

2.12 DOPPLER RADAR OBSERVATIONS OF TWO TORNADIC THUNDERSTORM CASES IN THE WESTERN MEDITERRANEAN REGION

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Severe thunderstorms producing large hail, heavy rainfall and strong winds from convective origin, occur frequently in southern Europe and near the Mediterranean coastal regions in particular, mostly during late summer and early autumn. For example over the period 2000 to 2016 a yearly average of 5 tornadoes, mostly weak (<EF2) were reported in Catalonia (NE Spain) - see Rodriguez and Bech (2017). This study, which benefits from the improved processing of dual-PRF Doppler radial velocity field proposed in Altube et al (2017), describes two recent cases of tornadic storms that took place on 18 October 2017 and 7 January 2018. The first event affected the city of Valls (S Catalonia), causing several injuries, and damaging more than 250 trees and over 100 traffic signal and lamp posts. A damage survey indicated a linear 6.2 km long path with EF1 estimated damage in the Fujita scale. The passage of a well organised mesoscale convective system moving NE with a leading convective line and trailing stratiform region spawned the tornado responsible of the damage. The second event, characterised by a surface southeast flow affected central and NE Catalonia. Convection was organised in precipitation bands and embedded intense thunderstorms, two of which spawned tornadoes with associated EF2 Fujita damage intensities and path lengths of 9 and 19 km respectively. This second event, unlike most documented EF2 previous cases in the region, was particularly remarkable due to the date (early January) and timing (night and dawn) of occurrence.

References

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Rodriguez O, Bech J, 2017: Sounding-derived parameters associated with tornadic storms in Catalonia. *International Journal of Climatology*, (in press). DOI:10.1002/joc.5343
