

# **SEARCH AND RESCUE OPERATIONS (SAR)**



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## **Accidents happen at sea**

- people fall overboard, ships lose power, oil is spilled, etc.**

These are examples of **things drifting in the sea with potentially serious consequences**

- loss of life, maritime safety, environmental damage.**

Most nations have services for emergency situations:

- Search-and-rescue (S&R) services are found everywhere (Coast Guards)
- Oil spill combatment services in some countries
- Drifting ships and other large objects tied to S&R services and Vessel Traffic Services (VTS)

**Required: Forecasting of the drift of objects in the Ocean**

## Operational services

- Emergency response services depend on quick and reliable access to drift prognoses
  - response time
  - 24/7 availability (people & computers)
- Critical component for drift forecasting is access to **real-time prognostic forcing data.**
  - hence the close link to operational ocean-atmosphere forecasting centers

## Surface drifting objects

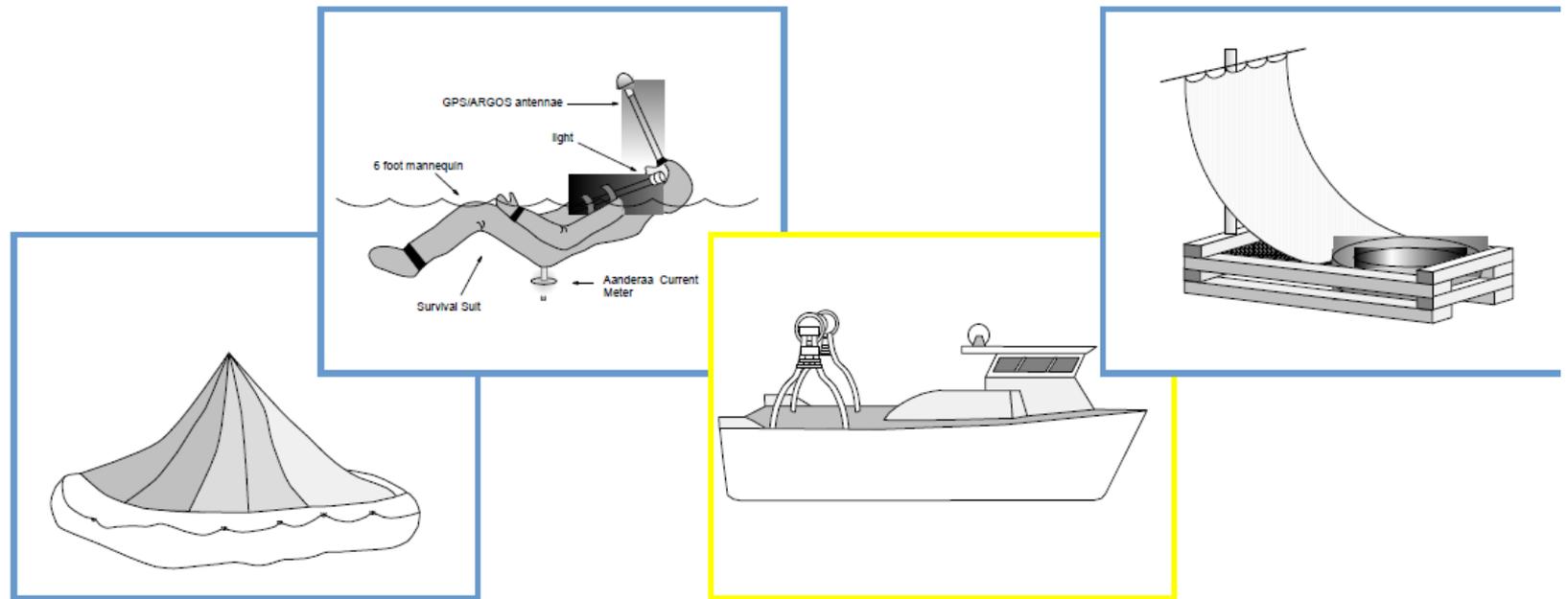
- Forces acting on a drifting object:
  - Surface current
  - Wind
  - Waves (excitation and damping)
- Wind and wave effects are calculated relative to the current.
- Wave forces only significant for objects ~50 m or more

# Leeway

- Objects drift at an angle to the wind (divergence angle), and at a fraction of the wind speed.
- The divergence angle depends on the object –shape, draft, freeboard, etc
- Difficult to model, relatively simple to parameterize, hence empirical methods are used.

## Empirical leeway data

- US Coast Guard has compiled data for 63 classes of S&R objects through extensive field campaigns, generously made available to our operational service



## Operational services –user interface

- The operational drift model machinery must be supplemented with a well-designed **user-interface**:

- Input of initial conditions and reception of results.

- Instinctively understood and used –response teams are in a hurry and have many things on their minds.

⇒tailored graphical performance/rendition of results essential

- Robust, rapid communications.

# WEBUSER INTERFACE FOR SEARCH AND RESCUE OPERATIONS

WELCOME,USER

[HOME](#) [ABOUT US](#) [SERVICE DESCRIPTION](#) [CONTACT US](#) [SMS SUBSCRIPTION](#) [FEEDBACK](#) [LOGOUT](#)

## USER\_INFORMATION:

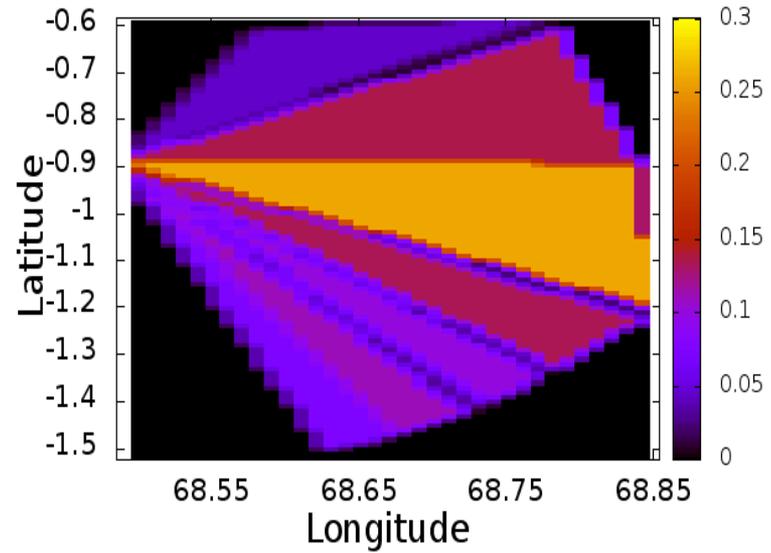
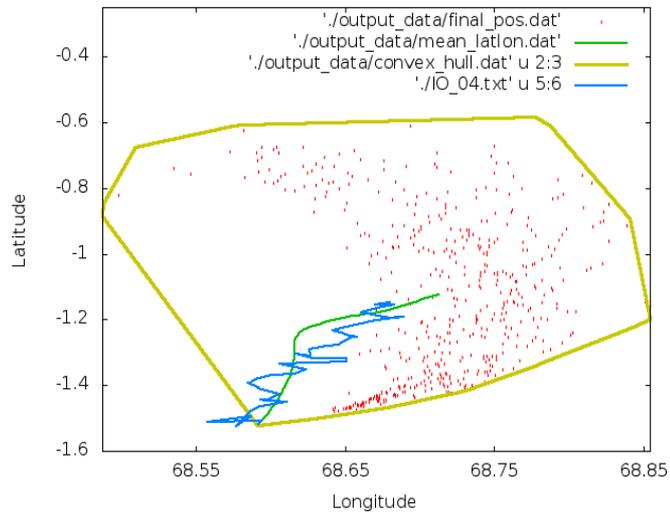
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Designation:	<input type="text"/>
Department:	<input type="text"/>
Organisation:	<input type="text"/>
Email:	<input type="text"/>
Contact no:	<input type="text"/>
Date Of Submission:	<input type="text"/>

## ACCIDENT\_INFORMATION:

Date:	<input type="text"/>	(dd/mm/yyyy)
Time:	<input type="text"/>	(Hours)
Latitude:	<input type="text"/>	(Decimal.Deg)
Longitude:	<input type="text"/>	(Decimal.Deg)
Type Of Vessel:	<input type="text" value="Select"/>	
Nearest Coastal Area:	<input type="text"/>	
Upload Vessel Dimensions:	<input type="text"/>	<input type="button" value="Browse"/>



# Graphical output of the model



**THANK YOU**