

XIX Meeting of Physics 2020



Contribution ID : 20

Type : poster

Estimation of thunderstorms occurrence from lightning cluster recorded by WWLLN network and its comparison with the 'universal' Carnegie curve

Friday, 25 September 2020 10:00 (10)

Continuous global monitoring of lightning has been important in recent years to study a possible relationship with global warming. Consequently, several networks to detect lightning have been installed at various spatial scales (regional and global). One of these networks is the World Wide Lightning Location Network (WWLLN), which has been monitoring lightnings since 2003. It is also important to monitor the occurrence of thunderstorms and this can be achieved by detecting lightning clusters. In this work, we propose a lightning grouping methodology, in order to estimate the number of electrical storms in the world. Our methodology defines the spatial scale of thunderstorms as a lightning clusters detected every hour, in a region of 0.5×0.5 degrees². Then, we calculate monthly, seasonal and annual averaged daily curves of the number of thunderstorms. The data set under study includes 2012 and 2013. Our methodology is validated by comparing with the 'universal' Carnegie curve ($R=0.94$). Additionally, we find that this linear correlation is higher in spring ($R=0.98$) and lower in winter ($R= 0.75$).

Primary author(s) : ANCA CCOPA, Josue Gabriel (Universidade Presbiteriana Mackenzie)

Co-author(s) : TACZA ANAYA, José Carlos (Polish Academy of Sciences); Dr RAULIN, Jean-Pierre (Universidade Presbiteriana Mackenzie)

Presenter(s) : ANCA CCOPA, Josue Gabriel (Universidade Presbiteriana Mackenzie)

Session Classification : Poster session

Track Classification : Applied Physics