**Table S1. Vessels types that used the NSR in summer 2013 to link a European country to an Asiatic country**a

|  |  |
| --- | --- |
|  | Vessel (name) |
| Vessel information | *Yong Sheng* | *Mikhail Dudin* | *Propontis* |
| Ice Class (Lloyd register) | Ice 1A (Arc4) | Ice 3 | Ice 1A (Arc4) |
| Cargo (type) | general cargo | general cargo | naphtha |
| Country of departure | South Korea | Vietnam | Norway |
| Country of destination | Netherlands | Poland | Japan |
| Entry to NSR day | 26-Aug-13 | 11-Aug-13 | 24-Jul-13 |
| Exit from NSR day | 03-Sep-13 | 25-Aug-13 | 05-Aug-13 |
| Days spent on NSR | 7.4 | 14.8 | 12.7 |
| Average speed (Kn) | 14.1 | 7.6 | 8.2 |
| Speed Service (Kn) | 15.3 | 11.3 | 16.8 |

aSource: Maritime Traffic (<http://www.marinetraffic.com/>)

These voyages took place in the summer months. They were made by ships reinforced to face difficult ice conditions (Ice class 1A) or mild ice conditions (Ice Class 3). The late August to September ice conditions allowed the *Yong Sheng* to operate close to its full operational speed. As such, these conditions and vessels are closer to the most commercially viable ones for shipping companies in the near future (Eide et al., 2010)). Open water ships might be able to use the route close to Russian costs in the midcentury (2040–2059) (Smith and Stephenson, 2013).