

# Natural Hazards and Emergency Prevention, Preparedness and Response in Greenland

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# Curriculum vitae

- MARPART (Maritime Preparedness and International Partnership in the High North)
- MAREC (Inter-organizational coordination of mass rescue operations in complex environments)
  - To assess the risk of the increased maritime activity in the Arctic
  - To assess the challenges for the emergency response preparedness institutions in Norway, Iceland, Russia and Greenland

(See [www.marpart.no](http://www.marpart.no) – project publications are available for download)

MARPART



# Outline

- ‘Cold disasters’ as a physical and political concept
  - Embedded in the ”Arctic climate change narrative” context
  - Physical characteristics
  - Political characteristics
- Greenland’s constitutional situation vis à vis Denmark
- Case: The Nuugaatsiaq tsunami on 17 June 2017
- Emergency Response, Preparedness and Prevention
  - Response and lack of appropriateness
  - Preparedness and the authorities’ emergency capabilities
  - Prevention through local monitoring and warning systems
- Conclusions

# Cold disasters



Nuugaatsiaq June 2017 (Photo: Palle Lauritsen, Joint Arctic Command)

# The concept of ‘cold disasters’

- Embedded in the ”climate change narrative”
  - The context of cold disasters is climate change and the narrative on the impact of climate change in the Arctic:
  - Climate change in the arctic => melting sea ice
  - Melting sea ice => increasing maritime activity
  - Increasing maritime activity => increasing risk level
    - ”as human activities in the Arctic become more common, more attention must be paid to disasters” (Lauta et al. 2018: pp. 1276)

# ‘Cold disasters’ as a physical and political concept

- The **physical** environment of cold disasters
  - Cold disasters unfold in sparsely populated and remotely situated places in the Arctic
  - Such places are further characterised by large distances between settlements and by limited infrastructure including limited capacity for search and rescue (SAR)
  - In case of cold disasters, response time is key since people – bluntly speaking – die faster in cold conditions

# ‘Cold disasters’ as a physical and political concept

- The **political** environment of cold disasters
  - Cold disasters commonly involve complex institutional set-ups and contested jurisdictions and ambiguities
    - Concerning mandates
    - Concerning obligations
    - Concerning limitations of authorities
  - Ambiguities pop-up while cold disasters are ongoing
  - This is a challenge since good governance is one of the principal keys to disaster risk reduction



# Greenland – Denmark constitutional relations



2022-08-08



# Greenland-Denmark constitutional relations

- Greenland was a Danish colony 1721-1953
- Greenland was de-colonised in 1953 by being integrated as a county of Denmark; and also re-colonised
- Then, Greenland obtained ‘home rule’ in 1979
- And ‘self government’ in 2009
  - Greenlanders are a ‘people’ according to international law
  - Greenlanders have the right to self-determination
- However, Greenland and Denmark have a form of ‘shared rule’, since Greenland can take over a number of policy areas from Denmark when Greenland wants to do so

# Greenland-Denmark constitutional relations

- Greenland can transfer ('take home') most policy areas when Greenland wants to and are willing/able to pay for it
- But the following policy areas are the prerogative of the Danish government, until Greenland's independence
  - Constitutional affairs for the Danish realm
  - The Supreme Court
  - Citizenship
  - Currency and monetary policy
  - Foreign policy
  - Defence and security policy – Including SAR operations

# Case: The Nuugaatsiaq tsunami 17 June 2017



# GREENLAND TSUNAMI

In a rare event, a massive landslide in a Greenland fjord in June 2017 caused one of the biggest tsunamis in recorded history.

500 km

• Nuugaatsiaq

A landslide into the Karrat Fjord created a tsunami that hit the village of Nuugaatsiaq.

GREENLAND

Nuuk ■

©nature



Source: Quirin Schiermeier  
Huge landslide triggered  
rare Greenland mega-tsunami.  
*Nature*, 31 July 2017

2022-08-08

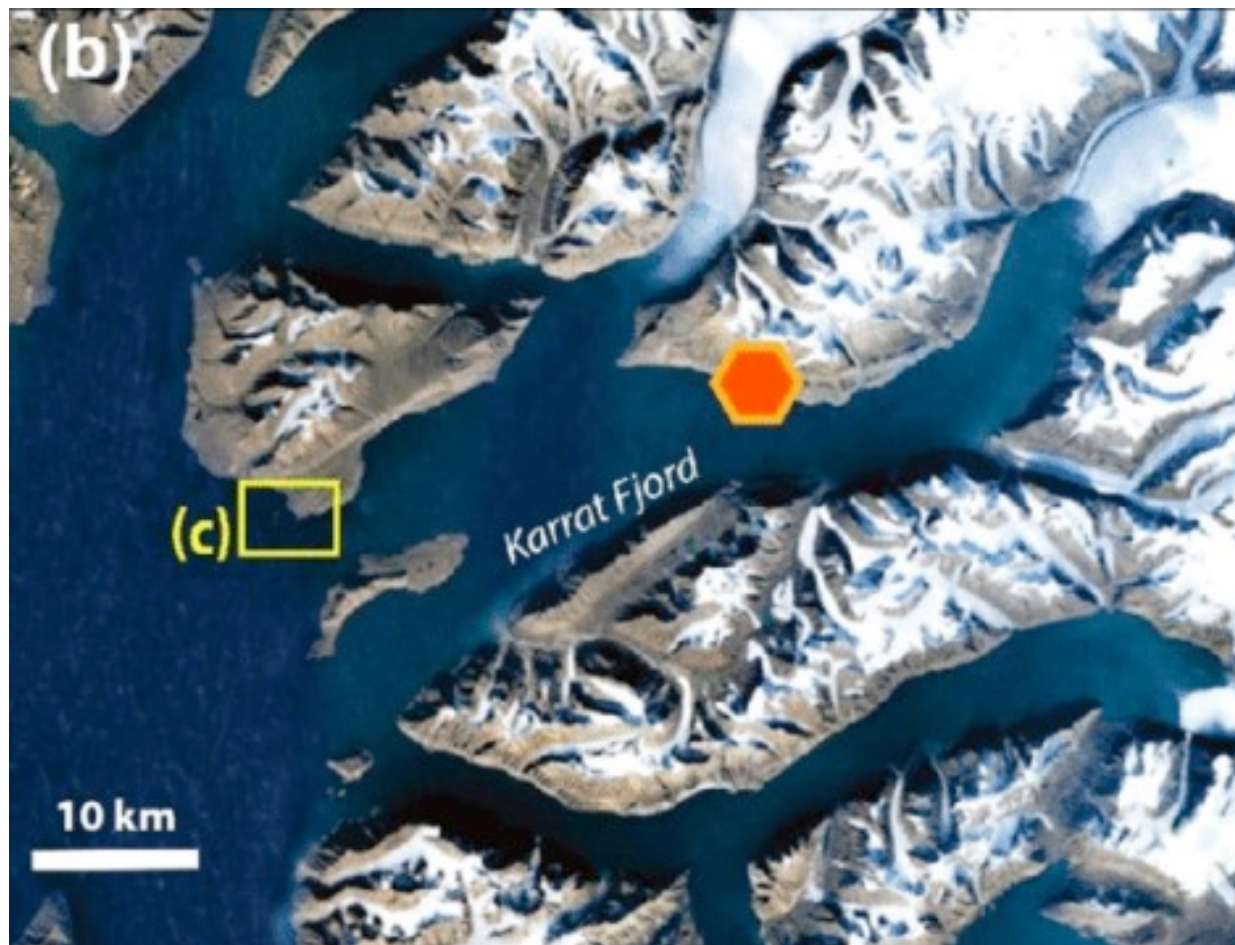


# Case: Nuugaatsiaq

- Situated 100 km from the nearest town of Uummanaq
- A piece of rock and gravel of approximately  $1100 \times 300\text{m}$  created a tsunami that travelled 30 kilometers in the Karrat fjord and flooded the settlement of Nuugaatsiaq
- The flooding was caused by a major landslide, caused by thawing permafrost, caused by climate change
- The tsunami washed away 11 buildings, damaged the power supply and caused the death of 3 adults and 1 child
- All inhabitants were evacuated due to risk of further landslides; and they are still not allowed to return

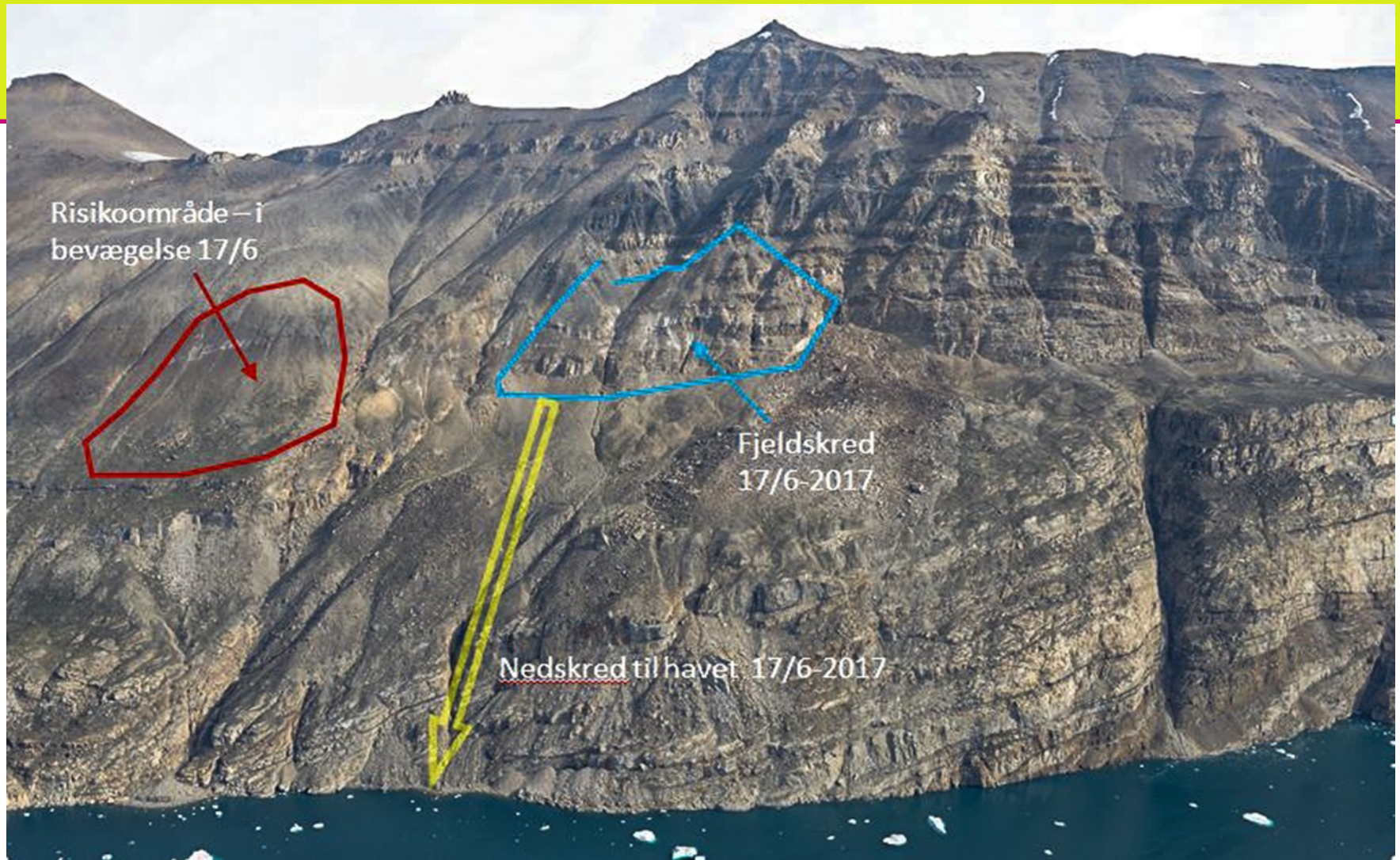


# Location of landslide risk and Nuugaatsiaq



Source: Strzelecki & Jackólski 2020





- Blue line encircles the rock area that rushed to the sea as the yellow arrow indicates
- Red line indicates an area that was unstable during the slide on 17 June 2017 and still is considered a risk for further landslides (“Karrat 3”)

# Emergency governance in Greenland



Air Greenland rescue helicopter (Photo: Uffe Jakobsen)

# Multilevel emergency governance in Greenland

- Due to constitutional relations between Greenland and Denmark, emergency governance is divided between Greenlandic and Danish actors and institutions
  - The consequence is a multilevel emergency governance organisation
  - The consequence is also a division between actors with capabilities and actors with political authority
- The question is how well it works



# Multilevel emergency governance in Greenland

- **Greenland municipal** fire brigades have responsibility for environmental pollution in ports and coastal areas
- **Government of Greenland** has responsibility for environmental pollution connected to offshore oil/gas activity through the Greenland Oil Spill Response company
- Greenland Police (part of **Danish National Police**) has responsibility for emergency response for internal sea territory from the base line to 3 nautical miles (nm)
- Joint Arctic Command (part of **Danish armed forces** - Navy and Air Force) has responsibility for all other activities in the sea territory from 3 nm to 200 nm (Exclusive Economic Zone)
- Other authorities in **Denmark** can be requested to support operations in Greenland

# The Emergency Management Commission

- The Emergency Management Commission's tasks:
  - To create/maintain a 'common awareness' of the overall situation
  - To clarify policy priorities and major financial decisions
  - To coordinate external crisis communication to media etc.
- The Emergency Management Commission's members:
  - Greenland Ministry of Research and Environment
  - Greenland Department of Environment and Contingency Management
  - Greenland National Health Authority
  - One representative from the five Greenland municipalities
  - Office of the Chief Constable of Greenland Police
  - Office of the Joint Arctic Command
  - Office of the High Commissioner of Denmark in Greenland

# Emergency response in the case of Nuugaatsiaq

- 17 June 2017 at 10 pm, the police crisis response were activated and the police in Uummannaq were sent to the area
- The Emergency Management Commission was set up
- Support was required from Denmark to assist the local police
- During the action, Greenland police officers, Navy personnel and Air Greenland personel collaborated, coordinated by the police
- The police efforts were concluded on June 30, 2017 at 4.00 pm: status was that four people have died and several houses (both private homes and public institutions) were washed to the sea or crushed onshore by the floodings.
- None of the relocated residents of Nuugaatsiaq have received permission to return because of the risk of new landslides

# Danish ‘community of the realm’ capabilities

- Danish Emergency Management Agency interview
  - "If you have to do something here and now, Greenland is left to itself, because we can not respond fast enough to be able to assist in due time" ...
  - “In the very acute rescue and evacuation situations, Greenland must cope with its own emergency preparedness. For Denmark can not manage to help in time ”...
  - "Although we would like to assist from Denmark, we cannot escape the fact that the time factor plays a big role“

Source: <https://www.dr.dk/nyheder/indland/svaert-naa-frem-groenland-maa-klare-sig-selv-i-akutte-noedsituationer>





# Cold disasters and contested jurisdictions

- In Greenland, the unique institutional arrangements also surface with regard to the contestedness of responsibility for disaster governance and disaster risk reduction.
- Rules are: The Greenland Police is solely responsible for SAR operations within 3 nautical miles and the Joint Arctic Command is responsible for SAR operations and for environmental operations from 3 to 200 nautical miles;
- Greenland municipalities (fire brigades) are responsible for environmental operations within 3 nautical miles
- But according to an agreement of 24 march 2017 between the Government of Denmark and the Government of Greenland, Greenland can ask Denmark to take responsibility for environmental response within the 3 nautical miles.

# Cold disasters and contested jurisdictions

- Therefore, when the Danish Emergency Management Agency in the middle of the Nuugaatsiaq disaster is arguing that Greenland is “left to itself”, it seems to prove the case that ‘cold disasters’ do not only have physical characteristic but also political:
  - “Differing interpretations of statutes and mandates, alongside cross-jurisdictional interactions, are consequently an **inevitable part** of almost any disaster response operation in Greenland (Lauta et al. 2018: p. 1278)

# Conclusion 1 (emergency response)

- Conclusion on the political aspects of ‘cold disasters’ and the appropriateness of the emergency **response** and preparedness aspects
  - As mentioned, Lautu et al. (2018) maintain that cold disasters commonly involve complex institutional set-ups and sometimes even contested jurisdictions
  - The Nuugaatsiaq case confirms that

# Conclusion 2 (emergency preparedness)

- Emergency capabilities in Greenland
  - Joint Arctic Command
    - 2-4 smaller Danish navy vessels present in Greenland waters
    - Helicopters aboard some of the navy vessels + Air Greenland
    - 1-2 Danish airforce flights present in Greenland airspace
  - Greenland Police
    - 4 police boats available around Greenland
  - Problem is centralisation causes long response time
    - Air Greenland rescue helicopter was first in the scene
    - Greenland Police was next on the scene
    - However, Joint Arctic Command arrived 24 hours later

# Conclusion 3 (emergency prevention)

- Conclusion on the emergency **prevention** aspects of ‘cold disasters’ by Danish and Greenlandic authorities
- **Danish** authorities (Joint Arctic Command)
  - A Search and Rescue (SAR) exercise was organised in 2021 by the same authorities as those who participated in the SAR incident at Nuugaarsiaq in 2017 (Joint Arctic Command, Danish Emergency Management Agency (DEMA), Greenland Police etc.

# Conclusion 3 (emergency prevention)

- Conclusion on the emergency **prevention** aspects of ‘cold disasters’ by Danish and Greenlandic authorities
- **Greenlandic** authorities (Greenland Self-Government)
  - Since the 2017 tsunami that took everyone by surprise the Government of Greenland have focused on monitoring developments in the area in order to be able to produce warnings of future potential landslide induced tsunamis and to disseminate alarms to local citizens by email, SMS or audible sirens
  - The warning and alarm system should be developed through cooperation between local and international experts

# Conclusion 4 (standardisation)

- Conclusion on **standardisation** of monitoring and warning systems
  - A thorough report by Greenlandic authorities was published 2022
  - The report maintains that to establish a monitoring og warning system, standardisation of databases is necessary to collect and document historical and contemporary events
  - The report by Greenlandic authorities as an example of ongoing consideration on the standardisation of risk governance
    - Assessments => Contingency planning => Risk governance
  - The mapping of best practices => policies and legislation
  - The Self-Government will also ”inform and involve” local citizens in the development of the system



# Conclusion 4 (standardisation)

- Conclusion on **standardisation** of monitoring and warning systems, continued
  - Apart from the 2022 report on a warning/alarm system for landslides, no Greenlandic guidelines exist for emergency management; only Danish guidelines are available
  - However, due to the climate change induced increased maritime activity in the Arctic, a specific risk assessment for Greenland is highly needed!

# Thank you for your attention!



University of Greenland (Photo: Lars Maltha Rasmussen)