



**AERIAL FIREFIGHTING INTERNATIONAL CONFERENCE & EXHIBITION  
SACRAMENTO - CALIFORNIA  
22 – 23 MARCH 2016**

**Chairman's Report**

The third in this biennial Aerial Firefighting series in Sacramento, alternating with Europe, proved the biggest and the most successful measured in terms of Delegate attendees (271 from 13 nations), 34 Exhibitors, and a broad range of quality speakers addressing the highly relevant current AFF issues of:

- **Safety**
- **Military Aerial Firefighting Operations**
- **New Technologies, Research & Development**
- **Tactics, Testing & Strategies**
- **Future Platforms in Aerial Firefighting**

Despite some recent rain, the drought in California persists and Chief Ken Pimlott, the CALFIRE Director (and State Forester), in his now regular 'Welcome', emphasized the need to continue to advance the profession with new ideas and equipment (reflecting his earlier messages of 'doing more with less').

In his own Video supportive message, Senator John McCain scoped the size of the problem: 20% of stressed forests lost in the last 20 years and with the cost of fire suppression at 3Bn US dollars, half the Forest Service annual budget, the health of the forests, reducing the fuel available to burn, also had a legitimate call on resources. With Safety high on the agenda, he was concerned at the condition of the ageing air tanker fleet and proud of his support for the transfer of 7 USCG C130s to the Forest Service.

(Only one of these is currently available for AFF, the remainder are not expected to complete modification and transfer to USFS ownership until 2019.)

A valuable joint Keynote was delivered by the two leading aviators in the Department of Interior and the USFS. Mark Bathrick, Director of the Office of Aviation Services in the DOI, manages over 1200 contracted and government manned and unmanned aircraft, while Art Hinaman, Assistant Director for Aviation in the USFS, is charged jointly with conducting safe, effective fire operations and managing the associated risks. The figures again are stark: Wildfires threaten more of the world's forested areas, for longer periods than 3 decades ago; seasons are 20% longer; and in 2015 in the US alone, over 10 million acres burned, the highest number since records began in 1960. Mark reinforced the high level focus on Safety, which permeates to all levels and has been successful in reducing firefighting flying accidents. A safe flying record however, somewhat counter intuitively, invites fiscal savings, but the cost benefit of avoiding accidents and in the saving of lives, protection of property and preservation of the environment through timely intervention to contain wildfires, is a powerful argument for investment.

Following the maxim 'you can't manage what you can't measure' the USFS launched in 2012, the Aerial Firefighting Use and Effectiveness (AFUE) process to develop a means of evaluating the USE and the EFFECTIVENESS of all Aerial Firefighting assets. The performance metrics defined, together with the statistical evidence, gathered is a valuable tool in supporting fiscal allocation for strategic acquisition and contract decisions.



Moving formally into the **Safety Session, Aviation-Related Wildland Firefighter Fatalities** were addressed by the Program Managers from the National Institute for Occupational Safety and Health (NIOSH) Lt Cdr Corey Butler and Captain Mary O'Connor. Their comprehensive analysis bears detailed study revealing an average of 21 fatalities per year in wildland firefighting overall: one quarter are associated with Aviation; most casualties are employed by aerial contractors, with direct support of fire incidents accounting for most losses. This however, must be seen against the growth of wildfires in both size and numbers and a decrease in accidents during more recent years. Improving aircraft inspection and maintenance programmes and reducing reliance on some retired military aircraft were all cited as Safety measures.

This presentation was complemented by Michelle Gauthier's assessment (Co-Authored by Dr Avi Parush) of the **Human Factors of using NVG Technology in AFF**. While some authorities are now well experienced in such operations, and there are undoubted benefits to be had in certain circumstances, the fundamental requirements of spatial and situational awareness can readily be compromised. As was to be shown later in the conference, set against the costs of aircraft modification, training, limitations and potentially safety, NVG seem set to be overtaken by UAS.

Melissa Lineberger, Director, of the Colorado Center of Excellence for Advanced Technology in Aerial Firefighting, reported the results of her recent **Summit on the feasibility of Night Aerial Firefighting Operations**. Her risk versus benefit analysis left the way open for various paths for Colorado to perform night AFF operations, and while not specific, these included the UAS K-Max vs a Type 1 manned aircraft.

Moving on to the contribution of **Military Aerial Firefighting**, this session brought together Lt Colonel Eran Ben-Shabat, the Commanding Officer of the Israeli AFF Squadron, resulting from the 2010 Mount Carmel forest fire in which 44 people died, and Captain Ernesto Bonet of the Spanish Air Force 43<sup>rd</sup> (AFF) Squadron, who had responded to that event. The Israel model is well developed, from a standing start and has already deployed to Cyprus. Its hybrid model however, has the 249 Squadron moving under Police Aviation under the Ministry of Public Security.

In the Spanish tradition of rendering mutual aid, Ernesto was a veteran of many international missions including Morocco in 2006 and Greece in 2007. It was this latter serious fire which launched the Tangent Link Aerial Firefighting Conferences in 2008, and the Israeli fire saw our hosts, 43<sup>rd</sup> Squadron deploy to Israel during the Malaga Conference of 2010. Ernesto cited the importance of common training, especially of ground firefighters where the language barrier can also compromise safety.

Colonel Robert Spano, a highly decorated and widely experienced officer occupies the unique position as the Dual Status Commander for the State of California, providing a unified military response by Reserve, National Guard and Active Duty, to all emergencies. While earthquake response is the most demanding, AFF is the more frequent and the California Military Department (CMD) trains regularly throughout the year, and is a key asset during the wildfire season. Interestingly, when those fully NVG capable aircraft and crews return from active duty overseas, they do not use this capability in wildfire operations.



**New Technologies** inevitably included Firefighting Products and Eddie Goldberg of ICL, a regular delegate, presenter and sponsor, gave a convincing presentation on the **Use of Long-Term Fire Retardant for Direct Attack**, rather than the traditional use for indirect attack. As in many walks of life you only get what you pay for and retardant measures up in cost effectiveness terms. Agoston Restas, Professor at the Hungarian National University of Public Service had benefitted from the EU 2020 Programme which seeks to bring products quickly from the laboratory to the market place. In this case the proposed product is Instant Foam Technology, a process through which the foam becomes homogeneous producing a foam blanket. It comes with the warning that its effectiveness is, as yet, based solely upon theoretical calculations.

**Delivery vehicles** for these products and other roles were addressed by a variety of presenters. Bill Tart on behalf of our Principal VIP Sponsor DynCorp International, gave an illuminating presentation on the rapid advance of cost effective **UAS in Aerial Firefighting**, but with the caution Safety & Mission First – then Efficiencies. But his key messages were - we should be thinking about the potential employment options now, rather than during crisis planning, and UAS is an adaptation of skills, not a replacement. John Stevens on behalf of BAE Systems **Regional Jets**, along with Dan Snyder (Neptune Aviation Services) & Paul Lane (Air Spray USA Inc), collectively our Gold Sponsors, introduced the **Versatile 146/RJ** with the RJ85 'new generation' Air Tanker, a younger aircraft, the external tanks (hanging from the wing main frame for additional strength) giving a clean drop.

Ray Horton later reinforced the value of the **Conversion of the Dash 8 Q400 and Avro RJ85 to the Firefighting Role** and incorporation into Conair Group (Canada) Air Tanker Fleet

Shlomo Alkaher, VP AFF for Elbit Systems Aerospace, Israel, (Bronze Sponsor) returned with his now bio degradable 'HyDrop' pellets as an **Innovative Solution for Aerial Firefighting**. These are capable of carrying any fire retardant material, and crucially providing accuracy and coverage from a significantly greater height than other methods of delivery, and from most cargo planes or helicopters. Now ready for deployment, 'HyDrop' has, on the face of it, the potential to make a major contribution to AFF Safety.

Safety featured once more after the generous Airbus Helicopters **Networking Reception**, when the equally generous DynCorp sponsored **Conference Dinner** culminated in the now traditional presentation of the **Walt Darren Award**. Created by Tangent Link in the memory of a great proponent of Air Tanker safety, competition for nominees increases every year, and with no diminution in quality. Jim Cook from CALFIRE, who created the lifesaving Fire Traffic Area concept, was a worthy winner and presented with the award by Dave Wardall, the current Chairman of the Associated Aerial Firefighters.

On **DAY TWO**, the Californian sunshine (albeit with a chill wind) shone on a hugely impressive **Static Display** of aircraft on the hard standing adjacent to DynCorp's immaculate hangar, which itself contained a stripped down S2 ready for full refurbishment. The Global SuperTanker (747 Cargo conversion) dwarfed the comprehensive field of AFF assets, the PC12 leading the **Aerial Display**, downloading a video link of the demonstration 'fire area' guiding the Fireboss and AT-802 in direct attack.



Launching into the **Session on Tactics, Testing and Strategies**, Stuart Midgley, Assistant Commissioner for the New South Wales Rural Fire Service, presented a Case Study from the recent trial of VLAT (DC-10) and LAT (L-100 Hercules). In order to ensure employment of these assets, they were required to be included in any fire attack plan along with the small number of Agency owned rotary wing and a much larger number of Contracted (Call When Needed) Water Bombers, Firebirds, Medium and Heavy Helicopters. Inevitably there is a risk in not comparing like with like, however, illustratively, from one fire Case Study the VLAT completed 2 drops (86,000 litres), and the LAT 3 drops (45,000 litres) while one SEAT would need to complete 49 drops to establish a similar line. The immediate conclusion reinforces the need to integrate LAT/VLAT with parallel strategies and existing resources.

Notably, the LAT was deployed to Indonesia to assist with significant fire activity. **Aerial Firefighting Asia Pacific 2016 will be held in Adelaide, South Australia 5-6 September 2016.**

Victor Devouge, Head of the Aerial Division of the French Securite Civile spoke on the **French Aerial Firefighting Tactics and Strategies** and included the national AFF philosophy and impressive capability, which is going through an update programme, His presentation merits revisiting. Their comprehensive approach, including prevention, rapid containment, damage control and forest rehabilitation, is conducted within a formalized framework, which includes forward deployment during the fire season. Victor trailed the new base being completed in Nimes (close to Marseille on the Mediterranean coast from where the fixed wing assets will migrate), the aim being to build a centre of excellence for AFF technology and training. **The next (annual) Aerial Firefighting Conference 2017, will be in Europe and held in France at Nimes in October 2017.**

Europe operates an Emergency Response Coordination Centre (ERCC) which replaces ad-hoc responses with a planned approach, the essential elements being: interoperability, self-sufficiency, and dispatch at very short notice. A voluntary pool with buffer capacities to address temporary shortcomings in extraordinary disasters, will attract seed funding for new response capacities, requiring assured quality and a certification process, with further financial support for adaptation and transporting the capabilities.

**For the final Session on Future Platforms in Aerial Firefighting**, Airbus Defence & Aerospace, Spain, sponsored an entertaining presentation from Virginia Aguilar Fresco, their Light and Medium Transport Aircraft Marketing Manager. Her comparison of the ubiquitous **C295W Water Bomber** to the utility Swiss Army Knife left a lasting impression of this new firefighting version. Meanwhile Brent Nicewonger of Airbus Helicopters Inc., USA, promoted the H215 (which had been exhibited at the Static Display) as the **All Hazards Capability Utility Helicopter**.

Mark Bathrick, who had opened with the Keynote, provided the most forward looking view of Future Platforms with his finale presentation on **Drones in Support of Firefighters and the Communities they Protect**. As befits an Experimental Test Pilot with 25 years' experience of Unmanned Aircraft Systems, his analytical justification for further development in UAS demands further viewing. In the last decade Wildland fires have cost nearly 13Bn US Dollars in suppression, burned over 69 million acres and claimed the lives of more than 150 firefighters. During that time, from a DOI small UAS programme in 2009 to the 2015 2<sup>nd</sup> successful Optionally Piloted Aircraft (OPA) Demonstration, confidence in UAS is fully justified. The helicopter in unmanned configuration performed well in mountainous terrain, delivered cargo and water with the same or better precision than in a manned configuration, while EO camera and IR sensors provided not only situational awareness, but assessment of the outcome of water drops. In an extended list of UAS advantages, Safety, in a varied range of activities and conditions must register highly. DOI's position as a recognized leader in the use and safe integration of UAS points to the potential for 24 hour aerial firefighting support to those on the ground.



Many thanks are owed to those who have made a significant contribution to this particularly successful conference. Readers will have noticed the part played by the Sponsors who benefit from their investment through a higher profile; likewise the Exhibitors have enjoyed the attention of focused decision making customers; Delegates have had exceptional networking opportunities and the pleasure of hearing quality presentations from specialists in their fields. It is hoped that many attendees can build upon this event through joining us in Adelaide later this year and in Nimes in 2017.

Speaking at Harvard University, Cambridge Massachusetts in September 1943, Winston Churchill referred to the UK and USA as two nations separated by a common language! If any interpretation in this report is in error, the responsibility is mine as indeed is the bi-lingual spelling!

*Terry Loughran*

**Terry Loughran**  
Rear Admiral CB, FRAeS  
Conference Chairman

2 April 2016