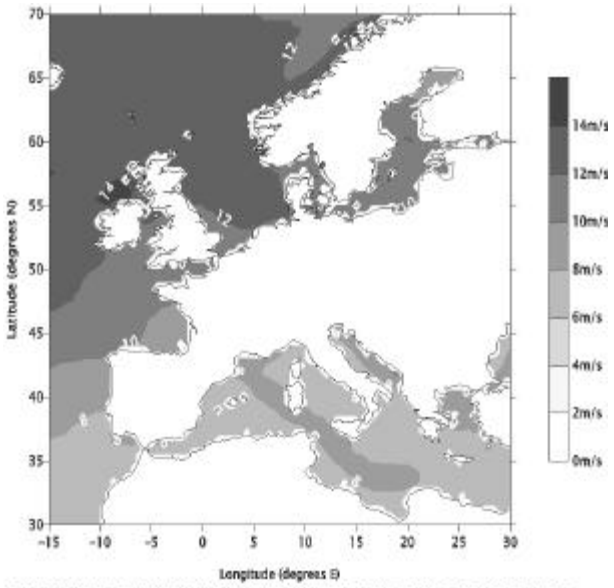
APPENDIX 1

WAsP model estimates of mean monthly wind speed distributions in European Union waters.

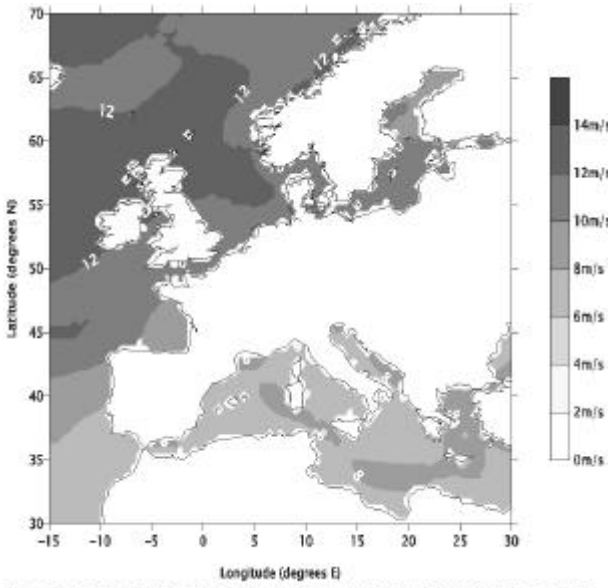
Results from the WAsP model runs performed for the POWER project have been used to estimate the mean monthly distributions of offshore wind energy resource at 50m above sea level throughout European Union waters. These results are illustrated in the plots on the following pages and are intended to demonstrate the degree of variability in the offshore wind resource through the year. The results show significant variations of up to ±25% in mean monthly wind speeds compared to the mean annual values in some areas. **IT MUST BE EMPHASISED THAT THESE ARE PRELIMINARY RESULTS ONLY.** THE DATA USED TO COMPILE THE PLOTS HAVE BEEN GENERATED BY THE WAsP MODEL USING A SIMPLE REPRESENTATION OF COASTAL EFFECTS AND THE RESULTS HAVE NOT YET BEEN VALIDATED IN DETAIL.

In northern Europe, the windiest month is predicted to be January, with mean wind speeds of over 14ms^{-1} shown west of Scotland and wind speeds in excess of 12ms^{-1} predicted throughout the North Sea basin. The WAsP results indicate that the least windy month in northern Europe is likely to be July with mean monthly wind speeds of no more than 8ms^{-1} predicted in all but a few areas. On this basis, offshore wind farms are likely to generate the largest amounts of power during the windy winter months, but their power output will probably drop in the relatively calm summer months. Happily, this pattern mirrors closely the demand for power by end users in northern Europe.

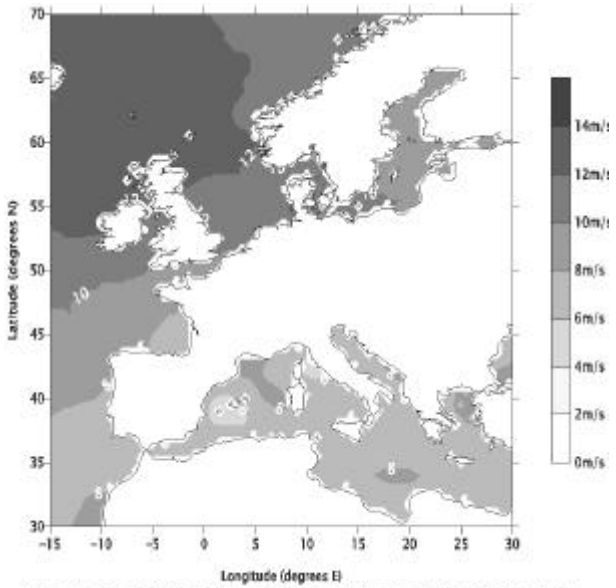
By contrast, the mean monthly wind distribution patterns in southern Europe are more complex. The WAsP results show parts of the eastern Mediterranean and the Aegean indicate experience relatively high wind speeds in excess of 8ms^{-1} in mid-summer.



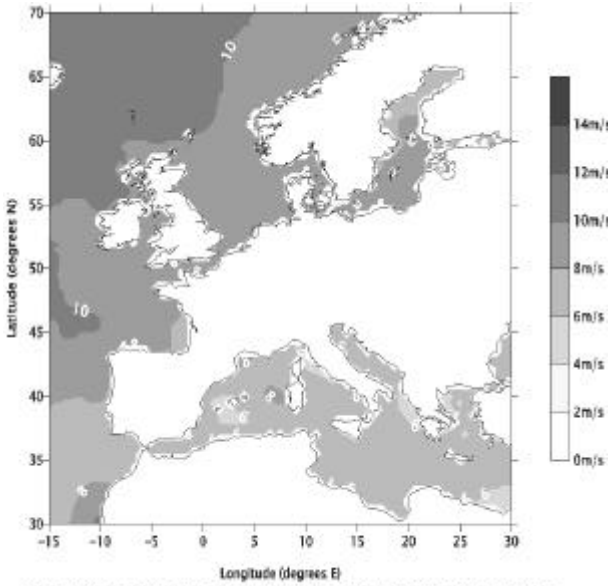
WAsP MODEL RESULTS - MEAN JANUARY WIND SPEED 50M ASL (1985 - 1997)



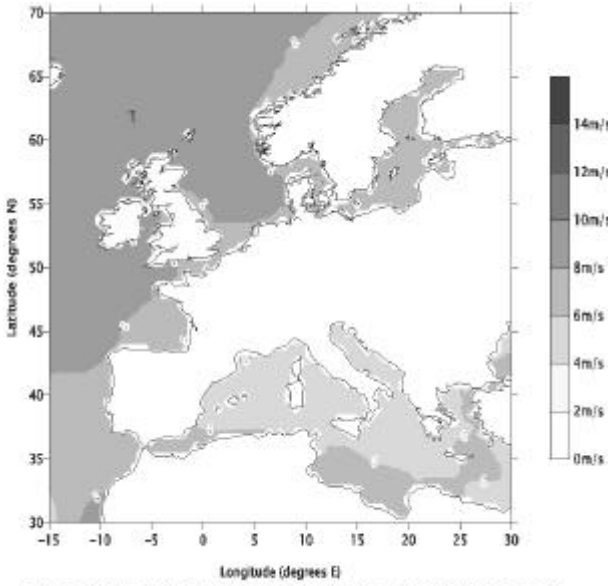
WAsP MODEL RESULTS - MEAN FEBRUARY WIND SPEED 50M ASL (1985 - 1997)



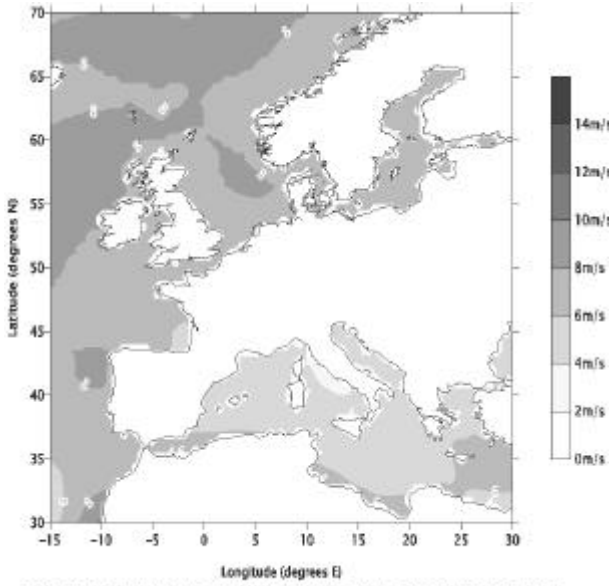
WAsP MODEL RESULTS - MEAN MARCH WIND SPEED 50M ASL (1985 - 1997)



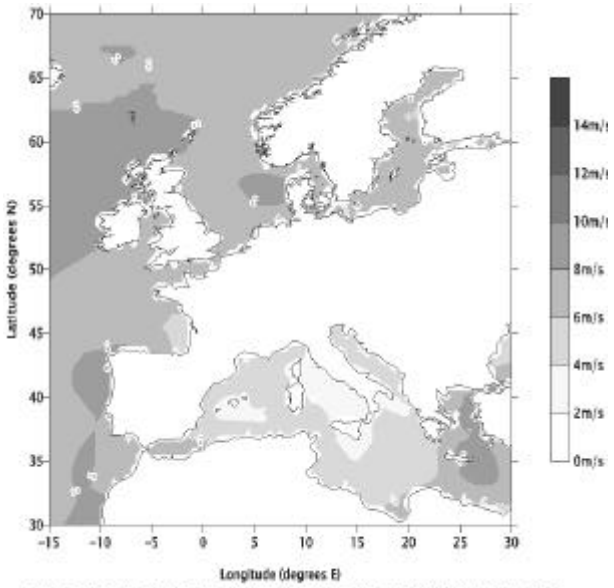
WAsP MODEL RESULTS - MEAN APRIL WIND SPEED 50M ASL (1985 - 1997)



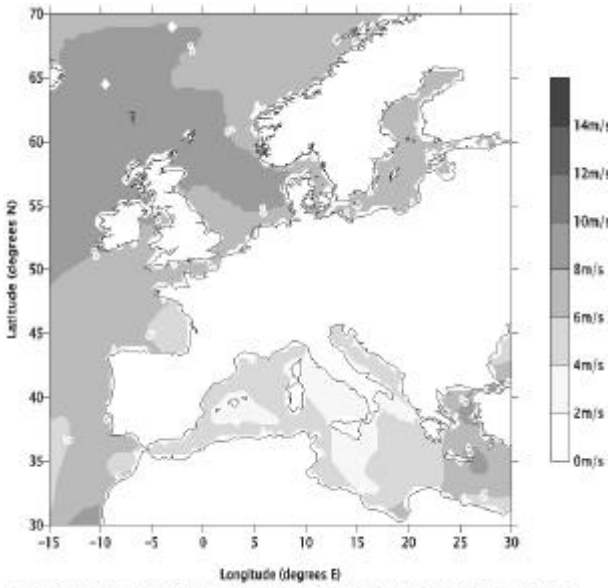
WAsP MODEL RESULTS - MEAN MAY WIND SPEED 50M ASL (1985 - 1997)



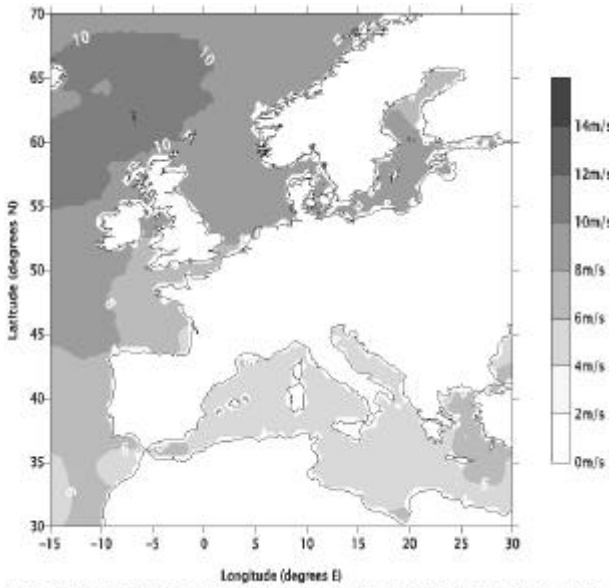
WAsP MODEL RESULTS - MEAN JUNE WIND SPEED 50M ASL (1985 - 1997)



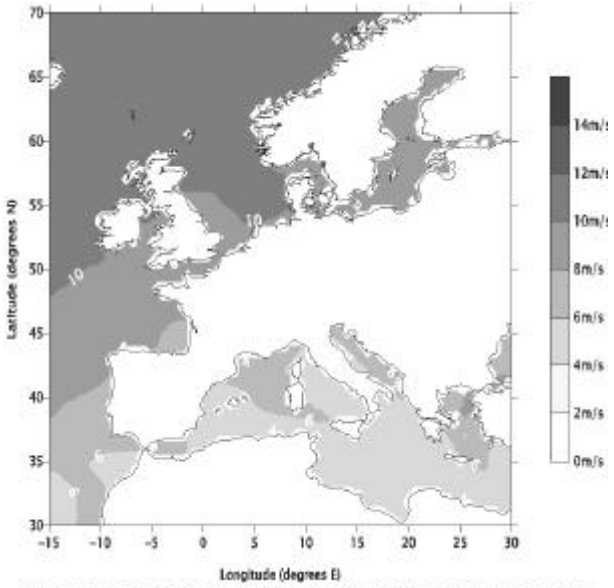
WAsP MODEL RESULTS - MEAN JULY WIND SPEED 50M ASL (1985 - 1997)



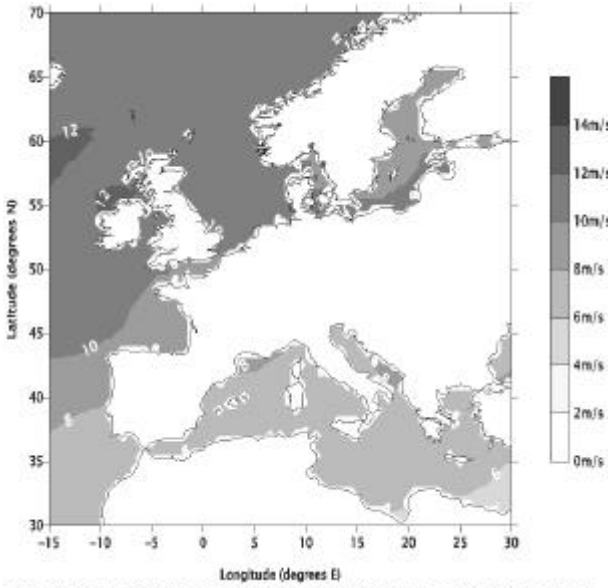
WAsP MODEL RESULTS - MEAN AUGUST WIND SPEED 50M ASL (1985 - 1997)



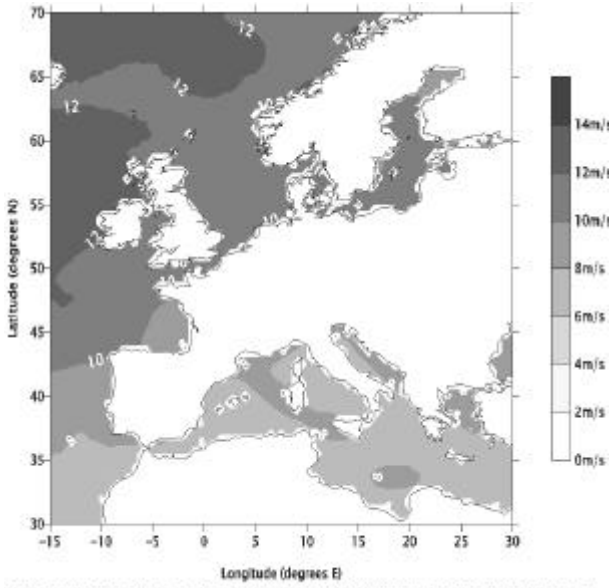
WAsP MODEL RESULTS - MEAN SEPTEMBER WIND SPEED 50M ASL (1985 - 1997)



WAsP MODEL RESULTS - MEAN OCTOBER WIND SPEED 50M ASL (1985 - 1997)



WAsP MODEL RESULTS - MEAN NOVEMBER WIND SPEED 50M ASL (1985 - 1997)



WAsP MODEL RESULTS - MEAN DECEMBER WIND SPEED 50M ASL (1985 - 1997)