



NORWEGIAN MAPPING
AUTHORITY

National Agency of Cadastre and Land Registration of Romania

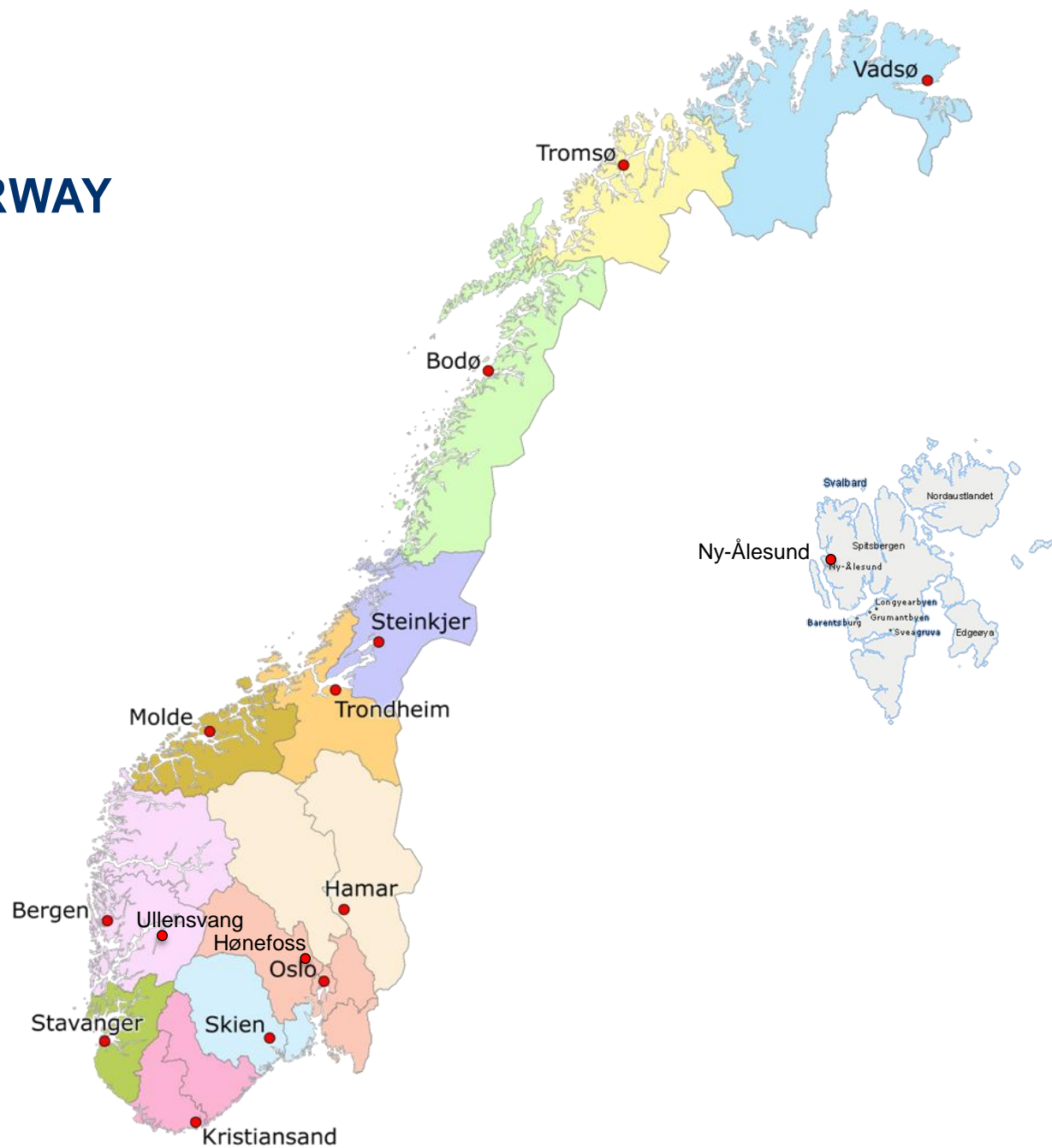
SPATIAL DATA – FOR BENEFIT OF THE SOCIETY

NORWEGIAN MAPPING AUTHORITY

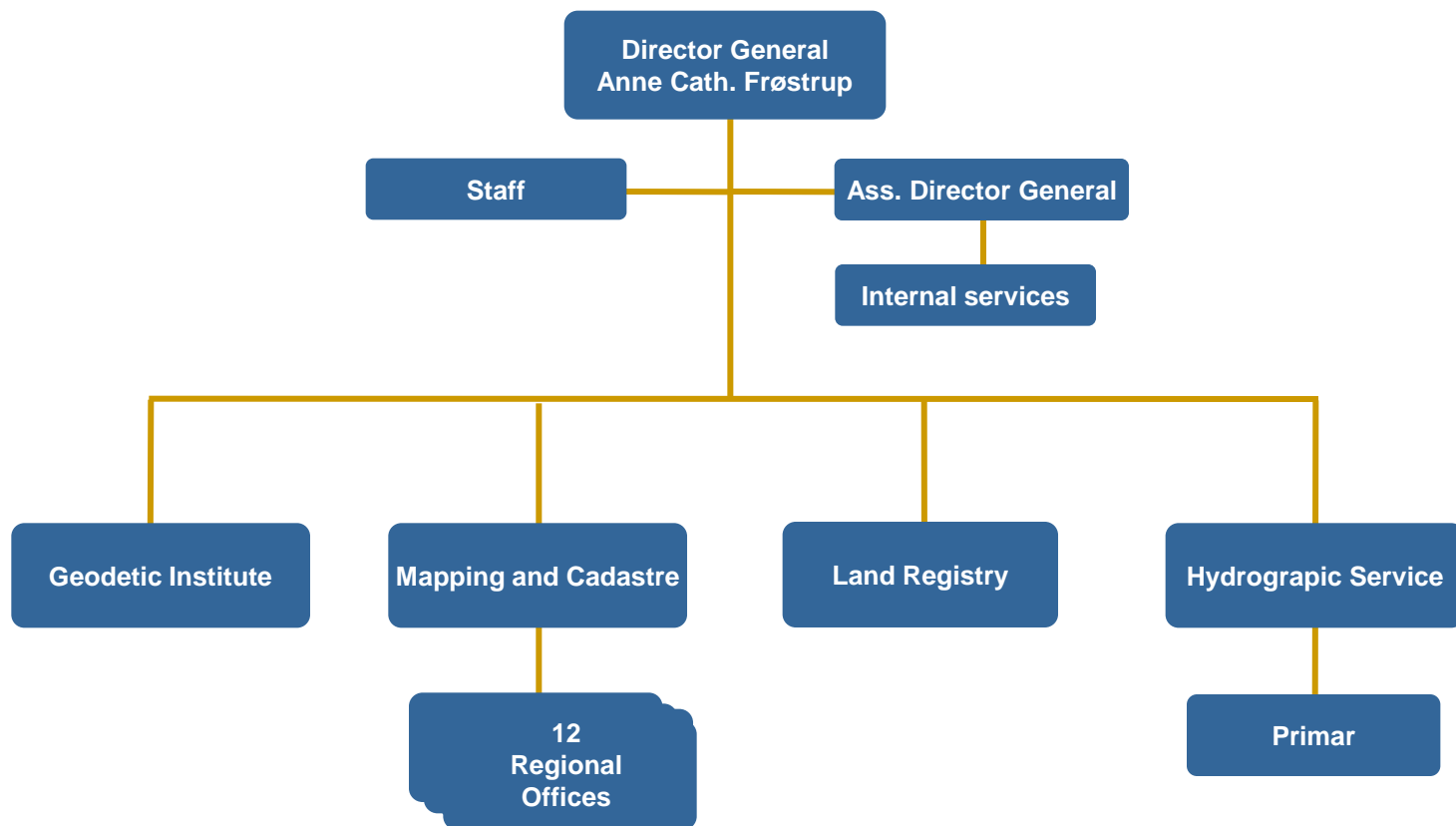
- The national provider and administrator of geographical and cadastre information
- Covers Norwegian land, coastal and territorial waters
- National Land Registry
- Public agency under the Ministry of the Environment
- 14 offices nation-wide
- Annual turnover 2009: 846 million NOK
- 850 ++ staff
- Founded 1773



NMA IN NORWAY



NORWEGIAN MAPPING AUTHORITY



TO ENJOY THE WAY OF WORKING TOGETHER





Data paid by
many
copyrights
holders

Free for public use - webbased
services

- Non commercial

Data via SK
("basic data")

D

Value added
providers

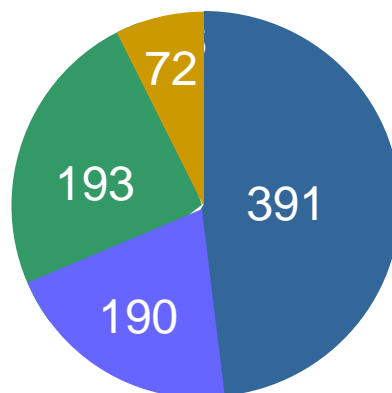
Norway digital/official use

End
users



INCOME

2009

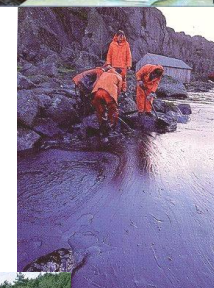
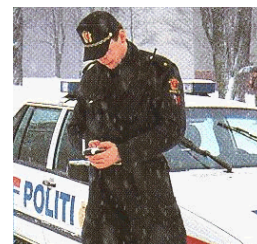


- State budget – The Ministry of the Environment
- Ministry of Justice and the Police
- Public sector joint venture
- Revenues from distribution



MANY AREAS FOR GIS-APPLICATIONS

- Local authority management
- Shipping and fisheries
- Agriculture and forestry
- Transportation and road navigation
- Utilities
- Defense and security
- Crisis management
- Property management
- Environment and resource management
- Education and media
- Recreation
- Value added mapping products





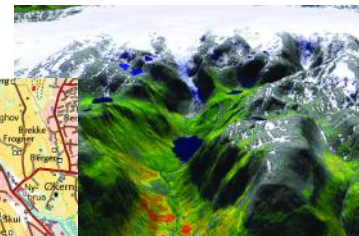
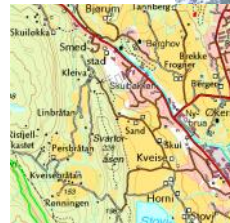
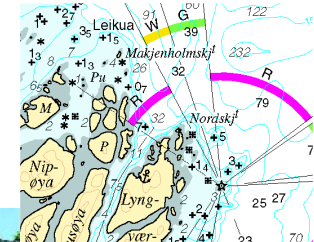
TASKS

- Define frameworks, methodologies and specifications for the Norwegian Spatial Data Infrastructure – new act 2010 “The geodata act”
- Administrator and driving force for Norway digital
- Produce, manage and make available the geographical information defined as a government responsibility
 - Geodetic network and services for accurate positioning
 - Primary dataserries and digital map series (land and sea)
 - Cadastre information
- Land registration
- Develop and manage electronic services for distribution of data
- International co-operation and projects



NMA's SUBJECT AREAS

- Spatial data infrastructure
- Geodetic network and positioning services
- Surveying and mapping
- Hydrographic surveying and charts
- Cadastre and land registry



NATIONAL CO-ORDINATOR AND PROFESSIONAL RESOURCE

- Coordination of map and geodata activities in Norway
- National and international standardisation
- Public administration tasks
 - Law of place name, law of cadastre, administrative boundaries, Norwegian aeronautical obstacle database
- Technological infrastructure for geodata
- Cooperation on GIS research and development
- International cooperation within geodesy, mapping, GIS, hydrography and cadastre
- Provide assistance for the Norwegian foreign aid agency (NORAD) in the fields of mapping, GIS, and environment and resource management
- Support the Norwegian GIS-business abroad



GEODETIC NETWORK AND POSITIONING

- A modern geodetic network
 - Basic horizontal network
 - Basic height network
- Satellite based positioning services
 - CPOS (centimetre positioning in real time)
 - DPOS (desimetre positioning in real time)
 - Etpos (positioning in retrospect)
- Geoid og height reference surfaces
- Land elevation
- International projects

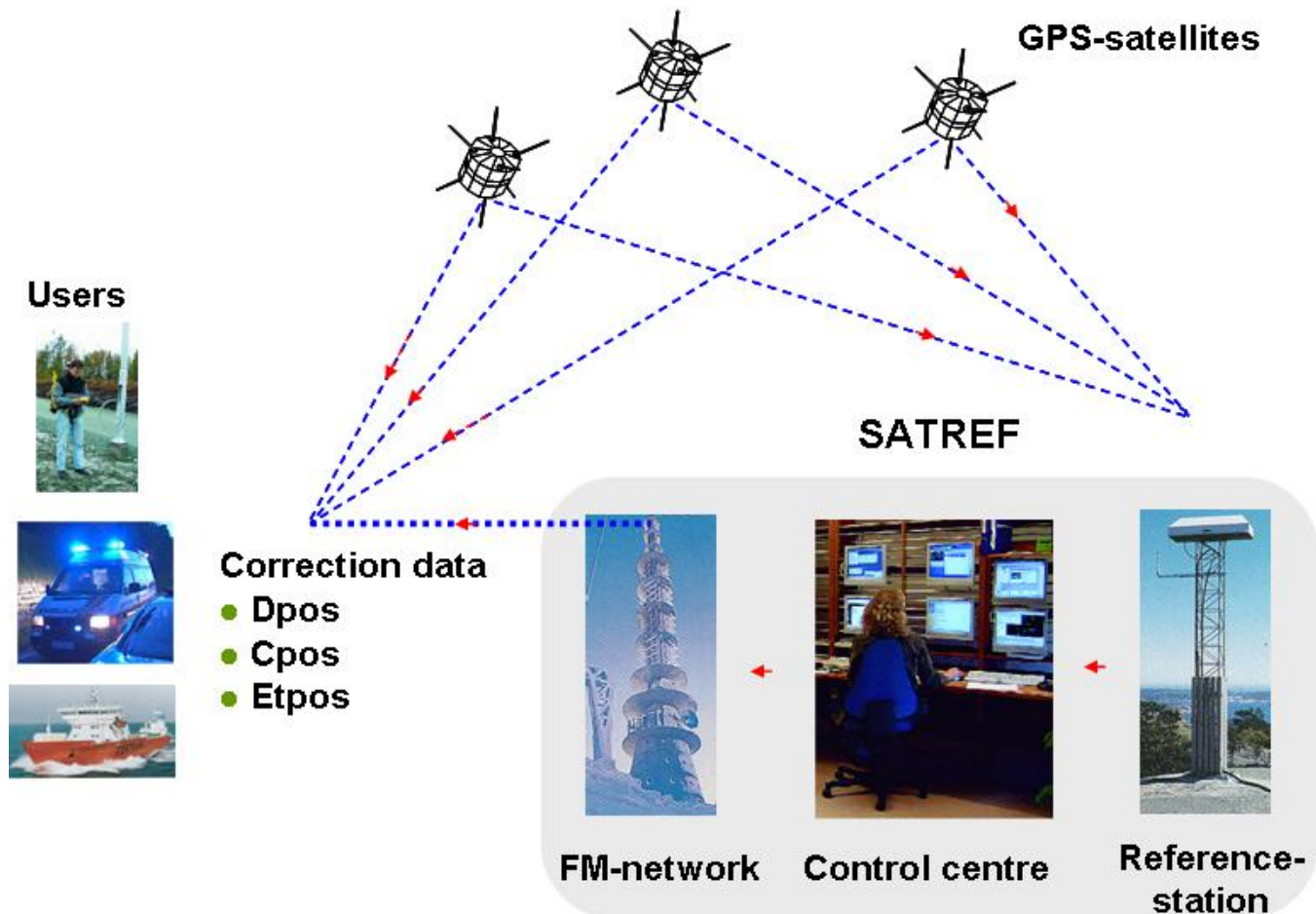


ARCTIC SPATIAL DATA INFRASTRUCTURE (SDI)

- Verdens første sirkumpolare kartsamarbeid
- 8 arktiske lands kartverk
- Behov for et "skikkelig" bakgrunnskart i Nordområdene til mange formål
- Ønsket av den "arktiske" verden
- Ledes av Norge/Sverige



SATREF – REFERENCE INFORMATION FOR PRECISE POSITIONING

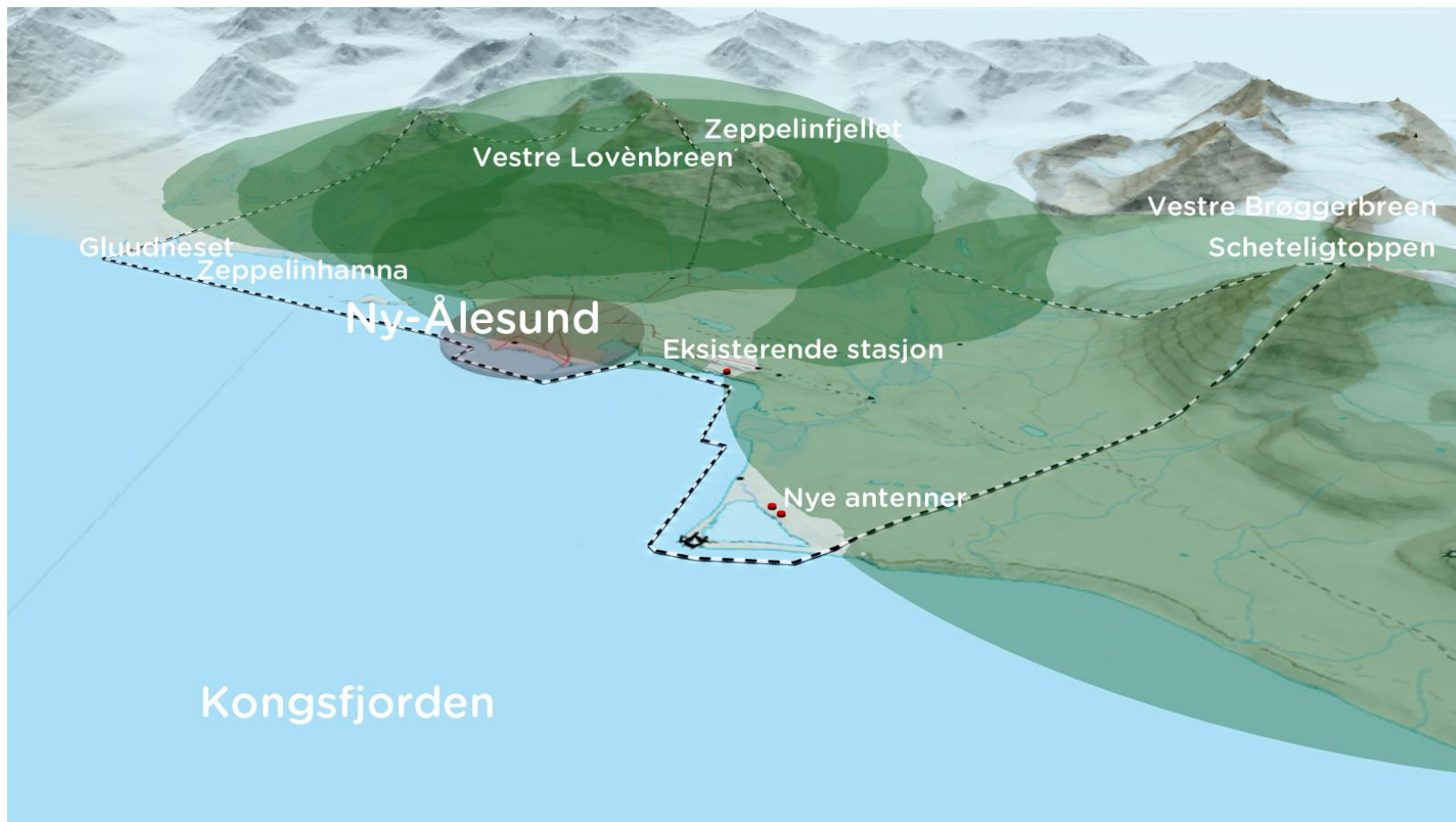


GEODETISK OBSERVATORIUM I NY-ÅLESUND

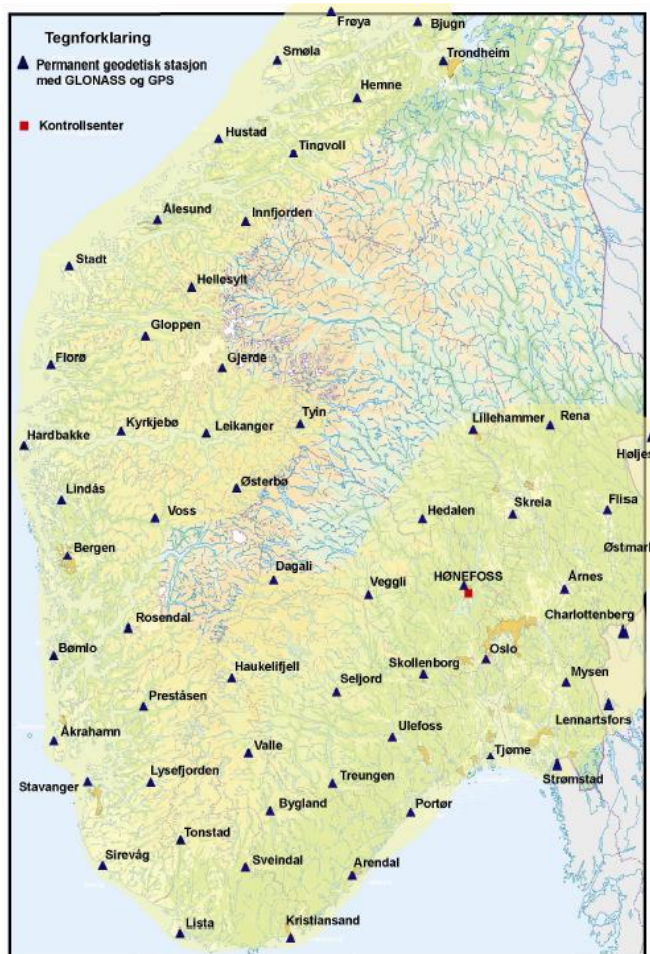
NØKKELBIDRAG FOR Å FORSTÅ KLIMAENDRINGER



NYE ANTENNER PÅ BRANDALSPYNTEN

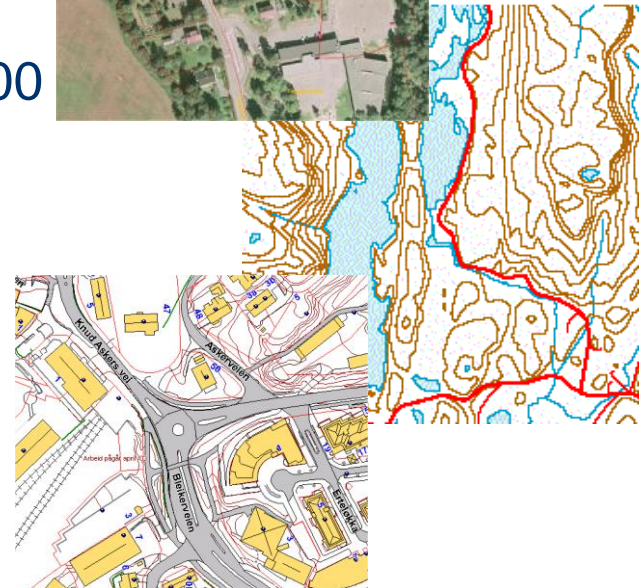


CPOS - COVEARGE



LAND MAPPING

- Primary data
 - (elevation, triangulation points, roads, buildings, addresses, properties, water contours, administrative boundaries, place names, depth contours and coastal contours)
- National map dataseries N50-N5000
- The national map series Norway 1:50 000
- The national place name register
- “Norway in images” (orthophoto)
- Coordinate spatial data infrastructure activities in the counties



CADASTRE INFORMATION



- Cadastre (matrikkel) with information and maps
- Land registration information from the national Land Registry
- International centre for development of cadastre systems

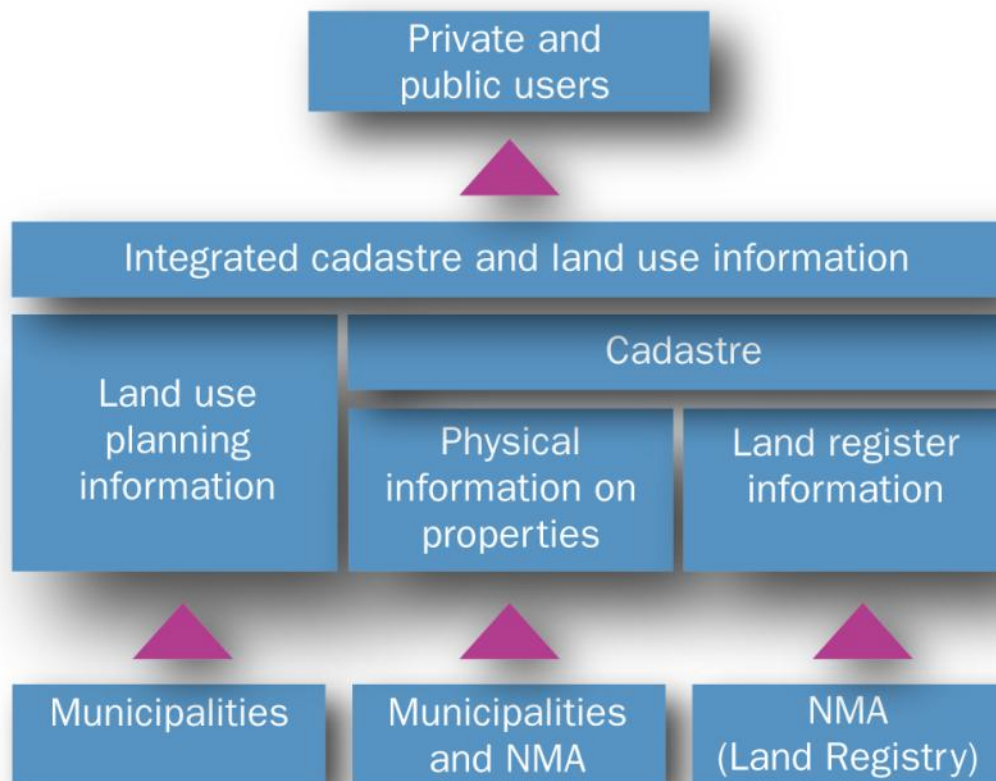


LAND REGISTRATION – FROM COURT OF LAW TO NMA

- From decentralised in local courts to centralised at the NMA head office
- Decided by The Norwegian Parliament 2002
- Transferred gradually from 2004-2007
- Call centre and a new registry of leasing rights to flats in housing co-operatives, located to Ullensvang in Hardanger
- 2009: 1 350 000 documents registered,
- www.tinglysing.no

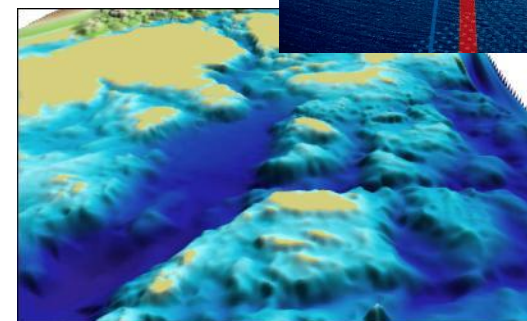


A NATIONAL CADASTRE AND PLANNING INFORMATION SYSTEM



HYDROGRAPHY

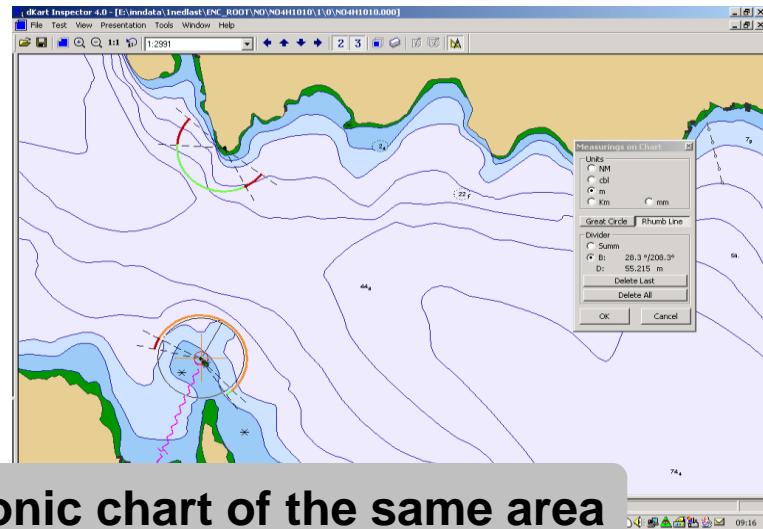
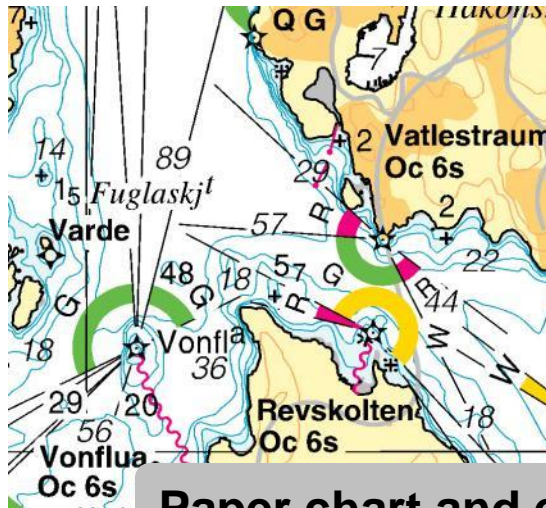
- Hydrographic surveying
- Data management
- Chart production
- Electronic navigational charts
- Printed official charts
- Sailing directions
- Tidal measurement and tables
- Primar – Regional Electronic Navigational Chart Centre (Renc)



FRA MILJØSTATUS.NO TIL BRUKERNES EGNE HJELPEMIDLER



ELECTRONIC NAVIGATIONAL CHARTS (ENC)

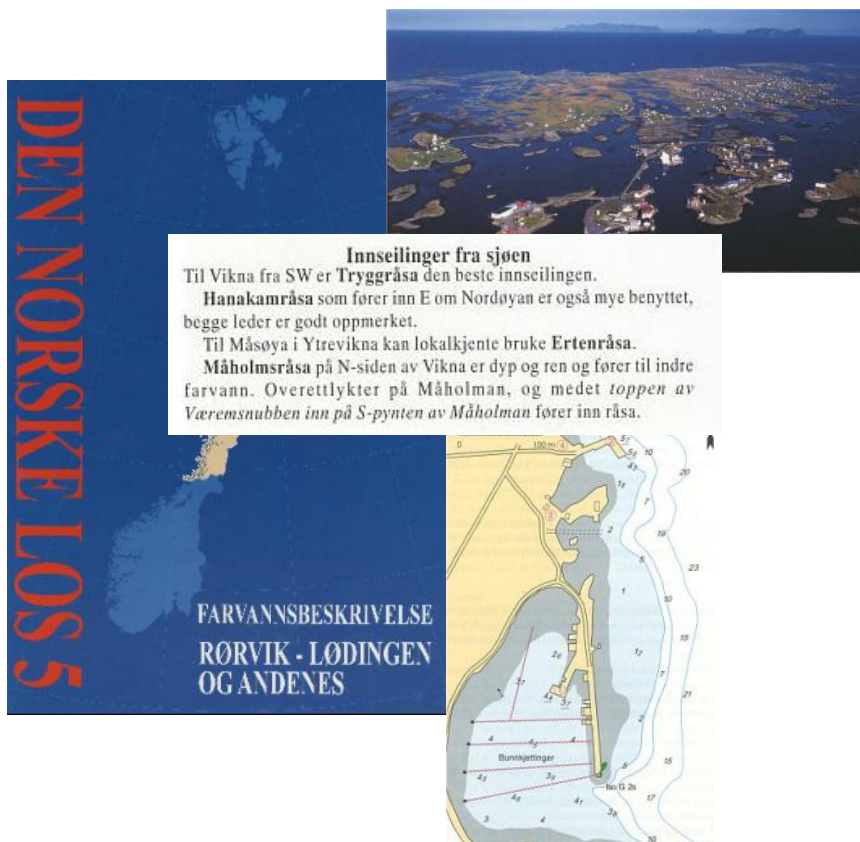


Paper chart and electronic chart of the same area



SAILING DIRECTIONS

The Norwegian Pilot



INNSEILINGER fra sjøen
Til Vikna fra SW er Tryggråsa den beste innseilingen.
Hanakamråsa som fører inn E om Nordøyan er også mye benyttet, begge leder er godt oppmerket.
Til Måsøya i Ytrevikna kan lokalkjente bruke **Ertenråsa**.
Måholmsråsa på N-siden av Vikna er dyp og ren og fører til indre farvann. Overrettlykter på Måholman, og medet *toppen* av Væremsnubben inn på S-pynten av Måholman fører inn råsa.

**FARVANSBESKRIVELSE
RØRVIK - LØDINGEN
OG ANDENES**

Bunnkjettinger

Notice to Mariners



2004 Efs
ETTERRETNINGER FOR SJØFARENDE

Notices to Mariners

790. * Endring av lyktenavn. Kartrettelse. (Amend lightname. Chart correction)

Fyrlistenr. (Ligth List No)	Navn (Name)	Kart (Chart)	Nytt navn (New name)	Ca posisjon (WGS84) (position approx)
648200	Rølvågen	59	Rølvåg	12° 28.0' E. 66° 11.1' N
656600	Purkskjær	58	Purkskjæret	11° 58.75' E. 66° 08.25' N
657000	Gjæsnakken	58	Gjæssnakken	12° 08.15' E. 66° 12.95' N

(Kystverket Midt- Norge, Ålesund 2004)



STATENS KARTVERK
SJØ

Årgang 135

Nr 24
Kommer 31 desember 2004

TIDAL TABLES FOR THE NORWEGIAN COAST



Tidevannstabell

Her kan du søke etter beregnet tidevann for en periode på opptil 7 dager for innværende og neste år.

Havn:

Fra: År: Antall dager:

Referansenivå:

Verdier: ☒ Høy - lavvann ☐ Timesverdier

Last ned fil

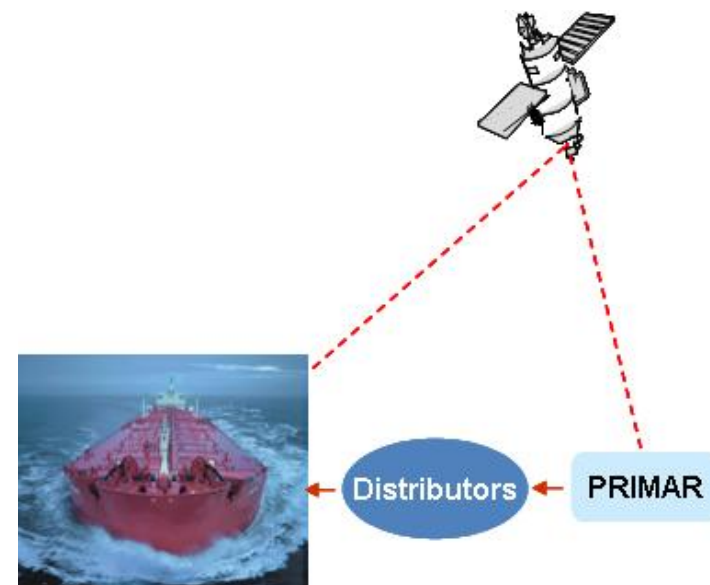
Beregnet tidevann (høy/lav) for Andenes
(tidspunktene er justert for sommertid)
(høyder er gitt i cm relativt sjøkartnull)

Dato	Tid	cm
18 Oktober	03:56	225
	10:10	53
	16:18	221
	22:35	59

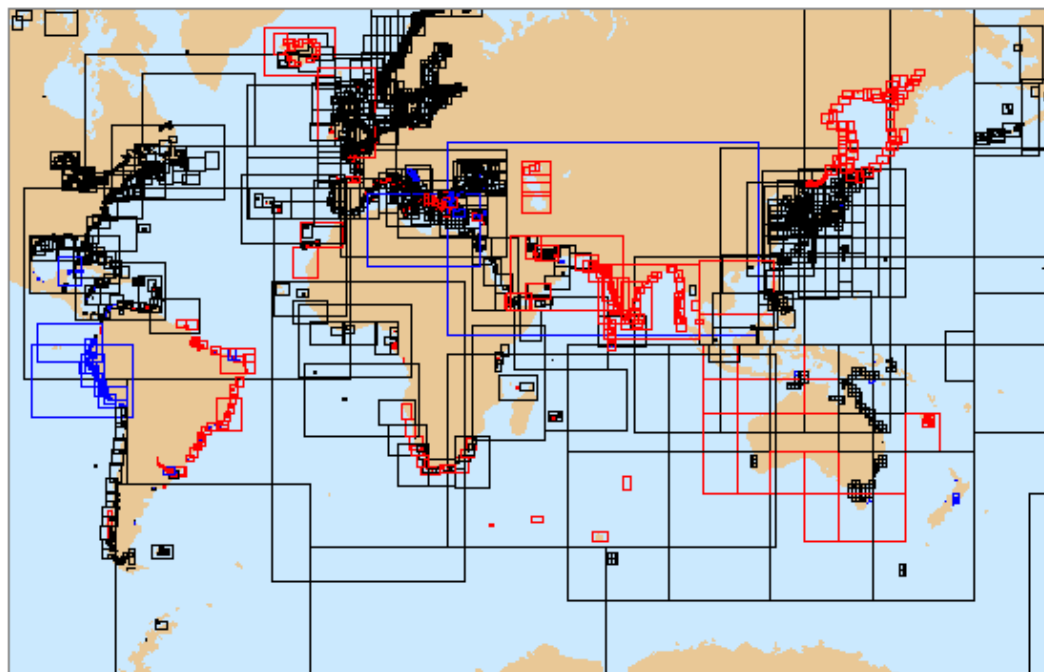


PRIMAR

- The worlds first Regional Electronic Navigational Chart Centre (RENC) for distribution of official ENC's
- Established and operated by the Norwegian Hydrographic Survey
- Based on bilateral agreement with co-operating Hydrographic Offices
- Meet standards and regulations set by IHO and IMO
- Collaborate with IC-RENC operated by the UK Hydrographic Service



ENCs FOR SALE FROM PRIMAR



Co-operating HO's

Primar Stavanger official ENC service

The cooperating HO's:



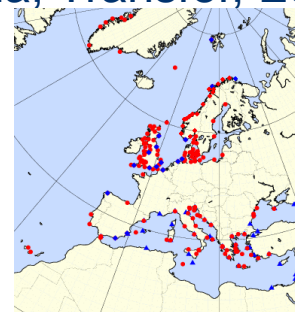
NHS Value added reseller for IC-ENC:



INTERNATIONAL ACTIVITIES

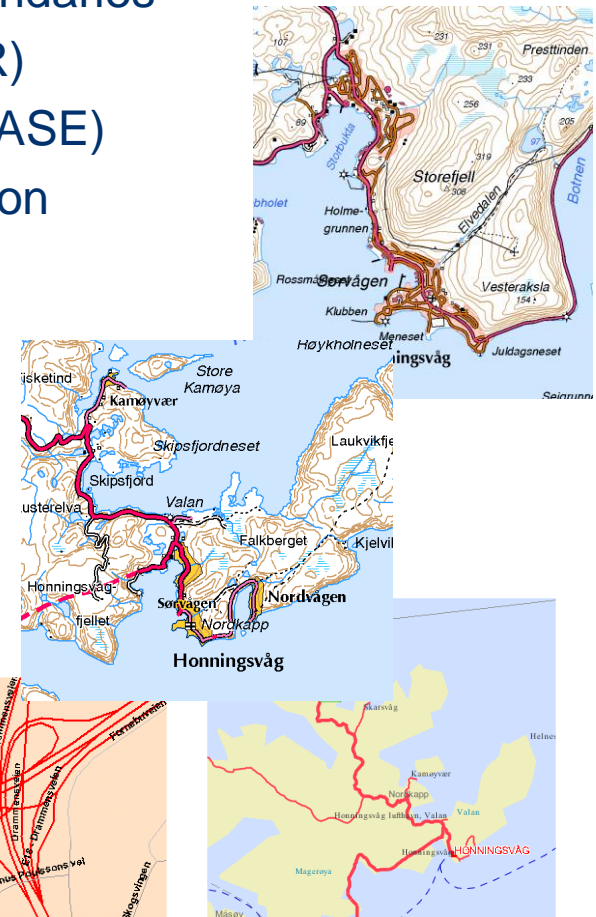
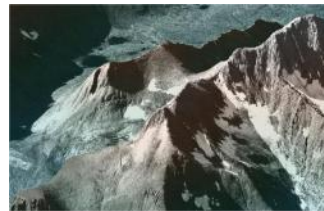


- Working on projects for the Norwegian foreign aid agency (NORAD), the Foreign Ministry and The World Bank
 - 2008: Angola, Armenia, Aserbajdsjan, Ghana, Kosovo, Kroatia, Laos, Madagaskar, Mosambik, Moldova, Russland, Serbia, og Vietnam
- International centre for development of cadastre systems
- International projects on technology and research
 - 2008: Egnos, Galileo, Eases, Octas, Gocina, Transfer, Esdin, Euradin
- Participating in a wide range of professional organisations



NMA PRODUCTS – LAND MAPPING

- Vectordata
 - N50 Mapdata
 - N250 Mapdata
 - N500 Mapdata
 - N1000 Mapdata
 - N2000 Mapdata
 - N5000 Mapdata
- Rasterdata
 - N50 Rasterdata
 - N250 Rasterdata
- Paper maps
 - Norway 1:50 000
- Administrative boundaries
- Place names (SSR)
- Road network (VBASE)
- Cadastre information
- 3D Terrain model



NMA PRODUCTS - HYDROGRAPHY

- Electronic navigational charts (ENC)
- Main charts series
- Harbour charts
- Small scale charts
- Electronic fisheries chart
- The Norwegian Pilot
- Notice to Mariners
- Tide Tables

