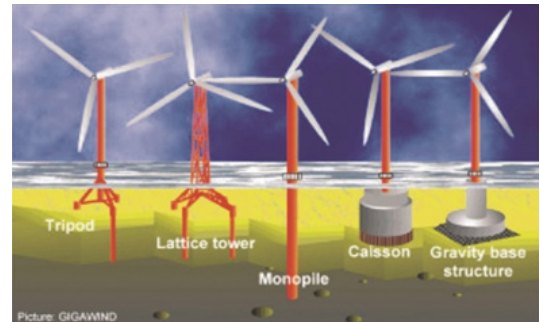


Development of Ultrasonic Guided Wave Inspection Technology for the Condition Monitoring of Offshore Structures / OPCOM

the objective of the project

Development of non-destructive methods for offshore structures using guided ultrasonic waves. Ultrasonic guided waves will be used for the inspection of offshore structures. The project had developed permanently mounted ultrasonic sensors and systems that will continuously monitor offshore structures for cracks and corrosion.



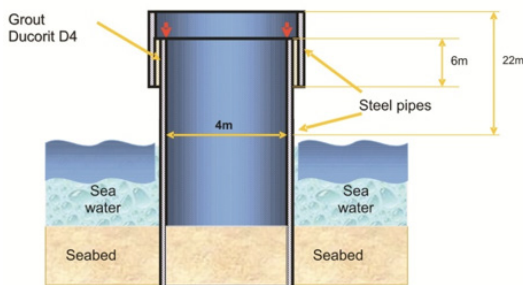
Offshore wind turbine towers. Each tower is 150m tall with 20-50% of tower below seabed



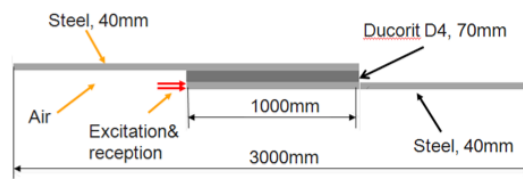
Collapsed wind turbine tower due to fatigue cracks and wind loading combination.

ultrasound institute

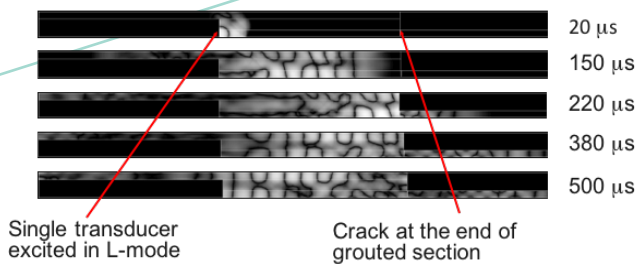
has investigated propagation of guided Lamb waves in Monopod column for offshore wind turbines.



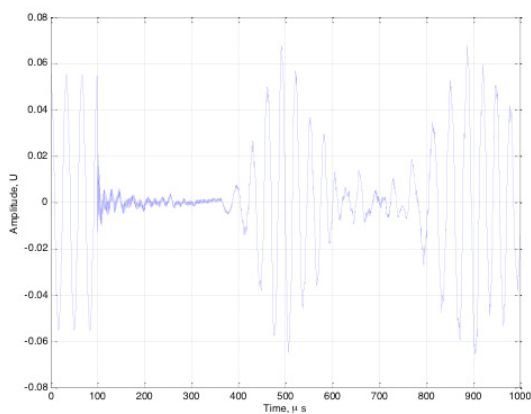
Support column for offshore wind turbines



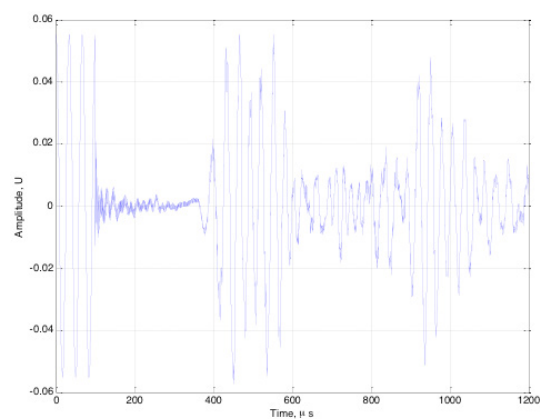
Segment of the grouted section of the monopod pile in 2D



Propagation of ultrasonic guided waves (30kHz) in the steel-Ducorit D4 steel structure with delamination between Ducorit and the bottom steel plate



Reflected signal ($f=30$ kHz) from the grouted end without a crack



Reflected signal from the grouted end with a vertical crack

project partners

Coaxial Power Systems Ltd (UK), Instituto de Soldadura e Qualidade (Portugal), Advanced Technology group s.r.o. (Czech Republic), Kingston Computer Consultancy Ltd (UK), NDT Consultants Ltd (UK), Zenon S.A. Robotics and Information (Greece), Health and Safety Executive (UK), Statoil ASA (Norway), Kaunas University of Technology (Lithuania), London South Bank University (UK), Elsam Kraft A/S (Denmark), TWI (UK).

related publications

1. A. Maciulevičius, R. Kažys, L. Mažeika. Influence of the object edge on the efficiency of Lamb wave excitation. Ultragarsas. 2007. Vol. 62. No. 4. p. 28-31.