

SARex - Survival in a Polar Code Environment

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SARex in cooperation with



GMC

maritimt forum
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SARex 1, 2 and 3



SARex1 (2016) - assessment of survivability utilizing normal SOLAS equipment

SARex 1, 2 and 3



SARex1 (2016) - assessment of survivability utilizing normal SOLAS equipment

SARex2 (2017) - assessment of survivability utilizing modified SOLAS equipment

SARex 1, 2 and 3

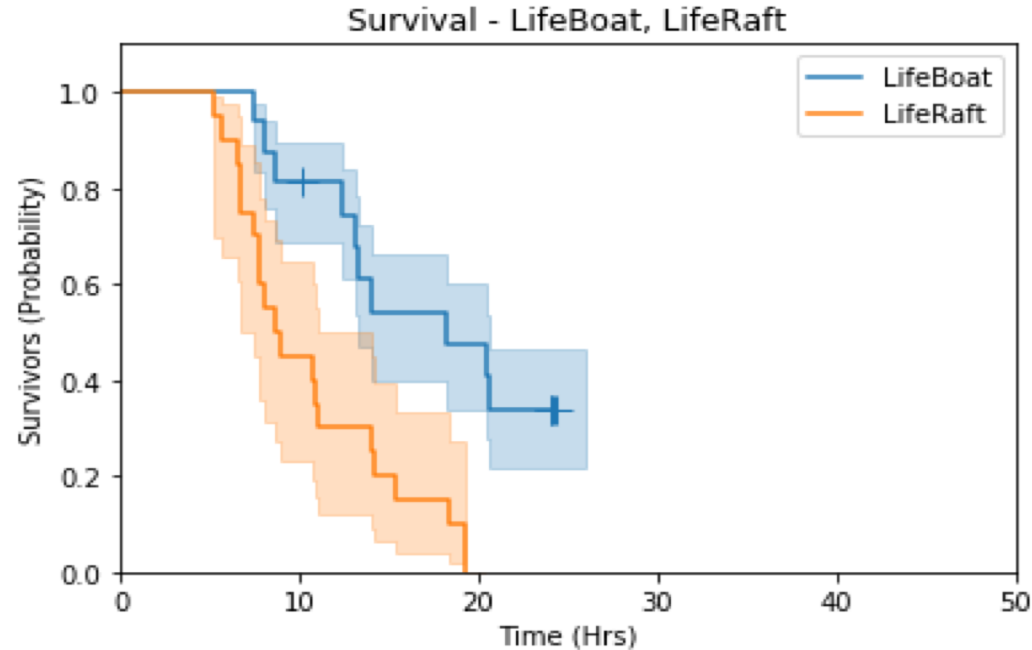


SARex1 (2016) - assessment of survivability utilizing normal SOLAS equipment

SARex2 (2017) - assessment of survivability utilizing modified SOLAS equipment

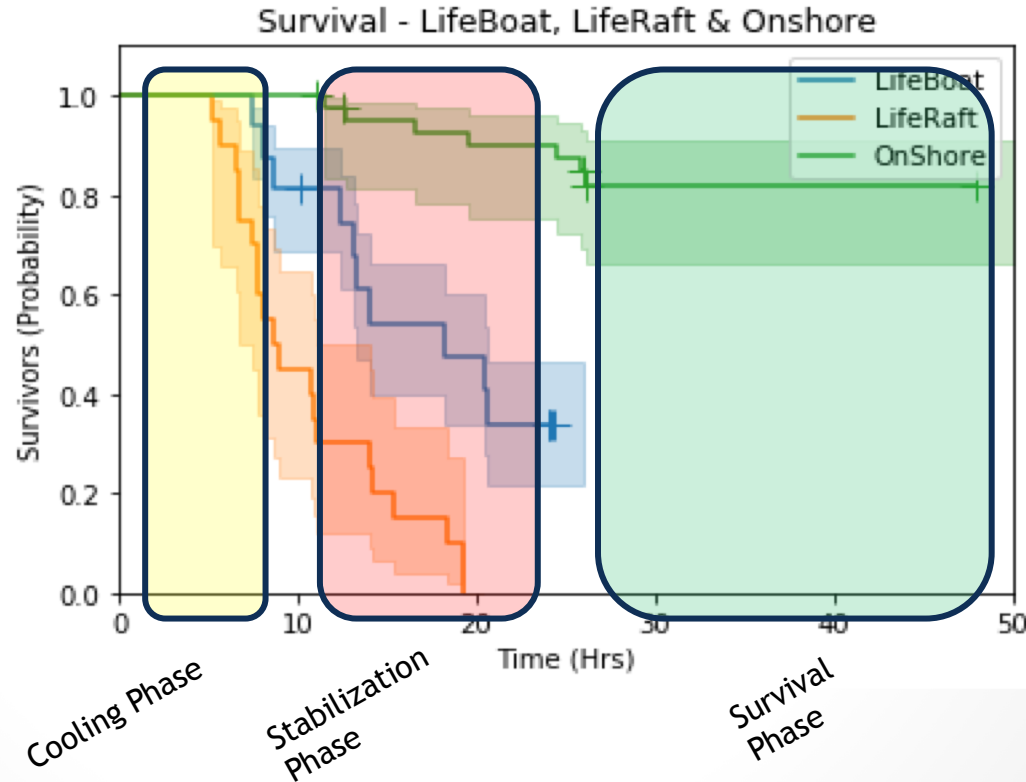
SARex3 (2018) - assessment of survivability associated with onshore evacuation

Survival rate (Kaplan-Meier Survival Plot)



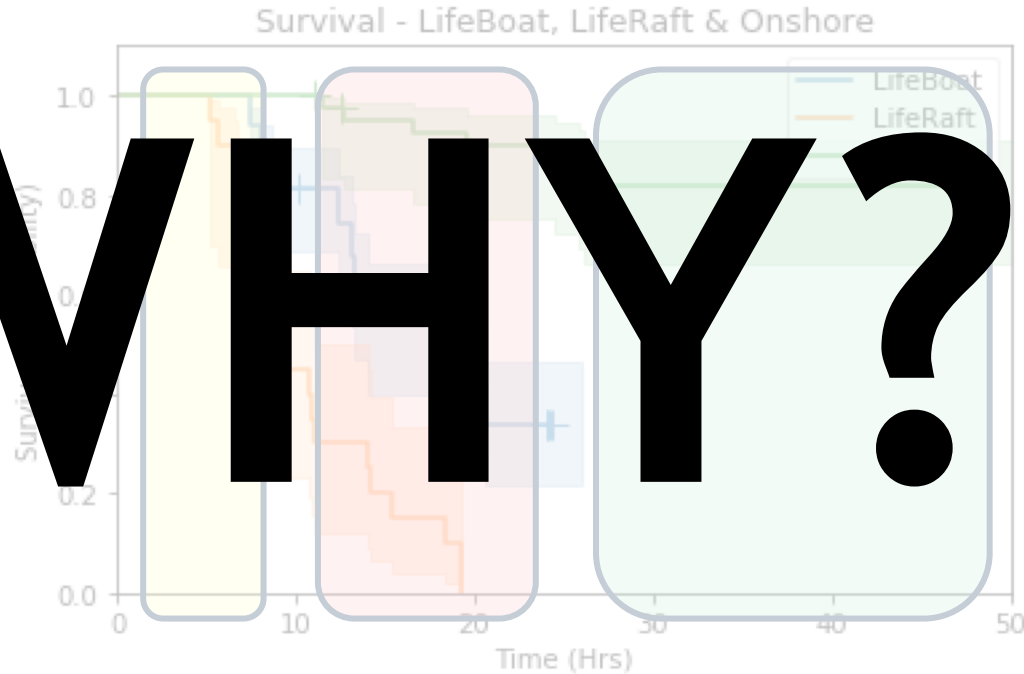
Time to loss of cognitive abilities, uncontrollable shivering or loss of functionality of extremities.

Survival rate (Kaplan-Meier Survival Plot)



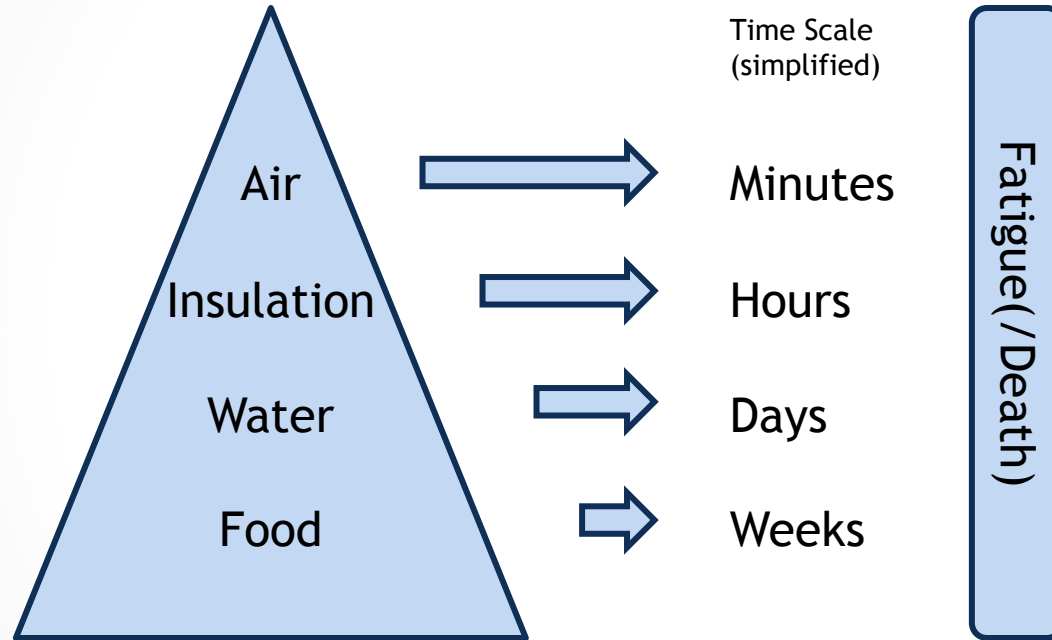
Survival rate (Kaplan-Meier Survival Plot)

WHY??

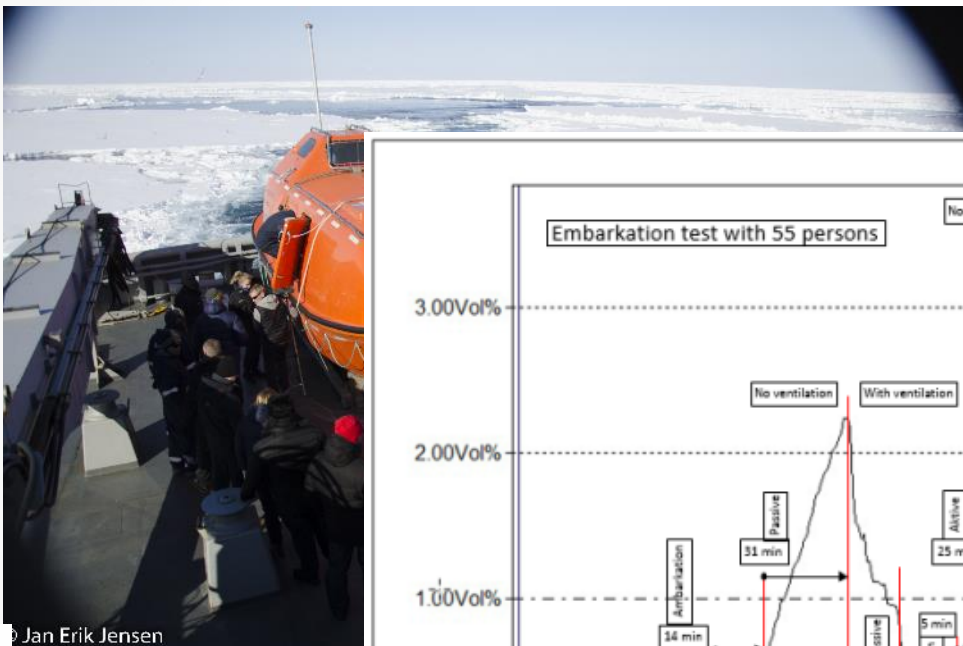


Survival in a 5 day scenario

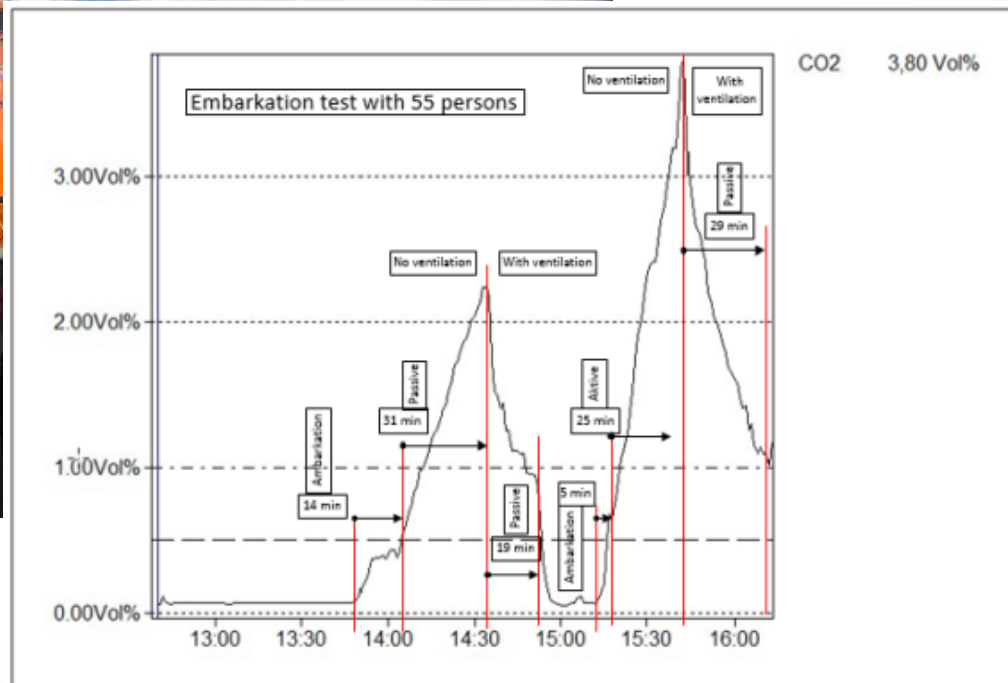
- Pyramide of life(/death)



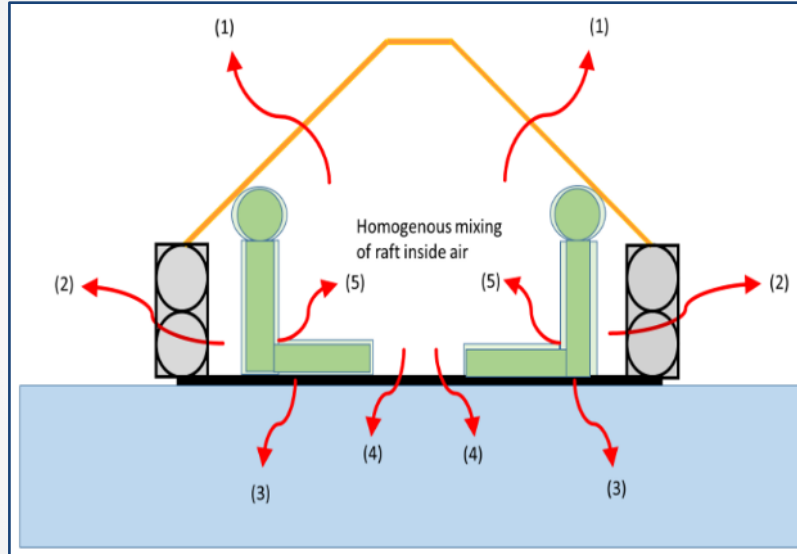
SARex - CO2 levels



Jan Erik Jensen



Mechanisms of heat loss - Thermal Equilibrium



$$Q_{\text{produced}} = Q_{\text{lost}}$$

$$Q_{\text{produced by participants}} =$$

$$Q_{\text{lost to sea}} + Q_{\text{lost to air}} + Q_{\text{lost to ventilation}} + Q_{\text{lost to radiation}}$$

Simplified Thermal Equilibrium:

$$Q_{\text{Metabolism}} * \text{ThermalResistance} = Q_{\text{lost}} (t_{\text{surface}} - t_{\text{ambient}})$$

Thermal Resistance

- PSK - Core Temperature



Reaching Thermal Equilibrium

- Increase Metabolism

Activity Description	W/m ²	W (body surface area 1.8 m ²)
Sleeping	46	83
Standing	70	126
Walking (2km/hour, level ground)	110	198
Walking (5km/hour, level ground)	200	360
Swimming	348	624
Running (15km/hour)	550	990

What average metabolism levels can you expect from average people?

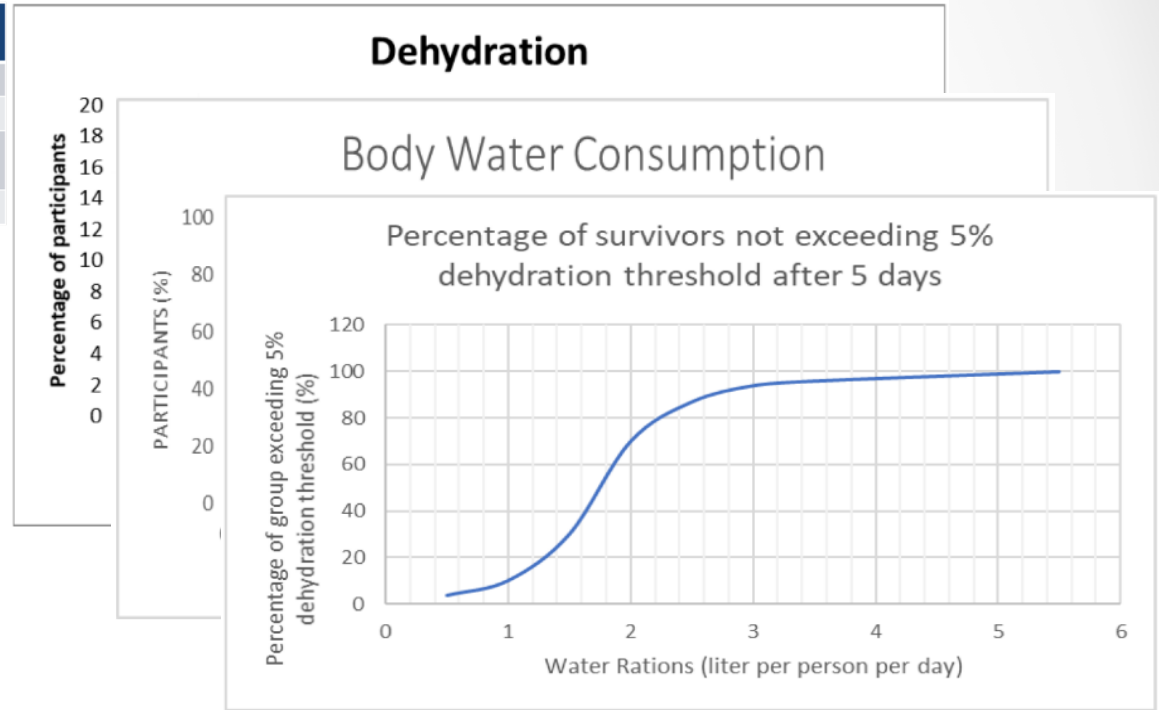
Survival rates Estonia:

- 22 % of males, 15-45 years
- 5% of females, 15-45 years
- 3% of males 65+
- 0% of females, 65+

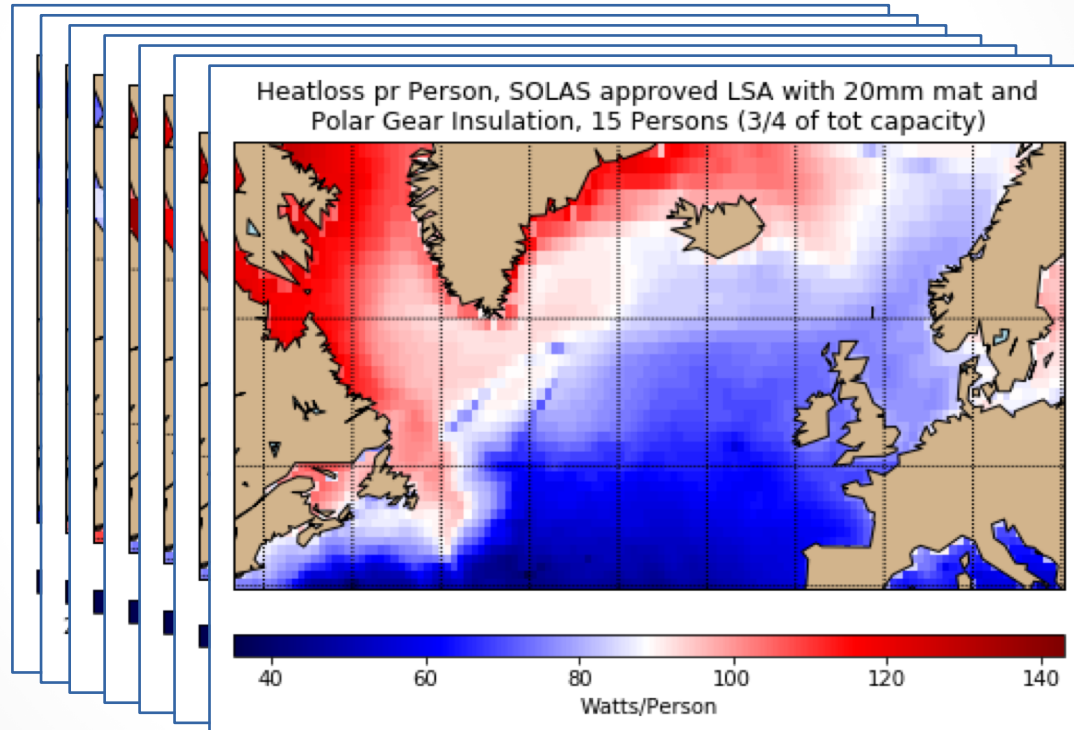


Prevent death from dehydration

Dehydration (% tot.bod.water)	Consequence
3%-4%	No adverse health effects
5% - 8%	Fatigue/Diziness
10% -15%	Physical and mental deterioration/Severe thirst
15% - 25%	Death



Are there any solutions...



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