



Aerial Firefighting North America – 22-23 March 2022 Chairman's Report

Introduction

This sixth biennial conference moved from McClellan Park Sacramento to the Town and Country Resort San Diego, to provide the appropriate accommodation for an event of this size. After all the concerns of the Covid pandemic, presenters, delegates and exhibitors for AFF North America 2022 were back in strength, and quality, to address the concerns of increasingly intense wildfires across the globe. Our traditional hosts, CAL FIRE, are literally in the 'eye of the fire' locally, with the number and intensity of wildfires continuing on their upward projectory. Appreciating the inevitability of increased temperatures and lengthy periods of drought, drives resource allocation and the harnessing of new technology, dual themes of this event. A key initiative from 2020 was the Event App with the comprehensive information of all aspects, includes the biographies of the speakers and summaries of their presentations which should be followed in conjunction with this report.

Opening Addresses

The focus on the challenges were addressed in the opening session by three key presenters, who for the first time in many years were able to paint a picture of the wider recognition there is now, of the cost benefit of attacking blazes early, before the huge damage to State and local economies, let alone the impact on people's lives. CAL FIRE, without whose support and endorsement we could not present this event with any authority, was represented by their new in the role **Chief Joe Tyler**. While a relative newcomer to aviation itself, he was a master of his brief drawing together ground firefighters and aircrew in a co-operative policy encouraging round table solutions with all shareholders. He accorded to his team the success in the acquisition of a new fleet of helicopters and C130 Air Tankers and the back up from technical staff. Examples in the war on wildfires included in house remote sensing assets and progress in electrical power companies increasingly putting their services underground to remove another source of ignition.

His presentation was complemented by that of **Jerry Perez**, the equally new in post National Director of Fire and Aviation Management in the USDA Forest Service. With an equally early handle on his brief, he articulated the challenges of a fire 'season' which is now a year long, the time and money to modernise fleets, together with complex and changing contracting processes. Heralding the USDA, DOI and FEMA Joint New Wildland Fire Mitigation Commission report, he articulated the strategy for a projected ten-year wildfire crisis: a paradigm shift in forest health; a well-paid, professional, permanent firefighting work force; and a focus on mental health, resilience, and wellbeing. Strategic Risk Management assistance would include investment in Automated Telemetry Units, and once again partnerships were vital to success, which, let us not forget, happens every day.

The third member of this triumvirate was **Hilary Franz**, Commissioner of Public Lands in Washington State Department of Natural Resources, who has been in the forefront of efforts to protect communities and the environment, from changing climate and wildfires. She has developed the agency's first ever plan for climate resilience and developed a 20 year forest health strategic Plan. Hilary has secured through a coalition of interested parties, an historic \$500 Million from the State legislature, to prevent and fight wildfires, and fund forest restoration. This charismatic politician has a beg, steel or borrow determination to extend the State's air resources in order to focus on a strategy of Initial Attack as a means of 'Winning against Wildfire'.



New Technologies & Practices

With his title of Global Warming Challenges & the Impact on Aerial Firefighting, **Sean Navin** introduced **Amentum**, the global company (replacing DynCorp) providing Aviation support to CAL FIRE. As the Program Director, he maintains and operates their S-2 air tankers, OV-10 air tactical aircraft, Super Hueys, S70i (night vision capable 'Blackhawks'), C130 and Beechcraft King Airs. The Leadership team between Amentum and CAL FIRE provides the 'Gold Standard' in Aerial Firefighting. He addressed the impact of aerial firefighting tactics, techniques, and procedures, which have produced significantly more effective and efficient results, and concluded with the importance of retaining pilots and maintainers. His statistics on the 2022 fire season (see the Event App) make sobering reading: 93% of California is in severe drought; 35% in extreme drought; the snow pack is at 64% of normal; eight out of the ten largest fires on record have occurred in the last five years. The evidence could not be more alarming for aerial firefighters. Amentum is the platinum sponsor for the event.

Bridger Aerospace with over 20 aircraft including (the flagship CL-415 EAF Super Scooper) is the brain child of **Tim Sheehy**, as is his spin off Ascent Vision Technologies, that focuses on airborne sensor solutions critical to modern wildfire mitigation. As befits a much decorated ex-Navy Seal, he brings to bear military thinking to the prosecution of wildfires. Reflecting the concern of many startup companies, eager for their potential to be harnessed, he compares the excessive money spent on the Military preparing for a war which might never happen, while companies such as his are engaged in a real battle and yet are underfunded. He called for a coordinated fire fighting lobby to make their case. Given his passion, I suggest he might form it – his final word, 'I might just'.

Uniting the De Havilland Line. **Philippe Poutissou** presented an aircraft lineage going back a century and the Canada company product line is now united with 11 aircraft types. Five thousand aircraft have been produced to satisfy all requirements: robust for remote areas; challenging terrain; and the largest Turbo Prop operator. 3000 active aircraft are supported world wide. With the Twin Otter, the CL215/215T and CL415/515 programmes, together with the Dash 8, many of the company products are dedicated to aerial firefighting.

Fire Retardants. Happily not programmed back to back, two presentations articulated opposing views on the best ingredients. **Robert Burnham**, founding CEO of **Fortress North America** offering a retardant which is eco-friendly, less toxic, and more effective at stopping wildfires. Fundamentally his magnesium chloride formulation (with an additional benefit of minimal corrosion to aircraft metals) is also more effective than fertilizer based products. Fortress has a team of experts drawn from all quarters of the aerial firefighting industry.

Edward Goldberg, a long term presenter at these events and CEO of **Perimeter Solutions**, an established company with the benefit of years of trading, brought evidence that phosphate based retardants became the standard when magnesium chloride was discarded as ineffective. Eddie also contributed to the mountain of evidence against wildfires including the percentage change in high risk fire days per year is increasing to as much as 100% in the worst fire zones around the globe and that smoke alone kills 33,000 people around the world each year. Both are valued sponsor companies who have expressed an intention to return and advance their case.



Civil- Military Aerial Fire Fighting

Marines/Navy in support of Wildland Firefighting. We had heard so many presentations on the MAFFS capability delivered by the Air Force, that the question arose on why the Navy/Marines had never featured, especially in the San Diego area, the home of the 3rd Pacific Fleet. Former Marine Corps Chief Warrant Officer **George Shinrock**, after 36 years active Service accepted a role working with CAL FIRE on the use of Navy & Marine Corps helicopters for wildland firefighting. The incentive arose from the serious fires of 2003 and 2007 in the San Diego region. In the first Cedar Fire 2,722 homes and 16 lives lost, and the base infrastructure damaged. In 2007 in the Witch Creek Fire 1600 homes and 10 more lives were lost. Again, the base infrastructure was damaged. Rotary wing assets were called upon, but in addition to Marines being fully engaged or focused on war roles, no one quite knew where the authority/responsibility to respond lay. As a starting point a couple of buckets were procured for the CH53 and a cadre of aviators trained by USFS, however the high turnover of Marines prohibited the sustained commitment required. MOUs were eventually established but limited to the San Diego region or elevated to the DSCA (Defence Security Cooperation Agency) for approval. Despite a byzantine chain of command and authorisation, responses have been met almost every year in local fires since 2012.

Military Integration into Aerial Firefighting Ops Perhaps the presentation given by Lt Col Richard Pantusa, Chief of Aerial Firefighting for the 302 Operations Group, goes somewhat to answer the Question why USAF? The National Defense Strategy demands 'A more resilient Joint Force combined with a robust constellation of allies and partners'. (However, the vulnerability of 43 US bases to Wildfire would indicate an element of firefighting begins at home)! Nevertheless, the USAF capability has developed over 50 years of MAFFS through to the present Distributed Real Time Infrared (DRTI) capability. Yet all fire related equipment, including the tank system, is the property of the USFS and provided 'as required'. A comprehensive cover of this topic is available again in the Event App and in Colonel Pantusa's presentation.

Tactical Operations – Integration, Training and Managing Resources were addressed by **Jake Sjolund**, the Deputy for Tactical Air Operations in CAL FIRE. He has a huge task (including topically, Military Department Aviation Liaison) in addition to operational oversight, assistance and coordination of aerial assets and personnel; the policy, procedures and standards which go with that; the Coordination of Aviation Training; UAS and emerging technology. In terms of tactical operations there is the maintenance of an aggressive initial attack capability; proactivity in tactical support coordination and the health and wellness of personnel. The details of this department's workload, including the training and currency of S70i crews and staff is daunting. There is much more besides through a visit to his illuminating presentation.

The New Climate Paradigm

New Response Paradigm to Climate Driven Wildfires and their Hazards.

We were fortunate to start Day Two with effectively another Keynote Address given by **Mark Ghilarducci**, the Director of California Governor's Office of Emergency Services (Cal OES).

Hugely experienced and wearing hats in security and threat assessment, emergency management and oceanic and atmospheric administration, he was well placed to quantify the scale of today's climate driven wildfire challenges. This is a problem the whole world is facing with multi year droughts, high temperatures and strong winds impacting on communities: since 2017 – 50,000 homes destroyed; the loss of 4 entire communities; multiple deaths and injuries; and massive economic impact. The extent of burning statistics, and the stress on the Mutual Aid System, together with Legislative policies and investment, demands study of his comprehensive presentation. He focused particularly on leveraging technologies for predictive analysis, risk assessment & real time situational awareness, drawing together the Public, Private and Non-Governmental in collaboration. A true master class.



Meteorological Impact – the High Pressure Dome Phenomenon and the Challenges it Raises

Following on from the Director's broad canvas, was **Alex Tardy**, a warning coordination meteorologist with NOAA, the National Weather Service, whose presentation contains a wealth of statistics and information focusing on the extreme Fire Weather Years of 2020 and 2021. Much of the weather affecting the Northwest States is the product of weather patterns building in the Pacific, with the main outcome being the position of the Jet Stream, of late looping over the land area trapping a High Pressure (hence the 'dome'.) Curiously El Nino may contribute to the weather pattern but did not feature in the most recent extreme years. The work of the NOAA includes spot fire weather forecasts, satellite hot spots and importantly, notification of smoke concentration and dispersal.

Mega Fires Arrive in Europe: the Greek Experience & AFF Response in 2021

The islands of Greece suffer periodically from widespread fires, and it was those in 2007 which prompted the launch of Aerial Fire Fighting Conferences by Tangent Link in 2008. Greece does not have the assets to combat multiple extreme wildfire events, 13 on this occasion with 3 of them on the same day. The European Union (Civil Protection Mechanism) mobilised one of the largest deployments of fire fighters and aircraft in European history. Our presenter **Fire Lieutenant Colonel Zisoula Ntasiou** from the Hellenic Fire Corps, liaises with the Army, the Air Force, the Police and private helicopter companies. On this occasion the Hellenic Fire Corps had to coordinate 106 aerial assets from 24 contributing countries. English may be the language of the air, but given different accents is not always clear over a radio and not clear at all to non-English speakers on the ground. However, Greece is launching a new system 'Engage', with a first step in harnessing technology, which can not only make the job easier, but can also buy time. Zisoula concludes 'Time is the most important factor when we have to deal with disasters'.

New Technologies and Practices

CAL FIRE Technosylva - California's Wildfire Technology Solution.

The presentation given by **Phillip SeLegue**, Deputy Chief of Intelligence with CAL FIRE, prompted more questions from the delegates than any other and could well have expanded to an extensive Work Shop. The presentation is available to delegates. Starting with a Statewide request in 2019 for innovative ideas to reduce, mitigate or eliminate wildfire risk, Technosylva was selected, with the aim of substantial integration with complementary technologies, to provide a more comprehensive situational awareness for CAL FIRE personnel. A collaborating player has been Wildfire Analyst Enterprise (WFA Enterprise), with FireCast giving wildfire risk forecasting and monitoring, and FireSim on-demand wildfire spread prediction, both seamlessly integrated with the CAL FIRE Despatch System, and much more besides, justifying our investment and faith in technology.

Rapid Initial Attack of Wildfires with the Fire Boss

In one of the several Exhibitor/Sponsor slots, **Stephen Johnson**, Global Sales Director of **Fire Boss** highlighted the ubiquitous Air Tractor AT-802 fitted with Wipline floats and Pratt & Whitney engine designed to create the flexible rapid initial response to wildfires. Its attractive initial capital and direct operating costs, coupled with short take off and water landing allowing rapid reload turnaround, accounts for its 140 units in service around the world.

Panel Discussion to Meet Future Demand for Aerial Firefighting Pilots.

Chris Nieimann, General Manager for Aero-Flite (and an Event Sponsor) chaired a panel of four air Tanker pilots to discuss an imminent shortage of pilots given an aging experience base and competition from other aviation organisations – how to recruit and preserve the present tanker pool. In a lively debate we saw snap shots of life as an air tanker pilot, a job which would not suit many airline pilots and vice versa. However, even the most ardent firefighting pilots can become weary at the lack of quality of life when active deployments to fires might require land aways and operations away from home base, where the essentials of life, accommodation, food and fresh clothing become luxuries. A 'Home Base App' which recognised each domestic situation was proposed for consideration.

Changing the Game with the S-70i

While not discussed in the context of the panel, the advent of NVG Helicopter operations requires double manning at night, the prospect of extended flying hours into the night and an increased training load, all pointing to the recruiting and retention of additional aircrew and maintainers with the inherent cost increase. These factors were highlighted in the presentation by **Benjamin Berman**, the Helicopter Program Manager/Chief Helicopter Pilot for CAL FIRE. In



operational terms, the step change from the Huey era to the NVG capable Black Hawk family is a huge one, and the additional costs unavoidable.

Advanced Operations

The final session could not have embraced a better demonstration of advanced aviation technology focused on fighting Wildfires than the mutually dependent back-to-back presentations from:

Brian Fennessy, Fire Chief of Orange County Fire Authority, with his **Take the Fight to the Night** – Quick Reaction Force and **Wayne Coulson**, CEO of Coulson Aviation with his **Direct and Indirect Attack with Heavy Helicopters**. With his unrivalled flair for innovation, Coulson has taken two Chinook 47 helicopter (ex-operational veterans from Afghanistan) and refitted them with up to date avionics, and his RADS system delivering 3000 gallons of water or retardants in one drop, with GPS controlled accuracy of start and stop release. A retractable snorkel completes the aircraft's versatility. Brian Fennessy, along with his Ventura County and Los Angeles County Fire Chiefs have moulded this and other assets in the Coulson inventory, together with a Mobile Retardant Base, into a military style '**Quick Reaction Force**', with NVG capability to '**Take the Fight to the Night**' tackling 41 fires in 2021 alone (including operating out of area on the Caldor Fire). This must surely become a blue print for future operations.

A picture speaks a thousand words and the videos in both presentations are required viewing.

Use of Unmanned Vehicles to Fight Fires

The audience has invariably dwindled by the final presentations, but a healthy proportion remained to hear **Shem Hawkins**, Battalion Chief/Air Group Supervisor for CAL FIRE.

In addition to his other qualifications he is a current **Unmanned Aerial Systems** Pilot.

The utility of UAS in dam and mud slide emergencies becomes more complicated in the fire traffic area in firefighting scenarios. These are governed by mandated standards for UAS operations to ensure mutual safety of all air assets. Current systems are Types 1 & 2 – Contractor owned, most suitable for large scale mapping, and Types 3 & 4, Agency owned, with flexibility in launch location and a variety of tasks: scouting, mapping, identifying hot spots; with the benefits of reduced firefighter vulnerability, increased safety, and a force multiplier by day, night and in IFR conditions. Thermal cameras are invaluable in monitoring hot spots.

Networking

This is, as ever, a prime ingredient of our events with the refreshment breaks preserved for this purpose. The environment for networking is naturally enhanced by the refreshments themselves for which we thank the various sponsors, notably on this occasion Aerial Fire Magazine with Editor in Chief Ryan Mason who hosted the pre-conference drinks, Perimeter Solutions sponsoring the refreshment breaks over the two days, Coulson Aviation and Erickson entertained various dignitaries at the sponsored breakfasts, and Fortress North America who provided a drinks reception at the end of the first day, unaware that on this very date in 1933, the recently elected President Roosevelt ended prohibition by legislating the sale of beer and wine – but only to a strength of 3.2%! It is recorded that during prohibition the border with Canada was somewhat porous leading to a parody on Four and Twenty Blackbirds:

Four and Twenty Yankees, feeling very dry,
Went across the Border to get a drink of rye.
When the rye was opened, the Yanks began to sing,
God Bless America, but God **save** the King!

The Conference Dinner on the middle night was courtesy of our Platinum Sponsor Amentum.

The guest delegates at this premier networking occasion were welcomed by Joe Dunaway, President of Amentum Aviation, followed by the presentation of the Walt Darran International Fire Fighting Award for Outstanding Merit in Aerial Firefighting, (established by Tangent Link in memory of the former President of the Association of Aerial Firefighters) which was introduced by Dan Reese, representing the Awards Committee. The recipient was Mike Lynn, presently Technical Director of Training with Aero-Flite who has devoted 43 years of his career to ensuring safe outcomes in aerial firefighting. The award was presented jointly by Walt Darran's son and grandchildren.



AERIAL FIREFIGHTING NORTH AMERICA 2022

**22 - 23 March 2022
San Diego, CA, USA**



Footnote

Our thanks are due as ever to the presenters, the sponsors, the exhibitors and delegates who, together with the Tangent Link team make up what we hope you will have found to have been a most worthwhile contribution to progress in the field of aerial firefighting.

This report is somewhat detailed, reflecting the valuable information on offer to those attending the event and amplified in the Event App and in the p themselves.

The next Aerial Firefighting (and Search and Rescue) Conference, the 'Future of Aerial Emergency Response in Europe' will be held in Nimes, France 18-20 May 2022 – details on the Tangent Link Website. We hope to be back in North America in two years time.

Any errors are entirely down to my misunderstanding and the spelling is based on the Oxford English Dictionary rather than Websters!

Terry Loughran
Rear Admiral CB FRAeS
Conference Chairman

March 2022