HIGH VOLTAGE POWER TRANSMISSION LINE DISTURBANCES OCCURRING DURING LARGE GEOMAGNETIC STORMS

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Abstract: On March 13, 1989 a large geomagnetic storm caused extensive disruptions of high voltage power transmission circuits especially in the Quebec province of Canada but also to a lesser degree in Scandinavia. Similar events have occurred earlier a.o. during the great storms of February 8 - 9, 1986 and July 13 - 14, 1982. Some of these cases are connected to the chock-like disturbances accompanying the compression of the front of the magnetosphere by a sudden enhancement in the solar wind plasma. Other cases are related to extraordinarily intense substorm events. Using ground geomagnetic recordings it has been attempted to characterize the varying ionospheric current systems causing the power line failures in Scandinavia during the storm events. Corresponding observations made during the recent large magnetic storms on April 6-7 and July 15-16, 2000, will also be presented for comparison.