



Assigning the causative lightning strokes to the observed whistlers

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We study the penetration of lightning induced whistler waves through the ionosphere performing the correlation between the whistlers observed on a satellite and the lightning detected by the European lightning detection network EUCLID. We compute all the possible differences between the times when the whistlers were observed on the satellite and times when the lightning strokes were detected. We show that the occurrence histogram for these time differences exhibits distinct peak for a particular characteristic time corresponding to the sum of propagation time and a possible time shift between the absolute time assigned to the wave record and the clock of the lightning detection network. Knowing this characteristic time, we can search in the EUCLID database for the location, current, and polarity of causative lightning strokes corresponding to the individual whistlers. We demonstrate that the area through which the electromagnetic energy induced by a lightning stroke enters into the magnetosphere may be up to several thousands kilometres wide. We would like to acknowledge G. Diendorfer for providing us the EUCLID data.