Supplemental Material

Journal of Hydrometeorology

Assessment of Extremes in Global Precipitation Products: How Reliable Are They?

https://doi.org/10.1175/JHM-D-20-0040.1

© Copyright 2020 American Meteorological Society (AMS)

For permission to reuse any portion of this work, please contact permissions@ametsoc.org. Any use of material in this work that is determined to be “fair use” under Section 107 of the U.S. Copyright Act (17 USC §107) or that satisfies the conditions specified in Section 108 of the U.S. Copyright Act (17 USC §108) does not require AMS’s permission. Republication, systematic reproduction, posting in electronic form, such as on a website or in a searchable database, or other uses of this material, except as exempted by the above statement, requires written permission or a license from AMS. All AMS journals and monograph publications are registered with the Copyright Clearance Center (https://www.copyright.com). Additional details are provided in the AMS Copyright Policy statement, available on the AMS website (https://www.ametsoc.org/PUBSCopyrightPolicy).
Supplementary Figures:

Fig. S1: Global Historical Climatology Network daily (GHCN-daily) stations considered in the study.
Fig. S2: Box plots of the estimated shape parameter from Monte Carlo (MC) simulations for Pareto II (left) and Weibull (right) distributions. Red dots represent the true value of the shape parameter and the blue dots represent the mean of the shape parameter from the MC simulations.
Fig. S3: Number of negative values of shape parameter obtained in the samples of MC simulations.
Fig. S4: Spatial pattern of percentage of zero values (P0) in the gridded products
Fig. S5: Ratio and Differences of observed and calculated return levels for T-year return period (T=39 years for CPC and CFSR; 38 years for MSWEP and Watch; 35 years for PERSIANN-CDR).
Fig. S6: Mean and standard deviation of the estimated precipitation return levels for 100-year and 1000-year return periods at global and continental scale using the (a) Pareto-II and (b) Weibull distribution. The left side of the plot shows 100-year return period and the right side shows 1000-year return period.
Fig. S7: Spatial patterns of predicted 1000-year return levels (in mm) using the W tail for In-Situ observations (InSitu) and the gridded products. The return levels are averaged to a common resolution of $2\degree\times2\degree$. 