

On the Integration of Sea Ice Information into ECDIS

**Samer DIARBAKERLY, Dr. Ahmed EL-RABBANY and Prof. David COLEMAN,
Canada**

Key words: Electronic Nautical Chart (ENC), ECDIS, Ice Objects, S-57, S-52, Integration, CARIS HOM, ArcInfo, e00 format. Canadian Hydrographic Service, Canadian Ice Service, Navigation, Marine Information Objects.

ABSTRACT

Electronic Chart Display and Information System (ECDIS) is a computerized navigation system, consisting mainly of a computer processor and display, a standardized database, and navigation sensors. ECDIS is not only capable of displaying the navigation-related information in real-time but also supporting other advanced functions, such as route planning, route monitoring and automatic alarms.

In ice-infested waters, the use of ECDIS as a standalone information system would not provide sufficient information for safe navigation. Safe and efficient marine navigation in ice-infested waters require comprehensive and timely information on the sea ice conditions. To enhance the safety of marine navigation in ice-infested waters, the Canadian Ice Service (CIS) uses remote sensing techniques to extract the sea ice information in the form of daily ice charts. The availability of the ice charts enables the mariners to make critical decisions regarding the selection of the best possible navigation routes.

While highly useful in providing the mariners with comprehensive ice information, ice charts may not fulfill the requirements for safe and efficient marine navigation, even if they are used side-by-side with ECDIS. Canadian research funded by CRESTECH now underway at Ryerson University and the University of New Brunswick proposes that, in ice-infested waters, an integrated navigation chart system may be developed which integrates vital ice information into an ECDIS in a formal, standards-based manner.

This paper discusses a production approach demonstrating how Canadian ice chart and standardized ice object attribute data could be integrated into an ECDIS using three commercially available software packages. A prototype production flowchart is explained, and both results and challenges of the proposed approach are described in detail.

CONTACT

Samer Diarbakerly
Department of Geodesy and Geomatics Engineering
University of New Brunswick
P.O. Box 4400
Fredericton
New Brunswick E3B 5A3
CANADA
Tel. + 1 506 453 4698
Fax + 1 506 453 4943
E-mail: diarbakerly@unb.ca
Web site: <http://www.ecdis.gge.unb.ca>

TS4.5 Hydrographic Surveying III
Samer Diarbakerly, Ahmed El-Rabbany and David Coleman
On the Integration of Sea Ice Information into ECDIS

FIG XXII International Congress
Washington, D.C. USA, April 19-26 2002