
The Enhancement of Cosmic Rays with Energies Above 10 TeV Observed at Mt. Chacaltaya

O.Burgoa¹, F.Kakimoto¹, S.Ogio¹, Y.Tsunesada^{1,10}, H.Tokuno¹, Y.Kurashina¹, Y.Shirasaki⁴, E.Gotoh³, D.Harada¹, T.Kaneko⁶, Y.Matsubara⁹, P.Miranda⁵, Y.Mizumoto¹⁰, A.Morizawa², K.Murakami⁷, H.Nakatani³, K.Nishi³, S.Shimoda³, N.Tajima³, Y.Toyoda⁸, A.Velarde⁵, Y.Yamada³, H.Yoshii².

(1) *Department of Physics, Tokyo Institute of Technology, Meguro, Tokyo, 152-8551, Japan.*

(2) *Department of Physics, Ehime University, Matsuyama, Ehime, 790-8577, Japan.*

(3) *The Institute of Physical and Chemical Research, Wako, Saitama, 351-0198, Japan.*

(4) *National Space Development Agency of Japan, Tsukuba, Ibaraki, 305-8505, Japan.*

(5) *Instituto de Investigaciones Fisicas, Universidad Mayor de San Andres, La Paz, 8635, Bolivia.*

(6) *Department of Physics, Okayama University, Okayama, 700-8530, Japan.*

(7) *Nagoya University of Foreign Studies, Nissin, Aichi, 470-0197, Japan.*

(8) *Faculty of General Education, Fukui University of Technology, Fukui, 910-8505, Japan.*

(9) *Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, Aichi, 464-8601, Japan.*

(10) *National Astronomical Observatory, Mitaka, Tokyo, 181-8588, Japan.*

Abstract

We have observed air showers with energies above 10 TeV at Mt. Chacaltaya. Then we found enhancement of cosmic rays coming around the direction of Vela SNR. We divided the observed data set to two groups: one consists of air showers with poor muon contents and the other consists of those with rich contents. Since these two data sets showed also the enhancement, we concluded that the enhancement is not due to primary gamma rays. For the next step we calculated the propagations of cosmic rays emitted from Vela SNR with a Monte Carlo simulation. This calculation shows that the enhancement is explained well with a cosmic ray flow originated from Vela SNR. To confirm this result further we are examining the energy dependence of the enhancement with the updated air shower data. In this presentation we show the present result on the energy dependence of the enhancement comparing with the calculated result.