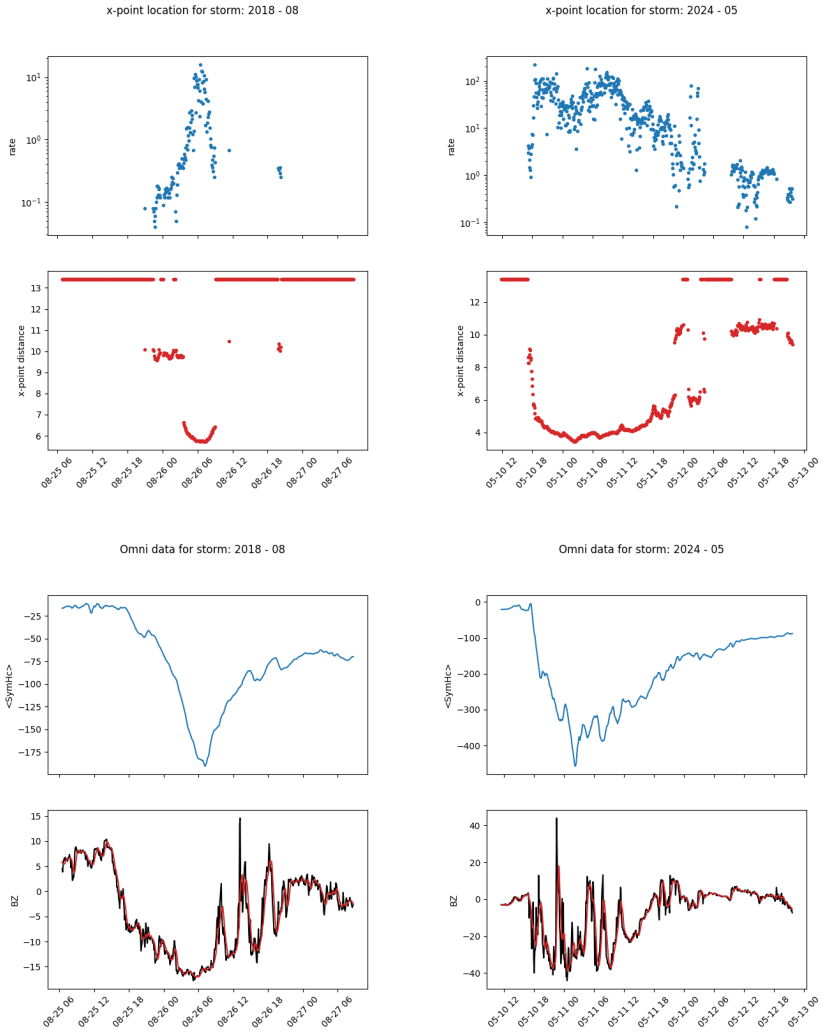
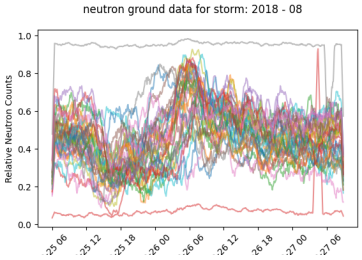
1 Good Cases

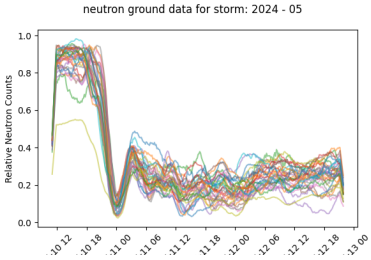
1.1 The SymH metric is a good predictor of near-earth x-points

We have used empirical models to approximate the magneto-tail's near earth field during strong disturbances. During these strong storms, these models show a strong magnetic flux rope forms between the magneto-tail current sheet and the near-earth dipolar field. The presense of this flux rope near earth, causes a magnetic configureation that is consistent with traditional x-point reconnection. We find that the nearest reconection to the earth's surface occurs at the minima of the SymH index.



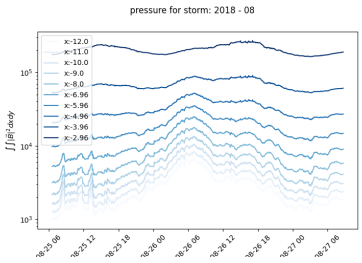
1.2 An indicator of this near-earth reconnection is the enhancement in ground showers seen in neutron monitor data.

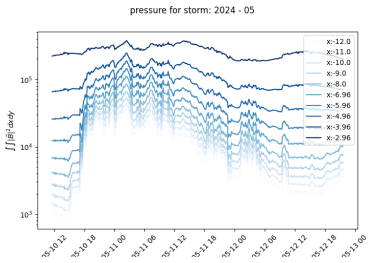




1.3 Strong reconnection in the tail can cause the ejection of plasmoids that results in near earth reconnection.

1.3.1 The position of this reconnection is determined by a matching of the tail pressure with the ambient pressure of the earth's magnetosphere.





2 Uncertain cases

2.1 March 2022