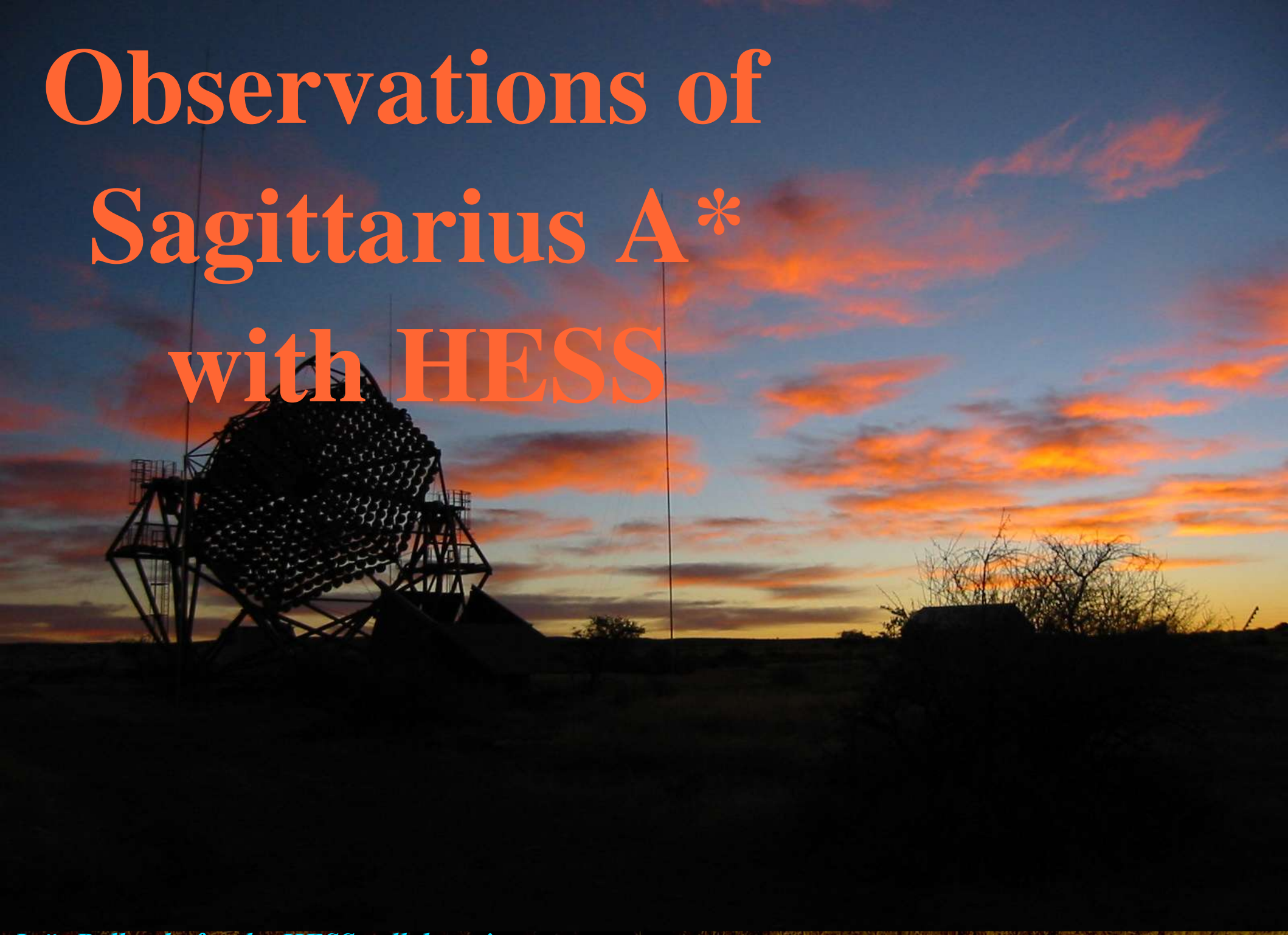
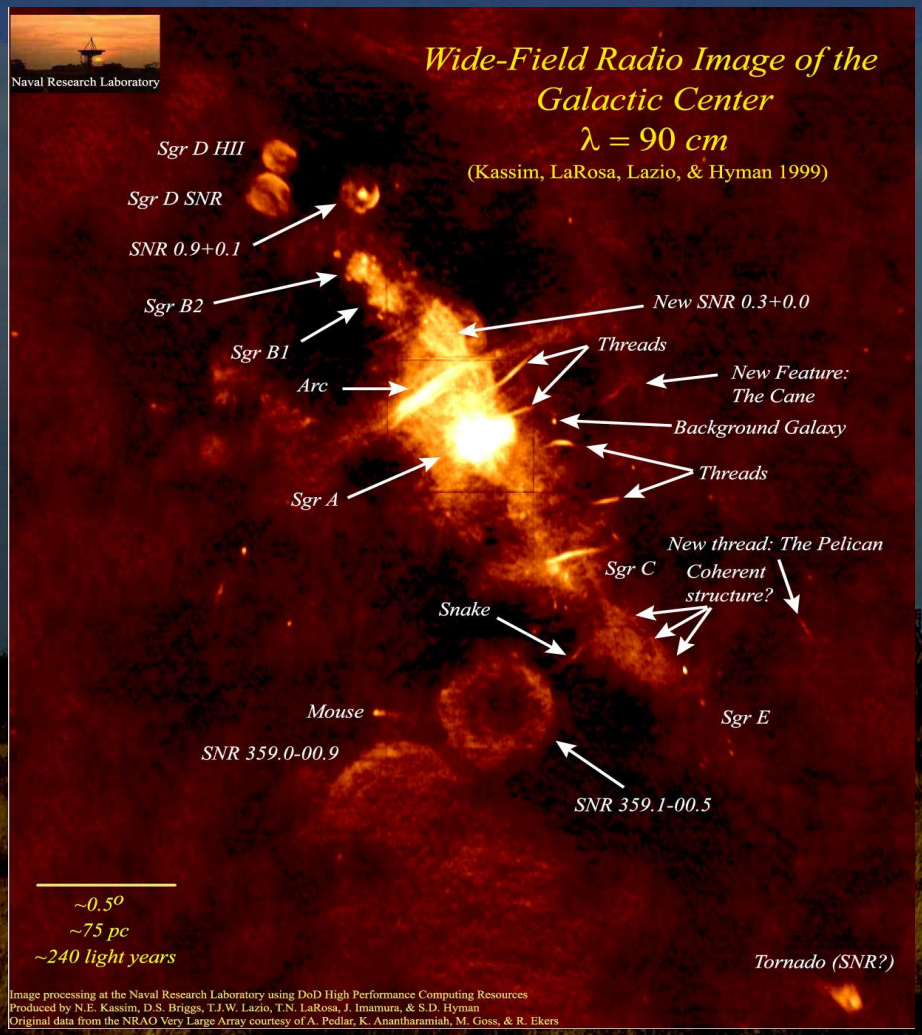
Observations of Sagittarius A* with HESS



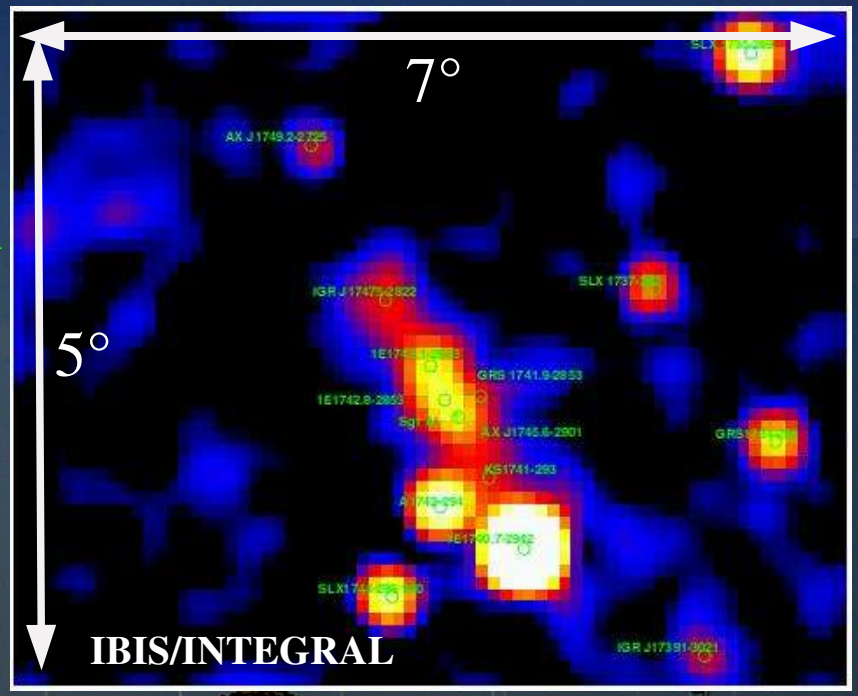
A complex region

- **Black hole, SNRs, microquasars, OB associations, ...**

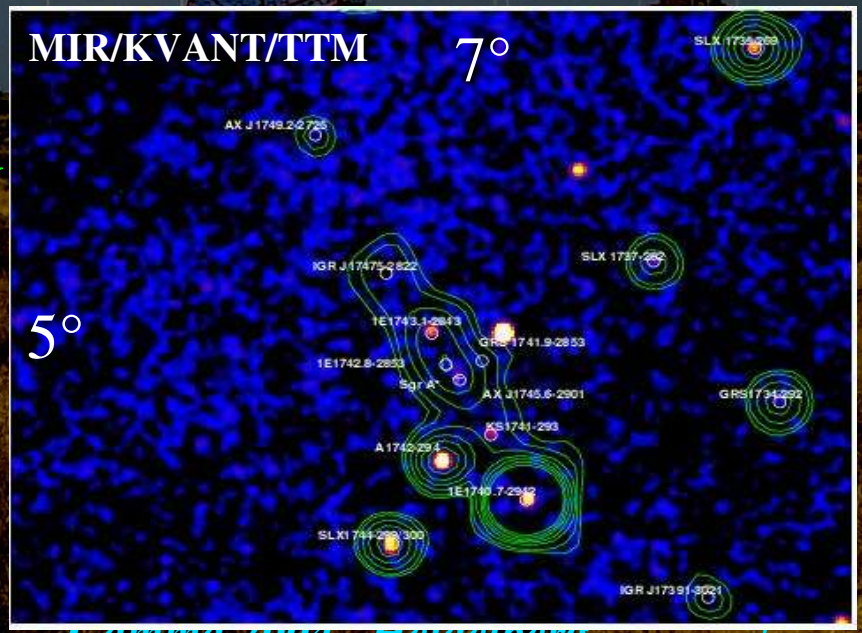


Radio

18-60 keV



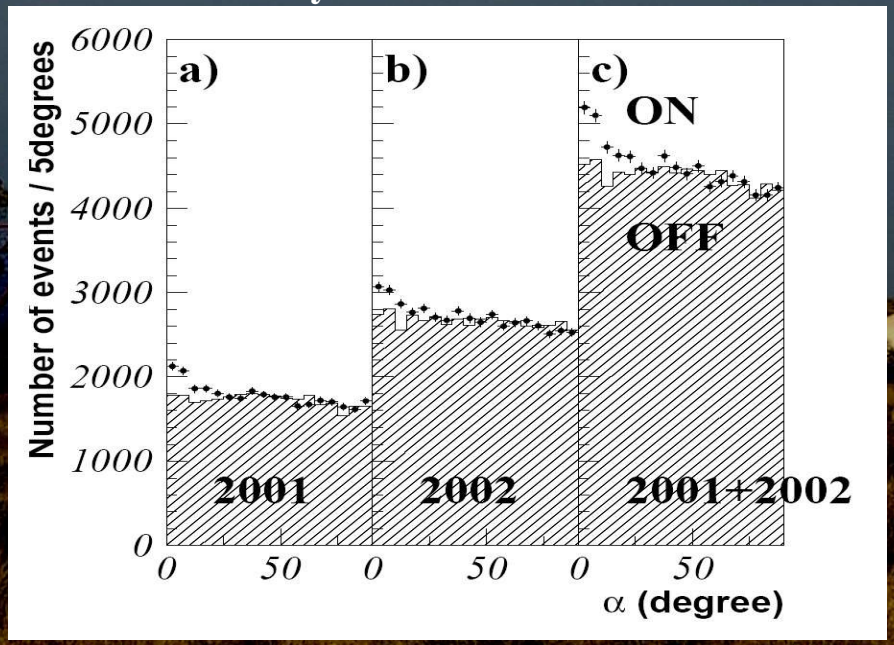
2-20 keV



TeV data

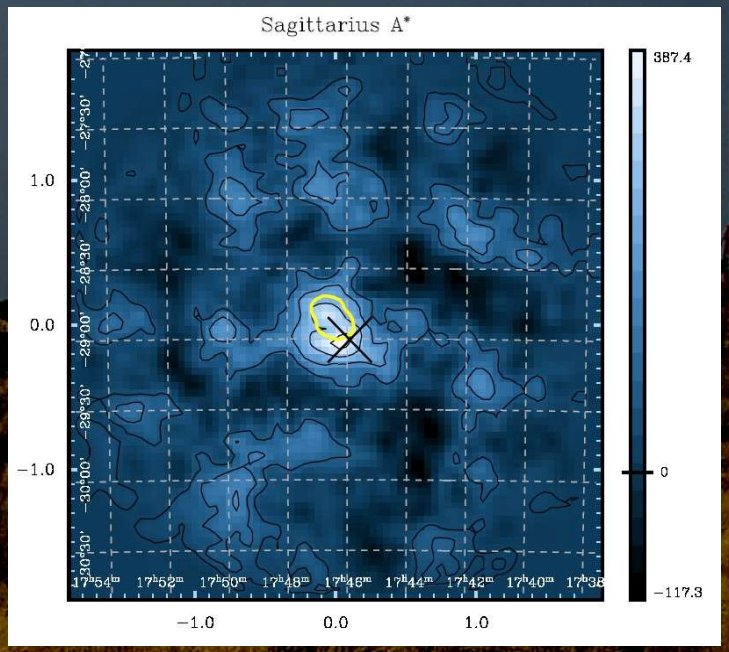
- Cangaroo (10 σ in 65 hours)
  Whipple (3.7 σ in 26 hours)
- Point-like source (resolution 0.3°)

Tsuchiya et al. 2004 : 67 h



CANGAROO 2001/2002 (> **10** σ)

Kosack et al. 2004 : 26 h



Whipple 1995 – 2003 (3.7 σ)

2003 HESS data

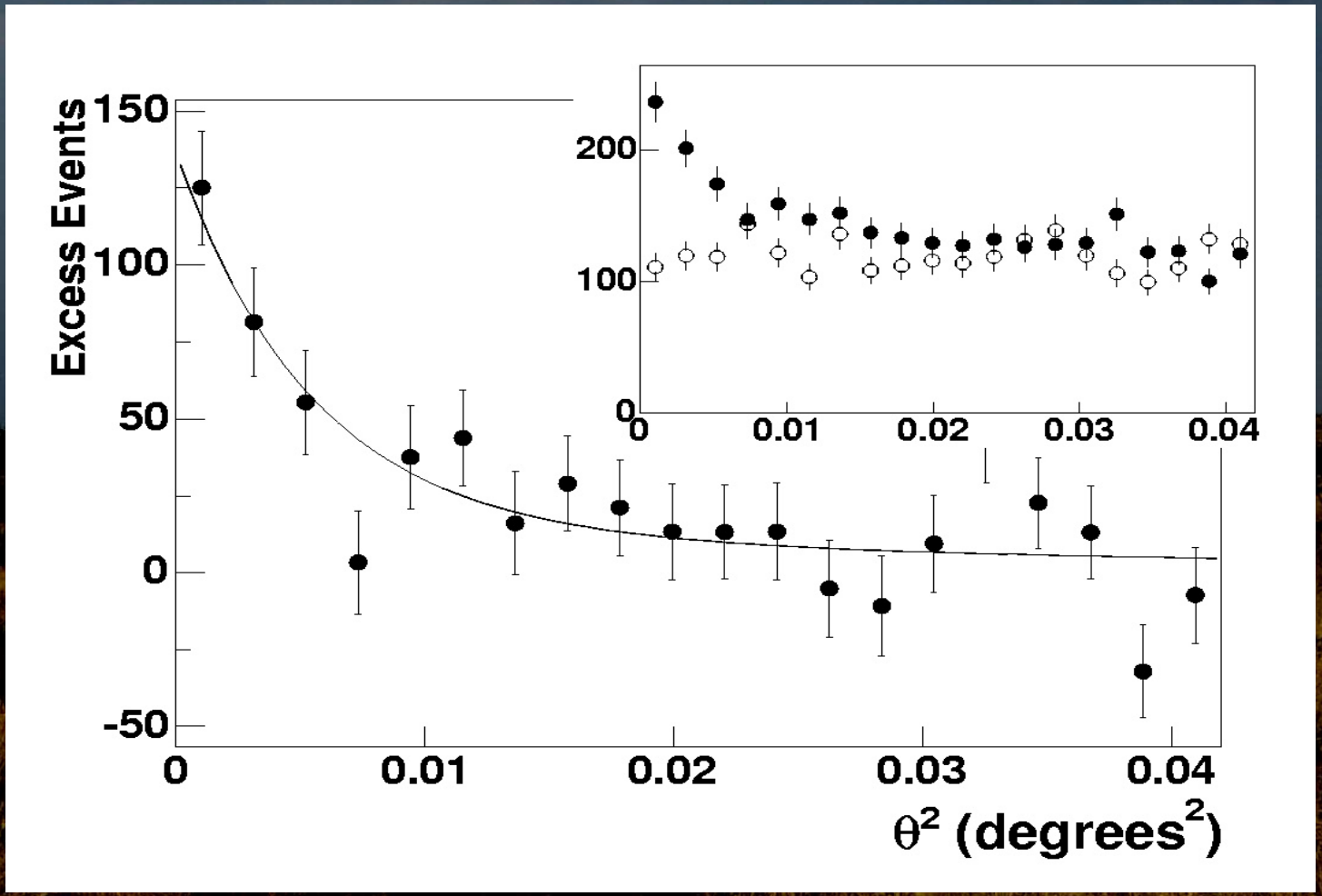
- Building phase: 2-telescope data
- Different configurations: 4.7 and 11.8 hours

- Angular resolution ~ 0.1°
- Energy resolution ~ 15-20 %

- Zenith angle ~ 20°
- Energy thresholds: 255 and 165 GeV

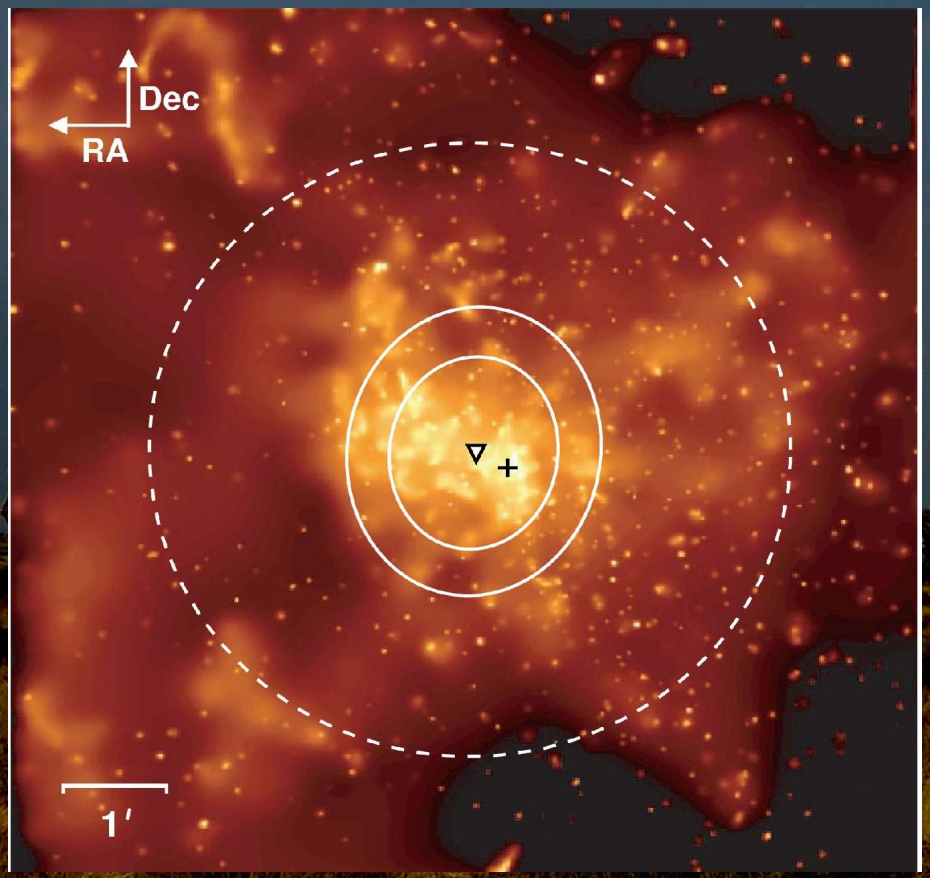
Signal from the direction of the galactic centre

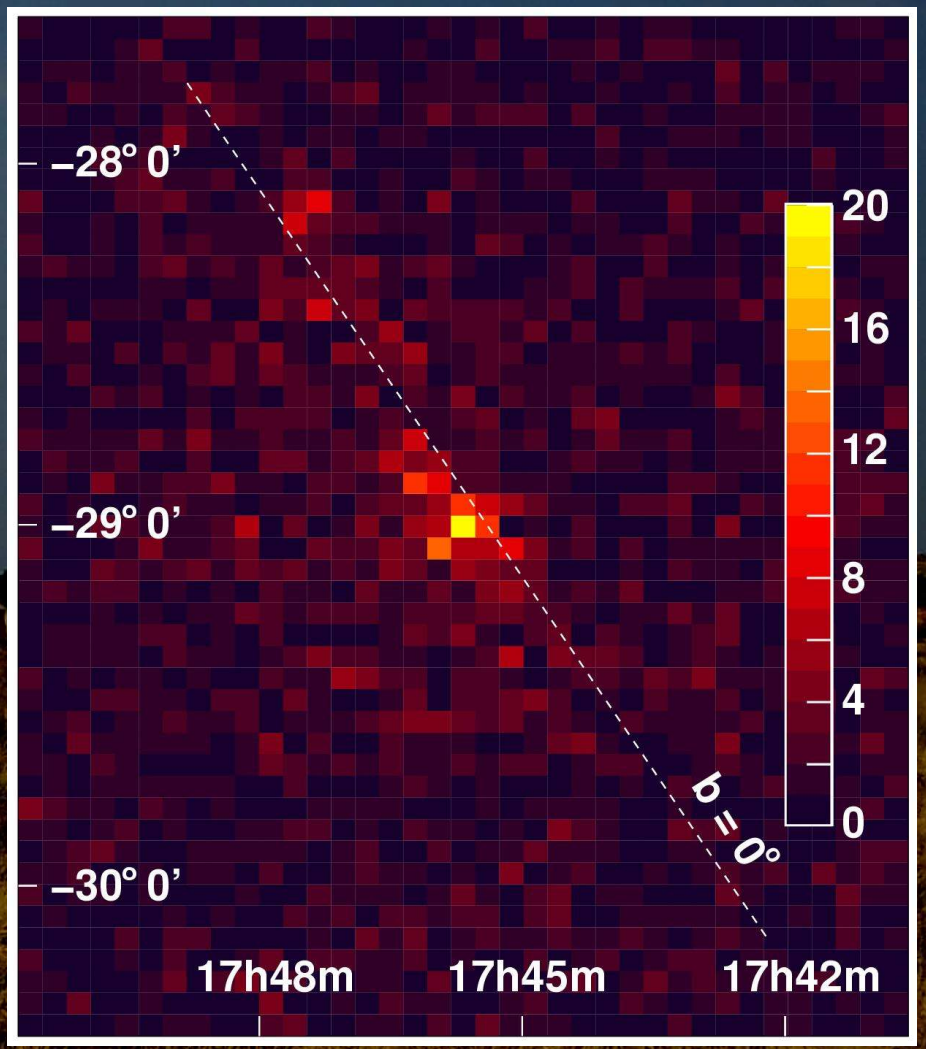
- 6.1 σ and 9.2 σ



Position and extension

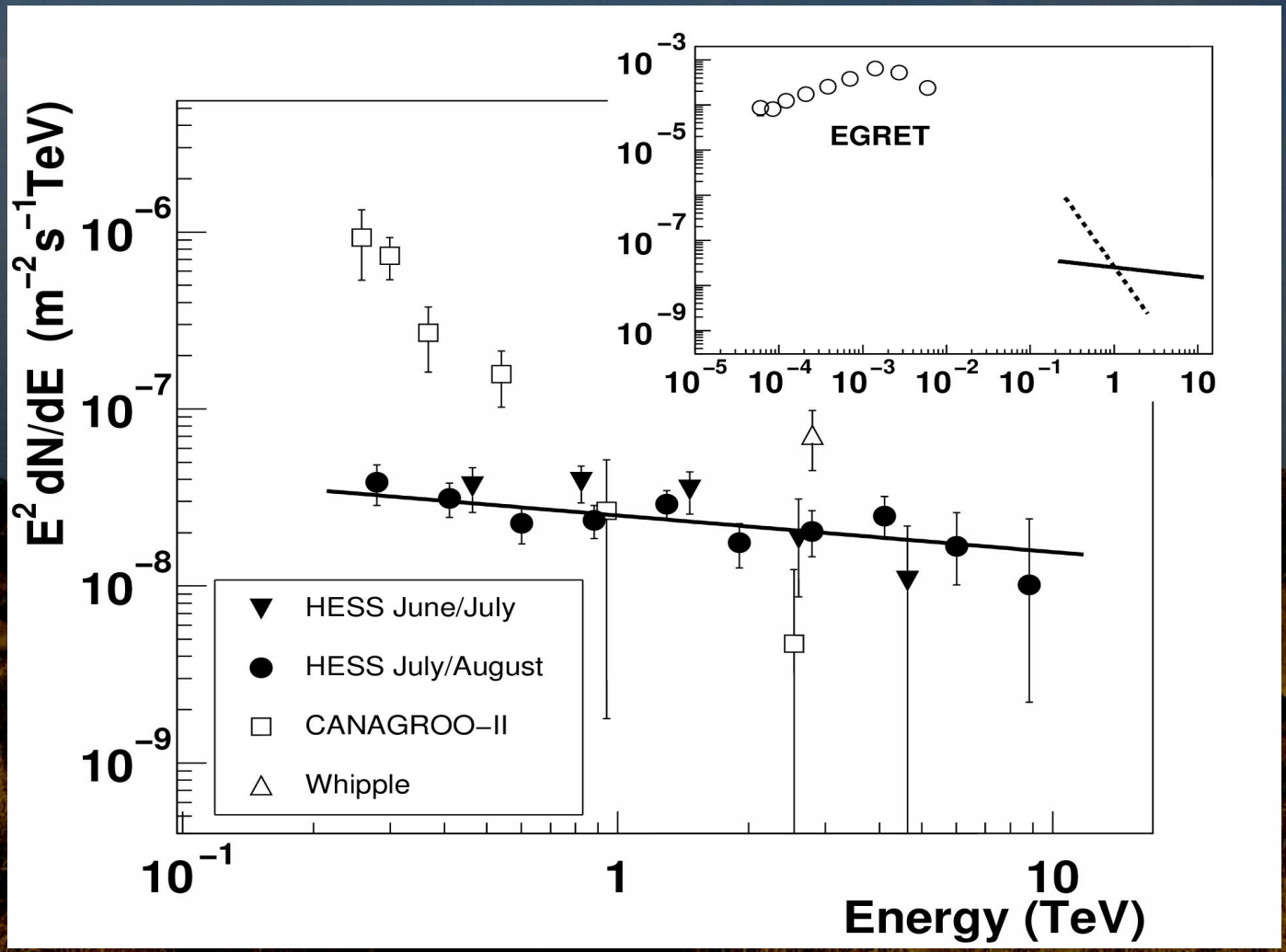
- Compatible with SgrA* (14± 30'')
- Consistent with point-like source (@ 0.1 °): (source size < 3' in Gaussian hypothesis)
- Extended along the galactic plane ?





Spectrum

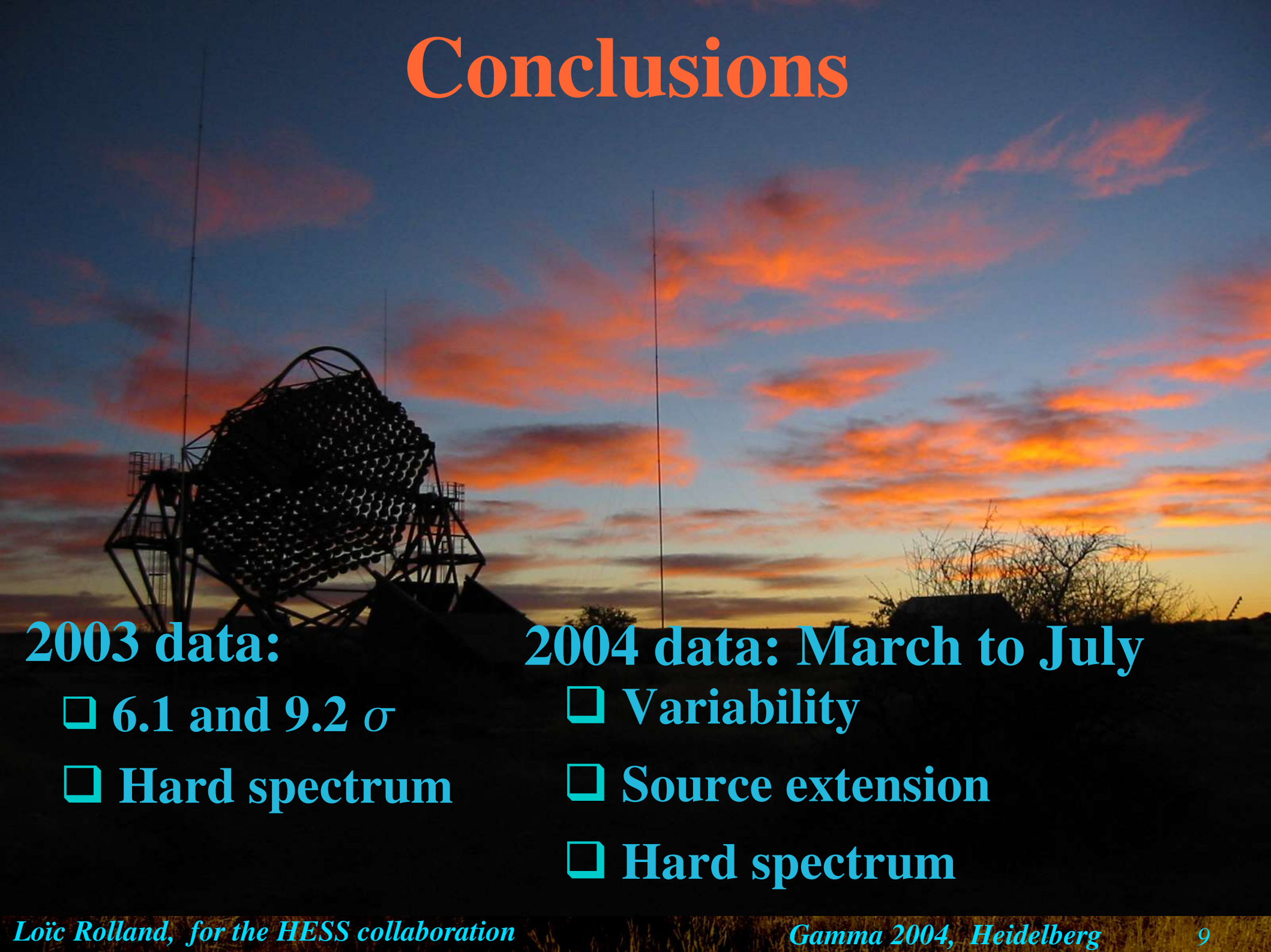
- Hard spectrum, spectral index: 2.21 ±0.09
- Flux above 165 GeV: $(1.82 \pm 0.22) \times 10^{-7}$ m^{-2}s^{-1}
- Flux above 1 TeV: $(2.07 \pm 0.23) \times 10^{-8}$ m^{-2}s^{-1}



Interpretations

- Acceleration in jets or accretion disk
- Diffuse emission
- SNR
- Dark matter particle annihilations
  (see D. Horns talk)
- Proton curvature radiation

Conclusions



2003 data:

- 6.1 and 9.2 σ
- Hard spectrum

2004 data: March to July

- Variability
- Source extension
- Hard spectrum