



## **GNSS-PWV time evolution in extreme weather events: comparison analysis with lightning and radar-VIL**

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Over the years, there has been an increase in extreme weather events which encouraged the scientific community to employ ever more different techniques for their studies. In this context, GNSS (Global Navigation Satellite System) find its place. Over the last thirty years, this technique has shown increasing applicability and reliability in the field of weather forecasting and analysis. However, there are points that it is critical to continue to investigate; one of the most discussed and noteworthy is the behavior of the GNSS-PWV (Precipitable Water Vapor from GNSS) time course during severe weather events. The relation between GNSS-PWV pattern and weather event evolution appears to be non-constant, sometimes showing a PWV peak at maximum convection, sometimes an advance and sometimes a delay. In this study we try to identify the causes of this unevenness of behavior using the number of lightning as a reference for the trend of convection and the VIL (Vertical Integrated Liquid content) obtained from radar as a term of comparison for the validation of GNSS-PWV.