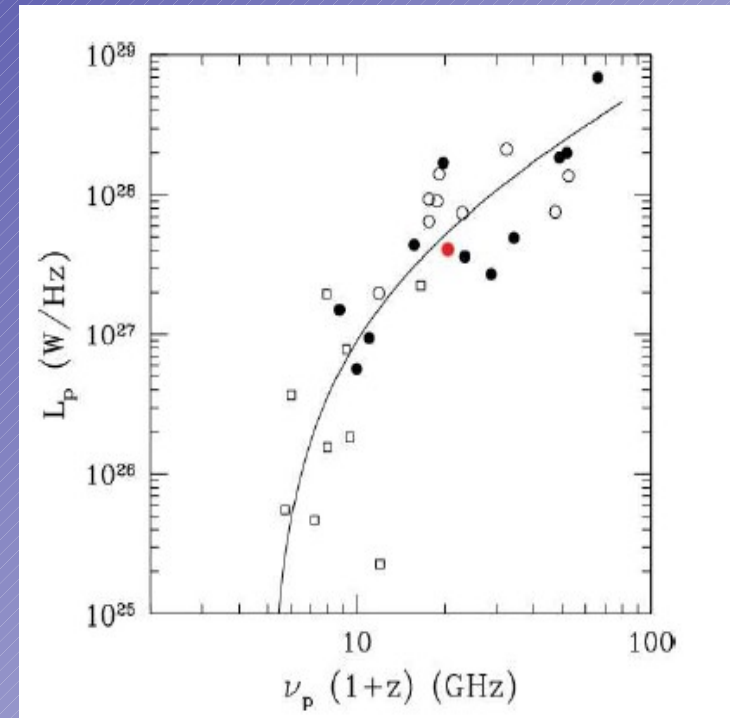
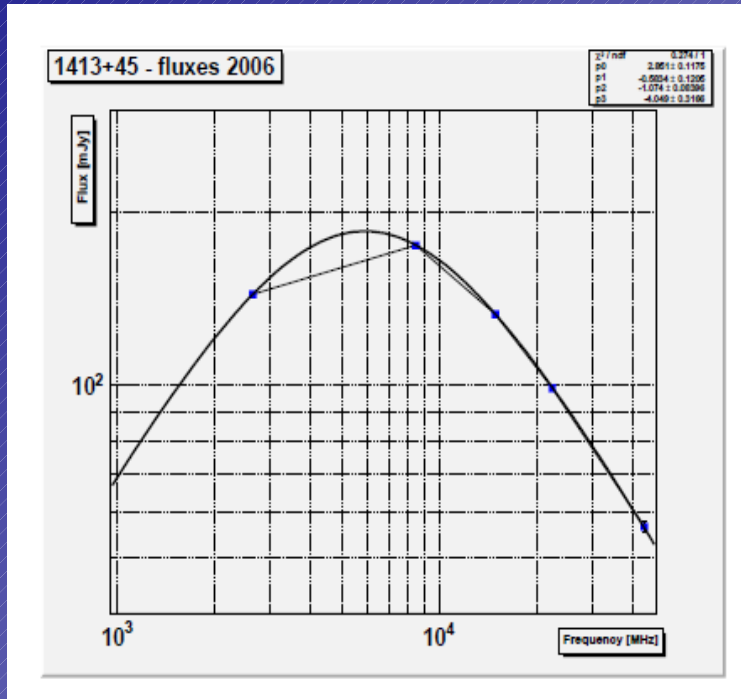


Variability

Effelsberg 2005



2006 VLA + Effelsberg



Tinti et al. 2005

Following the method of Tinti et al.:

- $\Delta\nu = 4567$ MHz
- $Q = 0.43$ GHz/yr

$$Q = \frac{\Delta\nu_p}{\nu_p \cdot \Delta t}$$

Since $Q > 0.05$ Charlie is probably a blazar whose observed evolution time-scale is decreased by the Doppler effect

Age

- Using 2006 data is possible to calculate the age of the source using the break frequency method
- Before it's necessary to calculate B with equipartition model and synchrotron emission hypothesis (Govoni & Feretti 2004)

$$u_{min}[\frac{erg}{cm^3}] = \xi(\alpha, \nu_1, \nu_2)(1+k)^{4/7}(\nu_{0[MHz]})^{4\alpha/7}(1+z)^{(12+4\alpha)/7} \times \\ \times (I_0[\frac{mJy}{arcsec^2}])^{4/7}(d[kpc])^{-4/7}$$

$$B_{eq} = (\frac{24\pi}{7}u_{min})^{1/2}$$

Frequency (MHz)	Maj axis (mas)	Min axis (mas)	Integral flux density (mJy)	B value (μG)
4995.459	3.5025 $\pm$ 0.0056	1.7283 $\pm$ 0.0028	164.01 $\pm$ 0.44	2280.47
8421.459	1.9995 $\pm$ 0.0031	1.0788 $\pm$ 0.0017	136.26 $\pm$ 0.33	3673.06

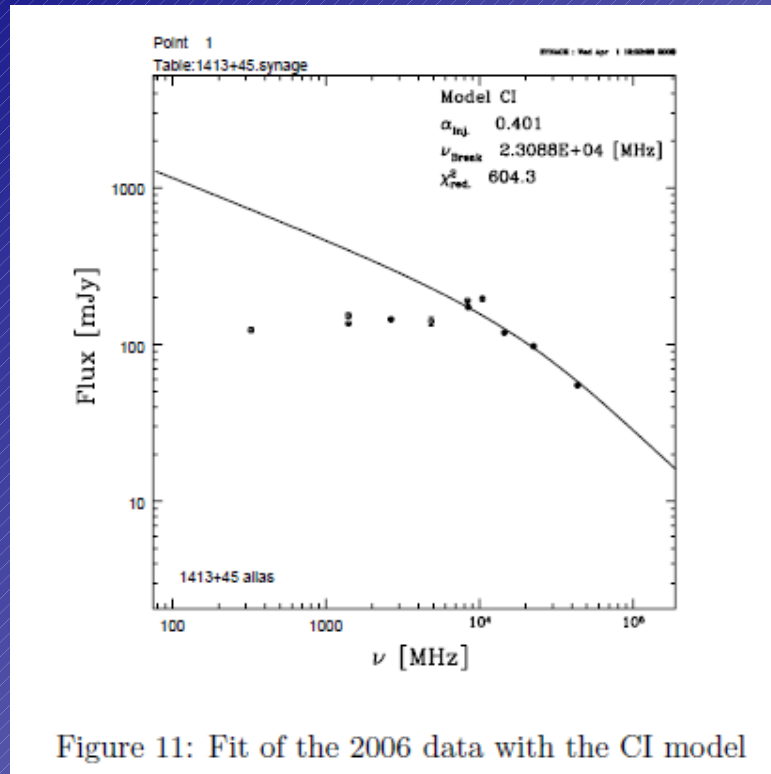


Figure 11: Fit of the 2006 data with the CI model

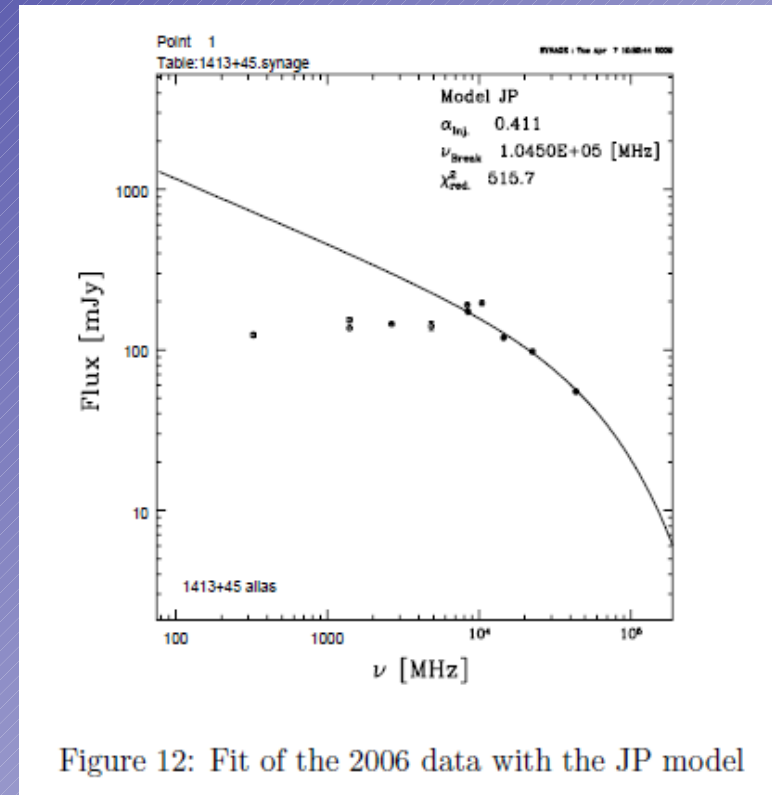


Figure 12: Fit of the 2006 data with the JP model

Model	C Band (Myr)	X band (Myr)
CI	1.4985×10^{-3}	7.3334×10^{-4}
JP	7.0436×10^{-4}	3.4470×10^{-4}

Thank you!

