

The authors would like to thank both of reviewers for their valuable comments as well as for the thorough reading of this paper. Regarding to their comments an analytical reply is given in the following.

Both reviewers pointed out that the horizontal resolution used by the model is insufficient for reproducing the wind field across the Corinthian Gulf (1<sup>st</sup> comment of Reviewer #1, major remark of Reviewer #2). The authors' goal is to imprint and study on statistical basis the main wind flow across the Corinthian Gulf, *using an operational model setup* (8 km grid spacing), for which a long period of simulations is available. As the results reveal, the model captures the main wind flow, local maxima of wind speed inside the gulf as well as the channeling of the wind at both straits. It should be noted, that a large number of papers that study the wind field in complex terrain elaborate high resolution model data (e.g. Colle and Mass, 2000; Koletsis et al., 2009; 2010) in order to investigate the dynamics of a terrain-induced phenomenon. However, the majority of these papers focus on the analysis of case studies and not in the analysis of the long term wind flow. The present study among others (e.g. Samelson and Barbour, 2007; where 6-km grid spacing model data were used) reveals that the 8 km grid spacing could be used in order to reproduce the mean wind flow in areas where in-situ measurements or observations are sparse or do not even exist. In any case, it is impossible by the computational means at our disposal, to perform a 5-year model simulation with grid spacing of 2-km. Furthermore, in order to avoid the enlargement of the present paper, at the last paragraph of this study is underlined that it is in the authors' plan to give a further insight at the high wind speeds which have been evidenced by the 5-year model data analysis at the Rio strait, in order to investigate the relationship between the strong surface winds and the surrounding complex terrain. In a forthcoming paper the dynamics and the structure of this strong gap flow for particular case-studies, will be investigated.

Reviewer #1 pointed out the absence of quantitative validation between modeled and measured wind data. In order to investigate the quantitative relationship between the simulated and the observed wind speeds, the mean (ME) as well as the mean absolute (MAE) errors have been calculated for the period 2010-2011 for the three selected locations where the quality comparison using wind roses have been already done. The results reveal that the model wind speed is in good agreement with observations. For example at Rio, the ME is 1.069 and MAE is 2.069. These values are in agreement with other studies that compare simulated and observed wind speeds in windy regions (Mykonos Island, Lagouvardos et al., 2003). The statistics of the quantity comparison as well as the equations of ME and MAE are given in a new table and into the revised manuscript, respectively. Moreover, an additional reference (Lagouvardos et al., 2003) concerning the modeled and observed wind speed comparison has been added.

In this study the selection of the model parameterization schemes of MM5 based on the findings of other authors (Kotroni and Lagouvardos, 2001; Akylas et al., 2007, etc). Short comments concerning their findings are given in the present paper. Nevertheless, additional

information about those findings is given at the revised version of the present study, according to Reviewer #1 suggestion.

The wind flow modification across the Corinthian Gulf due the surrounding complex terrain has been pointed out in section 4 of the text (Fig. 4), in which the six locations wind roses across the Gulf are analyzed. However, additional information about this modification is given at the revised manuscript where the horizontal wind field across the Gulf has been investigated for the two strongest wind events (26/12/2011, 12/01/2009) which used in the composite analysis in section 5. Two new figures of 10-m wind fields of MM5 using barbs representation and terrain heights have been included into the revised version of the present study, as Reviewer #1 suggests.