

Japan and the dissolution of US nuclear hegemony in Northeast Asia

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Outline

- Nuclear hegemony in East Asia
- Regional nuclear deterrence
- Missile defence and its implications for deterrence
- US alternatives to nuclear deterrence
- The indigenous nuclear alternatives
 - Japan
 - South Korea
 - Taiwan

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Nuclear hegemony and East Asian deterrence

Nuclear hegemony

- “an international political-military system in which nuclear weapons and strategy play a central role in the **military power, institutions, and ideologies** that underlie that order”
 - Peter Hayes, “American Nuclear Hegemony in the Pacific”, *Journal of Peace Research*, December 1988, volume 25, no 4
 - hegemony/consent (elite/popular) vs. coercion
 - counter-hegemony (elite/popular)
 - corrosion, decay, dissolution
 - maintenance procedures

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Status of World Nuclear Forces 2011*					
Country	Operational Strategic	Operational Nonstrategic	Reserve	Military Stockpile	Total Inventory
Russia	1,800 ^a	0 ^b	6,200 ^c	8,000	11,000 ^d
United States	1,950	200 ^e	2,850 ^f	5,000	8,500 ^g
France	290	n.a.	~ ^h	~300	~300 ^h
China	0 ⁱ	~ ^j	~180	240	240 ^j
United Kingdom	180 ^j	n.a.	65	225	225 ^j
Israel	0	n.a.	80	80	80 ^k
Pakistan	0	n.a.	90-110	90-110	90-110 ^l
India	0	n.a.	80-100	80-100	80-100 ^m
North Korea	0	n.a.	<10	<10	<10 ⁿ
Total:^o	~4,200	~200	~9,500	14,000	~22,600

Source: Federation of American Scientists, Status of World Nuclear Forces, <http://www.fas.org/programs/ssp/nuclear/deterrence/2011/status.html>

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Contemporary forms of nuclear deterrence: bilateral direct deterrence

- **US-Russia**
- **US-China**
- **US-North Korea**
- **North Korea - South Korea, Japan, China**
- US-Iran
- **China-Russia**
- India-Pakistan
- Israel-Iran,

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Extended nuclear deterrence; *defenders, antagonists and protégés*

- **US-Russia**
 - protégés: NATO countries (historically China re SU?)
- **US-China**
 - protégés: Japan, Korea, Taiwan, Australia
- **US-North Korea**
 - protégés: Japan, Korea, Taiwan, Australia
- US-Iran
 - Middle Eastern allies - Israel; selected others?

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Putative roles of US deterrence today

- Deterrence
- Compellence - defeat in war
- Assurance of allies
- Disarmament / non-proliferation

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Dimensions of the organization of the US contemporary nuclear umbrella

- the range of threats against which nuclear protection is offered
- the location and type of forces involved in substantiating the threat
- the physical location of the nominal antagonist nuclear weapons state in relation to the allied recipient country
- the level and type of engagement of the allied recipient country in the provision of the deterrent
- the involvement of the allied recipient country with other allied nuclear weapons states besides the nuclear guarantor

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Japan and extended nuclear deterrence

- “Against the threat of nuclear weapons, rely on the U.S. nuclear deterrent, while working actively on international efforts for realistic and steady nuclear disarmament aiming at a world free from the nuclear weapons.”
National Defense Program Outline in and after FY 1996, Ministry of Foreign Affairs, December, 1995

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North Korea

Functions of US END in Northeast Asia - Patrick Morgan

- Protecting ROK from war, via deterrence
- Compensating ROK for not developing nuclear weapons and huge conventional offensive capability
- Offsetting DPRK's (past) superiority in conventional forces
- Offsetting the DPRK nuclear weapons program
- Helping to reassure Japan US will not "lose" South Korea and threaten its security
- Re-assuring Japan that US would not retreat from NE Asia
- Adding to deterrence of attacks on Japan
 - Partly compensating Japan for not developing nuclear weapons - and hence avoid domestic conflict
- Discouraging development of nuclear weapons by Japan, supplementing US umbrella over Japan
- Adding to American power projection capability in the region; helping secure US access to bases in Korea

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North Korea

- Production facilities
 - Yongbyon 5-megawatt graphite-moderated research reactor
 - Spent nuclear fuel reprocessing facility >> Pu
 - Uranium enrichment facilities elsewhere?
- Nuclear tests
 - October 2006
 - May 2009
- Nuclear weapons estimates
- Delivery capacities
- Purpose of nuclear weapon

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Source: Space Imaging Inc/CNPS, Monterey

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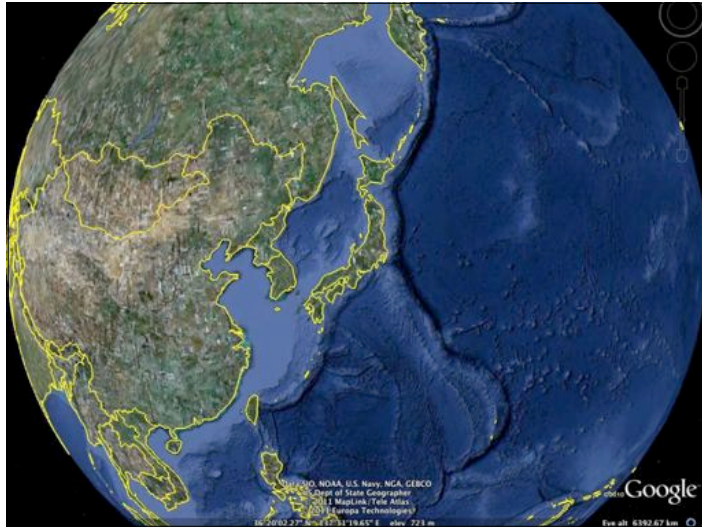
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Japanese security

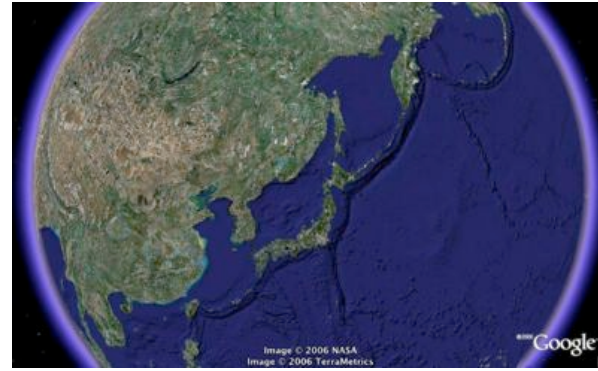


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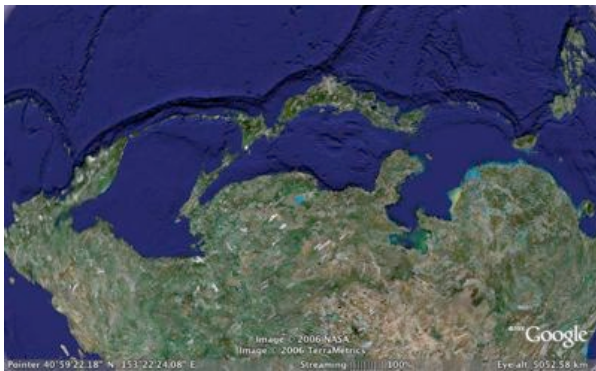
Japan-centred hemisphere



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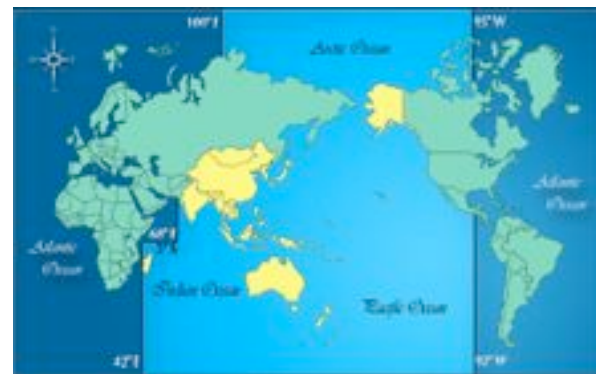
The view from China, Russia and Korea



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Pacific Command - Area of Operation





Japanese security today: Heisei militarisation - problem or solution?

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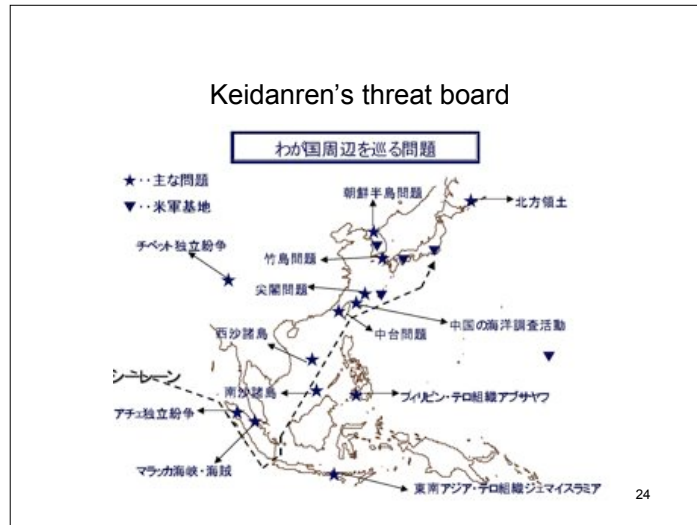
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Japanese security - old tensions

- Russia - Northern Territories
- The weight of history
 - Russia
 - China
 - the Koreans
- the benefits and costs of the US alliance
- Part of “Asia” or part of “the West” -

Japanese security tensions - new stories

- “Global responsibilities”
 - Whose version?
 - Overseas deployments
- North Korea - again
- South Korea
- Taiwan
- mega-terrorism
- sea-lanes and Southeast Asia
- oil and gas - China and Russia
- the rise of China per se
- US extended nuclear deterrence



New security thinking

- The past:
 - Yoshida doctrine
 - the culture of Article 9
 - defensive defence
 - comprehensive defence
 - the culture of Article 9
- The future:
 - Proportional (to threats) defence
 - "Great power realism"
 - The new nationalism
 - When are US interests different from Japanese interests, and what should be done when they are?

Heisei militarization

- Heisei = reign name of the current emperor Akihito, 1989
- "Heisei," because the period in question begins just before the end of the Cold War
- "militarization" because the dominant characteristics of the security policies from that time onwards are an ever-increasing stress on military conceptions of security at the expense of previously well-developed complementary conceptions of security.

Heisei militarization:

- marks great changes in Japanese security policy
- carry ongoing and profound implications for relations with other countries
- subject of deep division domestically
- flows from two interdependent sources:
- US pressure to integrate Japan militarily as an active supporter
- shifts in Japanese elite perception of security threats and needs
- Problematic for the new Hatoyama government

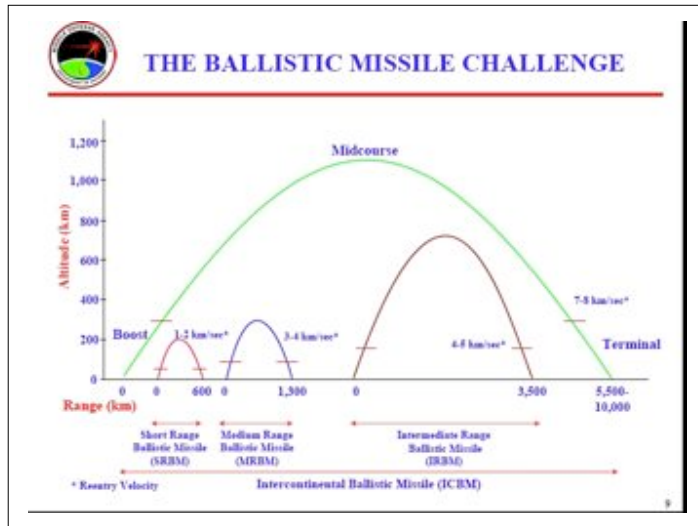
What is new: Heisei militarization

- hollowing-out Article 9
- shift from “defensive defense” to “threat-based defence”
- upgrading and expanding military forces
- willingness to rely on military solutions
- legitimization of use of military force abroad
- closer operational integration with US forces
- growing possibility of weapons of mass destruction

National Defence Program Outline 2004

- From the premise of existing defence policy
 - = “basic defence capacity:
 - to “proportional or “threat-based” policy (Jimbo Ken)
- addressing issues of regional threats, terrorism and WMD
 - introducing a ballistic missile defence system
 - cutting defence costs
 - making international operations one of the core activities for the Self-Defence Forces
 - intelligence
 - special forces
- 2011 NDPO under Kan cabinet

Ballistic missile defence



BOOST PHASE CONCEPTS

Airborne Laser (ABL)

Target IIR **ABL Equipment Capabilities**

- Laser Beam On-Target
- Laser Beam On-Target
- Laser Beam On-Target
- Laser Beam On-Target

Challenge: Time Available For Laser IIR Targeting And Disruption

Objective

- Aircraft Deployed Near Launch Point
- Engage Target Early Over Enemy Territory
- Provide Accurate Launch Points For Attack

Challenges:

- Pointing / Tracking
- Atmospheric Disturbances / Attenuation

KE Concepts

Objective

- Develop Basic Components Suitable For Applications (High Acceleration, High-Velocity Boosters; Suitable Sensors; BM-C)

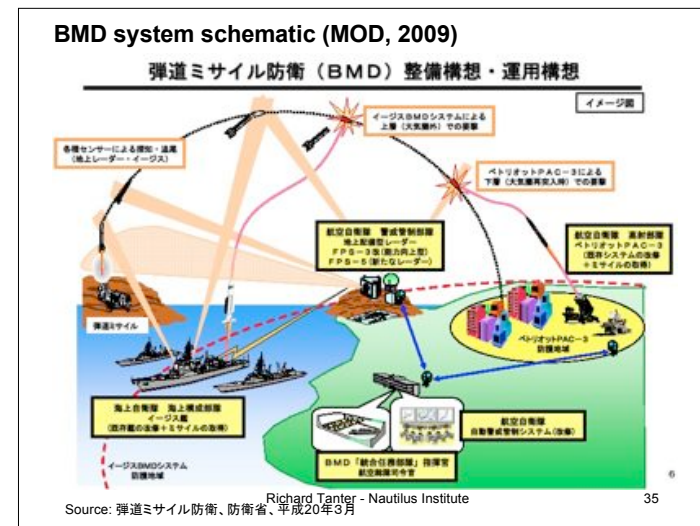
Description

- Incremental Phenomenology Collection And Analysis

Challenges:

- Phenomenology Collection
- Flame-to-Starbody Handover
- Guidance And Control Agility

- ### Japanese missile defence
- deployment 2007-2011
 - lower-tier = ASDF high altitude air defence units equipped with Patriot Advanced Capability-3 (PAC-3) missiles
 - upper-tier = MSDF Aegis equipped destroyers with Standard-3 missiles to attack enemy missiles in the outer atmosphere
 - Integration with real-time US Defence Support Program (DSP) infra-red launch detection satellite system (JTAGS deployment, Misawa)
 - Upgrading of ASDF JADGE system:
 - ground-based radar warning and control (FPS-3, FPS-4/4A, FPS-5 radar)
 - ASDF signals intelligence (FLR-4)
 - system connection of 4 BMD Aegis Ships, 16 FU PAC-3, 4 FPS-5, 7 upgraded FPS-3 by FY 11
 - Deployment of US transportable X-band radar system (Shariki)
 - Japan-US air defence and ballistic missile command integration (Yokota AB)
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ASDF J/FPS-5 radar - Shimokoshiki

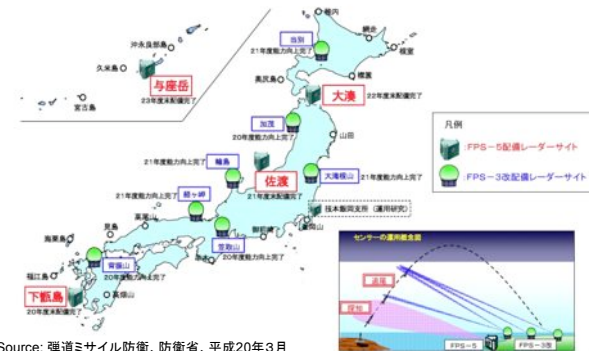


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ASDF warning and control radars (MOD, 2009)

航空警戒管制部隊（レーダーサイト）の配置



Source: 弾道ミサイル防衛、防衛省、平成20年3月

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Southwest defence sector upgrades



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Political implications of Japanese missile defence technology

- Real or perceived threat to Chinese deterrence capabilities
- Long-term embedded conflict with China
- Reliance on US DSP satellite cueing = inseparable from US missile defence planning
- Implications for autonomy of Japanese decision making
- Conflict with constitutional ban on collective defence
- Conflict with partial ban on export of weapons
- Carving the pie: domestic producers vs US imports

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Nuclear armed Japan: prospects and pathways

Outline

1. Worse than any others?
2. How to assess evidence and disposition
3. Latent capacity: what would be needed and what is already in place?
4. Intention and motivation: will Japan go nuclear and why would they?
5. External pressures to proliferate
6. Dissuading and constraining factors
7. Pathways and state of play

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History and present position

- WW2 bomb efforts
- effects of Hiroshima, Nagasaki and Bikini
- US nuclear weapons
 - Deployment, accidents, withdrawal
- Three non-nuclear principles:
 - no possession, no manufacture, no transit
- Double meaning of “nuclear allergy”
 - Horror to return and culture of Article 9
 - Takahata anime: Graveyard of the Fireflies
 - Symbolic pollution of *hibakusha* and descendants

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1. Would Japanese nuclear weapons be worse than any other nuclear weapons?

Two separate types of answer:

- Morally, of course not. Other answers based on widespread prejudice about Japan today.
 - Nuclear weapon use is inherently genocidal
- Analytically, yes, because:
 - Japanese weapon would be so much more technically advanced
 - NEA region so dangerous: follow-on proliferation
 - Post Cold War global nuclear system (n= 9 +?) much more unstable than Cold War system (n=2 or 3).

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2. How to assess evidence and disposition

- How do you know about and assess proliferation propensity?
- Who does this?
- Primary watchers: IAEA and US intelligence, but also Chinese and Korean intelligence
- IAEA: Division of Safeguards Information Technology (SGIT)
- civil society: think tanks, ngos etc.:

Nautilus: Civil Society Nuclear Monitoring and Verification Project - Japan and South Korea

1. Latent capacity to go nuclear in technical terms.
2. Intentions of leadership and balance of aligned coalitions of pro-nuclear weapons interests and anti-nuclear weapons interests.
3. External pressures to proliferate such as proximate threat, proximate proliferation, withdrawal of extended nuclear deterrence, either explicit or imputed.
4. Dissuading and constraining factors such as legal systems and treaty commitments, international regimes and organizations.

How does the IAEA do it? Additional Safeguards protocol assessment

Methodology (1)

- **Compare declared information to all other information available to the Agency**
 - Inspection and CA activities
 - Environmental sampling
 - DIQs/Design verification
 - **Open sources**
 - **Satellite imagery**
 - **Nuclear material accounting**
- **This presentation focuses on the last 3 sources, which are provided by SGIT**

Methodology (2)

- **What do we look for when comparing the declarations to other information sources?**
 - Look for omissions
 - Look for inconsistencies within the declaration
 - Look for inconsistencies with other information sources
 - Formulate requests for amplification/clarification and possibly for Complementary Access
- **Factors to consider in conducting the evaluation**
 - Fuel cycle complexity
 - Nuclear and industrial infrastructure
 - Open source claims and allegations
 - Availability of information

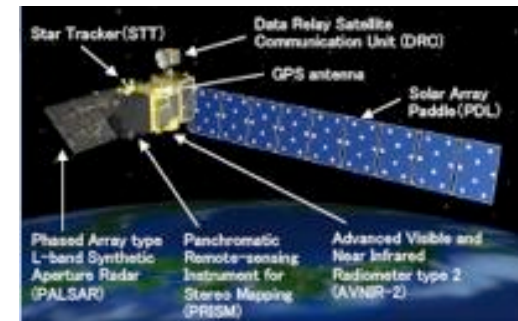
Latent capacity: what would be needed and what is already in place?

- Technical means:
 - Weapon
 - Targeting capacity
 - Delivery system
- In place already:
 - Targeting capacity
 - Military grade surveillance satellites
 - Delivery system
 - H-IIA liquid-fueled rockets
 - Fighter-bombers and aerial refuelling capacity

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Surveillance capacity: Advanced Land Observing Satellite (ALOS) as paradigm of military satellite capacities



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H-IIA Launch Vehicle

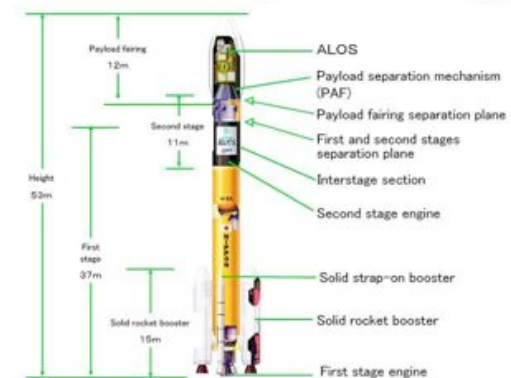
- ★ Liquid oxygen and hydrogen are used as propellant for both the first and second stages.
- ★ Based on technology acquired by the development of the H-II, high reliability is maintained while cost reduction was achieved and the H-IIA family was formed with variations by attaching solid rocket boosters and solid strap-on boosters onto the standard H-IIA.
- ★ Various launch needs can be met by choosing an appropriate type of payload fairing and payload attach fitting (PAF) according to the number and size of (a) satellite(s).
- ★ Since its maiden flight in Aug. 2001, JAXA has successfully launched five H-IIA launch vehicles. However, in Nov. 2003, the sixth flight failed. In Feb. 2005, the H-IIA F7, the return-to-flight mission, was successfully launched.



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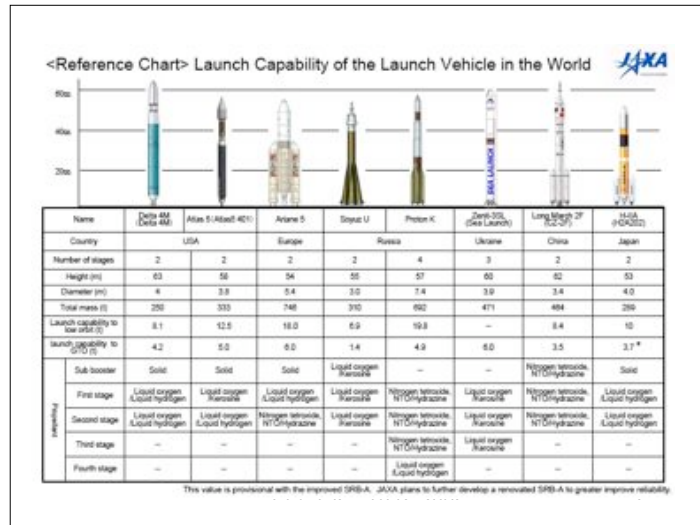
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H-IIA F8 Configuration



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Weapons capacity

- Core issues (1): the plutonium mountain:
 - 37 tonnes of reactor grade Pu stored in France and Britain, due to return soon.
 - 4,000 tonnes stored domestically
 - Rokkasho nuclear reprocessing plant about to come on line, will produce 8 tonnes of reactor-grade Pu a year
 - Failure of breeder reactor programme and no movement on MOX reactor development means the Pu mountain cannot be consumed by energy production.

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Table 2.6. Japan's stockpile of separated plutonium as of the end of December 2004 (2003)²⁸ [kilograms]

I. Separated Plutonium in Japan			
Reprocessing Plant	20C Tokai plant reprocessing plant	Plutonium nitrate, etc. ^a	582 (418)
	Subtotal	Plutonium oxide ^b	271 (218)
		Pu fission in total	
Fuel Fabrication Plant	20C Plutonium Fabrication Plant	Plutonium oxide	589 (414)
	Subtotal	Plutonium in the stage of test or fabrication	2,422 (2,465)
		In new fuel	
Power Plants, etc.	Joyo	Pu fission in total	451 (311)
	Mugen		1,362 (1,318)
	Fugen		2,499 (2,488)
Commercial	Commercial	In unirradiated fuel at the plants	85 (78)
	Subtotal		387 (347)
Total	Plutonium fission in total		417 (315)
			445 (345)
		Pu fission in total	1,311 (1,244)
		936 (918)	
		5,710 (5,475)	
		4,043 (3,889)	
II. Separated Plutonium in Foreign Storage ^a			
At U.K. reprocessing plant			17,897 (13,614)
At France's reprocessing plant			21,503 (17,154)
Total			39,400 (30,768)
	Plutonium fission in total		73,385 (51,856)
III. Separated Plutonium in Japan Pending Sale			
Supply	Plutonium oxide imported from the 20C reprocessing plant		171 (167)
	Plutonium oxide transferred from overseas		0 (0)
Usage ^a	Mugen, Joyo, Fugen etc.		130 (270)

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Status of Plutonium-fueled reactors

Source: Suzuki and Katsuta, Nautilus

Table 2.7. Status of JAEA's plutonium-fueled reactors (as of the end of May 2006)

Type	Fugen	Joyo	Mojira
	Advanced Thermal Reactor (ATR) Prototype	Experimental Fast Reactor	Prototype Fast Breeder Reactor (FBR)
Output (MWt/MWe)	557/165	140/-	710/280
Criticality Year	1978	1977	1994
Cumulative Plutonium Use (kg)	1845	85 ^a	367 ^b
Current Status	Closed Down(2005)	Operating	Stopped since 1995

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Rokkasho spent fuel reprocessing plant



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Japanese plutonium-mixed uranium oxide fuel container reloaded onto *Pacific Pintail* after admission by BFL of falsified quality control, June 2002



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Core issue 2: what kind of Japanese bomb is possible, when?

- Most advanced inertial confinement fusion program
 - Simulation and research possibilities on thermonuclear weapons
 - Make possible use of fusion materials (deuterium, tritium etc) in place of fission materials
- Debate over use of use of reactor-grade Pu rather than weapons grade (level of pollution by undesired isotopes of Pu.)
 - Clear now that reactor grade Pu can be used for weapons purposes.

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What bomb, how long to build?

- Japan will enter the nuclear club at a much higher level than other entrants
 - Tritium-boosted advanced thermonuclear weapons
- How long?
 - Usual answer = 4-8 months
 - Depends on amount of pre-planning and acquisition of equipment (dual use problem)
 - How much lead time is given bureaucratically and technically
 - How much interference from the outside

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Intention and motivation: will Japan go nuclear and why would they?

- Intention and motivation different
- Great difficulties in assessing real character of intent from outside
- Intentions of leadership
- Balance of aligned coalitions of pro- and anti-nuclear state interests

- Great shift in past ten years: nuclear weapons advocacy has shifted from “unspeakable” to “speakable” : now a mainstream debate
 - Government position
 - “slips of the tongue”
 - PM Abe administration positions
 - PM Fukuda comments
- Interpretation of interests within Heisei militarisation
- Shifts in public opinion: Article 9 culture still deeply opposed, but weakening ...

External pressures to proliferate

- Three kinds:
 - Threats
 - North Korea:
 - But note Japan did not move after the NK nuclear test (fizzle)
 - China: the serious one
 - Loss of assurance of protection of US extended nuclear deterrence
 - This is the central issue
 - Possible US encouragement or tolerance:
 - Nuclear armed ally: cf UK.

Japan and extended nuclear deterrence

- “Against the threat of nuclear weapons, rely on the U.S. nuclear deterrent, while working actively on international efforts for realistic and steady nuclear disarmament aiming at a world free from the nuclear weapons.”
National Defense Program Outline in and after FY 1996, Ministry of Foreign Affairs, December, 1995

Dissuading and constraining factors

- NPT
 - Japan would have to bolt the NPT
- Public opinion
 - Shifting
 - But compare to South Korea
- Regional countries' responses
 - China's greatest fear
 - South Korean welcome?
- Assessments of utility or inutility of nuclear weapons

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Pathways and state of play

- Pathways:
 - The Gaullist option: Japan becomes autonomous from US
 - The British model: loyal ally with its own nuclear weapons with US encouragement or acceptance
- State of play:
 - Not alarmist, but probably much more happening than thought.
 - Likelihood still uncertain, but has risen sharply and is still rising.

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The end of East Asian nuclear hegemony?

- “an international political-military system in which nuclear weapons and strategy play a central role in the **military power, institutions, and ideologies** that underlie that order”
 - Peter Hayes, “American Nuclear Hegemony in the Pacific”, *Journal of Peace Research*, December 1988, volume 25, no 4
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 - corrosion, decay, dissolution
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