Seaborne Energy Solutions®

SCF Sovcomflot

ARCTIC SHIPPING PERSPECTIVES

Moscow
Russia
05 June 2012

History of Russia in the Arctic

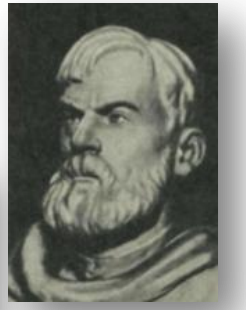
- Generations of Russian merchants, seafarers, scientists have gained extensive knowledge and skills during many centuries of Arctic exploration
- More than 20% of Russia's territory is located north of the Polar Circle
- The First Polar Ice Breaker "Yermak" designed by Admiral Makarov a technological advance in helping to develop the Arctic
- The ever first ship nuclear Ice breaker "Arktika" reached North Pole
- More than 80-years experience in regular ice navigation through Northern Sea Route acquired during the 20th and 21st centuries


Timofey Guzhenko


Arthur Chilingarov


Peter the Great


Admiral S.Makarov


Semen Dezhnev


Vitus Bering


Dmitry Laptev


1899


1959


1977


2008


2011

SCF Sovcomflot at a glance

Global Leader in Energy Shipping

- 157 owned and chartered vessels with total DWT of 12 million tons

1 Tanker owner by number of vessels

1 Ice-class tanker owner/operator

1 LNG ice-class tanker owner/operator

2 Aframax tanker owner/operator

3 MR product tanker owner/operator

3 Suezmax tanker owner/operator

3 Shuttle tanker owner/operator

3 Tanker owner by deadweight

Russia's Strategic Shipping Asset

- Crucial player in Russia's oil & gas industry and key element of the country's logistics network when transportation of energy by sea is required
- "Floating Pipeline" – a seaborne extension of the onshore infrastructure for energy delivery
- Strategically positioned to provide seaborne services for Russia's growing offshore activities in Arctic and sub-Arctic regions
- Joint Stock Company, 100% owned by the Russian Federation, operating fully commercially

- **Average age of SCF tanker fleet: 7 years**
- **SCF employs 9,300+ Russian seafarers**
- **Shipboard Officers and shore-based personnel are graduates from Russian Maritime Academies**

SCF Sovcomflot ice-class fleet - 33% out of 157 vessels

Name	Built	DWT	Ice Class
Grand Elena	31.10.2007	37 022	Ice-1B FS (hull)
Grand Aniva	04.01.2008	37 022	Ice-1B FS (hull)

Name	Built	DWT	Ice Class
SCF Polar	27.08.1969	40 773	Ice-C
SCF Arctic	22.12.1969	40 585	Ice-C

Name	Built	DWT	Ice Class
Vladimir Tikhonov	15.06.2006	162 362	Ice-1A
Aleksey Kosygin	26.07.2007	163 545	Ice-1A

Name	Built	DWT	Ice Class
SCF Baltica	07.12.2005	117 153	Ice-1A Super

Name	Built	DWT	Ice Class
Nevskiy Prospect	29.08.2003	114 598	Ice-1B
Ligovsky Prospect	28.10.2003	114 639	Ice-1B
Liteyny Prospect	02.12.2003	114 546	Ice-1B

Name	Built	DWT	Ice Class
Olimpiysky Prospect	06.07.2010	114 100	Ice-1B
Moskovsky Prospect	13.09.2010	114 100	Ice-1B

Name	Built	DWT	Ice Class
NS Arctic	05.04.09	111 107	Ice-1B
NS Antarctic	06.08.09	111 107	Ice-1B

Name	Built	DWT	Ice Class
Yuri Senkevich	28.11.2005	100 869	Ice-1C
Victor Konetsky	20.12.2005	101 018	Ice-1C
Pavel Chernysh	11.10.2005	100 971	Ice-1C
Captain Kostichev	17.10.2005	100 927	Ice-1C
Victor Titov	15.11.2005	100 899	Ice-1C

Name	Built	DWT	Ice Class
Василий Динков	01.01.2008	71 254	1A Super
Капитан Готский	27.05.2008	71 228	1A Super
Тимофей Гуженко	24.02.2009	71 294	1A Super

Name	Built	DWT	Ice Class
Mikhail Ulyanov	26.02.2010	69 830	1A Super
Kirill Lavrov	10.09.2010	70 053	1A Super

Name	Built	DWT	Ice Class
Zaliv Aniva	29.06.2009	102 946	Ice-1C

Name	Built	DWT	Ice Class
Sakhalin Island	11.05.2004	108 078	Ice-1C
Governor Farkhutdinov	24.09.2004	108 078	Ice-1C

Name	Built	DWT	Ice Class
Anichkov Bridge	21.11.2003	47 842	Ice-1A
Hermitage Bridge	08.12.2003	47 880	Ice-1A
Narodny Bridge	12.12.2003	47 791	Ice-1A
Okhta Bridge	08.03.2004	47 803	Ice-1A

Name	Built	DWT	Ice Class
SCF Neva	19.10.2006	47 125	Ice-1A
SCF Yenisei	21.11.2007	47 187	Ice-1A
SCF Pechora	26.11.2007	47 218	Ice-1A
SCF Amur	13.12.2007	47 095	Ice-1A

Name	Built	DWT	Ice Class
NS Stream	05.08.06	46 941	Ice-1C
NS Spirit	10.10.06	46 908	Ice-1C

Name	Built	DWT	Ice Class
Pamir	04.12.04	46 654	Ice-1C
Elbrus	05.04.04	46 655	Ice-1C

Name	Built	DWT	Ice Class
NS Pride	04.27.06	40 119	Ice-1B
NS Power	09.01.06	40 119	Ice-1B
NS Point	08.05.08	40 043	Ice-1B
NS Parade	11.10.08	40 119	Ice-1B

Name	Built	DWT	Ice Class
Mar Daniela	07.21.03	18 736	Ice 1A
Mar Elena	01.21.03	18 736	Ice 1A
Mar Adriana	08.21.02	17 000	Ice 1A

Name	Built	DWT	Ice Class
Mar Cristina	10.21.01	6 802	Ice 1 D

Name	Built	DWT	Ice Class
SCF Sakhalin	15.06.2005	4 200	Ice-10

Name	Built	DWT	Ice Class
Pacific Endurance	15.07.2006	4 482	Ice-10

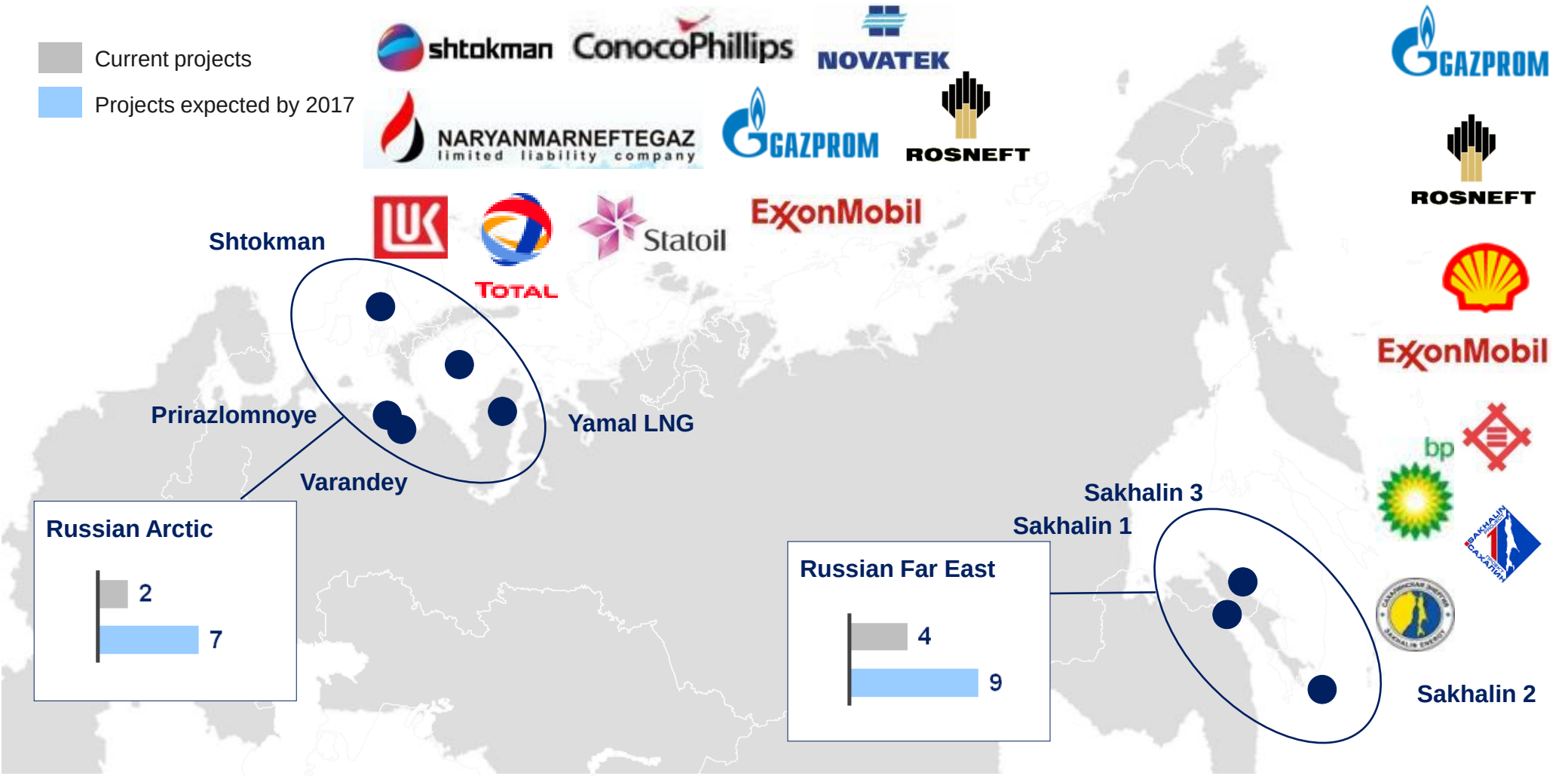
Name	Built	DWT	Ice Class
Sadko	19.05.2009	220	Ice-1A
Stavr	23.07.2009	220	Ice-1A

Name	Built	DWT	Ice Class
Radomir	02.11.2009	230	Arc 4
Ratibor	20.11.2009	230	Arc 4
Dobrynya	29.07.2010	230	Arc 4
Dunai	07.10.2010	230	Arc 4

Name	Built	DWT	Ice Class
Vyacheslav Tikhonov	15,05,2011	4711	Ice-1A

Number one ice-class vessels operator in the world

Current and future Russia's Arctic and Sub-Arctic offshore projects



Russian offshore opportunity is made up of ~ 50 projects.
Estimated reserves of >30 Billion tonnes oil equivalent.

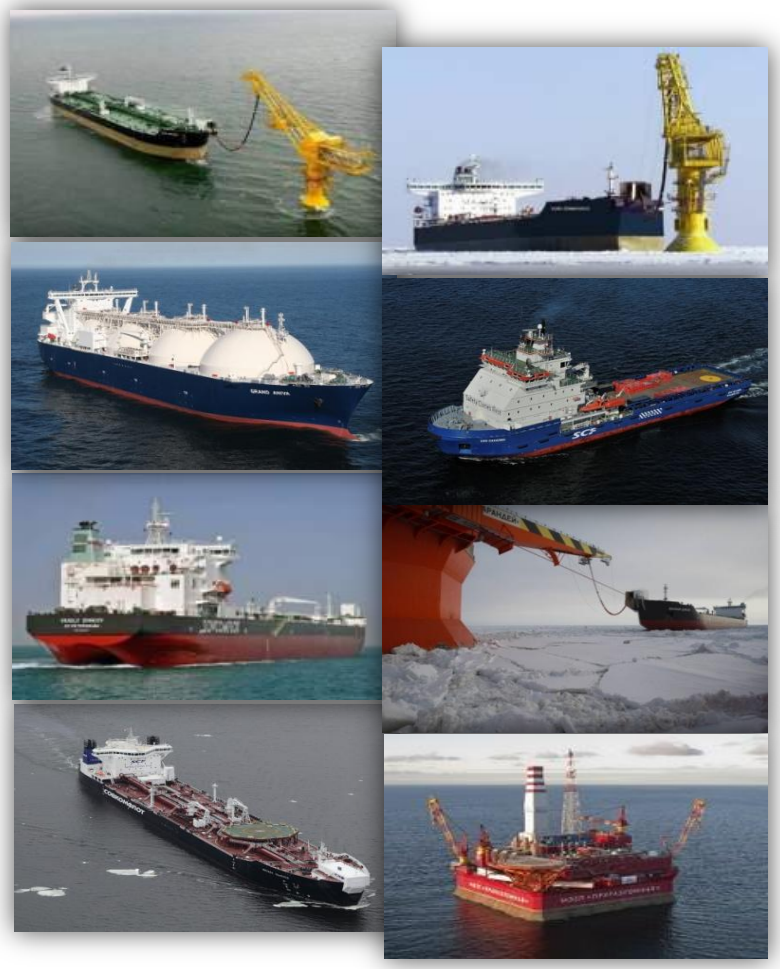
SCF Sovcomflot ice-class vessels for industrial projects in the Arctic and sub-Arctic regions

5 Aframax tankers (100K DWT) 1C
1 IB Supply vessel ICE 10
➡ **Sakhalin-1**

2 LNG (145 M3) 1C
1 IB Supply vessel ICE 10
3 Aframax (100K DWT) 1C
➡ **Sakhalin-2**

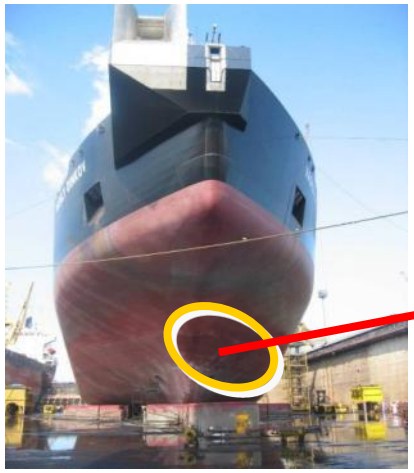
3 Panamax tankers (70K DWT) Arc-6
➡ **Varandey**

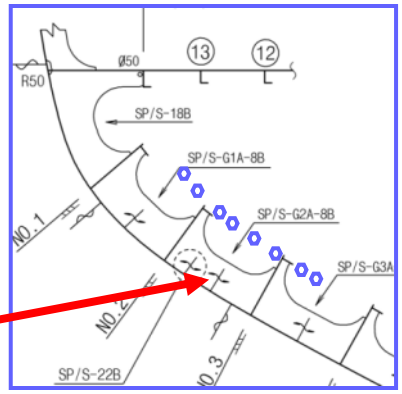
2 Panamax tankers (70K DWT) Arc-6
➡ **Prirazlomnoye**

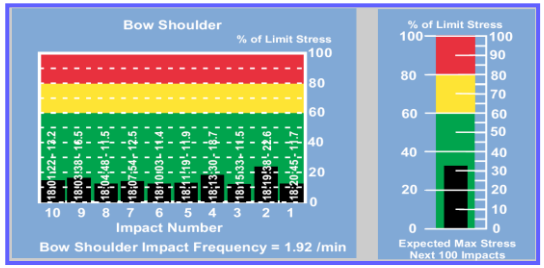


Floating ‘laboratory’ shuttle tanker *Timofey Guzhenko* – Varandey project

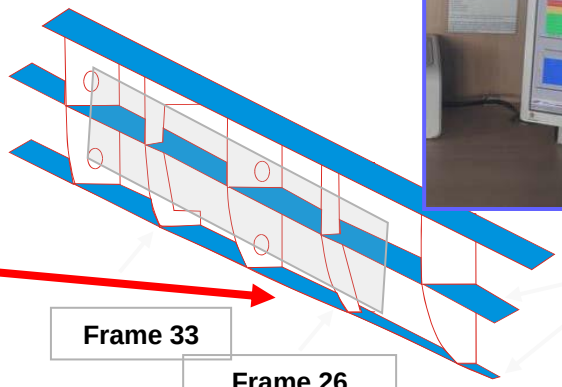
- Unique ice load monitoring system facilitates safe operation
- Ice load data used for pioneering international research project with partners ABS, ConocoPhillips and Samsung Heavy Industries. Information is shared with Aker Arctic, Russian Maritime Register of Shipping, CNIIMF.







Bridge data display



Longitudinal

Frame 33

Frame 26

- Promotes safer operations:
  - Displays the safety margin and indicated safe speed in the prevailing ice conditions
  - Provides operator with excessive load alarm.
- More efficient operations:
  - Optimised speed
  - Fuel economy
  - Less downtime for repairs etc.
- Provides full understanding of ship’s performance, design adequacy
- Provides data for future design (Arctic Technology) and Rules development.

SCF possesses unique empirical statistical data for future Arctic Projects

Innovative options proposed for LNG Transportation from Yamal

- **Mini-shuttles**: polar class vessels (Polar Class 4 of the Russian Maritime Register) with a capacity of 60,000-80,000 cu.m, all-year-round navigation (with and without icebreaking support) in an icy environment , LNG transshipment at coast terminal near Murmansk;
- **Shuttles**: polar class vessels (Polar Class 4) with a capacity of 100,000-120,000 cu.m, all-year-round navigation (with and without icebreaking support) in an icy environment, LNG transshipment at coast terminal near Murmansk;
- **Yamalflex**: Arctic class vessels (Arc 4 - Arc 5) with a capacity of 145,000 cu.m, navigation in the Kara Sea: in summer and autumn (without icebreaking support) and in winter and spring (supported by icebreakers);
- **Yamalmax**: Arctic class vessels (Arc 4 - Arc 5) with a capacity of 175,000 cu.m, navigation in the Kara Sea: in summer and autumn (without icebreaking support) and in winter and spring (supported by icebreakers).

Yamal LNG + Sovcomflot Working Group focused on selection of most efficient ship type

Pioneering NSR Transits for 2010 and 2011 Preparing and Execution

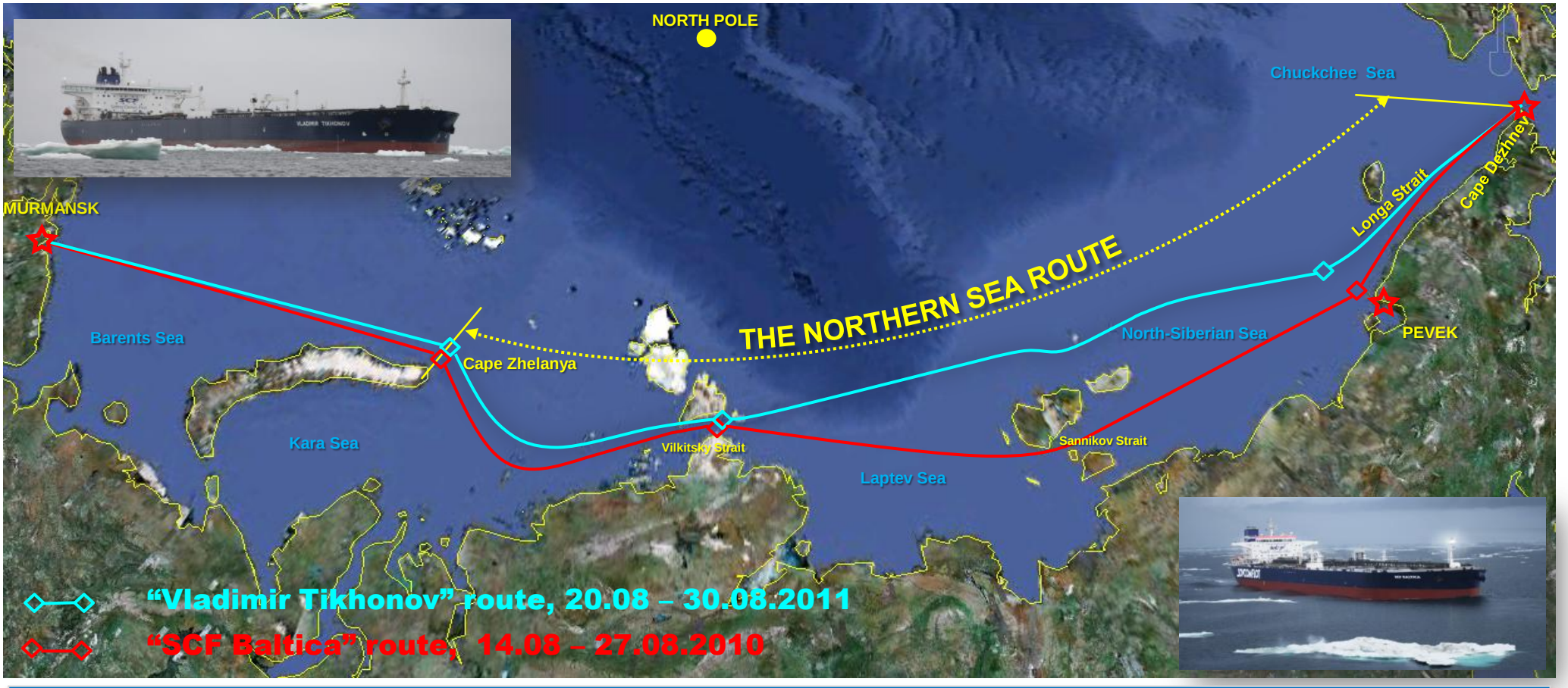
Risks identification and analysis

- Ice navigation support, coordination levels and emergency response capabilities require development
- Ice-breaker services necessary even for Ice-class vessels and in any ice conditions
- Ship repair and supply services are not adequately developed.

Actions

- Beginning of Y2010 – NSR transit Risk Assessment; additional controls development and implementation
- August 2010 - Aframax *SCF Baltica* passage via Sannikov Strait with 70K tons of cargo
- Summer 2010 - hydrographic survey North of Novosibirsky Archipelago
- Analysis of Y2010 hydrographic survey results, nautical charts update, establishing High Latitude Deepwater Route (HLDR) North of Novosibirsky Archipelago
- August 2011 - Suezmax *Vladimir Tikhonov* passage by HLDR with 121K tons of cargo
- Planning to extend the NSR transit up to 6 months in the following years

SCF Sovcomflot Pioneering NSR Transit Passages in 2010 and 2011



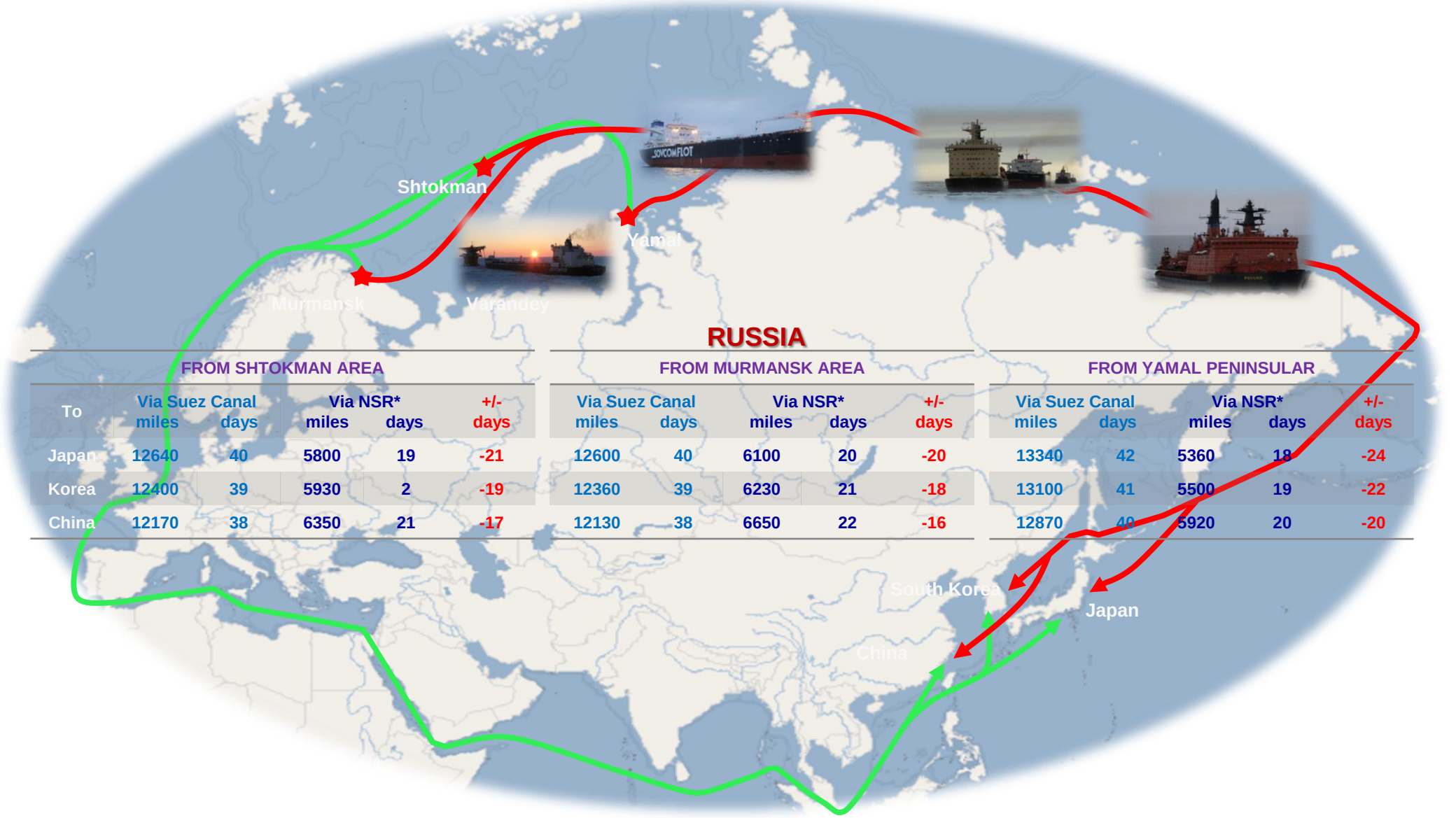
From	To	Transit time	
		SCF Baltica	Vladimir Tikhonov
Cape Zhelanya	Cape Dezhnev	8.3 days	7,4 days

Logistical and Commercial Data

Time and Distance from Murmansk to Destination						
Port of Destination	Via Suez Canal		Via NSR		Difference	
	miles	days	miles	days	miles	days
Ningbo, China	12130	40	6650	22	5480	-18
Map ta Phut, Thailand	10650	36	8500	28	2150	-8

Note: SCF Baltica NSR sailing time cut by 40 % versus Suez Canal and resulted in 8
of fuel economy and reduction in CO2 emission by 3000 mt

Northern Sea Route Logistical Potential



RUSSIA

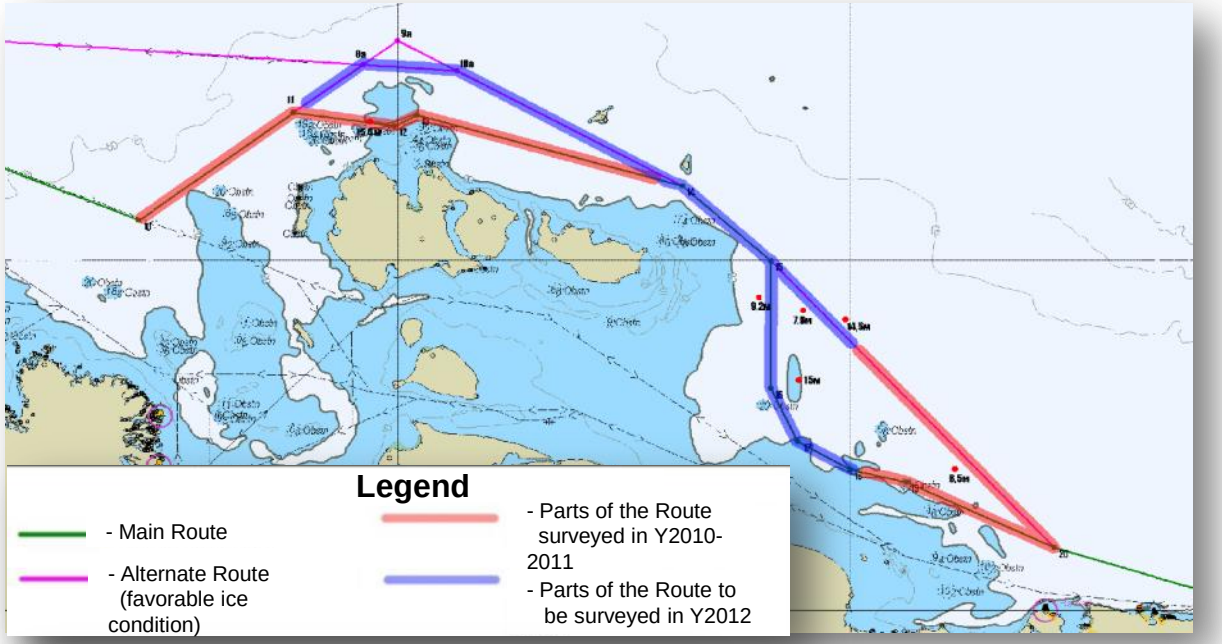
To	FROM SHTOKMAN AREA					FROM MURMANSK AREA					FROM YAMAL PENINSULAR				
	Via Suez Canal		Via NSR*		+/-	Via Suez Canal		Via NSR*		+/-	Via Suez Canal		Via NSR*		+/-
	miles	days	miles	days	days	miles	days	miles	days	days	miles	days	miles	days	days
Japan	12640	40	5800	19	-21	12600	40	6100	20	-20	13340	42	5360	18	-24
Korea	12400	39	5930	2	-19	12360	39	6230	21	-18	13100	41	5500	19	-22
China	12170	38	6350	21	-17	12130	38	6650	22	-16	12870	40	5920	20	-20

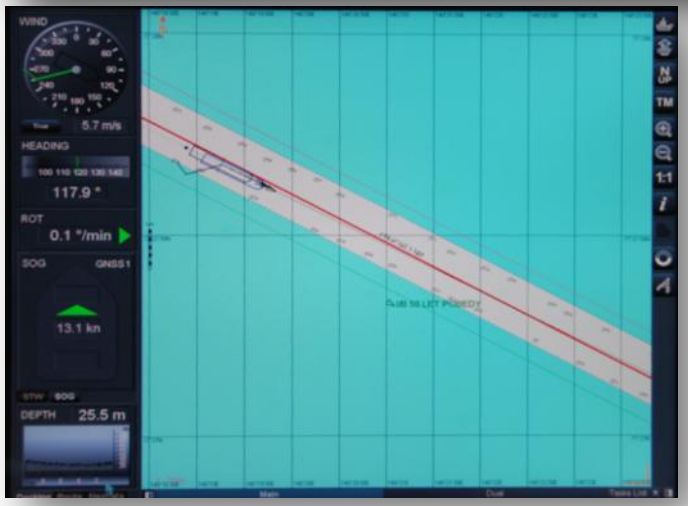
*Average Ice Conditions

NSR Hydrocarbon Laden Transits in Y2010-2011 (vessels of 50K DWT and above)

№	Vessel name	Destination	Cargo	Qty mt	Max draught (m)	BONSRP (Cape Zhelaniya)	EONSRP (Cape Dezhnev)	NSR Passage Time (days)
2010 Laden Transits								
1	SCF Baltica	Ningbo (China)	Gas condensate	70 165	11,00	17.08	27.08	10,3
2011 Laden Transits								
1	Perseverance	Ningbo (China)	Gas condensate	59 981	13,10	30.06	15.07	14,8
2	STI Heritage	Map Ta Phut (Thailand)	Gas condensate	60 944	13,30	21.07	29.07	8,0
3	Marilee	Guangzhou (China)	Gas condensate	60 098	13,10	05.08	15.08	9,7
4	Vladimir Tikhonov	Map Ta Phut (Thailand)	Gas condensate	120 843	13,60	23.08	30.08	7,4
5	Stena Poseidon	Incheon (South Korea)	Gas condensate	57 814	12,65	02.09	08.09	6,9
6	Perseverance (E-W)	Le Havre (Франция)	Kerosene	64 400	13,40	16.09	09.09	6,9
7	Palva	Guangzhou (China)	Gas condensate	59 313	13,10	14.09	20.09	6,5
8	Mariann	Incheon (South Korea)	Gas condensate	61 259	12,70	23.09	30.09	7,1
9	Affinity	Guangzhou (China)	Gas condensate	59 080	12,85	12.10	19.10	6,9
10	Perseverance	Guangzhou (China)	Gas condensate	61 275	13,00	06.11	18.11	12,0
		Total :		735 172				

Hydrographic Survey of NSR High Latitude Deepwater Route (suitable for vessels drawing 15 m and more)





- Two modern hydrographic echo sounders for areal survey are purchased and fitted onboard two hydrographic vessels.
- High latitude deepwater track is selected taking into account prevailing ice massifs position.
- Track survey by hydrographic vessels carried out (ice condition permitting)
- Chartlet based on survey results prepared
- Subject to survey completion NSR nautical charts' update / reprint is being prepared
- Systematic hydrographical survey to continue in the following years

Emergency Preparedness

- NSR Escort Agreement between SCF & Atomflot specifying emergency support provided by icebreakers
- Based on the Voyage Risk Assessment and in agreement with Atomflot Shipboard Contingency Plans reviewed and updated
- Floating booms, skimmer, set of underwater repair facilities etc, placed onboard escorting Icebreaker
- Professional Emergence Response Team and Divers Party enrolled to escorting Icebreaker
- Icebreakers additionally equipped with towing gear suitable for Large size tanker
- Quick access to shore Emergency response facilities (LR-SERS) ensured

ROSATOM FLOT

Thank you for your Attention!