



**KYSTVERKET**

NORWEGIAN COASTAL ADMINISTRATION

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## Possible Arctic SBAS coverage by using High Elliptic Orbit Satellites

PNT Advisory Group 21

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**Arve Dimmen, Director Maritime Safety**

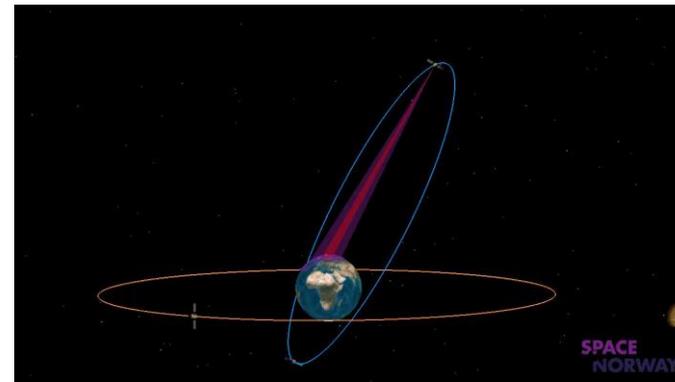
Baltimore, MD, May 16<sup>th</sup>-17<sup>th</sup>, 2018



# HEO Communication Satellites project

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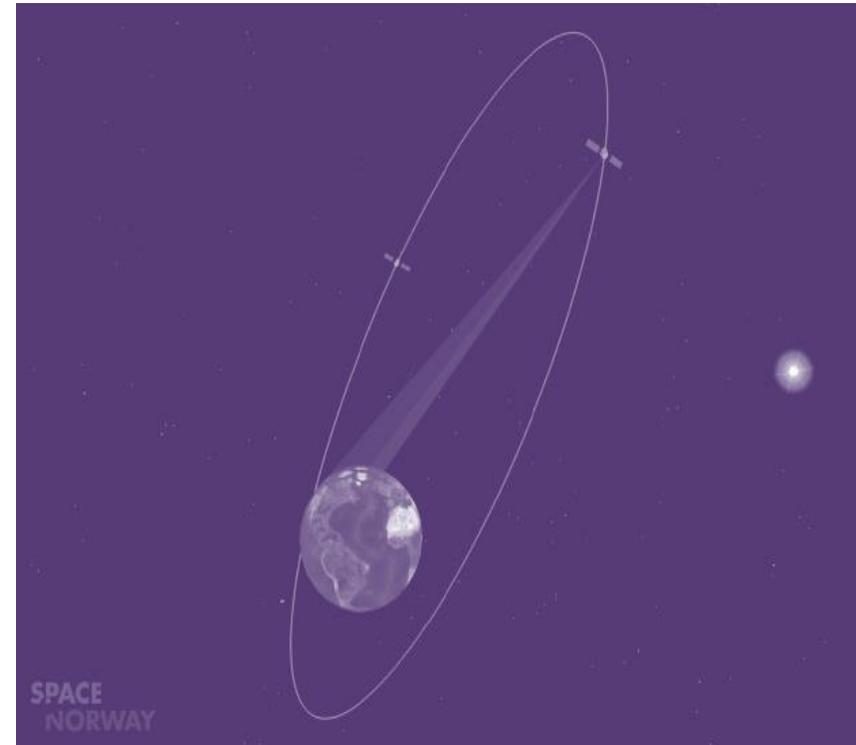
- Project owner: «Space Norway»
  - 100% government owned company
  - ”To provide space related infrastructure in support of national user requirements”
- Project goal:
  - To provide Communication Broadband at high latitudes for government and commercial use
  - Capacity in place by 2022 / 2023
- Solution
  - Two dedicated High Elliptic Orbit (HEO) satellites
- Opportunity
  - Additional Navigational Payload ?



# HEO Communication Satellites project

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- Space segment
  - 2 satellites
  - Ka – commercial coverage from approx 60°N
  - X – mil coverage from 60°N
  - Dual Launch, single orbital plane
- Optional
  - Ku-band
  - L-band
  - Navigation/SBAS

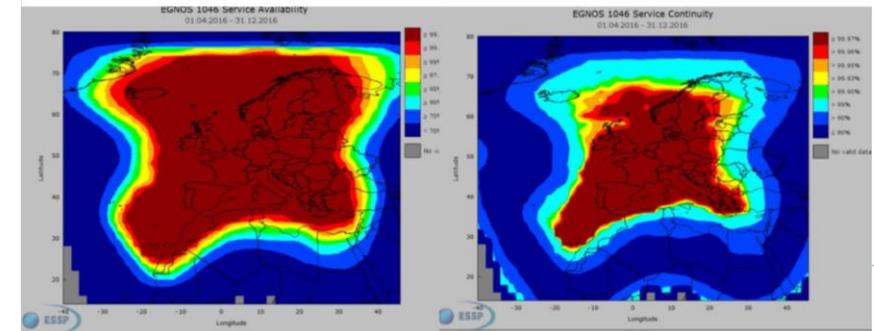


# HEO Communication Satellites project

- Opportunity
  - Additional Navigational Payload ?
- Goal:
  - Makes SBAS coverage possible at high latitudes, above 60°N
  - Improves SBAS coverage at mid-latitudes (terrain-obstruction, airframe)
- Intense work 2018:
  - Include EGNOS payload in the concept?
  - EGNOS:
    - SBAS for GPS today
    - Will include Galileo in the next version (2025)

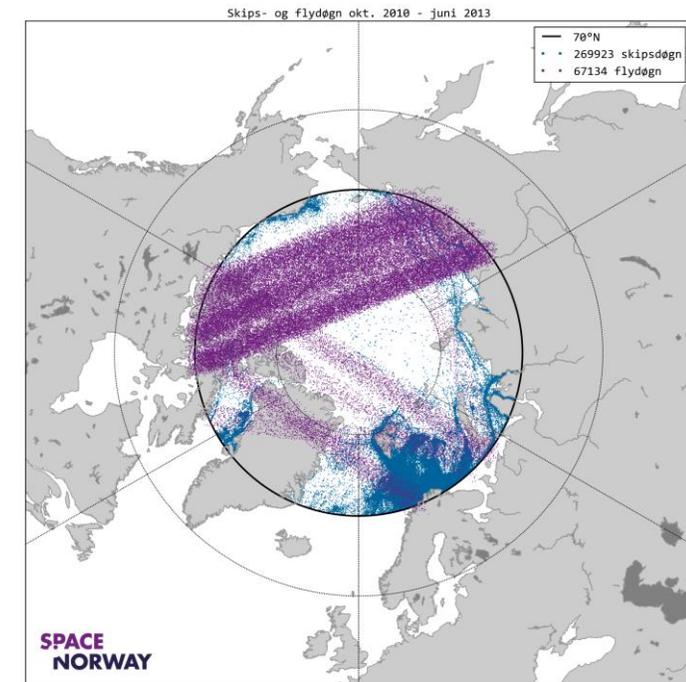
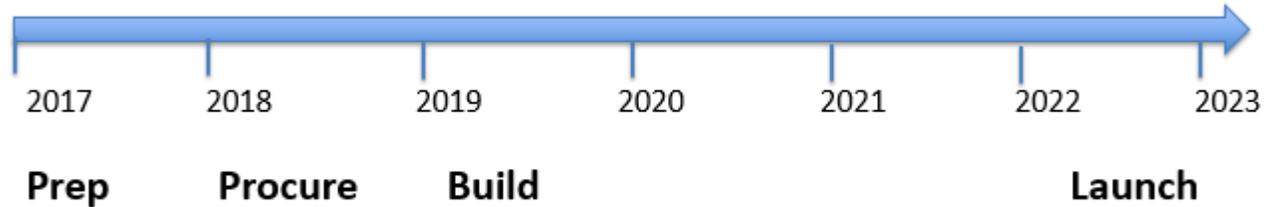


GSA analysis of EGNOS compliance to IMO Resolution A.1046 (27)



# HEO Communication Satellites project

- Service provision Area
  - Maritime use from 70°N
  - Aeronautical use from 55°N





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