

# THE AIR & SPACE POWER ASSOCIATION

SHAPING THE FUTURE OF AIR AND SPACE POWER

THE BULLETIN | SPRING 2023



## Welcome to the ASPA Bulletin. This is the first for some time and I hope you enjoy the content.

I should begin with a brief Association update. It is testament to the outstanding support of our corporate and individual members, and the excellent work of the ASPA team, that we have emerged from the recent challenging period stronger than I can remember. Membership is growing fast and our focus on expanding the offering to members with a view to creating an engaging air and space community 'hub' seems to have landed well.

After a couple of rather disjointed event years due to the pandemic, 2022 was very successful for the Association. We were able to host all three dinners, a number of Fireside Chats and our online 'Audience With' events opened up more opportunities for the entire membership as well as widening the scope of subject matter. Certainly, the take-up of our in-person events is now back to full strength and our dinners are more popular than ever with our annual industry dinner in November 2022 seeing over 180 attendees and our recent Spring dinner with AM Sir Rich Knighton a complete sell-out!

Our Summer dinner on 23 May is already oversubscribed but there is plenty for the diary in the months ahead.

**The Chief of the Air Staff's Global Air & Space Chiefs' Conference** in July is already gaining momentum and last year's record attendance of 67 air and space chiefs and 550 delegates is certainly a target we would hope to match this year. This year's conference is themed 'Global Air and Space Power' and will bring into focus some of the critical air and space power issues currently faced in the

## CHAIR'S LETTER

highly contested regions of the Arctic and High North, the Eastern Area of the NATO Alliance and the Indo-Pacific. Discussions will centre around the threat posed by Russia and how to strengthen the collective security of the Euro-Atlantic and NATO's air and space power capability and interoperability. Bolstering the defence of the Euro-Atlantic and Indo-China security environments are the two foundation stones of the UK Government's recent **Integrated Review Refresh** and we expect this to inform debate at this year's conference.

We are also looking forward to the next UK Defence Space Conference, which we will deliver on behalf of UK Space Command, and we are excited at the prospect of a **Joint Capability Group Unmanned Aircraft Systems Conference** in September which we have been asked to deliver on behalf of NATO.

Regarding announcements, I am absolutely thrilled to reveal a new venture for the Association. In February we agreed with the UK's National Space Academy that we would support a dedicated education/STEM project aimed specifically at young people and with a focus on Space. We signed a Memorandum of Understanding under which we have pledged £50,000 of funding for an ASPA-branded series of masterclasses which will see 6000 pupil-hours of world class training and 750-1000 teacher-hours of intensive training, thereby reaching many thousands of students. In this issue, Professor Anu Ojha, the Academy Director, provides an insight into the programme and I would encourage our members to take a look at the programme on the **NSA website** and potentially join us in expanding the scheme as part of the wider National Space Strategy project to develop the UK's space engineering skills across the schools and education network.

Also in this issue, we have two thought-provoking articles we hope you'll enjoy. In the

first, our esteemed President Greg Bagwell reflects on what the Ukraine conflict means for air power and what is at stake for NATO's air superiority. In the second, our guest contributor Tim Robinson, Editor-in-Chief of the Royal Aeronautical Society's AEROSPACE magazine, considers the significance of the Global Combat Air Programme for future air power collaboration.

Finally, I would like to sincerely thank my team who work tirelessly to manage the day to day working of the Association, planning and execution of our events and support for our members. Professionalising our activity has been a focus for us over the last year and I am delighted to announce the appointment of Clive Elliott as our Director of Operations. Clive's new role more appropriately reflects his incredible and tireless contribution to the Association and the increasing scope of our activities. He will be managing the activities of the team and promoting/developing the Association's existing and new ventures. I am also pleased to say that we have expanded our team and Ian Draper and Lloyd Francis, both members, have agreed to look after our Corporate and Individual members respectively. Catherine Elliott will continue to run the office and help deliver Association events while Andrew Brookes remains our Association Secretary. Carol Reed continues in her role to support our communications, media relations and publicity. Much work has gone in to the redevelopment of our website which not only carries Association information and event details but it also hosts recordings of our conferences and online events. We will shortly be launching a resources section which will provide a wide range of useful information and opinion. Lastly, I would like to extend my warmest wishes to you the members and thank you for your continued support.

**Air Commodore (Ret'd) Mark Roberts**  
Chair of The Air & Space Power Association

## PRESIDENT'S VIEWPOINT

# LESSONS FROM UKRAINE

**We are living through challenging times indeed. The war in Ukraine is now entering its second year, with Russia, it would appear, hell bent on victory at all costs. And we have witnessed the F-22 chalking up its first air to air kill, admittedly against a rather ponderous Chinese surveillance balloon flying in US continental upper airspace.**

It feels like air and space power is increasingly to the fore, yet it consistently fails to scale the heights of which we know it is capable. The war in Ukraine has been notable for its absence of decisive airpower; although this might be attributed as much to a combination of the poor performance of the Russians, and the prevalence of unfettered ground-based air defence.

Western allies sit on the fence when it comes to gifting Ukraine combat aircraft, and airpower in that theatre of operation continues to underwhelm. I fear that some are learning all the wrong lessons from this war and failing to



Photo (Left):  
Ukrainian Air Force

apply the correct ones. Suicide killer drones may be grabbing the headlines, but they are yet to be battle winning and seem to offer nothing we haven't seen over London nearly 80 years ago. Many have argued short of gifting western combat aircraft, either out of fear of escalation or the sheer complexity of integrating them quickly; personally, I feel that both considerations are over stated. There are many who believe that 'drones and missiles' are all that Ukraine need to prevail, yet the battlefield carries overtones of 1914, rather than heralding a 5th generation of warfare.

As the UK wrestles with its own Defence posture, it would do well to reflect on the realities of this type of warfare, rather than chase blindly the transformational vision it is sometimes seduced by. Of course, the lessons of the last year haven't come as a surprise to all of us, and the now parlous state of the resilience and sustainability of our Armed Forces has been brought into stark relief by the nature of the very war NATO is designed to deter.

Regrettably when dealing with regimes such as

the one in Russia, deterrence remains vital, real and hard. The absence of attacks or aggression means that deterrence works; what it does not mean, unfortunately, is that it is no longer needed and risk can be taken against it.

UK Defence has some clear but hard-headed decisions to make immediately if it is to ensure it makes the right course correction. I won't opine here with my wish-list, but a simple review of readiness, sustainability and obvious capability gaps would be a good place to start, rather than fanciful ideas about global ambition based on political posturing. Dealing properly and efficiently with Russia would send its own message further East.

As real budgets have shrunk and the demands of real wars have faded in the memory, some in Defence have been seduced by consultancy-driven efficiencies and the lure of technical innovation. A simple glance at what is unfolding in Ukraine might tell us that the industrial age of warfare isn't quite done yet.

**Air Marshal (Ret'd) Greg Bagwell**  
**ASPA President**

Photo: Crown Copyright



## ASPA INSIGHT

# TEMPEST - THE WORLD'S FIRST GLOBAL FIGHTER?

BY TIM ROBINSON, EDITOR-IN-CHIEF, AEROSPACE MAGAZINE

**TIM ROBINSON assesses the geostrategic and industrial implications of Japan merging its future fighter project with the UK/Italy Tempest future fighter effort to turn it into the Global Combat Air Programme (GCAP).**

Ever since it was formed in 1954, the Japanese Air Self-Defense Force (JASDF) has been a close partner and ally of the US, and mostly operated licence-built American types in its front line fleet – especially in fighters, from F-86s, to F-4 Phantoms, to F-15J Eagles and its latest F-35 Lightning IIs. Despite Tokyo's immense industrial and technological power, its co-development of the F-16 into the

Mitsubishi F-2 produced an expensive bespoke fighter purely for Japan. Though it has flirted with European suppliers (Eurofighter was briefly considered until it selected the F-35 in 2011), until December 2022, Japan had firmly remained a dedicated US customer for fighters. That said, behind the scenes, things were less harmonious. Japan's experience of partnering with the US on F-2 and F-35, along with previous US restrictions on selling it the F-22, had quietly made Tokyo look for opportunities and partners further afield for its own F-X future fighter programme – especially after Washington indicated that there would be strict technology transfer rules in place. Meanwhile Tokyo has tested the water with the UK, with cooperation on

missile sensors, radars and powerplants. The two countries, both island nations, also had similar requirements, for a long-range, twin-engine multirole stealth combat platform, optimised for air superiority and able to take advantage of new developments in AI, sensors, networking and acting as the command platform for 'adjuncts' (or 'loyal wingman') drones.

## US SUPPORT FOR GCAP

With a deepening of Japanese involvement in Tempest/FCAS rumoured since before last year's Farnborough Air Show, it was thus no big surprise when the announcement came. However, what was very notable was that the press release from the Japanese Ministry of Defense included a joint statement from



Photo: Courtesy of BAE SYSTEMS

the US DoD and Japan, with the US saying “The United States supports Japan’s security and defense cooperation with likeminded allies and partners, including with the United Kingdom and Italy – two close partners of both of our countries – on the development of its next fighter aircraft” – an explicit political blessing of GCAP from Washington. This is noteworthy as some defence observers had predicted that the biggest threat to Tempest, would be the US, which, seeing a European fighter programme steal a long-term defence customer and industrial partner from under their noses, would respond with a rival project to kill Tempest off.

This unusual support then, from Washington, can be explained from a couple of different perspectives. Firstly, like the AUKUS cooperation agreement with Australia and the UK, it links and deepens the UK (and Italian) stake and interests in Indo-Pacific security alliances and in assisting the US in building partnerships of like-minded nations. Secondly, it is perhaps an admission that the US NGAD (Next Generation Air Dominance) fighter, which may cost double the sticker price of a F-35, and be tightly controlled in terms of IP, is not an option for Japan. Finally, and perhaps most interestingly of all, GCAP/Tempest is being designed to have freedom of action, freedom of modification and freedom of export. The second, then, potentially opens the door for the US defence industry to pitch components, upgrades, weapons etc for customers to modify and tailor their GCAP combat platform to their own sovereign requirements. In short then, the US aerospace industry could also benefit significantly from GCAP – particularly if it achieves worldwide export success.

### FILLING A GAP IN THE MARKET

GCAP/Tempest is now well positioned to exploit a growing gap in the international fighter market in the 2030/40s for a sixth-gen affordable combat platform and is potentially able to move ahead of the rival SCAF Franco/German/Spanish programme, which last summer, according to the Dassault chief, was running a decade late and would only be ready by the 2050s. Meanwhile in the US, NGAD, optimised for the very long-range, high-end

Pacific fight, would seem to be too expensive and export restricted for most nations. At the lower end, there are fighter programmes from Turkey (TF-X) and South Korea (KF-21) but these are really F-35 fifth generation equivalents, rather than sixth or next generation combat platforms. Additionally, for some countries eyeing non-Western future fighter options, Russia is now out of the picture due to Western sanctions and the public sub-standard performance of its air arm in the skies of Ukraine. (Although this may be due to the training and doctrine, rather than any deficiencies in its equipment). Russia’s Su-57 Felon and proposed Su-75 Checkmate then would appear to have a gloomy outlook in terms of exports.

In short, then, beyond the GCAP founding partners of UK, Japan, and Italy, there are bright prospects for other countries to join further in the future. Australia, for example, already linked with AUKUS, would be natural choice. India, too, might decide that the ‘freedom of modification’ aspect of GCAP could provide a useful compromise in incorporating Indian systems on a next-generation fighter, and acquiring and fielding this capability faster than if it were to develop it purely indigenously. Meanwhile Saudi Arabia (already a Typhoon operator) the UAE (still yet to receive approval for F-35s) and Qatar (with deep links to the RAF including a joint RAF/Qatari Typhoon squadron) might also be eventual customers for GCAP in the Middle East.

### CHALLENGES

However – there still remain challenges. The first in maintaining the fast pace – which directly affects cost. Skills is another one, with the aerospace industry across the globe struggling to recruit the right people. However, there is already growing evidence that the lure of working on cutting edge defence technology is inspiring fresh blood in ‘Generation Tempest’. This is no-doubt aided by the ongoing news from Ukraine where a peer-on-peer state war has pushed discussions over tanks and fighter jets to the front pages in a way not seen since the Cold War.

There are also challenges in a common, secure, virtual operating environment to design and

share data across multiple partners – especially in translating different security clearance levels across international partners.

There are also challenges in integrating new partners and bringing them onboard – particularly at this early stage of the programme. A wild card here could be Germany, if the FCAS/SCAF (Future Combat Air System/Système de Combat Aérien du Futur) partnership breaks down in the next few years and France decides (again) to go its own way. Some experts argue that with Germany’s industrial and economic might, and history of joint projects such as Tornado and Eurofighter, it would be a natural fit for them to join GCAP. Politically, it also could help repair damage between London and Berlin caused by Brexit. However, despite close relations between the Royal Air Force and Luftwaffe, some analysts warn that adding Germany could repeat the mistakes of Eurofighter and result in the programme being slowed down by Berlin. The foot-dragging by Berlin to up its support to Ukraine from helmets and expired MANPADs to Leopard MBTs may indicate that German reluctance to approve defence exports could still be an obstacle in developing combat aircraft that could be freely exported. Finally, despite its current public support, the US could conceivably change its mind, and launch a ‘NGAD-lite’ or a lower-cost sixth generation Next Generation Air Dominance fighter aimed at export customers.

### SUMMARY

**In short, the GCAP/Tempest represents one of the most significant combat aircraft programmes of the 21st century – not only in the cutting-edge technology that is being developed to go into the platform itself, its adjuncts/drones, but also with the digitisation, skills and ‘Industry 4.0’ to make this happen – and the sheer pace of progress. The international scope of the partnership now stretches from London, via Rome, to Tokyo – something that only a few years ago would be unthinkable. Indeed, it is worth remembering that before the launch of Tempest in 2018, the UK combat air sector was looking at an uncertain future, with a declining international orderbook, legacy platforms facing growing obsolescence and an older generation of workers set to retire. Today, five years on, the situation has now reversed, and Britain is once again at the very forefront of combat aircraft development.**

The Royal Aeronautical Society will be holding a Future Combat Air and Space Capabilities event on 23 May. Further details here: [www.aerosociety.com/events-calendar/raes-future-combat-air-and-space-capabilities-summit](http://www.aerosociety.com/events-calendar/raes-future-combat-air-and-space-capabilities-summit)

# THE CHIEF OF THE AIR STAFF'S GLOBAL AIR AND SPACE CHIEFS' CONFERENCE 2023

## The Chief of the Air Staff's Global Air & Space Chiefs' Conference 2023 is gathering pace.

This year's conference is themed '**Global Air and Space Power**' and will explore perspectives of delivering Global Air and Space Power through regional lenses, including the High North, the Eastern Area of the NATO Alliance and the Indo-Pacific.

**Keynote Speakers** include a senior UK Minister, the Chief of the Air Staff, and international chiefs of Air and Space Forces.

They will provide their unique perspectives on the criticality of maintaining cutting edge air and space power capabilities to operate, and if necessary, to fight and win across a spectrum of operations, regions and domains, simultaneously.

One session **NATO, The Eastern Flank and The High North** will examine the air and space power implications and lessons identified from the ongoing conflict in Ukraine and what they mean for the defence and security of airspace. The focus will be on achieving credible deterrence, maintaining freedom of manoeuvre and air superiority against near peer rivals in the Euro-Atlantic.

Another session **The Indo-Pacific** will examine the threats posed to this region from evolving air and space powers, and how air and space forces will have to prepare for a transition from constant competition to enduring confrontation. Experts will assess air and space capabilities, connectivity,

command and control and coalition cohesion which will be required when addressing the tyranny of distance.

**The Space & Emerging Technology session** will address the criticality of the space domain to current and future operations, including the challenge of the civilisation as opposed to the militarisation of space.

Finally the **Sustaining Net Zero Operations** session will consider how to operate sustainably, and how to maintain operational effectiveness within a climate-changed context.

More details about GASCC 2023, the programme and speakers and how to reserve your place at the conference can be found [here](#)

You can join the conference live with all the networking opportunities or watch it online. The recording is made available after the event for in-person attendees and virtual delegates so be sure to secure your place!

Remember too that you or your teams can watch last year's Global Air & Space Chiefs' Conference sessions on our YouTube channel [here](#)

**Follow us too for updates on Twitter**  
[#GlobalAirSpaceChiefs](#)

## There is plenty afoot in the world of Space this year and the next iteration of Defence Space Conference is in the planning.

We hope to be able to announce details in the very near future. Defence Space Conference, delivered in partnership with UK Space Command, is the lead platform for all those who seek to influence emerging thinking on the UK's military space capability, planning, and development. Defence Space effectively coheres military space strategy and operations with space technology and innovation and is the UK's primary platform for sharing and shaping future UK Space Domain strategic thinking and operational delivery.

The Conference, now in its sixth year, is well established in the calendar and brings together senior UK Government officials, international military commanders, industry, academics, and leaders in disruptive technologies from the UK and overseas.

For sponsorship details please contact [clive@airpower.org.uk](mailto:clive@airpower.org.uk)

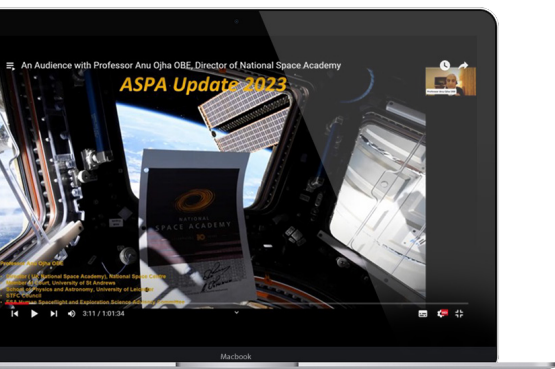
You can watch the full proceedings with a deep-dive into UK Defence Space strategy and priorities here [Defence Space Conference 2022](#).



## MEMBER EVENTS

# 'AN AUDIENCE WITH' NEWS

Our 'An Audience With' online lecture series is gaining popularity as members and their guests can tune in for free.



### FOCUS ON SPACE

To kick off the year, we heard from Professor Anu Ojha, Director of the National Space Academy, in an insightful talk concerning the geopolitical developments in space exploration, launch and proliferation of Space assets.

He looked at what's next for technological progress in Space for the UK and the challenges now faced to protect and defend this increasingly contested operational domain.

You can watch the presentation and tune into the extensive Q&A session [here](#) on our YouTube channel.

Our next 'An Audience With' is on **14 June** with RUSI's Professor Justin Bronk (pictured below).

For details and to book please visit the website [here](#) or just email [catherine@airpower.org.uk](mailto:catherine@airpower.org.uk)



### FOCUS ON CLIMATE CHANGE AND SUSTAINABILITY IN DEFENCE

For those of you who missed this fascinating overview of the **Ministry of Defence's Climate Change Strategy** from their Director of Climate Change and Sustainability, James Clare, please just visit our Member Events page of the website and tune in.

The talk includes a detailed presentation on the MoD's transformation goals, timetable and objectives as it seeks to reduce its carbon footprint across Defence and James also explains the MoD's framework for delivery. You can watch his presentation [here](#).

### FIRESIDE CHATS

Our Corporate Members enjoy the opportunity to engage with senior members of the RAF Leadership Team at our regular Fireside Chat evenings at The RAF Club.

Air Commodore Simon Strasdin, ISTAR Force Commander, gave a fascinating talk on ISTAR developments and Air Vice-Marshal Simon Edwards, ACAS (Strategy) (pictured) joined Corporate members on 20 April with the latest insight into RAF Strategy.



### ASPA DINNERS

Our dinners are a popular way for our members to get together, network and meet with members of the Senior Leadership Team in an informal setting. We had a full house at the Spring Dinner with Air Marshal Sir Rich Knighton (See page 7; Appointments) and we look forward to the Summer Dinner on 23 May. Looking ahead to later in the year, members are already signing up or reserving corporate tables for the annual Industry Dinner which we hold in the Riverside Room at the IET. The event is always a special occasion with the Chief of the Air Staff and members of the Senior Leadership Team joining members for a wonderful networking reception in The Library followed by a sumptuous dinner, speech and more drinks on the roof terrace afterwards if weather permits.

The Industry Dinner is also the occasion for us to present our annual award, a trophy for the best work performed by the Royal Air Force. Last year the award was presented to AVM Paul Godfrey, Commander, UK Space Command (pictured below with CAS, ACM Sir Mike Wigston and ASPA President Greg Bagwell), for the tremendous achievement in standing up a new Joint Command in just 18 months. Members are encouraged to help us evaluate potential nominees for this prestigious trophy and join us on the evening to see CAS present the trophy.



# ASPA AND NATIONAL SPACE ACADEMY SIGN SPACE SKILLS MOU

PROFESSOR ANU OJHA OBE, DIRECTOR,  
UK NATIONAL SPACE ACADEMY AND MEMBER OF STFC COUNCIL



**As Air Marshal Harvey Smyth said at the Defence Space Conference in 2022:**

***'This is the most exciting time in space since the 1960s - and the most challenging.'***

Across defence and civil sectors, space gives us critical capabilities that underpin our 21st Century way of life including intelligence, reconnaissance, and critical climate and meteorological monitoring. The global commercial space sector now generates over \$400 billion annually. Space is no longer a nice to have, it's a must-have... and the UK's civil and defence space sectors have world-leading specialist capabilities, employing nearly 50 000 people with an annual turnover exceeding £17 billion.

Crucial challenges remain if our sector is to achieve its full potential. In the UK Space Agency's most recent [survey of the UK space sector](#), among the most significant barriers to growth according to UK space sector companies are recruitment and a general skills shortage. We may have a globally significant sector, but we cannot just expect space to be a natural draw for our next generation - we must embrace proactive approaches, highlighting new opportunities to young people well before they enter employment.

Free masterclasses delivered by the Academy's award-winning teaching team in more challenging and deprived schools, nurture the creativity of our next generation

**Photo: Courtesy of the National Space Centre**



workforce through inspiration and, more importantly highlighting potential career pathways, as well as supporting their school science studies. Working with teachers, we will use the "multiplier effect", adding space-themed methodologies to their toolkit - with every teacher then able to reach hundreds of new students each year.

Aerospace and aviation were the foundations of space flight, so we are delighted to partner with ASPA. That's why we believe the ASPA partnership with the National Space Academy is crucial to support our national skills and education ambitions, underpinning the future growth of both the civil and defence space sectors in the United Kingdom.

## ABOUT THE MASTERCLASSES FUNDED BY THE AIR & SPACE POWER ASSOCIATION

**The Air & Space Power Association funding will allow the National Space Academy to offer fully funded masterclasses to all secondary schools.**

These bespoke masterclasses can take place in school or at the National Space Centre in Leicester and are delivered by the NSA's network of teachers. They use space context to deliver topics in a hands-on, interactive and engaging way.

Possible topics include:

- How we get to space: forces, motion and gravity
- The space environment and human survival, temperature, pressure and dangers of radiation
- Comet impacts and kinetic energy models
- Pollution, climate change and using the electromagnetic spectrum to protect the Earth
- Gravity and gravitational fields, equations of motion and Newtonian mechanics
- Human survival in space, planetary atmospheres and ideal gasses
- Electromagnetic phenomena, inverse square law and the photoelectric effect
- The importance of magnetic fields and their interactions with charged particles
- Passive and active Earth observation systems and climate science
- Thermodynamics and spacecraft systems

You can find out more about the Programme and Masterclasses here: [www.nationalspaceacademy.org/what-we-do/aspa-mc-funding](http://www.nationalspaceacademy.org/what-we-do/aspa-mc-funding)

# APPOINTMENTS



We were fortunate to have Air Marshal Sir Richard Knighton speak at our recent Spring Dinner and we certainly look forward to hearing more from him as he brings his technological acumen to the fore in his new role.

Upon the **announcement** of his appointment, Chief of the Defence Staff Admiral Sir Tony Radakin said:

"I am very pleased to welcome Air Marshal Sir Richard Knighton as the next Chief of the Air Staff. The first engineer to lead his Service, he is just the person to seize the extraordinary technological opportunities that await the Royal Air Force, to become even more lethal and agile, and to reach even further into cyber and space."

AM Sir Richard said: "I am deeply honoured to be appointed as the next Chief of the Air Staff at such an important time for the Royal Air Force. The Prime Minister was clear in the Integrated Review Refresh that the world is now more volatile and contested. Air and Space power are critical to defending the UK, its interests and our allies. I am delighted to be given the opportunity to build on the modernisation and phenomenal operational success led by my predecessor..."

**Many congratulations to Air Marshal Sir Rich Knighton who was confirmed as the new Chief of the Air Staff and Aide-de-Camp to His Majesty in the rank of Air Chief Marshal on 31st March.**

We very much look forward to working with Air Marshal Sir Richard once he takes up his post in June and wish to give our sincere thanks to Air Chief Marshal Sir Mike Wigston for his tremendous support over the last four years as our Patron and wish him all the very best for the future. We certainly look forward to working with both ACM Sir Mike and AM Sir Richard over the coming months as we work together to deliver the Chief of the Air Staff's Global Air & Space Chiefs' Conference in July (as detailed on page 4).



**Congratulations to Warrant Officer Murugesvaran 'Subby' Subramaniam, who has been appointed as Warrant Officer of the Royal Air Force in succession to Warrant Officer Jake Alpert.**

Subramaniam is an Air and Space Operations Manager, whose service in the last 15 years has predominantly been in the Space Based Infrared System (SBIRS), Missile Warning (MW), Space Domain Awareness (SDA) and Ballistic Missile Defence (BMD) field. Prior to joining the Royal Air Force in 1998, Subramaniam served in the Royal Engineers with 106 Field Squadron/12 Force (Air) Support Group, 36 Engineering Regiment.

## MESSAGE FOR OUR MEMBERS

# INTRODUCING OUR NEW MEMBERSHIP OFFICERS



**IAN DRAPER**  
(Corporate Membership)

Having recently retired from corporate life I now have some time to voluntarily support The Air and Space Power Association team. It has been a pleasure attending all the events over past years and I've now joined the organising committee to assist with

Corporate Membership. We have a prestigious membership list of small, medium and large companies and my aim is to best represent their views and interests on the committee as well as talk to prospective new members. Please feel free to contact me at any time on [ian@airpower.org.uk](mailto:ian@airpower.org.uk) or on 00 7954 109894.



**LLOYD FRANCIS**  
(Individual Membership)

I have been a member of The Air & Space Power Association for over 16 years and seen many changes. There are a significant number of SME's operating within the ASPA sphere but many have little or no knowledge of the Association and its

benefits. Through my day-to-day activities, I aim to close this gap and enrich the ASPA membership base. Please do get in touch [lloyd@airpower.org.uk](mailto:lloyd@airpower.org.uk) 00 44 7495 963252



# BRANDED TIES NOW AVAILABLE!

We now have a new tie and pin badge for our members. The tie design has not changed significantly, but it does have our new logo on it.

These are now available for purchase at £19 for the tie and £4.50 for the pin badge. These prices include VAT and postage. Please do contact Catherine to place your order: [catherine@airpower.org.uk](mailto:catherine@airpower.org.uk)



**The Air & Space Power Association** is a vital forum for encouraging and stimulating debate on important air power issues. We welcome feature letters from members on any air or space power-related subject.

Contact us: [info@airpower.org.uk](mailto:info@airpower.org.uk)

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