

Digital Ship Scandinavia 2005

How the maritime industry can gain most value from electronic charts both now and in the future

Hitachi Code
For
Toshiba Systems
C-MAP Norway AS



'Value of electronic charts today'

'Value' perceived by the user

- Safety & functionality
- Coverage
- Efficiency & simplicity
- Quality
- Return on investment

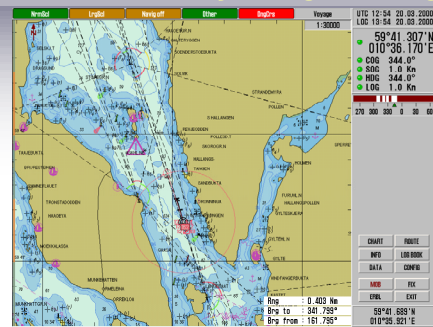


Electronic charts safety & functionality

- Safety & functionality as defined in ECDIS performance standards
- Additional functionality supplied by ECS manufacturers

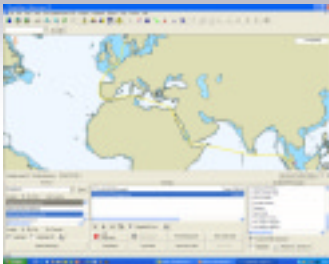


ECDIS functionality anti-grounding



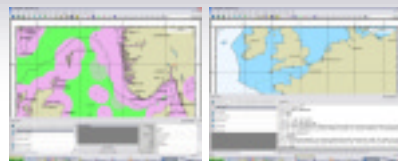
C-Routes

Automatic Route Planning



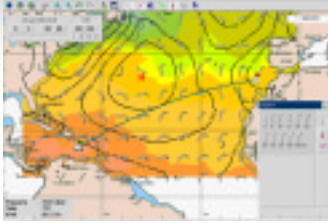
GMDSS / SAR

- GMDSS Coverage display and Database
- Search and Rescue Zones and Centers



C-Star Weather Routing System

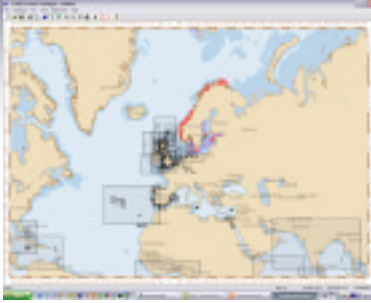
- Developed by C-MAP in cooperation with met.no (the Norwegian Meteorological Institute)



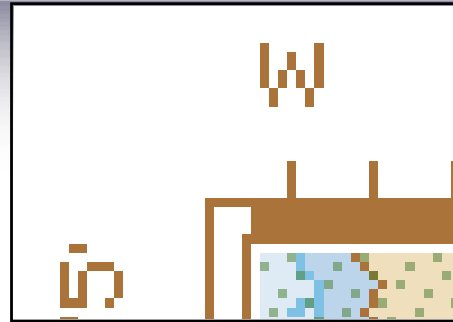
Coverage of Electronic Charts

- Increasing but incomplete world wide coverage of ENC data from national Hydrographic Offices
- Extensive coverage of data produced by commercial companies and data which does not have the functionality of vector data
- Availability and distribution

ENC Coverage



ECS coverage



CM93/3 and ENC Service

- World coverage of vector charts by combining ENC with the C-MAP Professional CM93 database



Efficiency & Simplicity

- Simple to order
- Simple to have delivered
- Simple to implement on board
- Simple to update

ENC and C-MAP data distribution



DNV Type Approved distribution of data



- C-MAP technology ensures that display of ENC is given priority in ECDIS system



RTU Service



- Real Time Updating service included in subscriptions at no additional cost
- Enables updating of C-MAP chart database and official ENC's in SENC format in real-time via e-mail or Internet



Quality of electronic charts

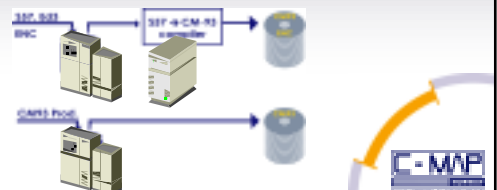
- Inherent data quality the responsibility of National Hydrographic Offices
- Quality of data distribution the responsibility of distributors - RENCs & private companies
- ISO 9001 certification



C-MAP data encryption



- ENC data produced by Hydrographic Offices & data produced by C-MAP is encrypted & stored in separate databases



C-MAP database

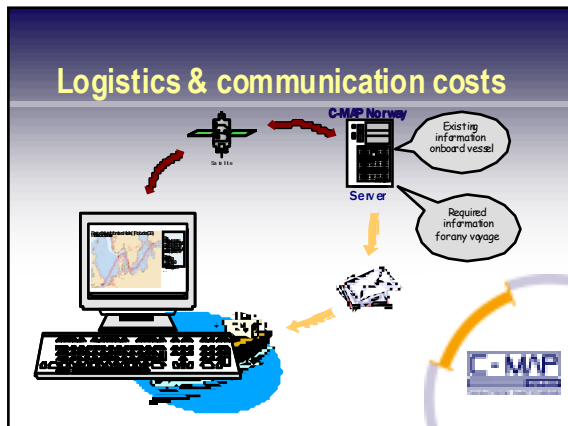
- The CM-93/3 database is designed for ECDIS & sophisticated ECS navigation systems
- 15 250 chart files equivalent to 8 000 paper charts
- 5 000 New editions of charts digitised annually
- Weekly updated based on NtMs
- ISO 19379 Certified



Electronic charts - value for money

- Cost of data coverage and updating services
- Cost of data distribution
- Value for ship owners - 'return on investment' is important





'Future value of electronic charts'

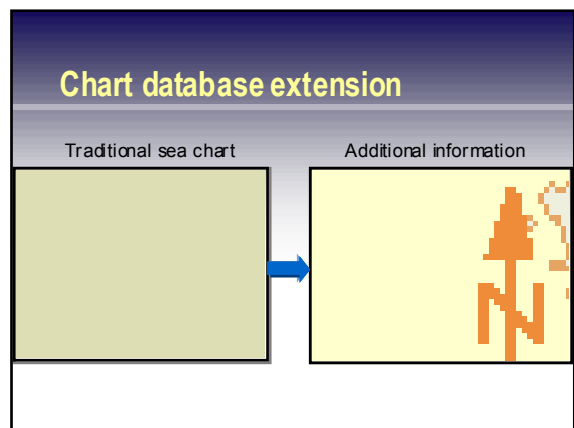
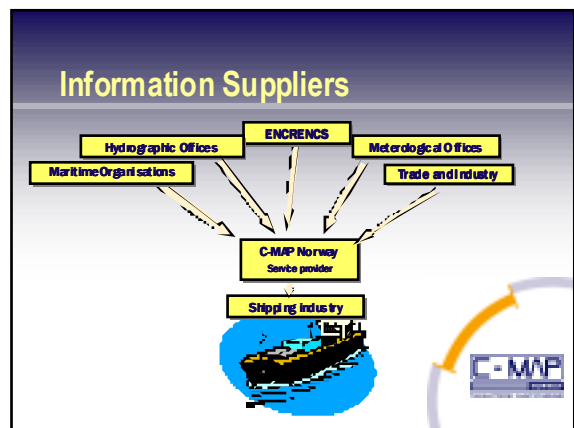
'C-MAP Nautical Information Service'
R&D project supported by Innovation Norway
2005-2007

- Vision
 - To provide a complete range of products and services necessary for safe navigation at sea

'Future value of electronic charts'

'C-MAP Nautical Information Service'

- Strategy:
 - Research & define user requirements
 - Cooperation with information suppliers & partners
 - Develop existing products & services
 - Develop new products & services

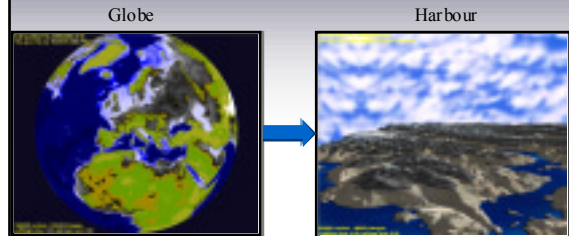


New Products & Services

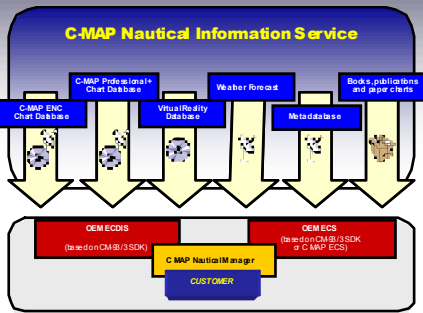
- Nautical Manager
 - Administrative tool for the sale of paper charts, books & publications together with electronic information
 - Electronic catalogue system
- Virtual Reality database
 - Global 3D world wide
 - Based on the best data available



Virtual Reality 3D database

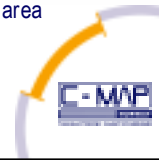


Distribution



Goals

- To be a total supplier of all necessary information for safety of navigation at sea
- To provide a cost effective 'total service' to the maritime industry
- To be market leader in our business area



Companies involved in trials

- COSCO (China) - Post Panamax container, Crude oil tanker & Bulk carrier vessel
- Neptune Shipmanagement Services Pte Ltd (Singapore) - Container feeder vessels
- Østensjø Rederi AS (Haugesund) - Offshore ROV/ Survey vessel



The future

C-MAP Nautical Information Service

- A cost effective, single source, nautical information service for safe navigation



Thank you

