

High latitude lightning atmospherics belonging to transient luminous phenomena

Ivana Kolmasova

Abstract

Transient Luminous Events (TLEs) – brief optical phenomena occurring above thunderclouds – have been studied in relation to their parent lightning discharges and associated atmospherics for over two decades. In this work, we analyze very low frequency (VLF) measurements from the SGO antennas to identify sferics associated with lightning strokes that produce observable TLEs. We specifically focus on sferics generated by high peak current strokes exceeding 200 kA, with an emphasis on those producing elves. The broader significance of investigating high-latitude lightning atmospherics will also be discussed.