Navigating in Iceberg Infested Waters
(past – present – future)

CDR Scott Rogerson
USCG International Ice Patrol
North American Ice Service
October 2009
Navigating in Iceberg Infested Waters

'Deutschland' sails between large icebergs at mouth of Ilulissat ice fjord in August 2009

(http://sermitsiaq.gl/indland/article99154.ece?lang=EN#)
North American Ice Service

Denise Kruse
Commanding Officer
NIC

Scott Rogerson
Commander
IIP

Doug Bancroft
Director
CIS
Outline

• Mission & History of International Ice Patrol

• Iceberg Collisions thru the Years

• Detection of Icebergs from Space

• Concerns & Suggestions for the Future
Mission: Monitor iceberg danger near Grand Banks of Newfoundland and provide limit of all known ice to maritime community

Vision: Eliminate the risk of iceberg collision

Core Values: Partnerships, Improvement, Commitment
R.M.S. Titanic (1912)
IIP’s Core Purpose: Promote safe navigation in northwest Atlantic Ocean when danger of iceberg collision exists
Summary of 2009 Iceberg Season

INTERNATIONAL ICE PATROL
ICEBERG ANALYSIS
FOR 1200 UTC
20 JUL 2009
ISSUED BY THE U.S. COAST GUARD
INTERNATIONAL ICE PATROL

LIMIT OF ALL KNOWN ICE
SEA ICE LIMIT
ICEBERGS (INCLUDING GROWLERS AND BERGY BITS)
AND RADAR TARGETS
PER DEGREE SQUARE
RADAR TARGET OUTSIDE LAKI

ICE CONDITIONS IMMEDIATELY SOUTH OF GREENLAND ARE NOT ON THIS CHART.
Iceberg Threat (since 1950)

Note:
- 50% = <250 icebergs
- Several periods with numerous light seasons
- 60-year average = 530
Optimal Customer Behavior

IIP Limit of All Known Ice

MAERSK PALERMO (PDHW)
M/V TRAVE ORE
ICE COLLISION 6 JULY 1989
BERGY BIT - M/V TRAVE ORE
SHIP HOLED AND FLOODED
M/V OOCL CHALLENGE
ICE COLLISION  4 FEBRUARY 1993
GROWLER - M/V OOCL CHALLENGE
SHIP HOLED AND FLOODED
M/V CAST POLARBEAR
ICE COLLISION 17 APRIL 1993
PACK ICE - M/V CAST POLARBEAR
SHIP HOLED AND FLOODED
M/V OMIKRON VENTURE L
ICE COLLISION 28 APRIL 1993
PACK ICE - M/V OMIKRONVENTURE L
SHIP HOLED AND FLOODED
Common Factors

• Voyages through known ice concentrations
• High speed in reduced visibility
• No additional bridge personnel or other precautions
• Poor use of radar equipment
• Inadequate use of ice bulletins and other environmental information available
Since 1800 over 600 accidents have occurred with ships colliding with icebergs in the northern hemisphere, mostly on the Grand Banks of Newfoundland but with several further afield in the northern waters of Labrador and the Canadian Arctic, and also in the waters off Alaska.

In short, where there are icebergs & ships, the two have collided.

Courtesy of Brian Hill (www.icedata.ca)
Do Modern Ships Hit Icebergs?

Yes!

(Even with today’s technology)

6.17.2004
Harsh Marine Environment
ENVISAT 30m Resolution

Courtesy of C-CORE
© ESA
ENVISAT 30m Resolution

Courtesy of C-CORE
© ESA
Iceberg Correlation Study (2007)

- 134 correlated icebergs
- Data collected in regions with low ship density
Sample Iceberg in RSAT-2 Data

Target features visually apparent – improved discrimination expected
Concerns

• Ships don’t always desire to avoid ice
  – Some must navigate near icebergs
  – Some seek out ice (e.g., EXPLORER)

• “Limit of All Known Ice” doesn’t work north of Grand Banks of Newfoundland
  – Greater population of icebergs year-round
  – Ship traffic thru region (vice around)

• Aerial reconnaissance (alone) won’t work
  – Space-borne reconnaissance will be critical
Suggestions

• More satellites with better coverage & resolution, with imagery available to ice services responsible for safety of navigation

• Ability to overlay iceberg (& sea ice information) on shipboard navigation systems, including imagery & products from ice services

• Revamp current (antiquated) SOLAS regulations regarding North Atlantic Ice Patrol – possibly opting to replace defunct reimbursement process with cooperative agreement regarding satellite imagery (e.g., USCG IIP executes NAIP; various space agencies provide imagery)
Key Strategic Challenges

- Changing Customer Needs
- Future Aerial Reconnaissance Options
- Space-Borne Remote Sensing Systems
- Mission Review (USCG/IMO)
- BAPS Replacement
- Public Affairs – especially in 2012
Coming in 2012...

Titanic Memorial Cruise

100th Anniversary Voyage to Set Sail 2012

This unique cruise is being operated by Miles Morgan Travel in association with Fred. Olsen Cruise Lines, one of Britain's leading cruise companies.

Reserve your place in history
Bookings now being accepted

British travel firm Miles Morgan Travel are now accepting bookings for a unique cruise that will commemorate the Titanic's tragic voyage in April 1912.

Our voyage of a lifetime will sail from Southampton on 8th April 2012 the twelve night cruise on board the MS Balmoral and will follow the RMS Titanic's original itinerary, passing by Cherbourg on the French coast before calling into the Irish port of Cobh.

From here the ship will sail across the Atlantic, arriving at the Titanic site on April 14th/15th exactly 100 years on from this tragic voyage, where a memorial service will be held to pay tribute to the brave passengers and crew who perished on that fateful night.

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