

# SPACE AND SURVEILLANCE SOCIETY

#UKSPACE2015



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LIVERPOOL FROM SPACE DMCii



# Eavesdropping from Space

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# Countries with ELINT satellites

France

Russia

China

Japan

USA





# France

France has been developing a space ELINT system for 20 yrs

- Cerise 1995, Clementine 1999, Essaim (x4) 2004, ELISA (x4) 2011
- Locate / characterise transmitters and radars (especially anti-aircraft)
  - L Collett-Billon (DGA, Dec 2014): “different French military and intelligence services have different priorities with respect to the radio frequencies CERES should listen to”
- CERES operational system under development
  - €325M contract placed with Airbus/Thales for 3 satellites
  - launch 2020 (if 2015 budget approved)
  - further €135M for ground segment & 2 years’ operation



Essaim satellites being checked before launch

# Russia

Russia has been flying low orbit ELINT satellites of two main types for 4 decades:

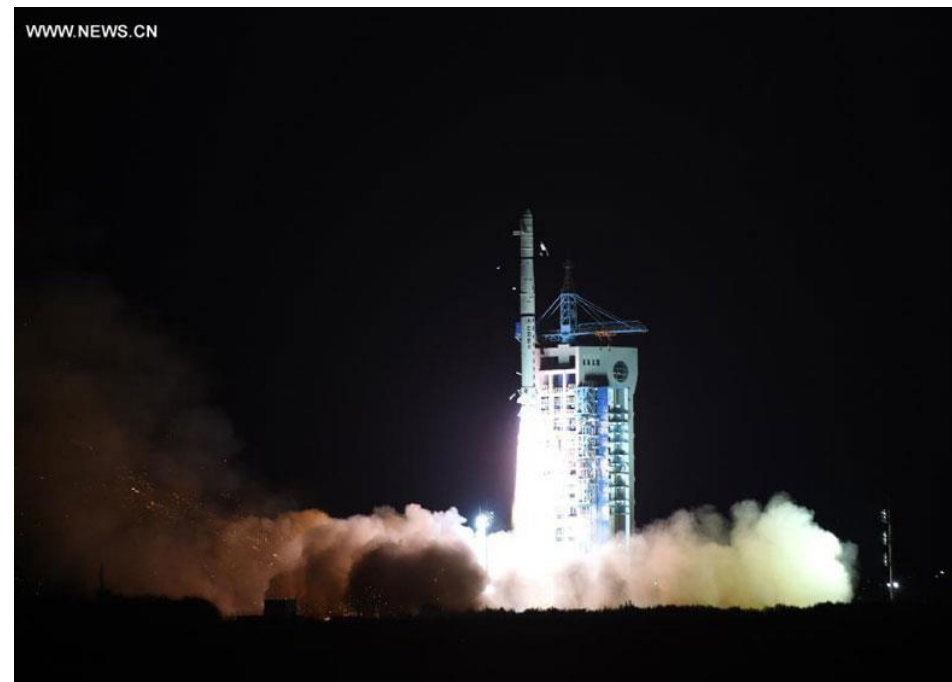
- ocean surveillance (EORSAT then US-PM) 420km altitude, 65° inclination
- general ELINT (Tselina-2 - built in Ukraine) altitude 850km, 71°
- new built-in-Russia generation being developed (Lotos / Pion-NKS)
  - prototypes launched in 2009 and 2014
  - 900 km altitude



# China

China began to orbit ELINT satellites in the past ten years

- low orbit only
- five clusters of triplet satellites now in orbit providing ocean surveillance
  - Yaogan 9 (2010)
  - Yaogan 16 (2012)
  - Yaogan 17 (2013)
  - Yaogan 20 & 25 (2014)
- all about 1,100km high, 63° inclination



Long March 4C with Yaogan 25  
launches from Jiuquan 10 Dec. 2014

# Japan

- 12 January 2015: 10 year space plan approved by Prime Minister Shinzo Abe
  - replaces the existing 10 year plan after just 2 years
- Emphasis in the new plan is on security
  - as opposed to exploration/science in previous plan
- Existing military optical and radar surveillance satellites (IGS series) are to be complemented with electronic intelligence gathering and missile warning satellites

# U.S. satellites have ears

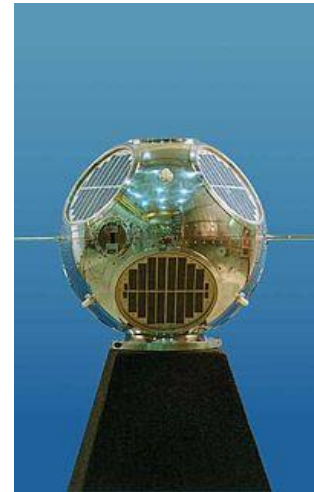


- [www.nro.gov](http://www.nro.gov) :
  - “When the United States needs eyes and ears in critical places where no human can reach .... it turns to the National Reconnaissance Office (NRO)
  - The NRO is the U.S. Government agency in charge of designing, building, launching, and maintaining America’s intelligence satellites”



# GRAB & POPPY

- the first ever observation satellite was a U.S. electronic signals gathering satellite, GRAB, launched in June 1960 targeting Soviet radars
- GRAB and its successor POPPY dramatically increased the capability of U.S. intelligence to acquire Electronic Intelligence data deep within the Soviet Union
- They provided (source: NRO website):
  - cues to the location and capabilities of radar sites within the Soviet Union
  - Strategic Air Command with characteristics and locations of air defense equipment to support building the U.S. Single Integrated Operations Plan
  - ocean surveillance information to Navy operational commanders



GRAB

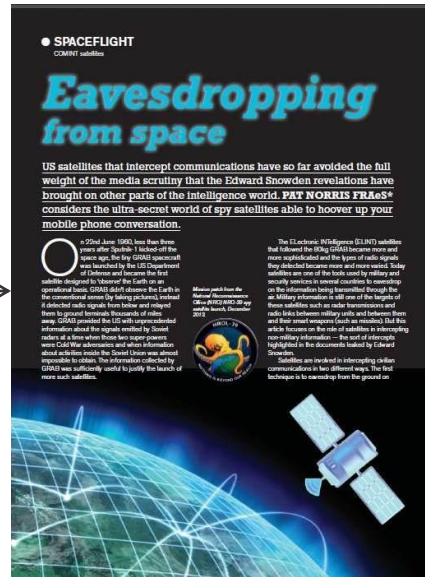
# Further information

Chapter 9 (pp232-260) covers eavesdropping from space



pages 36-39

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available at online book retailers: WH Smith, Foyles, Waterstones, Amazon, etc.