

S E C R E T

DDI- 8565/83

29 NOV 1983

MEMORANDUM FOR: Director of Central Intelligence
Deputy Director of Central Intelligence

FROM : Robert M. Gates
Deputy Director for Intelligence

SUBJECT : Future Soviet Weapons Assessment [redacted]

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1. On 7 October you requested OSWR, in concert with SOVA, to conduct a future weapons assessment of the overall military threat, by mission area, that the Soviets are likely to pose during the 1990s. I am including with this memorandum the results of that assessment, presented as a series of charts, graphs, and tables with a summary page showing the major conclusions of the study. Since your request was prompted by the need for a U.S. balance between expenditures for a possible U.S. manned space station and the coverage of major future Soviet threats, we have tried to portray the threat posed by the Soviet space program in the mid-1990s, together with other Soviet threats. The results of our study are presented as separate stand-alone charts, each with an accompanying description. [redacted]

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2. OSWR assessed about 45 Soviet weapons systems, attributing to each a threat index based on the technical improvements and the deployment expected in 1995, together with the breadth of application expected for each weapon. This assessment, together with SOVA estimates of future Soviet force levels, current R&D efforts and our estimates of the Soviet defense spending patterns has one principal bottom line: The projections of Soviet forces show increments to force capabilities in all mission areas and we expect that the pattern of across-the-board force development will continue during the next 10-15 years. To a good approximation, the 1995 threat posed by weapons in each major Soviet mission area will be proportional to what it is today, but study suggests that the Soviets will roughly double their overall weapon effectiveness by 1995 - a threat improvement that could be offset by U.S. and allied weapons developments. [redacted]

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Attachments: As Stated

[redacted]

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SUBJECT: Future Soviet Weapons Assessment

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Distribution:

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DDI/OSWR/SSD/ 23 November 1983

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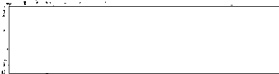
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Conclusions of the Study

1. Estimates of Soviet weapons improvements, force levels, R and D efforts and spending patterns all indicate that force capabilities in 1995 will be larger, but will have approximately the same mission area distribution as today. 25X1



2. A study of 45 Soviet weapons initiatives suggests that the Soviets will roughly double their overall weapon effectiveness by 1995 - a threat improvement that could be offset by U.S. and allied weapons improvements. 25X1



3. The major increases in threat will come from improvements in cruise missiles, lasers and warheads; in more conventional weapons such as helicopters, tanks, and artillery; and in major support systems such as AWACS, communications and navigational satellites and electronic warfare. Intelligence analysis will have to be devoted to these changing types of weapons as well as to those that will continue to pose high absolute threats (e.g., ICBMs, IRBMs, ABMs, etc.) or those where the significance of breakout would be exceptionally important (e.g., ASW developments.) 25X1



4. The most marked Soviet weapons improvements will be associated with ground-initiated and ground-targeted weaponry, followed in order by air, sea and space weapons improvements. 25X1



5. The prospect of Soviet space systems carrying out direct attacks on ground, sea or air assets before 1995 is negligible. However, satellites will become more effective in supporting attacks by other Soviet assets. 25X1



6. A permanently manned Soviet space station poses no more threat than the average Soviet weapon system under development. It will have fairly broad applicability in a support role, but it will also be vulnerable to attack. 25X1



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Comparative Soviet Threat (1985-1995)

In the accompanying figure the left-hand charts show our estimates of the Soviet threat distribution in 1985 for carrying out Soviet world-wide obligations (top) and for threatening the U.S. ability to deter (bottom). Each of the left-hand charts for 1985 is divided into four sections that portray these two overall missions by sub-category. 25X1

After assigning each of the Soviet weapons systems now in development to its appropriate sub-category, we undertook an analysis to determine the improvement in each weapons system from 1985 to 1995, based on estimates of (1) the change in the numbers of weapons that will be deployed; (2) the technical improvement in each weapon; and (3) the breadth of applicability of each weapon. We judge that the typical weapon threat improvement of the weapons we identified under each sub-category is representative of all weapons under development in that sub-category; hence, we can portray the relative emphasis that the Soviets are giving to improving their weapons in each sub-category between 1985 and 1995, shown in the middle two charts. Note that the threat increment posed by the typical weapon set in each subcategory is approximately equal, resulting in our expectation that the Soviets will produce a 1995 threat for each overall mission which is approximately proportional to the 1985 threat. The magnitude of the 1995 threat is about twice the 1985 threat in both overall mission areas, as shown by the larger areas of each of the two right-hand 1995 threat charts. This threat improvement will be diminished in proportion to the U.S. and allied response to the threat. 25X1

Differences of less than about 5% between the percentages of identical sub-categories shown on the left and right hand charts are probably not significant. 25X1

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The 1995 threat and the projected 1985-1995 threat improvement for each weapon is given, by mission subcategory, in the accompanying tables: one for worldwide conventional warfare and one for strategic nuclear warfare. The distribution of these weapons threat improvements generates the two middle charts of the figure. 

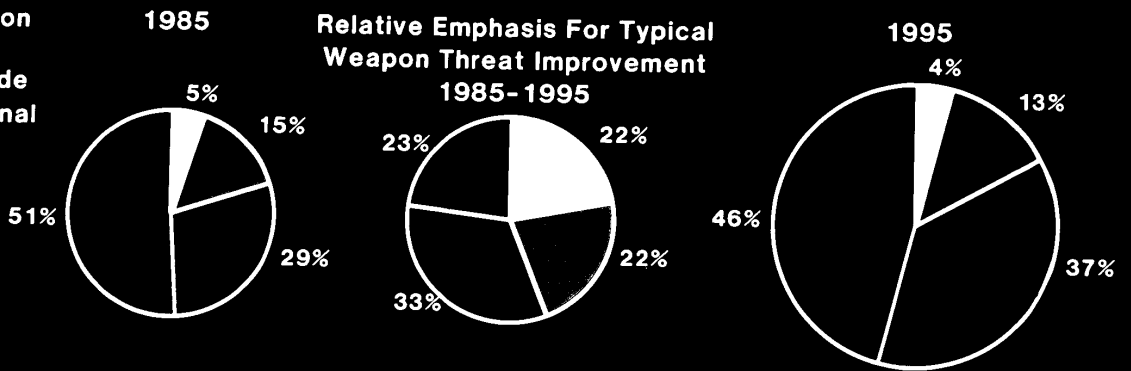
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Comparative Soviet Threat (1985-1995)

Overall Mission

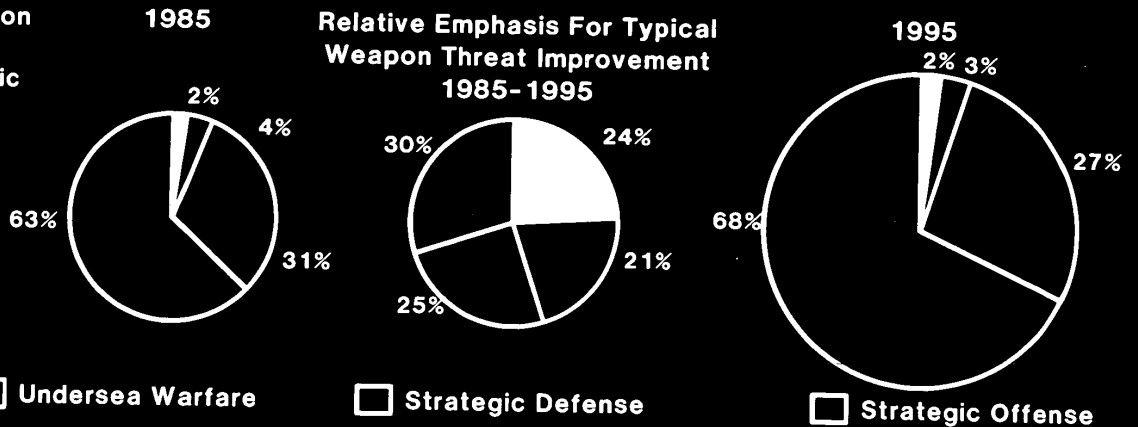
I. Worldwide Conventional Warfare



Space
 Naval Surface Weapons
 Tactical Missiles and Aircraft
 Ground Warfare

Overall Mission

II. Strategic Nuclear Warfare



Space
 Undersea Warfare

Strategic Defense

Strategic Offense

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Components of
Comparative Soviet Threat (1985-1995)

I. Worldwide Conventional Warfare

<u>Mission/Weapon</u>	<u>1995 Threat</u>	<u>1985-95 Threat Improvement</u>	<u>Mission/Weapon</u>	<u>1995 Threat</u>	<u>1985-95 Threat Improvement</u>
A. <u>Ground Warfare</u>			C. <u>Naval Surface Weapons</u>		
Tactical Laser	Medium	High	Carriers/Cruisers	Low	Low
Tanks	Low	Medium	ASCM	Low	Low
Artillery	Medium	Medium	Carrier Aircraft	Medium	Low
CW/BS	High	Low	TASM	Medium	Low
Tactical Radar	Low	Medium	SAMS	Medium	Low
EW	Medium	Medium	HE Lasers	Medium	Medium
B. <u>Tactical Missiles And Aircraft</u>			D. <u>Space</u>		
IRBM	High	Low	Launch Detection Satellite	Low	Low
SRBM	High	Low	Large Space Station	Low	Medium
GLCM	High	High	Space Tug	Low	Low
ALCM	High	High	NRT Satellites	High	Medium
TASM	Medium	Low	EORSAT/RORSAT	Low	Medium
Helicopters	Low	Medium	COMSAT	Low	Medium
Drones	Low	Medium	GLONASS Navsat	High	Medium
SAMS	Medium	Low	EW	Medium	Medium
Fighters	Medium	Low	Space Plane	Low	Low
Cargo Planes	Medium	Low	Laser ASAT	High	Medium

Key: Category 1 (High)
Category 2 (Medium)
Category 3 (Low)

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Components of
Comparative Soviet Threat (1985-1995)

II. Strategic Nuclear Warfare

<u>Mission/Weapon</u>	<u>1995 Threat</u>	<u>1985-95 Threat</u> <u>Improvement</u>	<u>Mission/Weapon</u>	<u>1995 Threat</u>	<u>1985-95 Threat</u> <u>Improvement</u>
<u>A. Strategic Offense</u>			<u>C. Undersea Warfare</u>		
ICBM	High	Low	Submarines	High	Low
SLBM	High	Low	ASW	Medium	Low
LRCM	High	High			
Long Range Bombers	High	Low	<u>D. Space</u>		
Warhead Developments	High	Medium	Launch Detection		
			Satellite	Low	Low
<u>B. Strategic Defense</u>			COMSATS	Low	Medium
Interceptors	Medium	Low	GLONASS Navsat	High	Medium
AWACS	High	Medium	Orbital ASAT	Medium	Low
EW/GCI Radar	Medium	Medium			
Air-to-Air Missiles	Medium	Low			
SAMS	Medium	Low			
EW	Medium	Medium			
ABM	High	Low			
H.E. Lasers	Medium	Medium			
Power Developments	Low	Low			

Key: Category 1 (High)
Category 2 (Medium)
Category 3 (Low)

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Soviet Weapon Incremental Threat Index
vs. Weapon Applicability (1985-1995)

Each of the prospective Soviet weapons developments in about 45 weapon systems was rated according to the projected magnitude of the technical improvement and the estimated number of weapons deployed in 1995. This rating is summarized in Tab A. This measure of threat was adjusted based on the number of mission areas in which it could be employed. For example, a GLCM represents a major increase in the threat, but can be used only in a ground-to-ground or possibly a ground-to-sea situation. By contrast, electronic warfare represents a relatively low direct threat, but, because it can be employed in so many environments to enhance the effectiveness of many Soviet weapons, developments in the EW area probably have great appeal to Soviet weapons planners.

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When Soviet weapons are examined in this fashion they tend to break into three general categories as shown in the accompanying Figure.

- Category 1 are systems which will pose great threats, regardless of how broadly the system might be employed. These tend to involve new weapons concepts for which future NATO countermeasures are poorly defined.
- Category 2 are systems which pose a moderate threat and have relatively broad applicability. Often, these are weapons where we project considerable improvement to existing systems.
- Category 3 are systems which promise modest increases in the threat, and have only a few areas of applicability. This group comprises incrementally improving systems.

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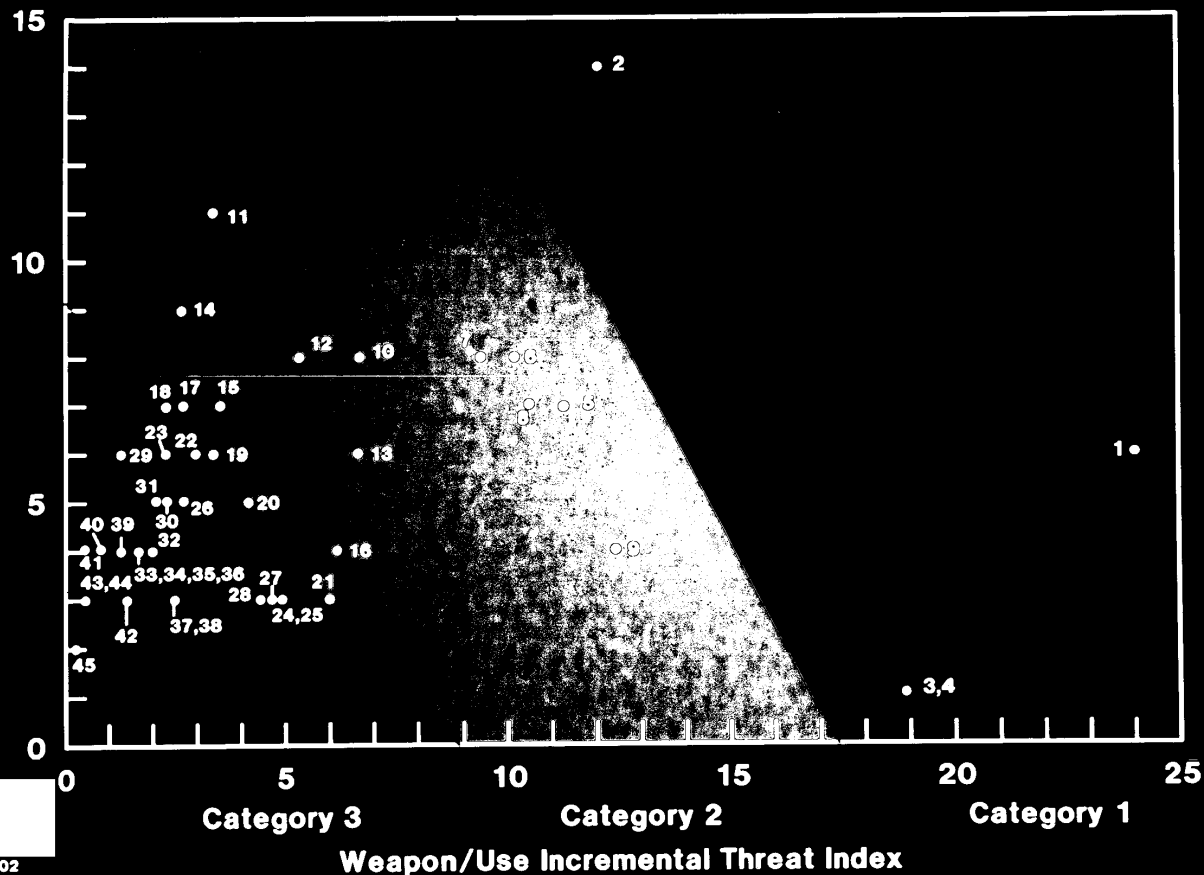
Note of Caution: By itself, the Incremental Threat Index is only a measure of the threat change from 1985 to 1995. Although little threat change is estimated for weapons with low indices, it is still important to devote significant intelligence resources to them, either because they present a high absolute threat (e.g., ICBM and IRBMs) or because the significance of breakout would be exceptionally important (e.g., ASW developments).

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1985-1995 Projected Weapons Improvements (Capability and Numbers Deployed) vs. Breadth of Applicability

Applicability



1985-1995 Projected Weapons Improvements (Capability and Numbers Deployed) vs. Breadth of Applicability

Category 1	Category 2	Category 3
1 LRCM	5 H.E. Lasers	23 ASW
2 Tactical Laser	6 Helicopters	24 Air-to-Air Missile
3 GLCM	7 Warheads	25 Interceptors
4 ALCM	8 Tanks	26 Power Dev
	9 AWACS	27 SRBM
	10 COMSAT	28 Orb. ASAT
	11 Electronic Warfare	29 Space Plane
	12 Artillery	30 Bat. C ³
	13 GLONASS NAVSAT	31 Strat. C ³
	14 EORSAT/RORSAT	32 SAMS
	15 EW/GCI Radar	33 Carriers/Cruisers
	16 Subc	34 ASCM
	17 Tactical Radars	35 SLBM
	18 CW/BW	36 L.R. Bombers
	19 Large Space Station	37 Fighters
	20 Drones	38 ABM
	21 Laser ASAT	39 TASM
	22 NRT Satellites	40 Space Shuttle
		41 Naval C ³
		42 Cargo Planes
		43 IRBM
		44 ICBM
		45 Space Tug

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Relative Magnitudes
of Incremental Threat, by Activity (1985-1995)

The accompanying figure shows our projections of the relative magnitudes of incremental threat in each attack and target environment. It is based on the threats posed by improvements in each of 45 Soviet weapons systems between 1985 and 1995 and on the applicability of each system to conduct direct attacks from ground, sea, air and space on targets in each of these locations.

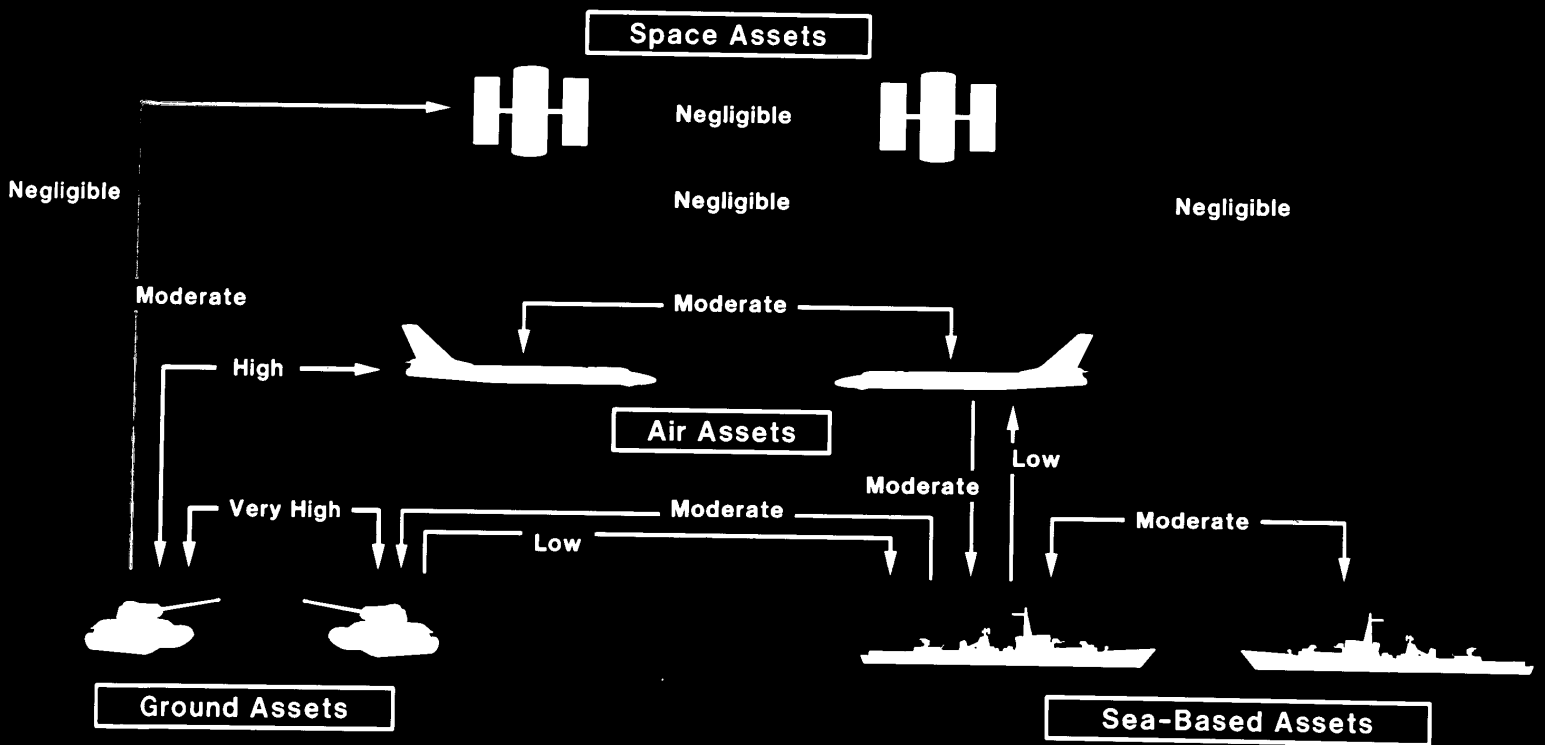
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Our analysis shows that the Soviets are placing heaviest stress on ground-based weapons, both strategic and tactical. In particular, increases in threats involving ground-to-ground warfare are very high. Threat increases involving exchanges between air and ground are projected to be high. Threat increases associated with other exchanges are noted in the figure. In 1995, we estimate that the threat activity involving the space environment will be one-fifth to one-sixth that of the ground environment, primarily because we believe that weapons will not be developed by that time that will shoot directly from space to ground, sea or air targets. Similarly, we have identified no significant Soviet air-or-sea initiated direct attack threats against space targets that will be in operation by 1995. A space-based laser which would be useful primarily against other space assets may become operational by 1995. Soviet space assets, however, will remain largely in support roles in 1995.

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Relative Increases in Threat (1985-1995)



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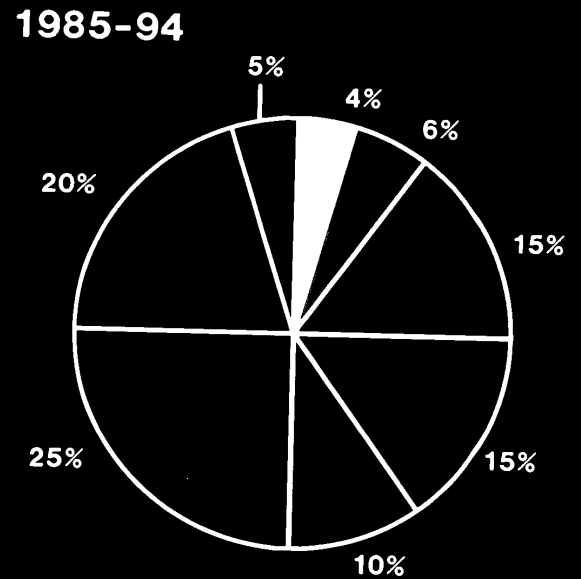
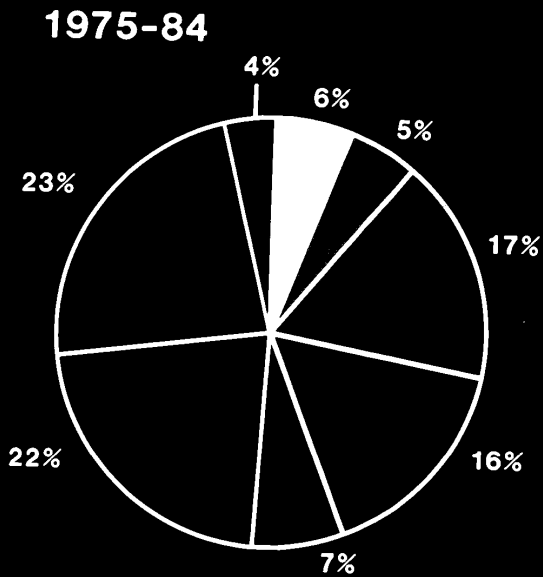
Estimated Allocation of Soviet Procurement
Expenditures by Military Mission

The accompanying chart shows the estimated allocation of Soviet procurement expenses over a typical set of military missions for the past decade and for the future decade. Because force projections are tentative, small percentage differences are not significant. The figure shows that we expect the Soviet long standing concern with a balanced force modernization will continue in the future.

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Estimated Allocation of Soviet Procurement Expenditures by Military Mission



* The Other category includes command and control and general support equipment.

- Other*
- Space
- Strategic Attack
- Strategic Defense
- Ground Forces
- Tactical Airforce
- Navy
- Airlift

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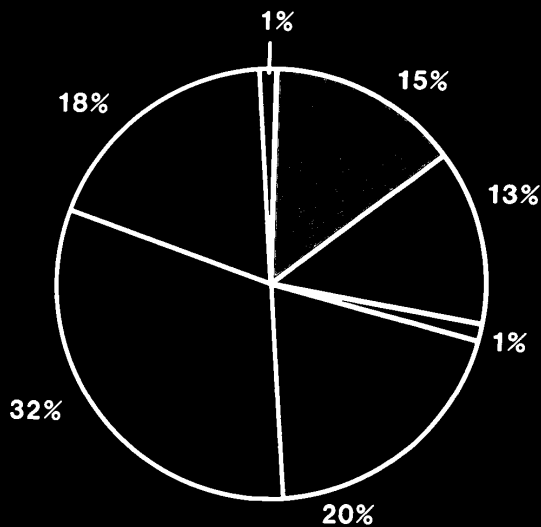
Distribution of Soviet Weapons and Major Support Systems
Projected to Reach IOC, by Major Mission

The accompanying chart shows the distribution by major mission area of Soviet weapons and major support systems that are projected to reach operational status by the end of the 1980s. For comparison, the distribution is given for those systems that became operational in the five years prior to the end of the 1970s. The weapons are counted by number of systems, not by the integrated threat posed by those systems. We estimate that the numbers of ground, naval and space systems will grow, relative to the numbers of tactical air systems by the end of the 1980s and that this trend will continue to 1995.

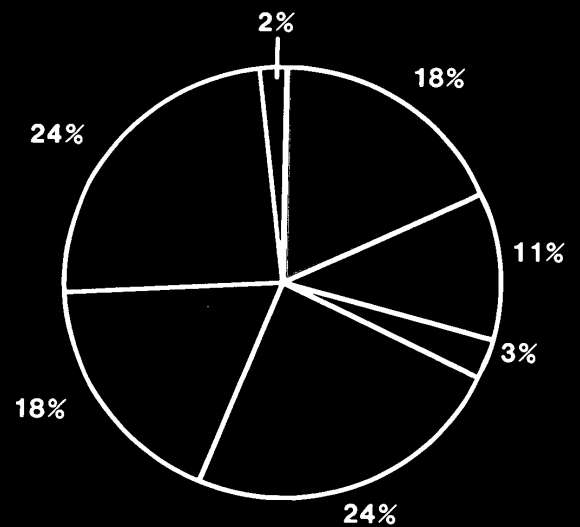
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Distribution of Soviet Weapons and Major Support Systems Projected to Reach IOC by Major Mission

1975-1979



1985-1989



Space
Strategic Attack

Strategic Defense
Ground Forces
Tactical Airforce

Navy
Airlift



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Selected Comparisons of Soviet Order of Battle (1985-1995)

The accompanying table gives a comparison of the numbers of selected weapons systems that are expected to be significant contributors to the Soviet order of battle in the middle 1980s and the middle 1990s. They are grouped by strategic and theater use.

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Some future ICBMs are expected to be mobile and use solid propellants. They will pose a major threat through an increased number of warheads rather than through improvements in booster performance and/or accuracy. These ICBMs, new SLBMs and a new intercontinental bomber will double Soviet potential striking power against targets in North America. Improved versions of the SS-20, a larger bomber force, and the deployment of cruise missiles could enable the Soviets to deliver nearly 4000 weapons to theater targets. The firepower of surface-to-air weapons will increase and Soviet air defense will be augmented by improved AWACS and by interceptor aircraft with lookdown/shootdown capability. Newer tanks, self-propelled artillery and helicopters will continue to be assigned to forces, with the highest priority assigned to units opposite NATO in Western Europe.

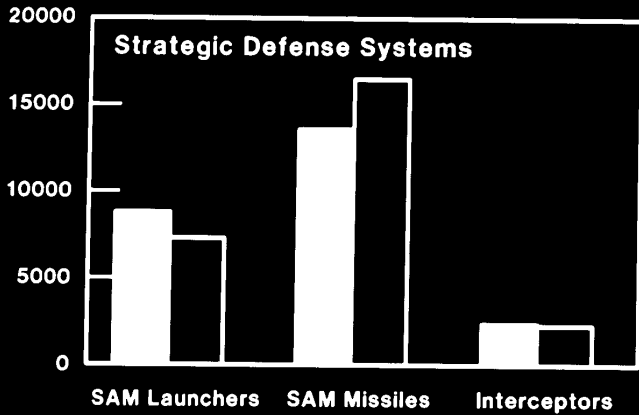
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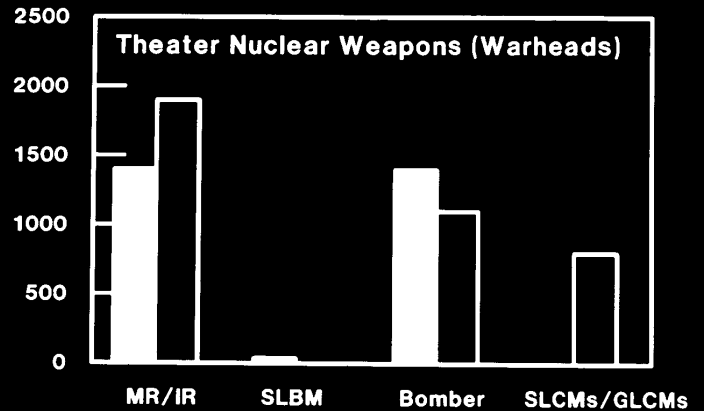
Selected Comparisons of Soviet Order of Battle, 1985 and 1995

■ 1985 ■ 1995

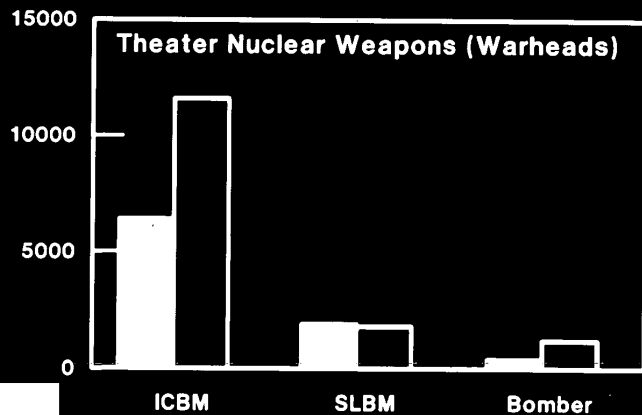
Number of Systems



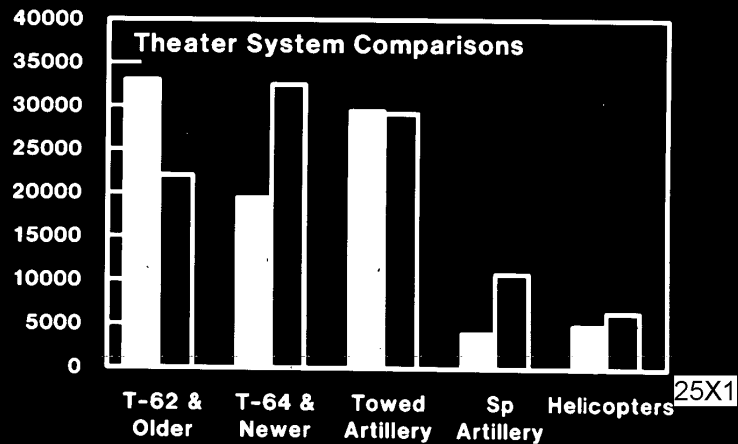
Number of Weapons



Number of Weapons



Number of Systems



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List of Weapons and Key Weapon Support Systems
Considered in this Study and Their Ratings

<u>Weapon/System</u>	<u>Projected Threat Increment</u> <u>No. Times Rated:</u>				<u>Corresponding</u> <u>Incremental</u> <u>Threat Index</u>
	<u>Slight</u>	<u>Moderate</u>	<u>Good</u>	<u>Exceptional</u>	
Long Range Cruise Missile	0	0	0	6	24
Tactical Laser	4	6	3	1	12
GLCM	0	0	0	4	19
ALCM	0	0	0	4	19
High Energy Lasers	1	3	1	2	11
Helicopters	1	3	3	1	10
Warheads	0	5	2	1	10
Tanks	3	1	1	2	10
AWACS	0	1	0	3	12
COMSAT	1	4	3	0	7
Electronic Warfare	6	5	0	0	3
Artillery	2	4	2	0	5
GLONASS Navsat	1	1	4	0	7
EORSAT/RORSAT	5	4	0	0	3
EW/GCI Radar	0	7	0	0	4
Tactical Radars	5	1	1	0	3
Large Space Station	2	3	1	0	3
Drones	1	2	2	0	4
Laser ASAT	0	1	1	1	6
Near-Real-Time Satellites	3	2	1	0	3
Air-to-Air Missile	0	2	0	1	5
Interceptors	0	2	0	1	5
Power Developments	2	2	1	0	3
Short Range Ballistic Missile	0	0	3	0	5

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<u>Weapon/System</u>	<u>Projected Threat Increment</u> <u>No. Times Rated:</u>				<u>Corresponding</u> <u>Incremental</u> <u>Threat Index</u>
	<u>Slight</u>	<u>Moderate</u>	<u>Good</u>	<u>Exceptional</u>	
Orbital ASAT	0	0	3	0	5
CW/BW	3	4	0	0	2
Space Plane	5	1	0	0	1
Battlefield/Tactical C ³	1	4	0	0	2
Strategic C ³	4	0	1	0	2
Submarines	1	1	1	1	6
Surface-to-Air Missiles	0	4	0	0	2
Anti-Submarine Warfare	2	4	0	0	2
Carriers/Cruisers	1	3	0	0	2
Anti-Ship Cruise Missiles	1	3	0	0	2
Sub-Launched Ballistic Missiles	1	3	0	0	2
Long Range Bombers	1	3	0	0	2
Fighters	0	2	1	0	2.5
Anti-Ballistic Missiles	0	2	1	0	2.5
Tactical Air to Surface Missiles	2	2	0	0	1
Space Shuttle	3	1	0	0	1
Naval C ³	3.5	0.5	0	0	0.8
Cargo Plane	0	3	0	0	1.5
IRBM	3	0	0	0	0.5
ICBM	3	0	0	0	0.5
Space Tug	2	0	0	0	0.3
Launch Detection Satellites	3	1	1	0	2.5

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