THE LONG TERM MODULATION OF THE GALACTIC COSMIC RADIATION, 1100-2000 AD.

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The time dependence of the galactic cosmic radiation (GCR) as recorded by the cosmogenic isotope ^{10}Be is examined for the interval 1100-2000AD, after making allowance for the time variability of the vector geomagnetic dipole, and the occurrence of very large solar cosmic ray events. The analysis shows that during the Maunder Minimum, 1645-1700AD, the GCR increased steadily by a factor of about 40% in an essentially linear manner throughout the period when there was very little solar activity, and an insignificant 11 year variation in GCR intensity. It is concluded from this, and similar GCR intensity changes associated with the Spoerer and Dalton minima in solar activity, that the long term modulation of the GCR has two components- one with a relaxation time that is short compared to the 11year solar cycle, and the other with a relaxation time in the vicinity of 100 years. It is proposed that the 40% increase during the Maunder Minimum was due to the decay of a long term (100 years) modulation process located in the heliosheath. Using contemporary estimates of the local interstellar cosmic ray spectrum, it is shown that the ^{10}Be based estimates of the intensity of the GCR during the Maunder Minimum indicates that the100 year component of the long term variation is not consistent with the force field model for the modulation of the GCR.