



# **Integration of data to public portals**

## **GASP Project Deliverable 4.2**

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June 2021  
Version 1

Report  
2021

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Cover photo:     [Tekst]

Published by:    DTU, Department of Wind Energy, Frederiksborgvej 399, Building 118, 4000 Roskilde Denmark  
[www.vindenergi.dtu.dk](http://www.vindenergi.dtu.dk)

ISSN:            [0000-0000] (electronic version)

ISBN:            [000-00-0000-000-0] (electronic version)

ISSN:            [0000-0000] (printed version)

ISBN:            [000-00-0000-000-0] (printed version)

# Preface

This report serves as Deliverable 4.2 to the EUDP project GASP (Global Atlas for Siting Parameters). Here we introduce the public data portal where GASP output are provided.

Risø, June 2021

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# 1. Introduction

In addition to the main global wind atlas (GWA) website ([globalwindatlas.info](http://globalwindatlas.info)), DTU runs a science portal ([science.globalwindatlas.info](http://science.globalwindatlas.info)). This portal contains historical GWA data, and additional fields that are of interest to more specialized users. It is the science portal, where new projects like GASP first appear. As part of the GASP project, the science portal has been revised to provide a simpler interface and make it easier to add new projects. In another project, occurring concurrently with GASP, satellite based wind resource maps have also been added to the portal, while also supporting the interface revision. The global GASP layers are also hosted on [data.dtu.dk](http://data.dtu.dk), where users can download the full resolution datasets for use in their own GIS tools.

The GASP layers are added into the science portal, through the use of the University of Minnesota Mapserver, which takes the global GASP layers, and colors them based on different colormaps and then serves them as PNG based tiles. These tiles are then displayed on the science portal.

Given the release cycle of the GWA, the GASP layers are not added to the main page at the time of the project end, but it is planned for Fall of 2021 to have the IEC class, V50, Flow Inclination Angle, and Turbulence Intensity added to the main GWA website. Additionally, all GASP layers will be served as country based downloads so users who are interested in a country do not need to download the full global dataset.

## 2. Data on Portal

Currently, the data can be found at <https://science-dev.globalwindatlas.info/#/map>

The data include the following variables

Category	Variable	Definition and methods
Atmospheric Variables	flow-inclination	Flow inclination angle calculated using the LINCOM linear flow model
	shear-exponent	Terrain induced shear exponent calculated using the LINCOM linear flow model
	turbulence-intensity	Turbulence intensity, calculated using an ensemble of four models onshore, and two models offshore.
	V50	The 50 year return wind speed, at a temporal resolution of 10 min. This was calculated by downscaling the CFSR data using a combination of the Spectral Correction method and the LINCOM linear flow model.
Loads	fls-class-nowake	IEC turbine class based on the fatigue limit state (fatigue loads), which accounts for normal conditions like wind speed distribution and characteristic turbulence, not including wake effects.
	fls-class-wake	IEC turbine class based on the fatigue limit state (fatigue loads), which accounts for normal conditions like wind speed distribution and characteristic turbulence including wake effects
	uls-class	IEC turbine class based on the ultimate limit state (extreme loads), which is based on the V50 and air density at high wind speed
Uncertainty	uncertainty-ti	Uncertainty classification of turbulence intensity
	uncertainty-V50	Uncertainty classification of V50
Terrain	terrain-complexity	IEC based classification of terrain complexity

Fig. 1 shows an example of one layer of data, here “V50 EXTREME WIND” as ticked from the list to the left, at one of the three heights.

Fig. 2 shows another example of one layer data, “V50 UNCERTAINTY”, which shows three categories of reliability of the calculation of the 50-year wind, with low (blue), medium (orange) and high (red) uncertainty.

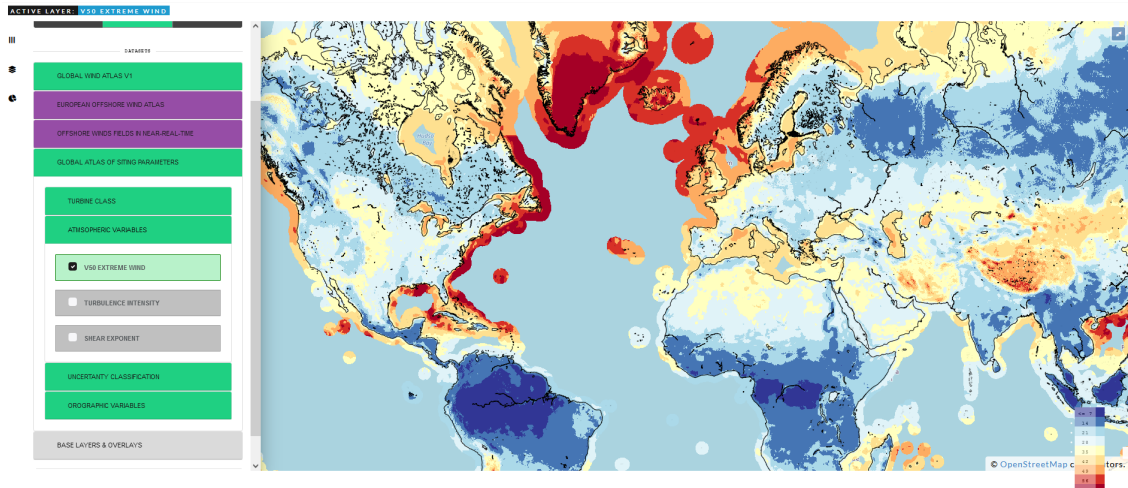


Fig. 1 An example of the web display of the 50-year wind at 100 m.

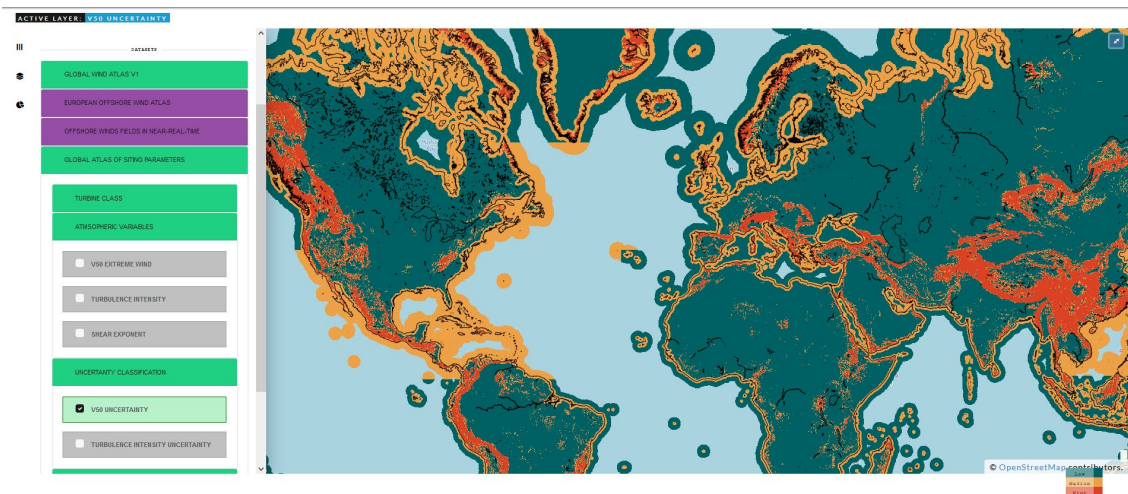


Fig. 2 An example of the web display of uncertainty classification of the 50-year wind at 100 m.