



BG

Berufsgenossenschaftliches
Unfallkrankenhaus Hamburg



Rescue Chain Offshore Wind

Research project for the development
of a rescue chain concept for trauma
patients at offshore wind turbines



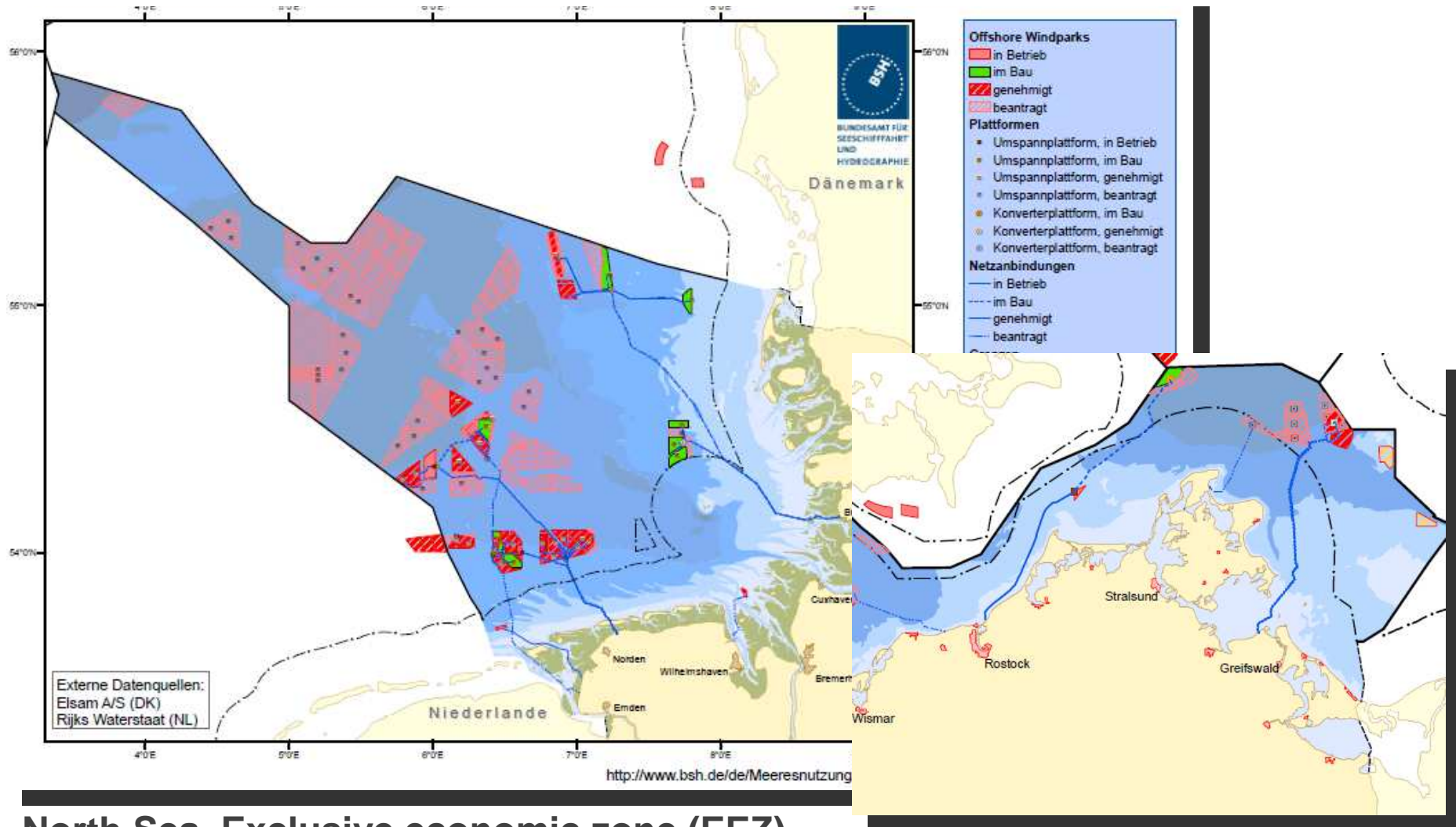
Rescue chain offshore wind

Scientific background for prevention in the offshore wind sector

Markus Stuhr, Nils Weinrich, Maja Nielsen, Dirk Dethleff,
Dorothea Hory, Klaus Seide, Christian Jürgens

XX. World Congress on Safety and Health at Work 2014, Frankfurt

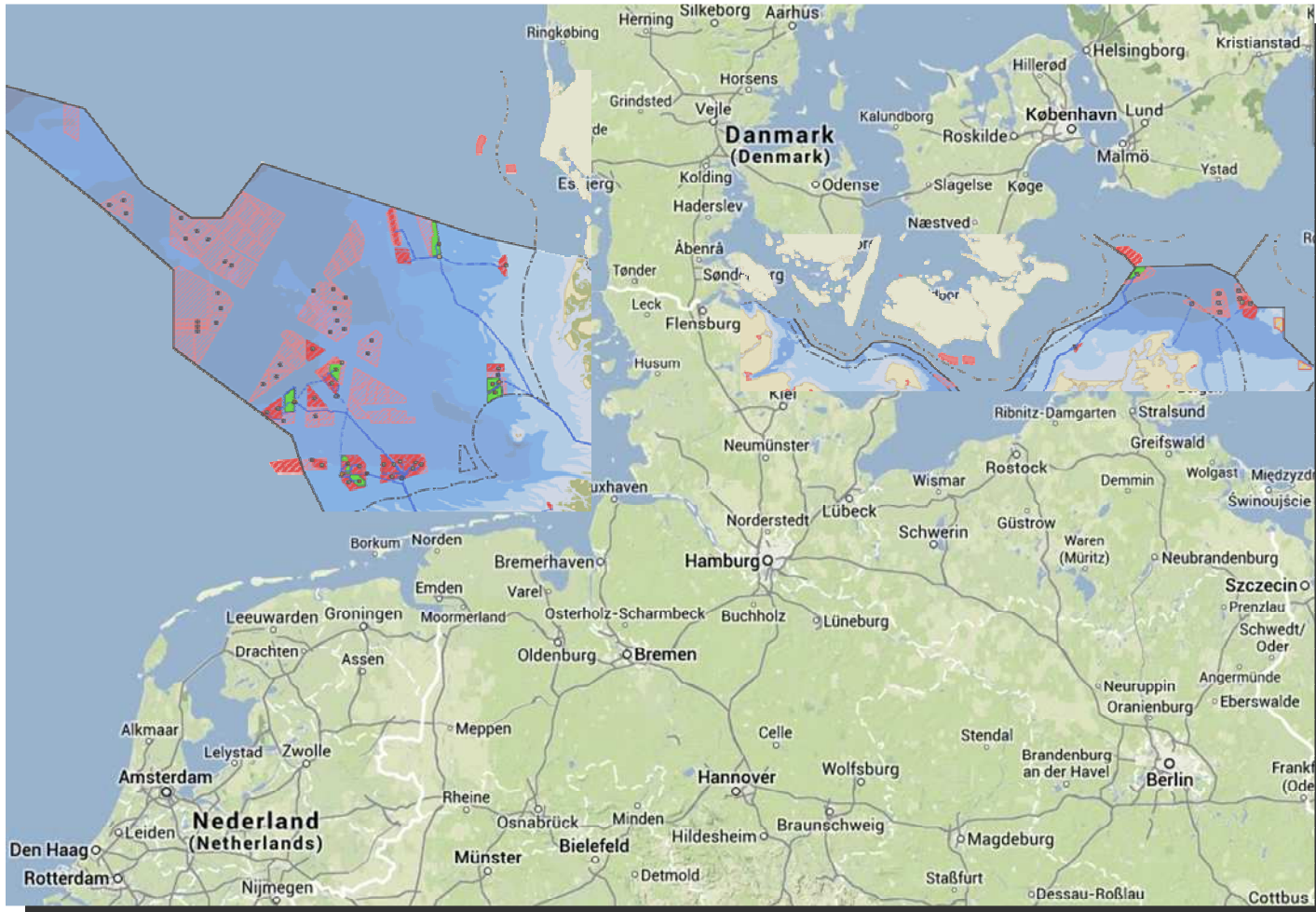
Offshore wind in german north and baltic sea



North Sea, Exclusive economic zone (EEZ)

Baltic sea, offshore wind relevant sector of EEZ

Remote location



Source: Kartendaten © 2013 GeoBasis-DE/BKG (©2009), Google + <http://www.bsh.de/de/Meeresnutzung/Wirtschaft/CONTIS-Informationssystem/index.jsp>

Work place environment



Offshore wind and the rescue chain

- Increase of work-related accidents, illnesses and injuries
 - Nature of work
 - Hazards and risks
 - Adverse environmental conditions
 - Remoteness (especially from emergency medical services)
-
- To **prevent** injuries and illness
 - as much as possible



Air Rescue 04/2012

Rescue Chain Offshore Wind (ROW)

Funded by:

Institution for Statutory Accident Insurance and
Prevention for Trade and Merchandise Distribution
(01/2012 – 12/2014)



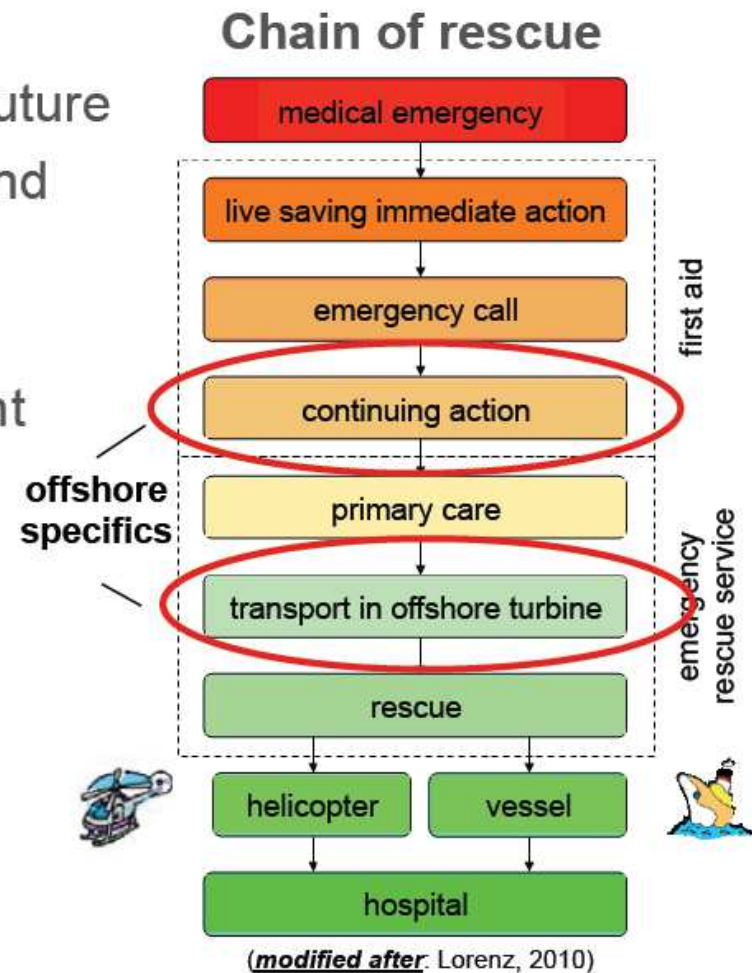
Overall target

Development of scientific basis for the future design of a rescue chain for offshore wind medical emergencies

➔ recommendations German accident insurance authorities

'side effects' for players:

- conscious formation
- synergetic effects
- consensus
- public outreach
- inspiration



Real Scenario - Onshore

Male patient, 37 years old

- Fall from height (12m) inside a wind turbine, first aid by colleague
- Transport by Ambulance/Emergency Physician to the next hospital
- Operation of lumbar spine
- Next day: Transfer to BUKH for further surgery

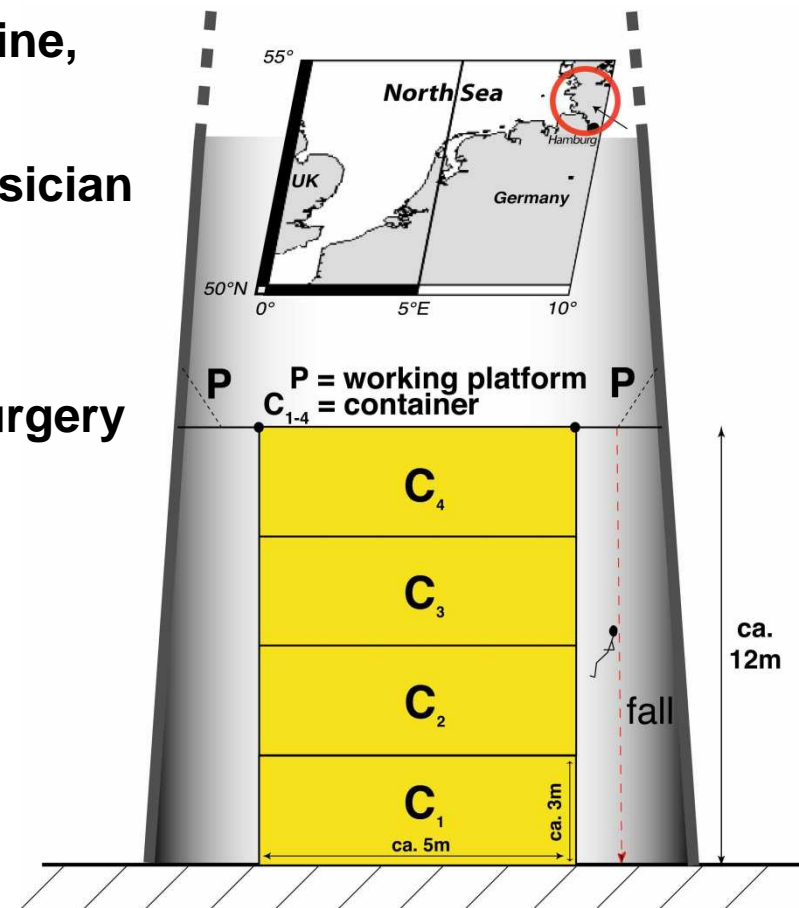
Timeline:

04:01 p.m.: Alarm

04:18 p.m.: Ambulance at scene

16:35 p.m.: Transport to hospital

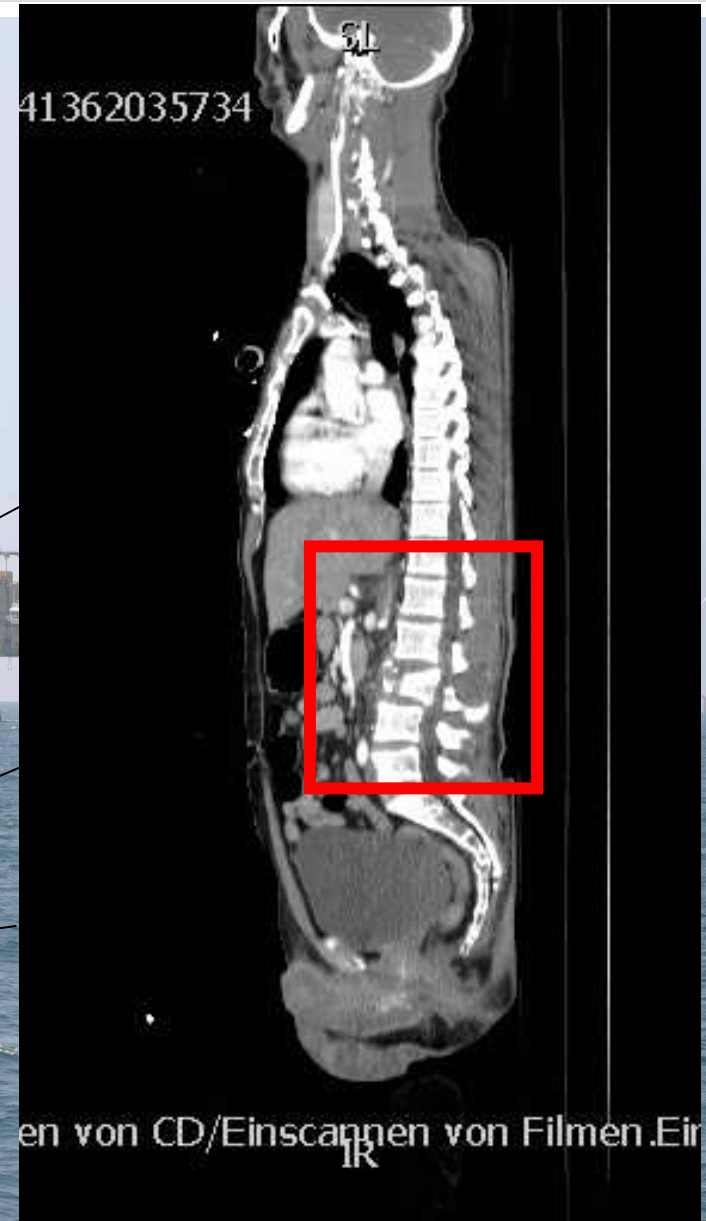
17:05 p.m.: Arrival at hospital



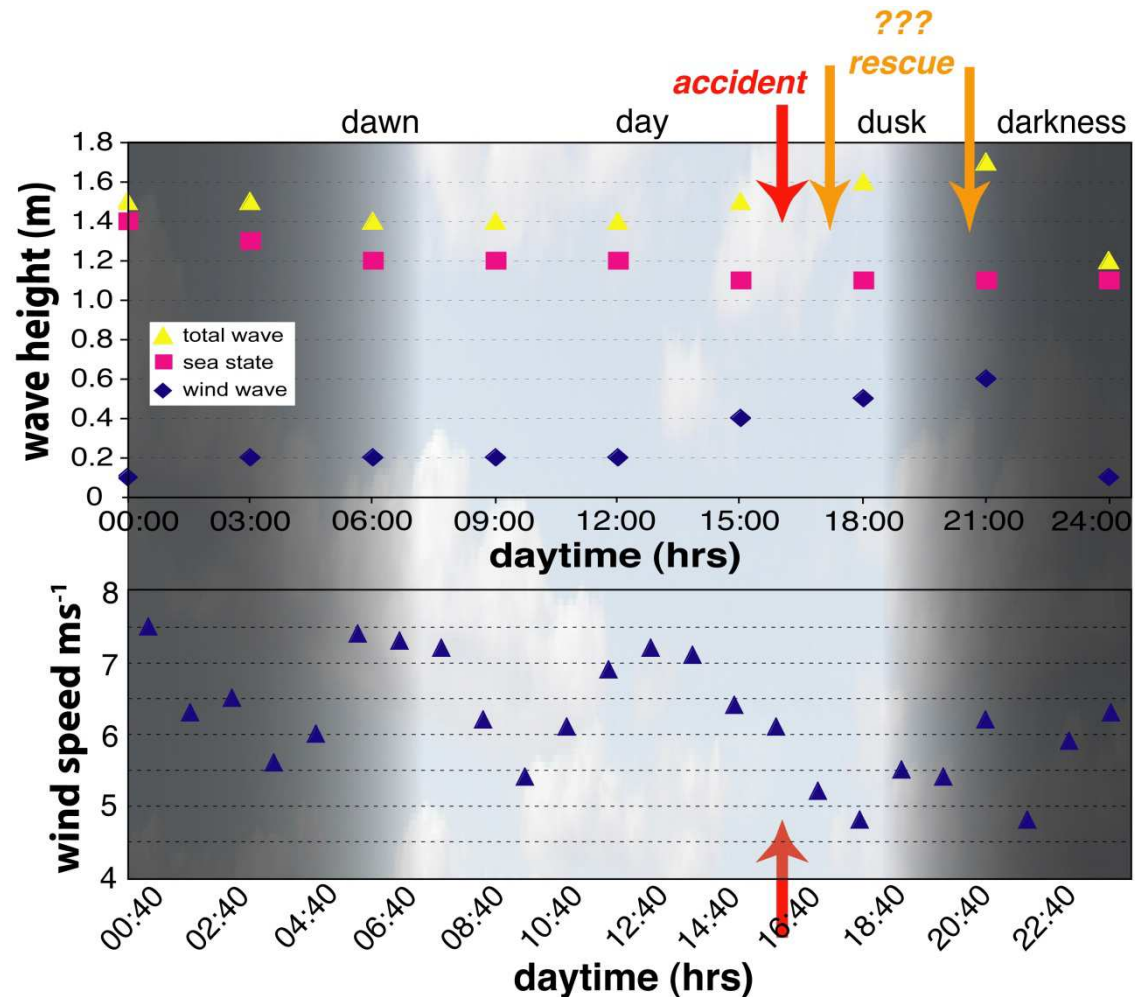
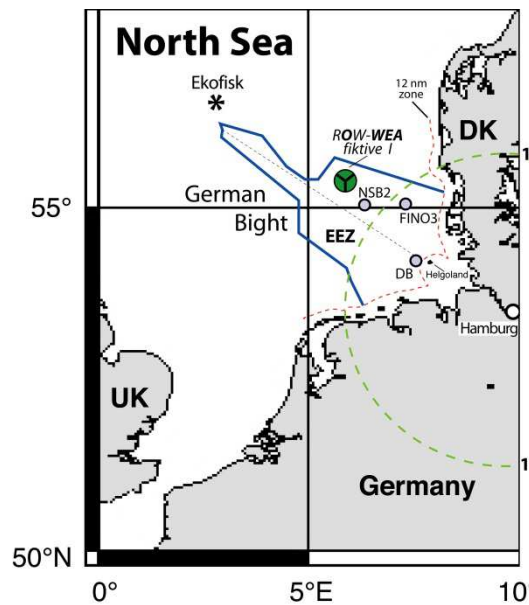
Injury pattern and potential scenario offshore

Diagnoses

- Traumatic Brain Injury, Orbital fracture
- Rib fracture 6-10 right / 8-9 left, lung contusion
- Fracture of the 3rd lumbar vertebrae with narrowing of spinal canal
- Fracture of sacral bone
- Fracture of left tibia and fibula, compartment syndrome
- Fracture of right and left calcaneus



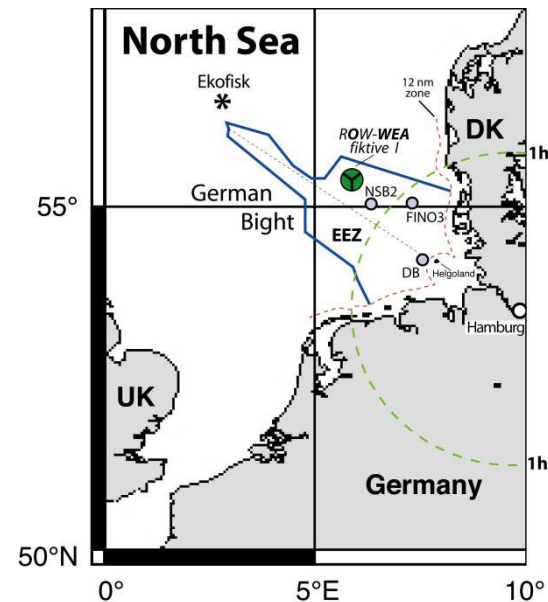
What would (should) have happened OFFSHORE?



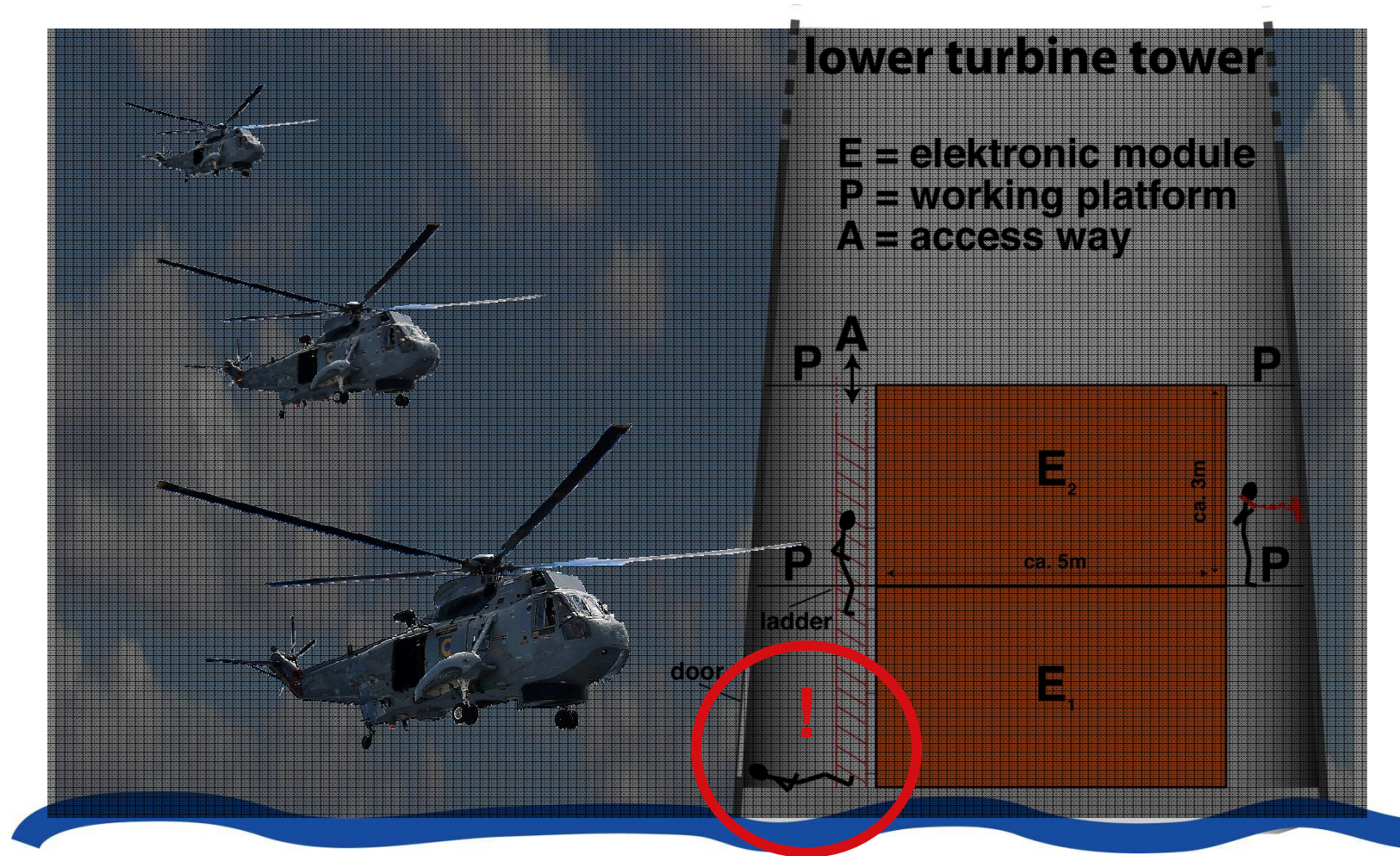
First Aid and Rescue

To do Onshore/Offshore:

- First Aid
- Immobilisation
- Analgesia/Sedation
- **Anesthesia**
- Rescue
- **how?**
- Evacuation
- **by Sea? by Air?**



Rescue by Helicopter?



Challenges

- Lack of evidence
- no systematic accident recording
- „new“ industry
- already known parts of a rescue chain (e.g. Rescue Helicopter)
- but: in another environment (e.g. mountain rescue)

Methods I

- Analysis of existing rescue concepts for offshore wind parks
- Examination of previous accident scenarios
- Analysis of existing safety and emergency training programs
- Identification of additional hazards for trauma patients and rescue staff considering the offshore environmental conditions
- Assessment of professional first aid attendance and tele-medical rescue assistance systems
- Design of demand-tailored instruments for the rescue chain

Methods II

- **First Aid at Offshore Wind Farms in German Waters - Consensus Statement from the German Social Accident Insurance (DGUV) ('Der Notarzt', *in press*)**
- **Recording and analysis: injuries and illnesses in Offshore-Windparks (Publications in preparation)**
- **„ZeMOR (Central medical offshore registry), *pilot project 2014***
- **Networking (e.g. maritime medicine, tactical medicine, mountain emergency medicine)**
- **Consensus**
- **Support and contribute in scientific projects on teleconsultation**

Conclusion

- Adapt all parts of the rescue chain to the workplaces offshore
- Systematic registry: medical casualties and illnesses offshore
- Sustainable research for validation and evidence
 - health and safety measures
 - parts of the rescue chain
- Networking (international)
- Reach consensus

Thank you for attention



Foto: © Nils Weinrich

funded by:



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Berufsgenossenschaft
Handel und Warendistribution

<http://www.buk-hamburg.de/557-0-Forschungsprojekt-Rettungskette-Offshore-Wind.html>