

A National Requirement for Space Surveillance and Tracking?



Ralph 'Dinz' Dinsley MA

Associate - Reflecting Space

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Scope

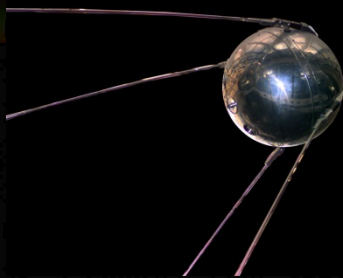
- **History of UK contribution space surveillance**
- **Current capabilities**
- **Space Situational Awareness**
- **Collaboration is key**
- **Space Traffic Management**
- **Future Requirements**



Historical Context



1957



1963



1990



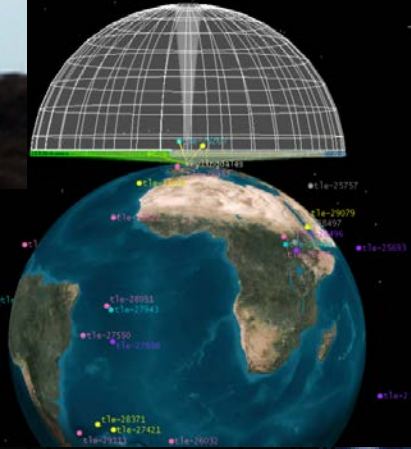
2007



2008

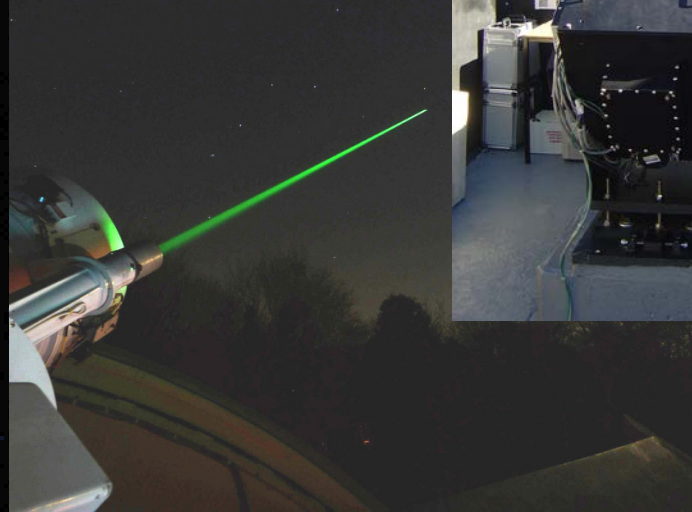
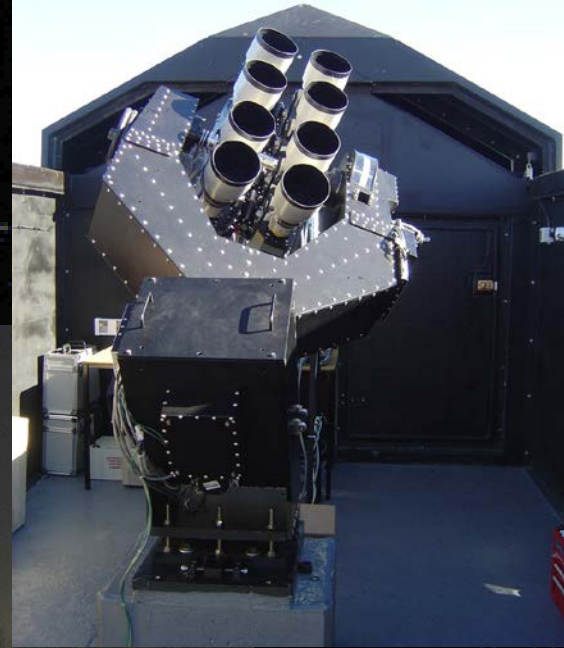
UK SST Capabilities

Military



Civil

Commercial



The Need For Space Situational Awareness

“A necessity for any nation that seriously bases its military and economic well-being even partly on space capabilities”

- **Fusion of:**

- **Space Surveillance and Tracking**
- **Understanding the Environment**
- **Intelligence**



"Difficult, Expensive—and Necessary" Dr. Gene H. McCall, John H. Darra 2014

Space Traffic Management

- **Aims:**
 - **Long term sustainability**
 - **Safety of flight**
 - **Legislation**
 - **Governance**
 - **Responsibility**
- **Issues:**
 - **Cost**
 - **Responsibility**
 - **Agreement**



Collaboration Is Key

3 C's of Near Earth Orbits:

Congested, Contested, Competitive

Requirement:

Complement, Cooperate, Collaborate



5 Dec 17 US Box score (12 Nov 17):

Total objects catalogued:	43036 (43005)
Total objects in orbit:	18822
Active payloads:	1500 – 1700*

*** UCS predict ~ 1700 active payloads from a total of 4661 in orbit**

Future Developments

- Space planes
- UK Launch
- Space Tourism
- Mega Constellations
- Active Debris Removal
- Orbital Servicing
- Space Mining
- Conflict in space?



National Civil Ops Centre?

Questions?

