ExxonMobil
Upstream Research

ExxonMobil Research on Dispersants in Cold Water

Presented to

Dispersed Oil Research Forum

February 1 - 2, 2007

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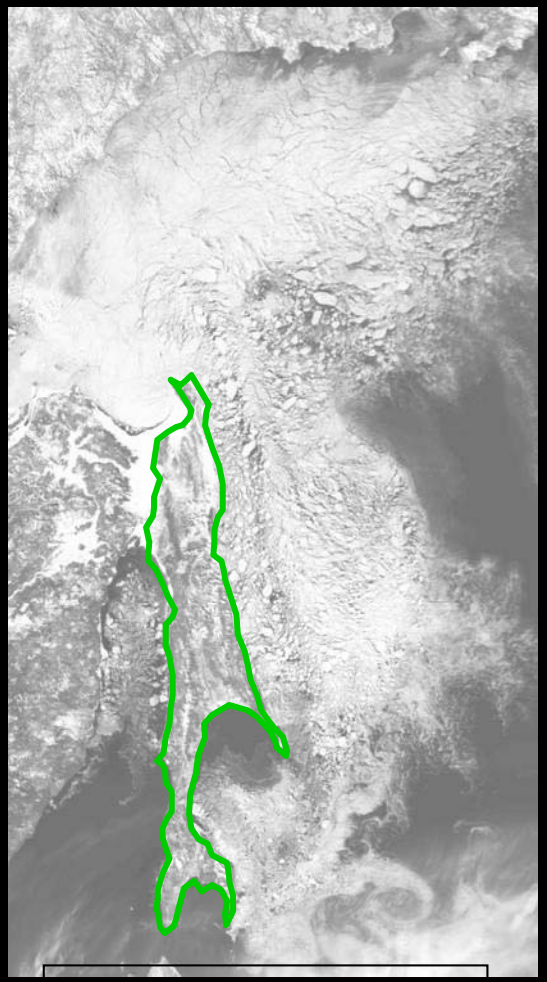
Orlan Platform

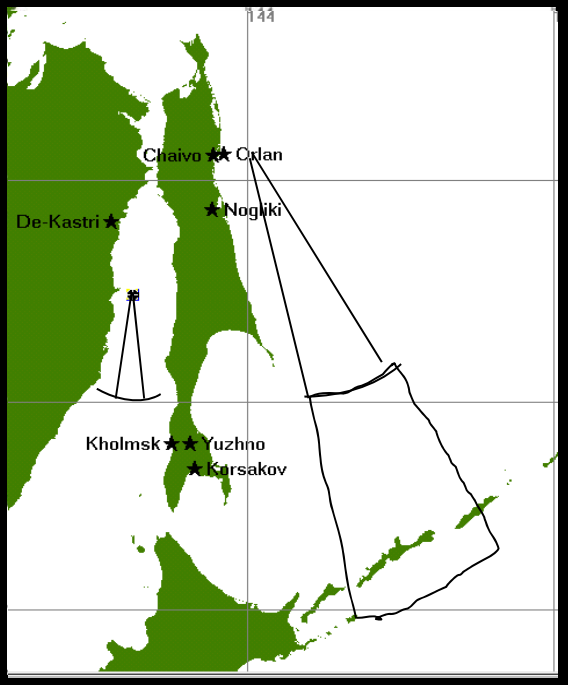
FESCO Sakhalin

Dekastrie SPM

Sakhalin Ice Conditions

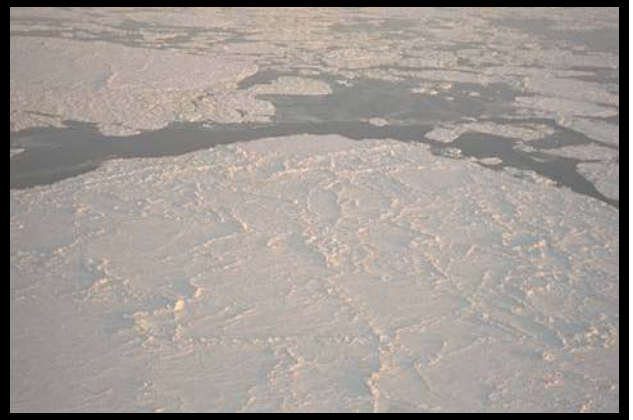


AVHRR satellite image
April 7, 1999
Island length = 950 km



Average ice drift is 7 km/day in Tatar Strait & 16-33 km/day on E. Sakhalin coast

Sakhalin Tanker Trials



Sakhalin Ice Floe

Mechanical response is challenged by ice


LORI skimmer

Chemical dispersion of oil in ice at OHMSETT

URC Oil Spill Response in Ice Research

New Dispersant Formulation

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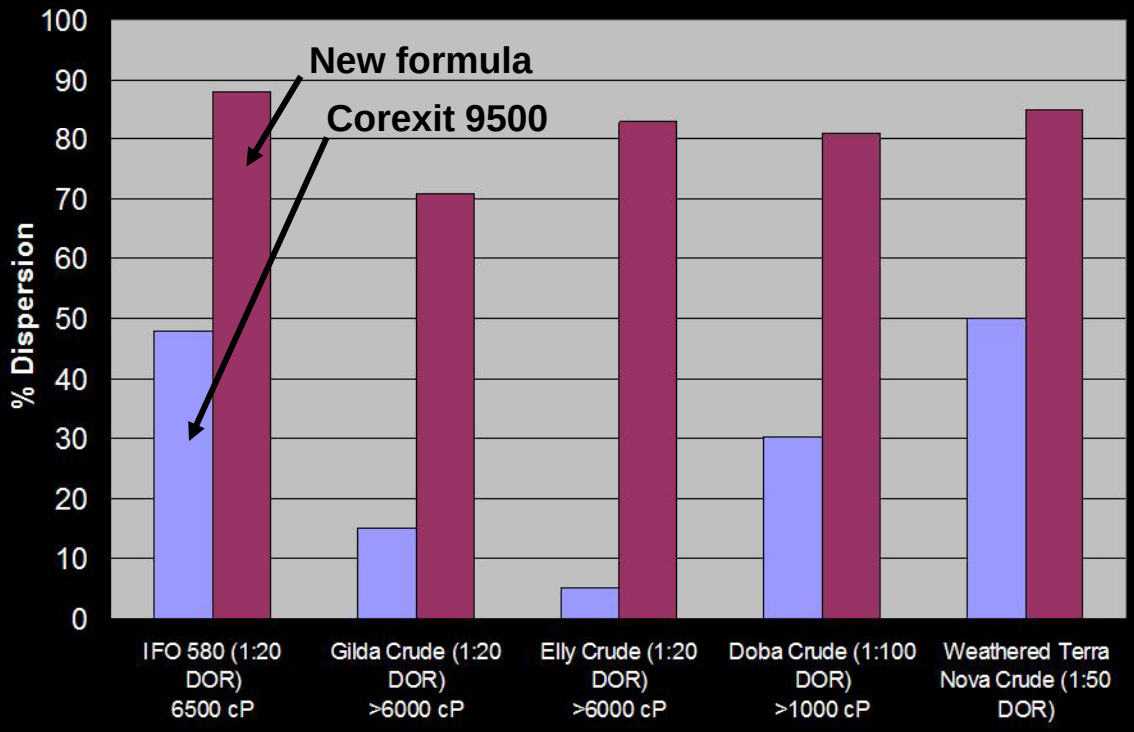
SL Ross Wave Tank



OHMSETT Wave Tank

New formula

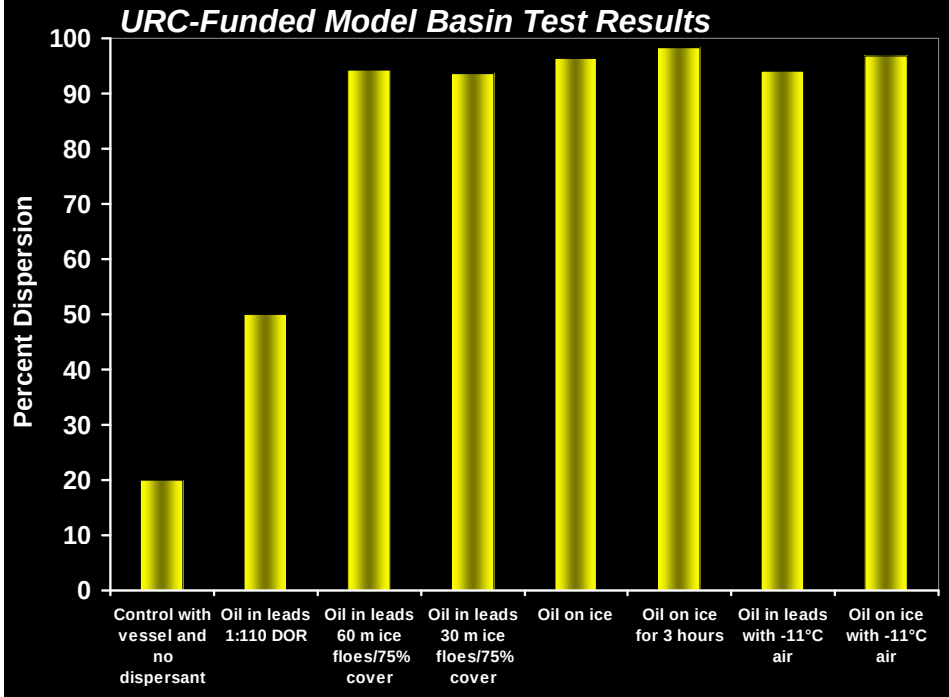
9500 immediately after application

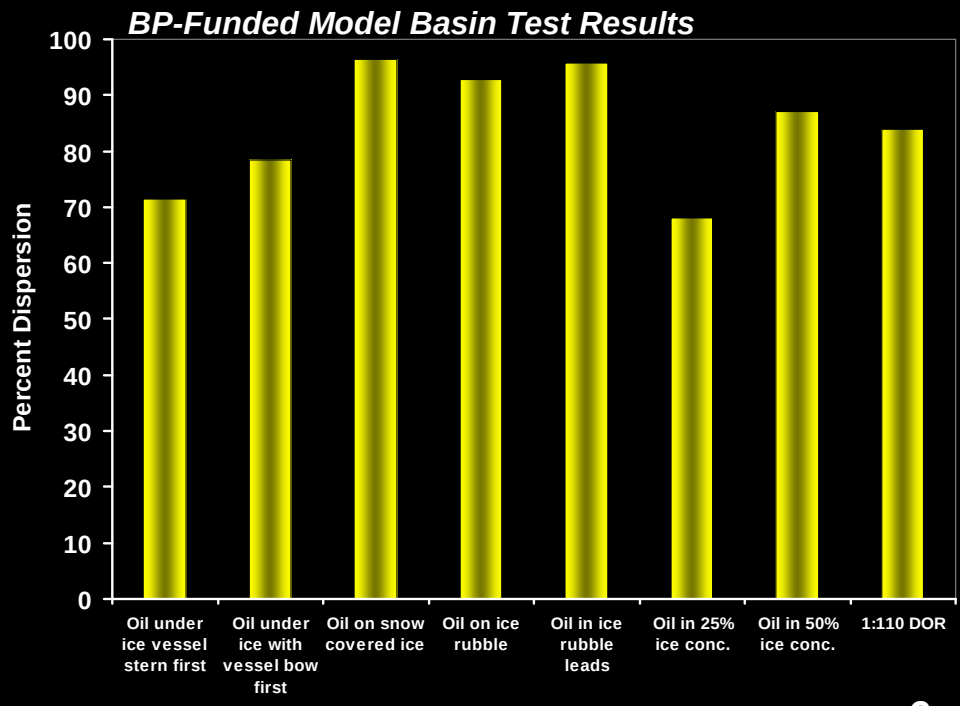
Drywall texture sprayer

Chemical Dispersion Enhanced by Icebreaker Prop Wash

Azimuthal Stern Drive Icebreaker

Completed positive basin tests





Dispersant Response in Ice – Diversion Boom Concept

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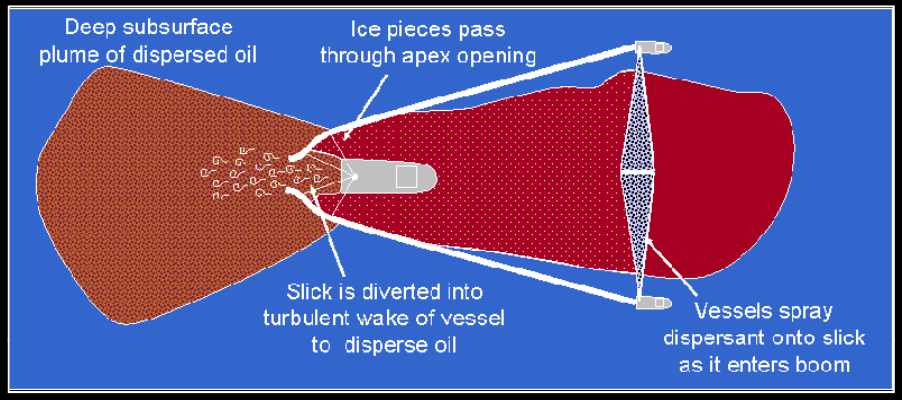
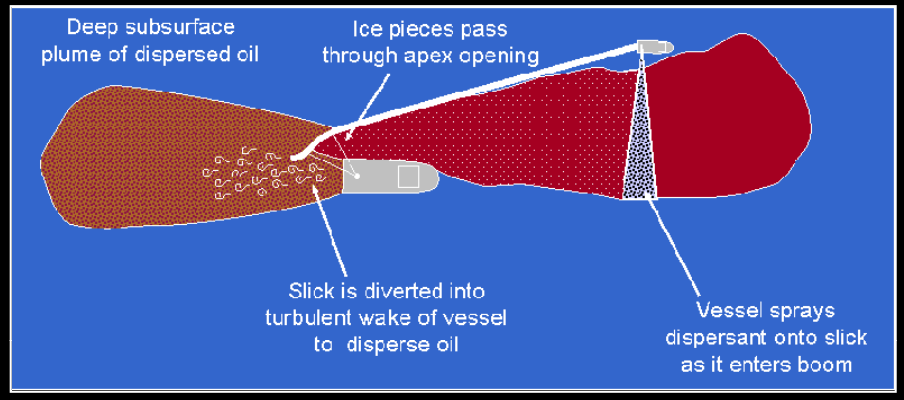
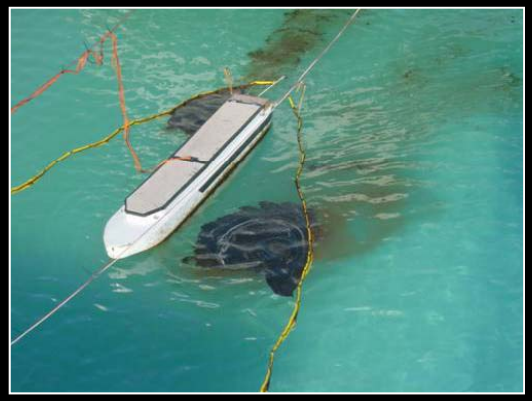
Extending the Prop-wash Concept to Vessels of Opportunity and Lower Ice /Open Water



Three Vessels of Opportunity and Two Booms



Two Vessels of Opportunity and One Boom



Completed basin tests using 1:25 scale workboat

Dispersant Response in Ice – Dispersant Effectiveness over Time

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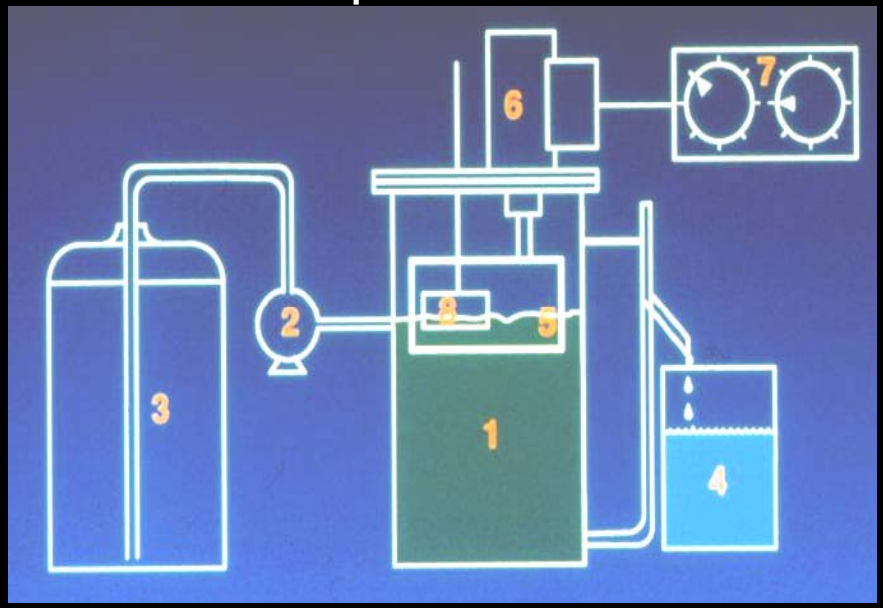
Oils Tested

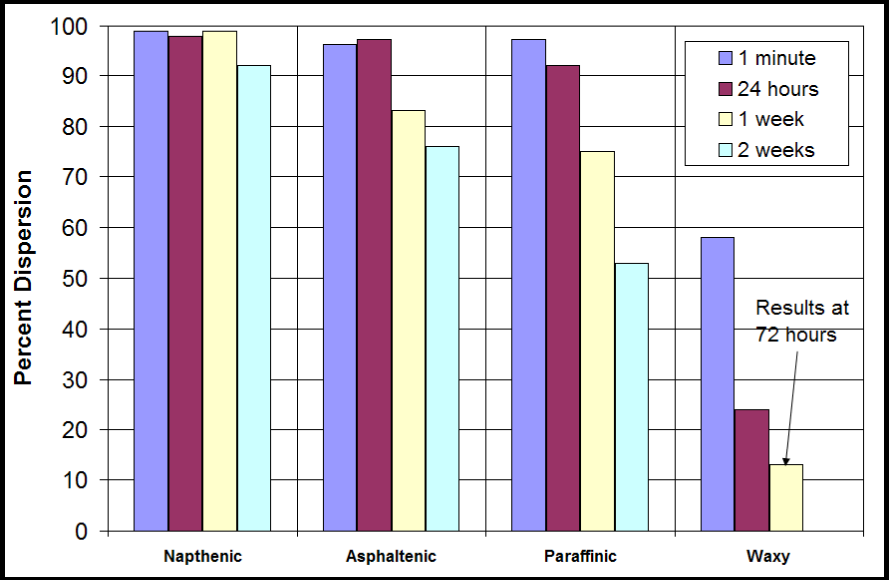
- Napthenic (Troll B)
- Asphaltenic (Balder)
- Parafffinic (New Oseberg)
- Waxy (Ringhorne)

Dispersants Tested

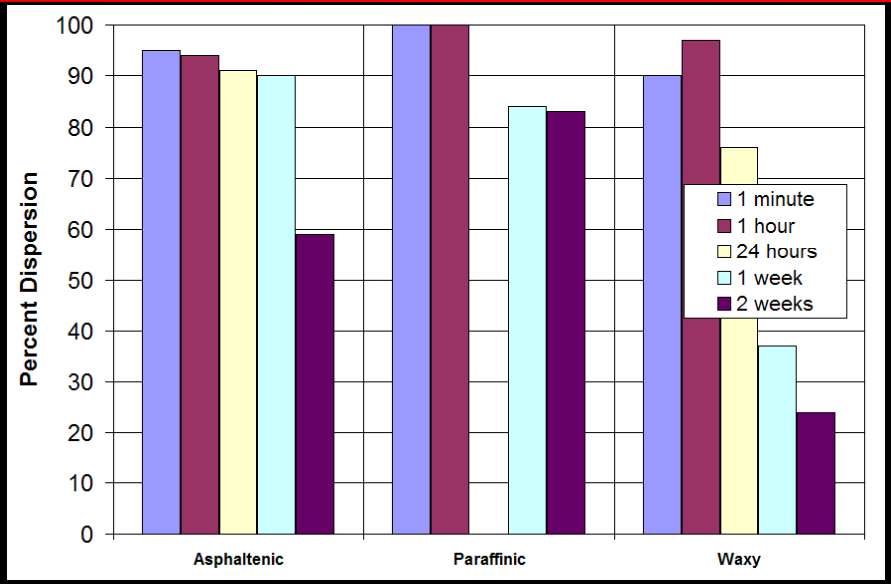
- Two commercial dispersants
- Model dispersant (similar to 9500)

IFP Dilution Dispersant Effectiveness Test

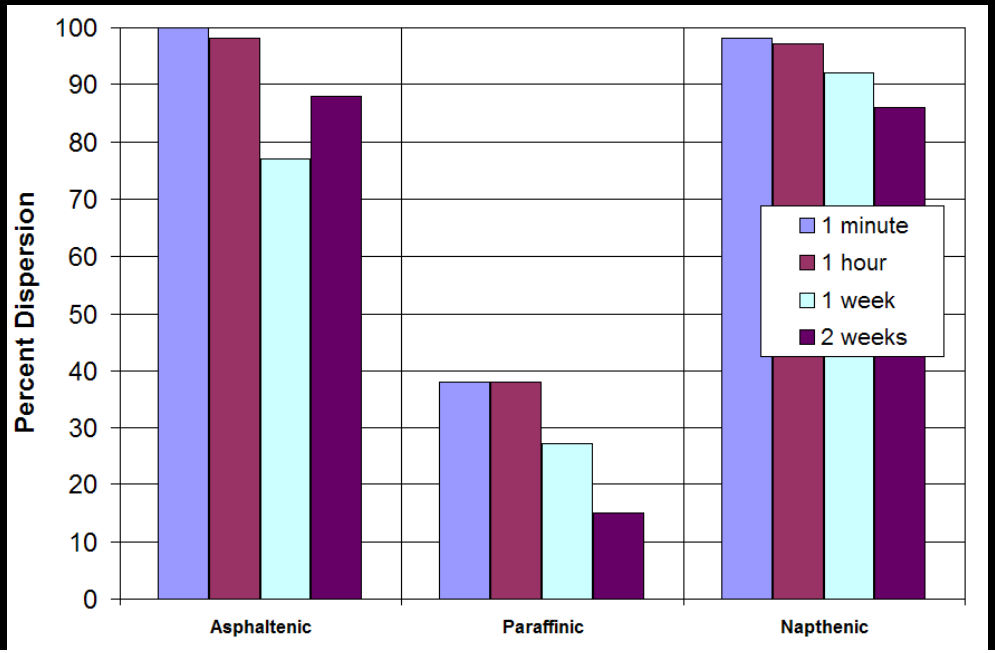




IFP Test Results at 15°C



IFP Test Results at 25°C Tests



IFP Test Results at 0°C Tests

The End