SEA BASIN CHECKPOINT
LOT4: BLACK SEA

CHALLENGE 1 – Wind Farm Siting
Expert evaluation of Targeted Products

Total number of pages: 5

Workpakage:	CH1	Wind Farm Siting
Author(s):	George Galanis	NKUA

A project funded by:

EUROPEAN COMMISSION, EXECUTIVE AGENCY FOR SMALL AND MEDIUM ENTERPRISES

Document Log

Date	Author	Changes	Version	Status
15/02/2018	George Galanis		1.0	

Table of content

Table of content 3

Expert evaluation of Target Product quality 4

BLACKSEA_CH01_Product_1 4
BLACKSEA_CH01_Product_2 5
BLACKSEA_CH01_Product_3 5

Please use your own judgement to describe for each Targeted product of the assessment of the "fitness for purpose and use". For each Targeted product please comment on the following points:

1. Assign an overall product quality score with respect to scope (fitness for purpose) and explain why, according to the scale in **Table 1**.
2. Identify the most important characteristic(s) for the Targeted Product quality (if all characteristics are important, please say so).
3. Identify which quality element(s) the most important characteristic(s) affects the Targeted Product quality.
4. Identify the limitations of the quality of the Targeted products due to the input data set used.
5. Explain which of the characteristics "most fails" to meet the scope of the Targeted Product.
6. Provide an expert judgement of the most important **gaps in the input data sets** for each Targeted Product.

SCORE	MEANING
1	EXCELLENT → completely meets the scope of the Targeted Product
2	VERY GOOD → meets more than 70% of the scope of the Targeted Product
3	GOOD → meets less than 50% of the scope of the Targeted Product
4	SUFFICIENT → does not adequately meet the scope but is a starting point
5	INADEQUATE → does not fulfill the scope and is not usable

Table 1. Targeted Products quality scores and their meaning.

Expert evaluation of Target Product quality

BLACKSEA_CH01_Product_1

1) The product quality score is **excellent (1).** The wind/wave data base developed and the associated statistical analysis meet the targets set by the project towards a complete assessment analysis for windfarm siting. A wide number of environmental parameters (beyond the classical wind/wave information) have been covered over an area that extends the borders of the predefined region under study. These data have been analysed by a variety of conventional and advanced statistical tools providing critical information for the data and their impact to wind farm siting
2) All the Characteristics proposed are more than useful for the product quality. However, the wind components (Zonal and Meridional) keep the critical role for the estimation of the available wind power.
3) The spatial and temporal extent and resolution combined with the accuracy of the data are the most important quality elements that influence the analysis towards the definition of the optimal areas for wind farm development
4) The targeted products applicability is restricted, as planned, to the Black sea area and particularly over the sea borders between Bulgarian – Romanian, Turkish – Bulgarian, and Turkish - Georgian waters. Moreover, qualitatively speaking, the data and analysis provided, from a meteorological point of view, are limited by the resolution of the data which although high, still leaves sub-scale phenomena out of the range.

5) Although all the characteristics contribute in the general analysis, if one had to peak one that fails the most to meet the scope of the product, this could be the 2-dimensional wave spectra due to the limitation of the data to specific-preselected grid points.
6) There are no serious gaps in the input data sets, but as mentioned above, the 2-dimensional wave spectra data are only available for fixed pre-selected points rather than the whole domain under study, which creates some restrictions.

BLACKSEA_CH01_Product_2

1) The product's quality score is **excellent (1).** The statistical analysis of the wind/wave data base as well as the suitability index for wind farm development in the Black Sea based on the environmental resources is complete and detailed being a merger of statistical indexes providing information for mean values and variability with a very high spatially and temporally data set.
2) The wind (zonal and meridional components) is the most important characteristic because it defines the available wind power potential.
3) The spatial (5 km) and temporal (hourly) resolutions guarantee a detailed and accurate analysis of the suitability of an area for wind farm development.
4) The targeted products applicability is restricted, as planned, to the Black sea area and particularly over the sea borders between Bulgarian – Romanian, Turkish – Bulgarian, and Turkish - Georgian waters.
5) All the characteristics contribute to the analysis and none of them fails to meet the scope of the product.
6) There were no serious gaps in the input data sets.

BLACKSEA_CH01_Product_3

1) The product's quality score is **exelelent (1).** It provides a complete assessment of the confidence limits of the data sets for the Black Sea regions under study supported by a detailed evaluation analysis of the data base which covers all the available resources in the data base.
2) The wind components (Zonal and Meridional) since they completely defined the available wind power potential.
3) The spatial and temporal resolution succeeded - 5 km and 1 hour respectively - which guarantee a detailed and accurate analysis of the suitability of an area for wind farm development.
4) The analysis obtained is based on a 10-year data base which is a statistically significant period posing, at the same time, some limitations in projecting the outcomes to a climatological level.
5) All of the characteristics contribute to the analysis and meet completely the scope of the product.
6) Other characteristics are important, but information on them was not available, due to data policy reasons, particularly regarding military areas. However, it is very unlikely that these data become ever available.