Highlighting the trends that will define space enterprise a decade from now

Held annually, Reinventing Space (RIspace) is a conference and exhibition dedicated to one of the fastest growing sectors: low cost access to, and utilisation of, space.

The global economic climate is creating demand to reduce expenditure, leading to new challenges and opportunities in world space. The need to create dramatically reduced-cost, more responsive systems and launchers capable of delivering to space quickly, cheaply and reliably has never been more vital.

RIspace brings together industry, agency, government, financiers, academia and end users for a second-to-none networking opportunity in the low cost access arena.

The host country for this year's conference, the United Kingdom, has a strategy to grow its share to over 10% of the world space market by 2030 – a market forecast to be worth at least £400 bn by that year. Oxford is not only an outstanding centre of academia known throughout the world, but is also close to many main players of the British space industry in Harwell and Swindon.

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BREAKOUT ROOM

Our breakout room, the Worcester Room, is bookable for private meetings. Please ask at the registration desk.

SPONSORS

![Sponsors Logos]

Media Partner

UNCONFERENCE

Each day a board will appear by the registration desk. Participants are free to suggest topics for discussion. If your idea is chosen you will be required to give a quick, 2-5 minute presentation on the idea at the start (no PowerPoint required) and then the room will then be open for discussion for the remainder of the session time. The sessions will be held during morning coffee and lunch each day and will be held in the Worcester Room. We intend to share the outcomes of at the close of the conference.

USB STICK

There are directories on your USB stick (thumb drive) for 2015 papers, abstracts and presentations. Use the numbers below each paper in the programme to reference the correct paper.

WIFI

To access the Wifi, set up an (or use your existing account) on The Cloud
**MONDAY 9 NOVEMBER**

**Pre-conference Day**

Those who have chosen to arrive in Oxford early are welcome to attend our Monday afternoon “pre-conference” at the Randolph Hotel, our conference venue.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00</td>
<td><strong>REGISTRATION OPENS</strong>&lt;br&gt;Delegates may register early as we gather at the foyer of the Randolph Hotel Ballroom for the “Pre conference” session</td>
</tr>
<tr>
<td>14:30</td>
<td><strong>EXHIBITOR SET UP</strong>&lt;br&gt;Exhibitors are invited to set up their stands for the exhibition which will commence on Tuesday</td>
</tr>
</tbody>
</table>
| 14:45 | **SPACE DEBRIS SPECIAL SESSION**<br>Chaired by Stuart Eves, SSTL<br> Welcome and introduction – Stuart Eves (SSTL)  
15:00 The problem of space debris – Hugh Lewis (University of Southampton)  
15:30 Just-in-Time Collision Avoidance (JCA) – Darren McKnight (Integrity Apps)  
16:00 Space debris mitigation – Philippe Moreels (Astroscale)  
16:30 A review of space debris related activities at Airbus Defence & Space – Andrew Ratcliffe (Airbus DS)  
17:00 **COFFEE BREAK**  
17:30 Session conclusions  
18:00 **END OF THE SPACE DEBRIS SESSION** |
| 19:00 | **SPACEPORTS EVENING**<br>Chaired by Adam Baker, Kingston University<br>  
• Introduction  
• Spaceplanes, vertical launch and other use  
• Horizontal launch options  
• UK Spaceport business analysis  
• Pitches by UK Spaceport contenders  
• Audience Q&A  

Jointly organised by the British Interplanetary Society and Catena Space
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00</td>
<td>EXHIBITION SETUP</td>
<td>Exhibitors are invited to set up their stands.</td>
</tr>
<tr>
<td>08:00</td>
<td>BREAKFAST</td>
<td>Delegates are welcome to browse the exhibition as they enjoy a welcome coffee.</td>
</tr>
</tbody>
</table>
| 08:30 | WELCOME TO REINVENTING SPACE                                          | Scott Hatton, Chair, Reinventing Space Organising Committee  
Stuart Eves, President, Reinventing Space Programme Committee  
Andrew Ratcliffe, Chair, Reinventing Space Programme Committee  

The 13th Reinventing Space conference and exhibition is officially opened. |
| 08:40 | LEO ACTIVITIES SESSION 1 (Chair: Stuart Eves, SSTL)                   | Dispatch me to my orbit – Nathalie Metzger (Airbus DS)  
Optimal (not opportunity) orbits for rideshare payloads – Chris Pearson (Moog) |
| 09:00 | KEYNOTE ADDRESS: DAVID PARKER                                        | Director General, UK Space Agency  
David Parker was appointed UKSA chief executive in January 2013. He is also head of the  
UK’s delegation to the European Space Agency and former chair of ESA’s Programme  
Board for Human Spaceflight, Microgravity and Exploration.  
Since 2004 David has represented Britain on space-related matters both nationally and  
internationally. |
| 10:00 | MORNING BREAK                                                         | Delegates visit the exhibition and posters as they enjoy tea, coffee and pastries.                                                    |
|       | **During the morning break, the following poster is presented at the rear of the Ballroom:** |                                                                                                                                 |
| 10:10 | Cost effective total ionizing dose tests of solid state power amplifiers – Ramazan Uzel (ASELSAN) | Bis-RS-2015-24                                                                                                                                 |
| 10:40 | LEO ACTIVITIES SESSION 2 (Chair: Theresa Condor, Spire)               | SEAHAWK: A nanosatellite mission for sustained ocean observation – Alasdair Gow (Clyde Space)  
The world’s first commercial SAR and optical 16-satellite constellation – Amar Vora (SSTL)  
Design criteria of remote sensing constellations of small satellites with low power electric propulsion and Distributed Payloads – Salvo Marcuccio (Università di Pisa)  
An analytical, low-cost deployment strategy for satellite constellations – Ciara McGrath (University of Strathclyde) |
|
12:00 **LUNCH**
Delegates visit the exhibition and posters as lunch is served in both areas.

**During lunch, the following posters are presented at the rear of the main conference venue:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Poster Title</th>
<th>Presenter</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00</td>
<td>Development of low cost propulsion systems for launch and inspace applications</td>
<td>Peter Weuta (WEPA-Technologies GmbH)</td>
<td>BIS-RS-2015-36</td>
</tr>
<tr>
<td>12:30</td>
<td>Crowdlift – Harnessing the power of the many</td>
<td>Daniel Lim (TriSept Corporation)</td>
<td>BIS-RS-2015-55</td>
</tr>
</tbody>
</table>

**12:50**

**KEYNOTE ADDRESS: PAT WOOD**
Managing Director, SSSL

In April this year, Patrick Wood joined Surrey Satellite Technology Ltd (SSTL) as Group CEO. Previously he was at Airbus Defence and Space, where he was most recently Head of Engineering and Operations. He steered the Skynet 5 programme to success including in-orbit delivery of three geostationary military telecommunications satellites and associated ground network and infrastructure. He was also CTO for Airbus Defence and Space satellite business, and later Engineering and Operations Director with pan-European responsibilities.
13:30 PANEL: Small Sat Revolution. Chaired by David Germroth (PACE)

This session will focus on the rise of smaller and cheaper satellites, which have become prominent in the current discussion about future capabilities to meet national security needs and the growing commercial demand for Geo-information. Innovators have proven that small satellites can be built quickly and affordability with capabilities which support essential mission interests such as acquiring high-definition video, providing climate information, tracking maritime assets, and assisting overall human-geo missions. The small-satellite revolution seems to be the catalyst for the formation of a new layer of information infrastructure and which is popularising the geo-information industry beyond the traditional consumer.

Jim Beckley  
Vice President of Business Development, BlackSky Global

Wolfgang Biedermann  
CEO/CFO, XpressSAR

Theresa Condor  
Vice President of Corporate Development, Spire Global, Inc.

Mark Dumas  
CEO, PlanetRisk

Jonathan Fentzke  
COO/Co-Founder, OmniEarth

Chris McCormick  
Chair and Founder, Planet IQ

Michael Trela  
Head, Satellite Engineering and Programs, Google

15:00 LEO ACTIVITIES SESSION 3 Chaired by Chris Welch, International Space University

15:00 Reinventing constellations: the effectiveness of rideshare approaches for constellation deployment – John Langer (The Aerospace Corporation)  
BIS-RS-2015-68

15:20 Twinkle: A British Space Mission to explore faraway worlds – Marcell Tessenyi (University College London)  
BIS-RS-2015-27
**15:40** | **AFTERNOON BREAK**  
Delegates visit the exhibition and posters as they enjoy tea, coffee, carrot & walnut cake.

**15:50** | **Electromagnetic Launch to Space – Ian McNab (Emergent Power Solutions LLC)**  
_BIS-RS-2015-29_

During the afternoon break, the following poster is presented at the rear of the main conference venue:

**16:10** | **TECHNOLOGY SESSION 1** Chaired by Matthew Stuttard, Airbus DS

16:10 | **Printing Advanced Hybrid Rocket Motor Fuel Grain Structures – Jerry Fuller (The Aerospace Corporation)**  
_BIS-RS-2015-67_

16:30 | **Development of a low cost IVA pressure suit for commercial space flight applications – Neil Jaschinski (WEPA)**  
_BIS-RS-2015-49_

16:50 | **CubeSat-Scale High-Speed Laser Downlinks – Richard Welle (The Aerospace Corporation)**  
_BIS-RS-2015-70_

17:10 | **3d printed satellites; a manufacturing revolution – Mike Curtis-Rouse (Science & Technologies Council)**  
_BIS-RS-2015-48_

17:30 | **REINVENTING SPACE CAREERS – “SUCCEED IN SPACE”**  
RIspace delegates are welcome to attend this special extra session jointly organised by UKSEDS and the Space Generation Advisory Council.

**19:00** | **WELCOME RECEPTION**  
A chance to network with other delegates and speakers in our traditional opening evening cocktail.  
The event takes place at the Ashmolean Museum, opposite our main venue.
<table>
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<tr>
<td>08:00</td>
<td><strong>BREAKFAST</strong>&lt;br&gt;Delegates are welcome to browse the exhibition as they enjoy a welcome coffee.</td>
</tr>
<tr>
<td>08:25</td>
<td><strong>NOTICES AND INTRODUCTION</strong>&lt;br&gt;Introduction to the day’s activities</td>
</tr>
<tr>
<td>08:30</td>
<td><strong>ACCESS TO SPACE SESSION 1</strong> Chaired by Mark Hempsell (Hempsell Astronautics)</td>
</tr>
</tbody>
</table>
| 08:30 | Feasibility study of LTA launch system for micro and smaller – Andrea Testore (Cranfield University)  
**BIS-RS-2015-28** |
| 08:50 | Enabling solutions for small satellite space access – Andreas Jonsson (RUAG)  
**BIS-RS-2015-32** |
| 09:10 | Considerations for low-cost small satellite launchers – Simon Feast (Reaction Engines)  
**BIS-RS-2015-54** |
| 09:30 | **KEYNOTE ADDRESS: JONATHAN FIRTH**  
Executive Vice President, Spaceport & Program Development, Virgin Galactic  
Jonathan has been a member of Virgin Galactic’s leadership team since its inception in 2004. He oversees the company’s activity to ready itself for commercial operations in New Mexico, including the development of the Suborbital Spaceflight System, the preparations for Operational Readiness and the relationship with the NM Spaceport Authority, which is responsible for the operation of Spaceport America, the future home of Virgin Galactic’s SpaceShipTwo fleet. |
| 10:10 | **MORNING BREAK**<br>Delegates visit the exhibition and posters as they enjoy tea, coffee and pastries. |
| 10:10 | How much is the moon worth? An analysis of ownership – Jairo Becerra (Catholic University of Colombia)  
**BIS-RS-2015-34**  
**RUAG**  
Wednesday morning’s break is sponsored by RUAG  
**RUAG** |
| 10:25 | How to make a small fortune in the space business – Robin Tucker (Red Kite Enterprise and Environment Ltd)  
**BIS-RS-2015-74** |
| 10:40 | **ACCESS TO SPACE SESSION 2** Chaired by Mark Hempsell (Hempsell Astronautics) |
| 10:40 | New superlight class launch vehicles from Yuzhnoye – Mykola Lytvyn (Yuzhnoye)  
**BIS-RS-2015-33** |
| 11:00 | New generation of low-cost small launch vehicles serving the rapidly growing small satellite market – Andy Bradford (Firefly Space Systems)  
**BIS-RS-2015-64** |
| 11:20 | Could reusable air-launch break the space access paradigm? – David J. Salt (Telespazio VEGA)  
**BIS-RS-2015-76** |
| 11:40 | Small satellite launch vehicle from a balloon platform – Marc Rovira (Zero2Infinity)  
**BIS-RS-2015-60** |
12:00 **LUNCH**
Delegates visit the exhibition and posters as lunch is served in both areas.

**During lunch, the following posters are presented at the rear of the main conference venue:**

12:10 **Legal aspects in performing space debris remediation: due diligence and fault considerations** – Joyeeta Chatterjee (McGill University)
*BIS-RS-2015-58*

12:25 **Knowledge networks at the heart of space industry: the case of Scotland** – Matjaz Vidmar (University of Edinburgh)
*BIS-RS-2015-81*

12:25 **Low cost mission for the Sun exploration using the system of heliocentric orbits** – Min Thein (Moscow Aviation Institute)
*BIS-RS-2015-69*

12:45 **KEYNOTE ADDRESS: SILVIO SANDRONE**
Vice President Strategic Partnership, Airbus Safran Launchers

Reflecting the joint ambition of Airbus Group and Safran to boost the European space industry to unscaled heights, Airbus Safran Launchers will develop innovative and competitive solutions by uniting the strengths of two leading contributors to modern launch vehicles. The goal of Airbus Safran Launchers is to provide comprehensive, advantageous solutions in this increasingly competitive market, based on a family of versatile, high-performance, cost-competitive launchers that meet the needs of both government and commercial customers.

13:25 **ACCESS TO SPACE SESSION 3 Chaired by Alistair Scott, British Interplanetary Society**

13:30 **First steps towards the Kingston space shot: Low Altitude Test Vehicle** – Adam Baker (Kingston University)
*BIS-RS-2015-75*

13:50 **Innovative Small Launcher** – Arnaud van Kleef (NLR)
*BIS-RS-2015-16*

14:10 **MicroLaunch: The Electric Rocket** – Andrew Bacon (Thales Alenia Space UK)
*BIS-RS-2015-79*

14:30 **AFTERNOON BREAK**
Delegates visit the exhibition and posters as they enjoy tea, coffee, scones with strawberry jam & clotted cream.

**During the afternoon break, the following poster is presented at the rear of the main conference venue:**

14:40 **Prospects for Orbital Airliners** – David Ashford (Bristol Space Planes) *BIS-RS-2015-12*

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**Wednesday's afternoon break is sponsored by Printech**
PANEL: The New Economics of Space Access.

Providing commercial opportunities to fly payloads into space in an affordable way will open doors for many scientists, engineers, researchers, and even students to fly experiments, technology demonstrations, and flight hardware in orbit. Examples of innovations that US Government agencies are implementing to reduce the burdens associated with putting payloads into orbit include the development of streamlined requirements and processes to expedite development and reduce mission costs; hosted payloads on commercial spacecraft, used most often by government agencies to get capability on orbit without the fuss of building and launching a dedicated satellite; and ride share programs leveraging residual up mass allocations. International space agencies and commercial companies are working to develop less expensive launch vehicles targeting smaller payloads to provide more opportunities for on-orbit research and development. A number of entrepreneurial enterprises have recently sprung up that target cubesat and small satellite launches across a broad range of research and applications thrusts. In this panel, experts will explore current and planned efforts to expedite putting payloads into orbit in a more streamlined and affordable way. The panelists will explain how requirements are being tailored to support lean and agile project execution as well as how commercial companies are integrating into and capitalizing on these processes to optimize flight opportunities. Cost efficiencies and lessons learned from both the commercial sector and lower cost government missions and how they are being integrated into the more traditional space sector will be discussed.

New Economics of Space – Overview
Dave Bearden, Panel Chair

Small Satellites: Innovation, Cost and Risk
Debra Emmons, The Aerospace Corporation

Avenues to Space: Streamlined Requirements & Processes
Angie Bukley, The Aerospace Corporation

ESA Launch Systems
Markus Bertschi, European Space Agency

The UK Perspective
Adam Baker, Newton Launch Systems

This panel is sponsored and organised by The Aerospace Corporation

KEYNOTE ADDRESS: MARK BOGGETT
Managing Director, Seraphim Capital

Seraphim Capital is a venture fund that has invested in a diverse range of UK companies across different stages and sectors with the common theme of being highly scalable, disruptive technologies that address large, global markets.
<table>
<thead>
<tr>
<th>Time</th>
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<th>Speaker/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:40</td>
<td>APPLICATIONS AND COMMERCIALISATION SESSION 1</td>
<td>Chaired by Andrew Ratcliffe, Airbus DS</td>
</tr>
<tr>
<td></td>
<td>Introducing Second IAA Space Management Study – Piero Messina (European Space Agency)</td>
<td>BIS-RS-2015-8</td>
</tr>
<tr>
<td>17:00</td>
<td>Innovation and Growth Strategy (IGS) Priority Market: Low Cost Access to Space – Conor O'Sullivan (SA Catapult)</td>
<td>BIS-RS-2015-22</td>
</tr>
<tr>
<td>17:40</td>
<td>Fostering technology innovation in space through national activities: The Swiss example – Gregoire Bourban (Swiss Space Centre)</td>
<td>BIS-RS-2015-41</td>
</tr>
<tr>
<td>18:00</td>
<td>TECHNOLOGY SESSION 2 Chaired by Matthew Stuttard, Airbus DS</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Cost Disruptive Reflector Surface for Large Deployable Antennas – Juan Reveles (Oxford Space Systems)</td>
<td>BIS-RS-2015-86</td>
</tr>
<tr>
<td>18:20</td>
<td>IODISPlay: Capturing European needs and capabilities for in-orbit demonstration of space technologies – Celestino Cid Gomez (GMV)</td>
<td>BIS-RS-2015-31</td>
</tr>
<tr>
<td>18:40</td>
<td>A Universal Space Interface Standard to Create an In-orbit Servicing Market – Mark Hempsell (Hempsell Astronautics)</td>
<td>BIS-RS-2015-83</td>
</tr>
<tr>
<td>19:00</td>
<td>CLOSE OF WEDNESDAY'S CONFERENCE SESSION</td>
<td></td>
</tr>
<tr>
<td>20:00</td>
<td>CONFERENCE DINNER</td>
<td>The Dinner is hosted at the Bodleian Library Divinity School.</td>
</tr>
</tbody>
</table>

**GUEST SPEAKER**

Al Worden (Apollo 15 Command Module Pilot)

**INTRODUCED BY**

Chris Lintott (The Sky At Night. BBC and University of Oxford).
**THURSDAY 12 NOVEMBER**

**Beyond Low Earth Orbit Day**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Activity</th>
</tr>
</thead>
</table>
| **08:30** | **BREAKFAST**  
Delegates are welcome to browse the exhibition as they enjoy a welcome coffee. This is the final conference day of Reinventing Space – please note the slightly later start |
| **09:00** | **NOTICES AND INTRODUCTION**  
Introduction to the final day’s activities and explanation of the Friday schedule. |
| **09:10** | **KEYNOTE ADDRESS: DANIEL FABER**  
Chief Executive Officer, Deep Space Industries  
---
As a serial entrepreneur in the aerospace and mining industries, Daniel has grown several high tech companies from startup through to commercial success. Daniel has held senior roles in many successful spacecraft projects, including a space telescope for locating and characterizing asteroids, a constellation of astronomy spacecraft, operational ship-tracking, pressurized habitation modules, and remote sensing systems. He is the recipient of multiple innovation awards and been granted a number of patents in the fields of mining, medical imaging and aerospace. |
| **09:50** | **MORNING BREAK**  
Delegates visit the exhibition and posters as they enjoy tea, coffee and doughnuts  
---
During the morning break, the following posters are presented at the rear of the main conference venue:  
| 09:50 | High altitude weather balloons for low cost space testing – Samuel Mark Harrison (Nebula Sciences)  
*BIS-RS-2015-65* |
| 10:05 | RISING-2: a 50kg-class microsatellite for advanced remote sensing missions – Kazuya Yoshida (Tohoku University)  
*BIS-RS-2015-72* |
| **10:20** | **BEYOND LEO SESSION 1** Chaired by Chris Welch, International Space University  
---
10:20 | Exploring our Solar System with cubesats and nanosats – Anthony Freeman (NASA JPL/Caltech)  
*BIS-RS-2015-02* |
10:40 | The Google Lunar XPRIZE – Past, Present and Future – presented by Derek Webber on behalf of Andrew Barton (Google Lunar X Prize)  
*BIS-RS-2015-37* |
11:00 | LunarMission One – One Year On – David Iron (LunarMission One)  
*BIS-RS-2015-62* |
| **11:20** | **KEYNOTE ADDRESS: MICAH WALTER-RANGE**  
Director, Research & Analysis, Space Foundation  
---
Micah has worked at the Space Foundation since 2006. He oversees development of all Space Foundation research products, including an annual authoritative guide to global space activity, *The Space Report*. He has authored papers on topics such as export controls and the role of space technology in aviation. |
12:00 LUNCH
Delegates visit the exhibition and posters as lunch is served in both areas.

During lunch, the following posters are presented at the rear of the main conference venue:

12:10 The FUNcube STEM outreach missions – Graham Shirville (AMSAT-UK)
BIS-RS-2015-19

12:25 Scope of Internet of Things (IoT) in Space Technologies – Arun Subramanian Venkataraman (Indian Space Research Organisation)
BIS-RS-2015-77

12:50 BEYOND LEO SESSION 2 Chaired by Maher Ezzeddine, Harvard Business School Aerospace Alumni Group

12:50 Moonraker: a less-than-10kg lunar microrover for challenge to GLXP – Kazuya Yoshida (Tohoku University)
BIS-RS-2015-73

13:10 HeL1oNano : The first cubesat to L1? – Cyrille Tourneur (Airbus DS)
BIS-RS-2015-23

BIS-RS-2015-10

13:50 Gateway Earth – Low Cost Access to Interplanetary Space – Derek Webber (Spaceport Associates)
BIS-RS-2015-13

14:10 REINVENTING SPACE: The view from Japan
Yasushi Munemasa, Space Communication Systems Laboratory, NICT, Tokyo

14:40 AFTERNOON BREAK
Delegates visit the exhibition and posters as they enjoy tea, coffee, pastries, finger sandwiches & freshly baked scones.

During the afternoon break, the following poster is presented at the rear of the main conference venue:

14:50 Transportation Models for Sustained Business Activity in Space – Mike Ryan (Bellarmine University)
BIS-RS-2015-71

Thursday's afternoon break is sponsored by Printech

15:10 APPLICATIONS AND COMMERCIALISATION SESSION 2 Chaired by Andrew Ratcliffe, Airbus DS

15:10 Real-time tactical space asset retasking – Chris Pearson (Moog)
BIS-RS-2015-01

BIS-RS-2015-11

15:50 Global launcher market survey – where are we now and where are we going? – Daniel Lim (Trisept)
BIS-RS-2015-56
This panel provides an apt conclusion to the conference by reviewing the business cases and technologies that will drive the space economy over the next 10 years. The panel is meant to be forward looking and really try to establish where we want to be at RiSpace 2025. What will the space industry look like? Will we be on our way to Mars, mining asteroids? Will we have thousands of satellites providing Global internet? And how will space access look like? The panel will also address the challenges of achieving these ambitions and provide a realistic outlook on growth.

David Germroth
Pace Government Services, Washington DC

Dennis Stone
Commercial Space Capabilities, NASA

Matthew Stuttard
Airbus DS

17:20 CONFERENCE SUMMARY and CONCLUSIONS
Stuart Eves, President of the Reinventing Space Programme Committee

17:30 FORMAL END OF THE 13TH REINVENTING SPACE CONFERENCE

19:30 AN EVENING WITH AL WORDEN
The Apollo 15 Command Module Pilot, Al Worden will appear at an evening event in the Randolph Hotel.

This event is organised by the British Interplanetary Society and ticketed separately from Reinventing Space. You may buy tickets at the Registration Desk.
**FRIDAY 13 NOVEMBER**  
Site Visits

You can sign up for the Friday site visits at the registration desk

<table>
<thead>
<tr>
<th>Time</th>
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</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td><strong>BOARD THE BUS</strong></td>
<td>A bus will pick up delegates from the Randolph Hotel.</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>SITE VISIT</strong></td>
<td>A site visit to Satellite Applications Catapult during the morning</td>
</tr>
<tr>
<td>12:00</td>
<td><strong>SITE VISIT</strong></td>
<td>A site visit to Rutherford Appleton Laboratories</td>
</tr>
<tr>
<td>13:15</td>
<td><strong>LUNCH</strong></td>
<td>Lunch will be provided by Satellite Applications Catapult</td>
</tr>
<tr>
<td>14:00</td>
<td><strong>SITE VISIT</strong></td>
<td>A site visit to ECSAT, the UK facility of the European Space Agency visit in the afternoon</td>
</tr>
<tr>
<td>15:00</td>
<td><strong>BACK ON THE BUS</strong></td>
<td>The bus returns delegates to Oxford</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>END OF THE DAY’S PROGRAMME</strong></td>
<td>Arrival back at the Randolph Hotel</td>
</tr>
</tbody>
</table>

**EXHIBITORS**

- Stand 1: Reaction Engines
- Stand 2: RUAG
- Stand 3: HE Space
- Stand 4: Harvard Business School
- Stand 5: Clyde Space
- Stand 6: Anticyp
- Stand 7: Printech
- Stand 8: European Space Agency Business Incubation Centre
- Stand 9: Rutherford Appleton Laboratories
- Stand 10: Commercial Space Technologies
- Stand 11: British Interplanetary Society
The 13th Reinventing Space conference and exhibition is organised by the British Interplanetary Society.

Organising Committee:
Scott Hatton, Chair

Programme Committee:
Stuart Eves, President
Andrew Ratcliffe, Chair
Richard Crowther, Member
Richard Peckham, Member
Roger Walker, Member
Chris Welch, Member

www.rispase.org
@rispace2015

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