Velocity Obstacles enriching ARPA
Marginal CPA

a near miss?
Protected zone
(similar to aviation)

_target has zero speed_
target w. course & speed

CPA about nill
Manoeuvring Envelope providing solution space
more complex, 
**two ships**,  
*no conflict*
Same situation
solution space
problem space
Same situation

*rectangular manoeuvring envelope*
Dimension protected zone 1 derived from interviews
AIS data Vlieland junction
Analysis CPA from AIS footage
805 ships
2-9 sept
2016
Shape and dimension of own ship’s protected zone

- Needs to be **flexible**, depending on several factors, a.o.
  - Type of ship
  - Sailing Area
  - Captains orders

- Ideally, you want to communicate this with the other ships around (**Maritime Cloud** preferably)
Anti-stress factor

- Stay out of your neighbour’s protected zone
  - because COLREG’s seem not always adequately applied
  - because a complex close quarter situation leads easily to an accident
Research going on

*How does this effect Situation Awareness?*

- RAAK project in maritime safety (16 months left)
  - Partners are welcome
- Ba and MSc students doing research projects
  - a.o. Maritime Safety, Augmented Reality and Ecological Interface Design
  - Partners are welcome
Augmented Reality pre-view 1
Augmented Reality pre-view 2
Thank you

Stephan Procee

Maritiem Instituut
Willem Barentsz