



Ice Navigator™

DETECT ICE SOONER

With Ice Navigator™ operating in ice infested regions is now safer and more economical than ever before. Distinguish between various ice formations and identify leads and ridges.



See Beyond



Marine Electronics &
Satellite Communications

FISHING • WORKBOAT • CARGO • CRUISE • FERRIES • SEARCH & RESCUE • ICEBREAKER



Ice Navigator™

sigma S6 Ice Navigator™ is a radar-based system that can identify open water, ice pans, leads in ice fields and ice ridges. It provides operators with unprecedented, detailed navigational information and situational awareness. Capital expenditure and costs typically associated with activities in ice-threatened areas, can be dramatically offset.

Here's how *Ice Navigator™* can add value to your operation:

HIGH DEFINITION IMAGING

High resolution image processing provides high definition ice imaging, leading to superior detection and tracking. The *sigma S6* user-interface provides adjustments to radar tuning to further customize the on-screen image.

TRACK MULTIPLE TARGETS

Ice Navigator™ advanced target tracker can monitor and track up to 300 ice targets simultaneously, ensuring the operator has complete awareness of ice within range of the radar.

ICE ANALYSIS

Ice Navigator™ can reliably detect and distinguish between ice leads, ridges, as well as icebergs in pack ice.

CAMERA INTEGRATION

Features include the ability to support multiple cameras, to visually verify radar targets to support quick decision making in addressing potential threats and possible interruptions to operations.

ICE DRIFT ANALYSIS NEW!

sigma S6 Ice Drift Analysis (IDA) is now an optional feature of *Ice Navigator™* that gives operators unprecedented visibility and information on the movement of ice floes within X-band radar coverage.

Benefits of Ice Drift Analysis (IDA)

Navigation Optimization. *IDA helps ice-class vessels navigate through drift ice to optimize speed, efficiency, and safety when encountering ever-shifting sea ice conditions. Ice floe direction and speed are processed in real-time with floe size and formations so the most effective route plan can be plotted through the sea ice. This saves time, money and minimizes risk to vessels.*

Ice Management. *Ice-breaking operations benefit from the knowledge of direction and speed of floe in order to effectively cut an upstream grid. IACS* high polar class ice-breaking vessels can reduce the floe size so that lesser class vessels and assets downstream will encounter smaller, less hazardous floes.*

* International Association of Classification Societies (IACS)

Leave Nothing To Chance

The improvements in situational awareness enabled by **Ice Navigator™** occur across a wide range of sea states, weather, and low light conditions -- making the tactical information it provides essential for route planning and decision making.

Comparison of Hazardous Ice Detection Capability			
	Size – Height Above Sea Level	Distance Visible Ice Navigator™	Distance Visible X Band Radar-only
Bergy Bit	1 to 5m	Greater than 4nmi	1 to 0.5nmi
Growler	Less than 1m	Greater than 2nmi	Less than 0.5nmi

Source: Canadian Coast Guard



Best in class for general navigation through ice infested regions and ice management solutions for Oil & Gas, ice-breaking and expedition operations.

ALWAYS IMPROVING

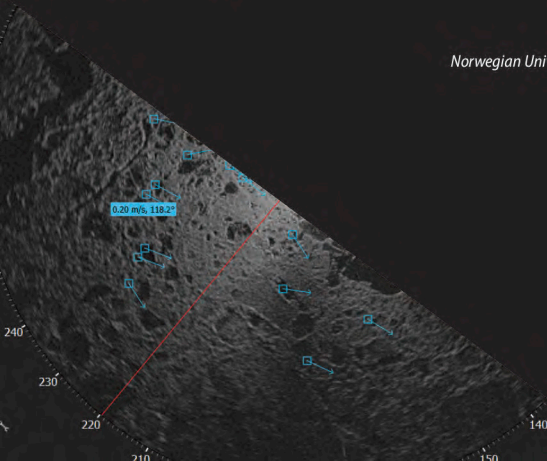
"We have the sigma S6 Ice Navigator™ interfaced to one of our navigation laboratory radars. I am impressed by the performance of the Rutter sigma S6 Ice Navigator™ that I experienced as an Ice Advisor during the drilling operation in the Kara Sea."

- Norvald Kjerstad, Professor, Nautical Science,
Faculty of Maritime Technology and Operations,
Norwegian University of Science and Technology (NTNU) *ipsum*

 **RUTTER**

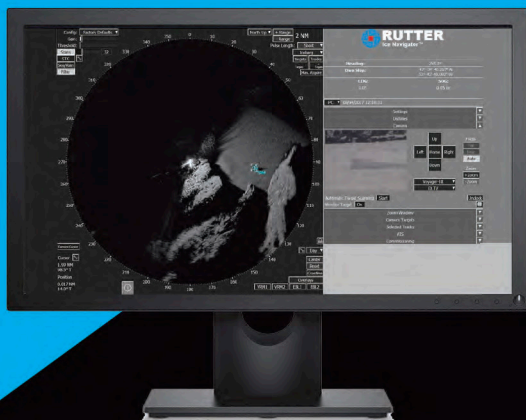
See Beyond

rutter.ca/icenavigator



Rutter Product Commitment

Since 1998, Rutter has been on the leading edge of radar image processing technology for the global marine sector. For over 20 years, we have helped mariners navigate safely through ice-hazards; detect and respond to oil spills; protect people, assets and coastlines, and conduct ocean-related research. Our commitment to new product development and service delivery is on display every day and we thank you for your continued trust in our people, products and services.



See Beyond

rutter.ca



Current Monitor™
Ice Navigator™
Oil Spill Detection
Small Target Surveillance
WaMoS® II
WavePredictor
WaveVision™



Mackay Marine – Commercial Sales
+1 281 479 1515
marinesales@mackaymarine.com

30 Hallett Crescent • Suite 102 • St. John's • Newfoundland • Canada • A1B 4C5

sales@rutter.ca • p. +1.709.576.6666 • f. +1.709.576.7635