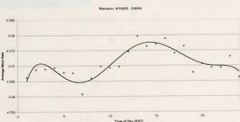


Muon Rate vs. Time of Day

Muon Rate vs Time of Day



Time of Day vs. Muon Rate

The time of day reveals information both about the earth's magnetic field and the subatomic particles (namely muons) that the sun emits. More muons get to the surface of the earth in the early morning hours as compared to the other dark hours, which help us infer a relationship or fluctuation in the earth's magnetic field. This relationship is probably that in the early morning hours more muons get through to the surface because it is easier for cosmic rays to penetrate the magnetic field and decay into muons.

The midday increase is most likely due to the fact that the sun creates its own muons, which hit the earth. More muons reach the surface a little after noon because at noon the sun's solar wind has the most direct path to the earth. This results in an increase slightly after noon because of the reflection of the solar wind on the electro magnetic field of the earth. However, this increase is very small compared to the average daily rate. The increase is only about .02 muons/second, compared to the average rate of about 4 muons/second.

When comparing Adelaide's data with our data we see that the fluctuations in the muon rate is the same on both sides of the earth, meaning that the muon rate for the time of day is congruent around the earth.

Adelaide vs. Mendon

October 2003 Daily Cycle Mendon & Adelaide

