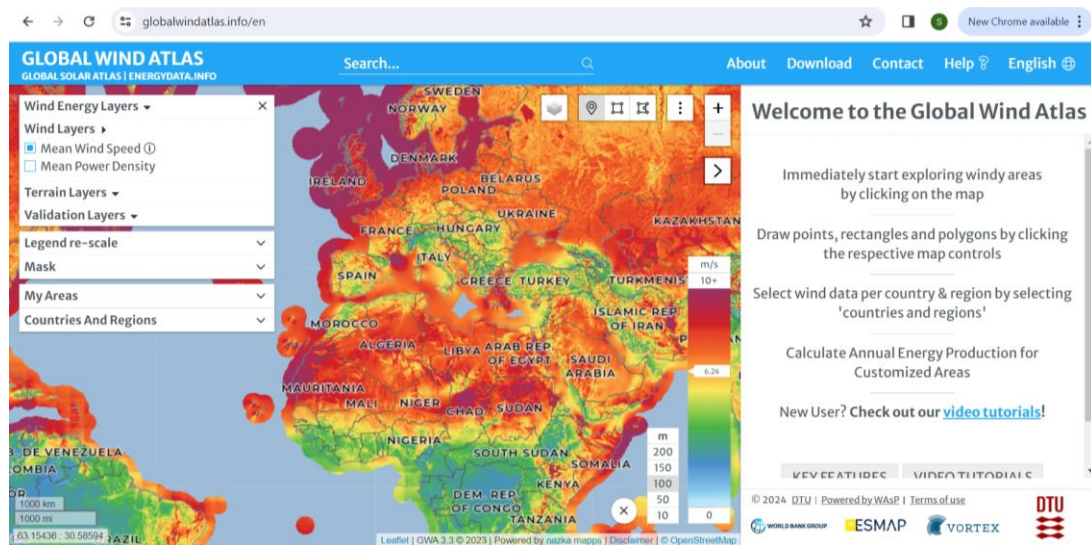


Internet GIS activity: Global Wind Atlas

The Global Wind Atlas provides global information about winds.

- Access the Global Wind Atlas at <https://globalwindatlas.info/en>
- Notice that the Home Page features a map that focuses on Africa and Europe. Can you locate the UK? It's not actually labelled but Ireland is! The colours show wind speed in m/s. You can see a key on the right of the map.
- Notice that the 'm' scale shows that the wind speeds displayed have been recorded at an altitude of 100m. You can change this if you like and see what happens! **Return this to 100m before continuing.**



1. Take a few minutes to explore the tools on the Home Page. You can left click the map and move it to reveal different parts of the world. Notice that as you move the cursor over the map, it registers the wind speed on the colour bar key. Try this for a country of your choice.
2. Locate Spain. What are the typical wind speeds:
 - (a) In central Spain _____ m/s
 - (b) At Spain's west coast _____ m/s
3. Locate Mauritania in Africa.
 - (a) Suggest why there is huge potential for wind energy in Mauritania.
 - (b) Watch the video clip at <https://www.youtube.com/watch?v=5vhFEvytZC4> which outlines the potential for renewable energy in Mauritania. Describe and suggest reasons for the location of Mauritania's large wind farms.

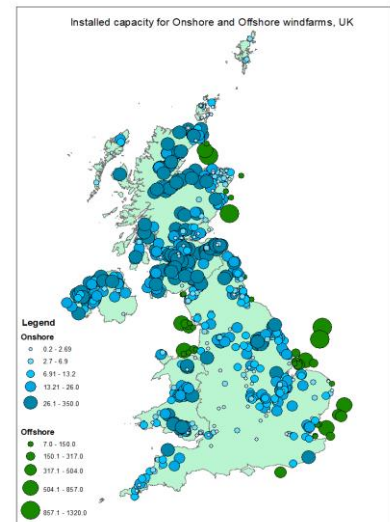
4. Let's look at the UK. Move the cursor over the UK and click. Use the zoom tool or mouse wheel to zoom out to reveal names of familiar cities. Move the map so that you can focus on your home area. Record the wind speed for your home area and for the cities listed below.

Location	Home area	London	Norwich	Manchester	Sheffield
Wind speed (m/s)					

5. The map below shows the distribution of wind farms in the UK (2023). Use the Global Wind Atlas to investigate the pattern of wind farms in the UK. Let's consider if wind farms are located in the areas of strongest winds.

- (a) Using the Global Wind Atlas, zoom-in on a map of Wales. Click 'orography' in the left-hand menu to reveal the relief of Wales. Notice that height values appear in the height bar as you move the cursor. Roughly what height are the uplands in Wales? _____ m
- (b) Toggle between 'Orography' and 'Mean Wind Speed'. Are the highest wind speeds found over the uplands or lowlands? _____
- (c) Now look at the map below. Are the wind farms mainly located on the uplands or the lowlands? _____
- (d) Suggest reasons for your answer to (c) above.

(e) Now look at Scotland. To what extent do the wind farms coincide with the uplands and areas of strongest winds?



Digest of United Kingdom Energy Statistics (DUKES) 2023

(f) Using the Global Wind Atlas, suggest why the largest wind farms are offshore, for example, off the East coast of England.

Extension activity

- 6. Find out more about the winds at your home area.
 - Write the name of your nearest town in the Search box. You may wish to zoom out a bit to reveal the wider area.
 - Click My Areas from the menu on the left side. Click 'marker' and locate this on the map over your home town. Click to fix the marker. This will create a region of 90km² centred on your home town.
 - Notice that information about your home town now appears on the right side. The menu bar enables you to find out about 'Area Data', 'Temporal Data' and 'Energy yield'. Look at each of these to see what it reveals.
 - (a) Look at the information in 'Area data'. What is the average wind speed for the 10% windiest areas in the region at 100m? _____ m/s
 - (b) Click the box 'Wind Roses Mean Wind Speed'. This will reveal a wind rose, showing the most frequent wind directions. What is the most frequent wind direction for your home town? _____ [Wind direction is where the wind has come from]
 - (c) What else can you find out about the winds in your home area?