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GNSS Weather applications: PW performance with GPS techniques about rainfalls in Spain

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The Spanish Mediterranean area is periodically affected by torrential rainfall events during autumn. In September 2012, one of these episodes took place with upto 50 mm of rain in a 1 hour and more than 300 mm in 12 hours. This study shows the spatial and temporal variability of the GNSS estimated atmospheric water vapour content (GWV) and the observed rains during this event. GNSS technology is now an established atmospheric observing system which can accurately sense water vapour. GNSS data were obtained from the 38 GNSS sites available in the Spanish Mediterranean Area. The GNSS data processing strategy demonstrated its goodness by comparison of the obtained GNSS water vapour values with three radio sounding observed data. It was observed a good correlation between the GWV maximum values and the registered rains. Tropospheric water vapour monitoring shows the fast changes in this variable when a rain front is approaching. Predicting the development of severe weather phenomena such as cyclone and storm evolution is highly dependent on very precise estimates of water vapour contained within the lower atmosphere. Global Navigation Satellite Systems (GNSS) technology has demonstrated its capacity as an accurate sensor of atmospheric water vapour with the application of GNSS for numerical weather prediction. GNSS data processing estimates the content of atmospheric water vapour, based on the signal propagation tropospheric delay across the satellite-receiver path. So, thanks to the permanent GNSS reference stations this variable can be continuously estimated around the world, improving the knowledge of the tropospheric water vapour distribution.

Biography

Diego Ferragud Trillo has completed his Master of Science in GIS, Geodesy and Cartography engineer at the age of 26 years from Politechnic Valencia University and Bachelor Degree in Surveying engineer studies from the same University. Also, he belongs to the Group COST (European Cooperation in Science and Technology) Action ES1206 allowing the coordination of nationally-funded research on a European level, being a working group member.

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Study of regional variability in the quiet day pattern of cosmic radio noise using riometers

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The quiet-time (ΣKp≤ 3) daily variations of the cosmic radio noise at Polar, auroral, subauroral and mid-latitude stations during period of solar minimum are utilized to develop the quiet day pattern of cosmic noise signals with corrected geomagnetic latitude and longitude. Riometers at different locations will observe a different part of the sky noise and that is the reason that QDCs are produced for each individual riometer. Data of three southern and seven northern riometer stations have been used in the present study. Average of five international quiet days is done to execute a signal pattern for a particular month. We studied latitudinal and longitudinal variations in the signal strength of cosmic radio noise for both the hemispheres. For polar latitudinal stations Davis and Mason (Geomag lat.73.05˚S, Geomag Long. 111.67˚E), it is observed that there is a change in the maximum value of the signal strength. At sub-auroral latitudes minimum of the signal strength shows similar patterns during winter months. We observed shift of quiet day pattern in each month is due to the sidereal day.

Biography

S S Nikte has completed his PhD at the age of 30 years from Shivaji University, Kolhapur. He is Assistant Professor in Department Vishveshwarya Technical Campus Patgaon-Miraj. He has published more than 15 papers in reputed journals and has attended more than 17 national and international conferences, workshops etc.

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