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MUON CONTENT OF GAMMA RAY INDUCED EAS FROM CYGNUS X-3

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ABSTRACT

During 1984 the Leeds group (Lambert et al, OG 2.1-6) have observed emission above 5×10^{14} eV in July, September and October at $\phi \sim 0.6$. These observations were made with an array which included the Nottingham 10 m² muon detector. A search for muons in events at the phase peak and 'off-source' has yielded the following results:-

(a) for 42 'on-source' events we find an average muon density ($\bar{\rho}_\mu$) of 0.63 muons m^{-2} at a mean core distance $\bar{R}$ = 32 m and mean primary energy $\bar{E}_p \sim 2.5 \times 10^{15}$ eV.

(b) for 21 'off-source' events $\bar{\rho}_\mu = 1.6$ m^{-2}, $\bar{R}$ = 32 m with $\bar{E}_p \sim 2.0 \times 10^{15}$ eV.

(c) for 11 of the 42 'on-source' events, zero muons were recorded in the 10 m². For these events $\bar{R}$ = 41 m and $\bar{E}_p \sim 1.5 \times 10^{15}$ eV.

(d) for 8 of the 21 'off-source' events, zero muons were recorded in the 10 m². For these events $\bar{R}$ = 37 m and $\bar{E}_p \sim 1.5 \times 10^{15}$ eV.

For all the events the mean zenith angle was ~16°. A more detailed comparison of 'on-source' and further 'off-source' events will be presented.