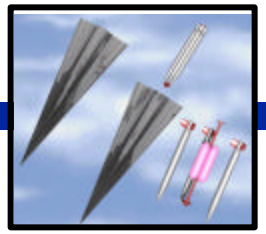

REQUIREMENTS FOR A CONVENTIONAL PROMPT GLOBAL STRIKE CAPABILITY

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NDIA Missile and Rockets Symposium and Exhibition
May 2001

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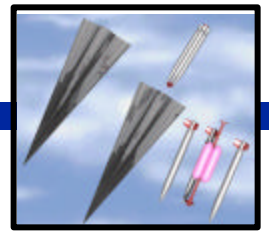
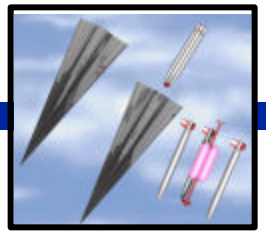


What is Prompt Global Strike (PGS)?

- **Definition: Rapid delivery of conventional weapons at intercontinental range**
- **Focus: Conflicts or Emergencies requiring rapid surgical strikes of limited scope**

PGS Mission Need Statement (draft v.8):

"The PGS mission need is to globally strike and precisely apply force against specific targets swiftly to achieve desired weapons effects. The need includes the ability to strike high-value, difficult-to-defeat targets when most vulnerable from beyond range of an adversary's ability to respond, thus minimizing effects of counter-access strategies."

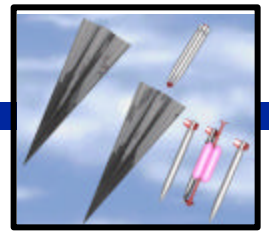


Why PGS?

- **Threats to US interests have multiplied, diverged since end of Cold War**
- **Forward-Deployed and –Deployable Forces (FDFs) limited in number, very expensive, and face anti-access strategies**
- **Adding a PGS as complement to FDFs could allow faster, cheaper response with reduced risk**

Air Force Doctrine Document 1 (AFDD-1):

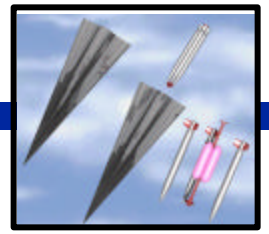
> **"US forces overseas have been reduced significantly, while rapid power projection based in the continental United States has become the predominant military strategy."**



PGS Response Time

- **PGS timeline must be as short as technology allows:**

- **Tactical Ballistic Missiles (TBMs) take 2-4 hours to deploy, set up, and launch**
- **Other targets (aircraft arming for strike, submarines leaving port, etc.) also vulnerable only for short times**

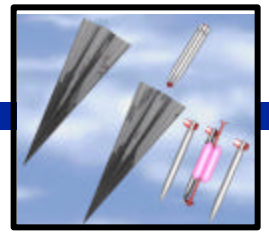


Limits on Current Solutions

- **Air Expeditionary Forces (AEFs):**
  - **Need prepared airfields in theater**
  - **Need 48 hours or more to deploy**
  - **Distant air strikes from US need massive logistic support and in-theater escorts**

- **Carrier Battle Groups:**
  - **Navy says too few to cover all trouble spots**
  - **Response time can be over 96 hours**
  - **Limited to strikes a few hundred miles from carrier**

Iraq's conquest of Kuwait was a surprise to the US and was completed in 36 hours.

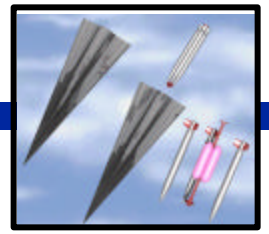


Anti-Access Threats

- **Politics (basing, overflight rights) always problematical**
- **Adversaries will counter US conventional strength by:**
  - **Using missiles and WMD against ports and airfields**
  - **Missile strikes, WMD, and unconventional strikes against deployed forces**
  - **Intimidating local nations into denying US access**
- **National Defense Panel Study predicted a future in which US would be unable to deploy without high risks, casualties**

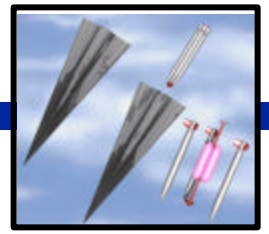
USS Cole, October 2000

According to the Rumsfeld Commission, 25 nations have or are acquiring WMD. Several of these have or are acquiring long-range missiles.



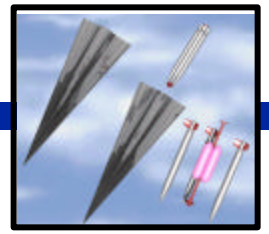
Formal Requirements

- **PGS MNS sponsored by AFSPC. Based on:**
- **Defense Planning Guidance; requires ability to "project military power rapidly across great distances"**
- **AFSP Mission Area Plan; established specific requirement for "conventional global, prompt response" with total response time in "hours" and less than one hour between strike order and target destruction**
- **PGS supports approved Mission Need Statements for Hard and Deeply Buried targets, Strategic Relocatable Targets, and Agent Defeat Weapons**



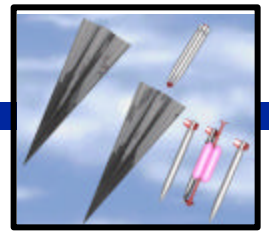
Doctrine, Strategy, and Studies

- ***USSPACECOM Long Range Plan*** **required "On-Demand Force Application" delivering precision weapons "anywhere in the world within 90 minutes of launch"**
- **1997 National Defense Panel Report: need"conventional, non-nuclear deterrent capability against use of WMD"**
- **Similar Requirements in:**
  - ***Air Force Basic Doctrine***
  - ***Joint Vision 2020***
  - **USAF *Annual Planning and Programming Guidance***
  - ***Air Force Strategic Plan*** **and AFSPC *Strategic Master Plan***
  - **AC2ISRC *C2ISR Critical Capabilities***
  - **Navy *MNS for a Joint Tactical Strike Capability***



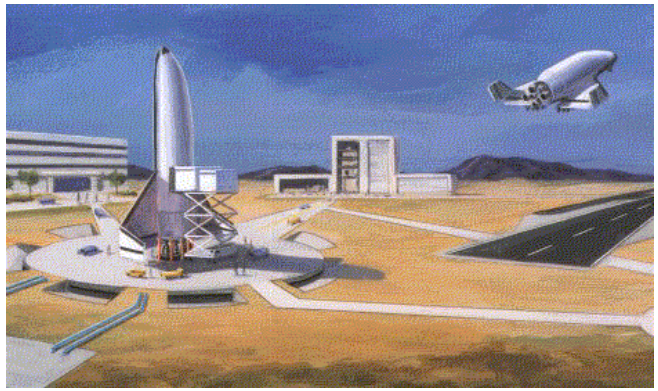
PGS and Deployed Forces

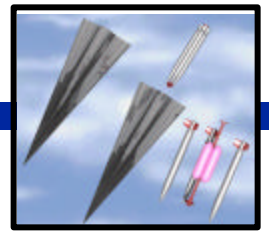
- **PGS would complement, not replace, deployed and deployable forces**
- **PGS adds a unique capability to power projection "toolkit" for national and theater commanders**
- **Limited strikes could be done by PGS alone**
- **In major campaigns, PGS strikes against C4I nodes, air defense systems, etc., would "open the door" for aircraft and eliminate anti-access threats (WMD, TBMs, etc.)**



PGS System Options

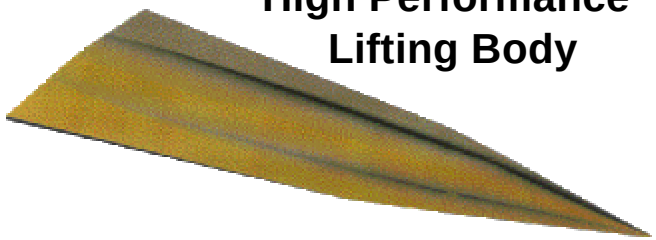
- **Hypersonic Cruise Vehicle**
- **Ballistic Missile (based on ICBM or SLBM)**
- **Air-Launched Missile**
- **Space Operations Vehicle**
- **Space-Based Launch Platform**



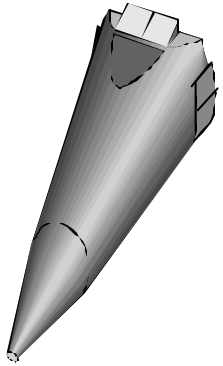


Front End Option- CAV

- **Under AFSPC Development**
- **Maneuverable, guided vehicle launched from or through space**
- **Mass: Approx. 2000 lbs including payload**
- **Several possible configurations**
- **Could carry unitary penetrator, numerous smart weapons, even UAVs**

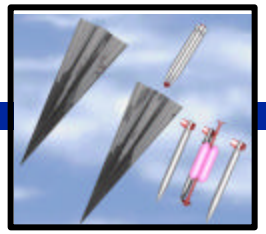


High Performance Lifting Body



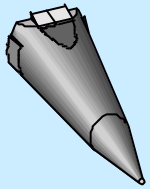
Asymmetrical, Bi-Conic Lifting Body

Unitary penetrator based on Mk 11 RV aeroshell



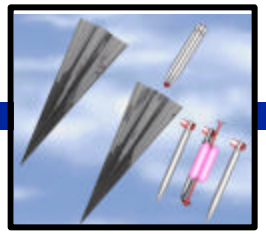
Example of PGS Utility

Operation El Dorado Canyon (Libya, 1986)

Force Element	No./Type Aircraft	CAV Attack
Attack	24 F-111 (1 lost) 14 A-6E	2 CAV w/WAASM or SSB 2 CAV w/WASSAM or SSB
Force Protection, SEAD	6 F-18, 6 A-7	
Support	28 Tanker, 5 EF-111, 4 E-2C, 1 EA-6	Not Required 
Total Force Required	110+ Aircraft	4 sorties 4 CAVs
Capital Cost (aircraft only)	$5.05B	$32M (CBM)
Operation Cost	$99.1M	$32M (CBM)
People risked (attack plane crews)	64	0
Overflight issues	Serious	Minor
Weather limitations	Serious	None

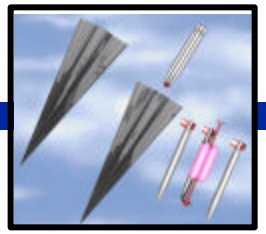
Notes:

- **Attack aircraft numbers include airborne spares. Capital costs do not include Navy ships or AF air bases.**
- **Of 5 ground targets, 4 were objectives: Benina airfield was struck to protect US aircraft.**
- **All Libya targets were suitable for WAASM (no hard/deeply buried).**
- **"Serious" weather limitations means bad weather would have impacted strike. In this case, it did not.**

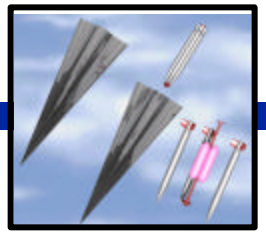


Summary

- **PGS is endorsed in AF, Navy, USSPACE, and DoD visions, plans, and requirements documents**
- **PGS complements deployed forces by taking on rapid-strike missions, paving the way for other forces**
- **PGS is technologically feasible**
- **No reason NOT to pursue**



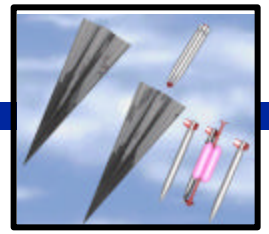
BACKUP SLIDES



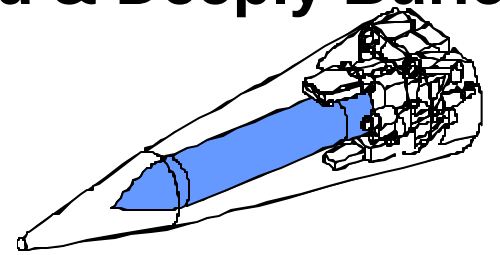
Treaty Clarifications

- **Space-launched PGS would not violate Outer Space Treaty**
  - **Does not carry Weapons of Mass Destruction**
- **Conventional Ballistic Missile legal if counted as ICBM under START**
- **Air-Launched missiles (ballistic or cruise) legal if missile or payload uses aerodynamic lift over some portion of trajectory**
- **Conventional SLBM not prohibited, some problems with verification**

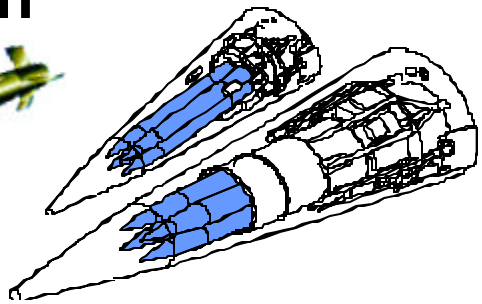
Potential CAV Payloads



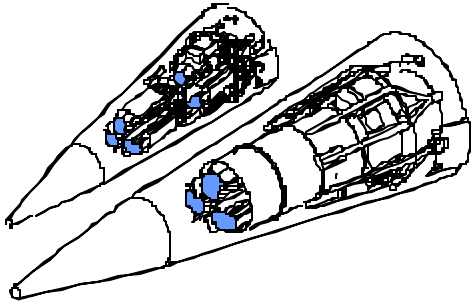
- (One) Rigid Penetrator for Hard & Deeply Buried Targets



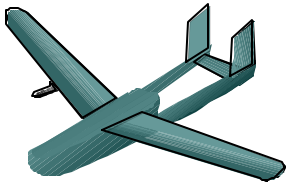
- (Four) Small Smart Bomb System for facility destruction

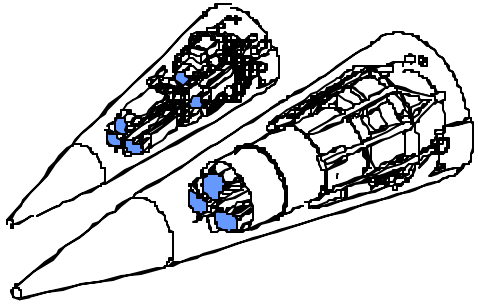


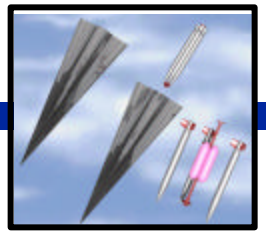
- (Six) Wide Area Autonomous Search Munitions (WAASM) for terrestrial targets of all types



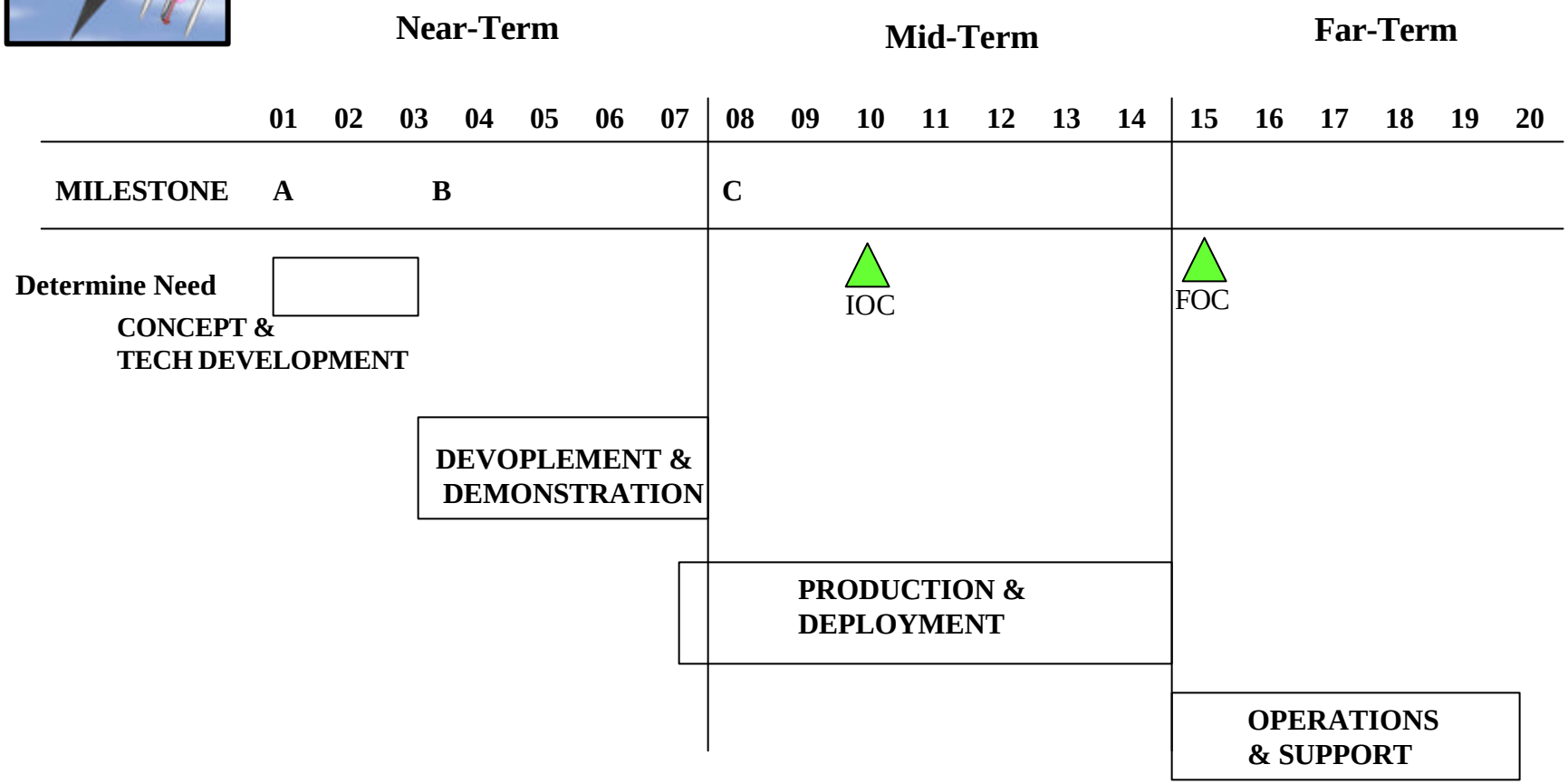
- (Six) Unmanned Aerial Vehicle (UAV) for intelligence gathering, BDA







CAV MILESTONE CHART



Unofficial ROM cost estimates: $800M - $1.3 B depending on launch option, schedule, production numbers, etc. (70-100 CAVs)