

Recent Multiwavelength Campaigns on 3C 279

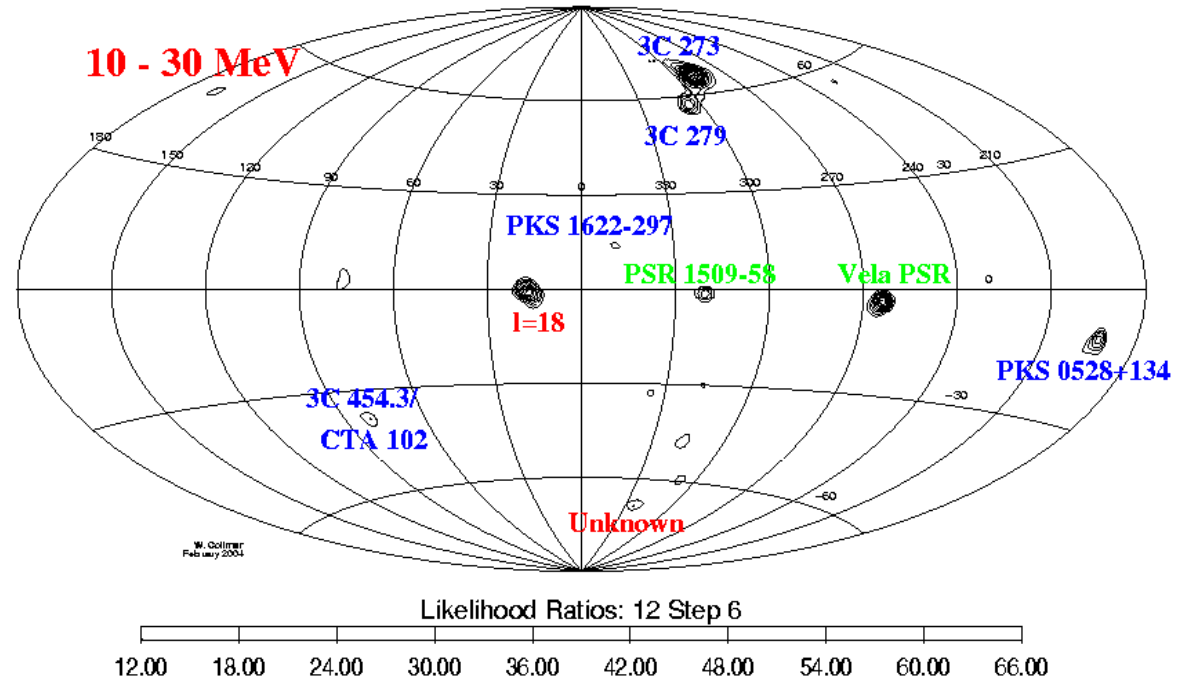
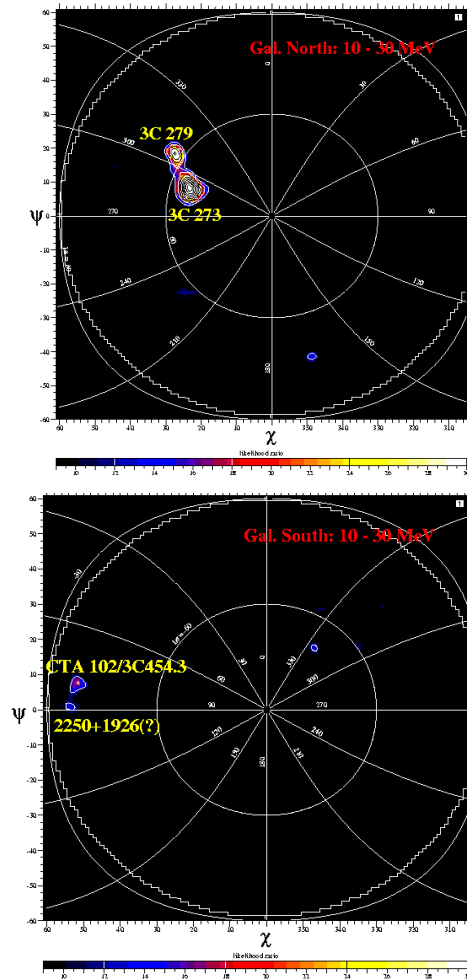
Werner Collmar

**Max-Planck-Institut für extraterrestrische Physik
Garching, Germany**

Outline

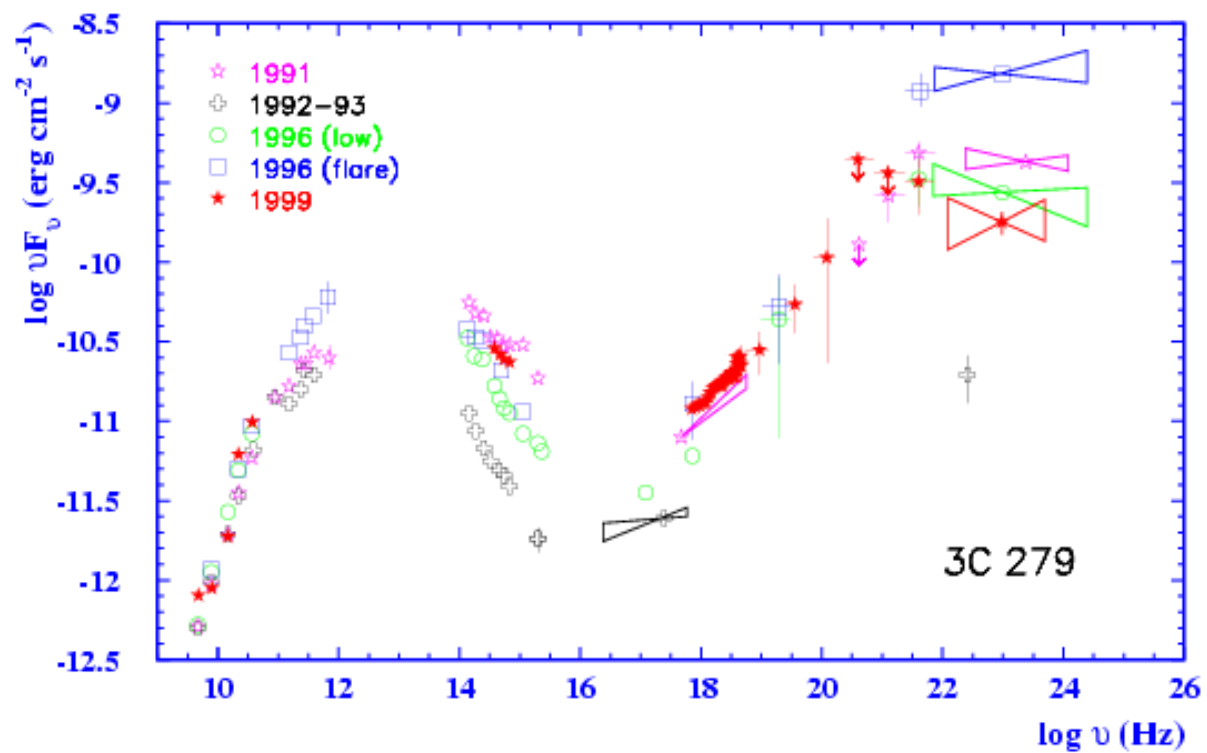
- 1) CGRO History**
- 2) The Campaign in June 2003**
- 3) The Campaign in January 2006**

COMPTEL All-Mission All-Sky Point Source Map



Goal: 2nd COMPTEL Source Catalog

3C 279: simultaneous MW-Spectra during CGRO era



The June 2003 Campaign

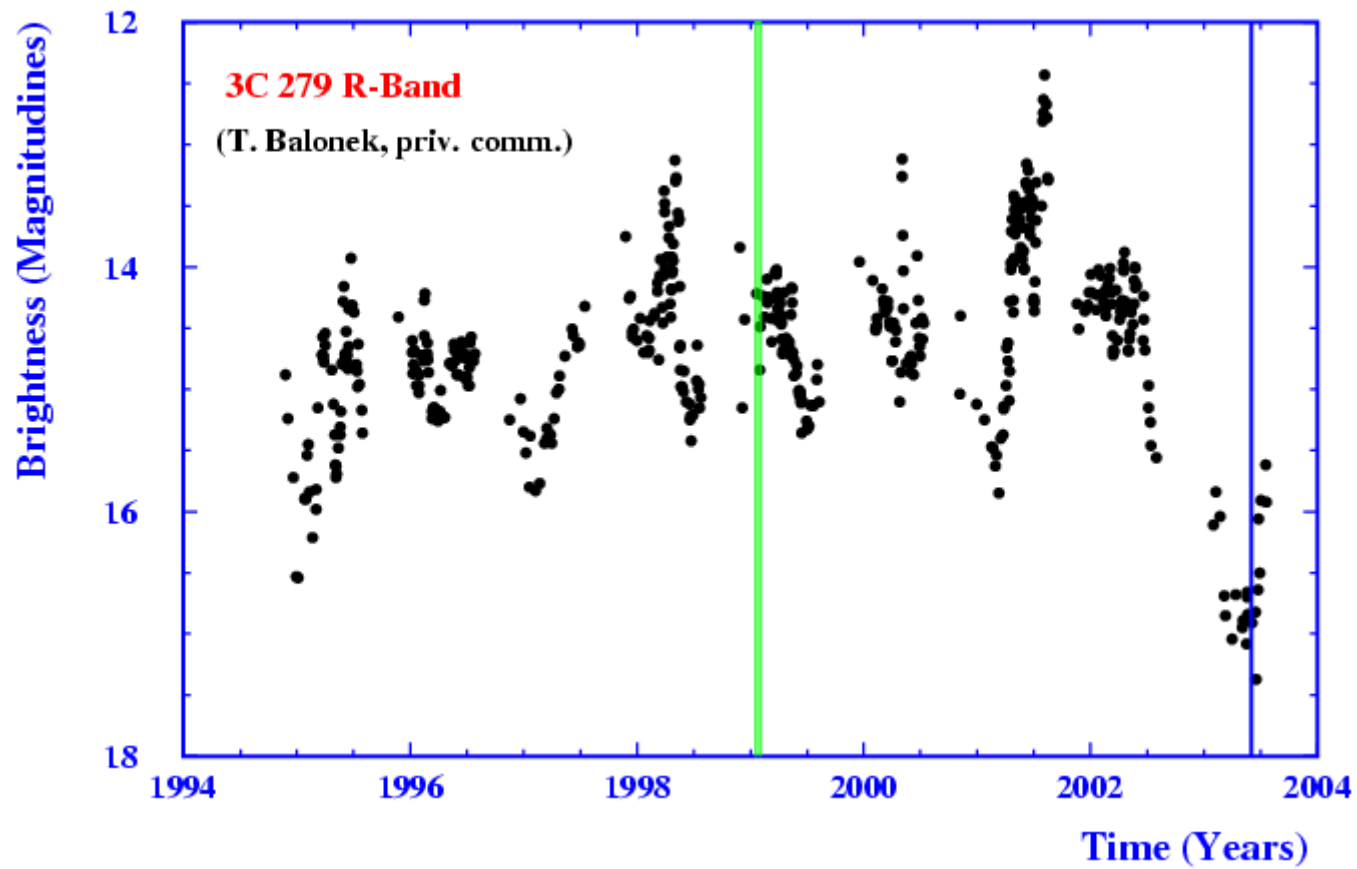
A multiwavelength campaign was organised around a regular INTEGRAL PI observation of 3C 279 in June 2003

Participants:

- hard X-rays: INTEGRAL, June 1 – 5, 2003; 300 ksec**
- X-rays: Chandra, June 2, 2003; 5 ksec**
- opt. & near IR: Siding Spring Obs. (2.3m), NOT (2.56m),
Tuorla Tel. (60 cm)**
- mm & radio: IRAM (30m), ESO SEST, VLBA,
Metsähovi Radio Tel.**

-Publ.: Collmar et al. 2004; Proc. 5th INTEGRAL Workshop

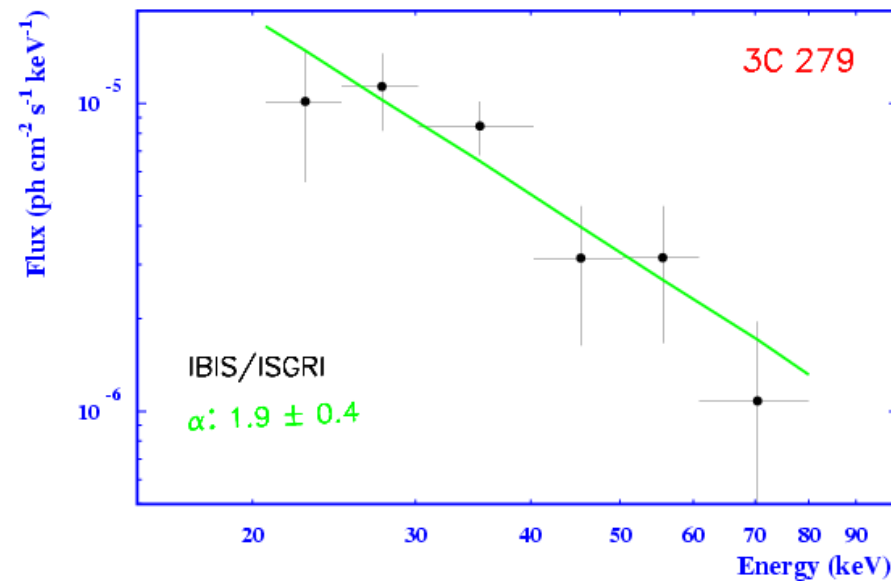
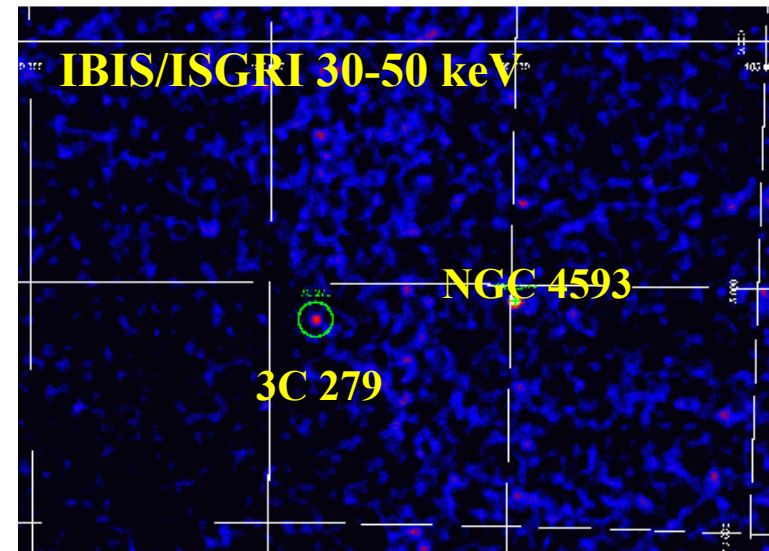
The June 2003 Campaign



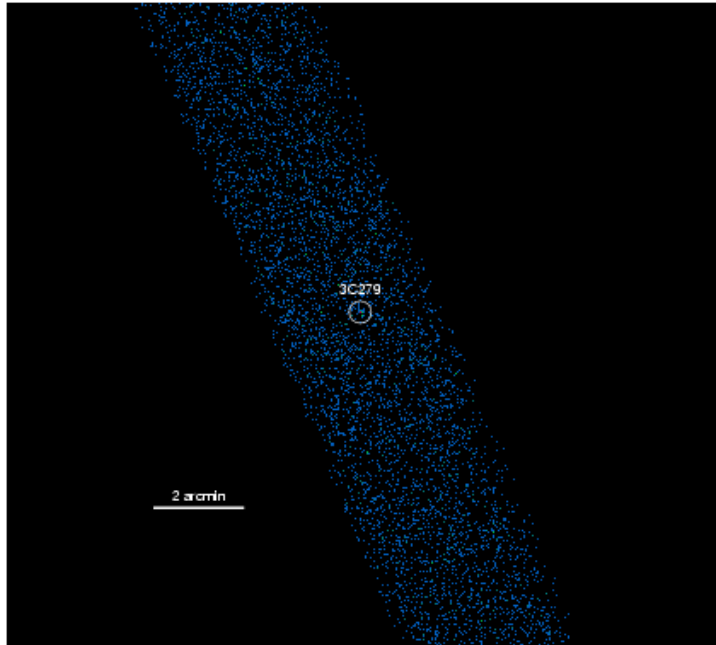
The June 2003 Campaign: INTEGRAL

300 ksec INTEGRAL:

- detection: up to 80 keV
- 30 - 50 keV: 5.4σ
- 20 - 80 keV: 6.6σ

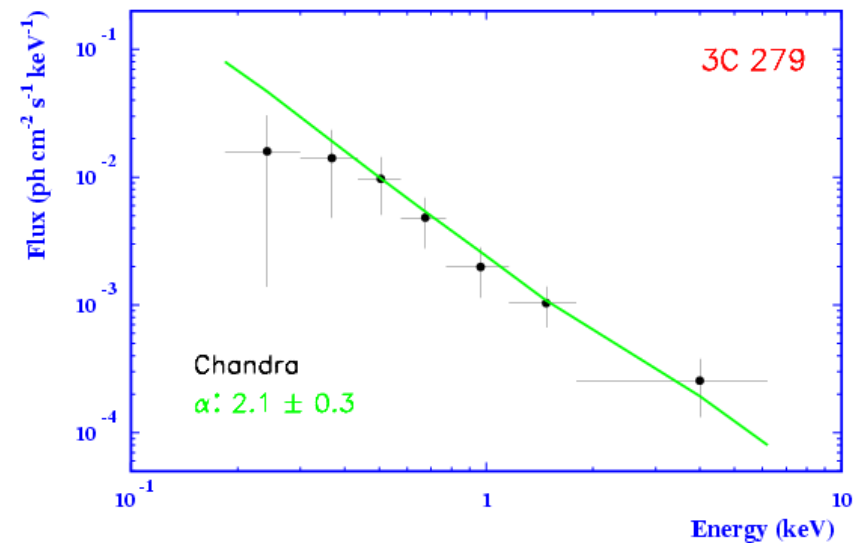


The June 2003 Campaign: Chandra

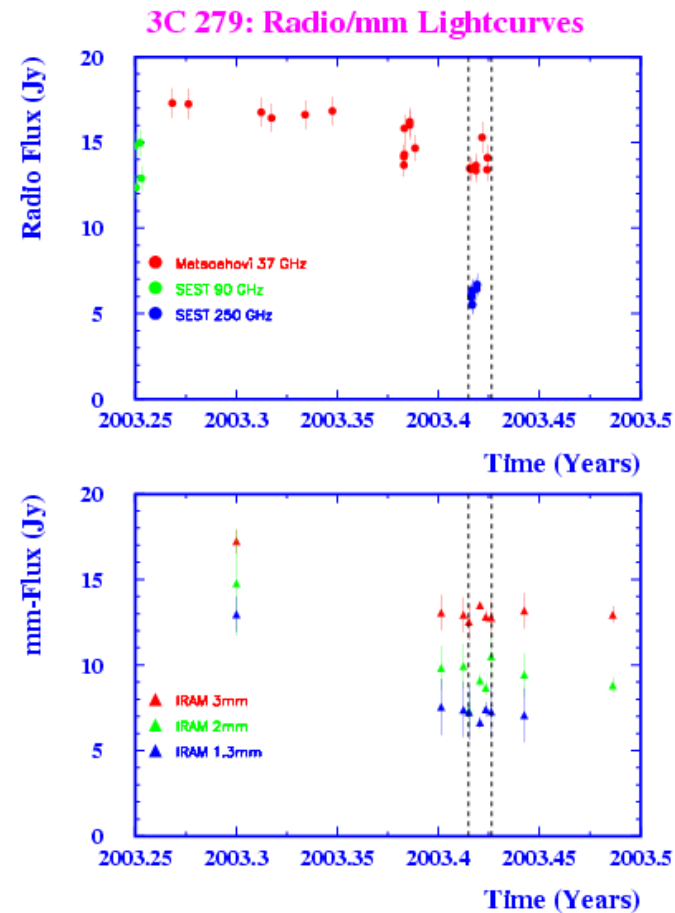
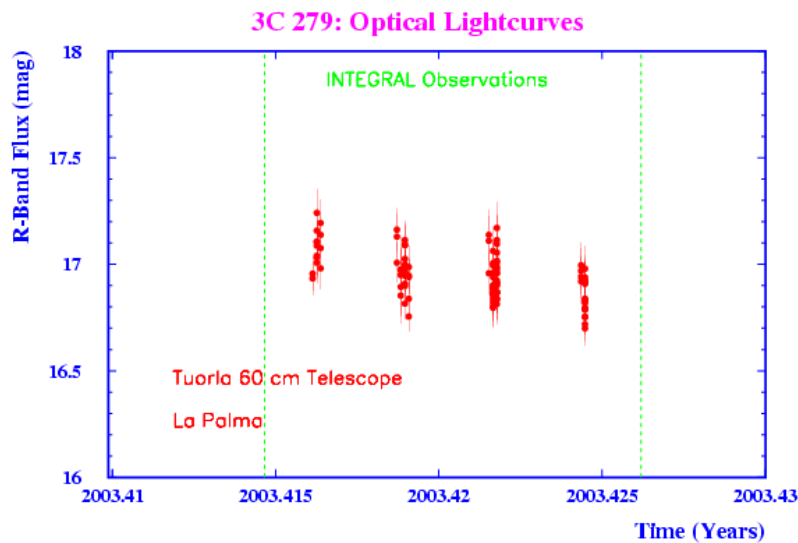


5 ksec Chandra:

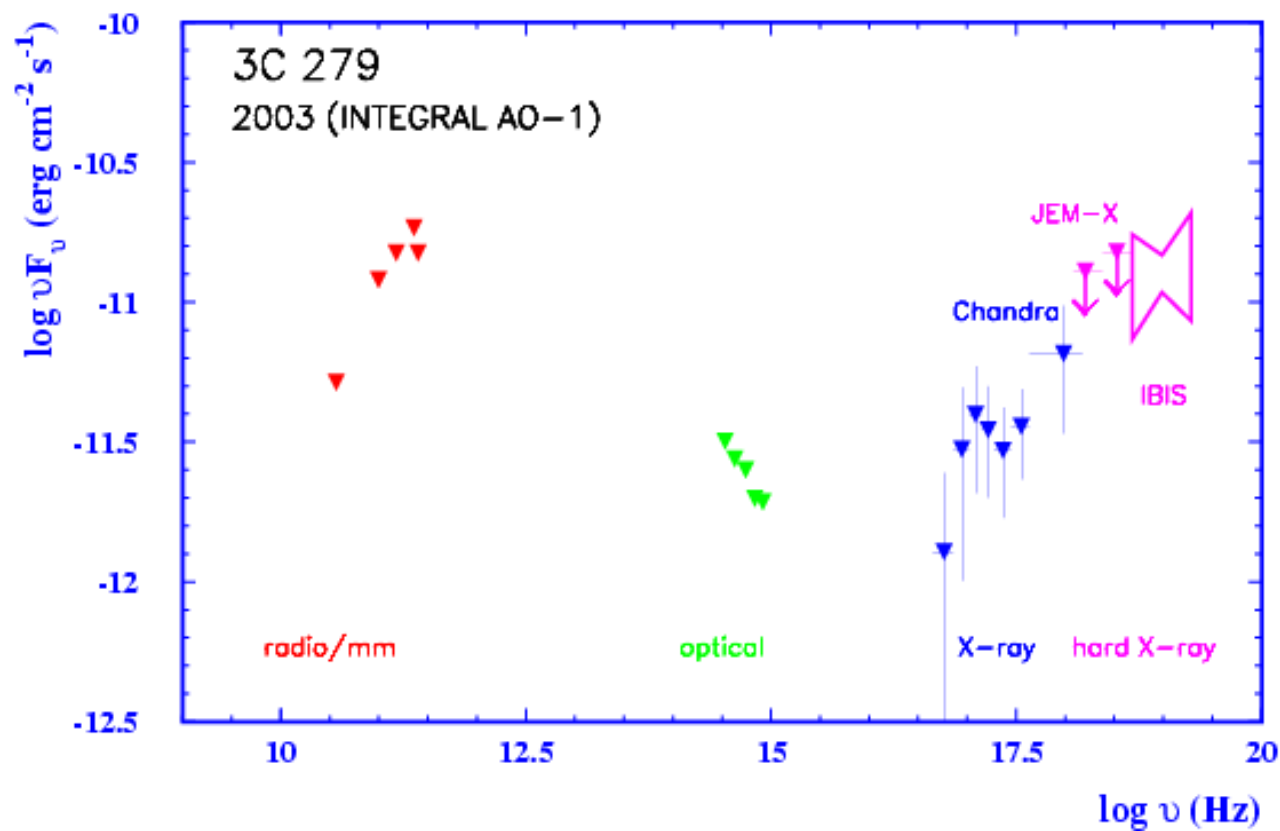
- weak source
- weakly determined spectrum (0.2 – 6 keV)



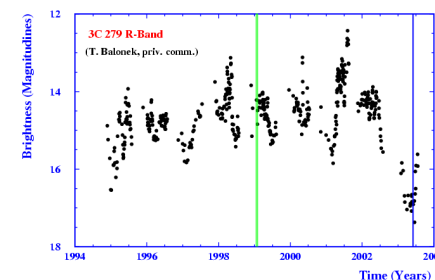
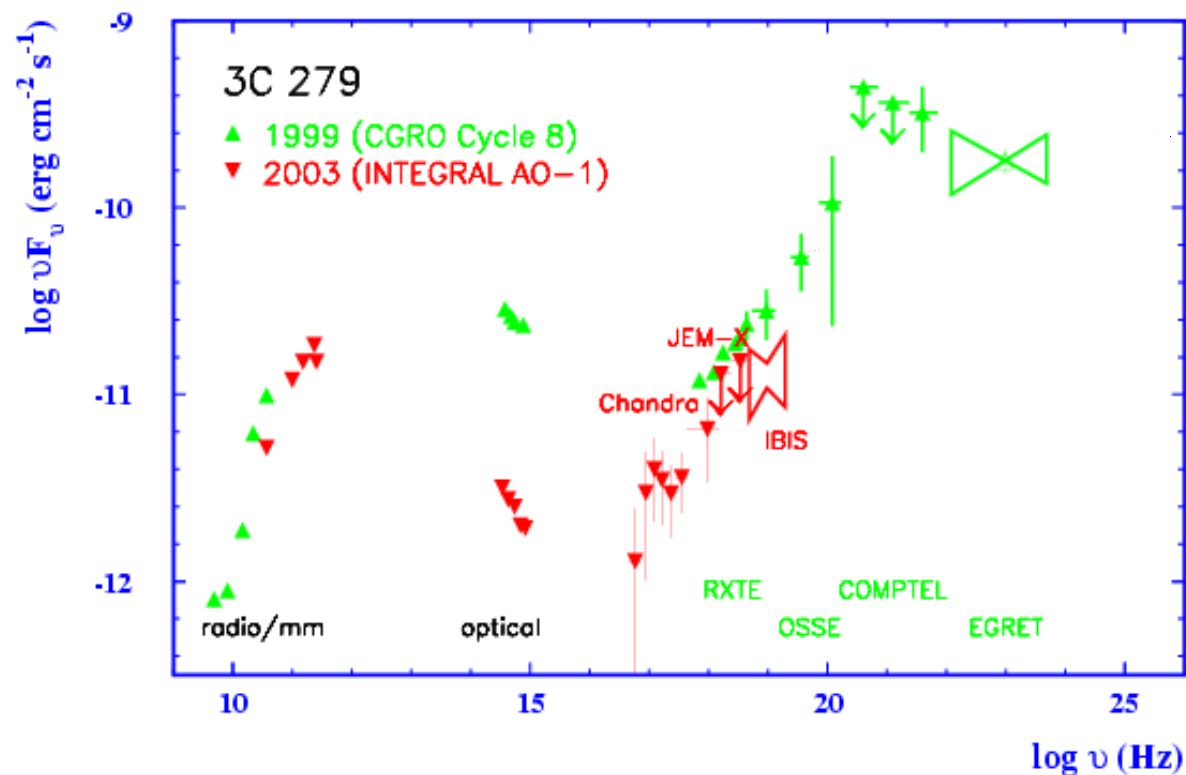
The June 2003 Campaign: Ground-based



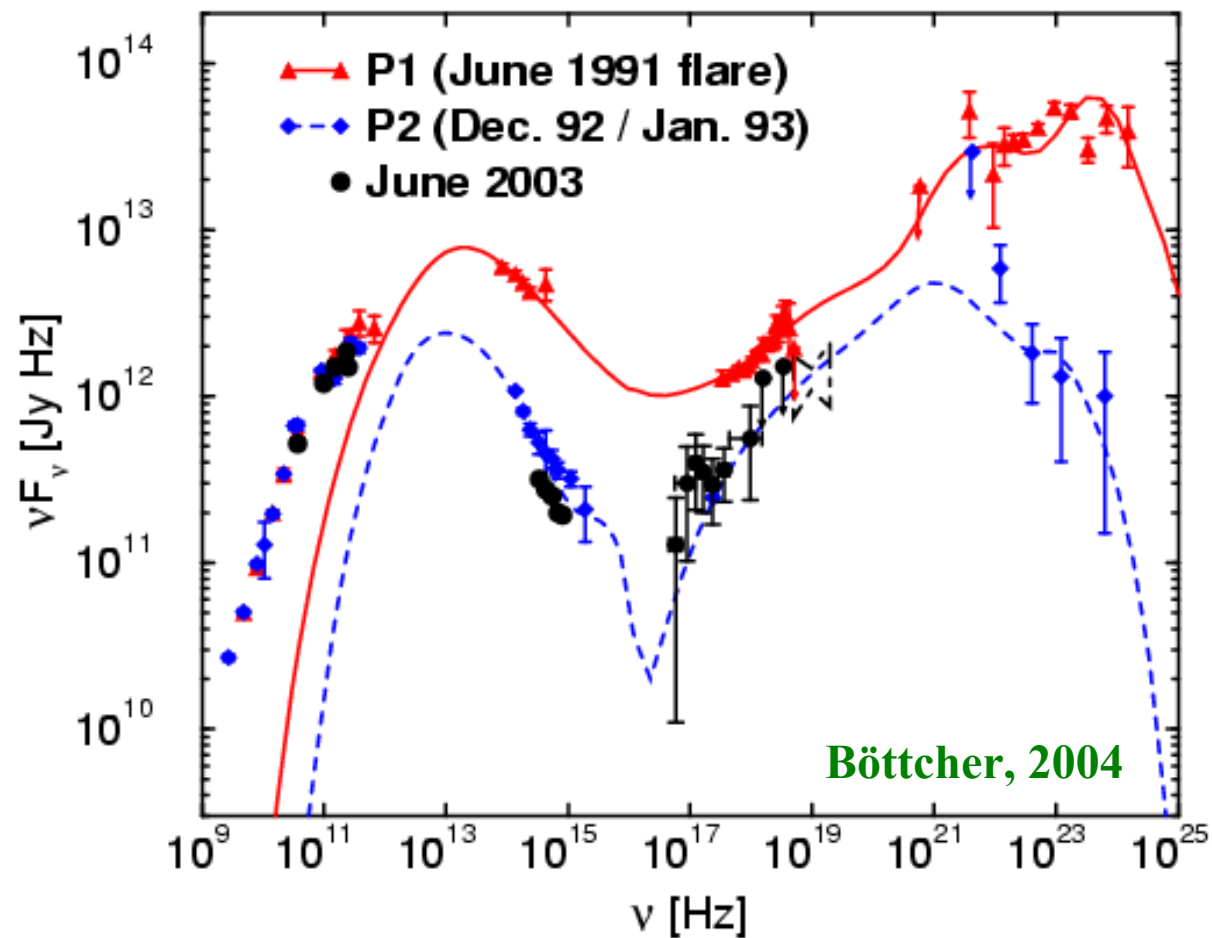
The June 2003 Campaign: MW-Spectrum



The June 2003 Campaign: MW-Spectrum



The June 2003 Campaign: MW-Spectrum



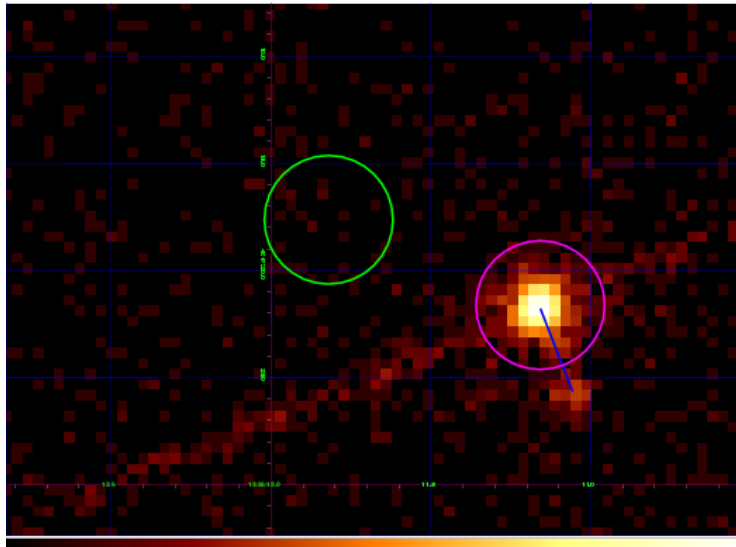
The January 2006 Campaign: Collaboration

A multiwavelength campaign was organised around an INTEGRAL TOO observation of 3C 279, triggered ($R < 14.5$ mag) in January 2006

Participants:

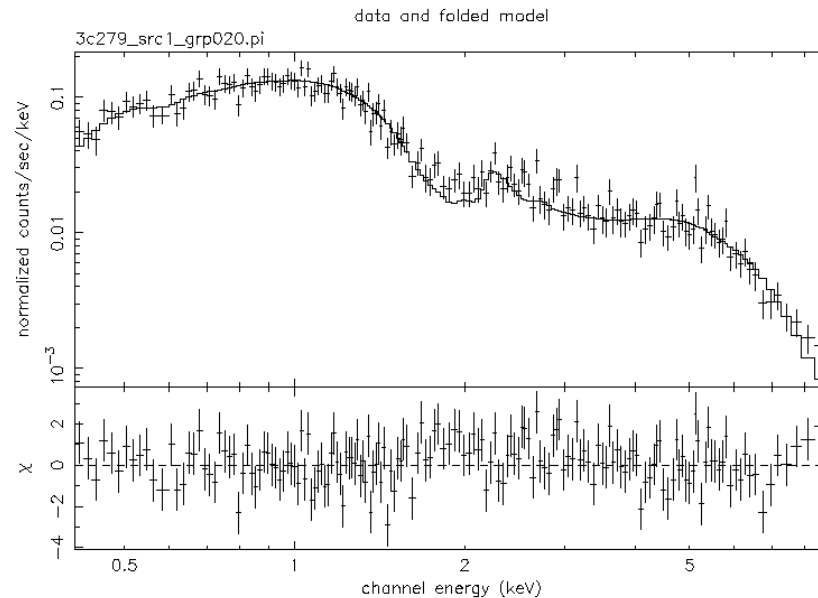
- hard X-rays:** INTEGRAL (511597 sec)
Jan. 13 00:22 UT – Jan. 15 03:03 UT (174879 sec)
Jan. 16 07:17 UT – Jan. 20 17:41 UT (322326 sec)
Jan. 22 05:13 UT – Jan. 22 09:25 UT (14392 sec)
- TeV Tel.:** were alerted but full moon (?); VERITAS looked later
- X-rays:** Chandra, Jan. 17 08:59 UT – Jan. 17 17:51 UT (30 ksec)
Swift Jan 13 00:37 – Jan. 19 01:05 UT (regularly)
- opt. & near IR:** WEBT camp. approved (Jan. 9 – end of Feb., several WEBT collaborators participated; M. Böttcher)
- IR & mm:** IRAM (30m)
- Radio:** Effelsberg, Metsähovi

The January 2006 Campaign: Chandra Preliminary !



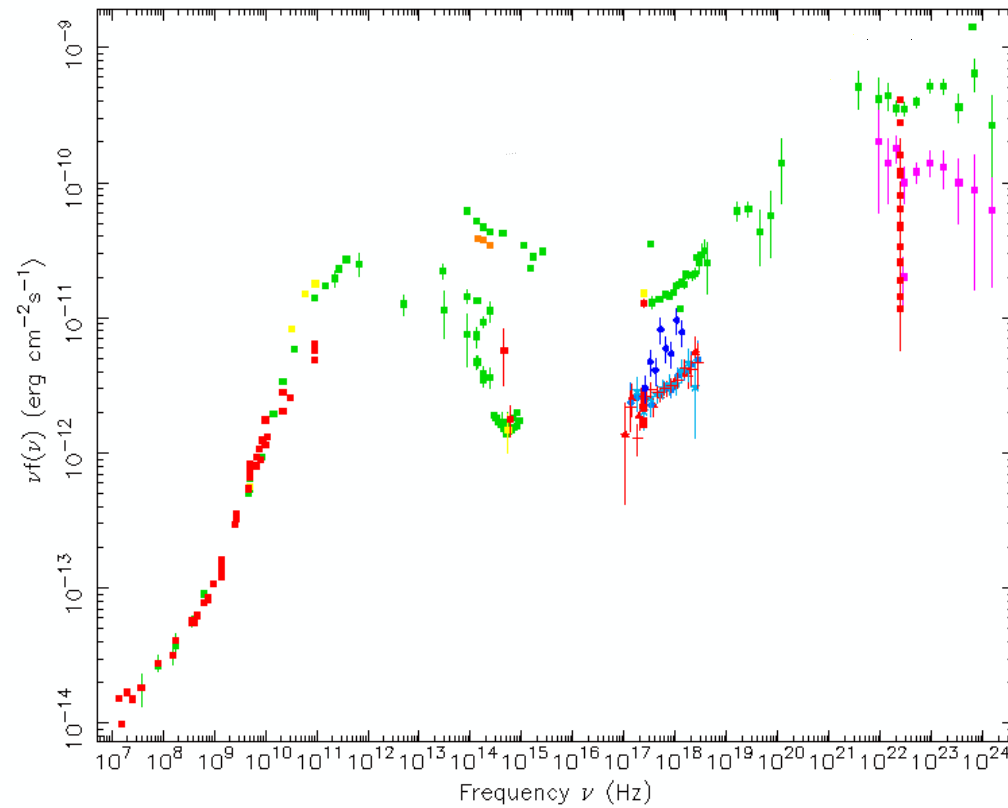
Chandra 30 ksec

Spectrum (0th order):
PL (0.4 – 9 keV): 1.64 ± 0.03
Variability: none



The June 2006 Campaign: Swift Preliminary !

3C 279



The January 2006 Campaign: Status Preliminary !

- 3C 279 in intermediate state, however seemed to be variable: continuous fading in the optical: $R \sim 14.6 - 15.2$ mag (??) (observed: cooling off)
- several analyses in progress
- Results: 6th INTEGRAL Workshop

Unfortunately, the Gamma-ray fun is missing!