

WP 3: Dynamic risk assessment and emergency response



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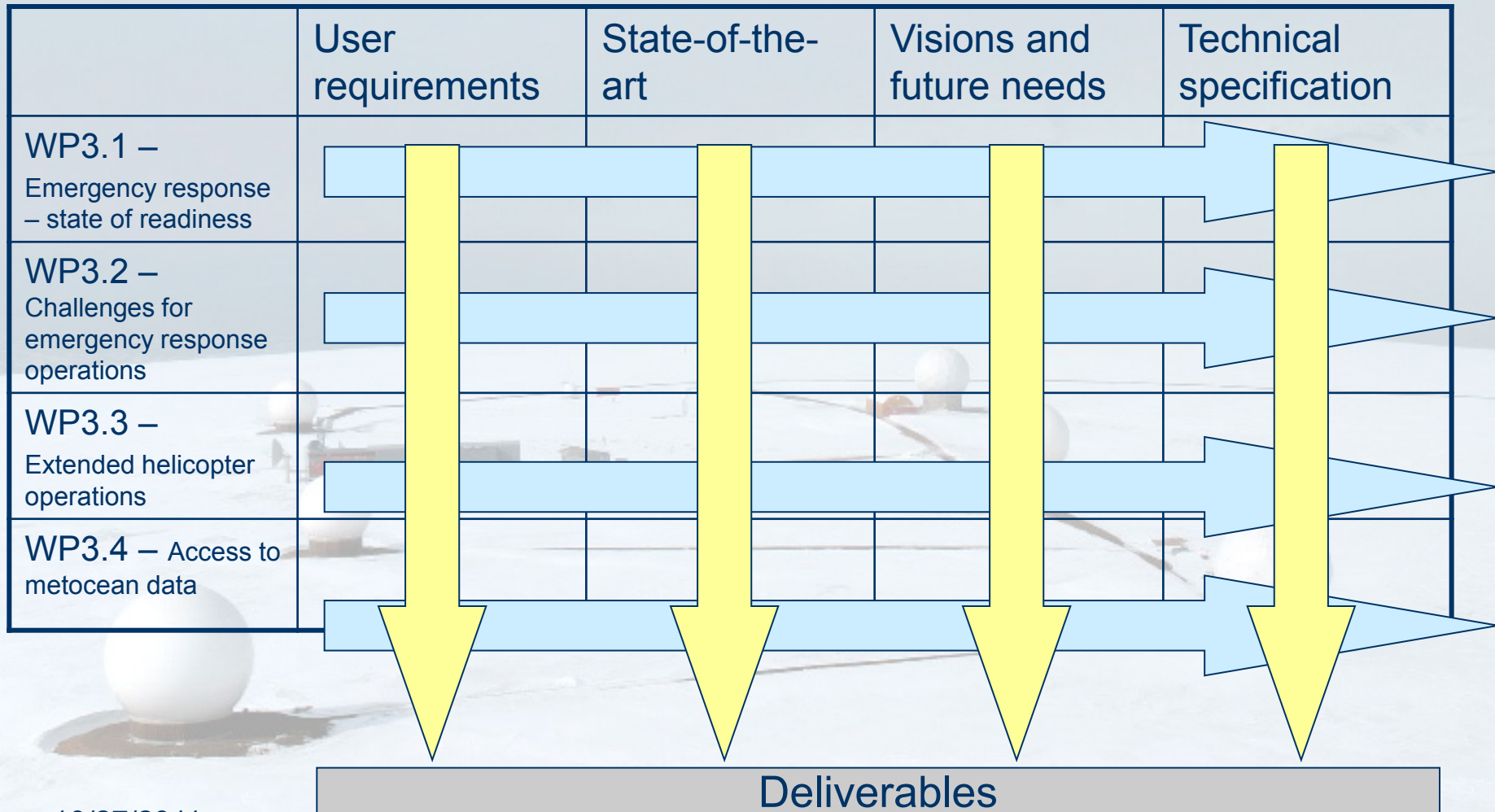
WP 3 - Objectives

- Developing and implementing a tool for dynamic risk assessment of maritime operations in the High North
- Investigating present and propose future international co-operation on emergency response to shipping in the High North



WP3 – Work structure

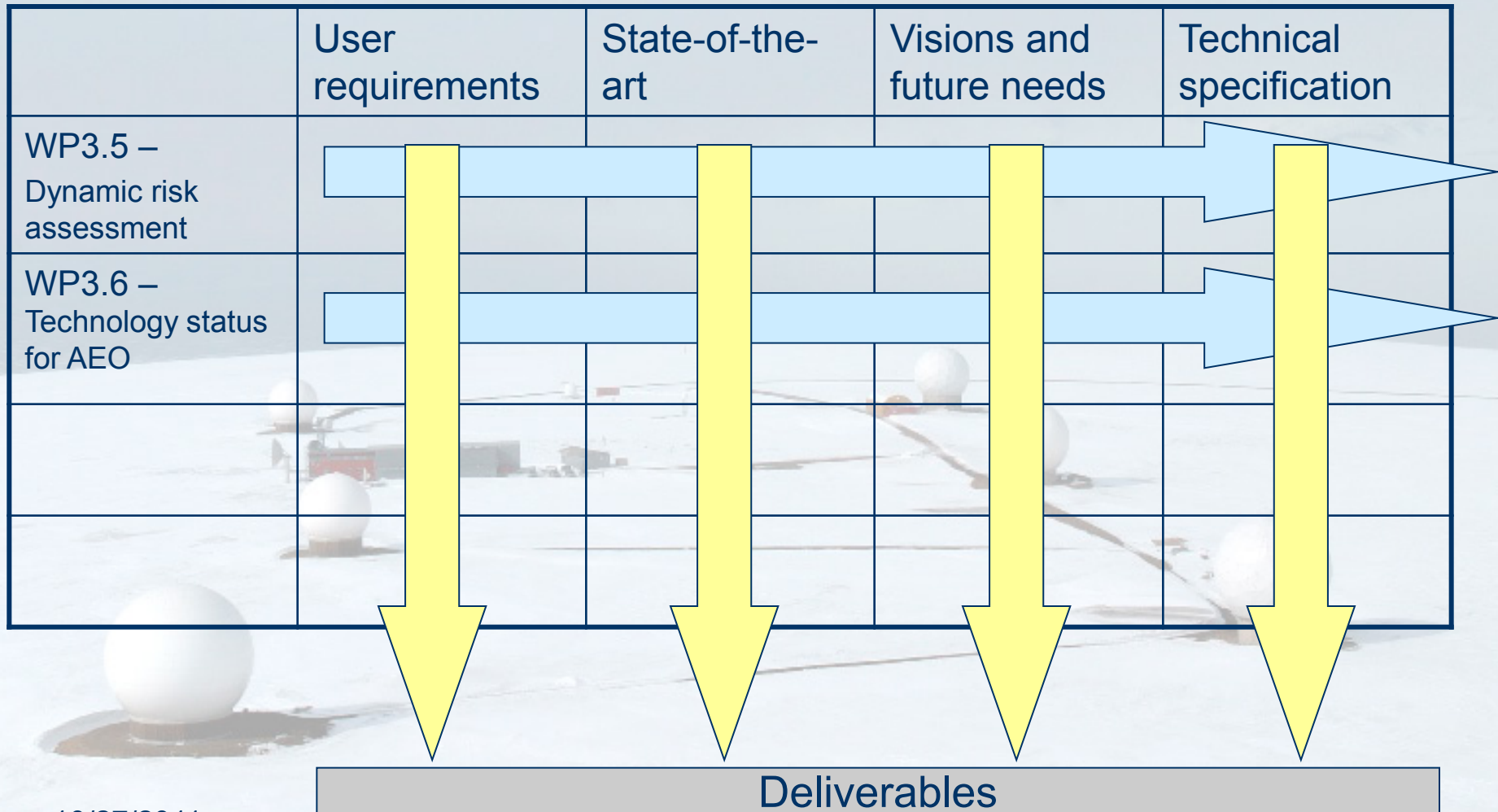
2008 - 2009	2010 - 2011
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WP3 – Work structure (continued)

2008 - 2009	2010 - 2011
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Findings:

Emergency preparedness, SAR services and EER (Escape, Evacuation and Rescue)

2.1	Limited SAR resources	Limited SAR resources vs. large distances and areas of responsibility reduce safety at sea in the High North. Some cruise ship operators have mutual agreements on coordinated sailings, making it possible to get assistance in emergency situations, before the SAR team is able to get to the area.
2.2	Unfit emergency preparedness equipment	E.g. to low bollard pull on coast guard vessels used for emergency operations (increased requirements due to increased sizes on vessels, e.g. LNG tankers). EER - Escape, Evacuation and Rescue equipment for operations in the Arctic is also important. Such equipment will be different from warmer areas since one need to create "safe heavens" that can keep evacuated persons warm for a long time in harsh and cold weather. (Work group 4 in Barents 2020 has been studying the challenges, rules and regulations and equipment for EER in the Arctic).
2.3	Untrained personnel	Since the maritime traffic in the Arctic so far has been limited, also there are very few navigators that can be classified as experienced ice navigators (exceptions are fishermen, coast guard navigators and others frequently sailing in the area). Future crew need to be trained on how to navigate in ice and work in harsh weather conditions with low air temperatures

Survival time studies

Water Temperature		Exhaustion Time	Death Time
(°F)	(°C)	(hours)	(hours)
80	27	unlimited	unlimited
70 - 80	21 - 27	3 - 12	3 - unlimited
60 - 70	16 - 21	2 - 7	2 - 40
50 - 60	10 - 16	1 - 2	1 - 6
40 - 50	4 - 10	0.5 - 1	1 - 3
32.5 - 40	0 - 4	0.25 - 0.5	0.5 - 1.5
32.5	0	< 15 min	15 - 45 min

Man overboard – Oil industry guidelines

- OLF Guideline "Man overboard emergency preparedness"
- Functional requirement:
 - When work over the sea is taking place it should be possible to rescue a man overboard within 8 minutes from time of first alert of the accident



Etablering av områdeberedskap

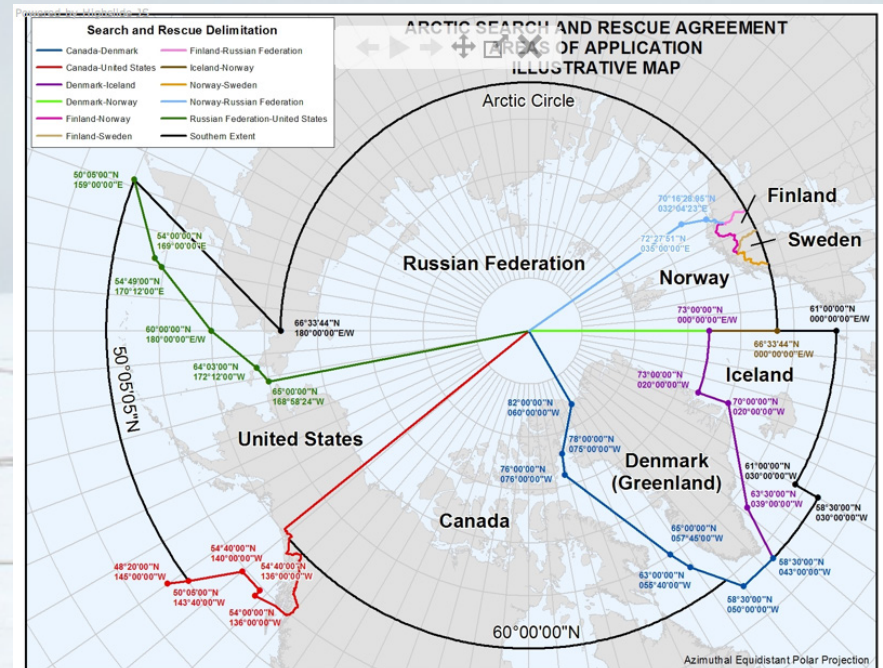
Retningslinjer for etablering av områdeberedskap

Rev1

30.6.2000

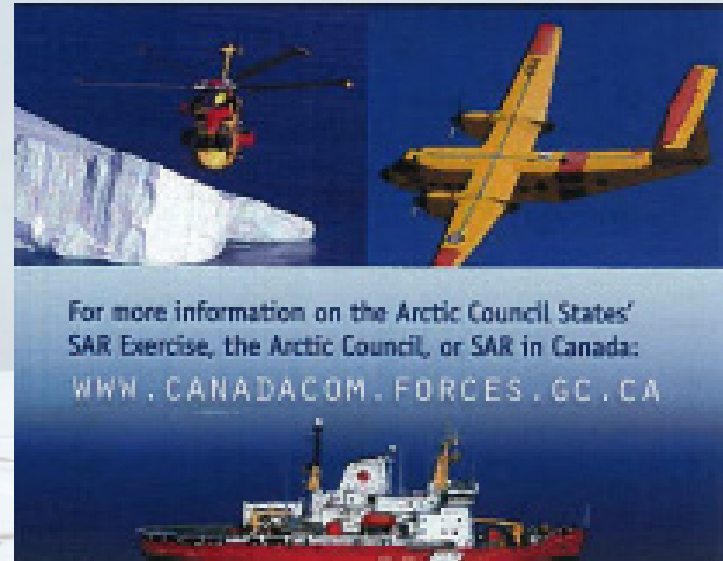
Arctic SAR – what's the content?

- Objective: To strengthen aeronautical and maritime search and rescue cooperation and coordination in the Arctic
- List of RCCs
- Exchange of information on communication, SAR facilities, available airfields and ports and their refueling and resupply facilities
- [http://arctic-council.org/filearchive/Arctic SAR Agreement EN FINAL for signature 21-Apr-2011.pdf](http://arctic-council.org/filearchive/Arctic_SAR_Agreement_EN_FINAL_for_signature_21-Apr-2011.pdf)

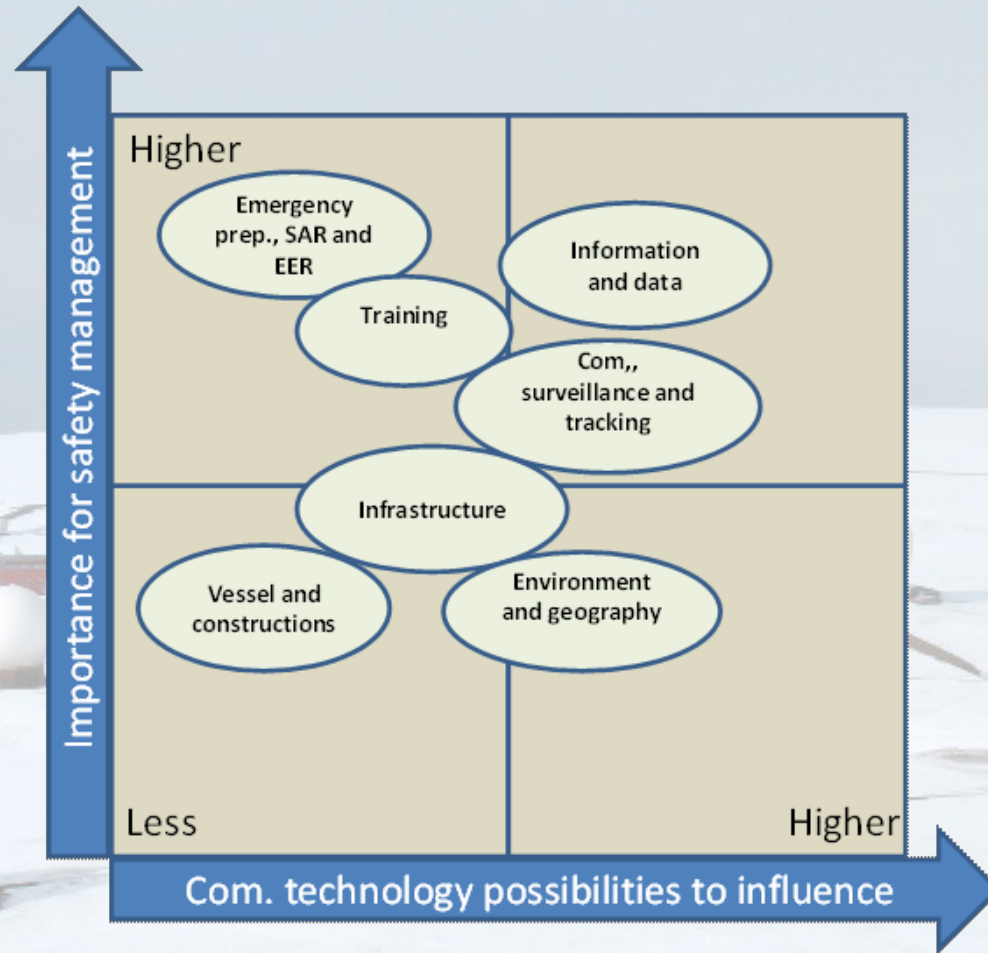


Whitehorse table-top exercise

- Arctic Council member state representatives met 5 -6 October in Whitehorse, Yukon
- Presentation of existing SAR organisation and resources in Arctic countries
- Exercises focussed on air and marine incidents that could occur in the Arctic and which would require international co-operations and resources
 - 2 maritime scenarios investigated



Findings: Visions and Future Needs



Conclusions vs Drivers/Keys

- Improved tracking of all vessels in Arctic waters
- Information packages with advice for sailing in specific Arctic regions
 - DMA safety package for Greenland
- Extended reach of SAR helicopters
 - On-shore fuel storage
- Improved weather and ice forecasts
 - Model improvements
 - Model validations based on sensor based site measurements (long timeseries)


Further work

- Establish emergency preparedness procedures for self assistance
 - Annual workshop as for Emergency Towing Operations (NCA)
- Optimise use of available SAR and oil spill response resources
- Design appropriate life saving appliances (e.g. clothing, life boats)
- Establish places of refuge
- Investigate necessary modifications needed to apply EfficienSea dynamic risk assessment tools for Arctic waters
 - VTT and SSPA VTS decision support tools

Further work

- Preparing safety package for specific sea regions (eg. Greenland)

<http://www.dma.dk/Ships/Sider/Greenlandwaters.aspx>



Dear Captain

Welcome to Greenland waters

I would like to welcome you and your ship and everyone on board to Greenland waters. I would like to take this opportunity to draw your attention to some of the special conditions you will encounter.


The approximately 2 million square kilometres of sea territory present challenges not found in more southerly waters. The very limited source of updated surveys and charts in this vast area, together with other factors such as ice, cold and extreme weather conditions, and not least the extreme remoteness of the area, are all risk factors that should be taken into serious consideration when planning the voyage to these waters.

The Danish Maritime Authority has therefore issued order no. 417 of 28 May 2009 on technical regulation on safety of navigation in Greenland territorial waters. The order includes regulation on the availability of a navigator with the necessary local knowledge, open lifeboats, navigation in poorly surveyed areas, navigation in ice and near icebergs, safety management issues and more. The order which applies to larger ships is enclosed. Furthermore, I encourage you to take into consideration the IMO recommendations found in *A.1024(26) Guidelines for ships operating in polar waters*.

As mentioned above, Greenland waters are characterised by extreme remoteness. This means that help and assistance in case of an accident or an emergency will, as a rule, be far away – if available at all. Therefore, I strongly recommend that you consider whether it is possible to plan and execute your voyage in relative proximity to other ships, and in all cases take duly note of the IMO recommendations found in *MSC.1/Circ.1184 Enhanced contingency planning guidance for passenger ships operating in areas remote from SAR facilities*.

Enclosed you will find useful information related to the above issues. Please study the material and do not hesitate to contact the Danish Maritime Authority in case you have doubts or any questions.

I wish you a safe and successful voyage.

Yours sincerely,


Andreas Nordseth
4 enclosures

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