

Historical Auroral Drawings: Their Value for Scientific Discussion

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In this presentation, we examine historical auroral drawing and their value for scientific discussions. While we have magnetic observations for at most 2 centuries (e.g. Araki, 2014), we can find indirect evidence for historical magnetic storms within the historical auroral observations up to 567BCE (Stephenson et al., 2004; Hayakawa et al., 2016c). These auroral observations can be used to scale magnetic storms with their equatorward extension (Yokoyama et al., 1998). Nevertheless, most of them are only with text information and the records with drawings are rather limited. The text records reported by pre-telescopic observer are frequently ambiguous, as they do not necessarily understand the physical nature of aurorae. Therefore, in this presentation, we show some examples of auroral drawings from historical time to show their value for scientific value. Especially, we cast lights upon three drawings in historical time. The first is the earliest datable drawings of aurorae within a Syriac autograph manuscript dated in 8th century that is once introduced in Hayakawa et al. (2017b). The second is a series of occidental auroral drawings in the 16th century. The third is the auroral drawings in 18th century in Japan. In both case, these auroral drawings illustrate spectacles of great auroral displays as indirect evidence of large magnetic storms. We examine them in the viewpoints of auroral science and philology to show how we can make use of these drawings to develop auroral science before the magnetic or telescopic observations.

References:

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