VON ERDBEOBACHTUNGSDATEN ZUM MARKTBERICHT: OFFSHORE-WINDENERGIE GLOBAL BIS LOKAL

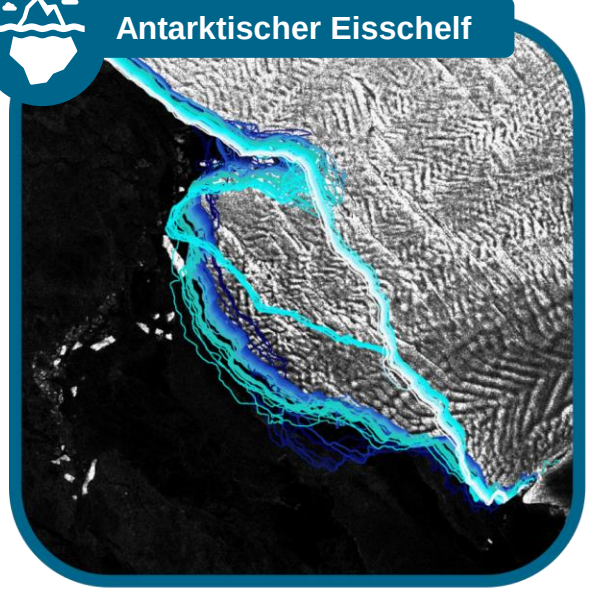
Dr. Thorsten Hoeser – Deutsches Fernerkundungsdatenzentrum (DFD)

DLR

DLR-DFD Abteilung: Dynamiken der Landoberfläche

Polar and Cold Regions

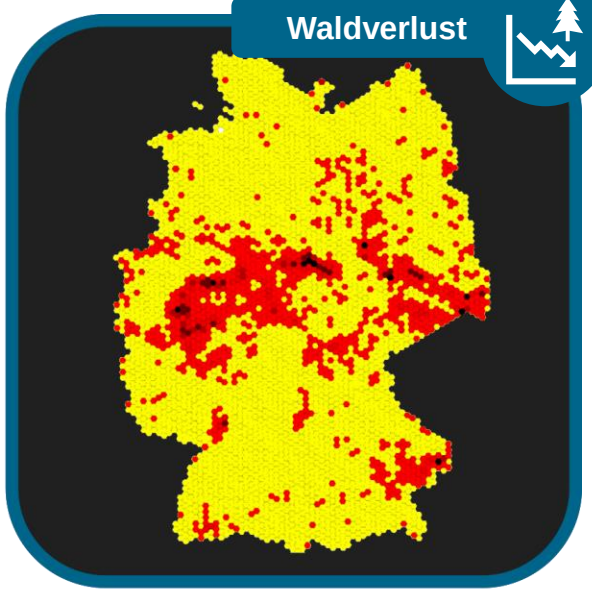
Antarktischer Eisschelf



Baumhoer et al. 2023

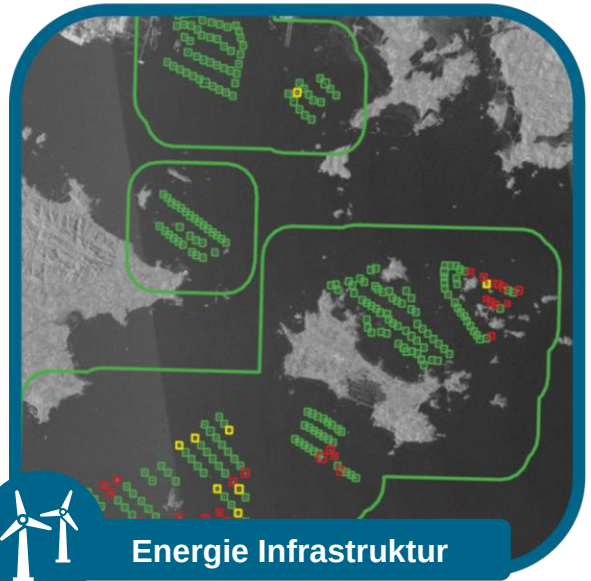
Forestecosystems

Waldverlust



Thonfeld et al. 2022

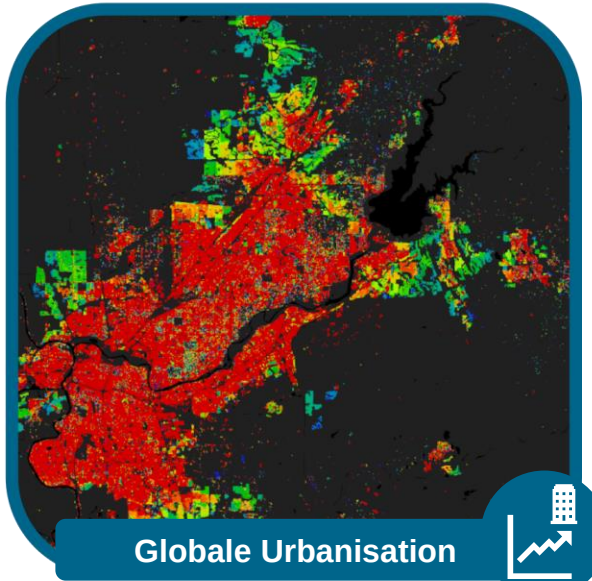
Water Security and Coastal Systems



Hoeser et al. 2022

Energie Infrastruktur

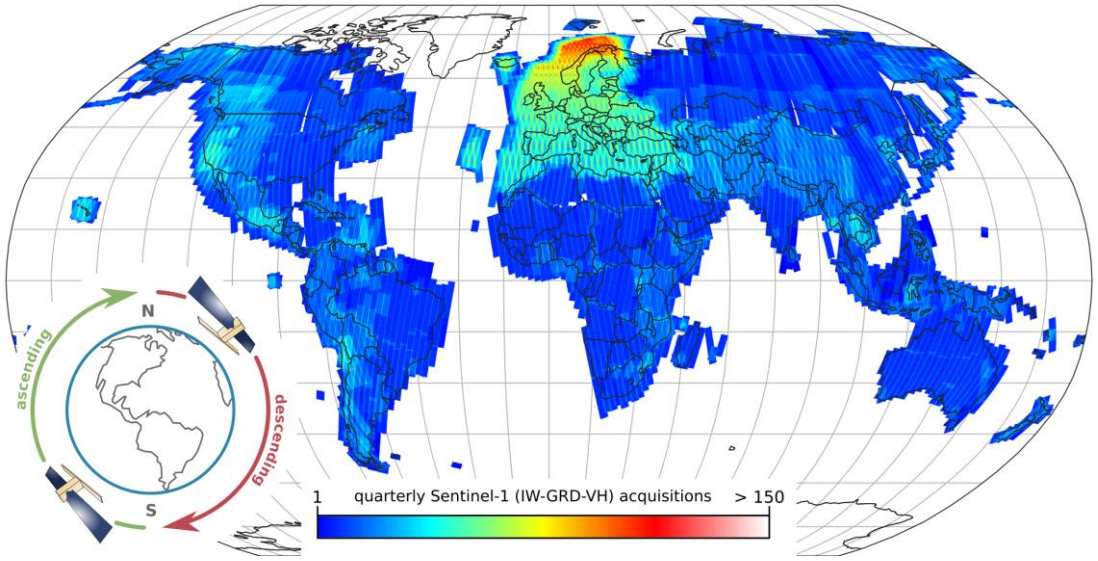
Smart Cities and Spatial Developments



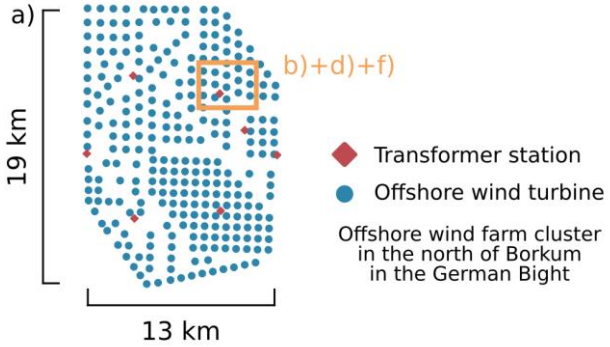
Marconcini et al. 2020

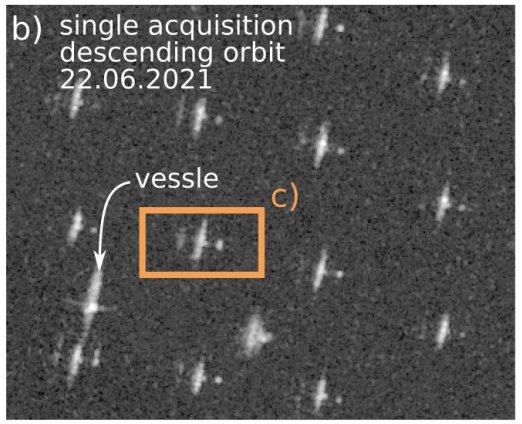
Globale Urbanisation

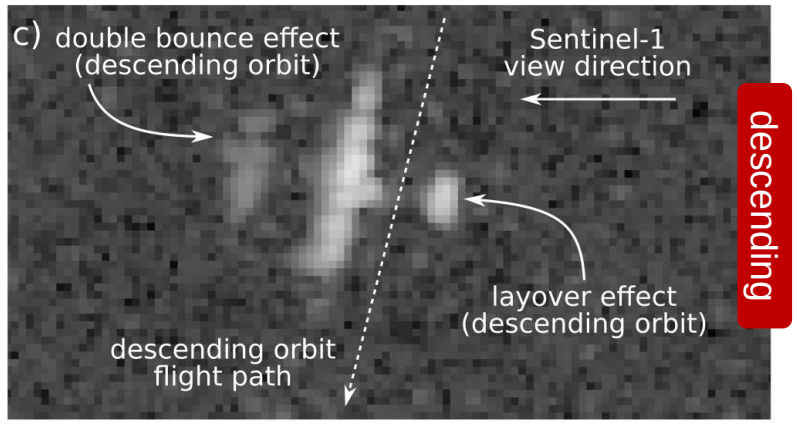
Offshore-Windinfrastruktur in Sentinel-1 Aufnahmen

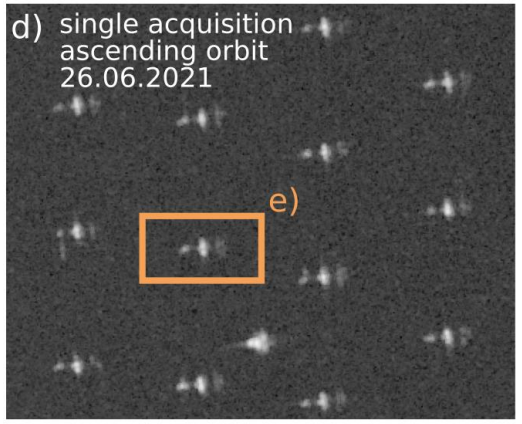


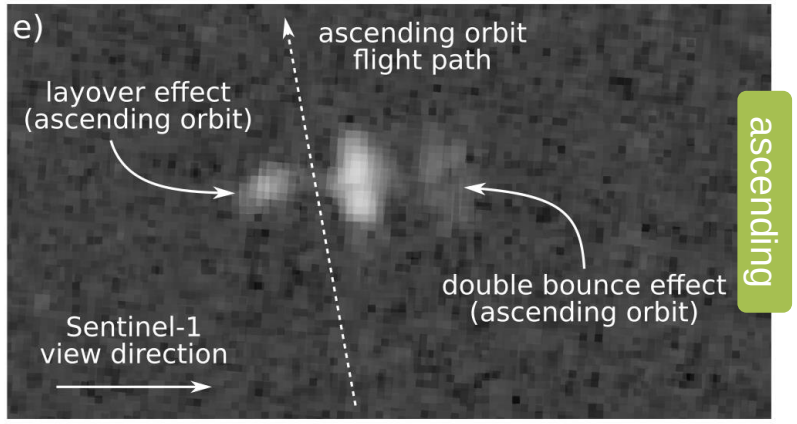


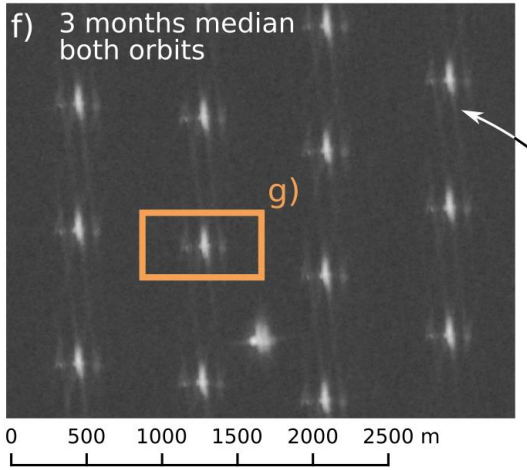


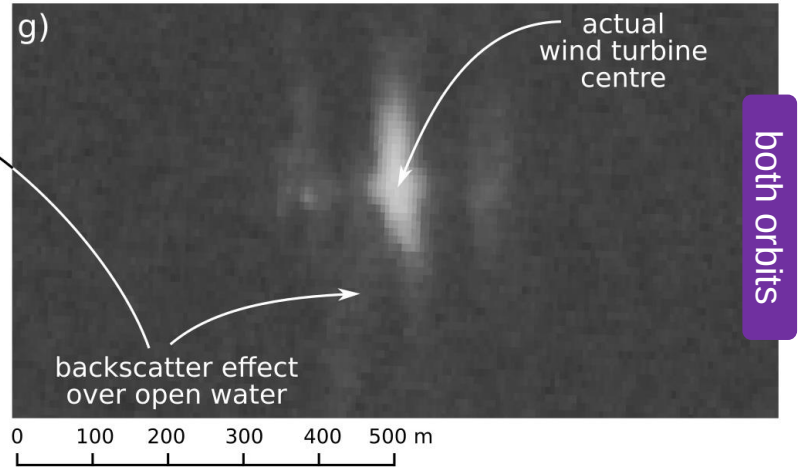




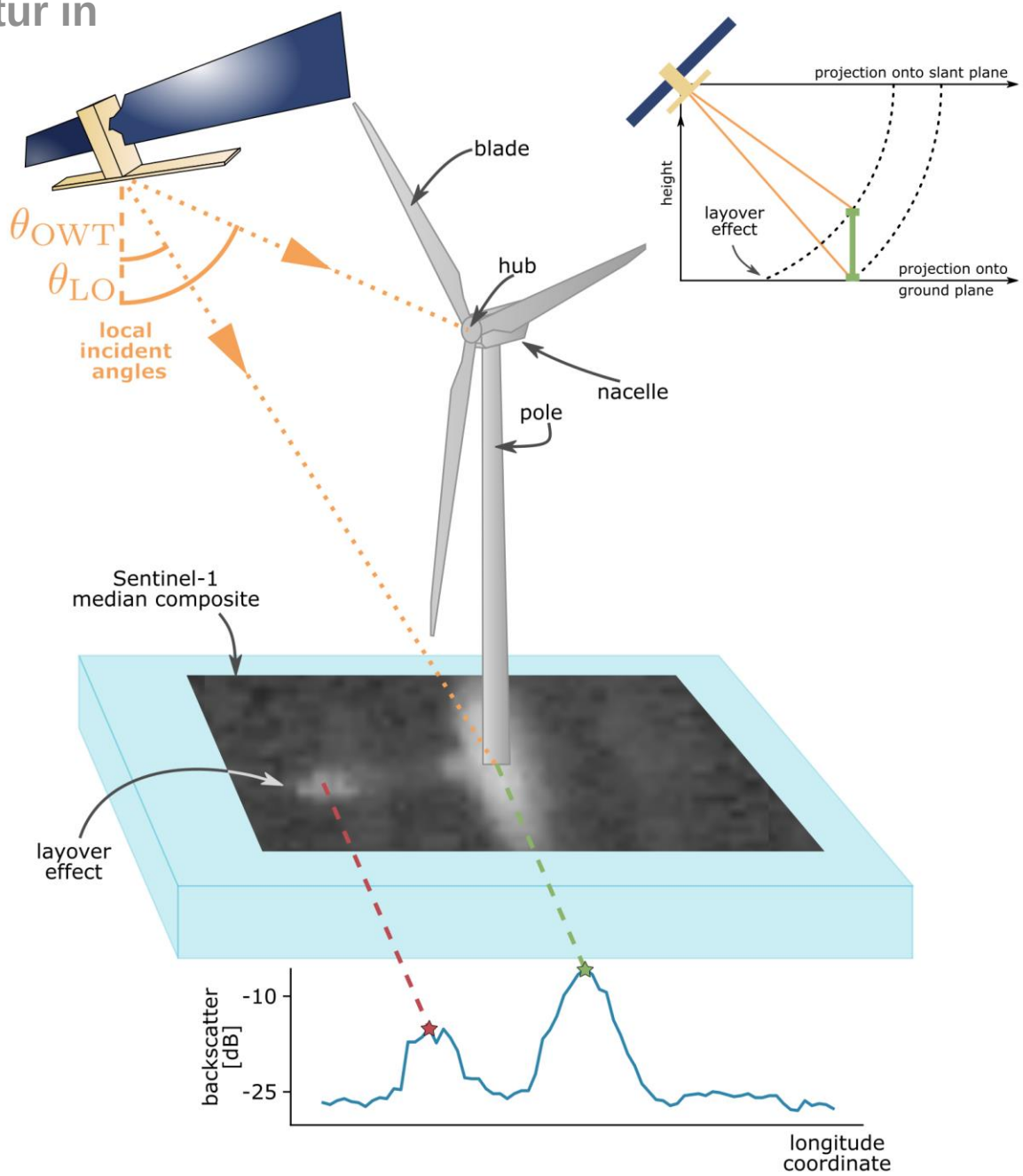




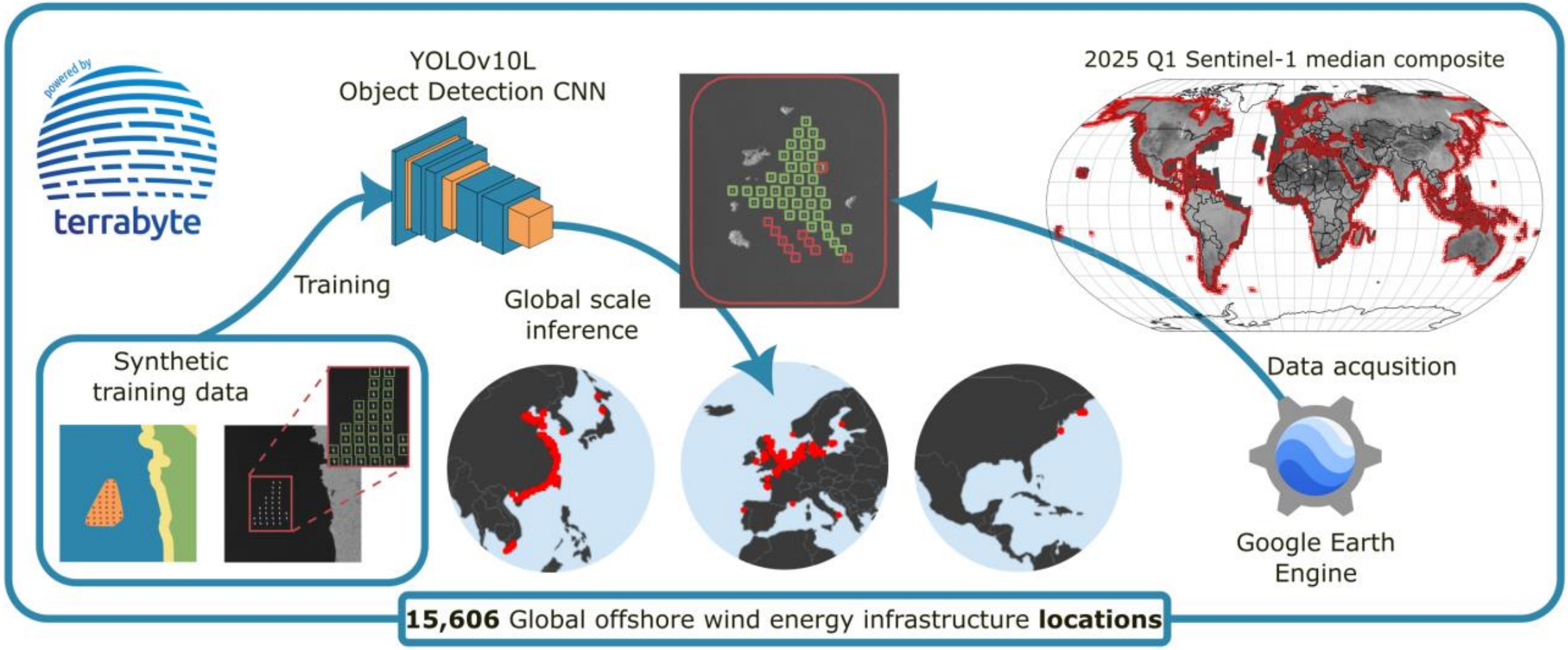




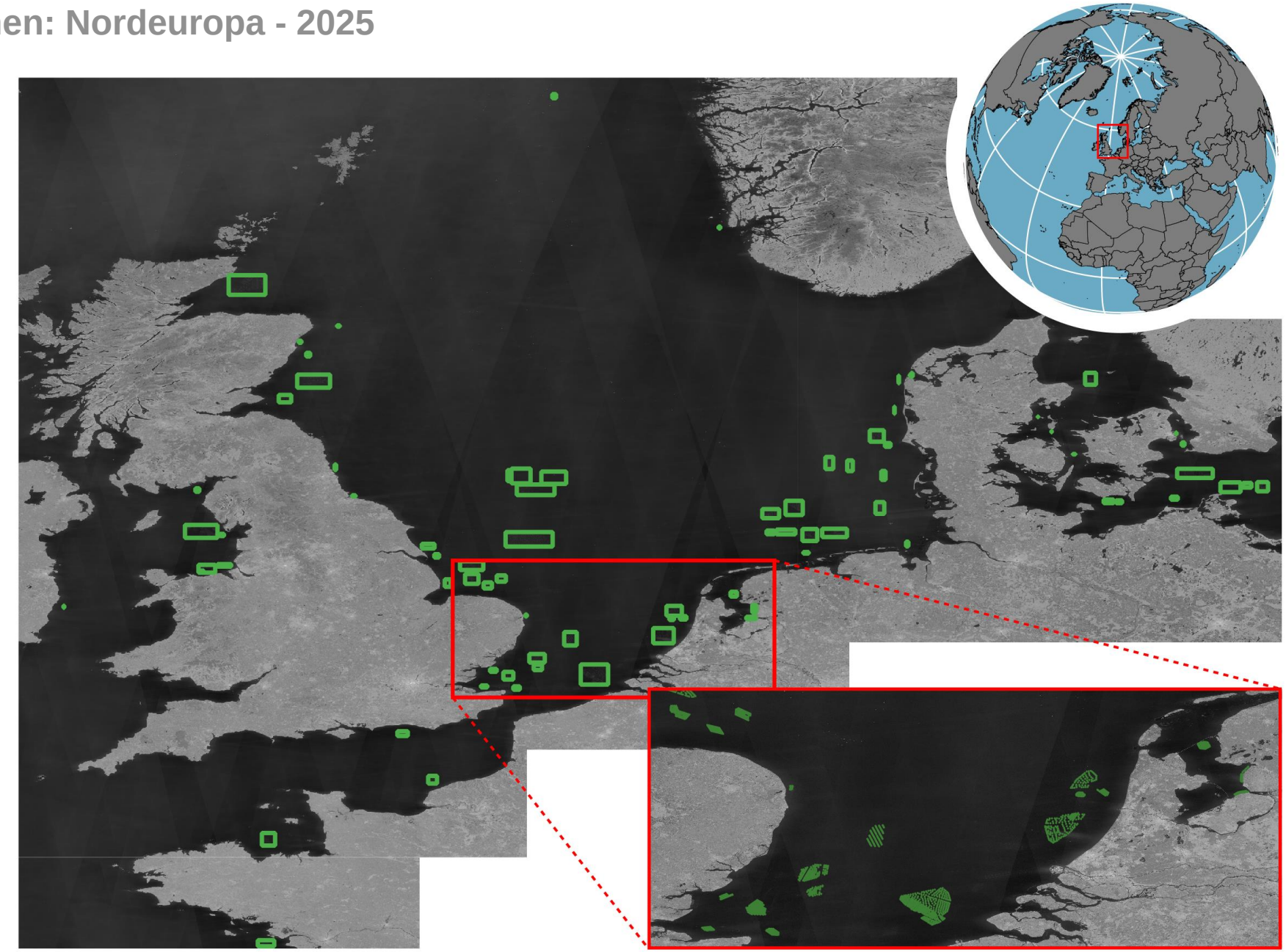
Offshore-Windinfrastruktur in Sentinel-1 Aufnahmen



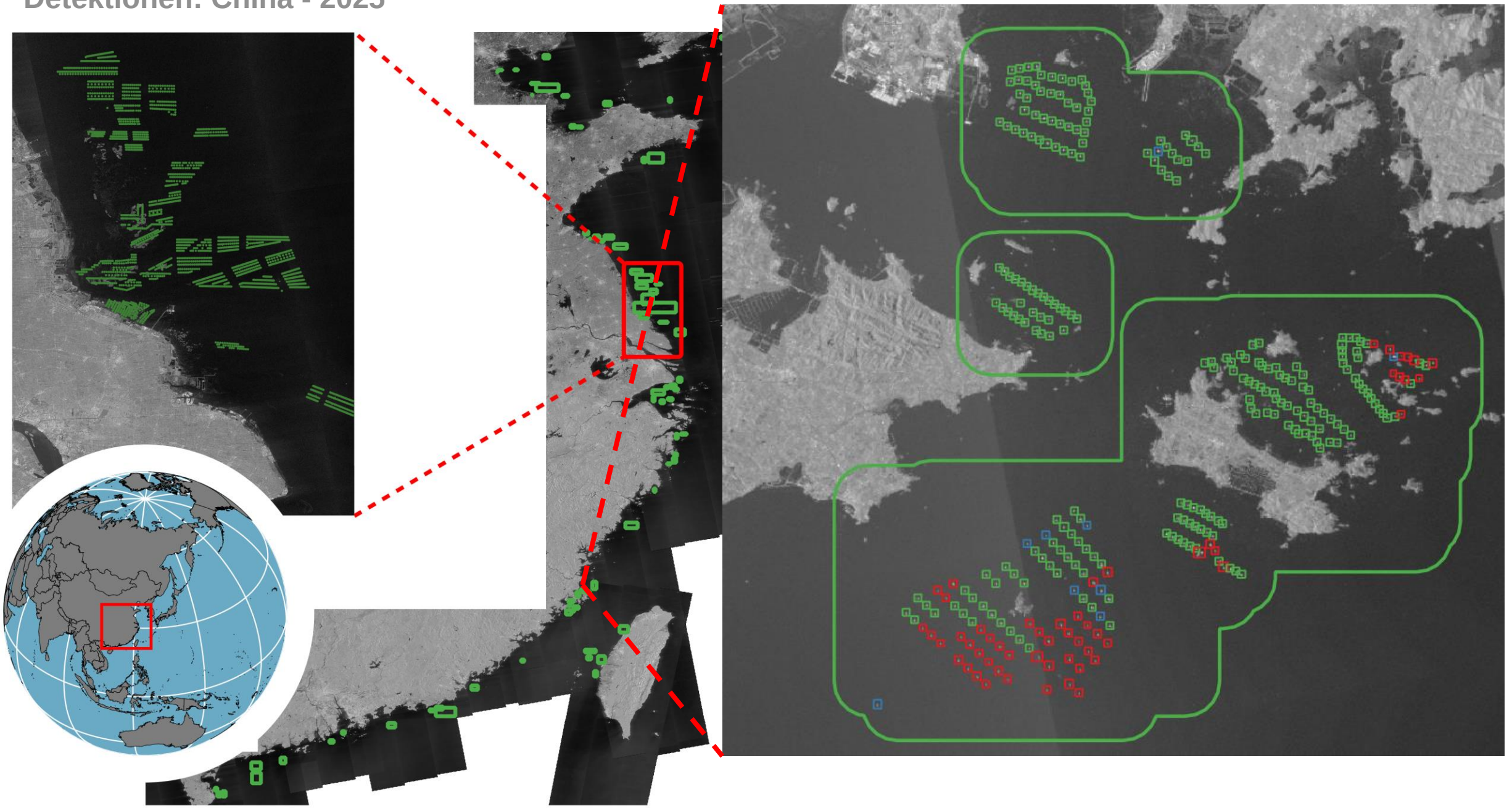
Weltweite, vollautomatische Detektion aller Offshore-Windenergieanlagen mit KI



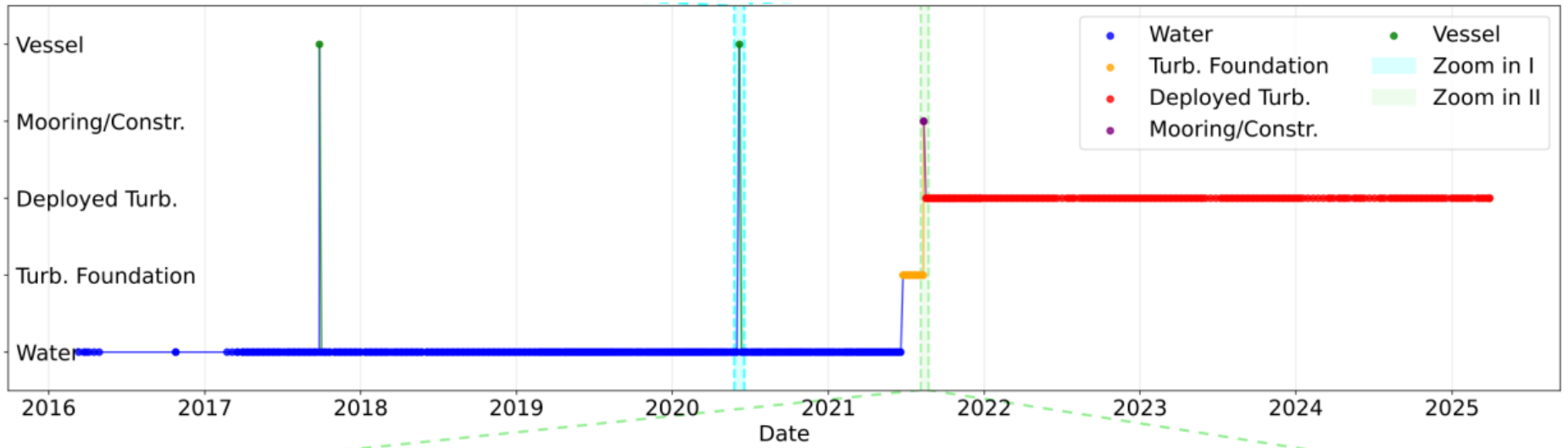
Detektionen: Nordeuropa - 2025

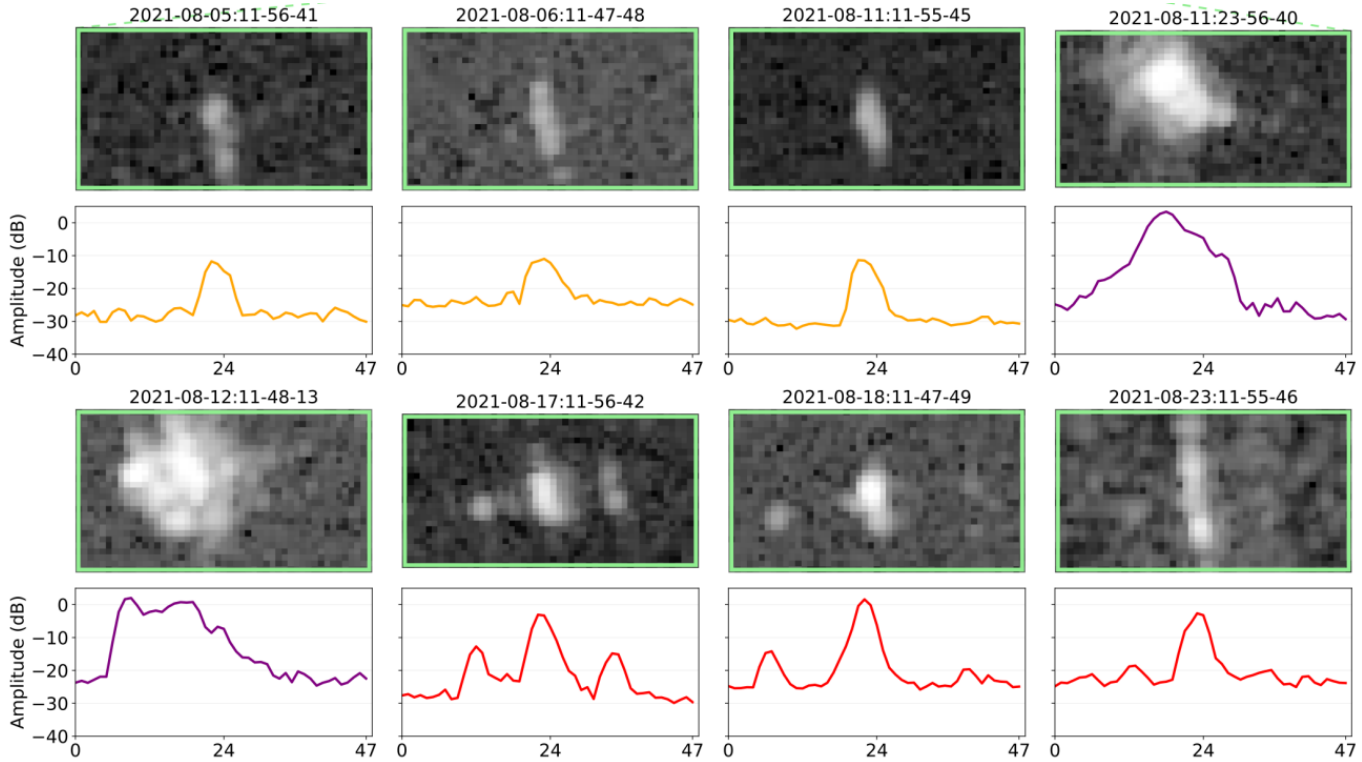


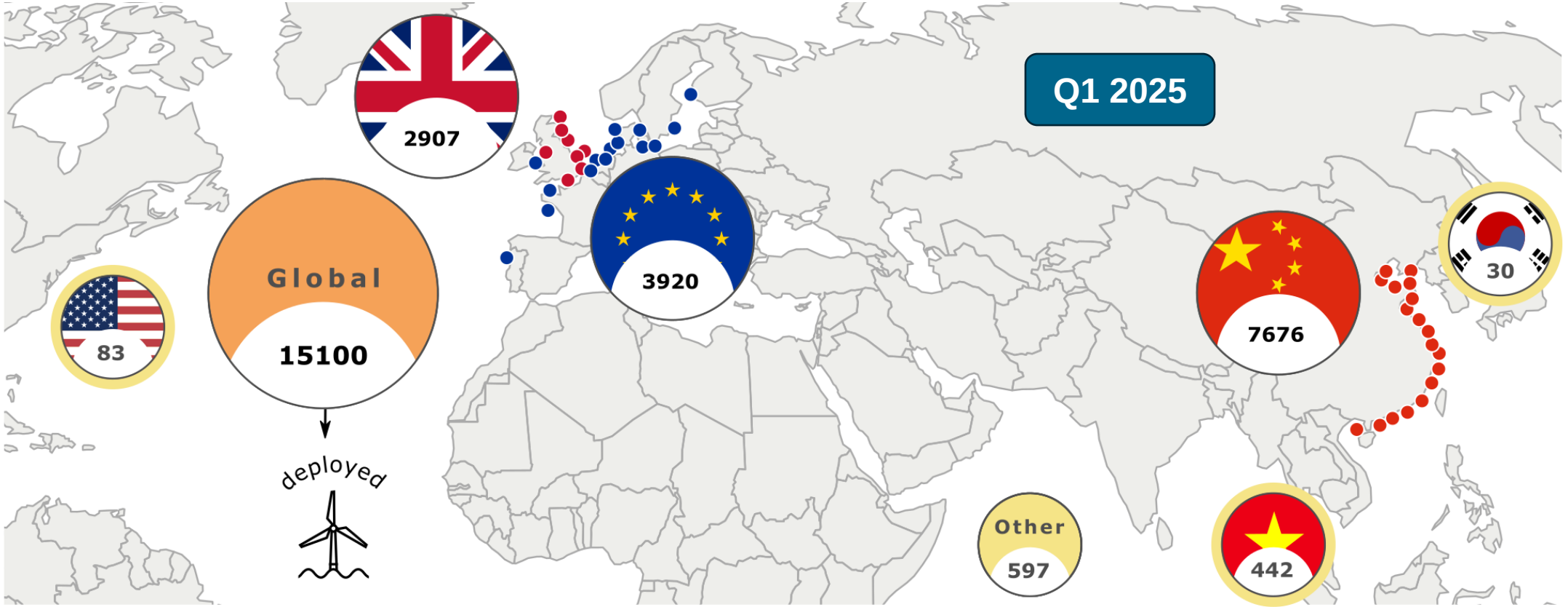
Detektionen: China - 2025

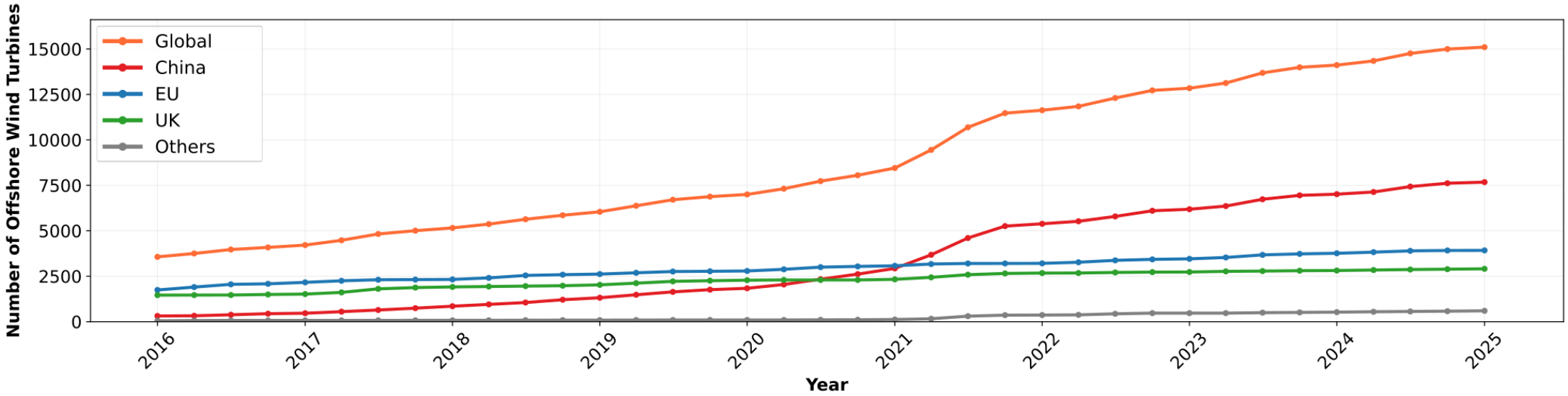


Zeitliche Dynamiken – 14.8 Millionen Aufnahmen für 15,606 Offshore-Windinfrastrukturstandorte

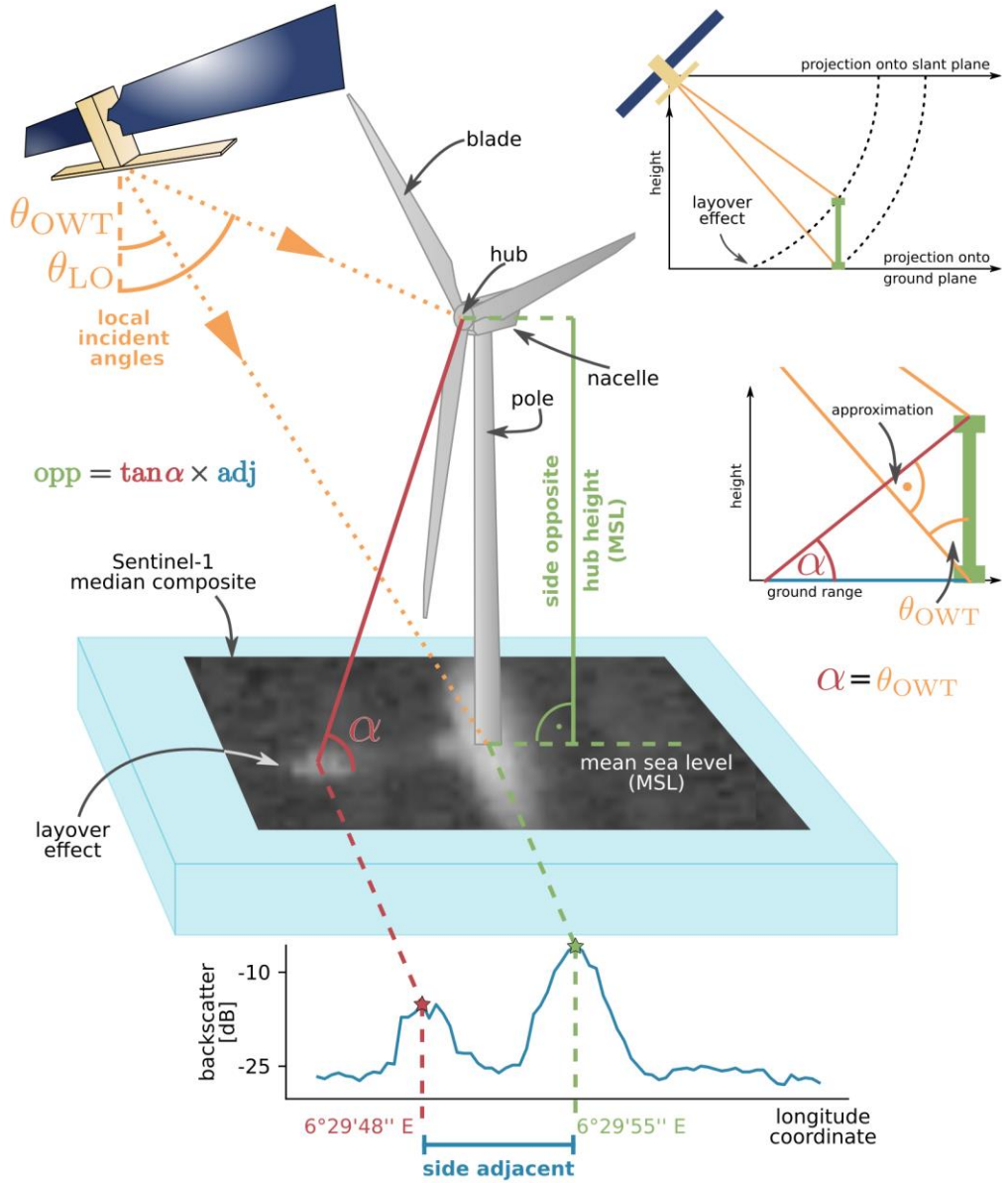


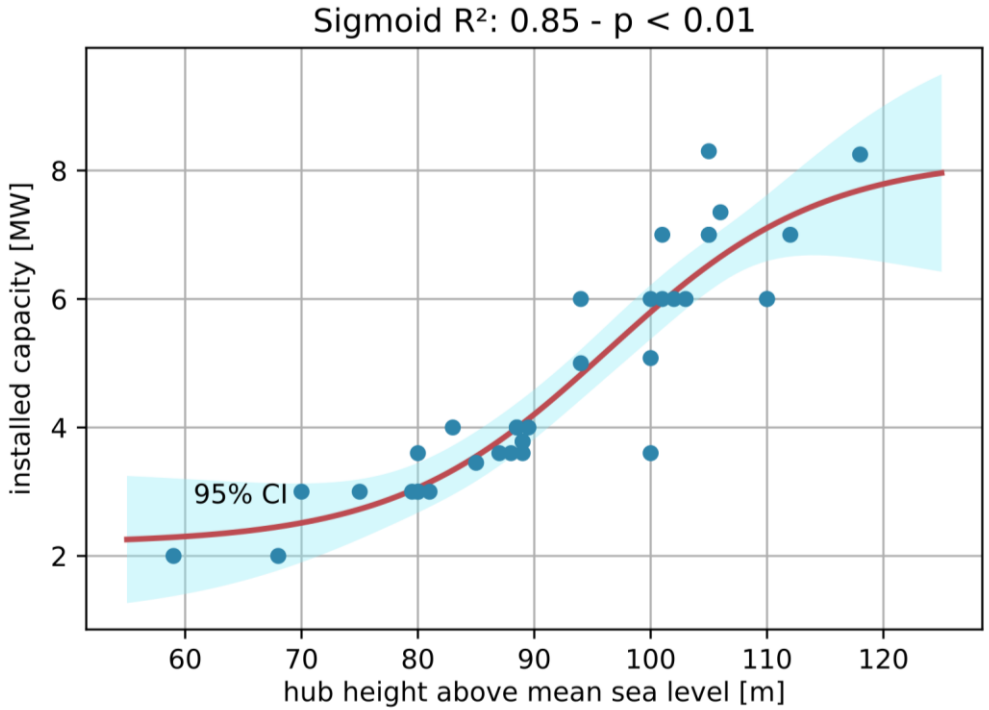


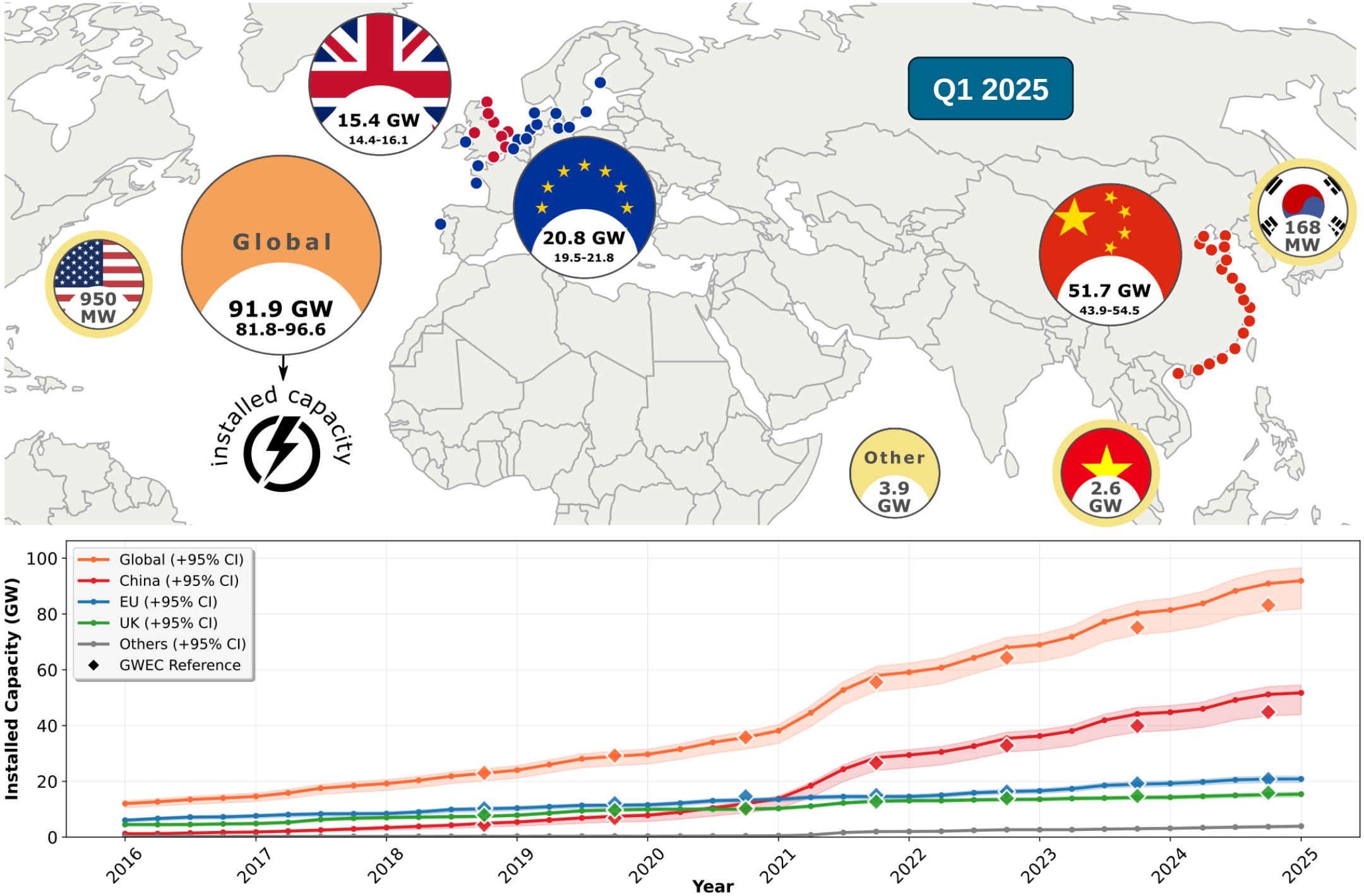

Q1 2025
2907
3920
Global
15100
deployed
83
7676
30
Other
597
442


Number of Offshore Wind Turbines
Year
Global
China
EU
UK
Others
0
2500
5000
7500
10000
12500
15000
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

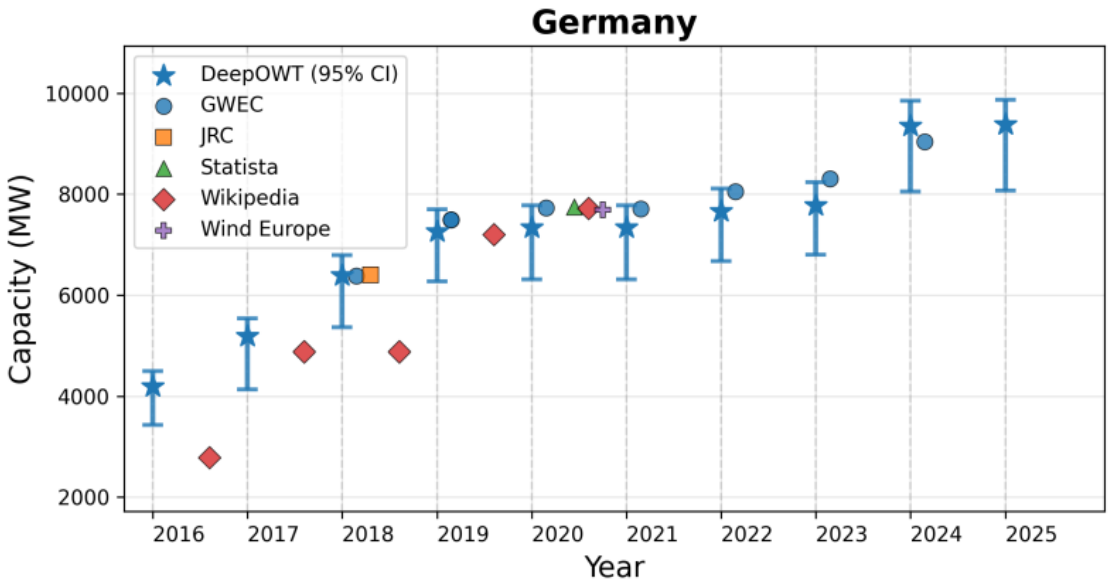
Weltweite, vollautomatische Ableitung der Nabenhöhe und Leistung jeder Turbine

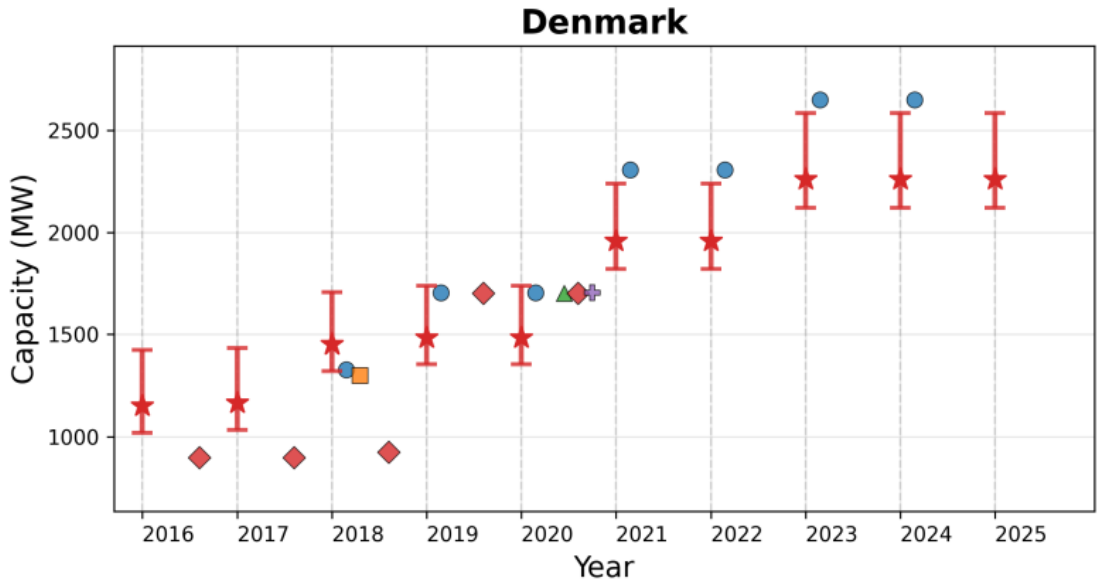


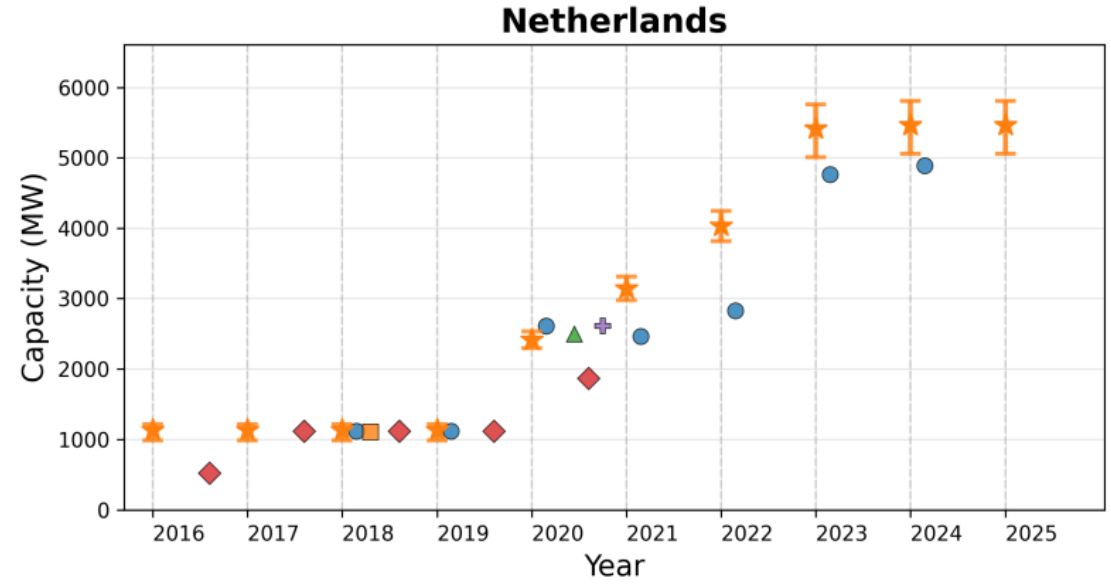


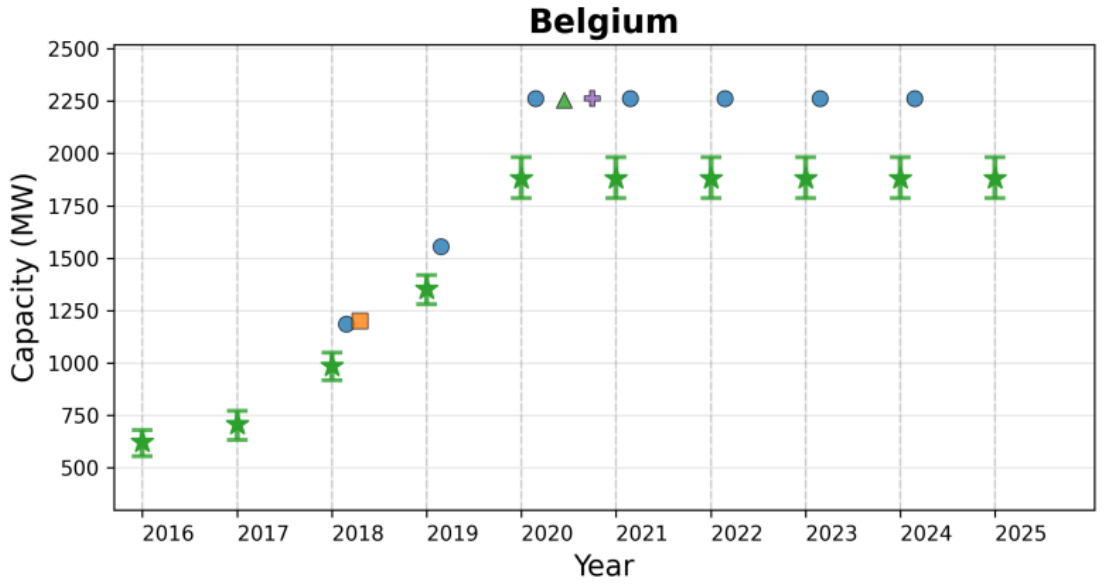

Q1 2025
15.4 GW
14.4-16.1
20.8 GW
19.5-21.8
Global
91.9 GW
81.8-96.6
installed capacity
950 MW
51.7 GW
43.9-54.5
168 MW
Other
3.9 GW
2.6 GW
Global (+95% CI)
China (+95% CI)
EU (+95% CI)
UK (+95% CI)
Others (+95% CI)
GWEC Reference
Installed Capacity (GW)
Year
0
20
40
60
80
100
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

Entwicklung Installierter Offshore-Windleistung im Vergleich

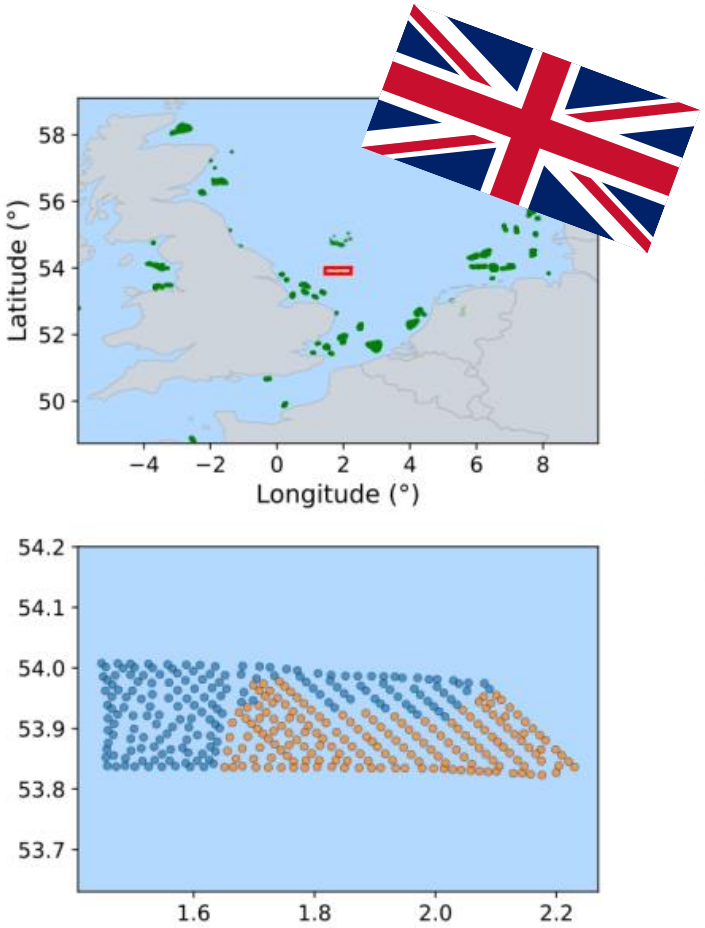


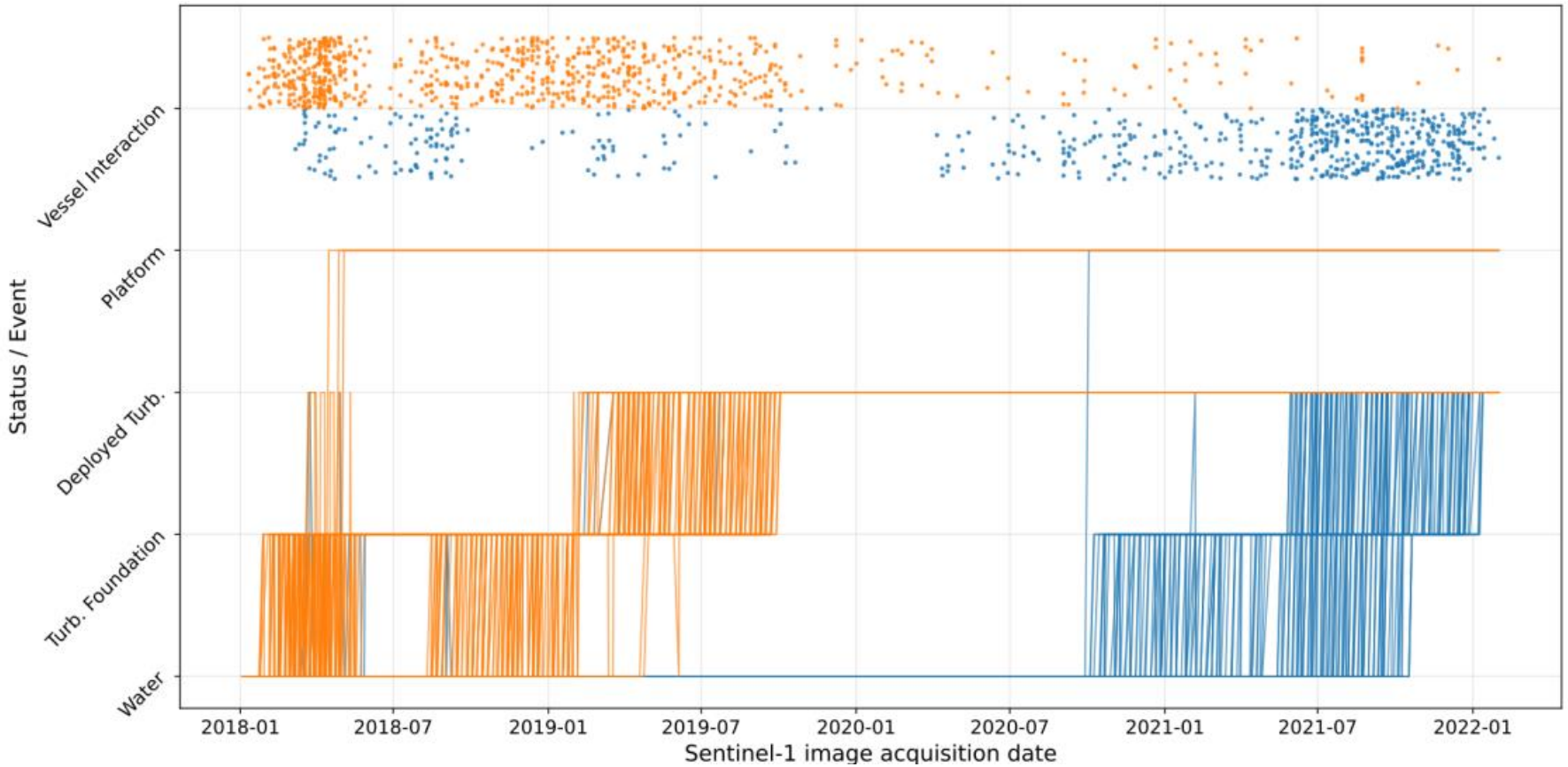




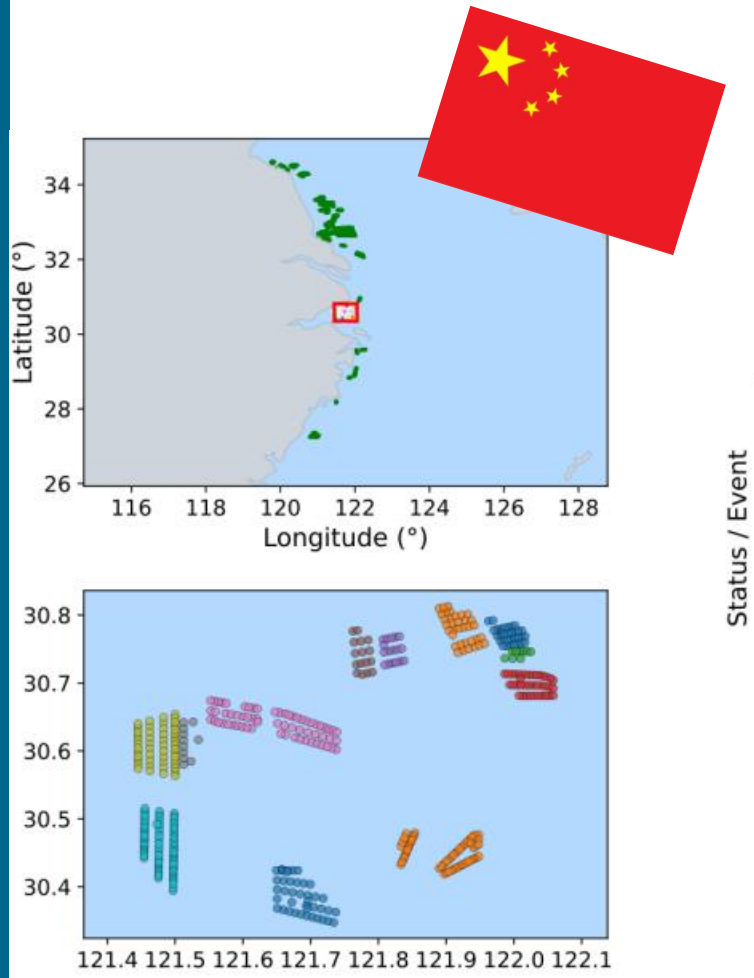


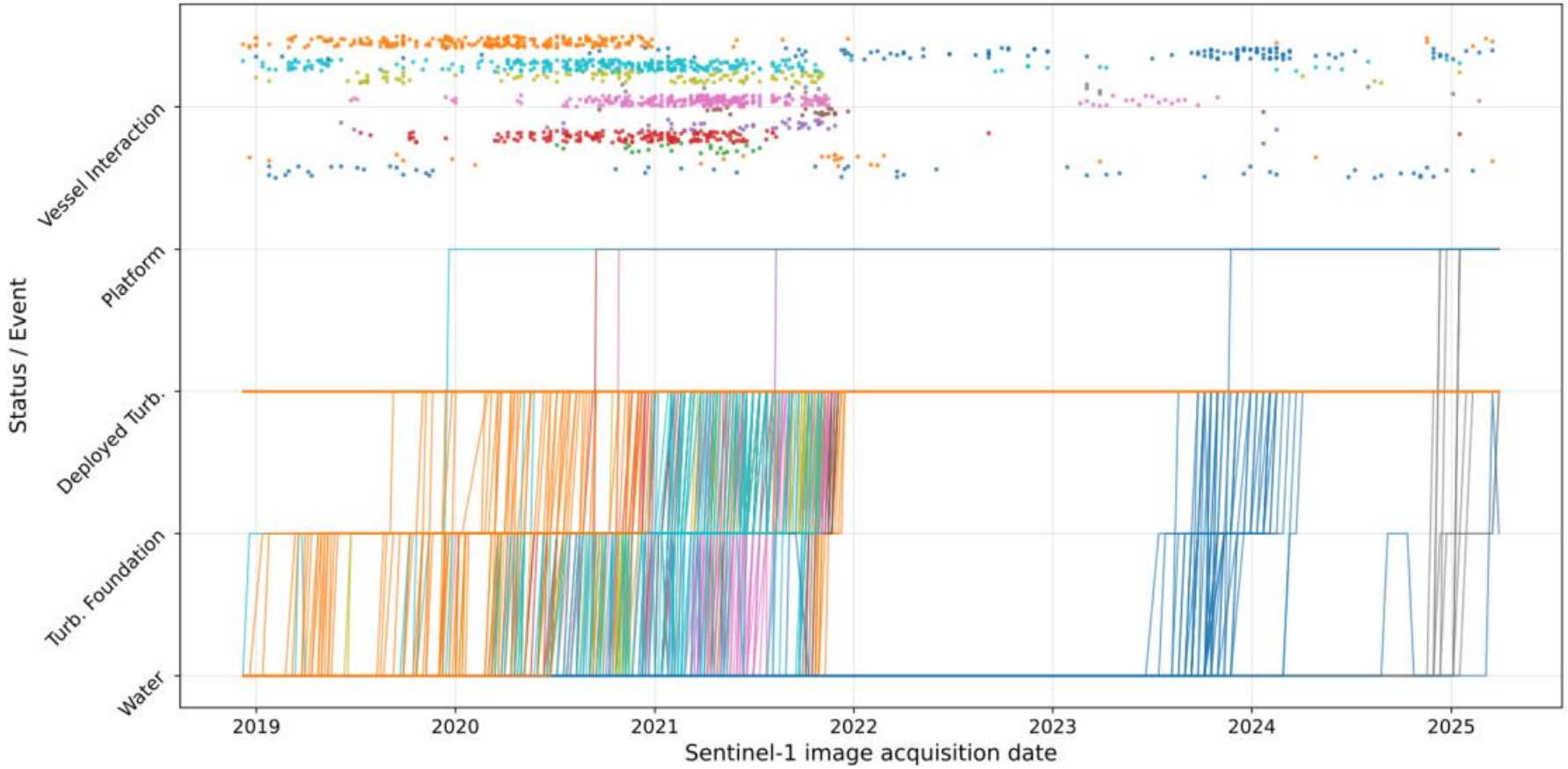
Fallstudie: Regionale Unterschiede in der Installationsdauer von Offshore-Windenergieanlagen



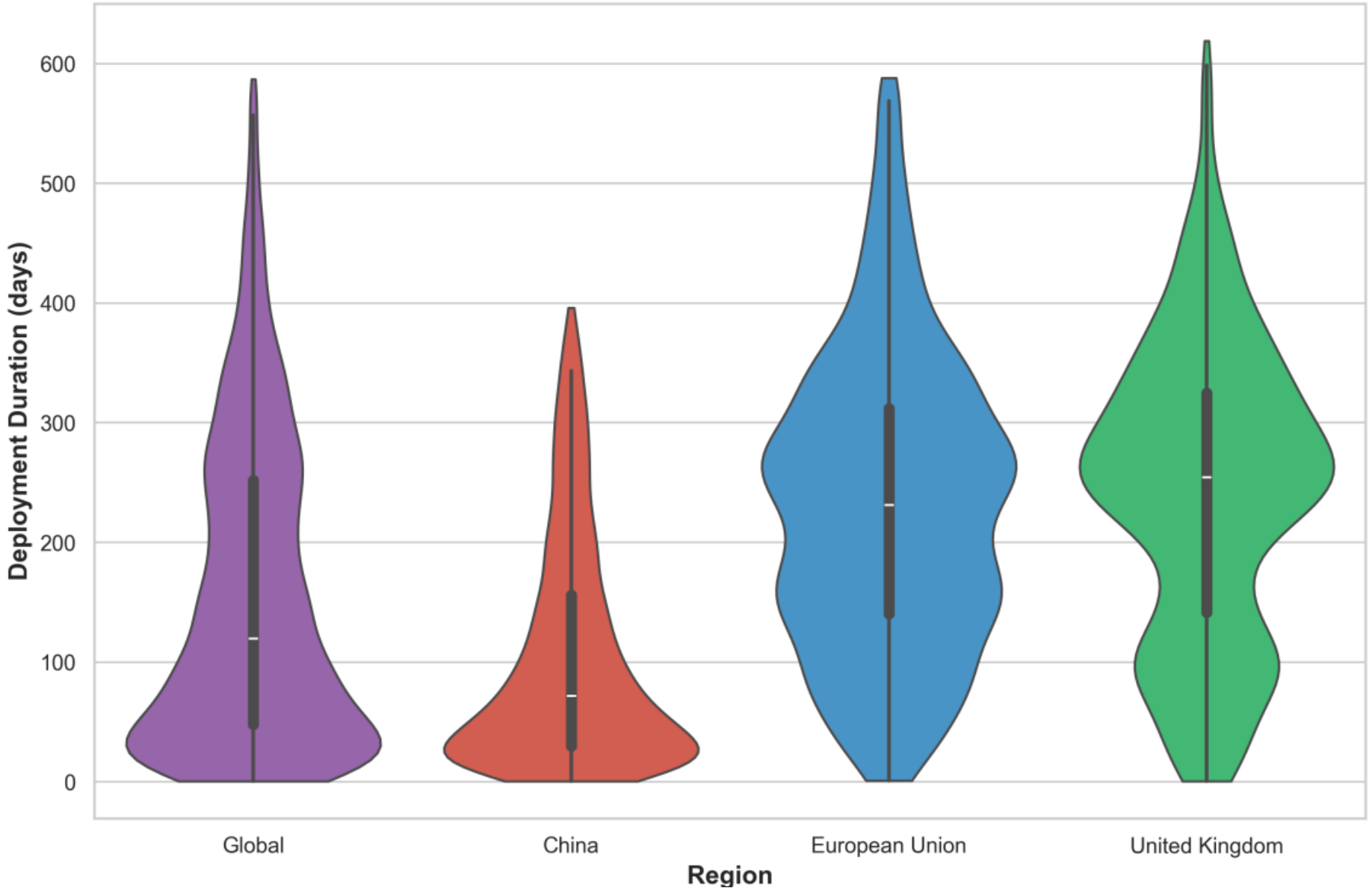


Fallstudie: Regionale Unterschiede in der Installationsdauer von Offshore-Windenergieanlagen



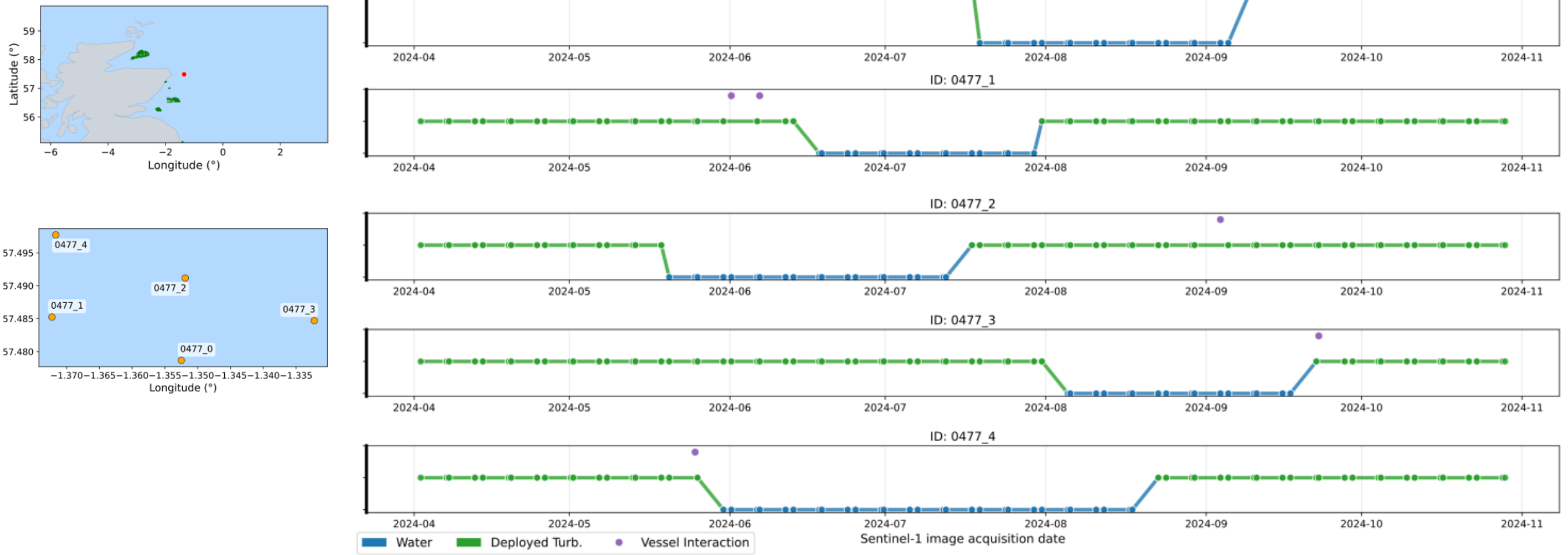


Fallstudie: Regionale Unterschiede in der Installationsdauer von Offshore-Windenergieanlagen



Fallstudie: Instandhaltung schwimmender Windenergieanlagen – Hywind Scotland

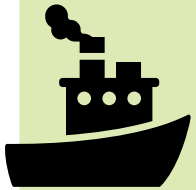
"In **May 2024 all 5 turbines** were to be **towed back to Norway** for several months of the heavy maintenance of replacing the main bearings. All turbines were **operating again by October 2024**." Hywind Scotland - Wikipedia



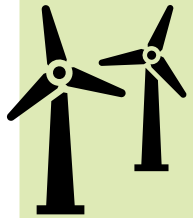
EO 4 Offshore Windenergieinfrastruktur



Bauprozessdaten



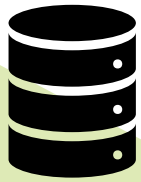
Schiffsdaten



Anlagendaten



Betriebsdaten



Referenzdaten



Branchenwissen



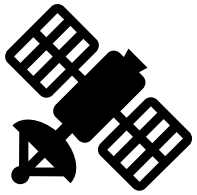
Karten



Ready-to-use Daten



Reports



EO Daten



Experimentation



KI + Automatisierung



Entwicklung

thorsten.hoeser@dlr.de