Predictability of the Power Output of Three Wave Energy Technologies in the Danish North Sea

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Notes to the paper "Predictability of the Power Output of Three Wave Energy Technologies in the Danish North Sea" – corrected version after conference

The following changes have been included in the version of July 2012 of the paper "Predictability of the Power Output of Three Wave Energy Technologies in the Danish North Sea", presented at EWTEC2011, Southampton, UK.

- The mean wave power and wave conditions at Hanstholm have been updated according to a recently published report.

- The formula to calculate available wave power P_{wave} has been used. The previous version used the deep water simplification whereas the final version calculates P_{wave} with the general formula. This gives a more correct value of the parameter.

  Hence, P_{wave} values change in the Abstract, in Table I and VI, in Figure 7 and 11, in the Discussion chapter [Section IV) B) 4) Wave Power] and in the Conclusions.

- The parameter *AME* has been changed to *MAE* following the agreement on the wind energy sector on nomenclature. *AME* and *MAE* denote the same, the Mean Average Error. Changes apply to Table III to Table VI.

- The nomenclature of the parameters that evaluate the predictability of the power productions of the different wave energy converters has been changed. In the new version the terms *NBias*, *NMAE* and *NRMSE* are used, which refer to the values *Bias*, *MAE* and *RMSE,* respectively, divided by the peak or installed power of each device. This is in accordance with the wind energy sector nomenclature to evaluate production forecasts[1].

- Power productions of the WECs have been re-calculated and new values are provided.

  In both the previous and in the new version power productions have been obtained from the power matrix for the bin (H_{m0}, T_{02}) corresponding to the half-hourly wave condition measured at the site.

  The difference is that now, whenever the occurring sea state does not coincide with the defined intervals of H_{m0} and T_{02} of the power matrix, the power production is interpolated (i.e. a weighted average calculation) between the closest upper bin values, for both H_{m0} and T_{02}, and the closest lower bin values, for H_{m0} and T_{02} as well.

  The values on the previous version were based on the closest-lower-power production to the defined sea state of the power matrix.

  The interpolation leads to higher power performances and improved predictability of the power output of the wave converters.

  Changes have been introduced in the Abstract, in Table VII, in Figure 8 to Figure 10, in the Discussion chapter [Section IV) C) 1 and 2] and in the Conclusions.

- Corrections on misprints and grammar errors found.

[1] **Madsen, H.** *A Protocol for Standardizing the performance evaluation of short-term wind power prediction models.* s.l. : ANEMOS Project, Deliverable 2.3, 2004.