Israel and a Nuclear Iran:

Admiralty Trilogy Seminar
Presented by:
Clash of Arms Games
Outline

◆ Iran’s Nuclear Program
  – Timeline
  – Why?
  – A Threat?

◆ Responses

◆ Israel’s Military Option
  – Getting There
  – A “Deal” Deal

◆ Israel’s Forces

◆ Iran’s Defenses
  – Organization
  – Sensors
  – Fighters
  – SAMs & AAA

◆ Targets in Iran
  – Nuclear Targets
  – Oil Targets

◆ Iran’s Responses
  – Military
  – Asymmetric

◆ Fallout (Consequences)
  – Military
  – Economic
  – Diplomatic

◆ Who Will Win?
  – Israel
  – Iran
  – The rest of us

◆ Persian Incursion
Iran’s Nuclear Program

Timeline:

- 1957: Started under the Shah, part of US-sponsored “Atoms for Peace”
- 1968: Iran signs NPT, Ratifies in 1970
- 1970s: Expansion with US, French, Belgian, Spanish, German, South Africa help
- 1979: Islamic Revolution - all deals canceled
  - Ayatollah Khomeni declares nuclear weapons un-Islamic
- 1980: Start of Iran-Iraq war, lasting until 1988
  - Bushehr reactor heavily damaged by Iraqi attacks
- 1981-93: Iran conducts bench scale research into uranium compounds including uranium dioxide and uranium hexafluoride
- 1988-95: Iran conducts centrifuge R&D at the Tehran Nuclear Research Center
- 1990: Iran signs 10-year cooperation agreement with China
- 1994-96: Iran receives shipments of centrifuge components and drawings for P-1 centrifuges and drawings for P-2 centrifuges from Pakistan
- 1997: Russia begin construction of a VVER-1000 power reactor at Bushehr
- 2000 - 2001: Iran begins construction of Natanz enrichment facility, Arak heavy water plant, and Gachin mine and ore processing mill
- 2002: Confirmation of nuclear facilities at Natanz and Arak
- 2003: Iran begins uranium enrichment tests at Natanz
Iran’s Nuclear Program

◆ Timeline:
- 2003: IAEA gets suspicious, investigates
- 2004: Iran begins constructing a heavy water reactor at Arak
- 2004: IAEA publishes report of Iran’s breaches of the NPT
- 2005: IAEA Board of Governors, rules Iran to be in non-compliance
- 2006: Arak heavy water facility is completed, two production lines
- 2006: First 164-machine cascade comes on line at Natanz Pilot Plant
- Late 2007: Eighteen cascades in operation, achieve an enrichment level of 3.6%
- 2009: Fuel Manufacturing Plant completed
- 2009: Natanz has 8,692 centrifuges installed in underground halls (53 cascades)

◆ Significant foreign assistance
- Pakistan - A.Q. Khan network provides centrifuge components and plans
- China - UF6, plans for uranium conversion facility, zirconium production plant
- North Korea - ballistic missile technology
- Russia - Pressurized (light) water power reactors
Iran’s recent history (19th and 20th centuries) is one of foreign domination
- Russia, Britain, US; including coups engineered by GB and the US

The Revolutionary government still sees itself in confrontation with US

Militarily inferior compared to any likely opponent - and they know it

Poor industrial and technological base, especially after the damage of Iran-Iraq War

Horrendous losses in Iran-Iraq War, including many casualties from Iraqi chemical weapons

They want to exercise leadership of the Muslim world

Admission to exclusive “nuclear club” – RESPECT

Balance to Israel’s nuclear weapons
A nuclear Iran could:
- Keep a bomb in place as a symbol of national power
- Engage in nuclear blackmail
- Give it to a terrorist group
- Arm a ballistic missile
  - Saudi Arabia, most GCC, Israel, & Turkey are currently in range
  - Possibly all of Europe if reports of BM-25 Musadan IRBMs are true

Intentions?
- Little talk of deterrence
- Pasdaran control both the ballistic missile forces and the nuclear program
- They will almost certainly be given control of any weapons
- Ahmadinejad speaks of “Destroying the State of Israel”
  - Nobody in the religious leadership contradicts him
- State philosophy is geared toward confrontation
- Not necessarily afraid of nuclear retaliation
  - Twelver Shia Islam has strong apocalyptic streak

“Nuclear diffusion”
Diplomatic initiatives: Nobody wants Iran to have nuclear weapons except Iran. Why is it so hard to stop them?

Diplomatic pressure turns into economic considerations

- Oil and gas buys Iran a lot of clout
- Until recently, Russia and China blocked any serious economic sanctions
  - Spotty coverage, easily bypassed, sometimes ignored
  - Russia now supports sanctions, changed mind shortly after Obama admin changed plans to base BMD-capable radars & missiles in Poland, Czech Republic
  - China continues to stall, seeming to agree to UN resolutions, but always encouraging more discussions
- Why?
  - Iranian Oil - 15% of China’s oil imports; significant investment in NG fields
  - Distraction and embarrassment of the West

Potential for Change?

- None
Military Options:

- Economic blockade of Iran - might be effective, if UN supported it (see China above), but technically is an act of war
  - Iran would retaliate
- Military attack on Iran
  - Compel them to discontinue
  - Destroy their capability
  - NOT regime change
Israel’s Military Option

◆ Israel expects to go it alone
  – Strong history of acting unilaterally, then riding out world response
  – Barring extreme provocation, US will not act militarily against Iran
  – Europe, Asia, the Gulf Nations will not act
    ● Their interests are not threatened - yet

◆ Israel’s ballistic missiles are not an option
  – Conventional warheads don’t pack enough punch, aren’t accurate enough, and there aren’t enough of them

◆ Conventional air attacks with PGMs

◆ Advantages:
  – Israel has the best air force in the region
  – Iran’s air defenses are weak at best
  – Targets are away from civilian areas

◆ Disadvantages:
  – Requires overflight of other countries to reach Iran
  – Captured pilots would be valuable pawns for Iran
  – Any attack, even if successful, allows Iran to play the victim
Getting there is much more than half the problem

Three Routes - North, Central, South
  - Over fly Turkey, Iraq, Saudi Arabia
  - Avoid Syria and Jordan as much as possible

Not just transiting air strikes - tankers, recce aircraft, CSAR

Israel has to make a deal
All three nations - Turkey, Iraq, Saudi Arabia have a lot in common
- Muslim populations - not inclined to cut Israel any slack
- Opposed to Iran acquiring nuclear weapons
- Shaky leaderships opposed to Iran exporting its revolutionary ideology

Israel does not have to convince the population, just the leadership; then let the leadership deal with the population

Bribes are an option - Israel could:
- Abandon its nuclear program
- Major concessions on Palestinian issue
- Share defense technology
- Share really good intelligence - hard evidence of Iran’s nuclear program

Without support of one of three countries, the campaign can’t happen; A one-time overflight, but not extended operations

Israel has to really, really want to do this, which means compelling evidence of a threat - a last resort
- They have to see whatever price they pay as worth it
Israel’s Forces

- One squadron of F-15I Ra’am, four squadrons of F-16I Soufa
  - F-15I: 69th at Hatzerim
  - F-16I: 107th at Hatzerim, 119th, 201st, 253rd at Ramon
  - 24 planes per squadron
  - First-line EW and avionics
  - Conformal tanks on both types
  - AIM-120C-5, Python 5 AAMs
  - Range of PGMs, including EGBU-28, JDAM series, HARM, STAR-1
  - 5 other squadrons of F-16C/D, 3 of F-15A/B/C/D, they can’t reach

- Tanker fleet of 8 KC-707 Sankyee in 120th Squadron at Nevatim
  - Similar to KC-135, but without turbofan retrofit

- Gulfstream V Shavit SEMA in 122nd Squadron at Nevatim
  - “Special Electronics Mission Aircraft”
  - SIGINT, ELINT, Communications for a command staff, and Suter attacks

- IAI Eitan (Heron TP MALE UAV) in 200th Squadron at Palmachim
  - Variable payloads, including SIGINT, EO/IR sensors, SAR, EW
Separate air defense service “Khatam-ol-Anbia Air Defence Headquarters.” formed in 2009

- NOT an IADS - data is transmitted from sensors via voice or commercial data link

- Sector Operating Centers send everything to national level center in Tehran, retransmitted to other SOCs

- Poor coordination between sectors
Air Defense Sensors

◆ Radar: A mix of land-based systems dating back to the 1950s (US and UK) plus Soviet and Chinese systems
  - Newest is the JY-14 [Great Wall] 1970s technology
  - Also Kolchuga passive electronic DF sensor
  - Not enough to cover entire border, even against non-stealthy aircraft
  - Mountainous terrain, especially in the north

◆ Need AEW aircraft, but can’t buy or build them
  - Iraq Adnan-1 never operational, lost in collision
Iranian Fighter Strength

- 28 MiG-29 Fulcrums in two squadrons: 11th, 23rd
  - R-27R [AA-10 Alamo], R-73 [AA-11 Archer]

- 36 F-14A Tomcats in three squadrons: 81st, 82nd, 83rd
  - Detachments at TAB 1, TAB 2, TAB 6
  - AIM-54A Phoenix (?), AIM-7E-4 Sparrow, AIM-9P/Fatter

- 11/48 F-4D/E Phantom II in seven squadrons: 32nd, 33rd, 61st, 62nd, 91st, 92nd, 101st
  - AIM-7E-2, AIM-9P/Fatter

- 58 F-5E/F Freedom Fighter in seven squadrons: 12th, 21st, 22nd, 41st, 42nd, 43rd, 71st
  - AIM-9P/Fatter
  - Also 10 F-5A/B in 85th squadron

- 40 F-7M/FT-7N Airguard in three squadrons: 51st, 52nd, 53rd - IRGC
  - PL-7 (R.550 Magic Clone)
Iranian Surface-to-Air Missiles

- **Long-Range:** S-200VE Vega-E [SA-5b Gammon]
  - Five sites: Three guarding Tehran, one each at Isfhan and Bushehr
  - Negotiating since before 2005 for S-300 purchase, Russians have stalled, just halted the sale - Chinese HQ-9 as an alternative?

- **Medium Range:** I-Hawk, Kub-M3 [SA-6 Gainful], HQ-2 [PRC SA-2 Guideline]

- **Short Range:** Tor-M1

- **Crappy Short-Range:** Rapier, HQ-7/7A (FM-89/90 = Crotale clone), Tigercat

- **MANPADS:** RBS 70, Russian-built systems, PRC copies of Russian missiles
Most nuclear sites defended by a mix of 23mm and 35mm AAA - optically aimed; Backed up by a few Skyguard 35mm batteries

- New automated KS-19s 100 mm starting to show up
Isfahan UCF and FMP
Isfahan Zirconium Production Plant
Arak Heavy Water Reactor

- IR-40 Reactor
- Containment Bldg
- Reserve Coolant & Pumping Station
- Secondary Cooling System & Pumping Station
- Spent Fuel Cooling Ponds & Ventilation Stack
- Possible Secondary Loop Support Bldg
- Possible Hot Cells & Radioisotope Production Bldgs
- IR-40 Reactor Containment Bldg

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Arak Heavy Water Plant

- Girdler Sulfide Unit (Unit 3)
- Feed water Handling & Purification Unit
- H2S Removal Unit and Flare Tower
- Distillation Plant (Prob Unit 5)
- H2S Removal Unit and Flare Tower
- Girdler Sulfide Unit (Unit 4)
- Fuel Tanks
- Possible Electrical Power Plant
- Admin Building
- Radio Tower
- Feed water Reservoirs
- Probable H2S Production Plant (Unit 2)
- Cooling Unit
- Disillation Plant (Prob Unit 5)
Iran’s Oil Economy

◆ A Possible Target for Israelis?
◆ Only major export, supports both domestic economy and foreign sales
◆ Vital for domestic policy
  – Gas prices are subsidized
◆ Vital for foreign policy
  – China’s support is based on oil
  – Oil buys nuclear technology
◆ Major vulnerabilities
  – Still imports gasoline
  – Refineries are undefended
◆ Still rebuilding after Iran-Iraq War
  – Abadan peaked at 630Kbbls before the war, now up to 350 - 400Kbbls
  – 25% of production concentrated at Abadan
Iran’s Oil Economy

◆ Risks
  – Indirect attack - hard to justify as self-defense
  – Probably increase oil prices (even more)
  – Hardships for Iranian population

◆ Advantages
  – May cut off foreign support for Iran
  – If Iran closes the Strait, this option becomes more viable
  – Other oil-producing states would not object to raised prices
  – Long term impact on Iran’s economy
    ● They still haven’t fully recovered from the damage done during the war

◆ Oil export terminals
  – Huge overcapacity
    ● Can pump far more oil than they can produce
    ● Kharg Island - largest facility
◆ Six oil export terminals ≈9.2 million BBLs/day capacity
  – Kharg Island capacity ≈5.0 million BBLs/day
  – Nominal Iran crude oil production capacity is ≈2.6 million BBLs/day
Military?
  - Su-24s?
  - Ballistic missile forces are the only arm that can strike directly at Israel
    - Terror weapon
    - Israel has significant BMD

Closing the Hormuz Straits
  - Tried this once before; didn’t work

Hamas, Hizbollah
  - 2006 conflict showed it can work

IRGC, Qods force

Diplomatic offensive
Controlled by the Pasdaran

Experience in Iran-Iraq war, developed into a major arm

Organized in brigades, with several battalions in each brigade
  - 5th Ra’ad Shahab-3
  - 7th Al-Hadid Shahab-1/2, Tondar-68 [M11]
  - 19th Zolfaqar Fateh-110A
  - 23rd Towhid Tondar-69 [CSS-8]

Poor accuracy

Little chance for Israeli actions against launchers or magazines
  - Flaming TELs make great video, but:
  - Hard to find in transit - signature of semi-tractor trailer
  - Best detectable is launch signature
  - Desert Storm, only 20% of 41 detections turned into 8 kills

Best bet would be Eitan MALEs operating in hunter-killer teams

Major Iranian disadvantage: Israeli Arrow-2 and Patriot PAC-3 batteries
Khorramabad Ballistic Missile Complex
Military Option #2 - Closing the Strait

- This is a defensive move, the action of a weaker power
- Tried by IRIN and Pasdaran with MGs, RPGs & mines in Iran-Iraq War
- Did not go well for the Iranians before
  - Iran Ajr
  - Operation Praying Mantis
- “This time, we’ll do better”
  - Small craft armed with C701s & torpedoes
  - Many C802 batteries
  - F-7s and Su-25s
- Really hard to sink a supertanker, but they don’t have to
- US and UK says this would be an act of war
- Possibly a limited US response, but still widens the war
Asymmetric Responses

- **Energizes an already angry radical Islamist movement**
  - Closer alliance with Al Qaeda?
- **Use of proxies to directly attack Israel**
  - Hamas
  - Hizbollah
- **Information operations and diplomatic blitz**
  - Target the leaders who granted Israel overflight approval
  - Maximize use of collateral damage
    - Even if they have to create it themselves
- **Marginalize the US by “demonstrating” its complicity with Israel**
- **“If everyone loses, then we win”**
Fallout (Consequences)

◆ Economic
  – Oil prices will go up, even if Iran doesn’t close the Strait of Hormuz
  – If Iran does try to close the strait, could lose big or win big
  – If Israel uses oil strategy, could cause collapse of Iranian economy

◆ Military
  – Widespread use of ballistic missile defenses, as well as UAVs
  – Iranian military power tested - and fails?
  – US, other Western powers could be drawn into the conflict

◆ Cyber
  – War on YouTube; Winner may be the side with the best videos
  – Use of the web not just for propaganda, but attack, or as a target
  – Iran limits/blocks use of the web; Will this hurt or help?

◆ Diplomatic
  – Whatever USA’s role, everybody is blaming us
  – Severe test of US-Israeli relationship - possibly a lose-lose for Israel
  – Al Qaeda will attempt to exploit the conflict
Who Will Win?

◆ Israel?
  – Initiative
  – Military power
  – Israel has to win big to win at all
  – Israel will be isolated, even an Israeli victory may not be enough to recover
◆ Test of Israeli regime
  – Loss = new government
◆ Iran?
  – Moral high ground - they were the ones attacked
  – All they have to do is not lose
◆ Test of Iranian regime
  – Who are her real friends?
◆ And the rest of us?
  – Higher oil prices
  – Greater instability in the region
◆ Could be a lose - lose - lose situation
Exploring the Possibilities

- **Persian Incursion**
  - Uses *Harpoon* to resolve combat
  - Military, Political, Intelligence actions
    - Card-based component
  - Maximizes uncertainty
    - Variable political environments
    - Encourages player modifications
  - Military actions
    - Air strikes
    - Ballistic missile attacks
    - Special warfare attacks
  - Political actions
    - Domestic opinion
    - Regional players
    - World powers
    - UN

*Coming soon from Clash of Arms*