1 Supplemental Figures
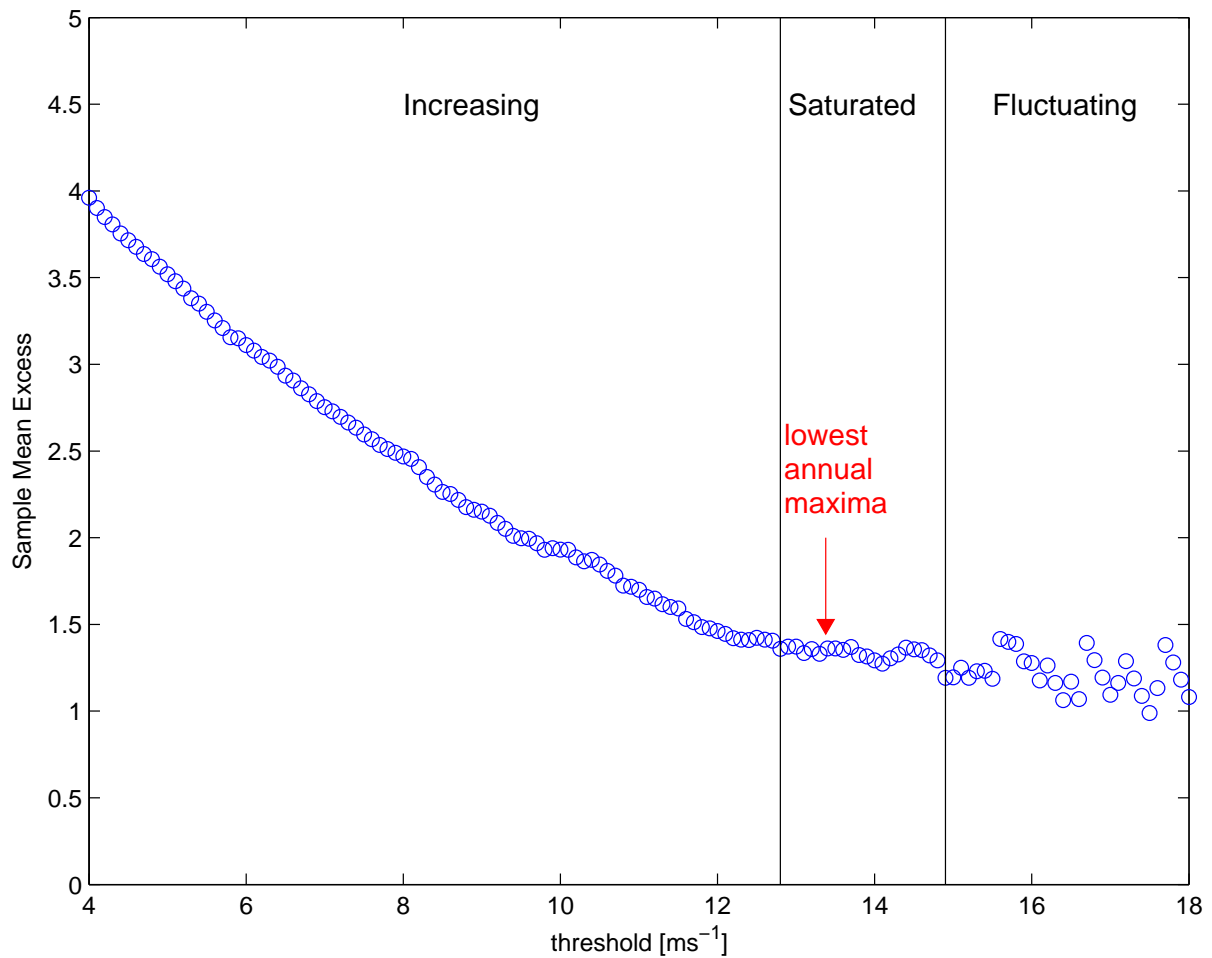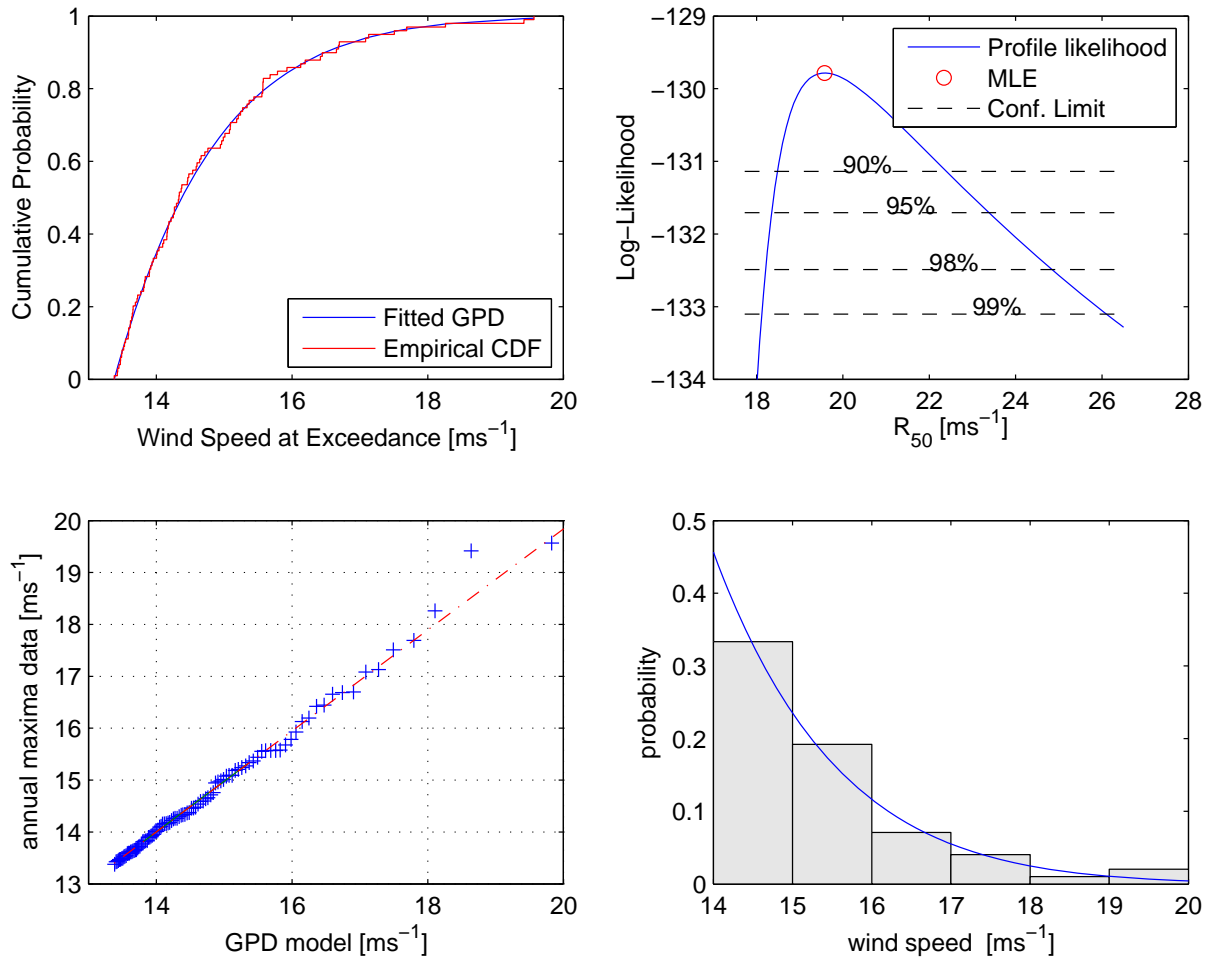

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Supplementary Figure S1: Sample Mean Excess (SME) for a range of thresholds at the grid point closest to
Bergen, Norway in the BCM-HIRHAM5 downscaling. The SME is increasing below approximately 12.8 ms^{-1} and
fluctuating above approximately 14.9 ms^{-1}. Using a visual inspection, the threshold would be set at around 13
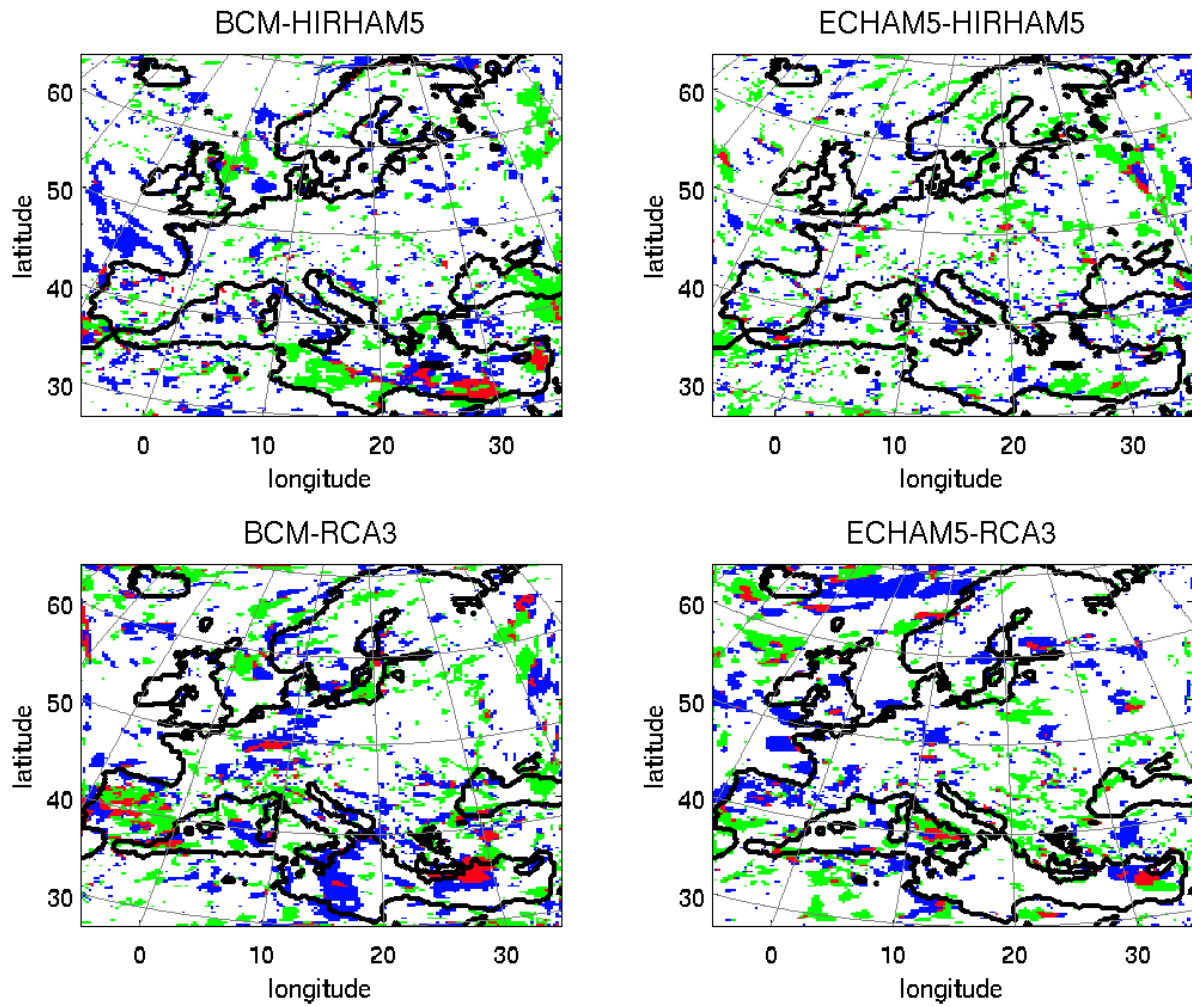ms^{-1}. The threshold used in our approach is the minimum annual maximum, at 13.4 ms^{-1}.

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Supplementary Figure S2: Model quality tests for the grid point closest to Bergen, Norway in the BCM-HIRHAM5 downscaling. The empirical data in red is compared to the fitted CDF in blue (top left); the GPD QQ-plot is shown with the 1-1 line in red (bottom left); the fitted PDF is compared to a histogram of the data (bottom right); and the profile likelihood is shown in blue (top right) along with the various confidence interval levels dashed in black. The red circle indicates the maximum likelihood estimation.

BCM-HIRHAM5

ECHAM5-HIRHAM5

BCM-RCA3

ECHAM5-RCA3

Supplementary Figure S3: Likelihood Ratio Tests in the four model downscalings. White: Likelihood ratio test passed. Green: Likelihood ratio test failed in reference period. Blue: Likelihood ratio test failed in future period. Red: Likelihood ratio test failed in both periods.