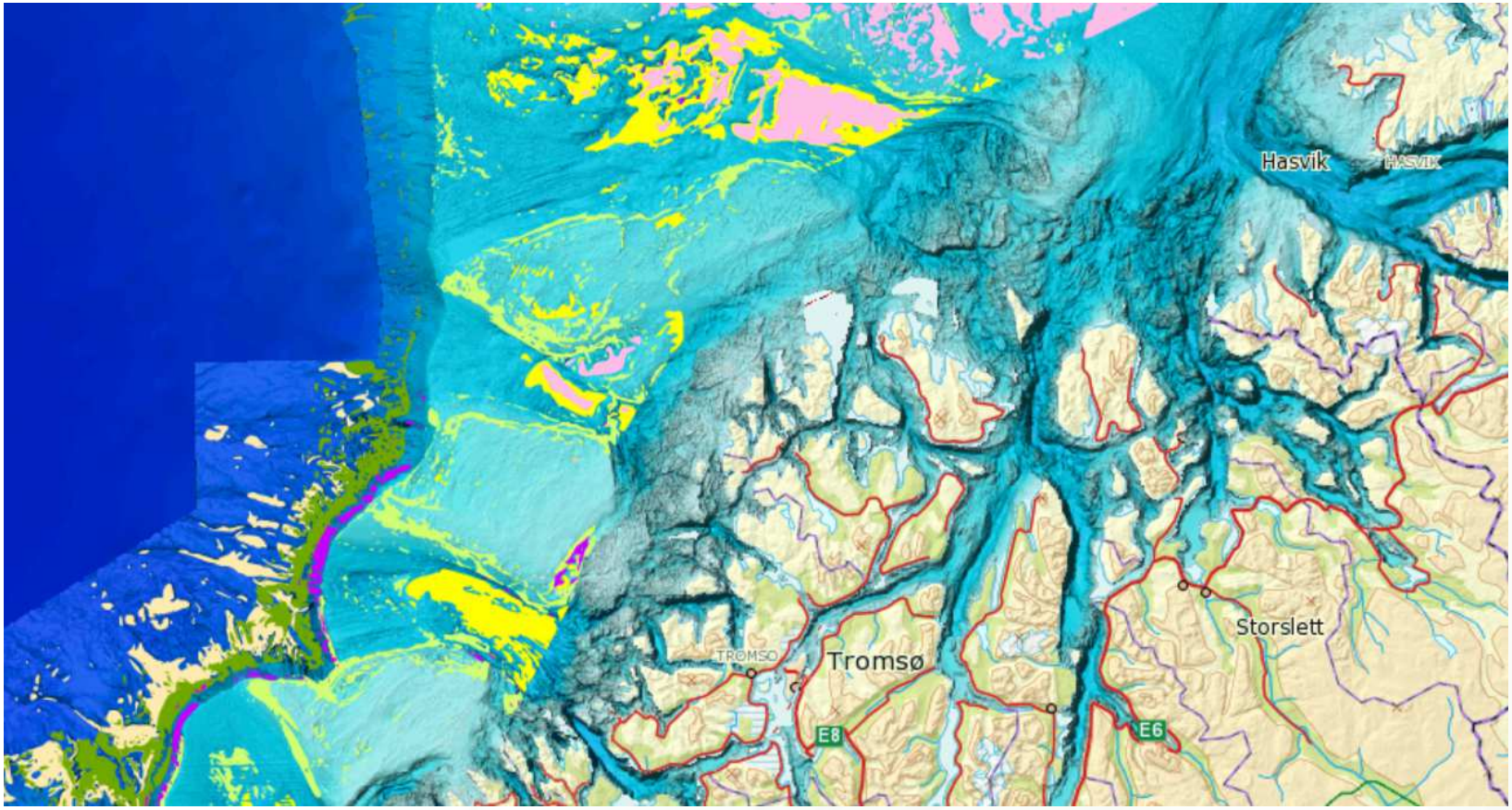
Kartverket

Technlogical advances

The Norwegian Hydrographic Service



Continous improvements

- The Norwegian Hydrographic Service (NHS) has continuous improvements of processes as a guiding principle.
  - Introduced new survey launches in 2014
  - Upgraded to latest generation eccosounders (EM2040)
  - Introduced new processing software in 2015

- Resulting effects
  - 20% increased efficiency during surveys
  - Less time spent on prosessing

Current situation

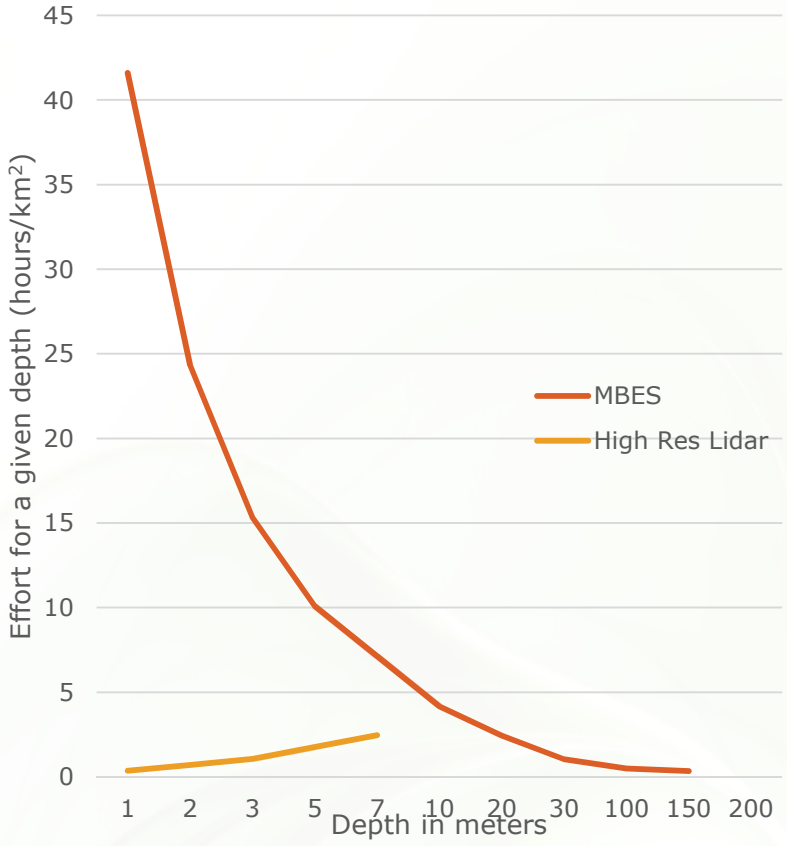
Significant areas not surveyed

- Mainland 35+ years remain
- Svalbard 50+ years
- Shallow surveys expensive and time consuming

Limited resources

Public is becoming aware of data shortage

- Increased demand



Autonomous data collection

- Unmanned survey vessels (USV)
  - Smaller autonomous platforms
  - 24/7 data collection
  - Advanced mission planning
- Resulting effects
  - Scalability without increased crew
  - Reduced cost
  - Improved logistics

Combined with new technology

Lidar from USV or airborne platforms:

- Closing the gap between land and sea
- Produces high quality 3D models of shorefront

Orthophoto drones:

- Yields high resolution bathymetry on low tide
- Easily combined with MBES and lidar

Timeline

- Strategic cooperation with Maritime Robotics initiated 2015
  - Funded by Innovation Norway
  - Prototype testing initiated
  - Planned product ready 2018
- NHS will closely follow any new USV project launched
- Procurement process could start 2018-2020

Challenges

- In house:
  - Management of new data types collected and introduced in our production line
  - Data volume will increase significantly

- Regulatory Authorities
  - Safe operations of USVs at sea
  - Protection of collected data (detailed bathymetric data is classified in Norway)