The Magnetic Storm of August 11-12, 1919 as
Observed at the Kakioka Magnetic Observatory

BY

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On August 11, 1919 the magnetograph installed at the Kakioka Magnetic observatory registered one of the severest magnetic storms that ever occurred. The geographical co-ordinates of Observatory are 140° 11' 21'' E. and 36° 13' 56'' N. There were no fluctuations recognised until near four o'clock in the afternoon Aug. 11, then abruptly began a large perturbation.

Horizontal Intensity:—

A sort preliminary wave goes at about 3h 40m p.m., in advance of the main perturbation which begins to develop itself and reaches a first peak at 4h 6m p.m. After some short but distinct fluctuations, the maximum comes at 4h 55m as high as 29864.9 r and then precipitously it begins to fall, reaching the minimum value of 29309.5 at 6h 54m p.m.

Until about at 0h 30m a.m. Aug. 12, there are no conspicuous perturbation to be observed when once more increases it sharply, reaching the second maximum value at 0h 51m a.m., namely, 29841.5 r.

Then small various fluctuations continue till about 8h 30m a.m. Aug. 12 and after that time, the storm are lasted by more intense wave down to the indistinct end of about 6h p.m. Aug. 12.

The difference of the maximum and minimum values, namely, 555.9 r is produced during 119 minuites or the rate 5 r per minuite characterizes the storm.

Declination:—

None of abrupt changes are observed throughout the whole course.
A sharp decrease is seen at 3h 57m p.m. Aug. 11 and the curve reaches the minimum value of 5° 13' 1.8'' W at 4h 58m p.m., then gradually it increases until the highest crest of 5° 46' 54''.4 W comes at 6h 32m p.m.

After this maximum, the curve runs with various fluctuations till the end of the storm comes at about the noon Aug. 12.

The range in the declination is thus 33° 52''.6.

Vertical Intensity:

The curve registered on the photographic paper is similar to that of the declination.

At 3h 59m p.m. Aug. 11, suddenly the value of Z deviates from the normal and then decreases gradually till the minimum value of 34730.2 r comes at 6h 39m p.m., preceding the time when the horizontal intensity takes its minimum value, by 15 minutes. Then various fluctuations continue, one of which occurring at 0h 52m a.m. Aug. 12 and taking maximum value of 35000.9 r.

The range of Z during the whole course is 270.7 r.

As the storm has the characteristics of violency and rapidity, it adds an example to the accepted fact that the more a storm is intense, the shorter it continues.

The Central Meteorological Observatory of Japan, February 16, 1920.