

# 1 **A two parameter design storm for Mediterranean** 2 **convective rainfall**

3 **Authors:** R. García-Bartual and I. Andrés-Doménech

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## 7 **Response to Referee Comment 2016-644-RC2 – Anonymous Referee #2**

8 The authors are grateful for the observations and comments made by reviewer #2

9 He suggests a comparative analysis using  $\Delta t=5$  minutes, which was actually contemplated by  
10 the authors when dealing with section 5 of the draft. As described in our answer to the  
11 reviewer, the final choice of  $\Delta t=10$  minutes has a scientific basis and is supported by the  
12 results of previous research.

13

### 14 **1. On the number of blocks and the time level of aggregation**

15 Regarding the number of blocks used to represent the design storm, we must make it clear  
16 that it is not arbitrary. On the contrary, it is completely defined by two factors, as it is also  
17 shown in the answer to reviewer #3 (minor remark #f):

18 a) On the one hand, the duration of the storm, which essentially depends on the value of  
19 parameter  $\varphi$ , so that the duration is pre-established before building the design storm.  
20 Parameter  $\varphi$  defines the temporal pattern of the rainfall, and originally derives from the  
21 original rainfall events of the historical registers used.

22

23 b) The time level of aggregation,  $\Delta t$ . On this point, the two natural choices for this study  
24 were  $\Delta t=5$  minutes or  $\Delta t=10$  minutes. Logically, in the first case, there would have  
25 resulted more blocks for the design storm, in line with the suggestion made by reviewer 2.  
26 From a practical point of view, the procedure does present any added difficulty.  
27 Nevertheless, for the purpose of comparison with the method of alternating blocks, the  
28 authors choice was  $\Delta t=10$  minutes in favour of a greater reliability. Indeed, a thorough  
29 investigation has been done into the significant degree of uncertainty arising in IDF

1 curves for durations under 10 minutes, particularly for the Mediterranean area studied  
2 (Garcia-Bartual and Schneider, 2001; Vaskova, 2001). Both references are in the original  
3 manuscript. From our point of view,  $\Delta t=10$  gives enough resolution to the storm  
4 definition, and provides a sufficient representation of the time pattern of the design storm,  
5 with more reliability.

6

7 This question from reviewer #2 helped to find two errors in the manuscript: Page 13, line 26:  
8 It should say 6 blocks, instead of 7 blocks. Table 4, storm 3, it should say 6 blocks instead of  
9 7. Both errors are corrected in the new version of the manuscript.