

1 **“The Probability Distribution of Daily Precipitation at the Point and**
2 **Catchment Scales in the United States” by Lei Ye et al.**

3 **Response to Referee #3**

4
5 We greatly appreciate you for your constructive comments and suggestions. Our
6 responses to the comments are listed below.

7
8 **Comment 1: The ‘Introduction’ section describes in great detail the vast literature**
9 **related to the topics of (1) stochastic precipitation modeling, (2) precipitation**
10 **frequency analysis, and (3) precipitation trends and climate changes. In this**
11 **thorough review it is apparent that the Pearson Type III (P3) distribution has**
12 **not been considered as a candidate distribution to describe wet-day, AMS or**
13 **PDS daily precipitation series. Yet the consideration of the P3 distribution is**
14 **largely explored in this paper. Recommend the authors add why they believe**
15 **the P3 is an appropriate distribution for the extreme values of rainfall.**

16
17 Response:

18 The two parameter Gamma distribution is the most widely used distribution of daily
19 rainfall in previous studies. Therefore it is only natural that one should also consider
20 fitting a three parameter version of the Gamma distribution, known as the P3
21 distribution to daily rainfall amounts. Given that hundreds of studies have assumed the
22 Gamma distribution, we were very surprised to find so little attention given to the three
23 parameter version of the Gamma distribution, known as the P3 distribution. This is one
24 of the most important contributions of our paper, bringing this fact to light.

25
26 **Comment 2: Similar to Referee #2, I believe too much detail is presented in the**
27 **‘Introduction’ section. The lengthy discussion doesn’t add to the flow of the**
28 **paper. Recommend reducing the literature review discussion, highlighting the**
29 **important studies related to the topics in this paper and refer the reader to**

30 **Table 1 for a more thorough review of previous studies.**

31 Response:

32 As you said, the Introduction does indeed account for a relatively large proportion of
33 our paper. We will shorten it to the right proportion and adopt your suggestion (reducing
34 thing literature review discussion, highlighting the important studies related to the
35 topics in this paper and referring the reader to Table 1 for a more thorough review of
36 previous studies.).

37

38 **Comment 3: Similar to Referee #2, a ‘Discussion’ section is missing in this paper
39 and I recommend it be added.**

40 Response:

41 We will add a ‘Discussion’ section before the ‘Conclusions’.

42

43 **Comment 4: 234-239 is interpretive and describes the findings of this paper. This
44 should be moved to the ‘Discussion’ and/or ‘Conclusions’ sections. Similarly,
45 the last sentence in the ‘Introduction’ section (lines 243-245) is interpretive
46 and should be moved to the ‘Discussion’ and/or ‘Conclusions’ sections.**

47 Response:

48 We will move the contents of lines 234-239 and lines 243-245 to the ‘Discussion’.

49