

# VX-30 Sea Range Support Aircraft

**CDR Thomas Bourbeau**

**Commanding Officer**

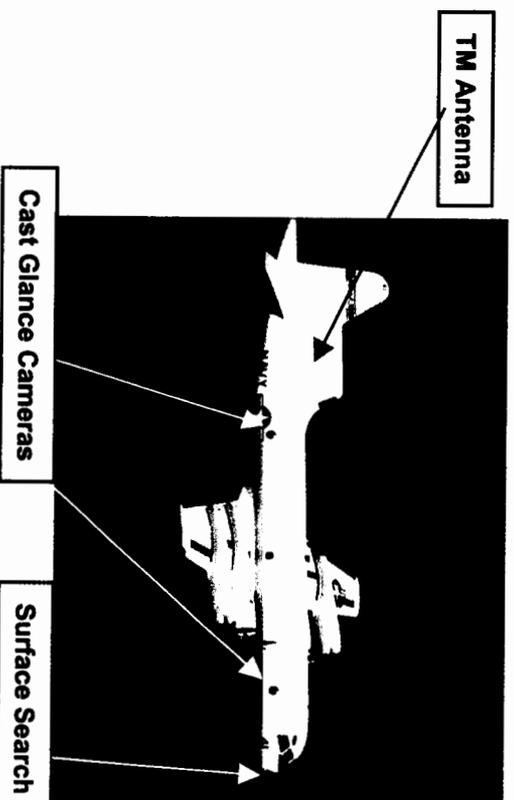
**Air Test and Evaluation Squadron THREE ZERO**



*Lib  
Conn Coy/c*

# Background

- In 1995, all NAVAIR Range and Target Support aircraft at the Point Mugu site were consolidated as VX-30
- Primary mission areas for VX-30 aircraft:
  - (3) NP-3D Range support aircraft (Airborne range instrumentation/optics)
  - (2) DC-130 Range support aircraft (Airborne drone launch and Sea Test Range logistics support)
  - (6) F/A-18 Range tactical support aircraft with RDT&E & Fleet training missions



# **VX-30 Aircraft Alignment**

## **Facilitates the Military Value of the Sea Test Range**

- **Range Support Aircraft at the Point Mugu site:**
  - Essential for Sea Test Range Operations
  - Provides co-located aircraft mission support for DoD, MDA, FMS and other DoD related customers on the Sea Test Range
    - **Telemetry receipt, display, recording and relay**
    - **Photometric receipt, display, recording and relay**
    - **Range safety, surveillance and clearance**
    - **Flight monitoring and commanded destruct systems**
    - **Airborne launch of subscale drones as targets for other systems under test**
    - **Tactical safety/photo chase and high speed targets**
    - **Logistics (Cargo) to/from San Nicolas Island and the mainland**
  - Military Value Customers include sea-based weapon systems (Aegis equipped ships, Trident missiles, Tomahawk, etc), air-based weapon systems (Sidewinder, AMRAAM, SLAM-ER, etc), and space-based systems testing (MDA systems)

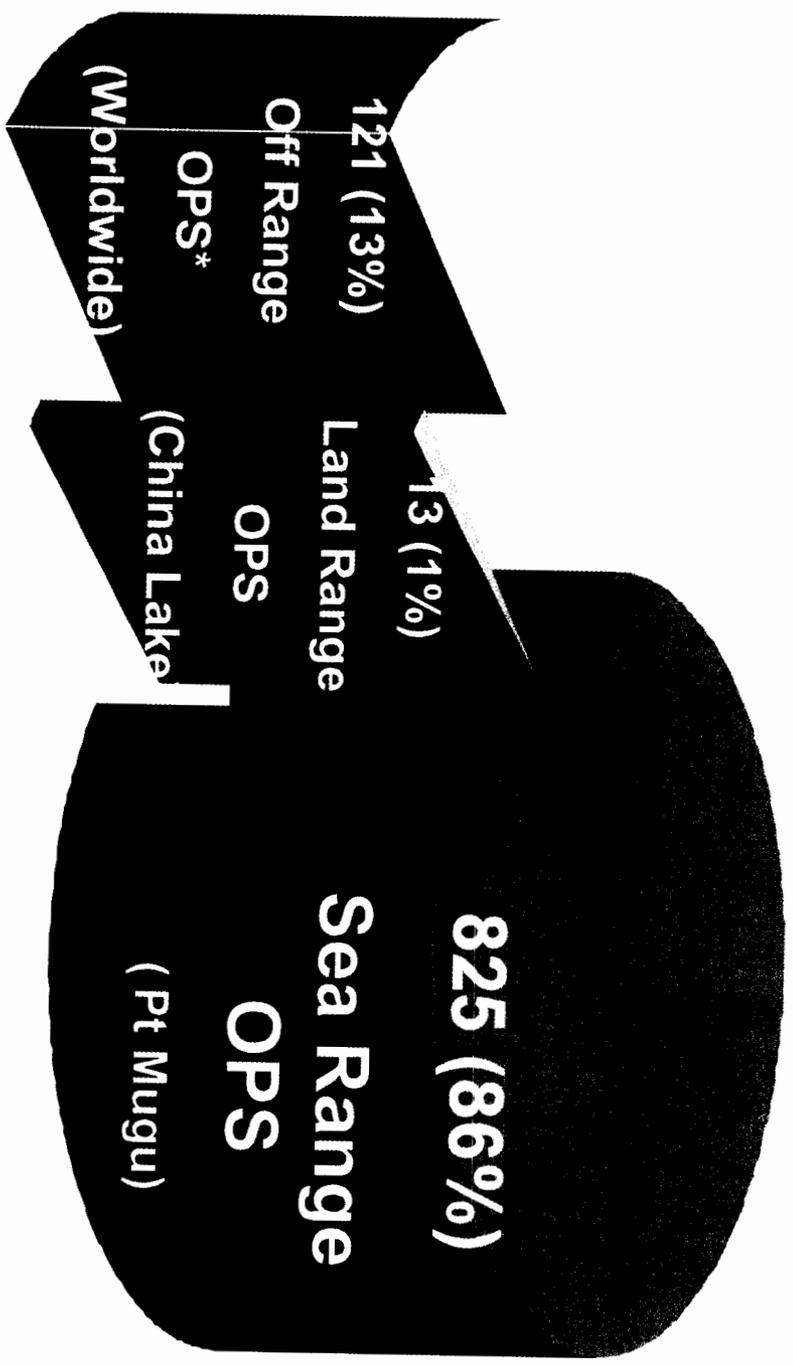


# Range Support Aircraft Sorties

## P-3 / C-130

### FY03- FY05

(Data through June 05)



\* Off Range Operations are conducted in various over-water locations, worldwide

# BRAC Relocation Implementation

- **BRAC Proposal to Re-Align Weapons and Armament from Pt Mugu to China Lake**
  - Air Test and Evaluation Squadron 30 (VX-30), also referred to as “Weapons Test Squadron” in BRAC data, is included in the proposed relocation of Weapons and Armament.
  - VX-30 does not test Weapons or Armament. The squadron provides range aircraft resources to the Sea Range in it’s support to a multitude of Navy, DoD and FMS testing and Navy/Marine Corps Fleet training.
- **VX-30 (Weapons Test Squadron) Aircraft Alignment Analysis**
  - VX-30 aircraft are mission aligned with the Sea Test Range and Targets Support (86%)
  - VX-30 provides minimal support of China Lake Land Test Range – 1% of sorties for “Big Wing” Aircraft (P-3 & C-130)
- **Implementation Requirements**
  - Aircraft hangar and ramp space MILCON required for “Big Wing” Aircraft
  - Relocation of aircraft support equipment, material and personnel required
  - Additional recurring annual transit and detachment costs required

# VX-30 Aircraft

## Mission Completion Challenges

- **Challenges in providing Sea Test Range support**
  - Geographic separation from the Sea Test Range hinders communications for mission coordination, planning, briefing, execution and de-briefing
  - Increased transit and stop-over time at Pt Mugu to load and maintain range equipment and pick up range equipment operators (for many missions)
- **Test Operation completion risk**
  - Increased mission support complexity - greater risk of aircraft breaking down because of required interim stop at Pt Mugu site to pick up targets, project specific equipment, personnel, and range specific equipment for many range operations



# Summary

## Proposed Relocation of VX-30 from Point Mugu to China Lake

- **VX-30 Aircraft Mission Alignment**

- Mission of VX-30 aircraft is aligned with Sea Test Range and Targets at Pt Mugu, not with Weapons and Armament testing at China Lake Land Range
- Mission success complexity challenges:
  - Additional flights required for many missions (stopover at Pt. Mugu)
  - Geographic separation from the Sea Test Range complicates mission coordination, planning, briefing and execution

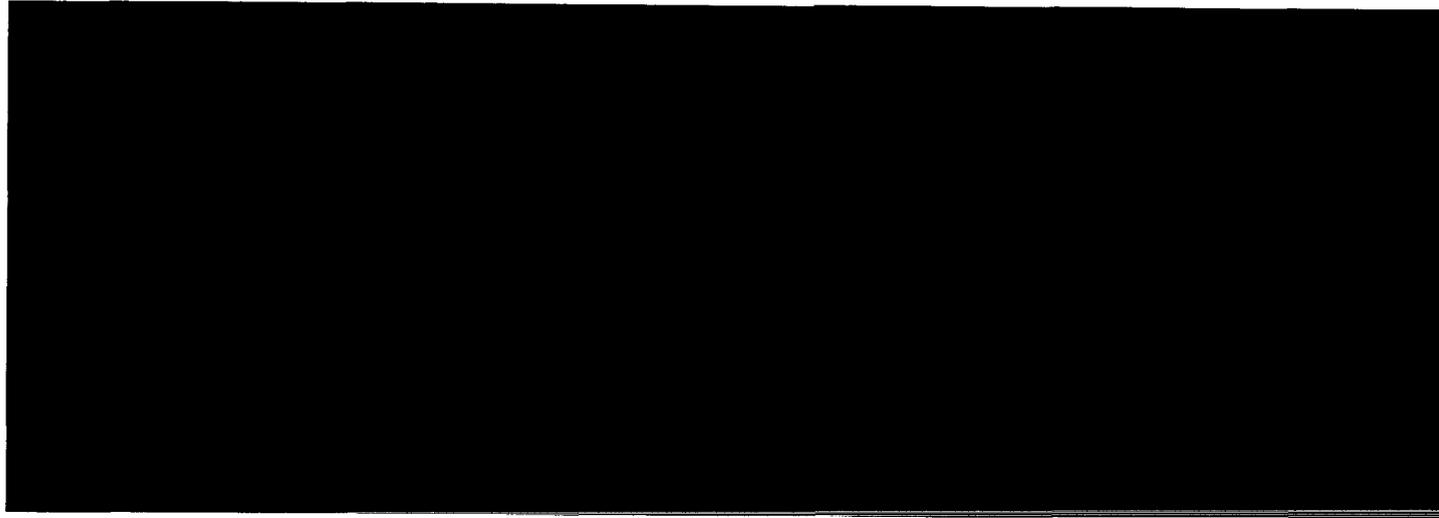
- **Economic Impacts**

- Additional MILCON & re-location costs
  - New aircraft hanger and ramp required to be built at China Lake
- Additional Recurring costs
  - Cost for additional aircraft transit time and required detachment travel

# VX-30 Range Support Missions



# Range Support Aircraft: Mission Requirements



- **Primary Customers**

- TOMAHAWK
- AIM-9X
- Titan II/IV
- AEGIS BMD
- MDA
- NASA
- Trident
- Fleet Support
- Numerous FMS

- **Ranges/Facilities**

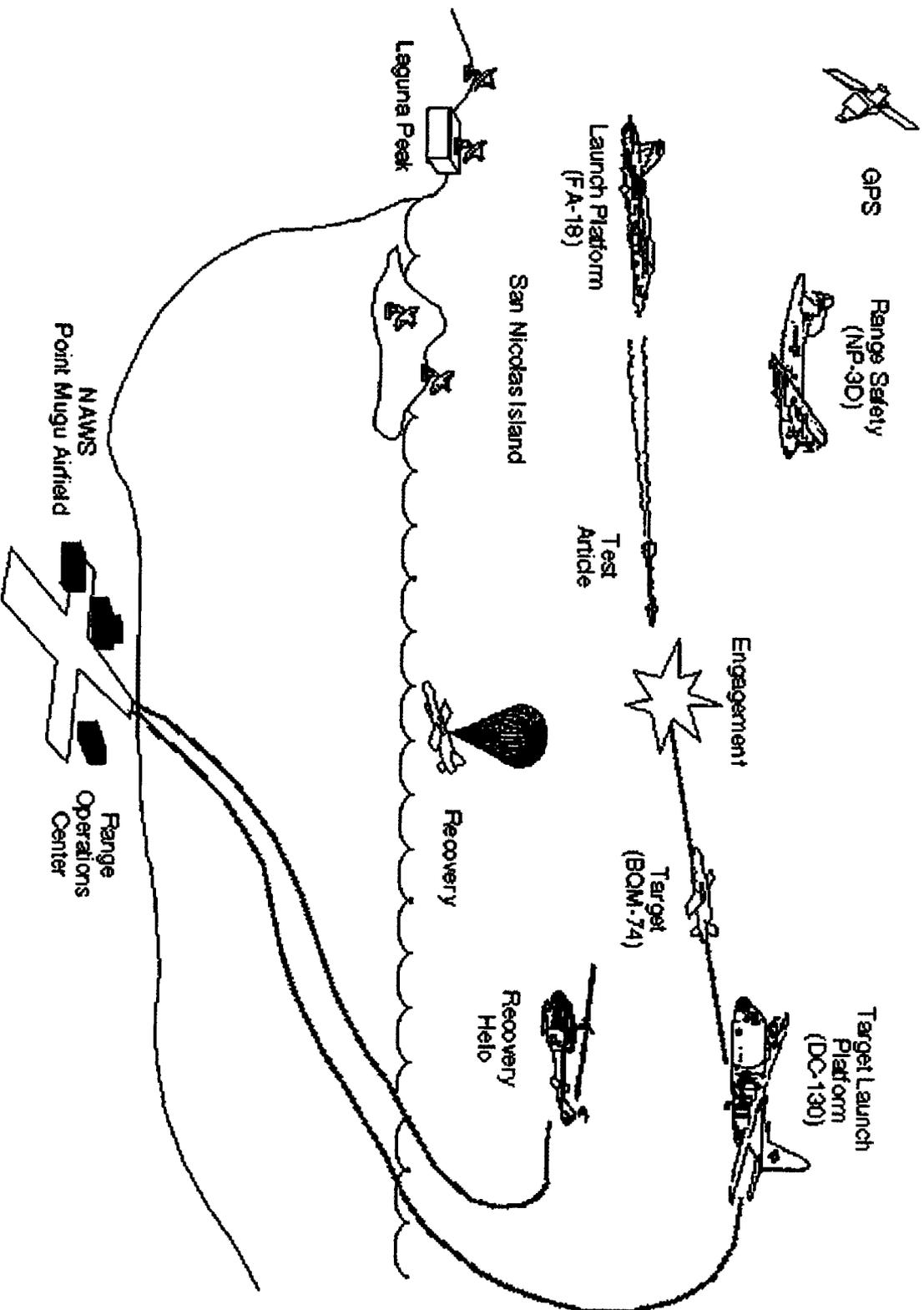
- Sea Test Range
- Land Ranges at CL and Edwards AFB
- SPAWAR (San Diego)
- Vandenberg AFB
- Reagan Test Site (Kwajalein)
- PMRF (Barking Sands)
- All Atlantic, Pacific and Arctic Ocean areas

- **Types of Tests**

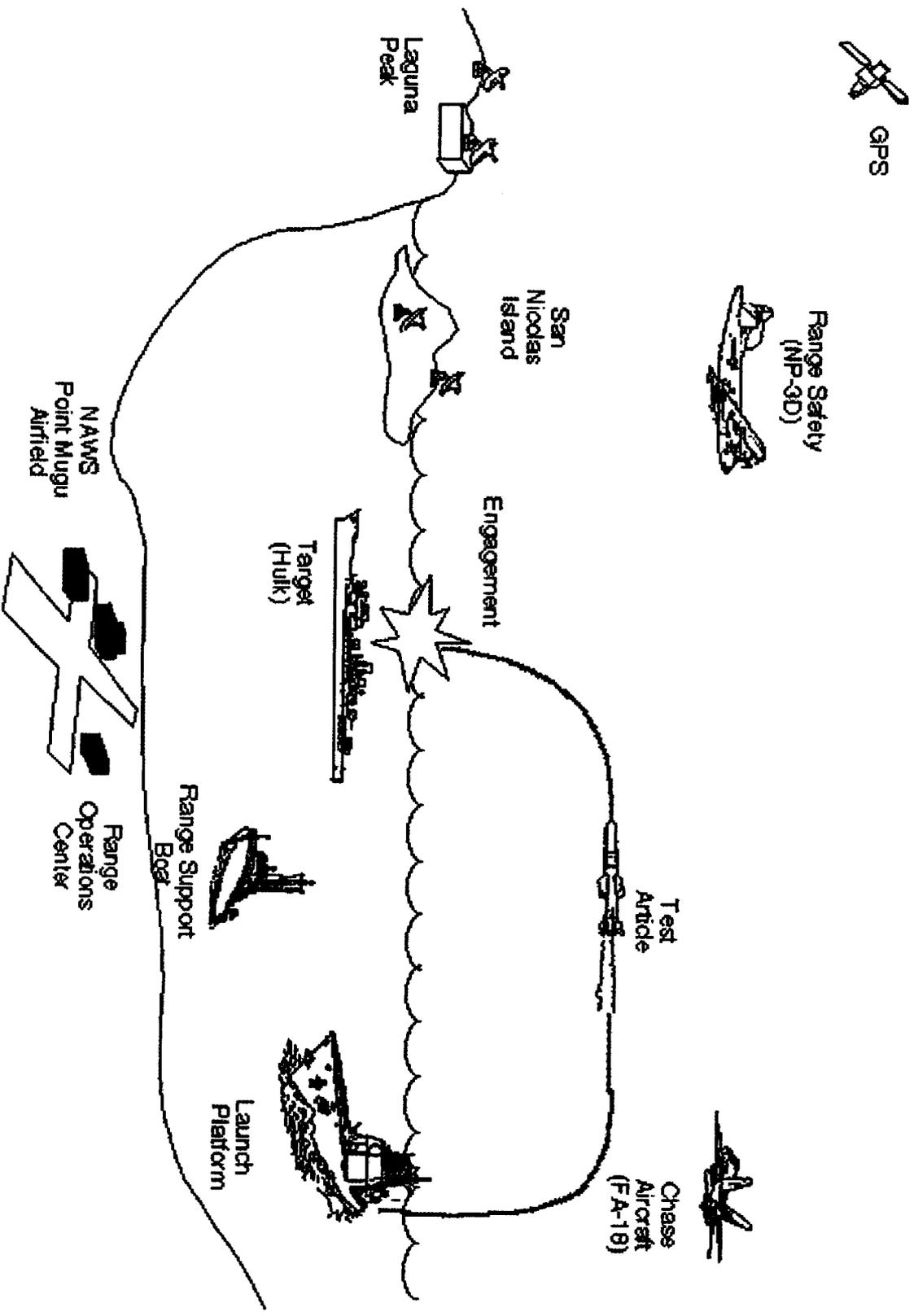
- Air to Air
- Air to Surface
- Surface to Air
- Surface to Surface
- Ballistic Launch, Intercept and Re-entry



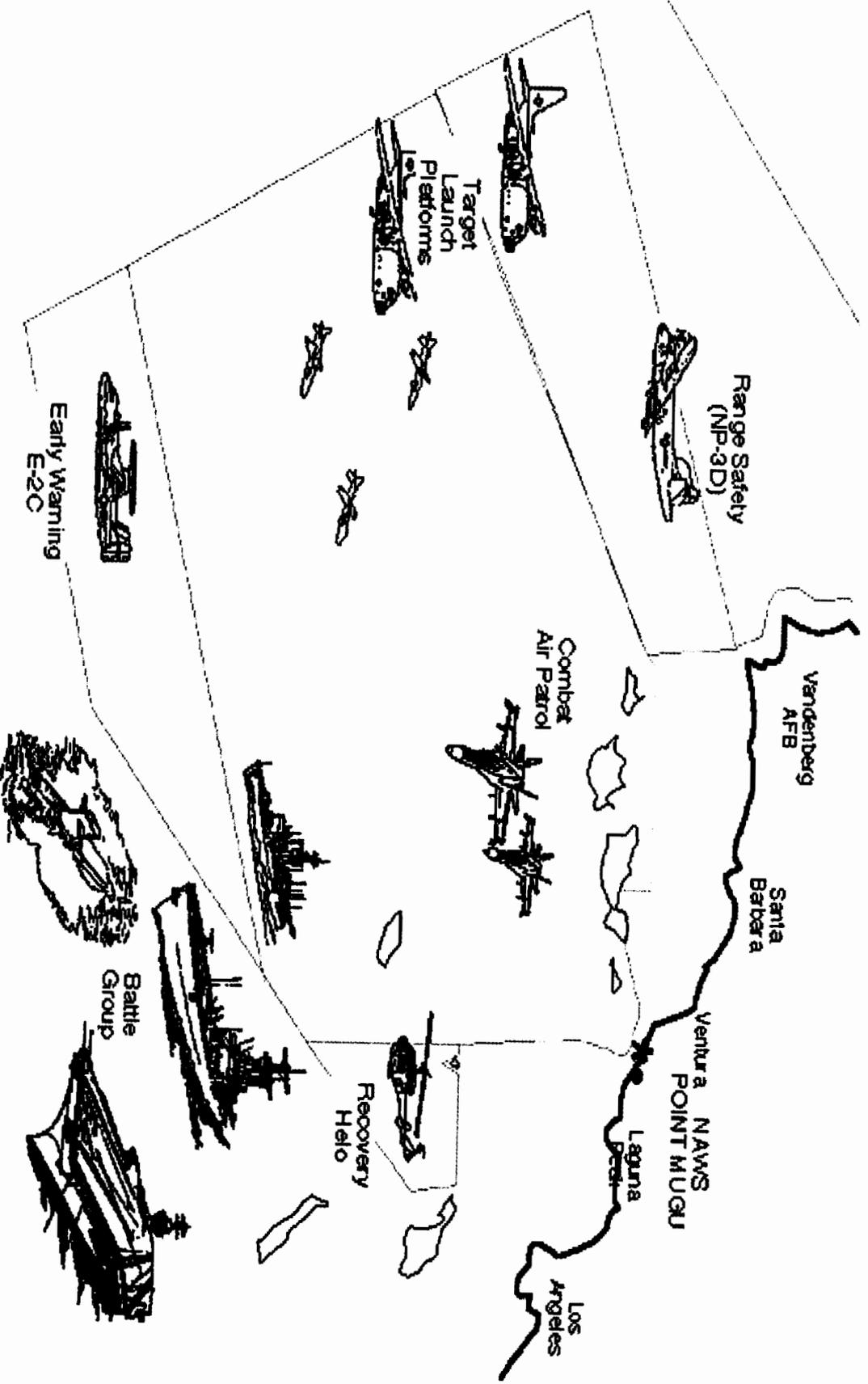
# Air-Launch Test Mission Support



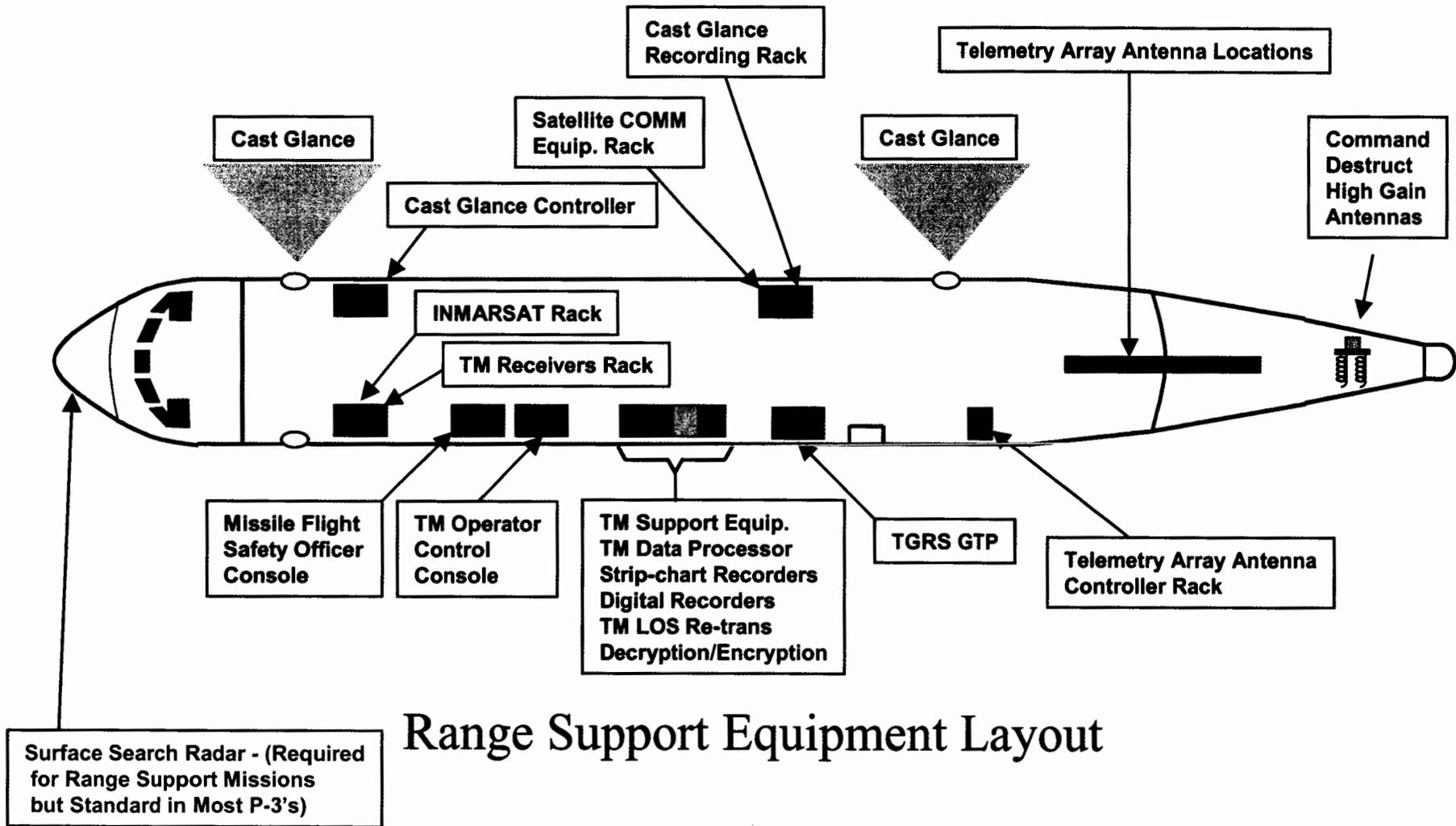
# Surface-launch Test Mission Support



# Fleet Training Mission Support



# Highly Modified Range Support Aircraft

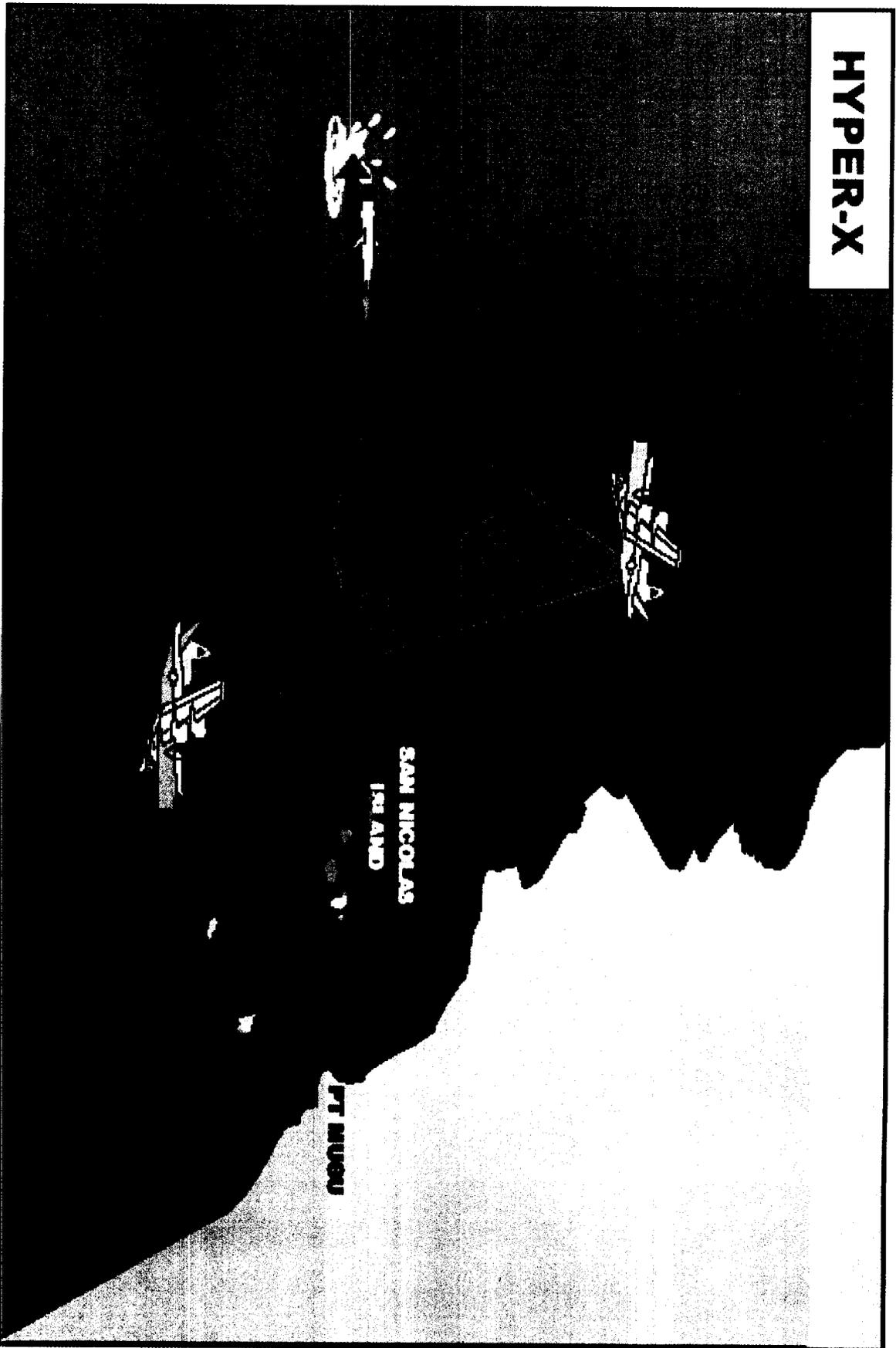


Range Support Equipment Layout



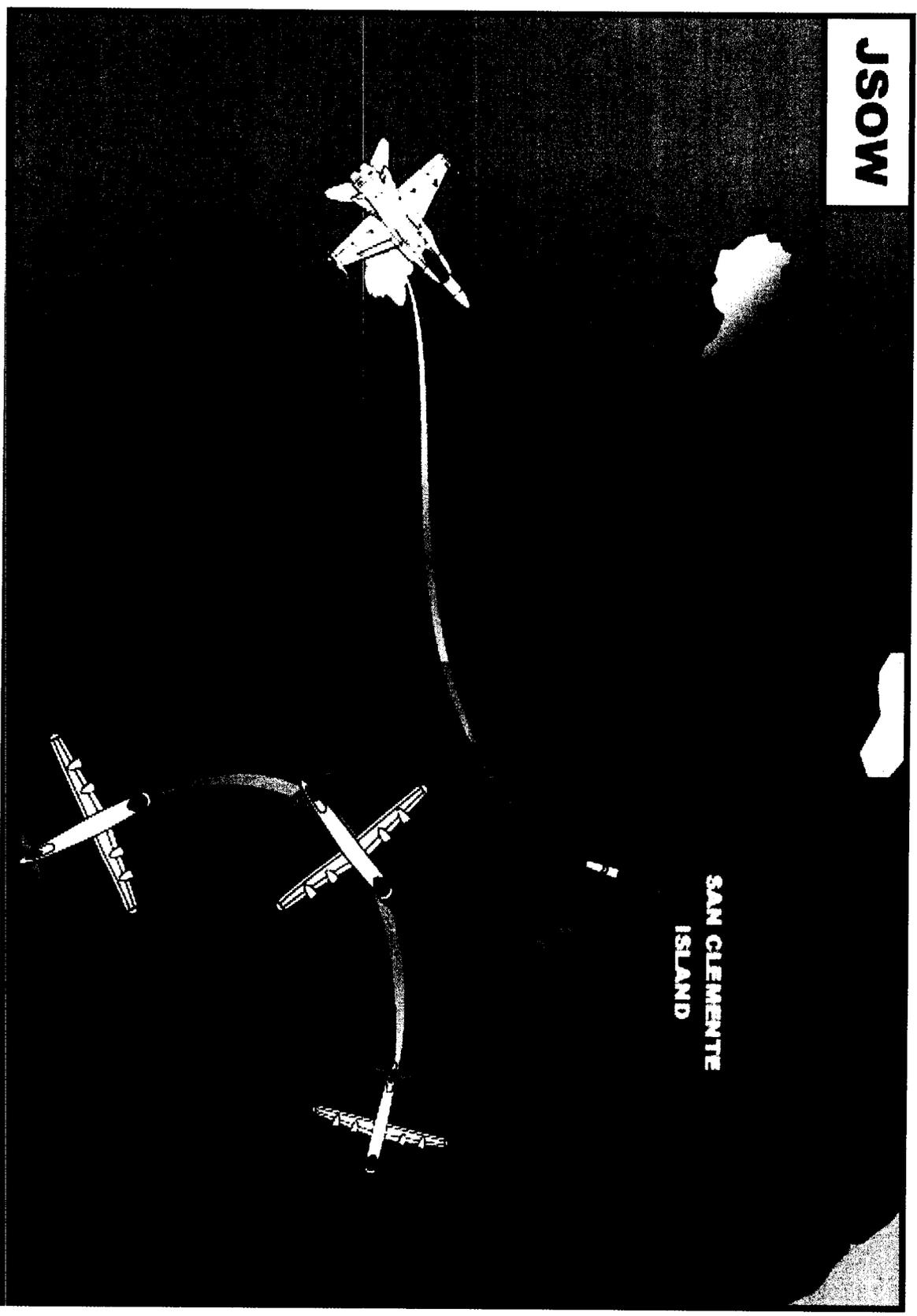
# Long Range Missile Testing Support

**HYPER-X**



# Tactical Weapon Testing Support

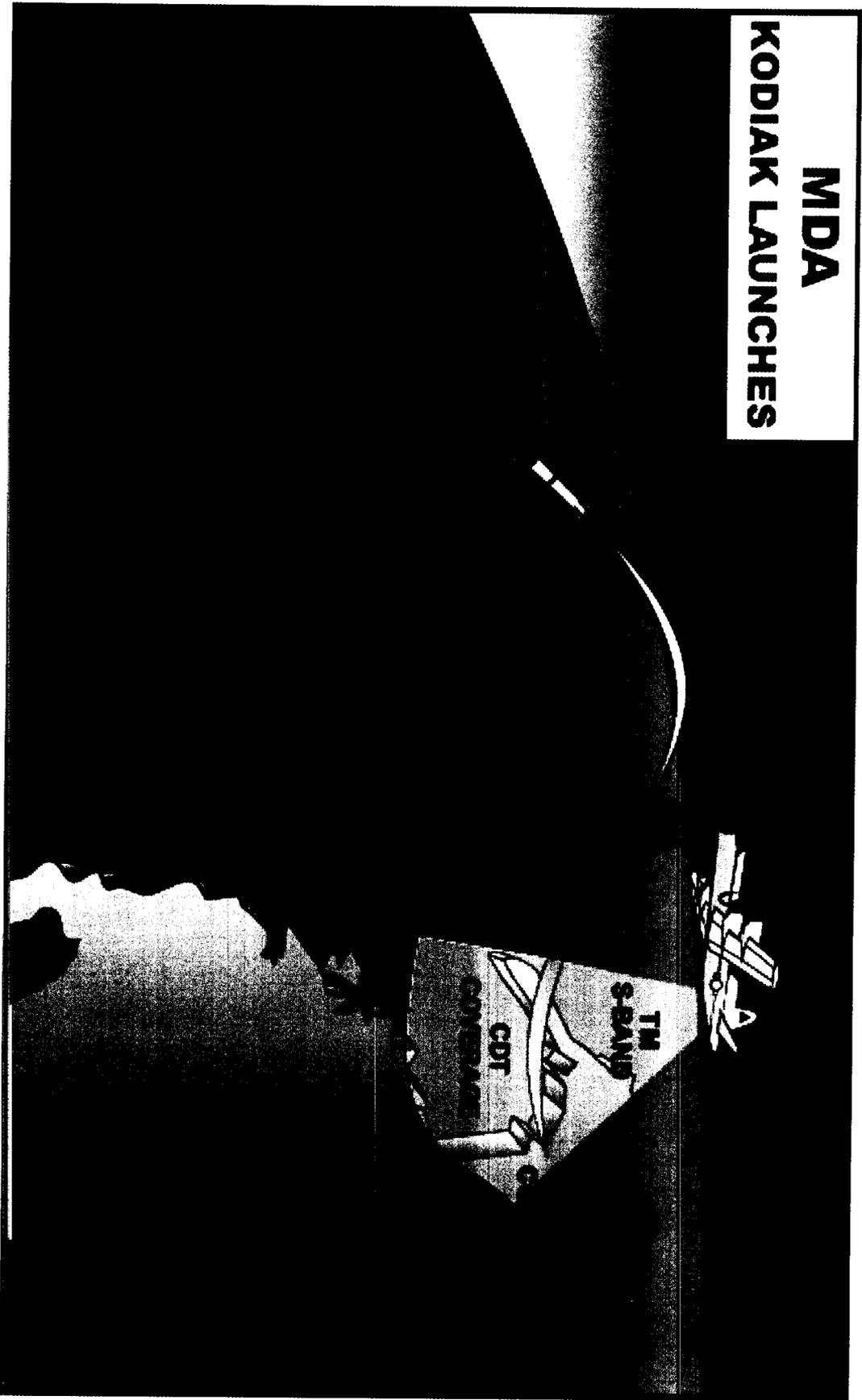
**JSOW**



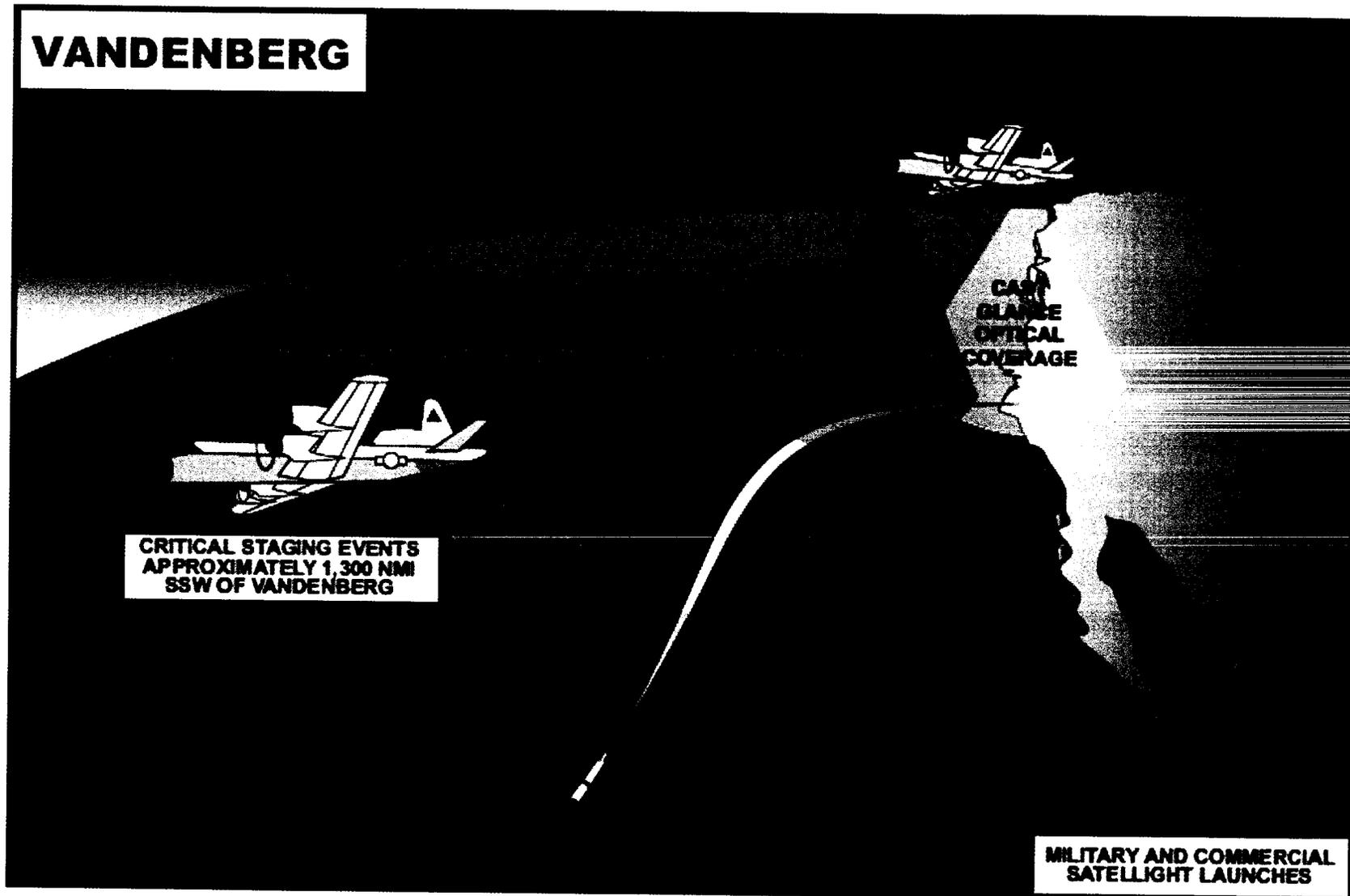
**SAN CLEMENTE  
ISLAND**

# Missile Defense Testing Support

**MDA**  
**KODIAK LAUNCHES**

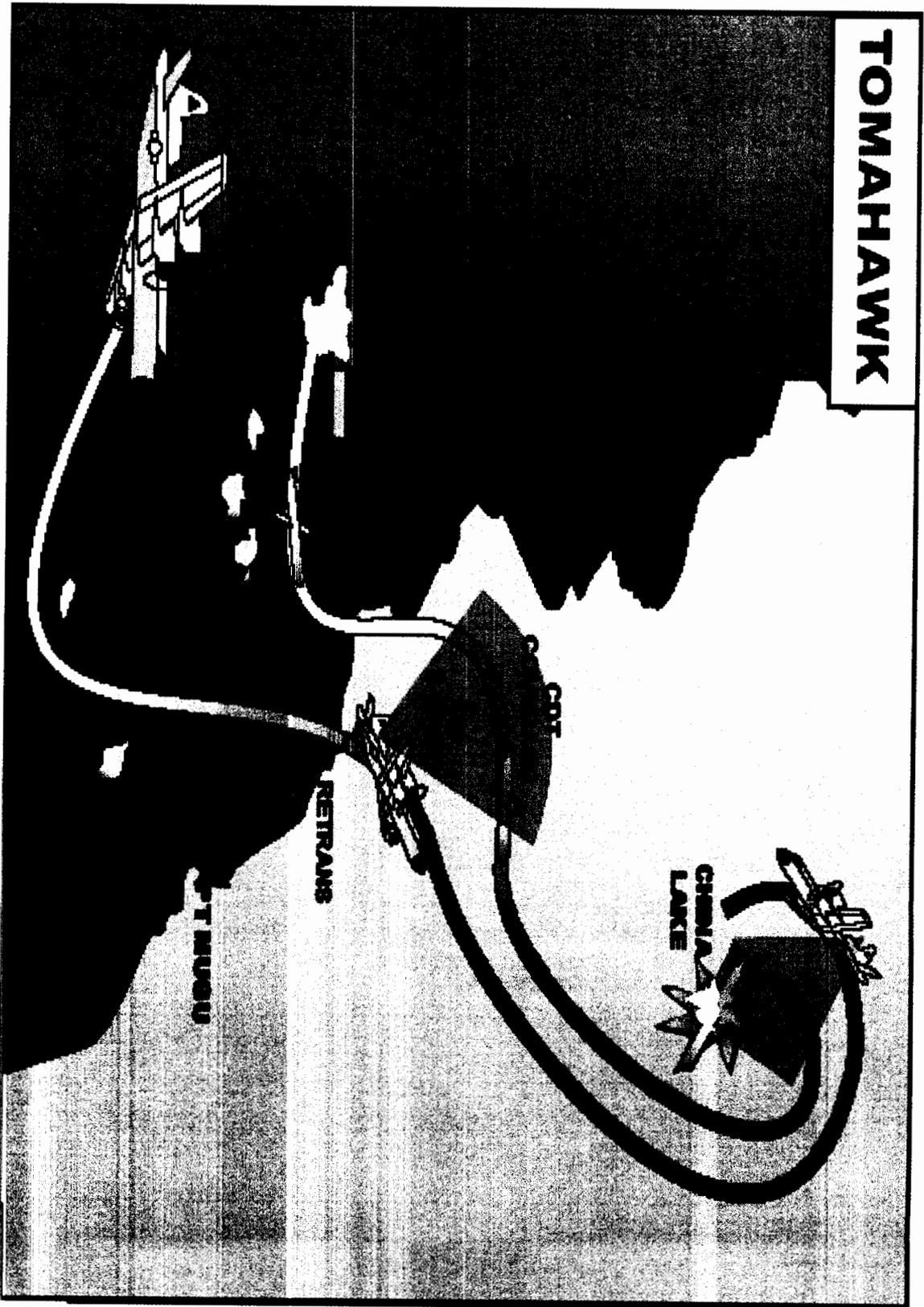


# NASA Launch Support



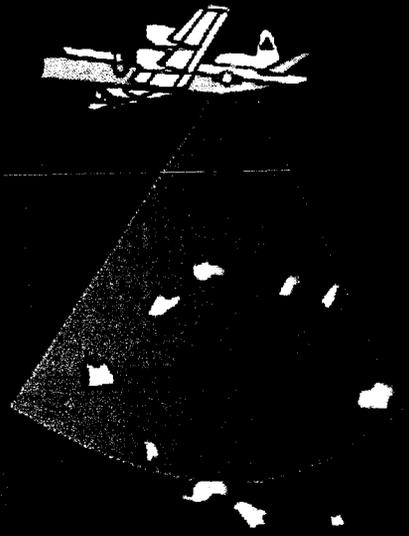
# Tomahawk Missile Testing Support

**ТОМАХАУК**



# Strategic Weapon Testing Support

**PEACEKEEPER**



**MULTIPLE RE-ENTRY  
VEHICLES IMPACTING  
IN THE KWAJALIEN AREA**



# **Aircraft Alignment and Economic Analysis Data**

# Economic Analysis (based on COBRA data)

- **Non-Recurring Costs ~ \$28.3M Additional Cost**
  - Costs for re-location of personnel, aircraft and associated equipment (\$5.6M)
  - Costs for MILCON of a new (P-3/C-130) hangar to replicate existing hangar (\$16.3M)
  - Costs for MILCON of a new (P-3/C-130) ramp area to replicate existing ramp area (\$6.4M)
- **Recurring annual increased cost of operations ~ 6.8M per year Additional Cost**
  - Costs for additional transit time (P-3) to Sea Test Range from CL site (\$4.5M)
  - Costs for additional transit time (C-130) to Sea Test Range from CL site (\$2.4M)
  - Costs for required detachments at PM site from CL to support PM site operations (\$.33M)
  - Approximate savings - lower wage rate at CL site (civilians & contractors) (\$0.43M)
- **Summary:**
  - Relocating the VX-30 Range Support Aircraft from existing hangar and ramp facilities at the Pt Mugu site does not create any meaningful consolidation efficiencies, and generates a significant net cost increase, both initial and recurring.



# Detailed ROI Data-Non Recurring Costs

- **MILCON costs**

- Hangar - 53,536 sq ft = \$10.39M to \$16.25M (Cobra)
- Ramp – 68,639 sq yd = \$3.33M to \$6.38M(Cobra)

- **Relocation costs: movement of aircraft & personnel**

- Transit aircraft, equipment and materials = \$0.38M
- Move personnel (194 military and 17 civilian persons) = \$3.24M
- Move 55 contractor maintenance personnel excluded = \$0.00M

- **Labor costs: labor involved in executing re-location**

- Military lost mission time costs = \$1.28M
- Civilian lost mission time costs = \$ 0.17M
- Contractor lost mission time costs = \$ 0.55M



## Detailed ROI data-Recurring Costs

- **Increased distance to Sea Test Range Op Area adds transit costs**
  - Annual cost increase to Range customers = \$ 6.9M per year (BRAC scenario data)
- **Increased flight hours and takeoff/landings increase fatigue life costs**
  - Additional takeoffs & landings = approximately 400 per year
  - 880 added flight hours per year - uses up airframe quicker
  - Increased complexity for support adds risk to customer program & schedule
  - Additional takeoffs & landings (at PM site) increase risk to mission completion
- **Very minimal labor savings due to consolidation/location pay**
  - No military savings for P-3/C-130: military personnel are also minimum aircrew
  - No contractor maintenance savings: already at minimum staffing for 5 aircraft
    - 55 contract maintainers maintain 5 VX-30 “Big Wing Aircraft” (P-3 & C-130)
    - 150 – 175 active duty Sailors maintain 4 Fleet Squadron aircraft (E-2 or EA-6B)
    - 212 – 225 active duty Sailors maintain 9 Fleet Squadron aircraft (P-3C) (Ratio 118 –125 for 5 P-3C aircraft)
  - No additional civil service savings: Civilian manning tied to Range Support Aircraft minimum required for Range Support Aircraft operations
  - Very small labor rate delta = \$ 0.43M per year savings based upon assumed 10% lower wage costs for contractors and civilians

# **Range Support Aircraft Flight Hour and Sortie Summary Data**

# Range Support Breakdown By Location FY-03-FY05

	P-3				C-130				P-3/C-130 Combined			
	Hours	% hrs	Sorties	% sorties	Hours	% hrs	Sorties	% sorties	Hours	% hrs	Sorties	% sorties
<b>FY03 Sea Range</b>	630.7	73%	155	79%	79.3	43%	116	89%	710.0	67%	271	83%
<b>FY03 Off Range</b>	206.9	24%	34	17%	99.9	54%	13	10%	306.8	29%	47	14%
<b>FY03 Land Range</b>	31.0	4%	6	3%	6.0	3%	2	2%	37.0	4%	8	2%
<b>FY03 Total</b>	<b>868.6</b>	<b>100%</b>	<b>195</b>	<b>100%</b>	<b>185.2</b>	<b>100%</b>	<b>131</b>	<b>100%</b>	<b>1053.8</b>	<b>100%</b>	<b>326</b>	<b>100%</b>
<b>FY04 Sea Range</b>	925.7	78%	239	84%	224.2	93%	180	97%	1149.9	81%	419	90%
<b>FY04 Off Range</b>	252.3	21%	42	15%	10.7	4%	3	2%	263.0	18%	45	10%
<b>FY04 Land Range</b>	8.8	1%	2	1%	6.2	3%	2	1%	15.0	1%	4	1%
<b>FY04 Total</b>	<b>1186.8</b>	<b>100%</b>	<b>283</b>	<b>100%</b>	<b>241.1</b>	<b>100%</b>	<b>185</b>	<b>100%</b>	<b>1427.9</b>	<b>100%</b>	<b>468</b>	<b>100%</b>
<b>FY05 Sea Range</b>	340.9	68%	83	76%	83.6	88%	52	93%	424.5	72%	135	82%
<b>FY05 Off Range</b>	156.8	32%	26	24%	8.1	9%	3	5%	164.9	28%	29	18%
<b>FY05 Land Range</b>	0.0	0%	0	0%	3.4	4%	1	2%	3.4	1%	1	1%
<b>FY05 Total</b>	<b>497.7</b>	<b>100%</b>	<b>109</b>	<b>100%</b>	<b>95.1</b>	<b>100%</b>	<b>56</b>	<b>100%</b>	<b>592.8</b>	<b>100%</b>	<b>165</b>	<b>100%</b>
<b>FY03-05 Sea Range</b>	<b>1897.3</b>	<b>74%</b>	<b>477</b>	<b>81%</b>	<b>387.1</b>	<b>74%</b>	<b>348</b>	<b>94%</b>	<b>2284.4</b>	<b>74%</b>	<b>825</b>	<b>86%</b>
<b>FY03-05 Off Range</b>	<b>616.0</b>	<b>24%</b>	<b>102</b>	<b>17%</b>	<b>118.7</b>	<b>23%</b>	<b>19</b>	<b>5%</b>	<b>734.7</b>	<b>24%</b>	<b>121</b>	<b>13%</b>
<b>FY03-05 Land Range</b>	<b>39.8</b>	<b>2%</b>	<b>8</b>	<b>1%</b>	<b>15.6</b>	<b>3%</b>	<b>5</b>	<b>1%</b>	<b>55.4</b>	<b>2%</b>	<b>13</b>	<b>1%</b>
<b>FY03-05 Total</b>	<b>2553.1</b>	<b>100%</b>	<b>587</b>	<b>100%</b>	<b>521.4</b>	<b>100%</b>	<b>372</b>	<b>100%</b>	<b>3074.5</b>	<b>100%</b>	<b>959</b>	<b>100%</b>

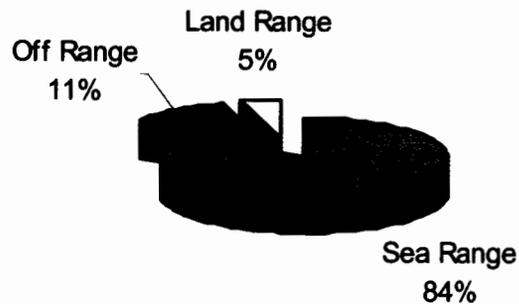
- \* FY-03 C-130 off range hours include one-time Iraqi Freedom Deployment
- \* P-3 Off Range Flights include 11 detachments to Hawaii, 2 to Ascension Island, and 1 to Antigua
- \* FY-05 data thru 7 June 05



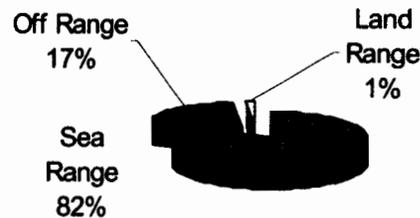
# Range Support Sortie Breakdown By Location (FY03-FY05)

<u>Aircraft</u>	<u>Sea Range</u>	<u>Land Range</u>	<u>Off Range</u>
NP-3D	76-84%	0-3%	15-24%
DC-130	88-97%	1-2%	5-10%
FA-18 (FY05)	63%	37%	0%
<b>TOTAL (average)</b>	<b>84%</b>	<b>5%</b>	<b>11%</b>

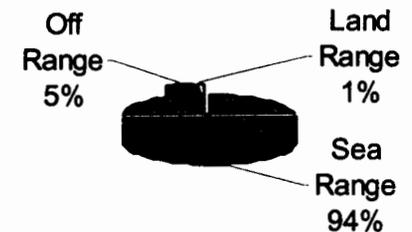
**VX-30 Range Support (FY03-05)  
(All Aircraft Types)**



**P-3 Sorties (FY03-05)**



**C-130 Sorties (FY03-05)**

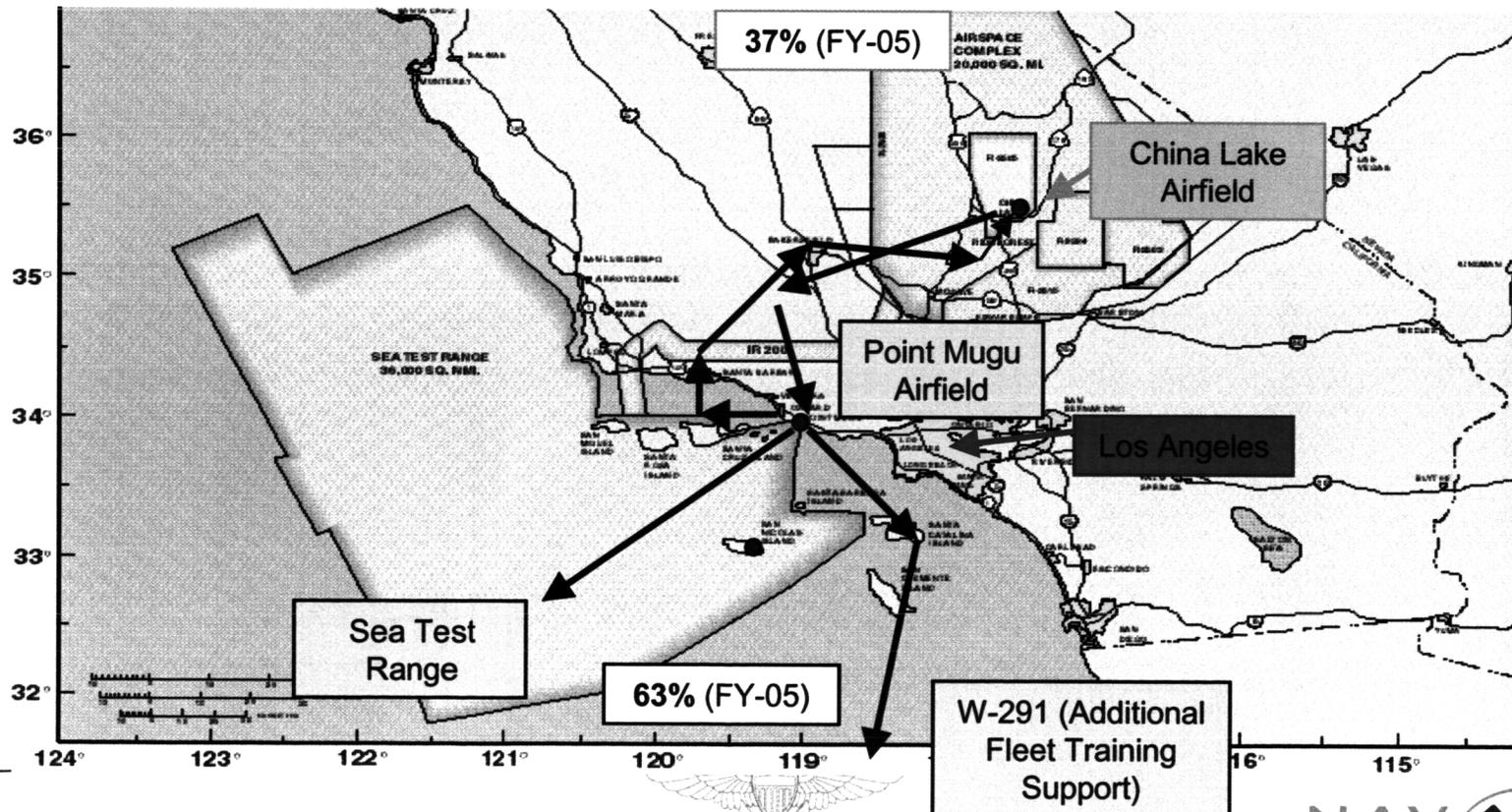


**FA-18 Sorties (FY05 only)**

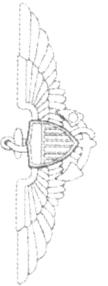
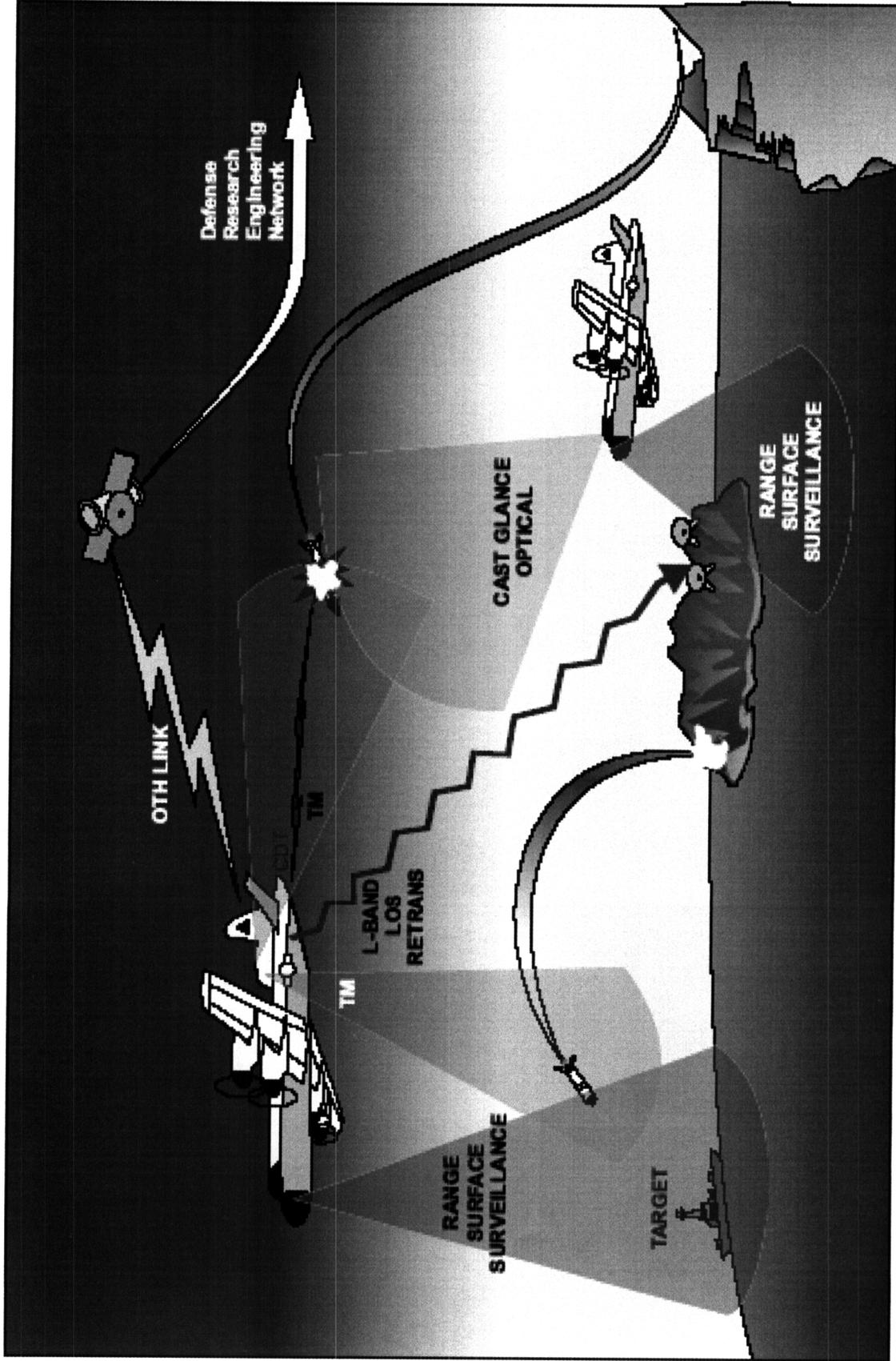


# TACAIR (F/A-18) Support for Test & Training

- Point Mugu adjacent to Sea Range and close to W-291 for TACAIR (F/A-18) support to Test and Fleet Training (63% of missions FY-05).
- Point Mugu based TACAIR (F/A-18) also support Fleet Training missions at Land Range (37% of missions FY-05).
- Many Fleet Training Support missions are late at night or on weekends when China Lake Airfield Closed (tower manning limitations).
- 25 minutes transit each way from China Lake to the Sea Test Range (55 minutes support on Sea Range).  
0 to 5 minutes transit each way from Pt Mugu to Sea Test Range (95 minutes support on Sea Range).  
40 minutes transit each way from China Lake to W-291 (25 minutes Fleet support at W-291 – only one tactical run).  
15 minutes transit each way from Pt Mugu to W-291 (75 minutes Fleet Support in W-291 – three tactical runs).
- Non-direct route of flight required to avoid high volume Los Angeles Air Traffic Area

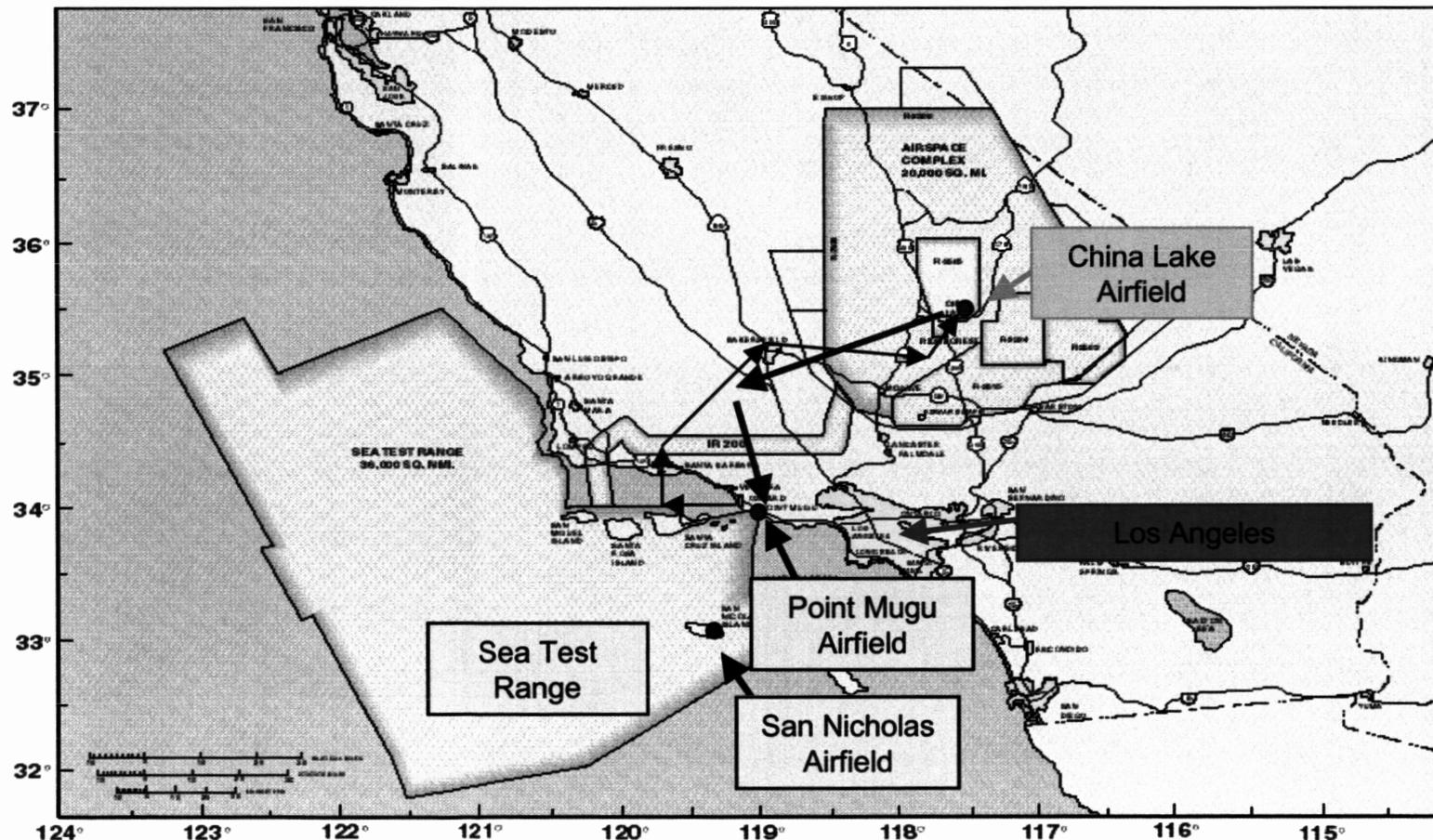


# Integrated Range Support Concept

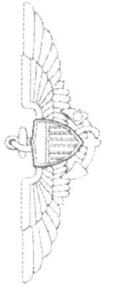
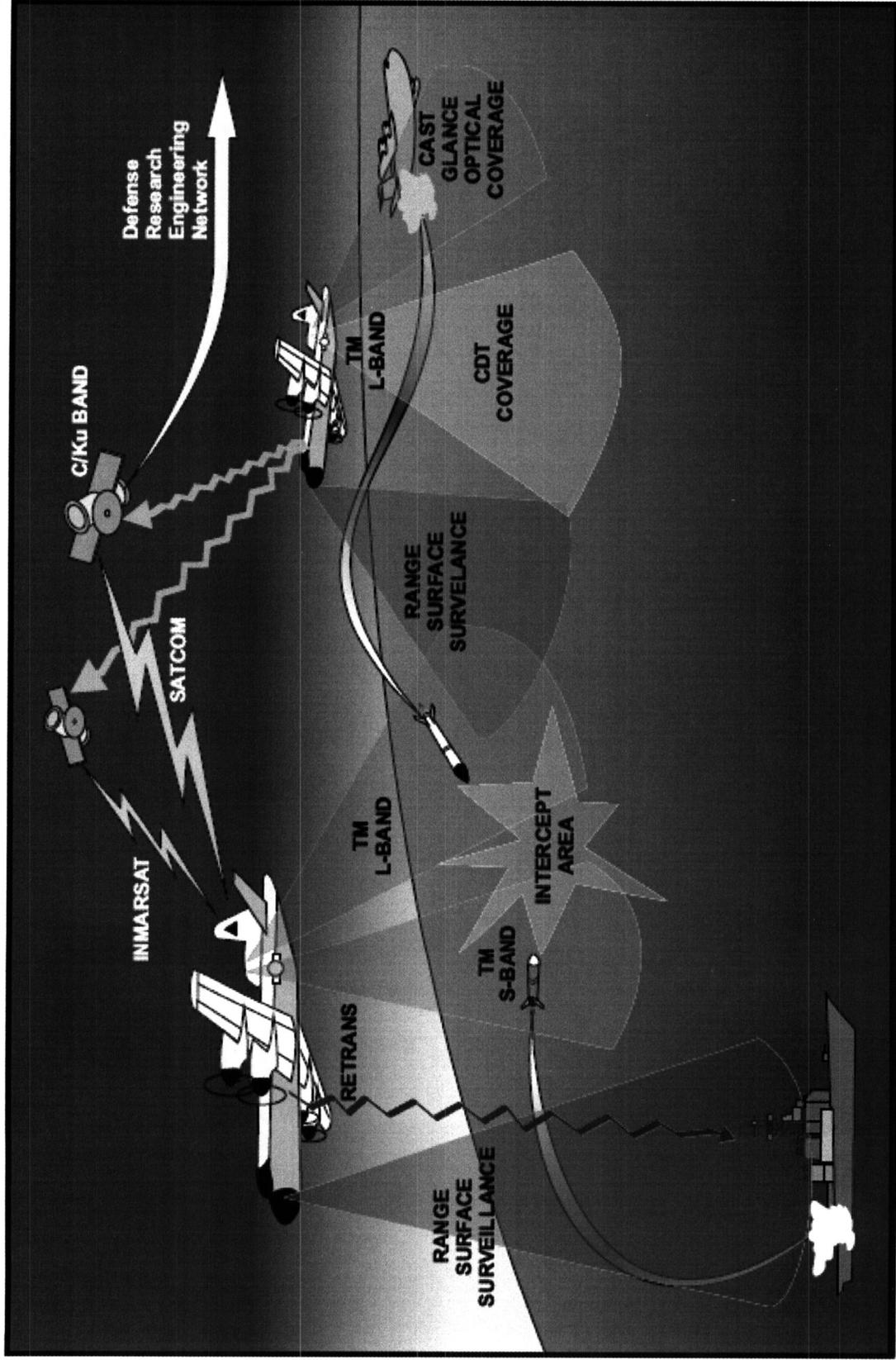


# Range Geography

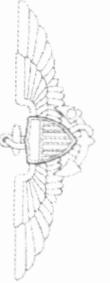
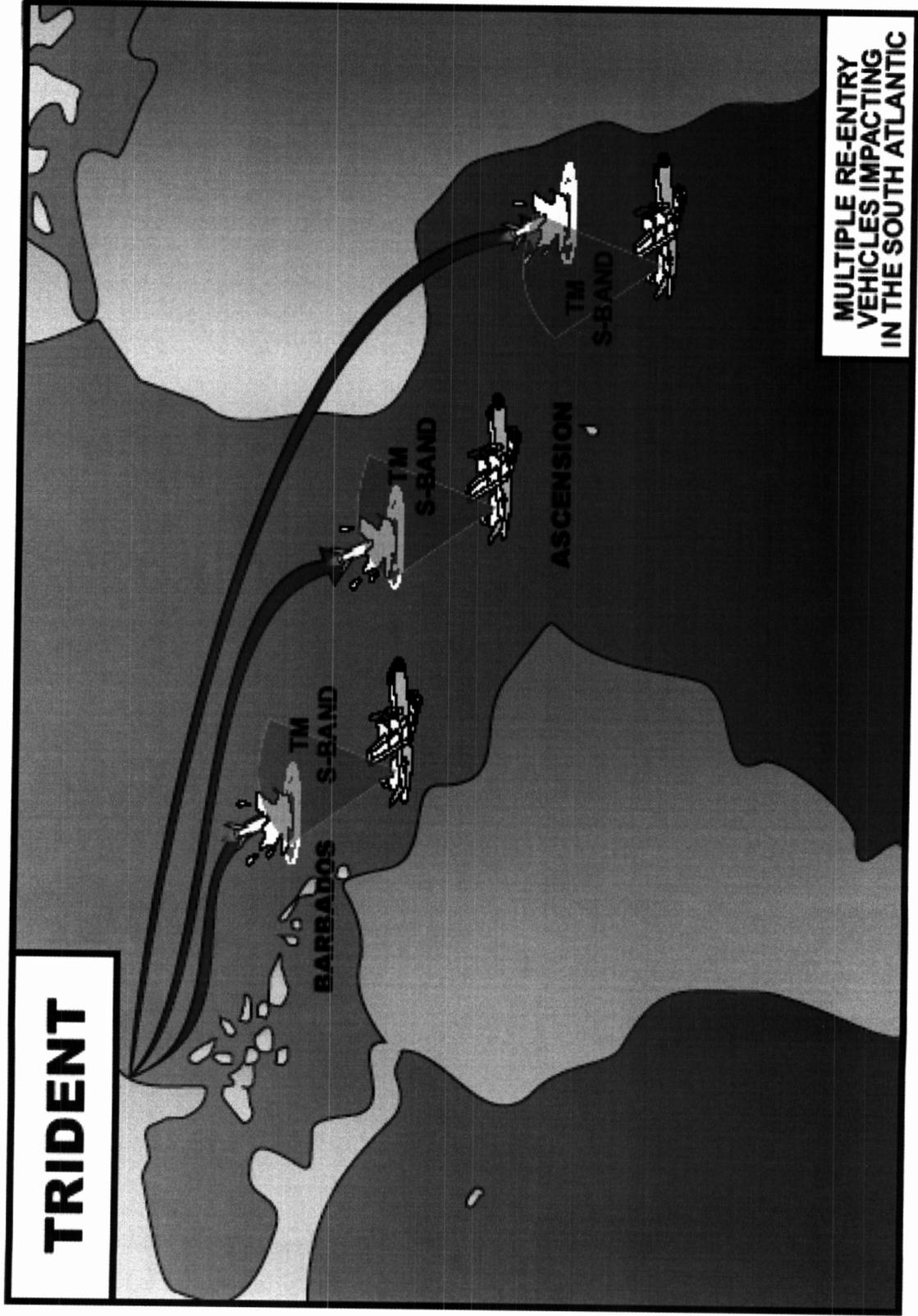
- Point Mugu and China Lake geographically separated by 150 miles by plane, 190 miles by car
- Approximately 40 minutes transit each way from China Lake to the Sea Test Range for NP-3D and DC-130 aircraft, 25 min transit for FA-18 aircraft
- Non-direct route of flight required to avoid high volume Los Angeles Air Traffic Area



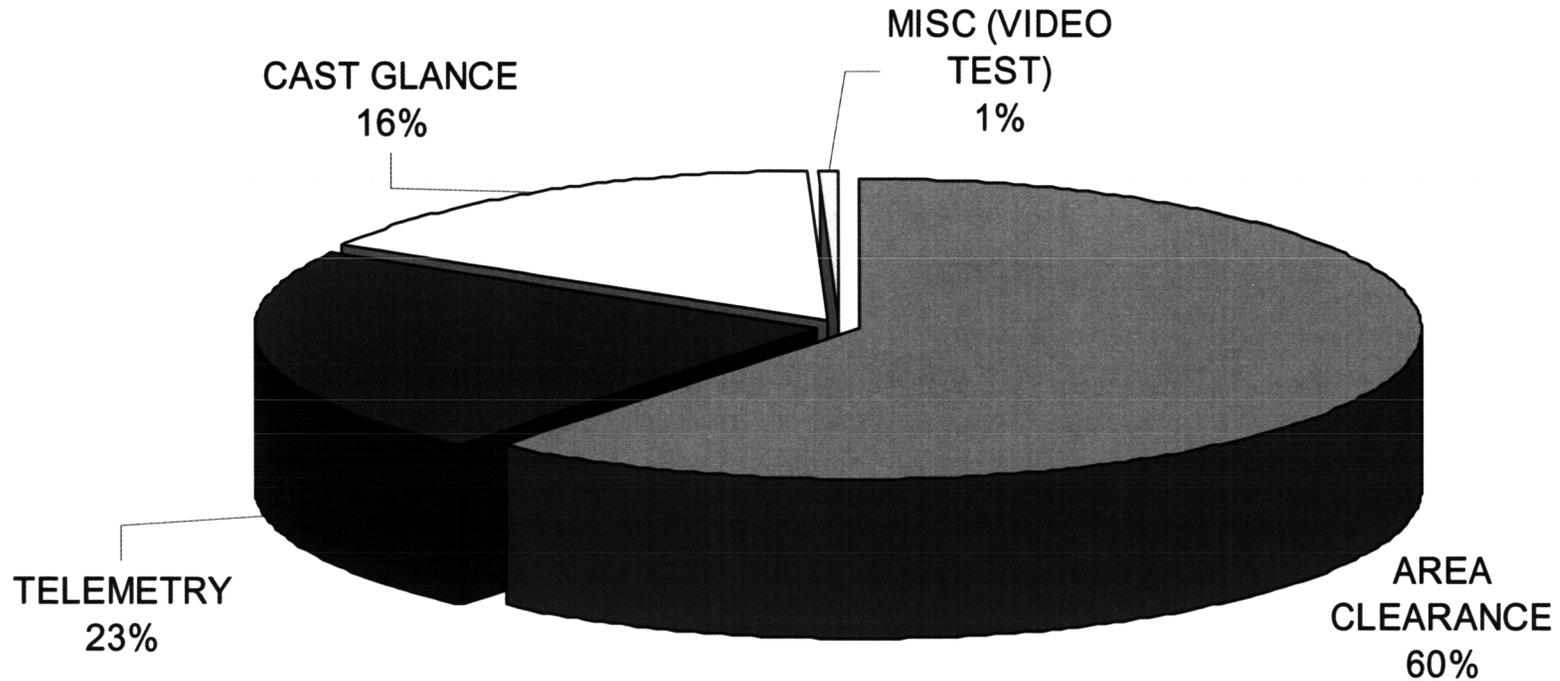
# Open Ocean Testing Support



# Trident Testing Support



## FY-04 NP-3D FLIGHT HOUR BREAKDOWN (ALL LOCATIONS)



TOTAL FLIGHT HOURS: 1186.8

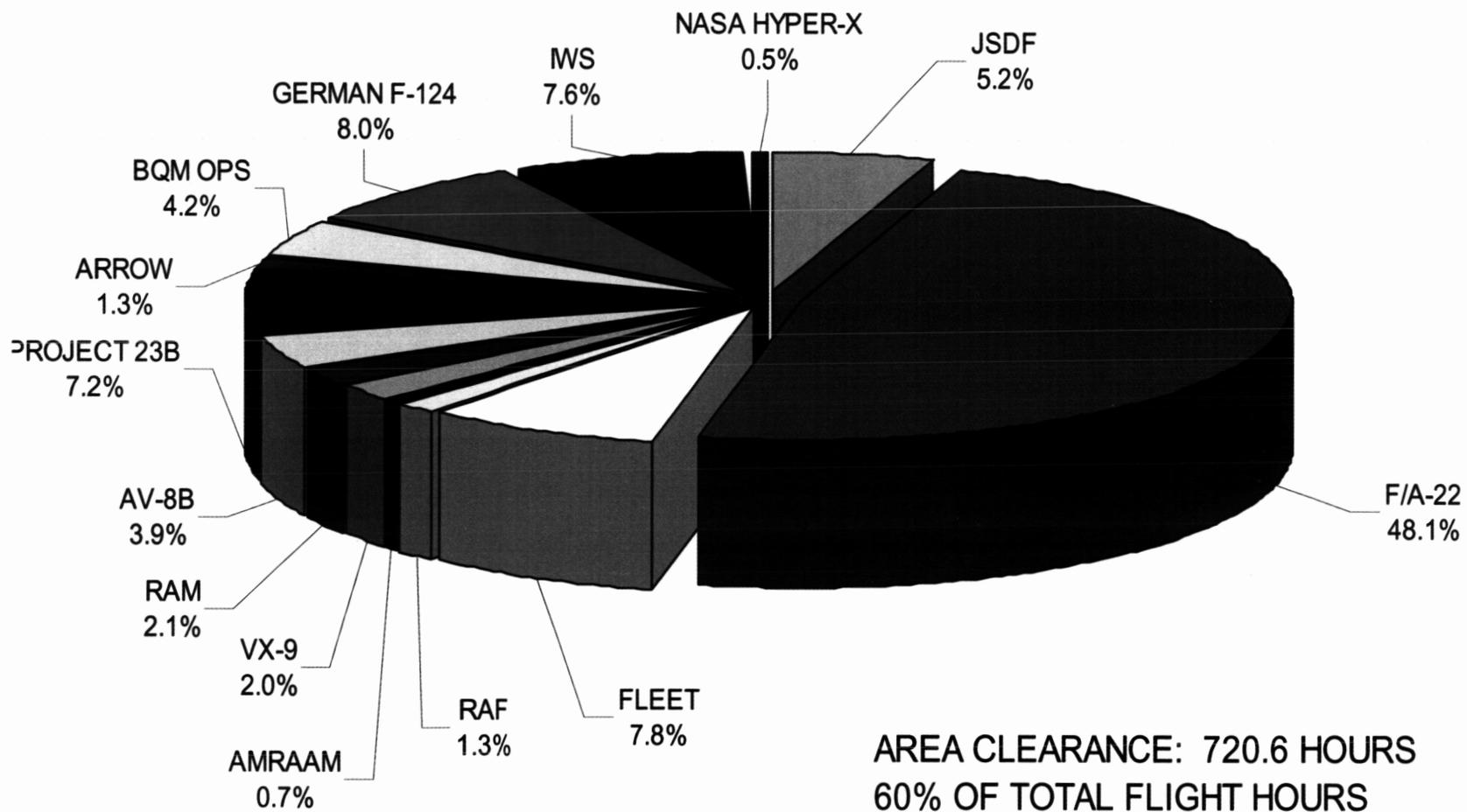
TELEMETRY: 267.1

CAST GLANCE: 193

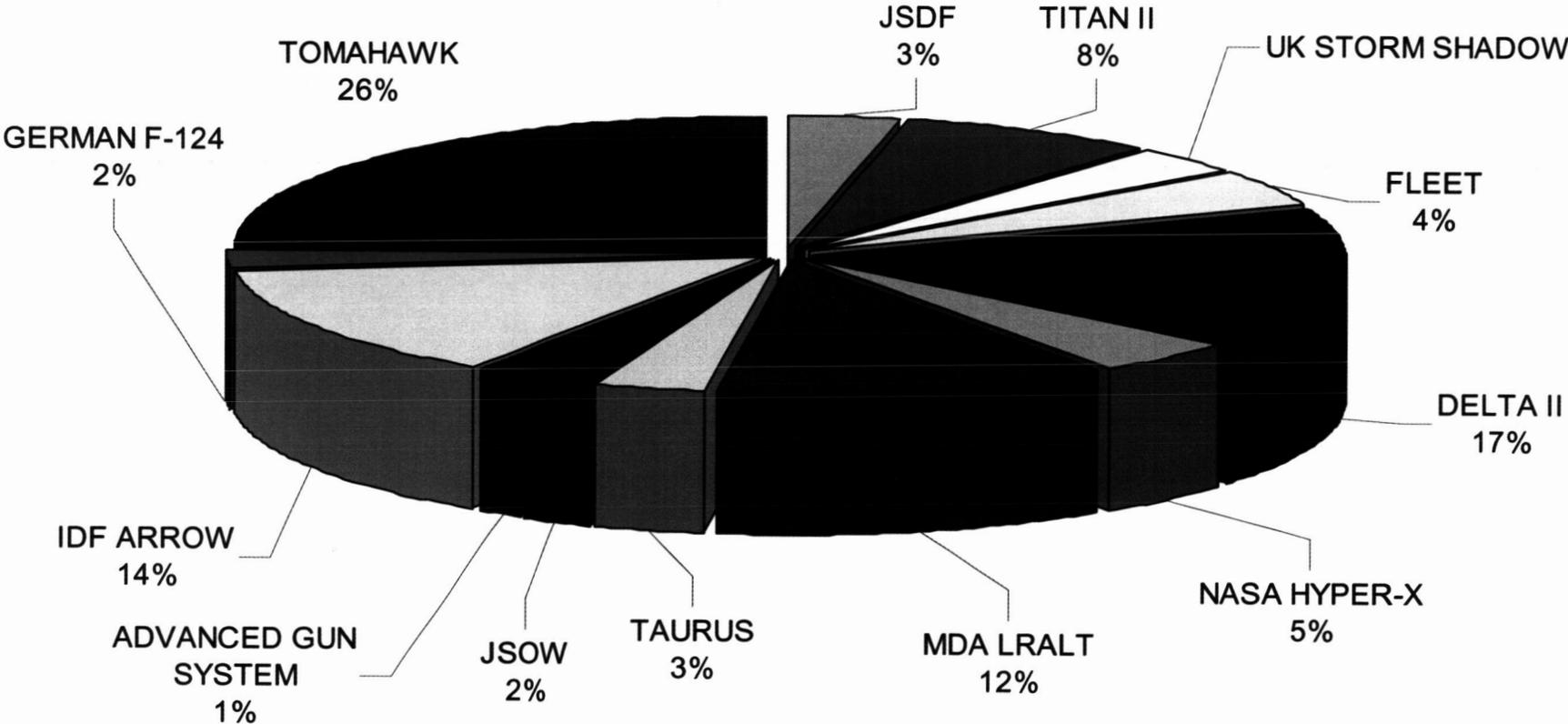
AREA CLEARANCE: 720.6



## FY-04 AREA CLEARANCE BREAKDOWN BY CUSTOMERS (ALL LOCATIONS)



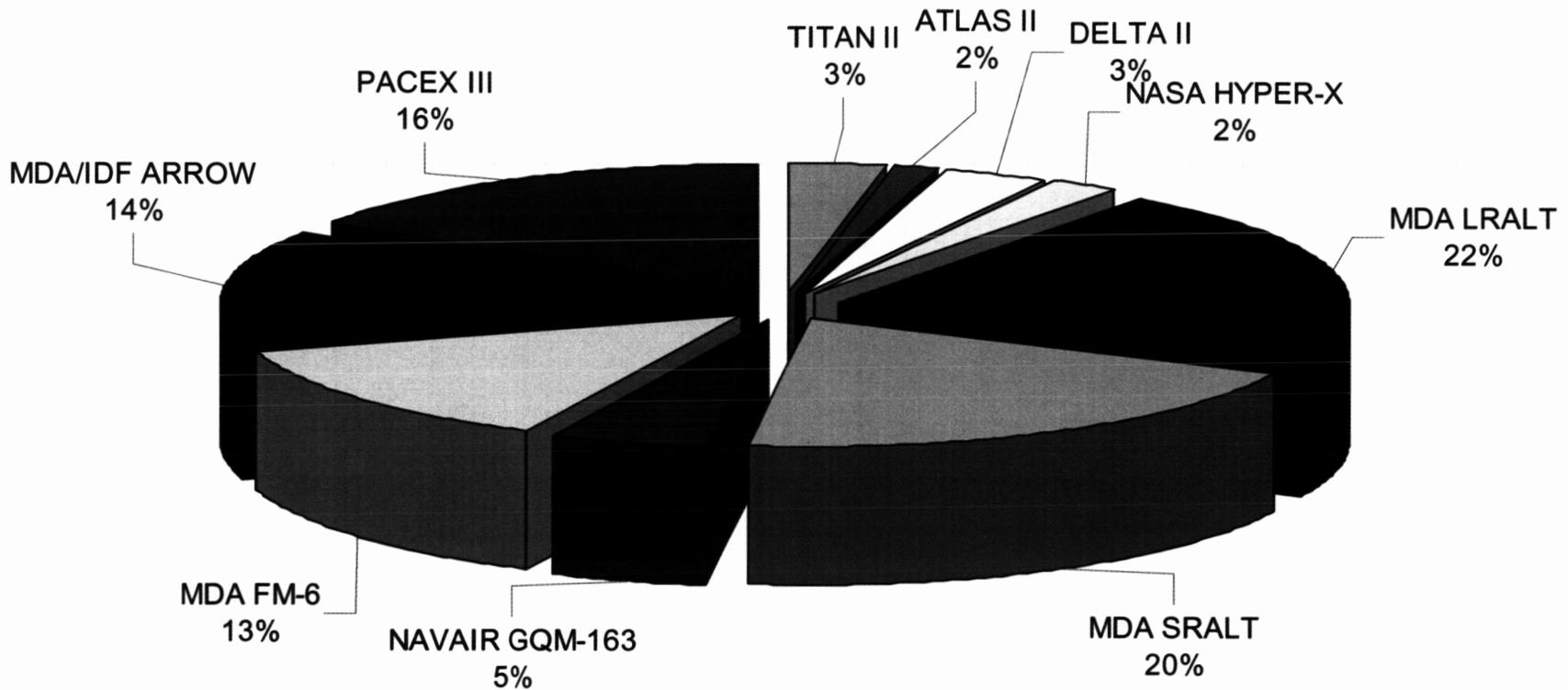
# FY-04 TELEMETRY BREAKDOWN BY CUSTOMER (ALL LOCATIONS)



TELEMETRY: 267.1 HOURS  
23% OF TOTAL FLIGHT HOURS



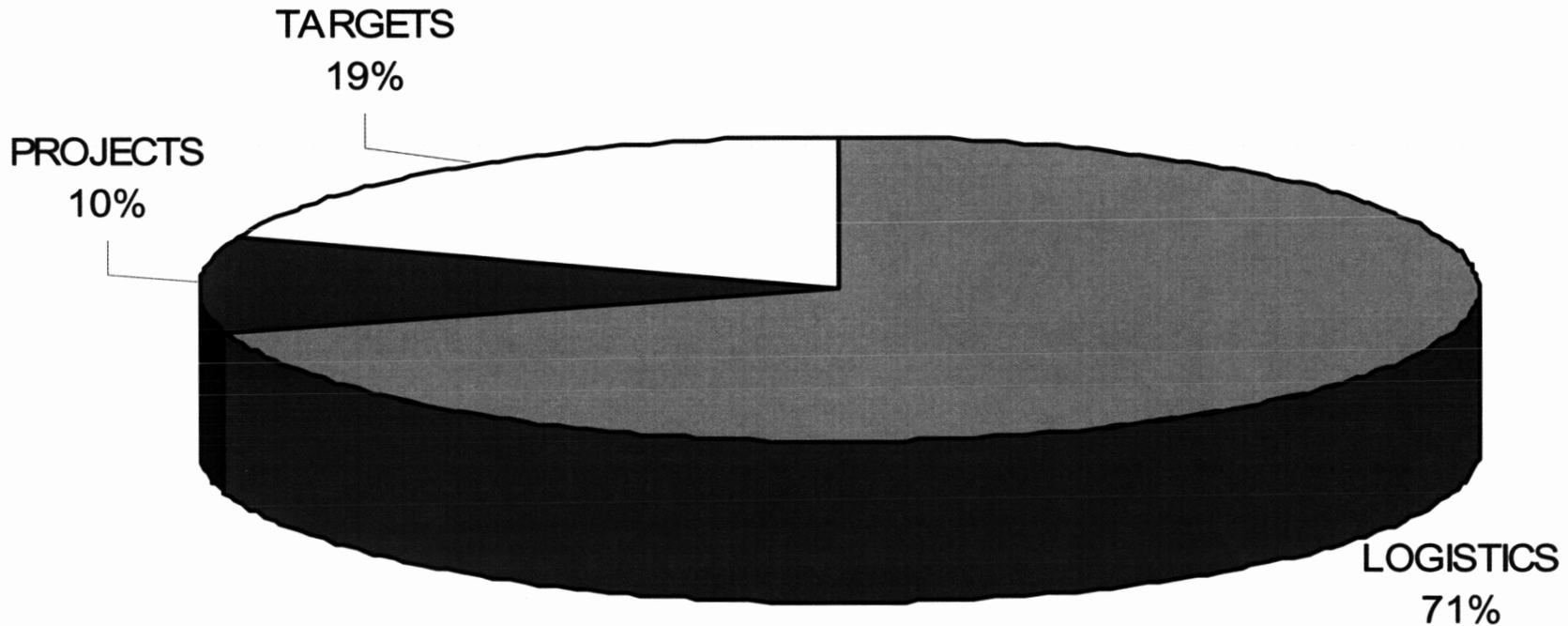
## FY-04 CAST GLANCE BREAKDOWN BY CUSTOMER (ALL LOCATIONS)



CAST GLANCE: 193 HOURS  
16% OF TOTAL FLIGHT HOURS



# FY04 C-130 PROJECT HOUR BREAKDOWN (ALMOST ALL SEA RANGE)



TOTAL FLIGHT HOURS: 257.8

LOGISTICS:	181.8
TARGETS:	50.0
PROJECTS:	26.0



# FY04 C-130 Customer Breakdown (ALMOST ALL SEA RANGE)

