



# Introducing Moli – enviConnect's new wind lidar monitoring software

31. Windenergietage in Potsdam

Dr.-Ing. Ines Würth

9 November 2023



# Wir digitalisieren die Windenergie

Wir sind ein Spin-off des Lehrstuhls für Windenergie der Universität Stuttgart

Wir entwickeln Software, die



nutzerfreundlich ist,



Prozesse automatisiert,



unser Wissen digitalisiert.



**Dr.-Ing. Ines Würth**  
**Gründerin & CPO**

Ich habe 10 Jahre Erfahrung in Windenergie R&D und möchte mein Wissen in die Anwendung bringen.

enviConnect

Digitalising wind energy

# Unser Team

Gefördert durch:



aufgrund eines Beschlusses  
des Deutschen Bundestages



Zusammen.  
Zukunft.  
Gestalten.



Dr. Andy Clifton  
Geschäftsführer

**20 Jahre**  
im Energiebereich  
weltweit



Dr. Ines Würth  
Produktverantwortliche

**10 Jahre**  
in Windenergie FuE



John Asher Rayan  
Entwickler

**7 Jahre**  
Full-Stack-  
Entwickler

# Windlidare ersetzen Messmasten

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- Windmessungen bis 300m
- Einfach und flexibel in der Installation
- Off-Grid Lösung für autarken Betrieb
- Bankable Daten zur Sicherung der Finanzierung
- Präzise Messungen zur Bewertung des Energieertrags
- Überprüfung der Leistung



Quelle Foto: GWU Umwelttechnik GmbH

# Windenergie-Fachpersonal ertrinkt in Arbeit

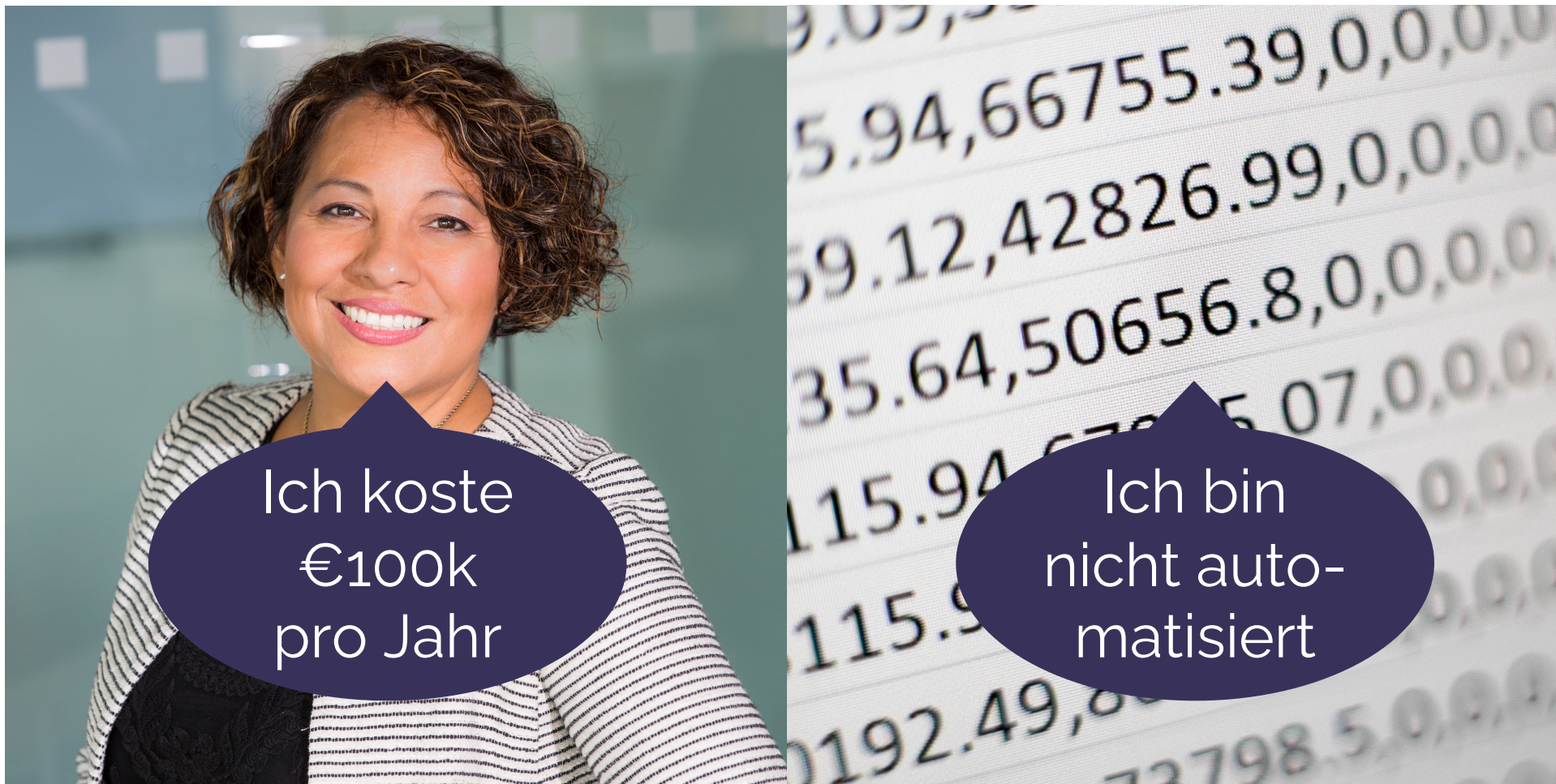
Datenanalysten verbringen bis zu 80 % ihrer Zeit mit der Vorbereitung und Verwaltung von Daten

- CrowdFlower 2016 Data Science Report

Image by master1305 on Freepik



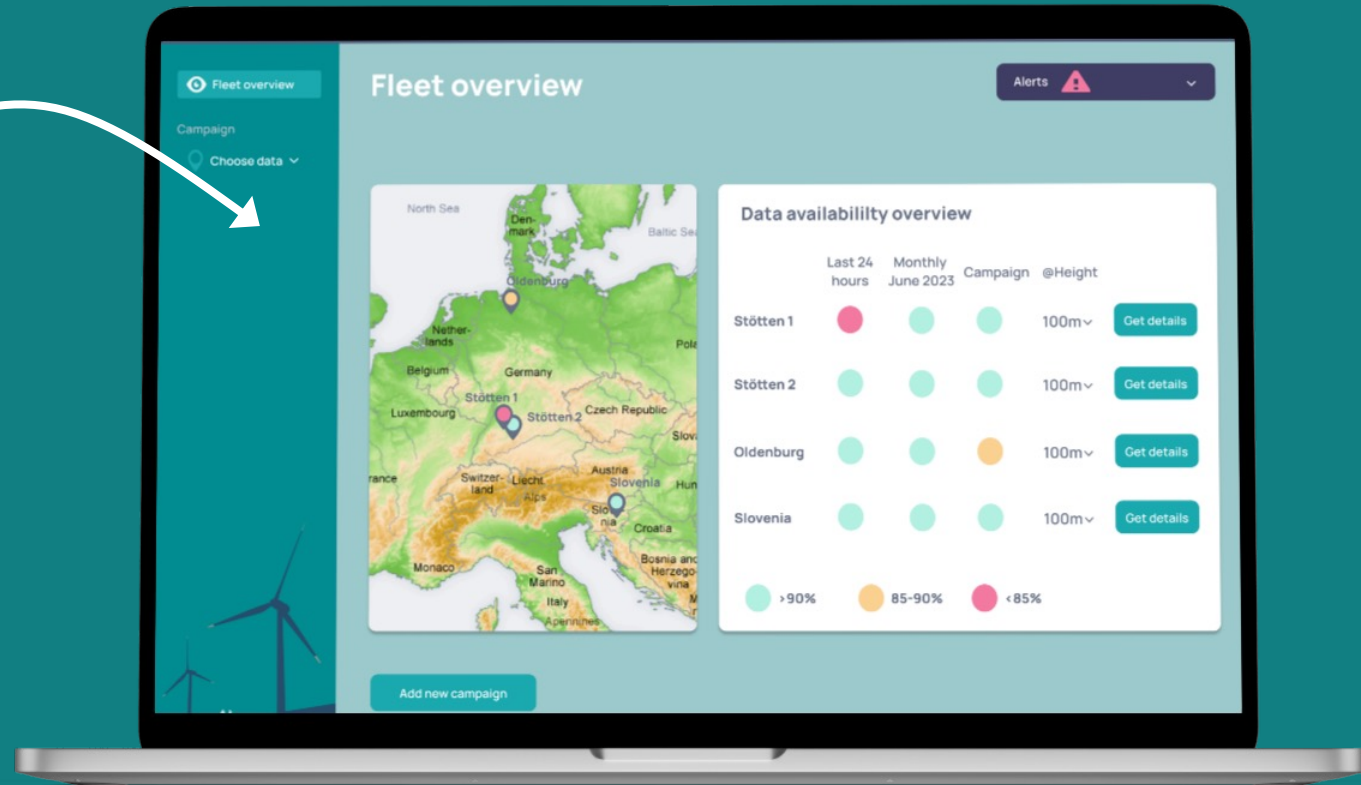
# Wie werden Lidardaten gerade ausgewertet?



# Unsere Lösung ist Moli, die Web-App für Lidar-Datenüberwachung

Wir haben 40 Windmessexperten gefragt, was sie brauchen ...

... und nutzen diese Erkenntnis zum Aufbau von Moli



# Moli übernimmt für Sie die täglichen Aufgaben der Datenüberwachung



## Daten sammeln

Automatisches Hochladen von Daten per E-Mail oder FTP



## Qualitätskontrolle

Daten nach Ausreißern filtern



## Automatische Warnung

Sendet Warnungen, wenn etwas nicht in Ordnung ist





# Produkt Demo

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- Funktioniert mein Lidar so wie es soll?
- Wie sind die Windbedingungen?
- Wie halte ich mein Team auf dem Laufenden?

Funktioniert mein Lidar so wie es soll?

# Sign in to your account

jen.wilson@example.de

\*\*\*\*\*

Remember me

[Forgot password?](#)

Sign In

 Sign in with Google

Don't have an account? [Sign up](#)

Fleet overview

Fleet overview

Last page update: June 24th 2023, 15:43

Choose campaign

V2 Stötten 1

+ New campaign



Data availability

Data transfer

	Daily June 23rd	Monthly June 2023	Campaign	@Height	
Stötten 1	0%	92%	97%	100m	Get details
Stötten 2	91%	97%	95%	100m	Get details
Oldenburg	92%	94%	86%	100m	Get details
Slovenia	98%	94%	91%	100m	Get details

Legend:   
● >90%   
● 85-90%   
● <85%

+ Add new campaign

Fleet overview

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Data availability

Data transfer

	Data transferred on June 23rd?	Most recent timestamp in data base:	
Stötten 1	No	June 22nd 2023, 23:50	<a href="#">Get details</a>
Stötten 2	Yes	June 23rd 2023, 23:50	<a href="#">Get details</a>
Oldenburg	Yes	June 23rd 2023, 23:50	<a href="#">Get details</a>
Slovenia	Yes	June 23rd 2023, 23:50	<a href="#">Get details</a>

+ Add new campaign

Fleet overview

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Oldenburg	Yes	June 23rd 2023, 23:50	<a href="#">Get details</a>
Slovenia	Yes	June 23rd 2023	

+ Add new campaign

**Alerts**

No data from June 23rd, 2023 from Stötten 1

Diagnostics:  
We did not receive an expected data upload today at 04:30 via FTP.

Recommended action:

- check network connectivity
- perform lidar maintenance

05:30 June 24th, 2023

Fleet overview ▶ Stötten 1 - Dashboard

Last page update: June 24th 2023, 15:43  
Most recent timestamp in data base: June 22nd 2023, 23:50

Fleet overview

Choose campaign

V2 Stötten 1

New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration



v0.1

Data availability @ 100m

Daily  
June 23rd



0%

Monthly  
June 2023

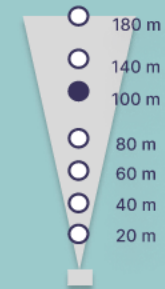
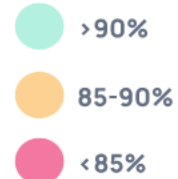


91%

Campaign



92%



Monthly availability

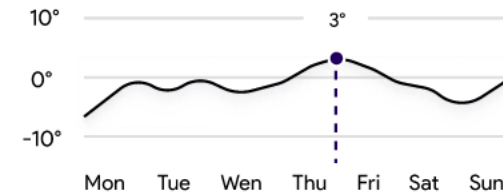
Daily availability

Live weather in Stötten, Germany

3° Feels like -2°



Today Tomorrow 10 days



Alerts

Wie sind die Windbedingungen am Standort?



Fleet overview ▶ Stötten 1 - Data browser

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Fleet overview

Choose campaign

V2 Stötten 1

New campaign

Menu

Dashboard

Time series

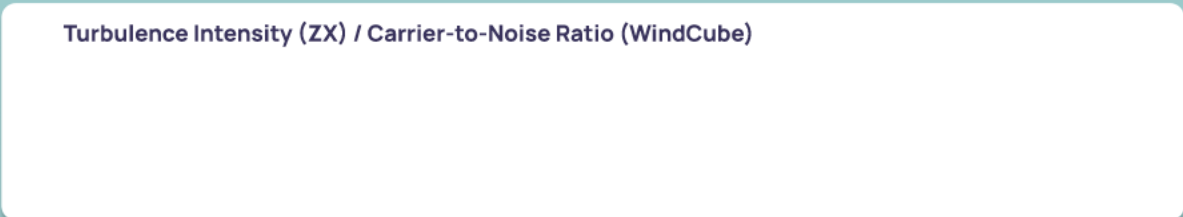
Campaign stats

Campaign logbook

Configuration



Download report



Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Time series

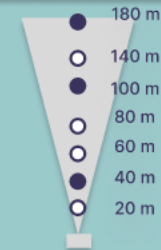
Campaign stats

Campaign logbook

Configuration

### Fleet overview ▶ Stötten 1 - Campaign results

Last page update: June 24th 2023, 15:43  
Most recent timestamp in data base: June 22nd 2023, 23:50



Download report



Wie kann ich mein Team auf dem Laufenden halten?

Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Time series

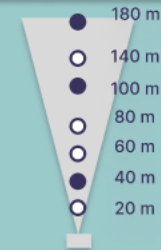
Campaign stats

Campaign logbook

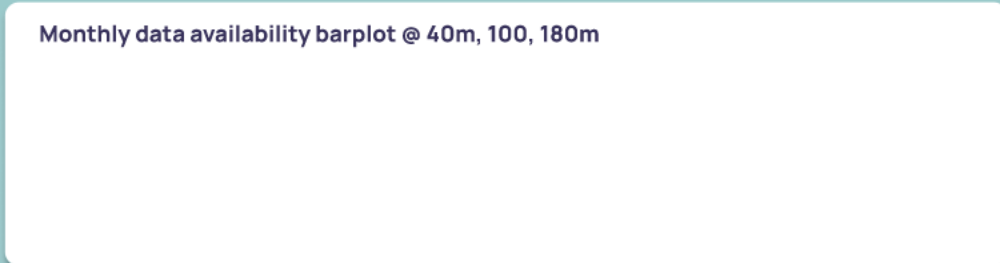
Configuration

### Fleet overview ▶ Stötten 1 - Campaign results

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Download report



Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Data browser

Campaign results

Campaign logbook

Configuration



Download report

### Download report

- Time series charts
- Campaign statistics
- Logbook

Name

Directory

File format  ▾

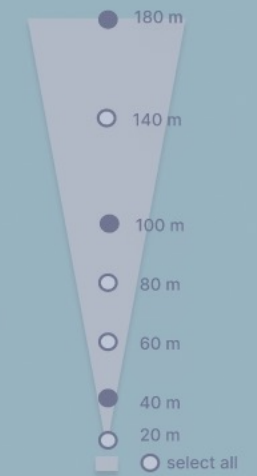
Cancel Save

#### Wind speed

#### Wind direction

#### Turbulence Intensity

#### Availability



Fleet overview ▶ Stötten 1 - Campaign logbook

Last page update: June 24th 2023, 15:43  
Most recent timestamp in data base: June 22nd 2023, 23:50

Fleet overview

Choose campaign

V2 Stötten 1

New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration

Alerts

Search logbook

New entry

Download report

May, 2023



Alert: No data today!

24.05.23  
05:30

Diagnostics:  
Data transfer not working. [More...](#)



Note: Downloaded monthly report

01.05.23  
9:12

Boss wanted to see details. I saved it in the campaign folder on the cloud drive. [More...](#)



April, 2023



Note: Poor monthly availability for march

01.04.23  
15:48

Availability alert for March. Might have to extend the campaign. [More...](#)



# Moli bringt viele Vorteile



Nie wieder durch  
Datenfiles klicken

Täglich eine Stunde  
Zeit einsparen

Viele Messkampagnen  
gleichzeitig betreuen



confidential

# Wir arbeiten mit zwei Windparkprojektierern zusammen

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- Einer der großen Windstromerzeuger in Österreich
- Projekte in Österreich und Europa
- 27 Jahre Kompetenz und Erfahrung

→ Rückmeldung fließt in die Entwicklung ein



# FAQs

- Wie passt Moli zu meinen anderen Tools?
- Wie bekomme ich Zugang zu Moli?
- Was kostet Moli?

# Moli passt in Ihren Windmess-Workflow

## Installation:

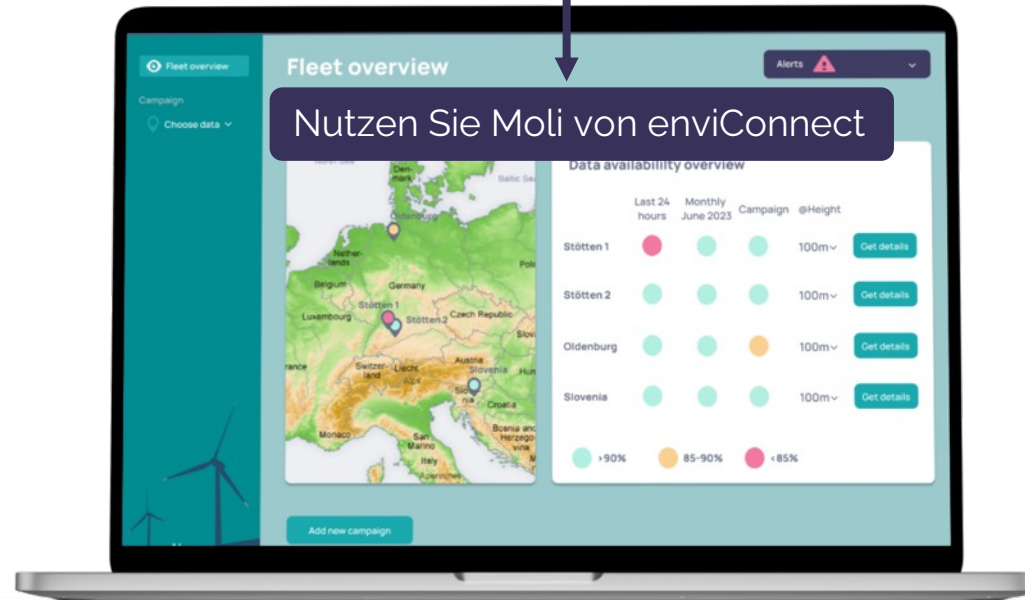
Sie haben gerade ein Lidar installiert und möchten überprüfen, ob es funktioniert.

Verwenden Sie die Lösung des Lidar-Anbieters, z.B. Waltz, WindCube Insights

## Kampagnenüberwachung:

Ihr Lidar läuft, und Sie möchten die Daten und Aktivitäten vor Ort überwachen

Nutzen Sie Moli von enviConnect

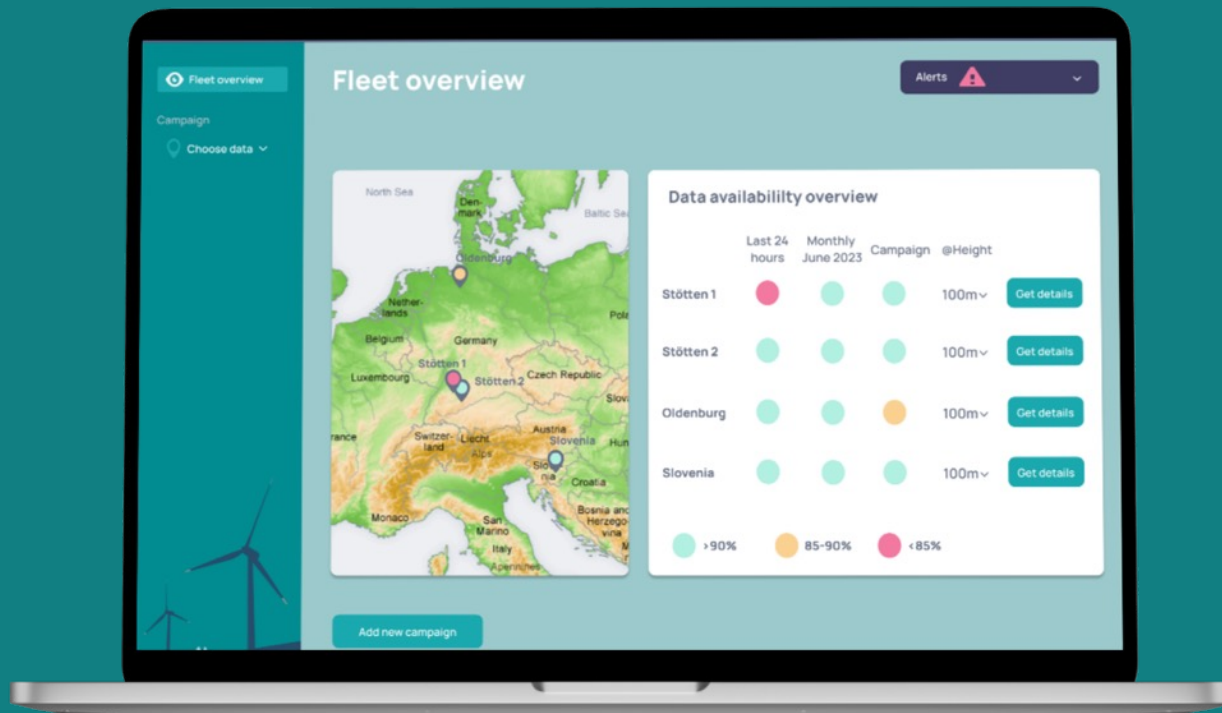


## Datenanalyse:

Ihre Kampagne ist beendet, und Sie möchten die Daten analysieren

Verwendung von Industriestandard-Tools, z. B. Windographer

# Testen Sie Moli kostenlos



Unser Early-Access Programm ist jetzt offen!

Wenden Sie sich an Ines Würth, unsere Produktmanagerin, um loszulegen.




[ines.wuerth@enviconnect.de](mailto:ines.wuerth@enviconnect.de)

# enviConnect

Digitalising wind energy

 [www.enviconnect.de](http://www.enviconnect.de)

 [info@enviconnect.de](mailto:info@enviconnect.de)

 TGU enviConnect  
TTI GmbH  
Nobelstrasse 15  
70569 Stuttgart  
Germany



Fleet overview

Choose campaign

V2 Stötten 1

+ New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration

Campaign metadata

Lidar metadata

Data import

Alert settings

Report settings

End campaign

Campaign metadata

Campaign name\*

Stötten 1

Campaign description

In Stötten 1 we measure the wind speed for a prospective wind farm of 5 wind turbines. The campaign started in February 2023 and will probably last until January 2024.

Campaign location\*

48,663 Degrees north (latitude)

9,855 Degrees west (longitude)



\*mandatory

Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration

Campaign metadata

Lidar metadata

Data import

Alert settings

Report settings

End campaign

## Data import

How would you like to import your lidar data?

Upload @ Email FTP

You can upload one or several data files manually from your sever to our server and let the app check your data.

Drag & drop files or [Browse](#)

Supported formates: txt, csv, json

Uploading - 3/3 files

lidar.z01.a0.20190708.000000.txt.PDF

This document format is not supported, please delete and upload another file.

Uploaded

lidar.z01.a0.20190708.000000.txt

lidar.z01.a0.20190709.000000.txt

Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration

Campaign metadata

Lidar metadata

Data import

Alert settings

**Report settings**

End campaign

### Report settings

Would you like to get campaign reports as pdf documents to your email inbox?

Yes  No

How often would you like to get a pdf campaign report?

Daily  Weekly  Monthly

Should we attach the logbook printout to the report?

yes  no

Who should get the report?

jen.wilson@example.com

Enter additional email address

Fleet overview

Choose campaign

V2 Stötten 1 ▾

+ New campaign

Menu

Dashboard

Time series

Campaign stats

Campaign logbook

Configuration

Campaign metadata

Lidar metadata

Data import

Alert settings

Report settings

End campaign

### Alert settings

Would you like to get data transfer alerts to your email inbox if we have not received data from this campaign for more than 24h?  Yes  No

Would you like to receive alerts, when the daily data availability is low for a couple of days in a row? You can customize them to your needs.

Choose height	Chose number of days	Set threshold	Get email alert?	
100 m	5	85 %	Yes ▾	+ add row

Would you like to receive alerts, when the current month's availability is low? You can customize them to your needs.

Choose height	Set threshold	Get email alert?	
100 m	85 %	Yes ▾	+ add row

### Who should get the email alerts?

jen.wilson@example.com