Modeling of Wind Energy in Some Areas of Palestine

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Abstract:

The daily mean wind speed data for 4 locations in Palestine over the period of 5 years
are collected, analyzed, and fitted to the Weibull distribution function. Weibull parameters are derived from the cumulative function of the observed data records (1997-2001), and used to calculate the mean wind speed and variance of the theoretical distribution. The second order polynomial is used to fit the relationship between the wind power and the mean wind speed. The monthly mean wind power density is higher during summer and lowers during winter except Hebron is higher in winter and lower in summer months. The highest mean power values are 33 W m-2 in January and 38 W m-2 in July for Hebron and Nablus respectively, whereas the lowest mean power is 1.66 W m-2 in January for Jericho. The adjusted R2 of the polynomial fit is 99.8% for all stations except Hebron 70%.

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