

Assessing the Arsenal: Past, Present, and Future Capabilities



May 2019

CSBA

Center for Strategic and Budgetary Assessments

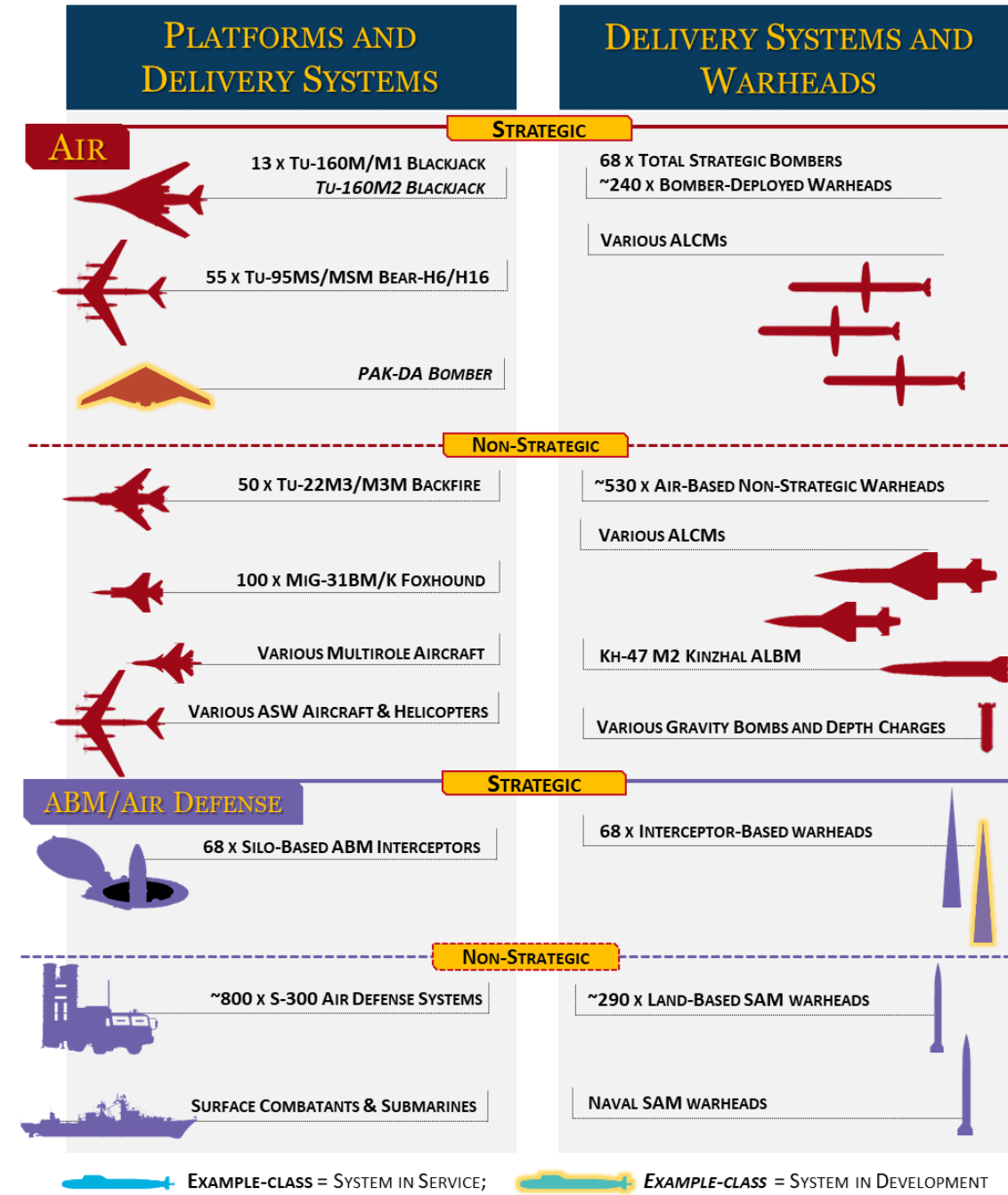
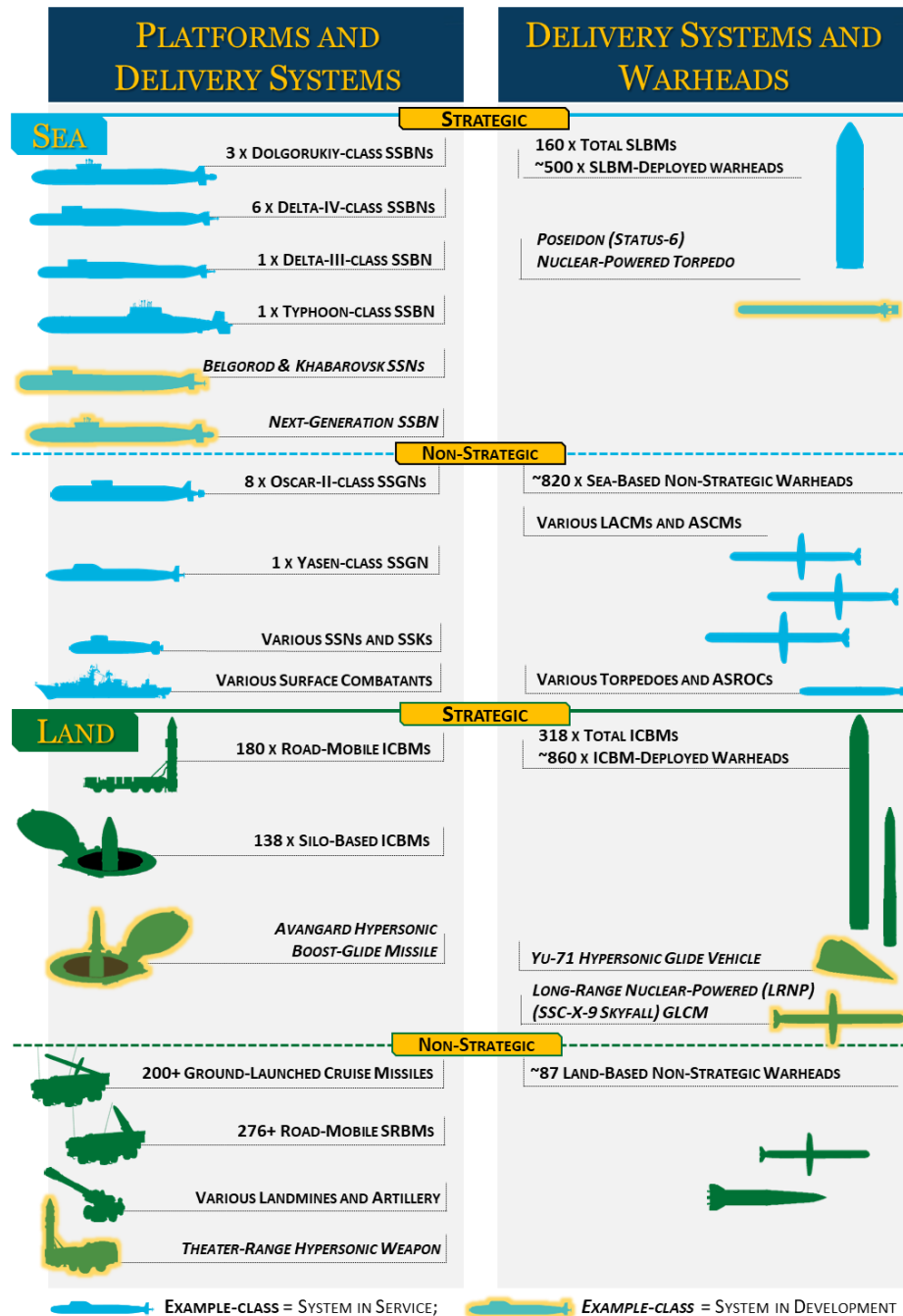
Why this study, why now?

- **Nuclear competition in the Second Nuclear Age is vastly different than that of the first**
 - While global arsenals have decreased for decades, the **number of nuclear powers is increasing**
 - The Cold War nuclear competition centered on the United States and the Soviet Union, but now the **competition is multipolar**
 - Nuclear arms control that restrained the U.S. and the Soviet Union does not apply to other nuclear powers and the **existing restrictions may be on their last legs**
 - **New technologies** may challenge conventional assumptions about survivability and may effect strategic stability
- **With such change, the time is right for a comprehensive open source net assessment of the global nuclear balance**

What did we set out to do?

- **To understand the potential implications of the changing nuclear competition, need a baseline of the current and likely future status of national nuclear arsenals**
- **Build snapshots and timelines to depict the current state of the nuclear balance**
- **Identify key asymmetries that may shape the future nuclear balance**
- **Identify potential linkages with trends in conventional competitions that may shape the future nuclear balance**
- **Create a living document that can be updated as more information comes to light**

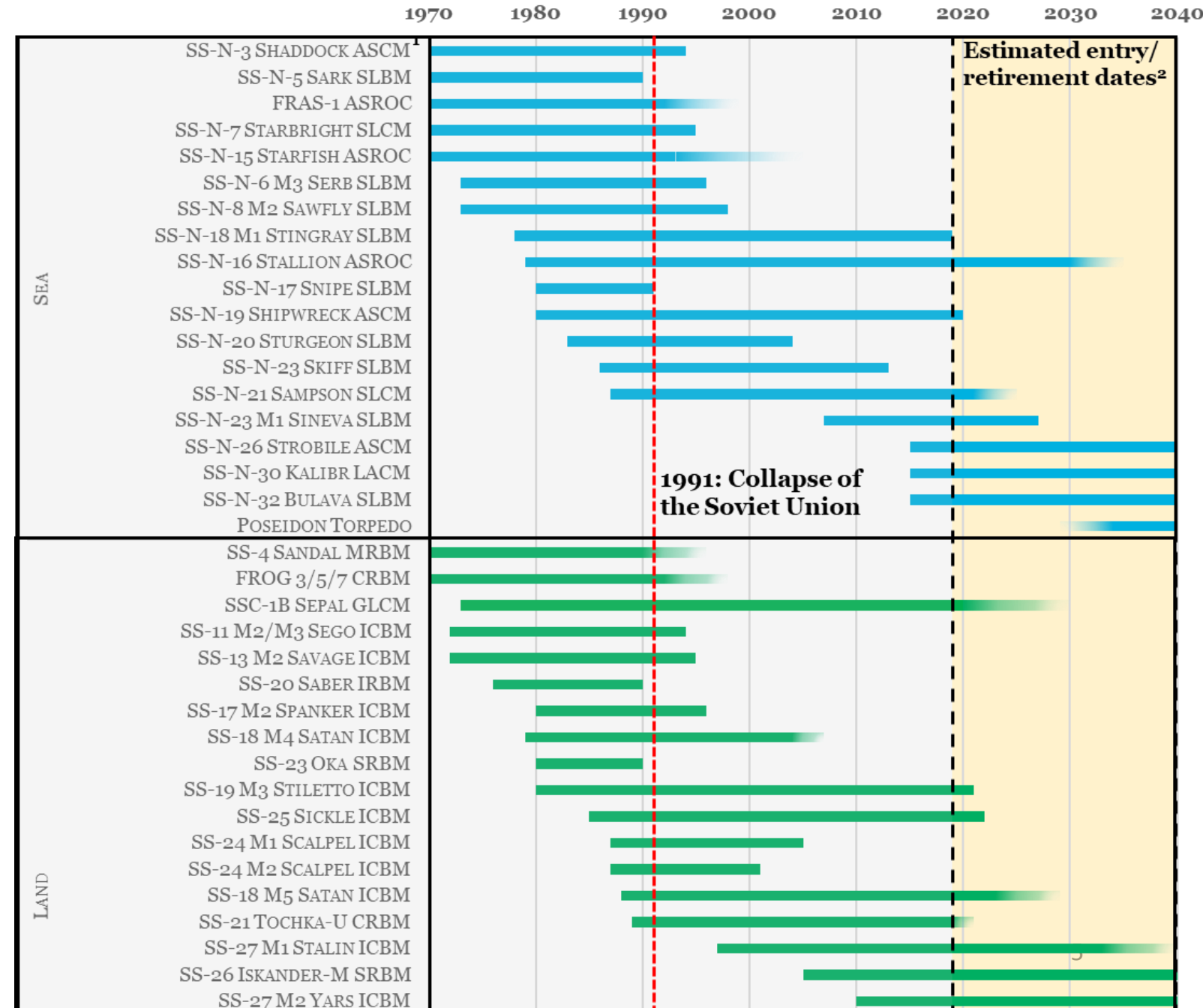
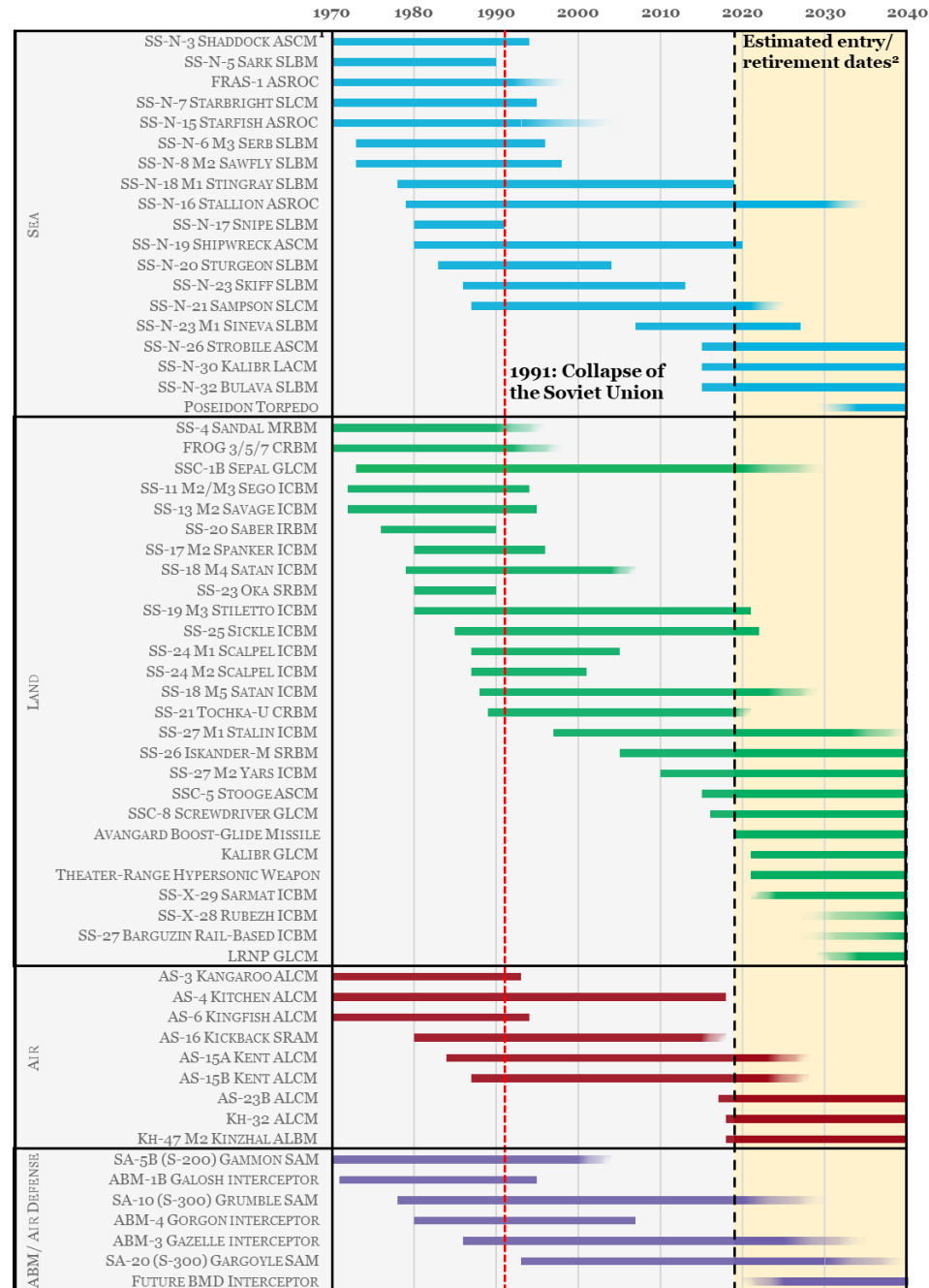
Illustrative Snapshot of Current and Future Russian Nuclear Forces



Illustrative Timeline of Current and Future Russian Nuclear Forces



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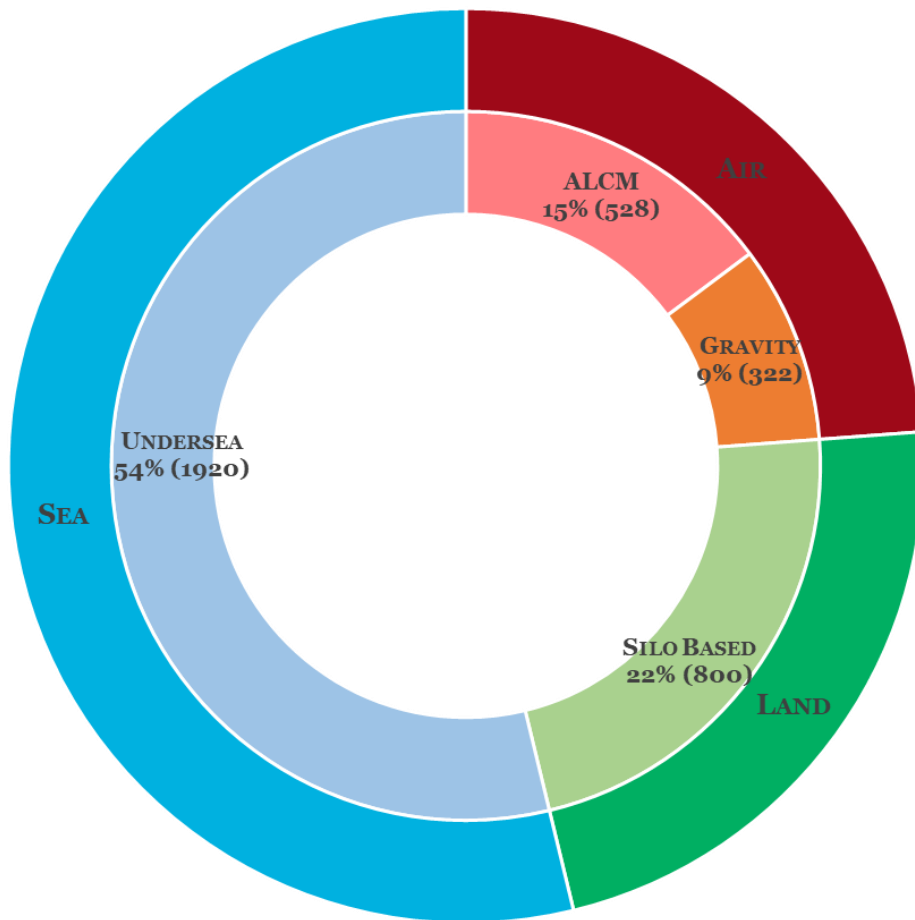


What did we learn?

- **Almost thirty-years into the Second Nuclear Age, nuclear weapons are still critical components of national defense and global competition**
- **All nuclear powers are modernizing, but only some are growing**
- **Limited scope of U.S., UK, and French modernization programs raise concerns that nuclear intellectual and industrial capital to develop new weapons is at risk of atrophying**
- **Asymmetries of basing-mode, non-strategic nuclear weapons, and dual-capable systems may challenge nuclear deterrence**

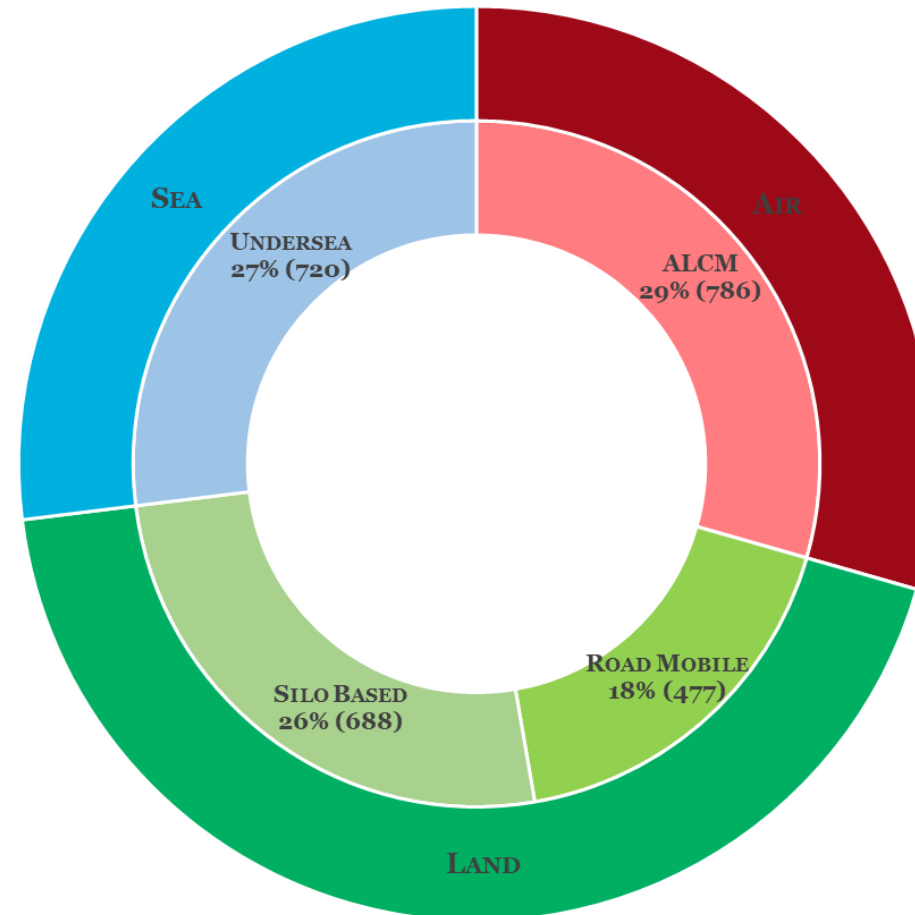
Asymmetries: Basing-Mode

United States



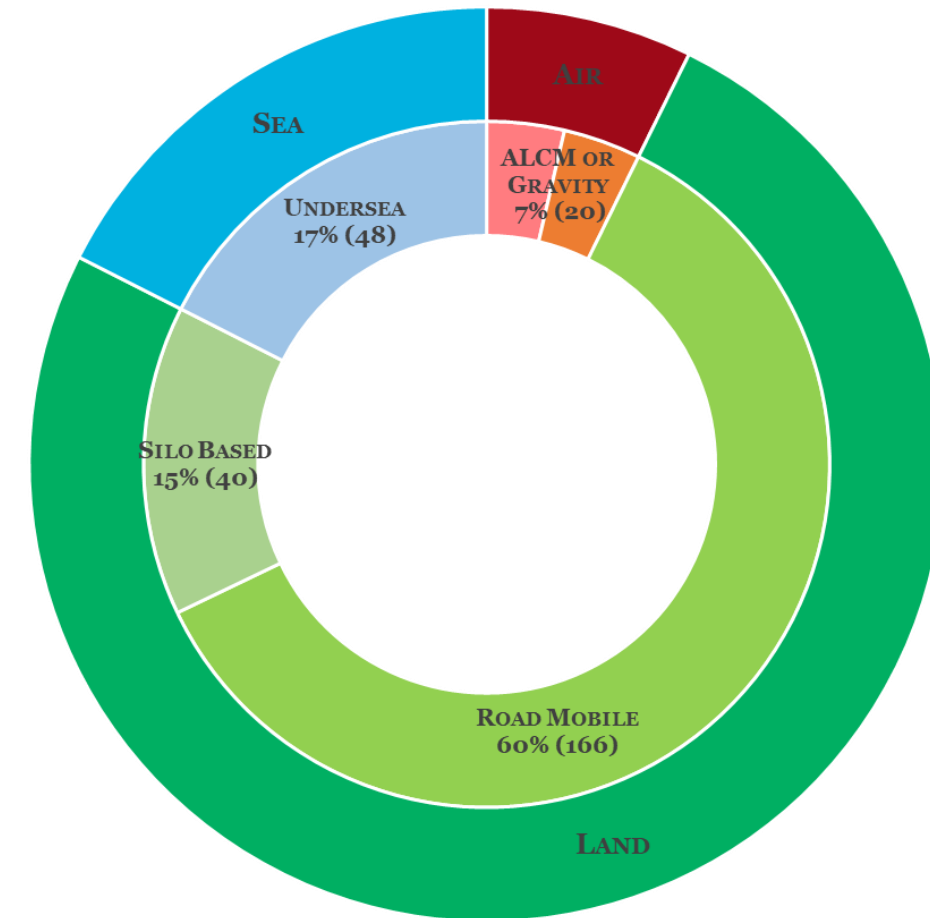
*Includes both deployed and non-deployed strategic warheads

Russia



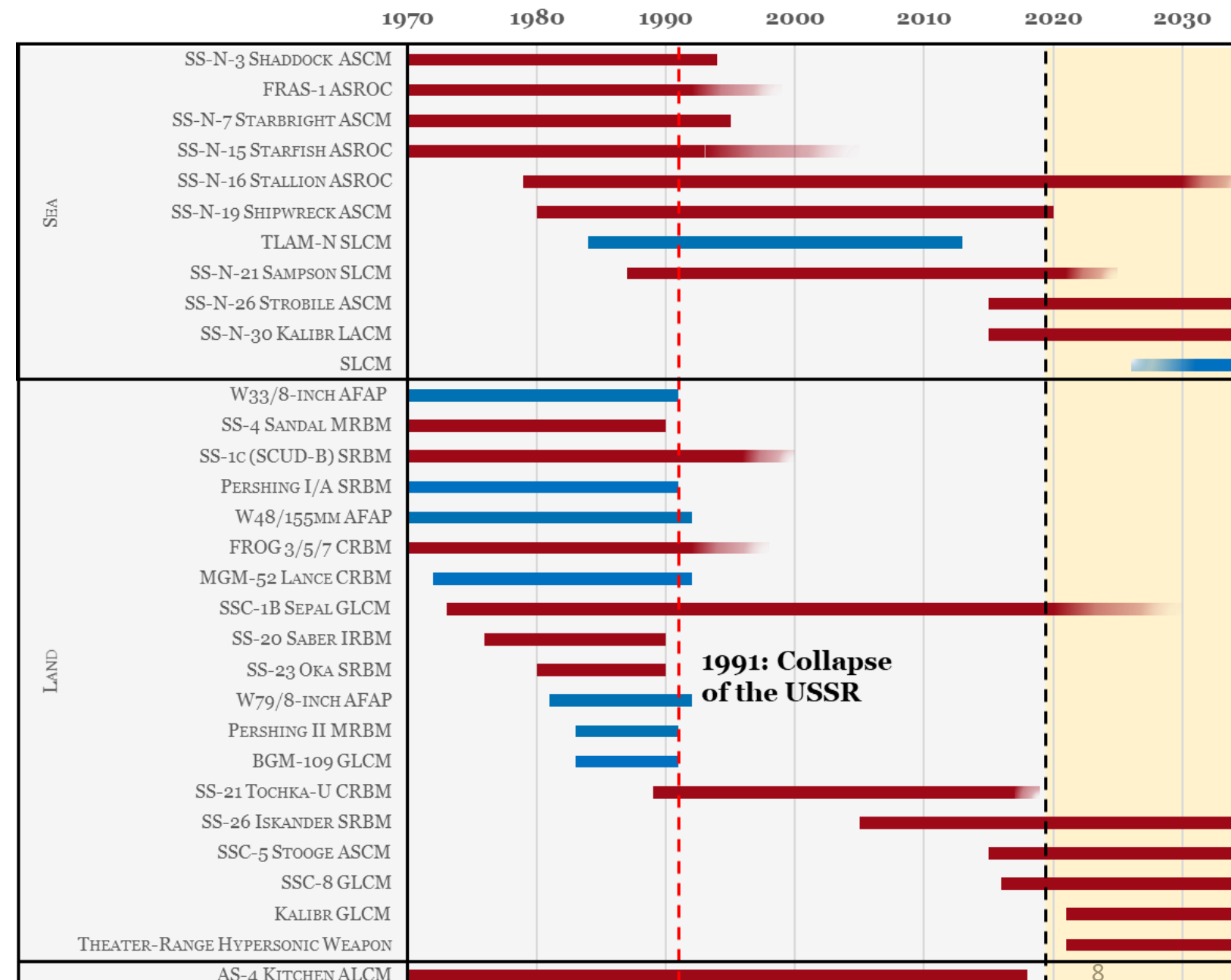
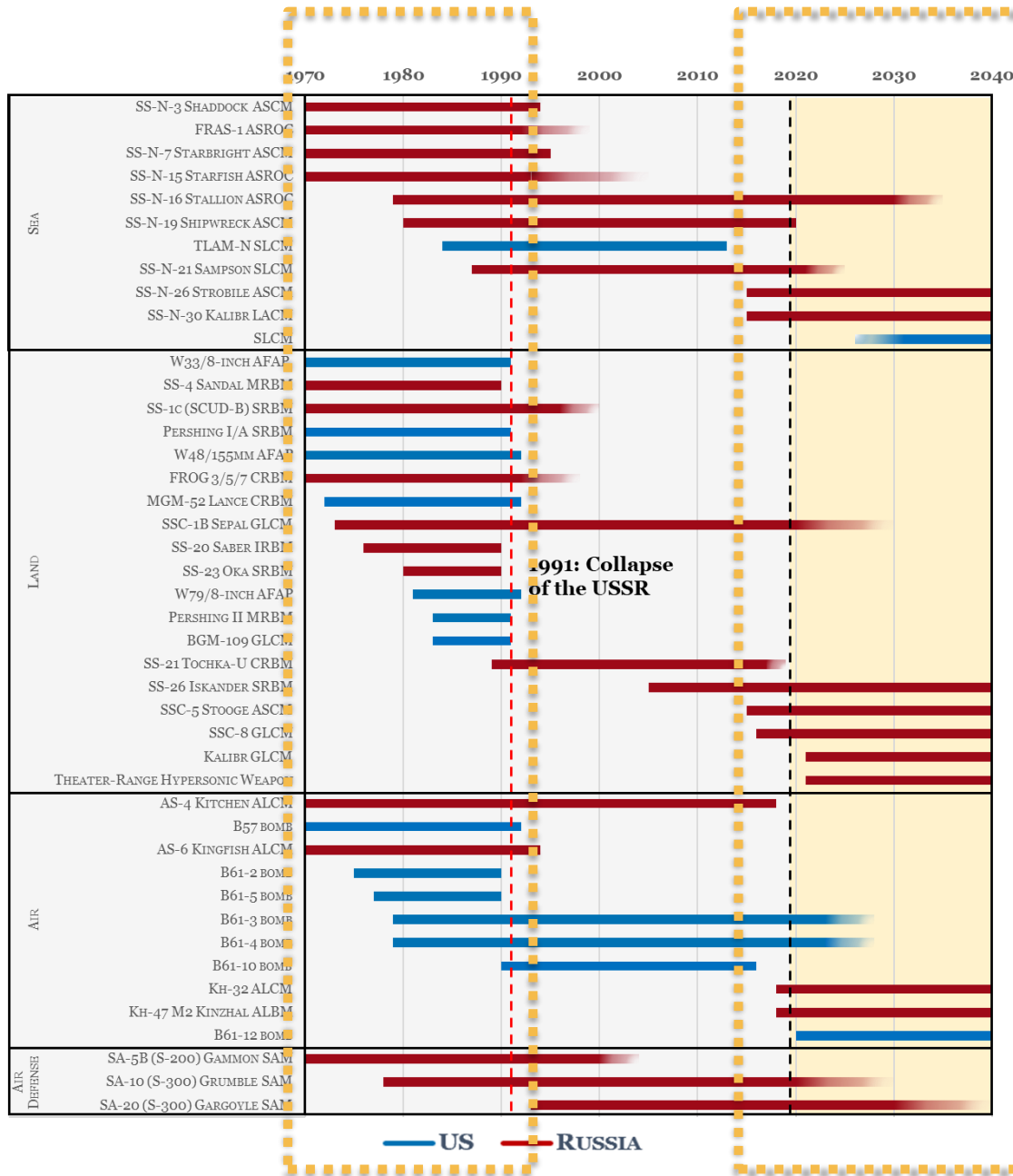
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China

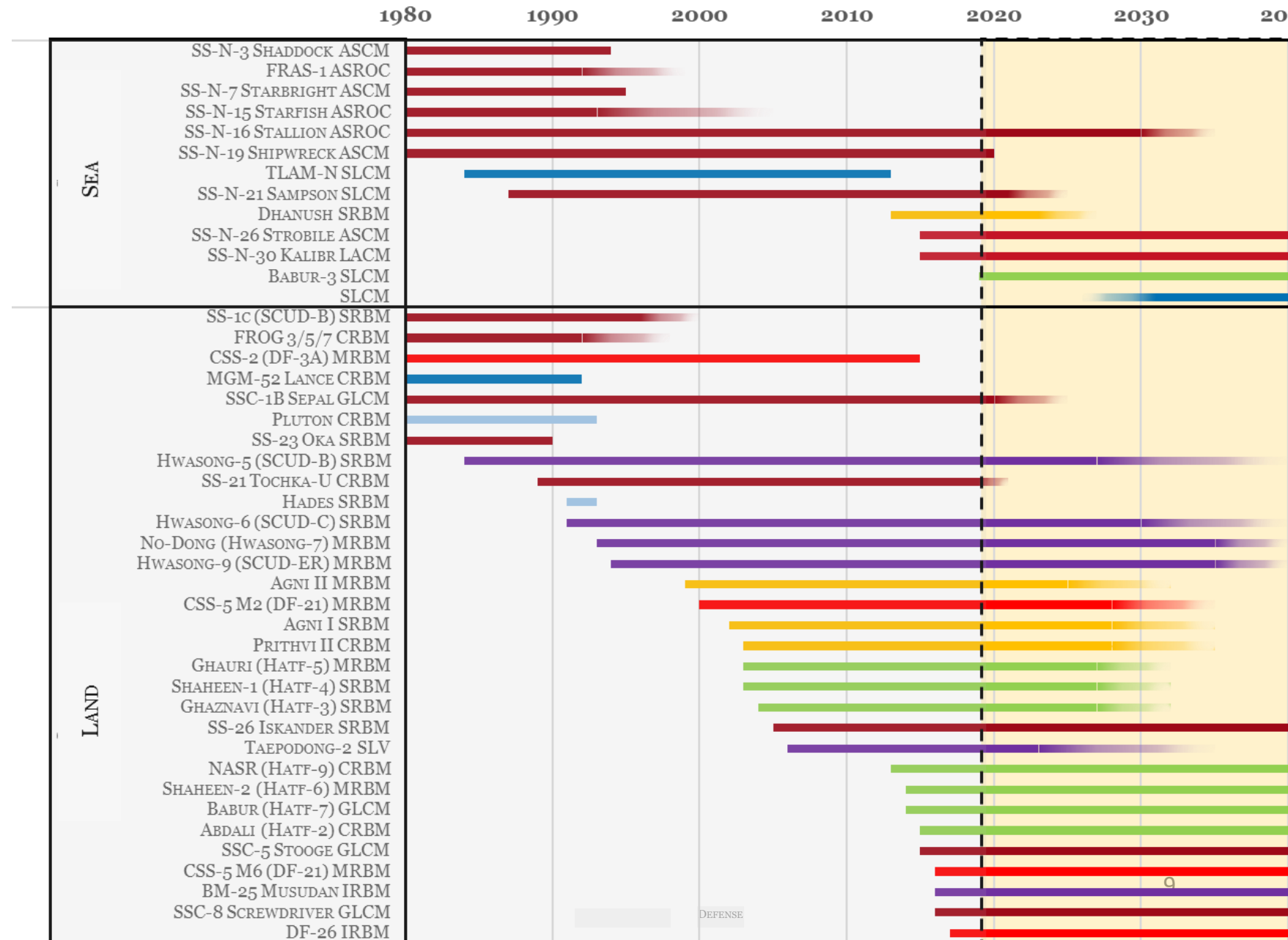
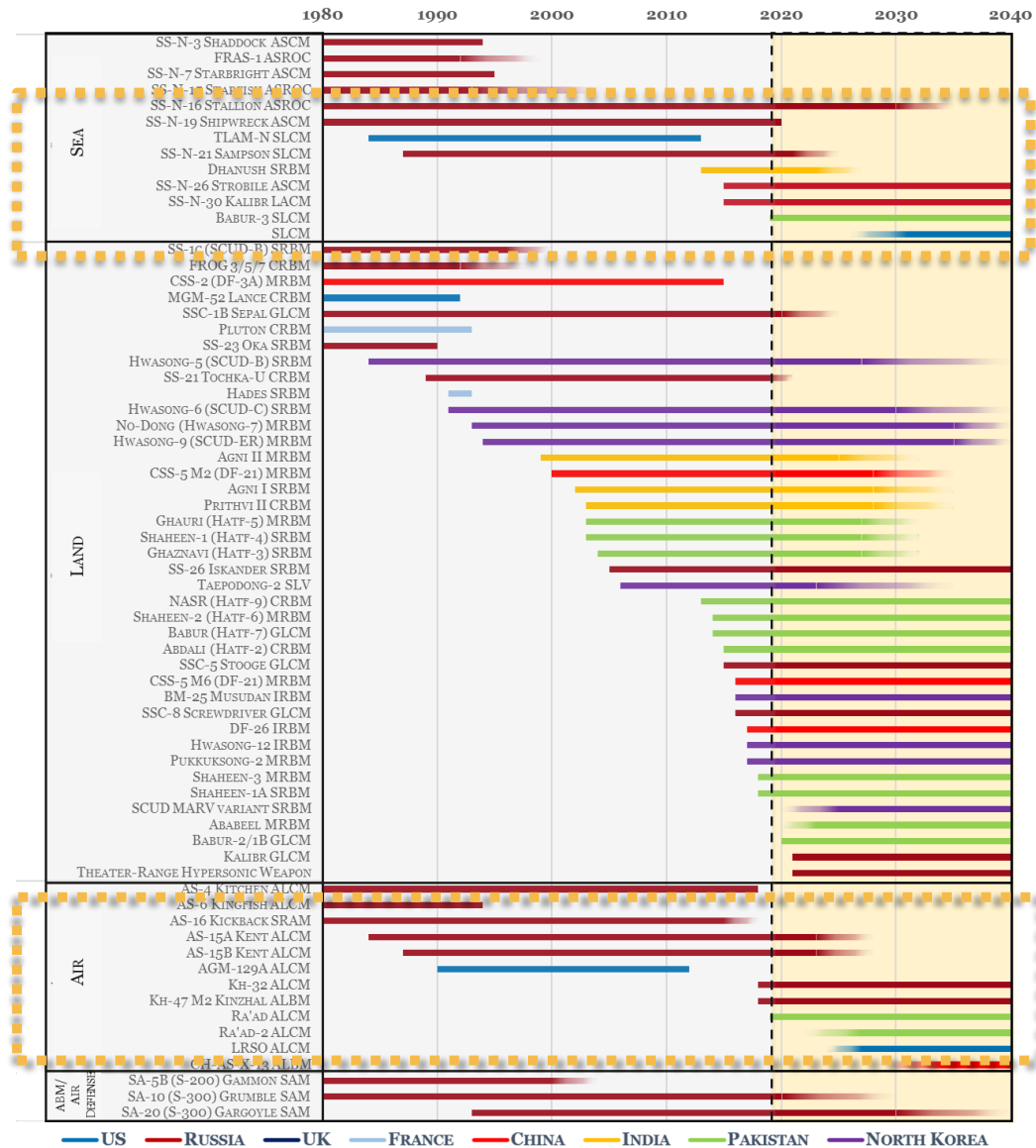


*An estimated 20 warheads exist for air delivery, but the composition of these warheads among gravity bombs and/or ALCMs is unknown.

Non-Strategic Deliver Systems (Post-1989)



Dual-Capable Delivery Systems (Post-1989)



- **Between the return of great power competition and the modernization/expansion of nuclear arsenals, the time is right to reassess the shifting nuclear balance**
- **Future of bilateral arms control and arms control in general looks bleak**
- **China, long known for having a minimal deterrent posture, is developing a larger and more advanced nuclear posture**
- **Regional rivals, like India and Pakistan, as well as North Korea are expanding their arsenals and increasing the range of their delivery systems**
- **With this baseline in place, future studies will explore the strategic interactions between nuclear powers as well as the possible effects of emerging technologies on the survivability of current and planned nuclear arsenals**

A faint, light blue world map is visible in the upper portion of the slide, centered horizontally and partially obscured by the dark blue background.

Thank you.

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