Pine Gap and the coalition wars in Afghanistan and Iraq

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Pine Gap information

- All information used tonight will be online next week at the Nautilus Institute, “Australia in Afghanistan” website, the first part of the “Australian Forces Abroad Project.
- Look on the site map under “Intelligence”
- See

  http://gc.nautilus.org/Nautilus/australia/afghanistan

Outline

- The argument about Pine Gap and the wars
- The facility
- Space segment: satellites and ground stations, and SIGINT and DSP
- Dissemination of intelligence: users
- Operations and intelligence
- The case of the 2003 decapitation strikes
- Intelligence and the human interest

Part 1: The facility

Pine Gap, August 2005

Annotation Desmond Ball and Bill Robinson

Pine Gap and the coalition wars: the argument (1)

- The two functions
  - Missile launch detection and signals intel
- Facility contribution to US military operations
  - space-based intelligence, surveillance and reconnaissance [IS&R] role
- an integral, inseparable and substantial part of the total US signals intelligence interception capability

Pine Gap and the coalition wars: the argument (2)

- SIGINT integration in three ways, each of which heightens the likelihood that the Pine Gap facility has had and continues to make a substantial contribution to US operations in Afghanistan and Iraq:
  - Major facilities no longer “stove-piped”
  - SIGINT and other intel used to generate complex “mosaics” of intelligence.
  - Space-based intelligence is not only downlinked in the Afghanistan and Iraq theatre commands, but is available to at least middle-level combat commands.

Pine Gap and the coalition wars: the argument (3)

- DSP-based capabilities were certainly used in the invasion stage of Operation Iraqi Freedom to detect enemy missile launches.
- SIGINT capabilities are very likely to have been used in both the invasion stages and post-occupation stages of both Operation Enduring Freedom and Operation Iraqi Freedom to target the enemy high command, air defences, and other high-value military objectives.

Pine Gap and the coalition wars: the argument (4)

- Space-based signals intelligence intercepts of mobile telephone transmissions by the Iraqi high command led directly to US Air Force bombing strikes attempting “decapitate” the Iraqi leadership in March-April 2003.
- These “Time Sensitive Target” decapitation strikes all missed their nominal leadership targets, but resulted in the deaths of large numbers of Iraqi civilians as collateral casualties or unintended casualties.

Pine Gap and the coalition wars: the argument (5)

- There is now a very strong likelihood that in the context of the three highly developed forms of US intelligence integration outlined above the signals intelligence capability of the facility has contributed to other OIF and OEF strikes that have resulted in the deaths of civilians, whether as collateral casualties or unintended casualties.

Pine Gap radome/dish list (Aug 2005)

Dishes/radomes at Pine Gap

No.	Size ft dish/radome	Built	Comments
1	?	1967	No radome
2	~60?/125	1968	Radome replaced 1977; no. 1 in *Pine Gap* (*PG*); orig. est. 110'
3	?/68	1968	Radome replaced 1977; no. 2 in *PG*
4	?	1968	No radome
5	?	1968	No radome
6	?/55	1969	"Research" dish; replaced by dish 10 in 1973; no. 3 in *PG*
7	?/10?	1969	Upgraded to dish 13 in 1980; no. 4 in *PG*
8	?	1969	No radome
9	?/45	1971	Radome; no. 5 in *PG*
10	35/55	1973	SCT-35 DSCS dish; replaced dish 6; removed 1991-1994; Ops Bldg addition built on site ~1998; also labelled no. 3 in *PG*
11	?/45	1977	Radome; no. 6 in *PG*
12	8/15	1980	SCT-8 DSCS dish; installed on roof of Ops Bldg; no. 7 in *PG*
13	?/20	1980	Upgrade in size from dish 7
14	?	1984	No radome
15	?/125	1985	Radome; no. 8 in *PG*

10	33/33	1973	SCT-33 DSCS dish; replaced dish 6; removed 1991-1994; Ops Bldg addition built on site ~1998; also labelled no. 3 in *PG*
11	?/45	1977	Radome; no. 6 in *PG*
12	8/15	1980	SCT-8 DSCS dish; installed on roof of Ops Bldg; no. 7 in *PG*
13	?/20	1980	Upgrade in size from dish 7
14	?	1984	No radome
15	?/125	1985	Radome; no. 8 in *PG*
16	?	1986	No radome; two of dishes 16-19 may be those visible beside the bar; one is the ~25' dish ENE of dish 15, built 1985-1989
17	?	1987	No radome
18	?	1988	No radome
19	?	1988	No radome
20	?/20	1989	Size based on guess this is the radome just S of dish 3
21	?/25	1990	One of pair of new radomes announced August 1990; first radome "should be completed next month" (October?); size based on guess this is the small radome N of former dish 10
22	?/100	1991?	One of pair of new radomes announced August 1990; size based on guess this is the large radome N of former dish 10
23	55-60/na	1999?	DSP; no radome
24	55-60/na	1999?	DSP; no radome
25	33/52	1999?	DSP/SBIRS
26	33/52	1999?	DSP/SBIRS
27	70/100	2000?	Radome; one of pair built just N of dish 15
28	70/100	2000?	Radome; one of pair built just N of dish 15
29	?	2001-2002?	No radome

Table produced by Desmond Ball and Bill Robinson, 2007

Pine Gap - organisational elements - Australian

- Australian:
  - Defence Signals Directorate
  - Department of Defence
  - Australian Protective Service
  - Michael Burgess, Deputy Head of Facility

Pine Gap - organisation and components: US

- National Reconnaissance Office ground station
  - Previously CIA ground station
- Intelligence collection components:
  - Central Intelligence Agency
  - National Security Agency
  - Special Collection Elements (all branches of US military)

Pine Gap - internal organisation

Three major sections:

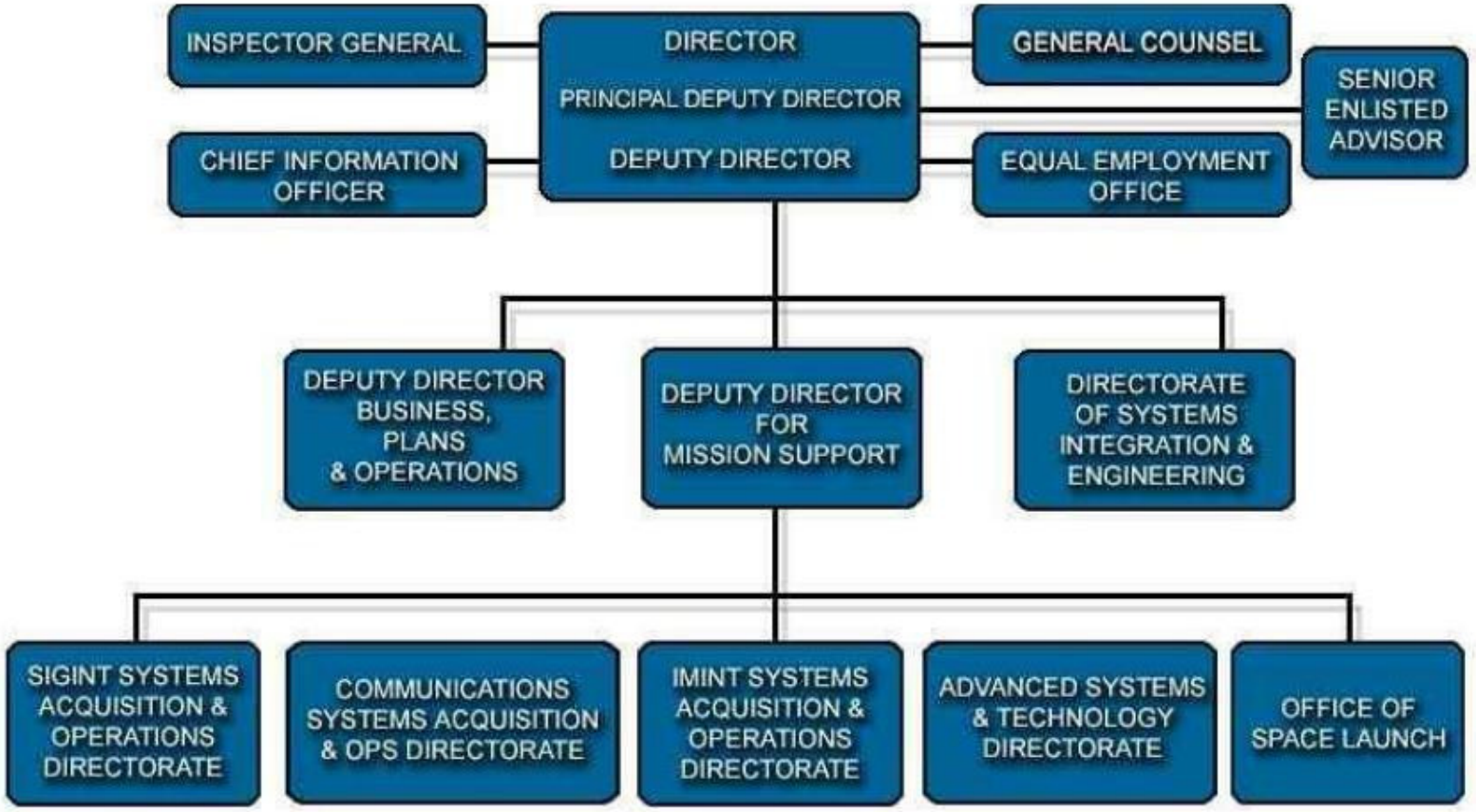
- Satellite Station keeping Section
- Signals Processing Section
- Signals Analysis Section

- Lack of updated detailed information

Tasking organisation

- Washington:
  - SIGINT Overhead Reconnaissance Sub-committee [SORS] of the National SIGINT Committee, National Security Agency
  - Monthly (?) assignment of priorities for space-based SIGINT.
  - Arbitration role between competing claims
- Pine Gap:
  - Joint Reconnaissaince Scheduling Committee
  - day-to-day scheduling and arrangement of priorities
  - Chaired by Deputy Head of Facility

National Reconnaissance Office - organisation chart



Pine Gap Special Collection Elements

- Information Operations Command, US Navy
  - U.S. Naval Information Operations Detachment Alice Springs
  - U.S. Naval Detachment Combined Support Group
- Air Intelligence Agency, US Air Force
  - Detachment 2, 544th Information Operations Group
- 704th Military Intelligence Brigade, US Army
  - Remote Detachment, Alice Springs, 743rd Military Intelligence Battalion
- Marine Cryptologic Support Command
  - Sub-Unit 1, Alice Springs, Marine Cryptologic Support Battalion

Part 2: Satellites, launch detection and signals intelligence

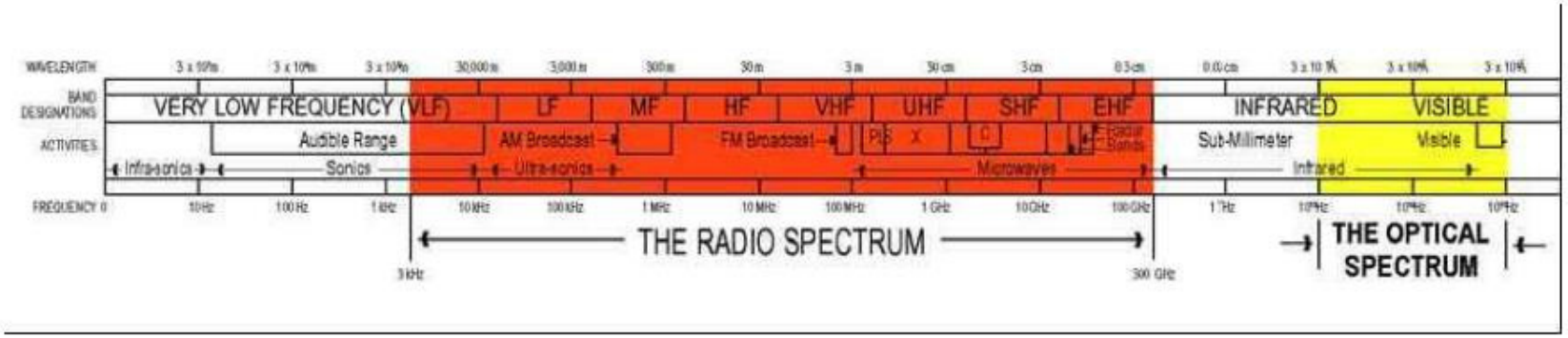
- **signals intelligence:**
- 1. A category of intelligence comprising either individually or in combination all communications intelligence, electronic intelligence, and foreign instrumentation signals intelligence, however transmitted.
- 2. Intelligence derived from communications, electronic, and foreign instrumentation signals. Also called SIGINT.

Doctrine for Intelligence Support to Joint Operations, Joint Chiefs of Staff, Joint Publication 2-0, 9 March 2000.

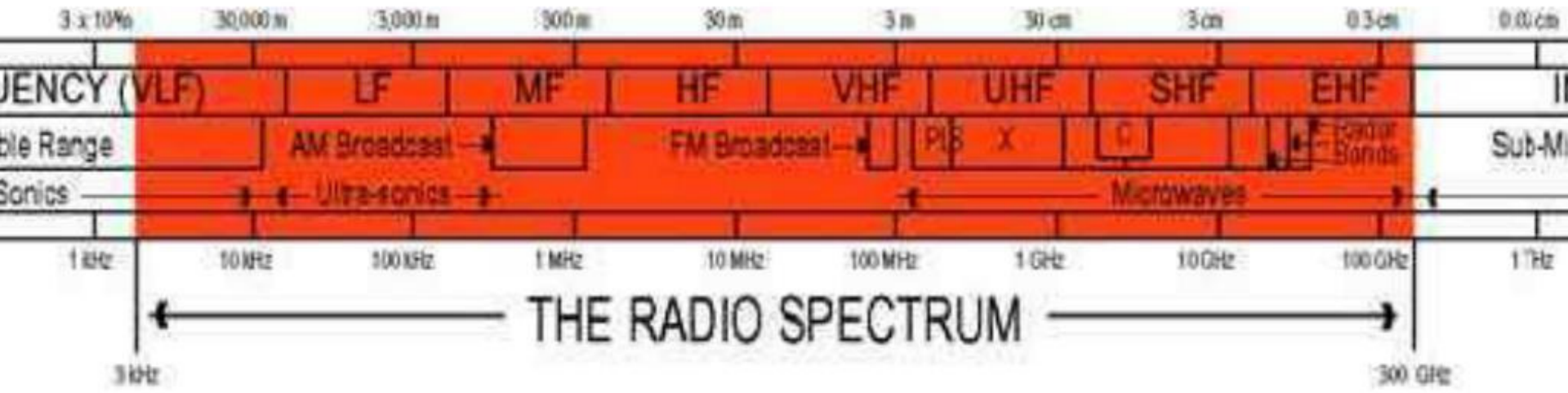
Important categories of Pine Gap SIGINT capabilities

- Pine Gap's SIGINT satellites can intercept the following types of radio transmissions in the atmosphere as they pass into space:
  - Missile telemetry
  - Radar
  - Satellite communications
  - Terrestrial microwave transmission
- These signals are in the following frequencies:
  - VHF: very high frequency
  - UHF: ultra high frequency
  - EHF: extremely high frequency

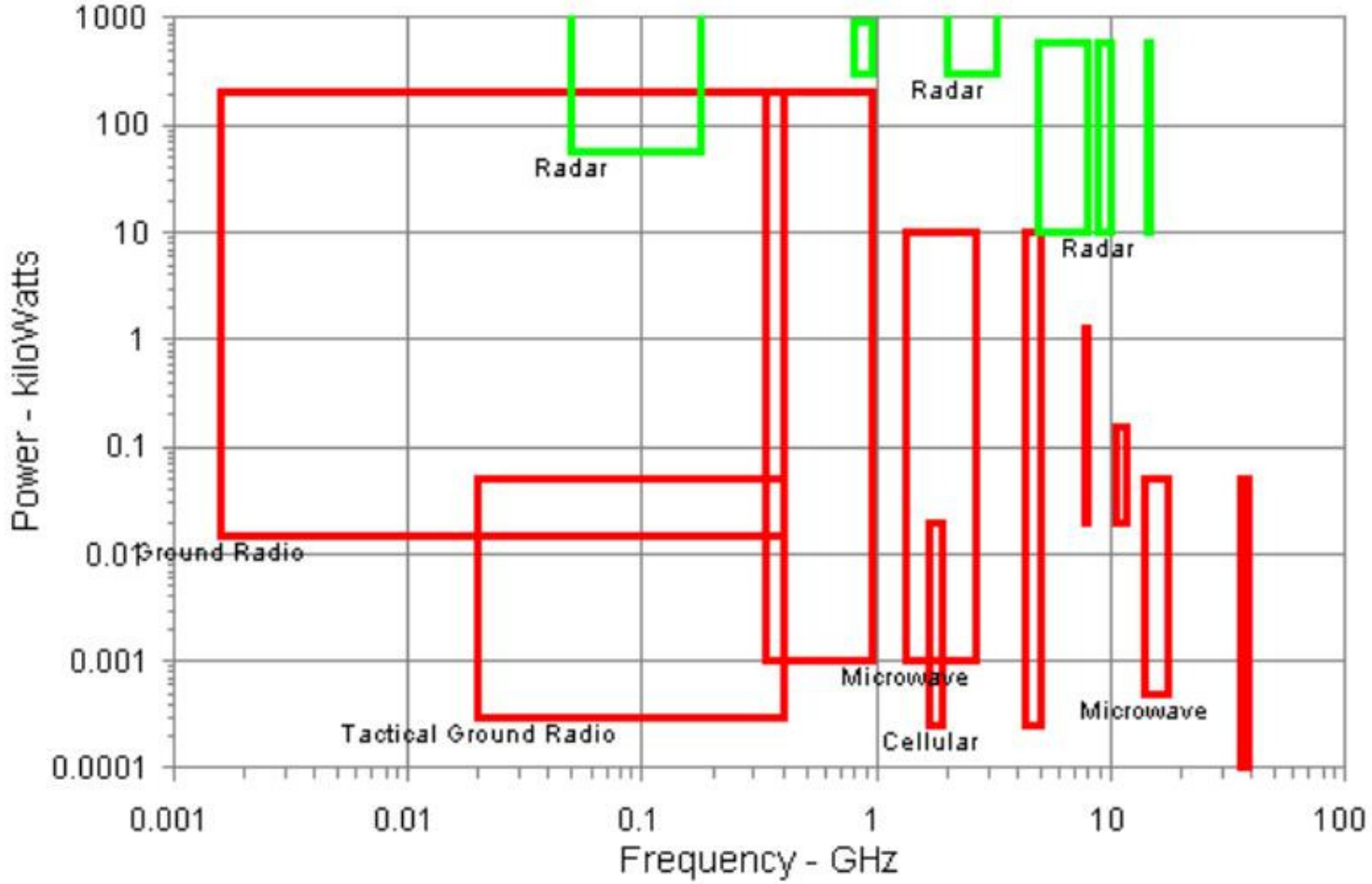
Electro-magnetic spectrum



Radio portion of the spectrum

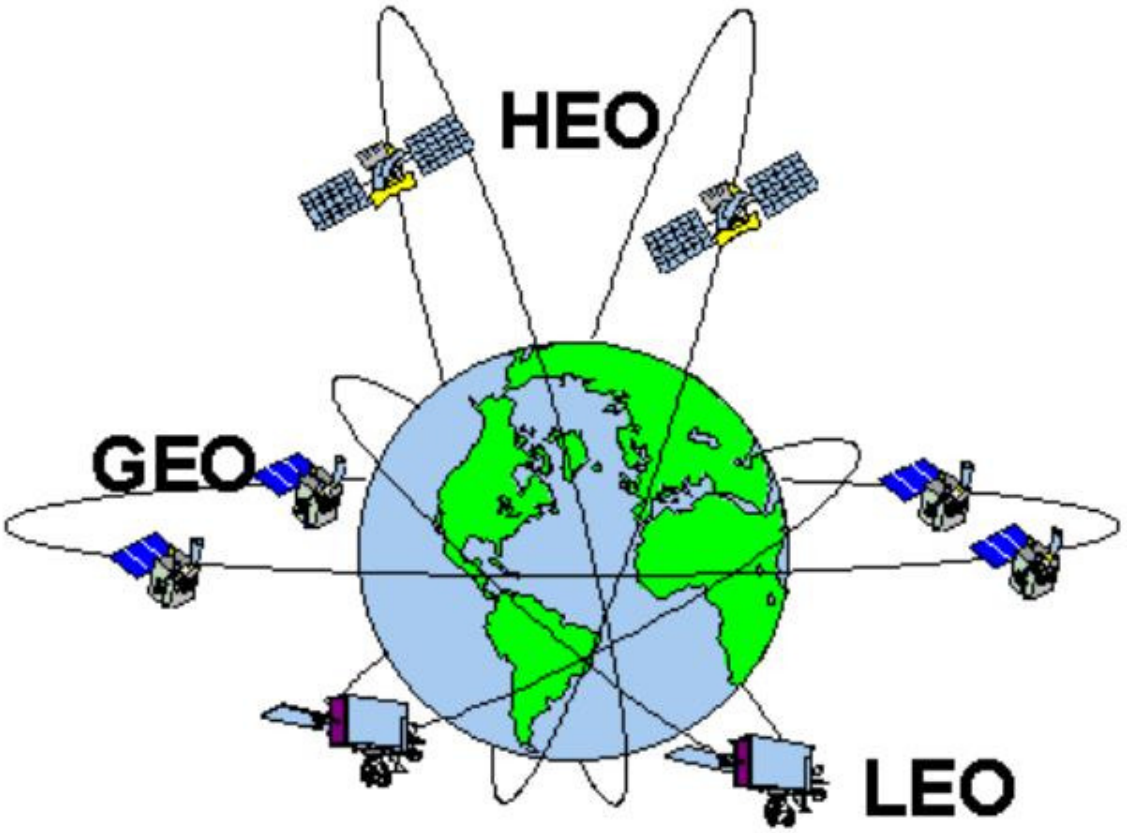


SIGINT Targets

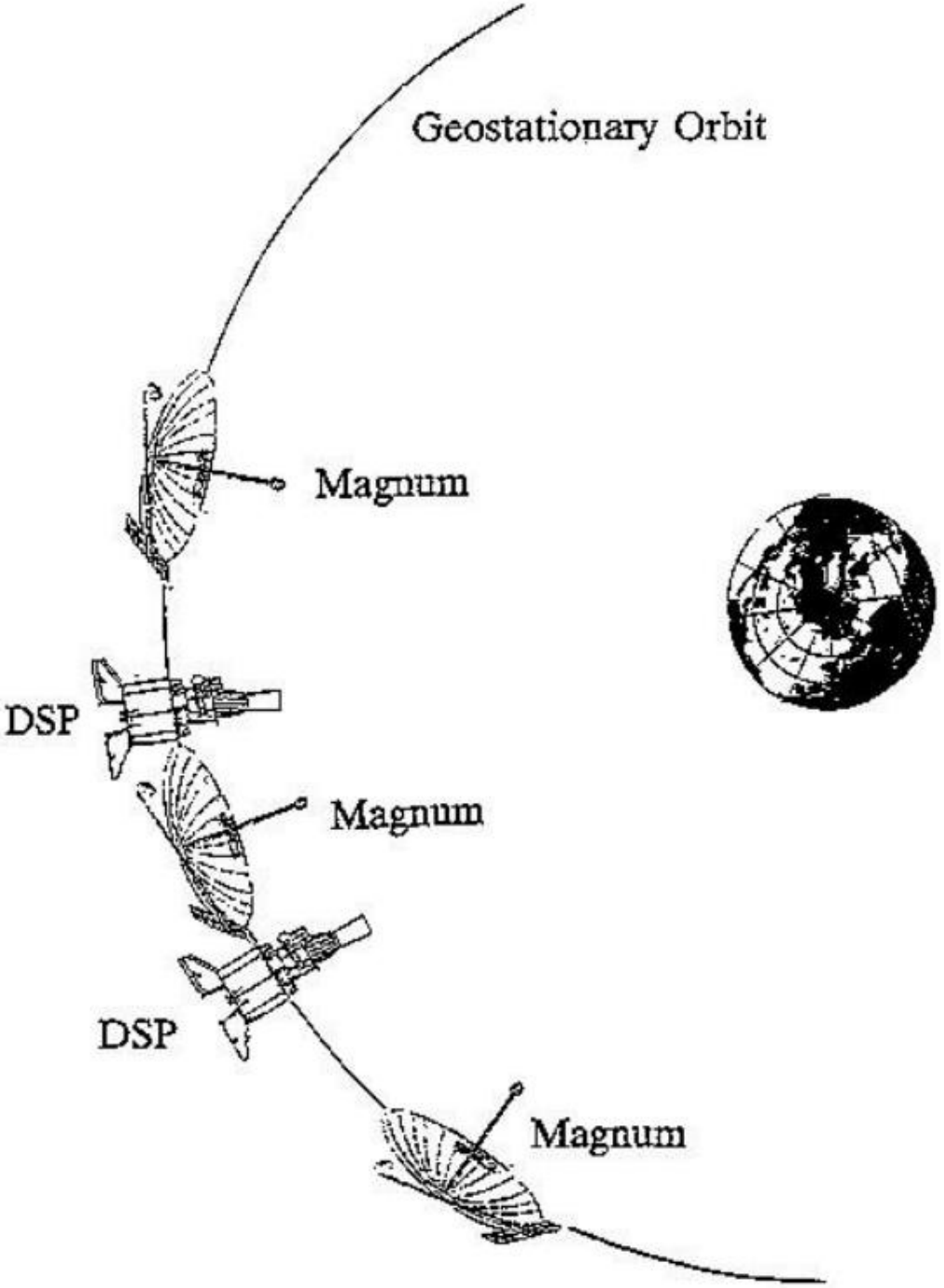


Types of satellite orbits

- HEO: High Earth Orbit
- LEO: Low Earth orbit
- GEO: Geo-stationary earth orbit



Geo-stationary orbit, 33,000 kms above the earths's surface - schematic



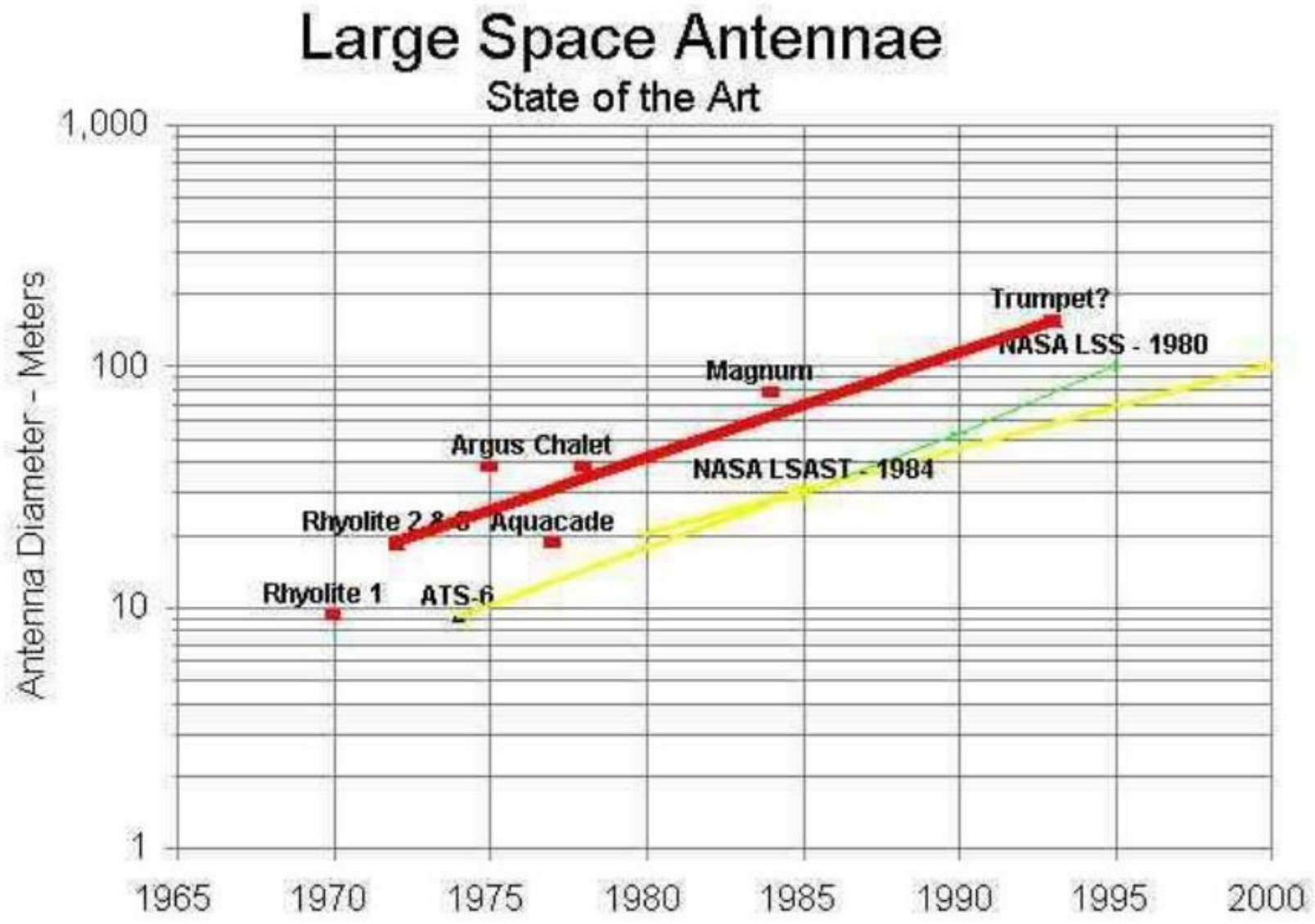
Defense Program Support- I [improved] satellite

- detects missile launches by infra-red emissions
- probably three functioning, with two in reserve orbits

SIGINT geo-stationary satellites

- Probable currentconstellation:
  = three Advanced Orion satellites, launched 1993, 1995, 2003
  – Question of lifetimes of remaining older satellites
- Previous satellites series and code-words:
  – Rhyolite/Aquacade
  – Argus (Advanced Rhyolite)
  – Chalet/Vortex
  – Magnum
  – Mentor/Mercury/Advanced Orion

SIGINT satellite antenna sizes



Signal intercept area (Ball, 1988)

Signal intercept area (km2) covered by geostationary SIGINT satellites

Signal frequency	Diameter of intercept antenna (metres)				
	5	10	20	40	100
	Signal intercept area (km2)				
150 MHz	130,000,000	33,000,000	8,300.00	2,100,000	330,000
300 MHz	33,000,000	8,300,000.00	2,100,000	540,000	83,000
1 GHz	3,000,000	750,000	190,000	47,000	7,500
2.2 GHz	620,000	160,000	39,000	9,700	1,500
3GHz	330,000	83,000	21,000	5,200	820
6GHz	83,000	21,000	5,200	1,300	220
10GHz	30,000	7,500	1,900	470	75
24GHz	5,200	1,300	330	83	13

Note: the areas of coverage in this table represent 'spots' on or near the equator, where area = d2. At higher altitudes the area of coverage should be increased by a factor of about two and a half.

Deployable 100 m. antenna (Ball, 1988)

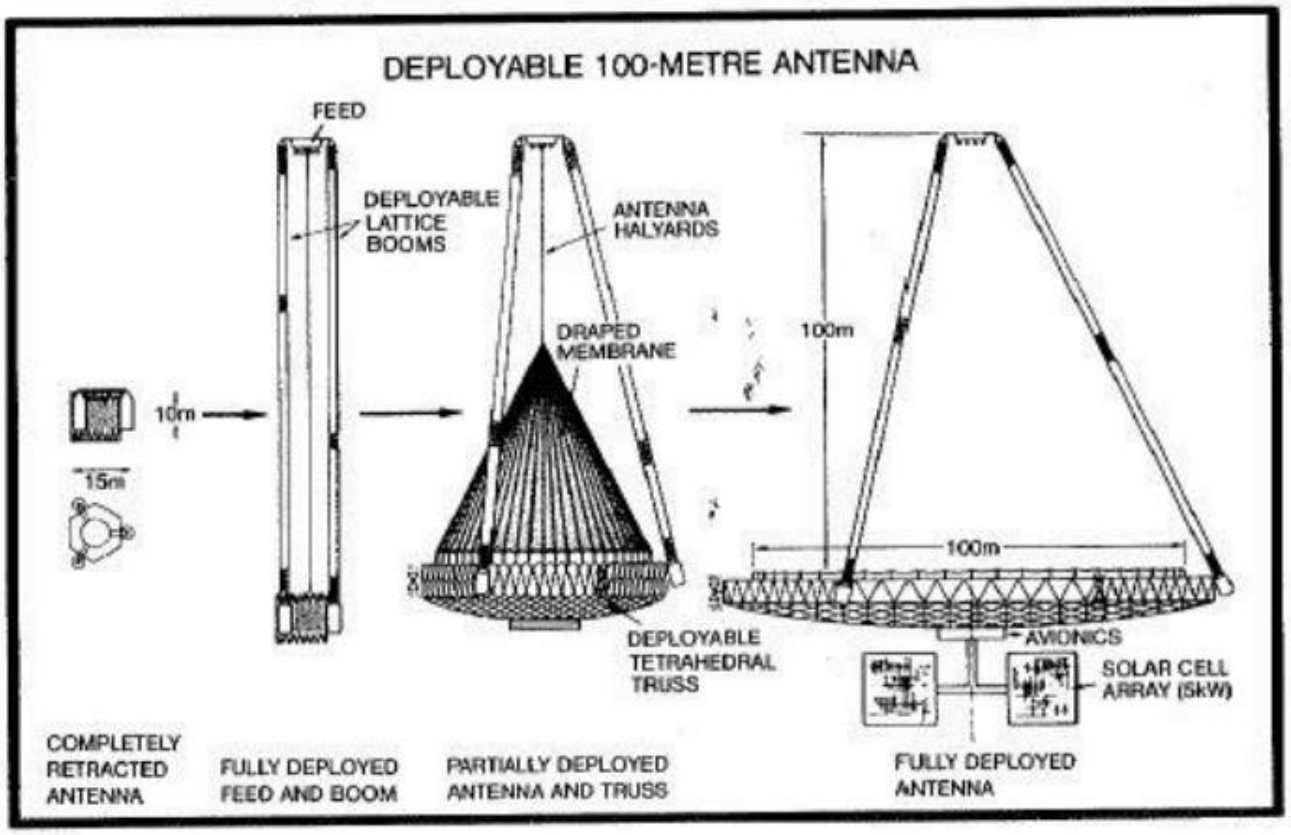
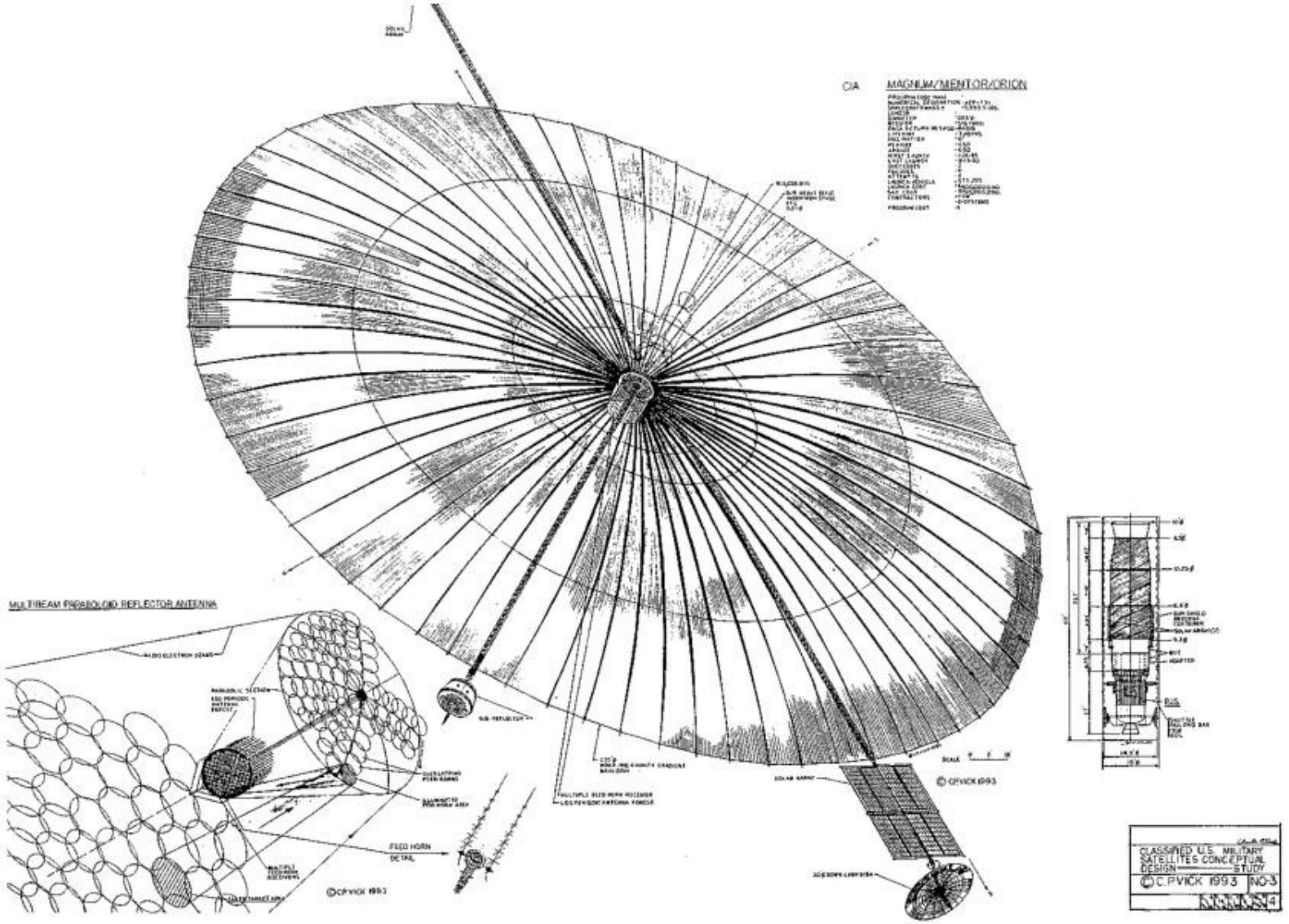
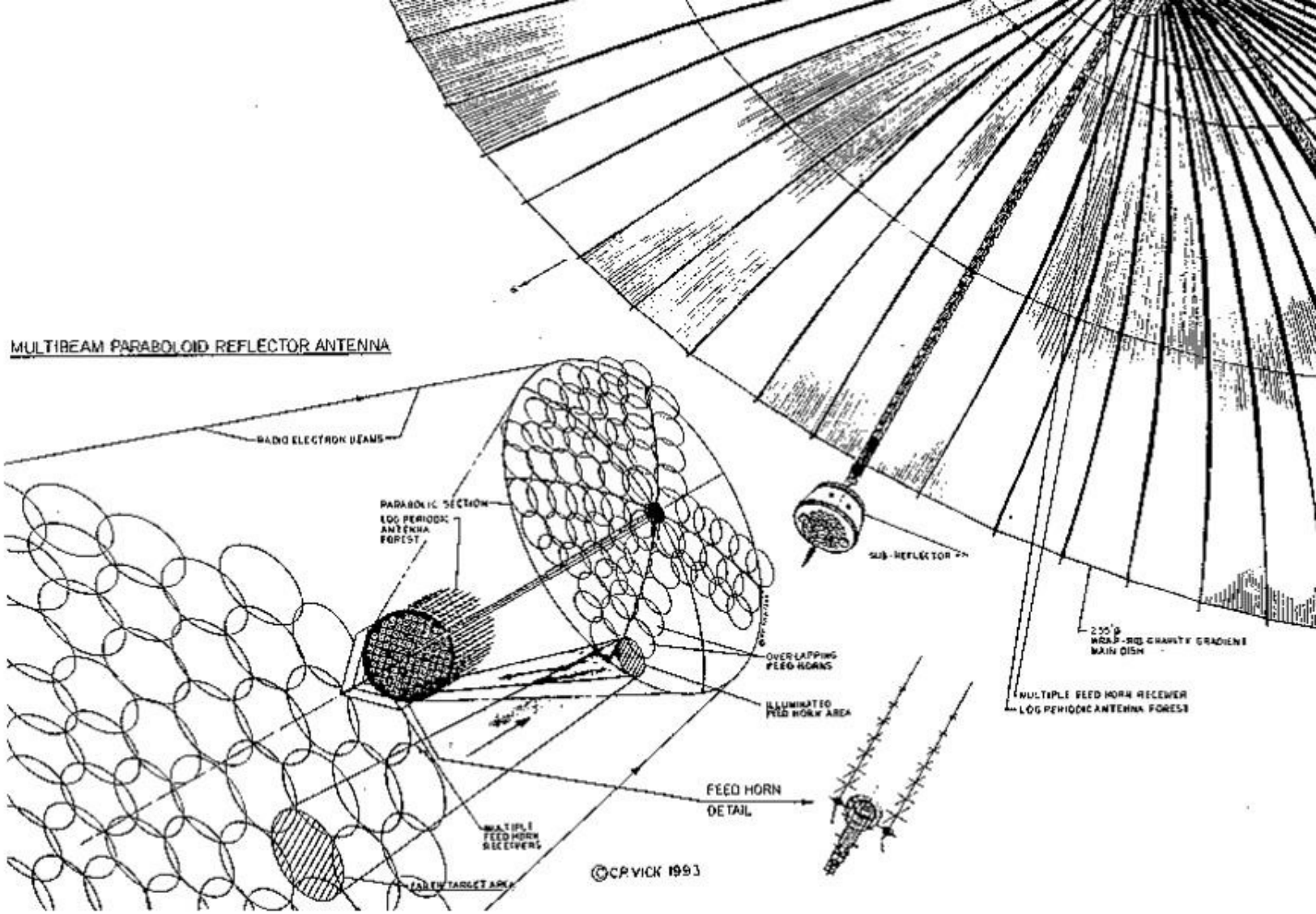


Figure 12 Deployable 100 metre antenna. It is likely that the intercept antenna on the Magnum launched in January 1985 is about 100m in diameter.

Magnum antenna schematic, (Vick, 1993)




MULTIBEAM PARABOLOID REFLECTOR ANTENNA
RADIO ELECTRON BEAMS
PARABOLIC SECTION
LOG PERIODIC ANTENNA FOREST
OVERLAPPING FEED HORNS
ILLUMINATED FEED HORN AREA
FEED HORN DETAIL
MULTIPLE FEED HORN RECEIVERS
©C.P.VICK 1993
MULTIPLE FEED HORN RECEIVER
LOG PERIODIC ANTENNA FOREST

Part 3: Dissemination of intelligence: users

- Revolution of integration in production and dissemination of signals intelligence from space-based and other platforms
- Integration of SIGINT, imagery intelligence, and other forms of intelligence into complex rapidly updated mosaics of intelligence
- Access to collated integrated information in near real time at theatre command levels, and much further below.

National information systems

- Australian national information systems
  - Restricted: Defence Restricted Network
  - Secret: Defence Secret Network
  - Top Secret: Joint Intelligence Support System
- US national information systems:
  - Restricted: Non-secure Internet Information Router Network [NIPRNet]
  - Secret: Secret Internet Information Router Network [SIPRNet]
  - Top Secret: Joint Worldwide Information Communications System [JWICS]

Intelink:

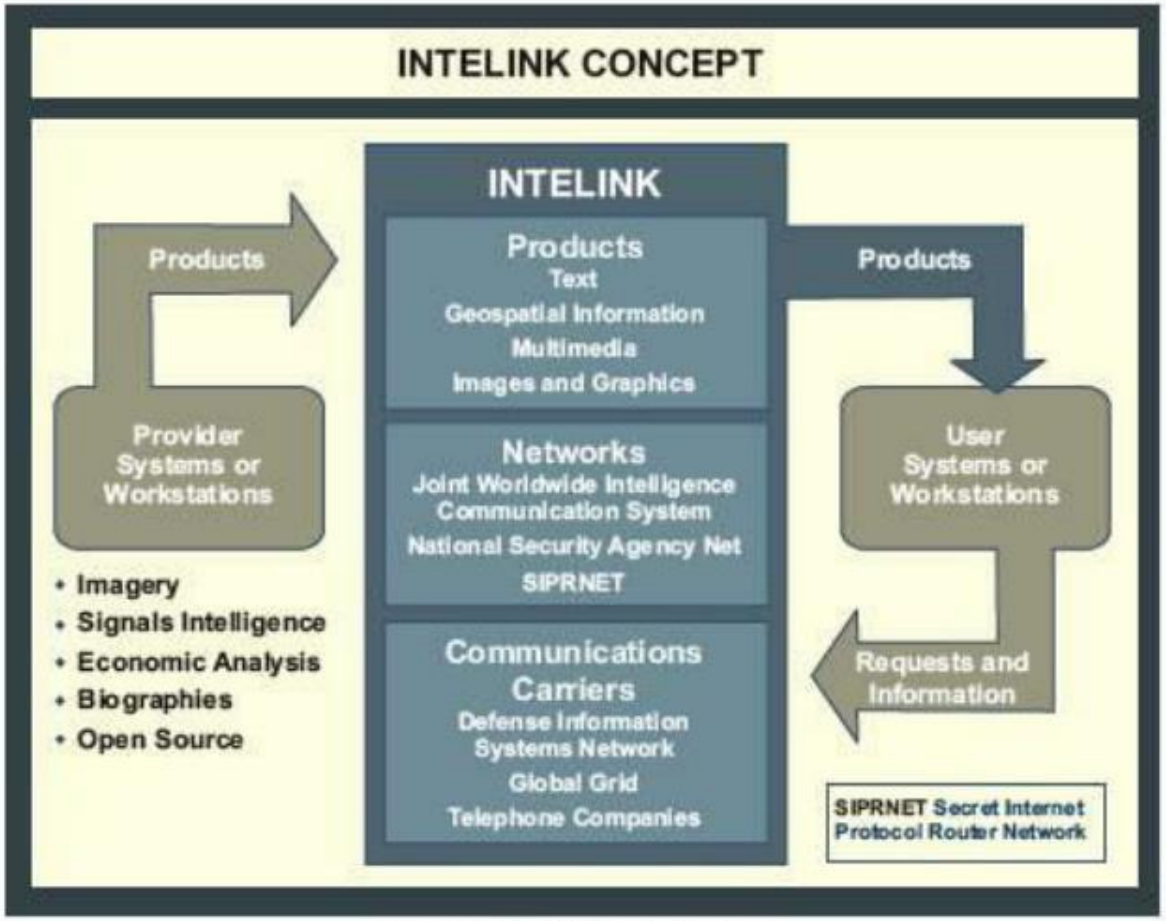


Figure V-2. INTELINK Concept

Global Information Grid

Figure V-1. Intelligence-Related Components of the Global Information Grid

Part 4: Operations: Pine Gap and war-fighting

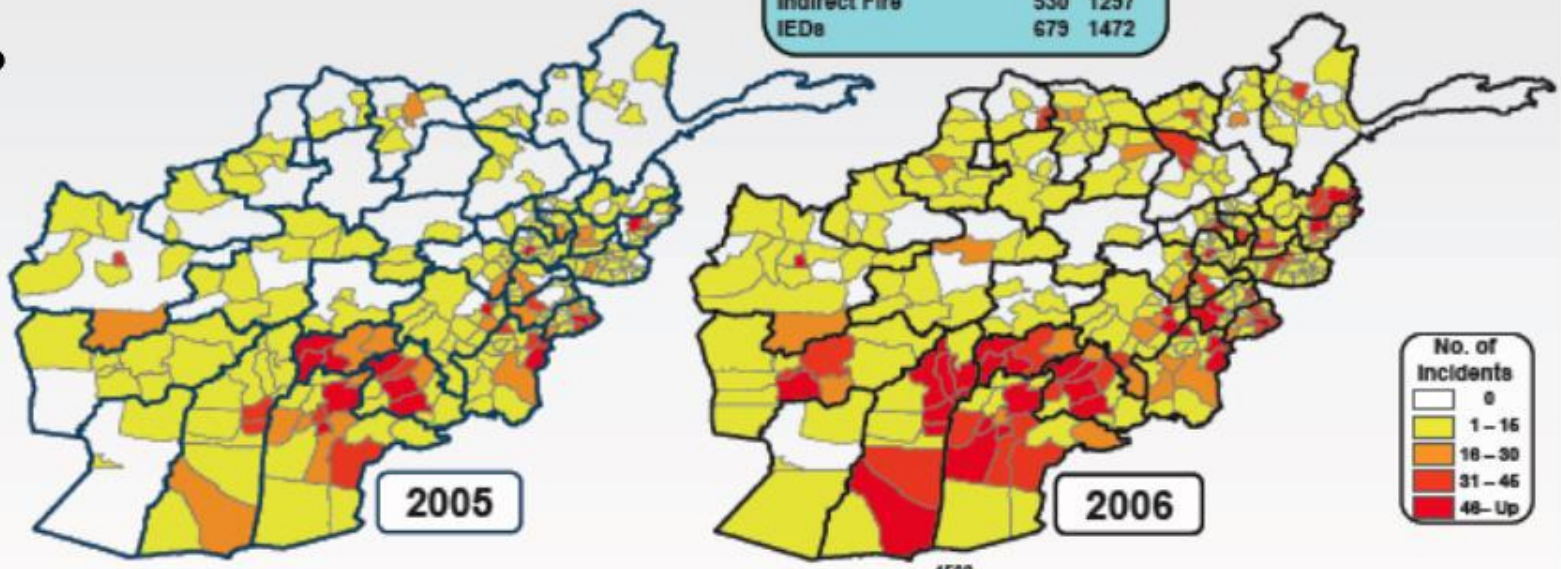
CSIS

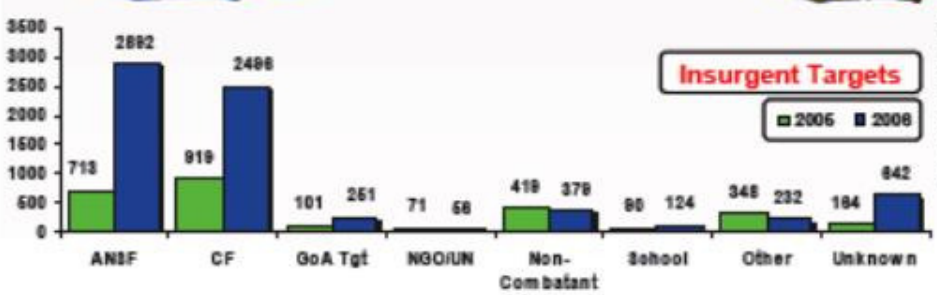
Enemy Activity Snap-shot (Weeks 1 – 44 for 2005 & 2006)

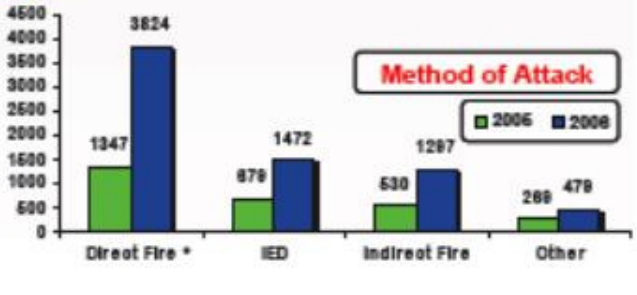
01 January – 04 November (2005 & 2006)

Activity for Period

Type of Activity	2005	2006
Suicide Attacks	18	116
School Attacks	90	124
Direct Fire *	1347	3824
Indirect Fire	530	1297
IEDs	679	1472







Note: Does not include land mine strikes

* Direct Fire includes SAFIRE event

5

Part 5: The case of the 2003 decapitation strikes

- Decapitation strike = attack on leadership
- 50 such strikes in invasion phase
  - None successful
  - All resulted in large numbers of civilian deaths
- Four strikes investigated by Human Rights Watch: no successes, 42 civilians dead
- All involved “Time Sensitive Targeting”
- Based primarily on interception of Iraqi leadership satellite phones, plus some human intelligence

Four cases investigated by HRW

- Al Dura, Baghdad, 3.15 am 20 March 2003; target: Saddam Hussein; result: one civilian death
- Al-Karrada, Baghdad, 9.02 pm, 8 April 2003; saddam Hussein's half-brother, Watban; civilian deaths at least six.
- Al-Tuwaisi, Basra, 5.20 am, 5 April 2003; target Lt-Gen Ali Hassan al-Majid; 17 civilian deaths
- Al Mansur, Baghdad, 7 April 2003; target Saddam Hussein; 18 civilian deaths

Dora Farms/Al Dura attack, Baghdad,

Decapitation strike on Saddam Hussein, March 20, 2003

The first of two F-117s lands at a forward deployed air base after dropping the initial bombs in the war with Iraq. The aircraft deployed from Holloman for Operations Iraqi Freedom and Enduring Freedom.

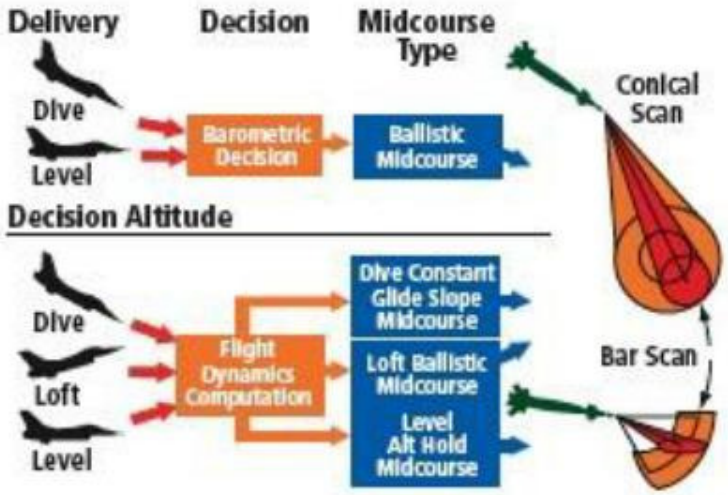
Precision-guided bombs for decapitation strikes used by F-117 Nighthawks

- Dora Farms strike used two EGBU-27 penetrator/bunker buster bombs
- Manufactured by Raytheon.
- Accurate to 10 m./GPS

GBU-28 Super Penetrator Weapons

GBU-28A/B

Warhead:	BLU-113
Weight:	4700 lb
Length:	230 in
Guidance:	WGU-36A/B
Airfoil Group:	BSU-92/B



Fully adaptive midcourse, proportional guidance, and scanning seeker improve upon Paveway™ II LGB series.

Role of SIGINT and Pine Gap

- Only space-based signals intelligence capable of intercepting the satellite communications of the phones
- Pine Gap always capable; In the past, this was the task of Menwith Hill, UK; now know Pine Gap does do communications intercept
- Location of geo-stationary satellites re Iraq makes Pine Gap highly likely

Part 6: Intelligence and the human interest

Part 6: Intelligence and the human interest

- “intelligence” and human rationality
- The human interest in reliable, democratically accessible intelligence
- Beyond national controls
- In the present scheme of things: why current restrictiveness is counter-productive and anti-democratic
- The right to intelligence

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