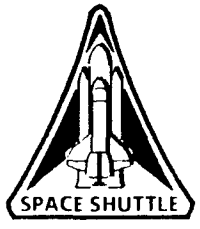
NASA

BRIEFING ON THE ADVANCED SOLID ROCKET MOTOR (ASRM)

TO THE SPACE STATION ADVISORY COUNCIL

BY
RUSS BARDOS
DIRECTOR, SHUTTLE PROPULSION



MAY 19, 1988

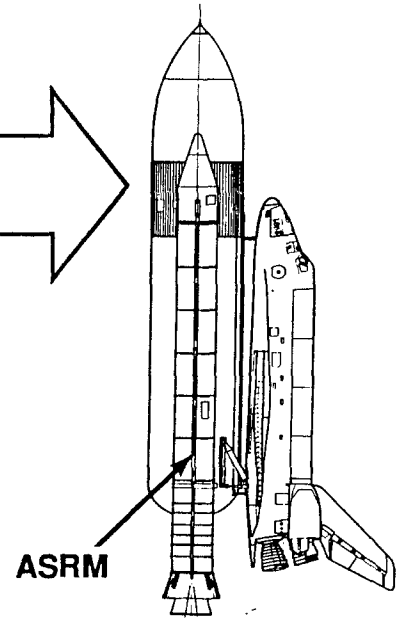
ADVANCED SOLID ROCKET MOTOR (ASRM)

OPERATIONS

PHASE C/D

DESIGN / DEVELOPMENT / QUALIFICATIONS

- **SELECTION OF MONOLITHIC OR SEGMENTED DESIGN**
- **COMPETITIVE PROCUREMENT**
- **NEW PRODUCTION FACILITY**
  - ON GOV'T PROPERTY (GOCO OR CONTRACTOR OWNED)
  - ON CONTRACTOR PROPERTY



PHASE B

DEFINITION:
(MONOLITHIC AND SEGMENTED)

- **(5) STUDY CONTRACTS @ $3M EA**
- **SYSTEMS / PERFORMANCE INTEGRATION**
- **FACILITY SITE ASSESSMENTS**

1987	1988	1989	1990	1991	1992	1993	1994

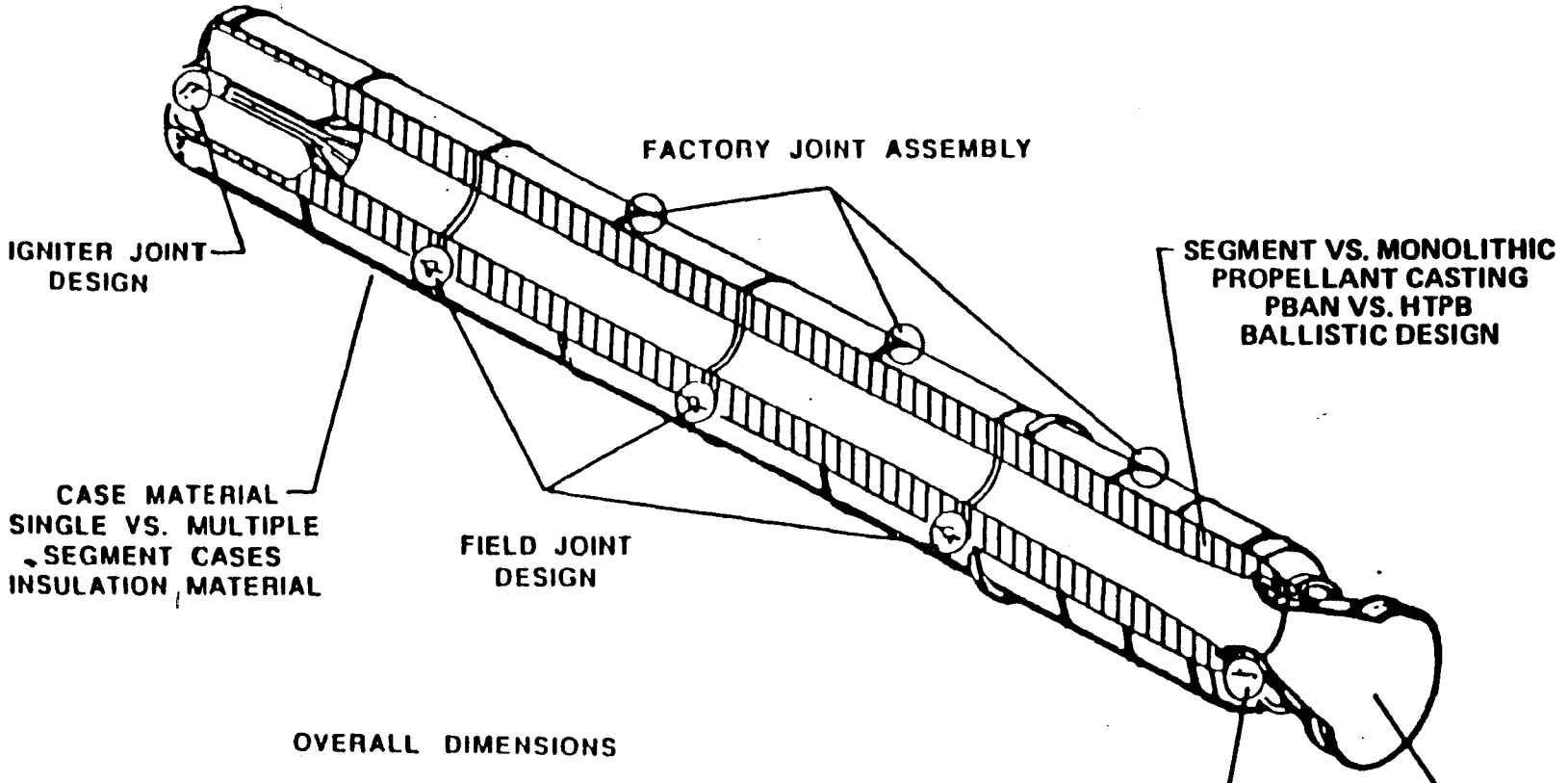
FISCAL YEAR

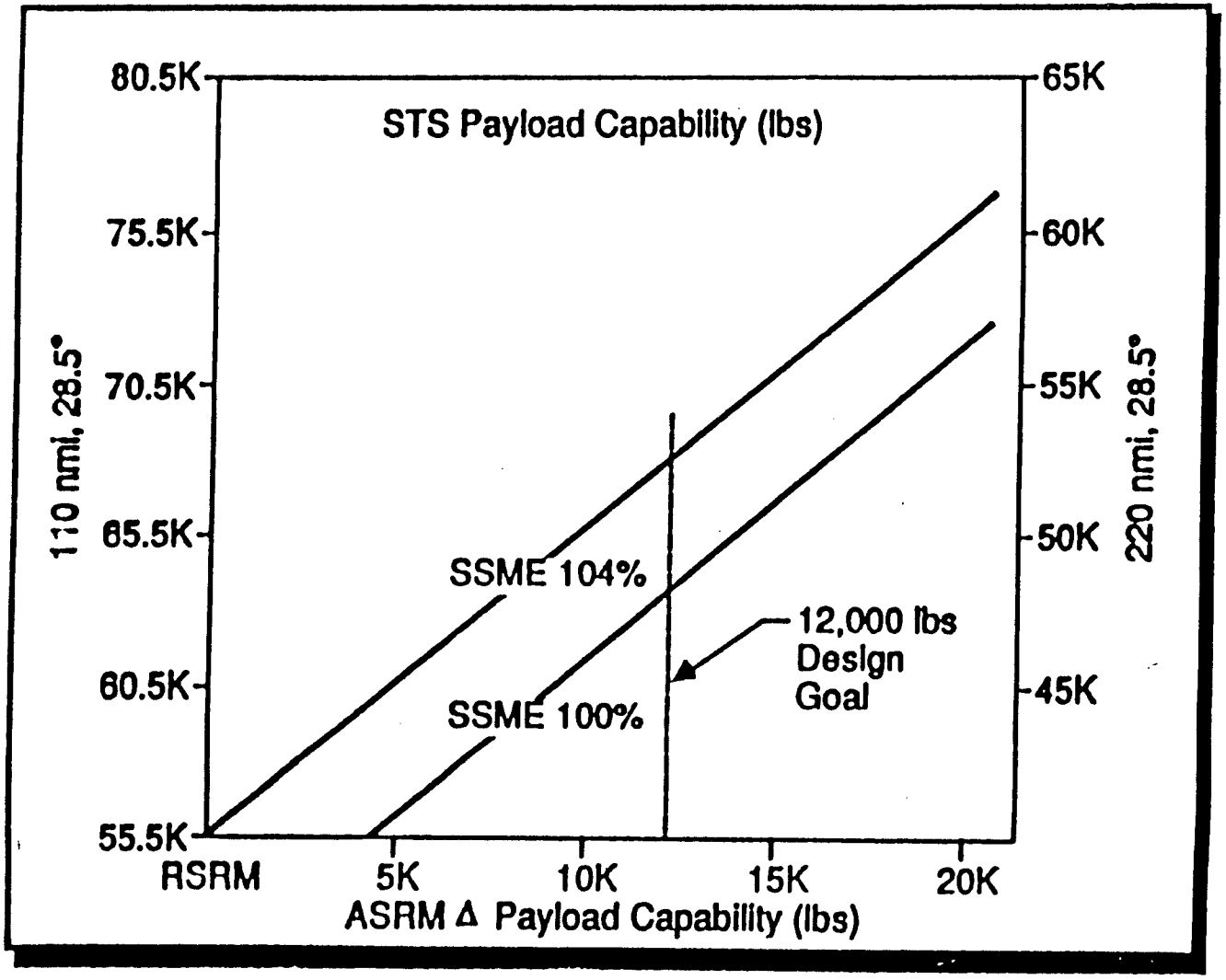
DG-MC-88-1A-2
5/19/88

SA-5263

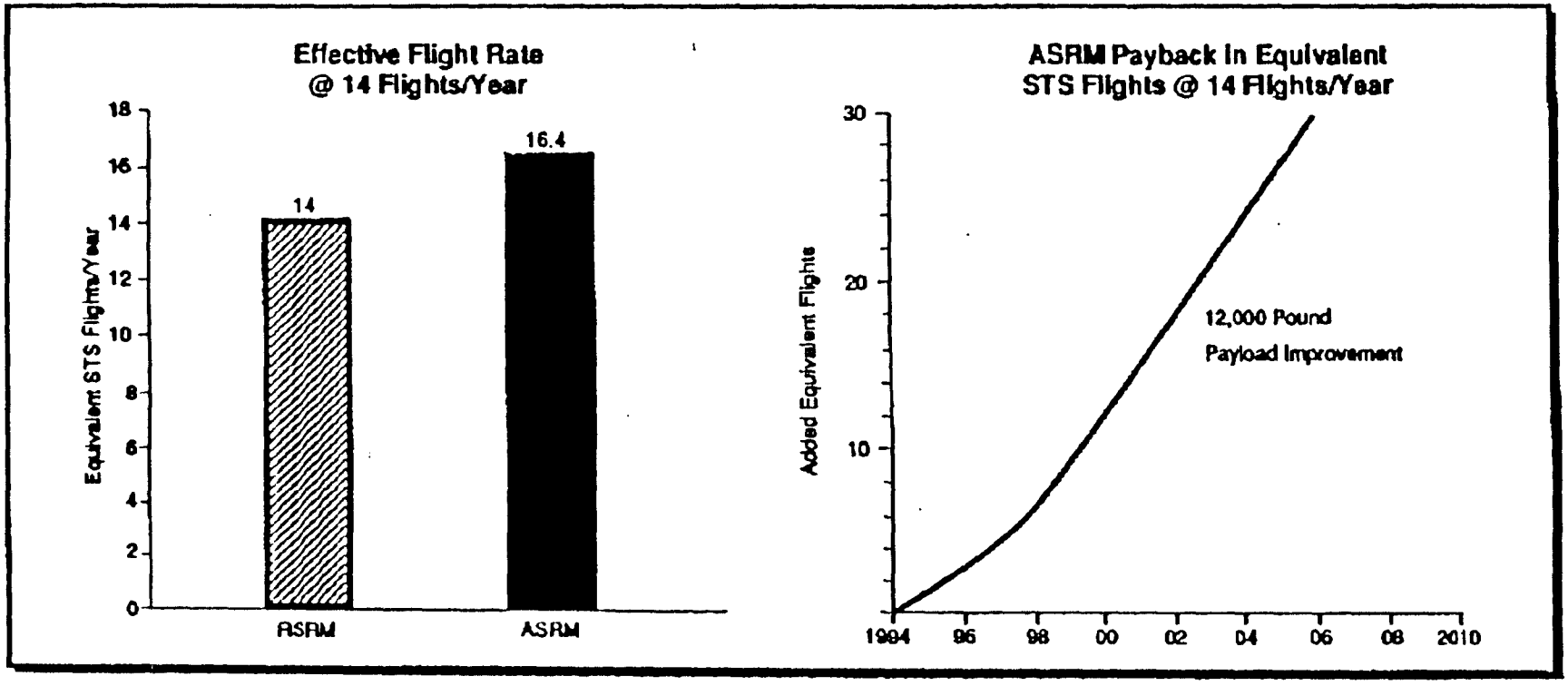
ADVANCED SOLID ROCKET MOTOR (ASRM)

- ENHANCED FLIGHT SAFETY AND RELIABILITY
  - STRUCTURAL DESIGN AND MATERIAL SELECTION
  - PRODUCIBILITY
  - MATERIAL AND PROCESS CONTROLS
- IMPROVED PERFORMANCE
  - GOAL ~ 12,000 LB PAYLOAD INCREASE





STS Payload Enhancements.



ASRM – Payback Begins with First Flight.

WHY AN ASRM IS NEEDED

- ENHANCE SHUTTLE SYSTEM SAFETY AND PERFORMANCE
  - IMPROVE FLIGHT SAFETY DESIGN MARGINS
  - IMPROVE SYSTEM RELIABILITY THROUGH ENHANCED QUALITY AND REPRODUCIBILITY
  - OPTIMIZE PROGRAM COST
  - ENCOURGE COMMERCIAL INITATIVES
  - PROMOTE A COMPETITIVE SOLID ROCKET MOTOR PROGRAM

- PERFORMANCE MARGIN INCREASE
  - COMPENSATES FOR LOST SHUTTLE PAYLOAD CAPABILITY
  - ENABLES FULL DESIGN PERFORMANCE OF SEVERAL HIGHEST PRIORITY SATELLITES (ALTITUDE, INCLINATIONS, LAUNCH WINDOWS, DURATION, INCREASED SATELLITE LIFE)

- BENEFITS WIDE SPECTRUM OF FUTURE SPACE OPERATIONS
  - SHUTTLE OPERATION THRU 2010
  - SPACE STATION
  - POTENTIAL FOR SHUTTLE C AND OTHER HEAVY LIFT VEHICLES

ASRM BENEFITS TO SPACE STATION

- INCREASED PAYLOAD CAPABILITY COULD:
  - ALLOW GREATER WEIGHT MARGINS FOR LAUNCH OF SPACE STATION ASSEMBLY PACKAGES
  - ALLOW SPACE STATION ASSEMBLY TO OCCUR AT A HIGHER ORBIT
    - LENGTHEN MARGIN OF TIME BEORE ORBITAL DECAY MIGHT OCCUR
  - REDUCE ANNUAL NUMBER OF LOGISTICS RESUPPLY FLIGHTS NECESSARY
  - ENHANCE EARLY AVAILABILITY OF RESEARCH CAPABILITIES ON STATION
    - EQUIPMENT NEEDED FOR RESEARCH COULD BE AVAILABLE AT THE TIME THE LABORATORY IS DELIVERED
    - EQUIPMENT COULD BE CHECKED OUT AND TESTED ON-ORBIT BEFORE EXTENSIVE SCIENCE AND TECHNOLOGY RESEARCH BEGINS

ADVANCED SOLID ROCKET MOTOR
ESTIMATED COST

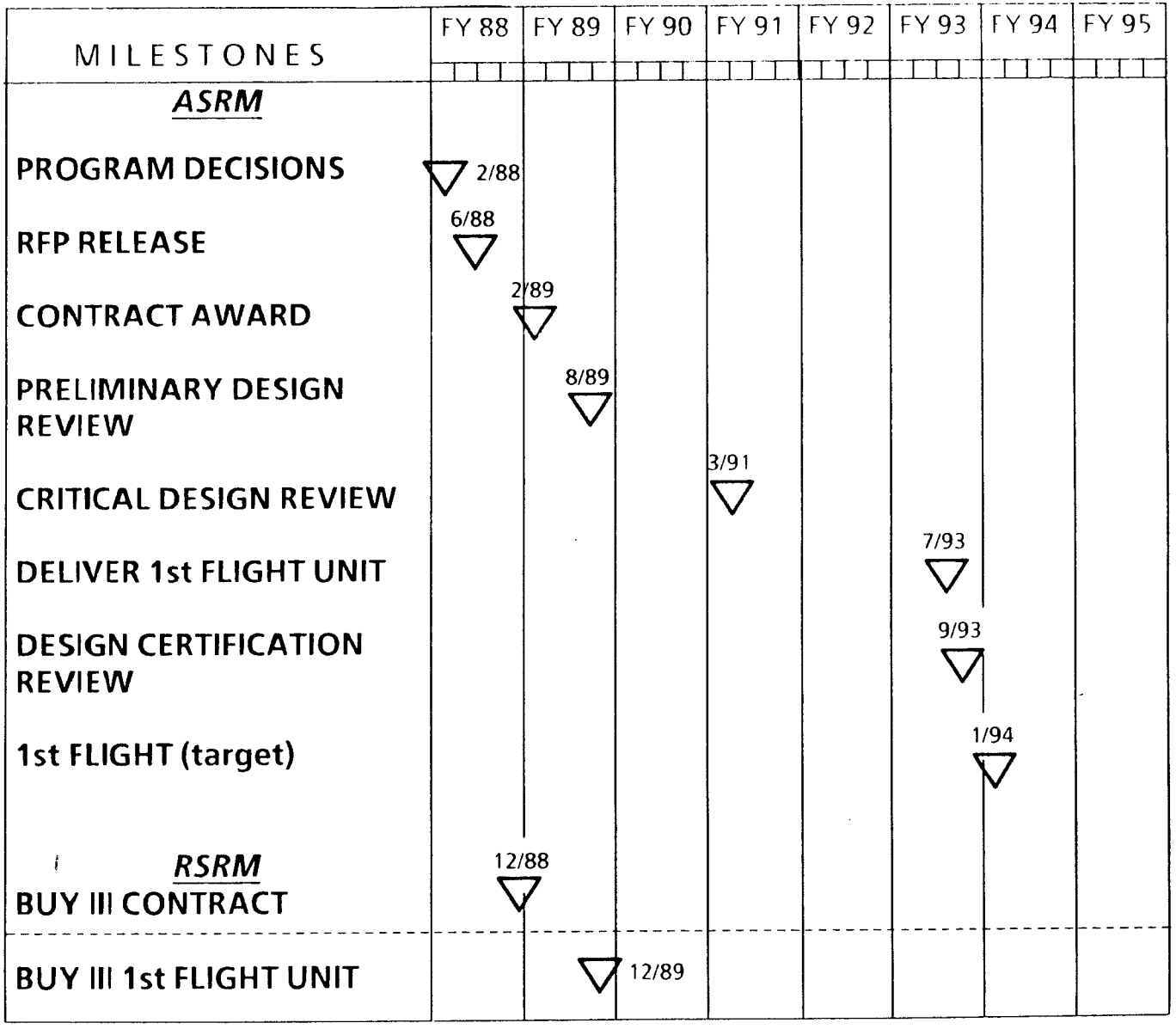
(BUDGET AUTHORITY IN MILLIONS)

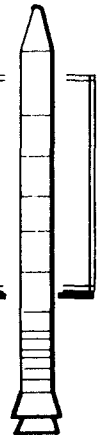
	FY89	FY90	FY91	FY92	FY93	ESTIMATE TO COMPLETE
DDT&E	61	194	260	252	177	994
NEW FACILITY	27	60	60	53	-	200
RATE TOOLING	-	-	-	12	26	65
PRODUCTION / OPERATIONS	-	-	20	99	222	CONTINUES
TOTAL	88	254	340	416	425	

ASSUMPTIONS: 14 FLIGHTS PER YEAR
20 USES OF REUSABLE HARDWARE
APPLICATION OF BUDGETED SRM RESOURCES TO ASRM WHERE POSSIBLE

ADVANCED SOLID ROCKET MOTOR (ASRM)

MAJOR MILESTONES (PRELIMINARY)





ASRM RFP
FACILITY CONSIDERATIONS

- ASRM FACILITY CONSIDERATIONS* TO BE INCLUDED IN THE RFP:

1. A GOVERNMENT OWNED - CONTRACTOR OPERATED FACILITY ON A GOVERNMENT SITE TO BE SPECIFIED IN THE RFP (REQUIRED TO ESTABLISH EVALUATION BASELINE)

2. A PRIVATELY FINANCED (COMMERCIAL INITIATIVE) FACILITYON A GOVERNMENT SITE TO BE SPECIFIED IN THE RFP (REQUIRED)

3. A PRIVATELY FINANCED FACILITY ON A CONTRACTOR SITE TO BE SELECTED BY THE OFFEROR. (OPTIONAL)

*ALL OPTIONS MUST PROVIDE THE GOVERNMENT WITH CAPABILITY TO RECOMPETE THE ASRM PRODUCTION.


Memphis
Yellow Creek
Atlanta
Birmingham
Montgomery
Jackson
NSTL
New Orleans
Orlando
John F. Kennedy Space Center
Miami

GOCO SITES