

SPACE DEBRIS REMEDIATION & SPACE SUSTAINABILITY

Organisational & Operational Requirements (part 1)

-the where, what and how of it all

Richard J Tremayne-Smith
11 – 12 November 2011
McGill, Montreal

Where are we now

- Much done
- But much to do
- We know what needs to be done next
- But we are not always sure quite how to do it

Space Sustainability

- Keeping Space Open for Business
- Maintain space for terrestrial benefits
- Earth Orbit – a stepping stone to the great beyond
- One giant step now is wasted if it can not be repeated tomorrow

The UK Process

Where the UK is the Launching State or a UK national is deemed to have procured a launch licensing procedures apply.

Details for applicants can be found at:

<http://www.bis.gov.uk/assets/bispartners/ukspaceagency/docs/osa/revised-guidance-for-applicants-jul-11-sw.pdf>

And more general information at:

<http://www.bis.gov.uk/ukspaceagency/what-we-do/space-and-the-growth-agenda/uk-capabilities-for-overseas-markets/the-outer-space-act-1986>

Space Debris Mitigation

- Prevent contamination of outer space and adverse changes in the environment of the Earth;
- and dispose of the licensed space object appropriately at the end of the licensed activity and inform UK Space Agency of the disposal and termination of the activity;
- For each license application, a risk assessment will be performed

Controlling Access to Space

- implementing the Mitigation Guidelines
or keeping space open for business

- Access and use need to be managed in order to retain the benefits derived from near Earth space.
- The key is in national licensing regimes that implement the mitigation guidelines and have more general provisions aimed at the long term sustainability of the near Earth space environment.

Conclusions

- Doing nothing is not an option.
- The longer we do not do enough the worse the situation will get.
- International agreement is the ideal mandate for action.
- But, action must go further.
- All major space faring nations have approved documents that can support sustainability.

References 1

- Treaties and Principles

<http://www.oosa.unvienna.org/oosa/SpaceLaw/treaties.html>

- IADC Protection Manual background

http://articles.adsabs.harvard.edu/cgi-bin/nph-article_query?bibcode=2005ESASP.587...39S&db_key=AST&page_in_d=6&data_type=GIF&type=SCREEN_VIEW&classic=YES

- Space debris - models and risk analysis by H Klinkrad, ESA

<http://www.springer.com/astronomy/space+exploration/book/978-3-540-25448-5>

References 2

- <http://www.spacesecurity.org/publications.htm>
- <http://www.brill.nl/national-space-legislation-europe>
- http://ashgate.com/default.aspx?page=637&catalogTitle=1&title_id=10289&edition_id=13622
(Contracting for Space – European practice)

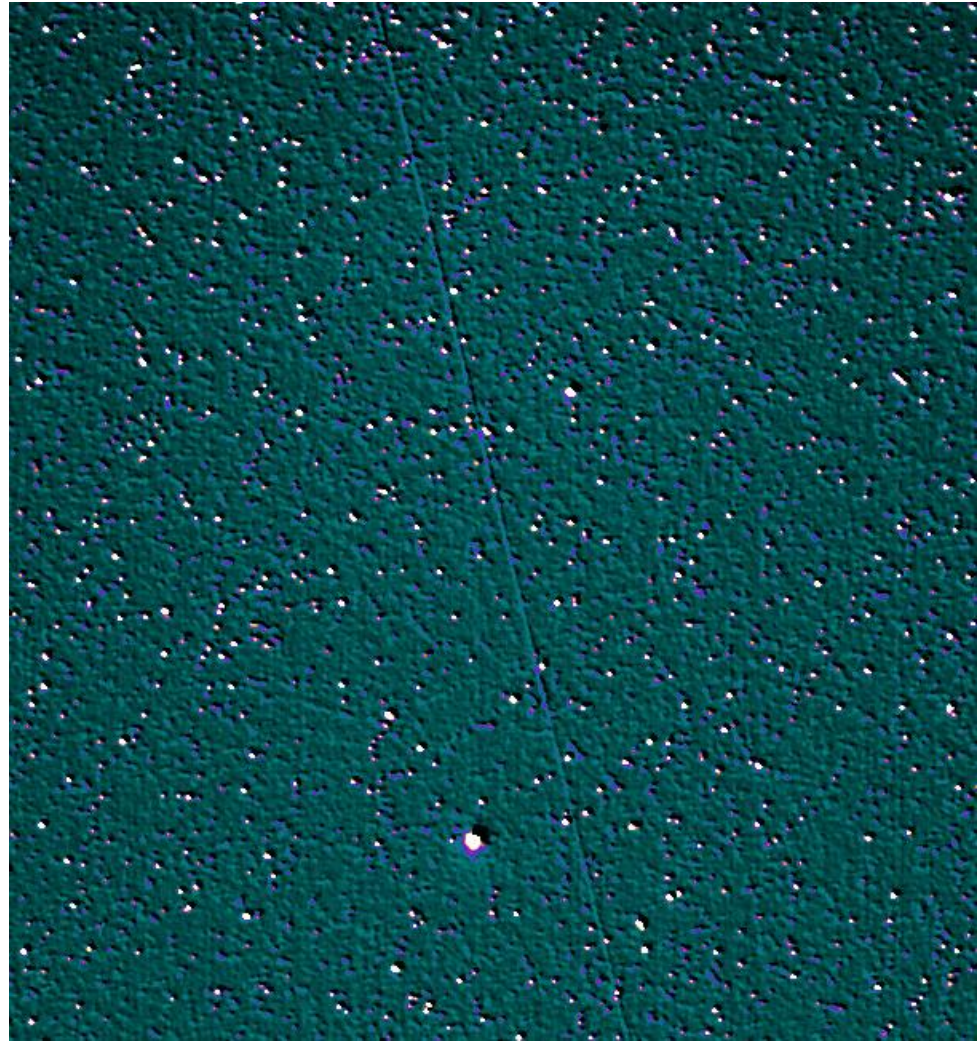
All above 3 titles published in September 2011.

Debris?

UK Prospero
(X3) Satellite
September
2011

40 years
28 October 2011

Image taken
by the UK *Starbrook*
telescope



Questions

- How did we let the situation get so bad?
- What should we do next?
- How do we go forward?
- Who needs to get involved?