A primary concern for the safety of Mars explorers and settlers is protection from ionizing radiation. High energy charged particles (HECP) are a form of ionizing radiation that can be deflected by a magnetic field. Lucky for us, the Earth has a very strong magnetic field which prevents most HECPs from reaching the ground, and us. Mars is not so fortunate as it does not have a global magnetic field. However, it does possess a set of strong remnant crustal magnetic fields. Could it be possible for these fields to provide any reasonable protection from ionized ionizing radiation? To explore this question we will examine data from Mars Global Surveyor to characterize the field at one location on Mars and predict its effect upon a common source of HECPs.