RAeS Summit:
Future Combat Air and Space Capabilities

23-24 May 2023 - London

#FCAS23

The Royal Aeronautical Society's Summit on 'Future Combat Air and Space Capabilities' brings together UK defence leaders, allies and industrial partners to assess the strategic direction for air and space combat capabilities now and in the future.

With over 60 speakers announced, this summit is a unique opportunity to network with senior decision-makers, budget holders and military leaders, and be part of a discussion on future programmes with a highly specialised group of defence stakeholders, right in the centre of London.

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Programme – Day 1

08:00 ***Registration and networking***

08:45 **Welcome remarks**
David Edwards – Chief Executive, Royal Aeronautical Society

08:50 **PANEL: What does Capability Mean Today in the Current Geopolitical and Global Security Landscape?**

Panellists:
Air Marshal John Stringer - Deputy Commander of NATO's Allied Air Command
Stacy Cummings - General Manager, NATO Support and Procurement Agency (NSPA)

- What are the lessons from Ukraine? i.e. how multinational international and cross-sector partnerships can enable the Alliance.
- What NATO and its allies must do to maintain, and in some cases regain effective warfighting capabilities against modern state-based threats.
- Threats to air supremacy - how the Ukraine war has demonstrated the effectiveness of air denial strategies, based on a defense-in-vertical-depth approach that employs multi-layered and overlapping systems and integrates their effects across the domain, from the blue skies to the air littoral.
- How are the Nations of the Alliance ensuring their capabilities and interoperability can be maintained.
- How the Ukraine conflict points to future space-enabled operations – e.g. resilience of commercial networks, information operations.

09:20 **PANEL: Building Alliances and Interoperability across Multi-Domain Capabilities**

Panellists:
Lt Col Davide Dentamaro - Head of the Aeronautical Programmes Office, Italian Ministry of Defence
Col Rupert Ficker-Reissing - Colonel (GS), GAF HQ ACOS Plans and Policy, German Air Force HQ
Major General James Kriesel - National Guard Assistant to the Commander, United States Air Forces in Europe-Air Forces Africa
Air Marshal (Retd) Phil Osborn CBE FRAeS - Strategic Advisor to Lockheed Martin

- Multi-national capability cooperation in Europe and beyond.
- Addressing vulnerabilities and how to drive sustainable, affordable investment in new air combat capabilities.
- What capabilities are needed to face distinct threats and challenges emanating from all strategic directions; from state and non-state actors as well as from cyber and hybrid attacks?
- Enabling synergies in the upgrading of NATO air forces to fifth-generation fleets.
- Improving interoperability between allies to act together coherently, effectively and efficiently to achieve tactical, operational and strategic objectives.
- How are future capability plans within the alliance diverging and how can interoperability be maintained?
- Strategic responsibility with emerging defence and security challenges.

09:50 **Presentation title tbc**
BAE Systems – speaker name tbc

10:15 **The Space Domain in an Era of Persistent Competition and Confrontation**
Air Vice-Marshal Paul Godfrey - Commander, UK Space Command

- Operationalising the Space domain – Developing capabilities which counter any attempts to exploit satellite vulnerability, degrade access to space and threaten strategic stability and security.
- Addressing constant competition in the future, by setting precedents for space behaviours that will increase transparency, predictability and security of all space system and enable the UK to operate, and if necessary, compete in and through space.
- Future planning in an environment where long-held assumptions are challenged daily.
- How are adversaries may exploit the ambiguity below the threshold of armed conflict to seek an advantage, including exploiting our vulnerabilities
- by seeking to deny us access to space-derived services or threatening our satellites.
- How the development of commercial products, and the deployment of mega-constellations, have seen the space domain become more competitive, congested and contested. What does this evolving environment mean for armed forces operations now and in the future?
- Investing in capabilities to protect, defend and integrate the space domain; e.g. the UK's decision to invest in the OneWeb mega-constellation project.

10:40 ***Networking break***

Simultaneous breakout sessions	
Bill Boeing Theatre	***Argyll Room***
Enabling Force Resilience	**Strategic Information Warfare and Cyberspace in Air and Space Power Operations**
Moderator: Air Marshal Sir Chris Harper	**Moderator: Air Marshal Sir Christopher Coville -** Professor, Freeman Air and Space Institute, Kings College London
11:05: **Airbases and Global Enablement - Next Generation Air Force** **Speaker name tbc** - No. 2 Group, RAF	11:05: **Presentation Title TBC** **Dr Arif Mustafa** - Chief Digital Information Officer, RAF
11:25: **Resilient and Agile – Future Air and Space Force Capabilities** **Lt Col Carl Bergqvist** - Chief of Plans, Air Staff, Swedish Airforce - Contingency planning. - Developing agile force which have the capacity to respond to strategic shocks. - Leadership and talent development - The need for measured approaches when removing extant capabilities to bring new technology into mainstream.	11:25: **Managing Collaborations to Deliver Digital Software Intensive Systems** **Dr Kate Gill** - Digital Revolution Lead, UK Government - F35 is a data rich and data hungry international platform. - Since 2020, the F-35 Joint Program Office has delivered agile software loads, for multiple aircraft configurations, very few weeks, deployed via cloud-based systems. - Cross-Industry digital collaboration and "paradigm shifts" are required in technical and non-technical domains - Digital collaboration transcends geography, so we need to learn together across international boundaries and explore and embrace geo-political environments and multiple time zones for agile software delivery.
Multi-Domain Air Operations	

11:50: **The Principles of Data and Information Advantage for 6th Generation Warfare** **Air Commodore Jez Holmes** - Head Rapid Capabilities Office, RAF - Building and fielding of a force development-focused data engine using the latest technologies to enable real-time readiness monitoring and decision-making from Air Force commanders at all levels.	11:50: **The Growing Importance of Integrating Cyberspace Operations into New Concepts for Combat Air in a Multi-Domain Operation** **Lt Col Johnny Resman** - Chief Cyber Development Officer; Air Staff Plans, Swedish Air Force **Wg Cdr Dave Collins** - Director Air Cyber and Information Services Operations Centre, RAF - The defence of the system of systems – protecting the core - The future operational environment and a full spectrum threat? - A concept for future combat air in a multi-domain operation and the utilization of the full potential of cyberspace operations.
12:15: **C2 capability – How the NATO Alliance can Remain Competitive** **Lt Col Rylan Charlton** - USA Air Force; Staff Office, Joint C2/Air, NATO - C2 Agility concepts and practices	
12:40: **PANEL: Preparing for Multi-Domain Warfare through Air and Space Power Strategic Planning** **Panellists:** **Lt Col Fabrício Ferreira de Sá** - Brazilian Air Force **Gp Capt David Keighley** - Assistant Head Space Strategy & Operations, UK MoD **Col Matthew E. Hanson** - Chief of Staff, Joint Air Power Competence Centre, USAF **Atherton Carty** - Vice President Strategy & Business Development, Lockheed Martin Skunk Works - Rethinking strategic advantages of air supremacy – and air denial - in modern warfare. - Countering hybrid threats with air power and asserting control of the electromagnetic spectrum. - Preparing for multi-domain warfare with allies and partners. - Investing in technological capabilities to bring together domains maritime, air, cyber and space, and accurately expressing existing capability gaps to the relevant decision makers.	12:40: **Achieving technical advantage for future air-capability in multidomain Operations** **Dr Daniel Clarke** - Lecturer in Cyber and Electromagnetic Activities in Cranfield Defence and Security, Cranfield University - Emerging technologies that will enhance cyber-electromagnetic operations in the air domain. - Software centric approaches for translating technical advantage to multi-domain operational outcomes. - Influencing technology developments to achieve technological advantage in the defence domain.

13:10 ***Lunch break***

Modernising Airpower Projection Capabilities	**Staying Ahead of Multidomain Threat with Capability Planning**
Moderator: Rear Adm Simon Henley	**Moderator: tbc**

14:00: **The Evolution of Number 1 Group and our ability to rapidly project Airpower** **Air Vice-Marshal Mark Flewin** - Air Officer Commanding Number 1 Group, RAF - The situation in Eastern Europe will continue to demand enduring agility from our people and platforms. - The new 1 Group structure – with the Air Mobility Force, Combat Air Force, ISTAR Force and Air and Space Warfare Centre under a single group – presents an exciting opportunity as we continue to modernise. - This will include the introduction of new platforms and capabilities, examining our readiness and resilience, while evolving the way in which we collectively train and seamlessly deliver effect alongside 11 Group.	14:00: **Resilient and Agile – Future Air and Space Force Capabilities / Multi-Domain Operations: Bridging the Gaps for Dominance** **Lt Col – USAF- speaker name tbc** - Contingency planning. - Developing agile force which have the capacity to respond to strategic shocks. - Leadership and talent development - The need for measured approaches when removing extant capabilities to bring new technology into mainstream. - Recognising the risk of creating gaps which not only reduce capability but also credibility in the eyes of partner nations.
14:25: **Presentation title tbc** **Chris Norton – Co-founder and Director, 2Excel Aviation**	14:25: **Presentation title tbc** **BAE Systems – speaker name tbc**
14:50: **Deepening and Expanding ISR Capabilities** **Air Cdre Jim Beck** - ACOS - Capability Strategy, Headquarters Air Command, RAF - Accelerating information flow through AI/ML-enabled technologies and process automation - Attaining operational advantage through multi-domain integration and exploitation of information. - Increasing agility through the incorporation of unmanned air systems. - Establishing a combat cloud to ensure accessibility to critical data and actionable intelligence. - Achieving next generation ISR capability to project credible airpower in a contested environment.	14:50: **Accelerating Combat Air & Space Operations through Digital Mission Engineering** **JamieLynne Shepherd** – Business Development Executive, Ansys Government Initiatives, Weapons Officer, USAFR - Enabling the Protect and Defend Mission - Acceleration of multi-domain operations through Digital Mission Engineering: how to reduce cost, mitigate risk, develop, and field better combat capabilities to the warfighter, faster. - Digital engineering as an ecosystem, and the employment of interoperable, full-fidelity multi-domain physics solutions for test, training, and operations. - Connection and integration of data models across lifecycle phase - an authoritative source of truth for continuous validation of platforms and processes. Applying lessons learned from other industry sectors for advancements in air and space combat capabilities.
15:15: **And if deterrence fails? The case for qualitative edge and combat mass in a 21st Century Air Force** **Wg Cdr Ben Durham** - Head of Warfighter Projects, RAF Rapid Capabilities Office, RAF - Identifying an enduring nature yet ever shifting character of air warfare	15:15: **Future Maritime Airpower: Evolving Roles and Capabilities** **Dr James Bosbotinis** - freelance specialist in defence and international affairs, and Book Reviews Editor, The Naval Review - The development of future maritime airpower, its evolving roles, and capabilities.

- Examining the relationship between mass and qualitative edge - Considering the future character of air warfare - Factors and considerations for achieving an appropriate balance	- Considerations for the utility of carrier airpower vis-à-vis anti-access/area denial approaches and capabilities, and emerging threats, such as hypersonic weapons. - The impact of uncrewed air systems (UAS) on the maritime domain, including the development of carrier based UAS and the implications for carrier airpower and wider fleet design. - The potential contribution of UAS to roles such as air and missile defence, airborne early warning and control, and long-range strike. - The contribution of maritime airpower to cross and multi-domain operations, including international approaches, in particular, those of the US, UK, and China.
15:40: **PANEL: The Future of European Air Combat Capabilities** **Panellists:** **Gen Luca De Martinis** - Current FCAS Program Director; Director of 4th Department – Armament Programs Coordination", ITA Secretariat General of Defence and National Armaments Directorate **Maj Gen Jean-Luc Moritz** - Chief SCAF, French Air Force **Richard Berthon** - Director Future Combat Air, UK MoD - How the sixth-generation combat aircraft will improve the nation's air combat capabilities to address evolving threats. - Creating a sixth generation optionally manned stealth-capable fighter jet, designed to be connected, flexible and upgradeable to stay ahead of changing threats. - Refining the concepts and industrial agreements required for the SCAF/FCAS next generation combat air system. - How the aircraft will support scalable autonomy and existing and planned weapons (Meteor, next generation beyond visual range air-to-air missile, directed energy and hypersonic missiles) with a significant payload.	15:40: **Space Security in a Multipolar World: Diplomacy and Conflict in Orbit** **Dr Raúl González Muñoz** - Researcher, Spanish Association of Aeronautical and Space Law (AEDAE) - Space assets enable access to services critical for the defence and security of nations and this criticality is only expected to grow in the near future. - This criticality makes them a prime target in future warfare scenarios. This risk is particularly prevalent due to the gradual change in global geopolitics towards a multipolar order. - The raise of "New Space" will act as a catalyst and accelerate the development of this new landscape. Increasing importance of space in current security affairs and the challenges that nations will face towards the future to maintain access to this domain and to operate in it.

16:10 ***Networking break***

Modernising Airpower Projection Capabilities	Unmanned Aerial Vehicle Capabilities as Future Air Power Assets
16:30: **Delivering the UK Defence's Combat Air Portfolio**	**Moderator: Gp Capt Gordon Woolley OBE AFC FRAeS RAF (Ret'd)**

Simon Ellard - Director Combat Air, Defence Equipment & Support (DE&S) - The £2.5Bn portfolio covering acquisition, support, upgrade and maintenance.	16:30: **The Impact of Diversifying Drone Technology on the Battlefield** **LT Eleftherios Karatzas** - PhD fellow-European Security and Defence College, PhD researcher at Mechanical Engineering and Aeronautics, Greek Army - Simplified construction process of custom UAV platforms - The usage of handmade UAVs in various conflicts. Examples - Suicide drones and loitering munitions. A new threat - Findings, discussions - Conclusion
Defence Space Strategy: Operationalising the Space Domain **Moderator: Lt Col Ferdinando Dolce** - Head of "Space Situational Awareness and Space Innovation" Section, Italian Secreteriat-General of Defence/National Armaments Directorate	16:55: **The Benefits of Decentralisation and (therefore) Democratisation Brings to UAS/RPAS warfare** **Lieutenant Eddie Devine** - Strategy Officer for Future Maritime Aviation Force and Chair of the Defence Remotely Piloted Air Systems Network, Royal Navy - Rethinking the human/Aviation technology relationship. - The freedom of distributed democratised aviation. - The new spectrum of aviation (more than just different roles). - How this is making a difference in the maritime environment. - What the future holds for Maritime Aviation.
16:55: **The Central Role of Space Domain Awareness in Modern Warfare** **Wg Cdr Rebecca Collis** - Wing Commander, Capability, UK Space Command - A system of systems approach to space domain awareness – exploring opportunities to own, collaborate and access sensors and data - The evolving links between Space Domain Awareness and C2 - Multi-domain integration and its relationship with space domain awareness	
17:20: **The Importance of an Integrated Space Architecture to Enable Multi-Domain Operations and Joint Operations with Allies** **Dr Junayd Miah** - Science Advisor, UK Space Command - How UK Space Command is integrating its established capabilities. - What key challenges must we overcome to enable integration with partners and allies. - How academia and industry can support UK Space Command in achieving its primary mission.	17:20: **PANEL: The Acquisition of RPAS/UAS and Follow-On Implementation for a Light Reconnaissance Unit in the British Army: The Royal Yeomanry's Project Panorpa** **Panellists:** **Richard White** - OC Drone Troop and Project Lead, RY, British Army **Ben Hayler** - Squadron Leader, RY, British Army **Major Arthur Purbrick** - Executive Officer, RY, British Army - Creating a framework for the acquisition of a unique RPAS platform for a reconnaisance unit. - Sourcing/building/maintaining a usable RPAS platform. - Project timeline and budget. - Choice of partner organisation (Skylift).

	- Field testing, demonstration and usage to refine concept. - The so what? What next?
17:45: **Space Infrastructure Vulnerability and Planning for Appropriate Defence Capabilities** **Julia Balm** - PhD candidate, Freeman Air and Space Institute (FASI), School of Security Studies, King's College London - Expanding target sets - Growing reliance on space is accompanied by growing vulnerability - Planning for restraint	17:45: **The Future of Counter UAS** **Charlie Lynn** - Chief of Staff, Joint C-UAS Office, UK MoD - How the rapid increase in the availability and sophistication of UAS represents a significant challenge. - How can we seek to maintain pace with the rapid development of threat from UAS – with 5G, mesh networking, AI and automated learning, advanced INS and other capabilities? Can we actually keep pace with the ability to mitigate these threats? - Delivering a strong defence using an integrated, layered solution across the kill chain. - Assessing counter UAS (C-UAS) architecture and system of systems approach, using sensing and tracking to deliver a full complement of kinetic and non-kinetic effects. - The need to rapidly innovate, challenge standard procurement processes, and be willing to take risks on novel technologies has never been more pertinent.

18:10 ***Networking drinks reception***

Programme – Day 2

Shaping Future Airpower Projection Capabilities	Defence and Security Industrial Strategy
Moderator: tbc	**Moderator: Air Marshal Sir Christopher Coville -** Professor, Freeman Air and Space Institute, Kings College London
09:00: **Shaping Future Air Power – Resilience and Projection** **Paul Stoddart** - Scientific Advisor, RAF Checkmate, Air & Space Warfare Centre - The role of Agile Combat Employment (ACE) in enhancing RAF resilience and increasing air power projection capability. - Avoiding fragility: the speed-firepower-armour triangle. - Technology: neither a panacea nor a crutch but an enabler.	09:00: **The Elusive Concept of Operational Sovereignty** **Sir Brian Burridge** - Doctoral Researcher, University of Reading - Defence industrial strategies since the end of the Cold War, including common themes on Smart Acquisition, partnering, investment in R&D, value-for-money and operational sovereignty. - Core drivers of these strategies. - The significance of various attempts to define operational sovereignty showing the balance that

- Performance: how much is enough? Leading edge versus 'bleeding' edge.	was sought between security of supply and operational security. - The impact of these different approaches on the defence industrial base and the downstream significance on investment, intellectual property and skills, all of which ultimately determine the body of knowledge available to commanders when combat operations arise.
09:25: **Integrating deterrence** **Prof Wyn Bowen** - Director, Freeman Air and Space Institute, King's College London - Integration of all instruments of national power - conventional, nuclear, cyber, space, informational - across theaters of competition and potential conflict. - Integration across the spectrum of conflict from high intensity warfare to the grey zone. - Integration with allies and partners	09:25: **What Next for Defence Industrial Strategy?** **Nick Toogood** - Director, Industrial Strategy & Exports, UK MoD - What has been delivered under the Defence Industrial Strategy since March 21 - How has the changed strategic environment changed the Government's approach - How else is Government evolving the policies and approaches set out in the publication - What is now needed from the industrial side
09:50: **Imagining the Future** **Lt Col. Matthew G. Brown** - USAF (Exchange Officer to RAF), CAS Air Staff Strategy Futures and Concepts	09:50: **Skill Base of the Future for Engineering and Aviation** **Capt Ben Perkins-Brown** - Head of Profession (Engineering) Team Leader, Defence Engineering Champion Team Leader, UK MoD
10:15: **How AI will Alter Multi-Domain Warfare** **Col Tucker 'Cinco' Hamilton** - Dept. of the Air Force, Chief of AI Test and Operations, USAF - Discussing salient points on how AI has changed our platforms and more broadly, our battlespace. - How prevailing in future conflicts requires the ability to understand situations faster than our adversaries; AI is the key to quickly and intelligently counter threats. - Highlighting system capability which can produce more robust information, enhancing our decisions.	10:15: **Weapon Development, Evaluation and Capability Assurance** **John Cunningham** - Head of Weapons, Evaluation and Capability Assurance (WECA), UK MoD - Considerations for designing and producing missiles and missile systems to meet the whole range of current and future needs of the three-armed forces. - Requirements for air-to-air and air-to-surface missile systems to equip the latest generation of aircraft. - Application of technology, capital and services that underpin weapon and directed energy systems.

10:40 ***Networking break***

Japan's Defence Capability	Acquisition Programmes and Delivering Air and Space Power Capabilities
Moderator: Gp Capt Gordon Woolley OBE AFC FRAeS RAF (Ret'd)	**Moderator: Tim Marshall** – Managing Director, Fovant Aerospace Ltd

11:05: **How Japan is Moving to a Multi-Dimensional Defence Force Enterprise** **Koji Imaki** - Retired Major General, Japan Air Self-Defence Force - Expanding its blue-water capabilities and resilient air defence posture through the conversion of the Izumo-class helicopter carriers into fully-fledged aircraft carriers able to operate the F-35B fighter. - Discussion on Japan's aerospace defence initiatives, including the twin-engine F-X, with advanced technologies, and its integration with legacy defence systems. - Extension of the US-Japan alliance system, using the alliance as a template to achieve integrated deterrence and Free and Open Indo-Pacific.	11:05: **Acquisition and Procurement Policy** **Trevor Taylor** - Director of the Defence, Industries and Society Programme, Royal United Services Institute - Ensuring Operational Independence - Developing strategies to maintain onshore capability and significant aspects for operational independence, e.g. systems integration, upgrades, manufacture of the most critical components, and testing and evaluation. - Providing greater clarity to the UK industrial base on our future requirements and technology priorities that have the most potential for national security application. - Working with industry to promote greater 'pull through' of these technologies into deployable national security capabilities. - Update on legislative reform, policy changes and internal transformation that together will improve the speed and simplicity of procurement, provide more flexibility in how we procure and support capability, and stimulate innovation and technology exploitation.
Training and Force Capabilities 11:30: **UK Military Flying Training – Start with Why** **Group Captain Rob Caine** - Commandant No 6. Flying Training School, RAF - UKMFTS A Journey. - Developing a cognitive programme and pipelines - live and synthetic training. - Improve the tactical leadership skills and flying capabilities of future Commanders. - Prioritising investment and delivering the UK's military pilot training programme. Working with commercial partners to deliver for the UK armed forces. - Ensuring that the potential of platforms and systems are fully exploited. - Next generation Air force training – ACE DFE.	11:30: **Managing Complex Sourcing and Acquisition Programmes to Deliver Optimal Capabilities for the Air Force** **Katie Forteath** - Deputy Head Major Projects and RCO, RAF
11:55: **How Gladiator heralds a New Dawn for Synthetic Training for the UK Military** **Wg Cdr Mark Still** - OC ABTC, Air & Space Warfare Centre, RAF - How the system allows multiple aircrew to experience the same battlefield environment and threats simultaneously. - How it enables pilots to exercise capabilities, tactics and procedures that would be impossible in the live environment due to airspace, aircraft availability, or security constraints.	11:55: **Creating the Environment for Unique Capabilities to be Acquired** **Fred Gregory** - Chief, Strategic Capabilities Division, HQAFRICOM - Rapid acquisition processes to fulfil future urgent needs. - Accelerating the pace of innovation with the US Air Force.

- Exploring other new technologies can revolutionise pilot training – the use of virtual and augmented reality headset to deliver immersive, state-of-the-art, pilot-centered training. Measuring stress levels and cognitive workload experienced by pilot trainees. Having the capability to provide robust performance analytics to our talent management systems, keeping our force aggressively modern.	
12:20: **Panel: Delivering World-Class, Technologically Advanced Operational Readiness Training** **Draken** – speaker name tbc - The nationally significant role for training UK military personnel, and its strategic allies, to provide a range of multi-platform effects using next-generation technologies. - How geo-political events have brought into sharp relief the need for our armed forces personnel to be trained effectively to defend themselves from attack. - Conducting live and synthetic training against 'fighter jets' replicating the tactics, techniques and procedures of potential adversaries.	12:20: **Environmental Operating Space** **Stephen Hesketh** - Deputy Chief Engineer - Predator RG-1 & MQ-9 Reaper Air Systems, UK MoD 12:45: **The Role of Reusable Hypersonic Vehicles in the Future Battlespace** **Mark Thomas** - CEO, Reaction Engines - In an ever-changing geopolitical arena, how can the UK ensure it stays strategically ahead of adversaries? - Rethinking the role of hypersonic technologies for future defence and commercial needs. - How the UK can be a leading player in the development of hypersonic technologies for strategic defence needs - Enabling the UK to be a leading and active player in AUKUS - Leveraging hypersonic technology to future markets, bridging the gap between Airspace and Space

13:15 ***Lunch break***

Multi-Domain Operations	**The Role of Commercial Partners to Enhance Operational Capabilities**
Moderator: Air Marshal Sir Chris Harper	**Moderator: Rear Adm Simon Henley**
14:05: **The Changing Strategic Context in which Air and Space Power Operates** **Air Vice Marshal Fin Monahan** - Director of the Development, Concepts and Doctrine Centre (DCDC), UK Strategic Command - Shaping our future forces through innovation, experimentation, education and command and control. - How the principle of multi-domain operations dovetails with the UK's Joint Action doctrine.	14:05: **Operational lessons and priorities for Air and Space Warfare** **Air Cdre J Blythe Crawford** - Comdt ASC, Air & Space Warfare Centre, RAF - Creating the perfect testbed for new technology and processes. - RAFX and Astra – the campaign to build the Next Generation Royal Air Force. - How do we leapfrog from being a technological laggard to actually being at the cutting edge?

	- Partnering with universities and with startups to accelerate that process and to get to the front of the queue with regards to technology rather than being a late adopter.
14:30: **Integrating Maritime Capabilities into the Air Domain** **Dr Kevin Rowlands** - Head Royal Navy Strategic Studies Centre, Royal Navy - Maritime air capabilities now and in the future - Integration as a force multiplier - Regional challenges in the Euro-Atlantic, Indo-Pacific, and High North	14:30: **Diversifying Defence Supply Chains and Growing the Role of Small and Medium Sized Enterprises** **Andrew Kinniburgh** - Director-General, Make UK Defence
14:55: **Why Airpower Needs Landpower** **Nick English** - Assistant Head Capability Strategy and Force Development, British Army	14:55: **AERALIS Enables On-Demand Operational Air Capability - Adaptable, Capable, Re-usable, Affordable, Sustainable, Available** **Tristan Crawford** - CEO, AERALIS Ltd **AVM Mark Green (retd)** - Senior Military Advisor, AERALIS Ltd - AERALIS™, the transformational British military jet developer, is developing aircraft service offering in the £85Bn light fast jet defence market. - Our modular aircraft system is unique in making integrated, combat air training accessible worldwide through an innovative service model which gives you On-Demand capability. - How we help customers redesign military flying training – how it is delivered, built and futureproofed. AERALIS transforms the availability and affordability of operational air services. - How our AERALIS's core fuselage system, together with the AERSIDE digital enterprise system, is at the heart of future integrated training capability. - Developing a sovereign defence aviation capability is central to the AERALIS approach. We will explain our innovative commercial finance and risk sharing partner network approach - including partnerships with Thales UK, Atkins, Siemens, Martin-Baker, Rolls Royce, and Hamble Aerostructures.
15:20: **Resilient Capabilities through Assured and Agile Support** **Air Cdre Shaun Harris** - ACOS A4, HQ Air Command, RAF - Improving support resilience in a changing operating environment. - Enabling the adoption of operational Agile Combat Employment, through responsive support activity.	15:20: **The Engineering Challenges of Unmanned Aerial Vehicle Actuator Design** **Tom Worsley** - Technical Director, Reliance Precision Limited - With the current focus on the development of unmanned loyal wingman platforms, the challenge of scaling down conventional hydraulic actuation systems from larger aircraft, has driven the innovation of smaller ultra-lightweight electronic

- Understanding the contribution of each element of the support chain to capability resilience and the related roles of industry and the military. - Adopting novel technologies that could enable a more responsive or cost-effective support chain, including additive manufacture, digital twins and human augmentation. - Ensuring clear and coherent support requirements for military capability, from concept through to disposal. - Enhancing UK productivity and prosperity. Working with industry to understand the complex support chains and expertise that underpin air power capabilities and where resilience requirements may support prosperity and exports.	actuators, featuring embedded controllers and low power consumption. - This talk will focus on the opportunity space for Engineering innovation on loyal wingman platforms, and explores the potential for rapid development cycles, reducing the time to market, and establishing a UK industry lead in these new areas of technology.

15:45 ***Networking break***

Future Force Capability Development

Moderator: Kerissa Khan – President 2023-24, Royal Aeronautical Society

16:00 **Complex Air Defence: Countering the Hypersonic Missile Threat**
Malcolm Claus - Senior Lecturer in Astronautics and Space Technology & CFD, Kingston University

- The global race to design and develop hypersonic missiles, including inter-continental hypersonic glide vehicles (HGV).
- The implications of the advent of hypersonic weapon systems for strategic stability and modern warfare capability planning. What are the implications for aircraft carriers and other high value assets in a hypersonic missile age?
- Hypersonic defensive capabilities – The requirement for a multi-layered approach across all phases of flight detection, tracking and interception. How integration and interoperability are vital elements to connect each layer of this architecture.
- New defence capabilities including directed energy systems.

16:25 **Advanced Technologies in Wargaming**
Jason M. Jones - Defense Program Manager, Matrix Games, LLC

- Integrating advanced technologies into wargaming concepts
- Employing agile systems to rapidly wargame and analyse conceptual capabilities
- Transformational technologies to support complex mission planning

16:50 **Technology Tomorrow - Future Disruptive Capabilities**
Lauren Barrett Knausenberger - Chief Information Officer, Department of the Air Force (United States)

- Technology developments accelerating and converging to create a future that will impact all facets of our lives
- The world at a tipping point with artificial intelligence that will increase acceleration of available capabilities impacting the global economy and disparities
- The effects of ubiquitous connectivity & compute anywhere and future capabilities on how we deliver information in a contested environment

17:15 ***End of conference***