

FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and disaster management technology

Volume 1 No 12



Environmental Affairs
Agriculture Forestry and Fisheries
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FIRE AND RESCUE INTERNATIONAL

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Comment



Lee Raath-Brownie

We are proud to present our twelfth edition of **Fire and Rescue International (FRI)**. The magazine has gone from strength to strength and has grown not only in its readership, but also has become known for its excellent editorials. We trust that you enjoy reading the magazine and find it informative.

Cover profile

Our cover profile this month features the recently launched Fynbos Fire Project. The project is a multi-million rand initiative between the South African Government, the United Nations Development Programme and the Global Environment Facility (GEF). Its goal is to develop sustainable interventions to reform the approach to managing wildfire.

FRI images photographic competition

Yet another R2 000 was won by a FRI reader who submitted a striking photograph depicting a training session. See page 3 for details. **CONGRATULATIONS!**

Submit your high-resolution photograph featuring a rescue, emergency, incident or fire scene and win R2 000 cash!

News section

Floods and fires in southern Africa, the Philippines and Australia feature poignantly in this month's news section. We also review South Africa's National Sea Rescue Institute's busiest season and focus on Fremtac Fire and Rescue's new range of rescue equipment. We discuss the use of long-term fire retardants in wildfire mitigation; look into the dispersion of the 9/11 compensation fund and summarises a nightclub inferno in Brazil.

Swift water rescue

Colin Deiner, writer of FRI's technical feature, discusses the intricacies of swift water rescue operations and the training requirements and fitness levels for these specialist teams. Deiner also outlines the necessary equipment and watercraft needed.

Incident command

Lenny Naidoo encapsulates the incident command system and discusses the importance of an integrated approach by all first responders.

Rescue South Africa

We feature Rescue South Africa and highlight its history, past successes and future plans.

Special focus: climate change

This edition of FRI features the hot debate of climate change, climate patterns and resulting issues. NASA's climate models project is featured as is an international report published by a German based insurance company, tallying the cost of natural disasters. Dr Neels de Ronde debates the reality of climate change in South Africa and draws a comparison between losses in South Africa versus that of the US.

European Forest Fire Network (EUFOFINET) project

FRI also features the EUFOFINETs project and action plans for improving response to and preparation for wildfires in Europe and the UK.

We welcome your input and views and extend a special invitation to all our readers to participate in the magazine.

Fire and Rescue International is your magazine. Read it, use it and share it!

Lee Raath-Brownie
Publisher





This month's FRI images winner!

Congratulations to

Kylah Genade for her "Taming the beast" photo taken with a 10 megapixel Canon Powershot

Well done!

Photo description:

Potchefstroom fire fighters engaged in practice drills in Tlokwe, North West in 2009

Kylah Genade wins this month's prize money of R 2 000!

Submit your rescue, fire or EMS photo and win R2 000!

Fire and Rescue International (FRI) has introduced a monthly photographic competition to all its readers. This exciting competition offers you the opportunity of submitting your digital images of fires, fire fighters, disasters, emergencies and rescues.

The rules are simple:

- All photographs submitted must be in jpeg format and not bigger than 4 megabytes.
- Photographs must be in high resolution (minimum 1500 pixels on the longest edge @ 300dpi) for publishing purposes
- **Allowed:** cropping, curves, levels, colour saturation, contrast, brightness, sharpening but the faithful representation of a natural form, behaviour or phenomenon must be maintained.
- **Not allowed:** cloning, merging/photo stitching, layering of two photos into one final frame, special effects digital filters.
- Fire and Rescue International (FRI) reserves the right to publish (printed or digitally) submitted photographs with acknowledgement to the photographer.
- Winners will be chosen on the merit of their photograph.
- The judge's decision is final and no correspondence will be entered into afterwards.
- Brief description should accompany photo.

Entries must include:

- Name of photographer
- Contact details (not for publishing)
- Email: (not for publishing)
- Name of photograph
- Brief description of photograph including type of fire
- Camera, lens and settings used

All entries must be emailed to:
lee@fireandrescue.co.za.

>>ENTER NOW!



Hot on the trail of solutions to the threat of wildfire

By Jo-Anne Smetherham

Fire at Slangkop near Kommetjie on the Cape Peninsula

Recent runaway wildfires in the Western Cape in South Africa have reignited the debate about how to plan for and manage fire without allowing it to destroy farms, the environment, buildings and even lives.

The experts say that the climate dice are now loaded in favour of bigger wildfires that are more difficult to control – and unless we develop a greater understanding of how to manage wildfire, it will become increasingly difficult to reduce the damage to people, the economy and the environment.

During the Western Cape fire season this summer, runaway wildfires raged in areas stretching from Hermanus to the Cederberg and Franschhoek – where two farms had to be evacuated and two buildings were burnt down. These blazes reignited the debate about how to plan for and manage wildfires.

The fynbos kingdom in the Western Cape is the smallest yet the richest floral kingdom in the world, with the highest known concentration

of plant species. Fynbos covers the mountains, valleys and coastal plains of the southern and south-western Cape in a crescent shaped band, stretching from Niewoudtville in the north to Cape Town in the south and Grahamstown in the east.

Fire serves a purpose in the fynbos kingdom. There is consensus that fynbos needs fire, which can be an agent of rebirth or an inferno of destruction - the question is how frequent and how hot.

If fynbos is burnt every seven to twenty years, aging plants are killed off, many kinds of seeds burst into life and bulbs start to grow again. “Without fire, there would be no fynbos – it’s as simple as that,” says Dr Brian van Wilgen of the CSIR’s natural resources and environment department and Stellenbosch University’s centre for invasion biology.

However, it’s not altogether so simple. Different species of fynbos plants are favoured by fires of different frequencies within roughly a seven to twenty year range, says Professor Guy Midgley, head

of the South African National Biodiversity Institute’s (SANBI) climate change programme.

If fires come too soon and too frequently, or too seldom, then some species may be eliminated.

Fire researcher, Diane Southey, found in her Master’s thesis recently that there have been rising numbers of fires of large extent in recent years.

“Although this is still a tentative finding, this could be the result of more high-fire-risk days – and an early signal of a changing climate,” says Midgley.

Dr Tony Rebelo of SANBI suggests that fires in veld over 25 years old, or due for a burn within two years, should be allowed to run. However, he points out it has not been established who would make such a decision or which risk factors should be considered.

Historically, wildfire management has been heavily dependent on suppressing unmanaged fire and pre-emptive, planned burning.▶

Photo: T Oliver



Paarl Mountain Reserve

Photo: T Oliver



Haemanthus after fire on the slopes of the Riviersonderend Mountains

Photo: T Oliver



Regeneration after fire

Photo: T Oliver



Cape Mountain Zebra grazing

► Recently, more sophisticated tools to help fire management have become available, as have advances in fire modelling and improved fire weather prediction.

Guy Preston, deputy director general of the Department of Environmental Affairs, agrees that some fires, such as those in parts of the Cederberg and other remote areas, could be left to burn under certain circumstances.

One problem with this, he points out, is that many of these areas are infested with invasive alien

vegetation. These “fuel loads” can lead to greater intensity of fires.

While this complex debate continues, there appears to be agreement on a single underlying principle: fires should be managed.

When he was manager of the Cape Peninsula National Park, which later became Table Mountain National Park (TMNP), Howard Langley foretold the need for integrated fire management when he remarked philosophically that we would have succeeded when we

can “burn for biodiversity without burning houses down”.

Developing a model for better management is one of the aims of the GEF Fynbos Fire Project launched late last year. The project is a multi-million rand initiative between the South African Government, the United Nations Development Programme and the Global Environment Facility (GEF).

Its goal is to develop sustainable interventions to reform the approach to managing wildfire. Its brief is to ►

Satyrium species after fire near Worcester

Photo: T Oliver



Photo: T Oliver

Erica cerinthoides, known as the Fire Heath, after fire on the Cape Peninsula

► implement strategies critical to good practice under the possible conditions of climate change in the fynbos regions of the Western and Eastern Cape.

The broad aim of the project is to change the approach from a reactive one, fighting wildfires whenever they are detected, to one of integrated fire management. This is a holistic approach that includes fire awareness and prevention, the optimal coordination of resources, early warning of high fire-danger weather, the planned reduction of dangerously high fuel loads created by invasive alien plants and veld that is too old, as well as fire fighting.

In December last year, temperatures in Stellenbosch, near Franschoek, were two degrees Celsius hotter than the long-term average, which is in line with climate projections and would have left the fynbos extremely dry, with a high fuel load, says Dr Peter Johnston of the University of Cape Town's (UCT) climate systems analysis group. "The ferocity of the fire in the Franschoek mountains was in line with the strength of fires expected as the effects of climate change kick in," he says.

He, too, forecasts that more fires of this strength can be expected in coming years.

"Climate change is already affecting us in myriad ways and it's going to get worse before it gets better, with wildfire being one of the consequences," according to Duncan Hindle, special advisor to Minister for Agriculture, Forestry and

Fisheries (DAFF). "We do not have forests to burn; we do not have extra land or water or fishing stocks to waste," he said. "We must look after what we have."

In the view of Fynbos Fire Project managers, the first tentative steps in this direction are being taken by gathering of critical scientific data about climate change, monitoring wildfire behaviour and encouraging the formation of fire protection associations (FPAs), by means of which landowners work together practicing integrated fire management.

The project is importantly encouraging experts from a wide range of related disciplines to research their work together and encourage open public debate with the aim of avoiding the threat of destructive fires wreaking irreversible damage to the people, agriculture, the economy and the environment.

The GEF Fynbos Fire Project was established to support adaptation and technology transfer in all developing countries party to the United Nations Framework Convention on Climate Change (UNFCCC), has granted the funding over three years to the project. Co-funders of the project include the South African National Department of Environmental Affairs, through the Working for Water and Working on Fire Programmes, the Department of Agriculture Forestry and Fisheries (Western Cape), fire protection associations, the FFA Group of Companies and the United Nations Development Programme.▲

Letters to the editor



Dear Lee

Wildfire investigations have been keeping me busy recently for more than 100% of my time. You might have been reading in the press about the enormous wildfires experienced in the Free State and Northern Cape in regions otherwise known as being "free of such mega-fires". As a result, I decided to write some comments to the Rob Erasmus article in your latest magazine, as this might interest your local and international readers.

I have been working on a book, namely 'Investigating veld and forest fires using unique reconstruction procedures: The South African experience' on and off for the past year and it is now in an advanced stage of completion. It is basically reflecting my experience in this field over the past 20 years and I received some encouraging preliminary comments from my international colleagues, which were very positive. I think there is a need for this, particularly in the

light of the enormous wildfires South Africa (and other countries around the globe) have been experiencing lately (particularly during 2012), covering dozens of properties within a day of two. These events are now presenting wildfire investigators with a far more complicated challenge than just the "cause and origin" type of investigation everyone has been concentrating on. Of course, these issues remain an important part of investigations, but far more is required to reconstruct latest wildfire events.

It is particularly during further wildfire spread of mega-fires that critical issues such as (i) understanding extreme wildfire behaviour, (ii) assessing fire fighting action and its impacts (including the use of counter fires), (iii) the use of emergency measures and (iv) the effectiveness of mopping up operations and other significant influencing factors, which are now exposing us to the probability of doubling or even tripling wildfire damage,

with enormous consequences. The use of certain fuel-model (computer-based) technology and wildfire reconstruction procedures now make it possible, not only to reconstruct all wildfire events, but also to learn lessons from any mistakes made, which can be used to advantage in the light of rapidly changing circumstances. Who could think that mega-fires in the Free State and Northern Cape could burn-over more than 100 000 hectare in a single day, as we experienced during the past season?

While the book may still take a while to complete and publish, because of my recent commitments, maybe some wildfire investigation trainers could for the interim consider this material as a source for future training, because I honestly feel that our fire education is not keeping track with these latest "wildfire explosions". I will welcome any comments on this issue.

Dr Neels de Ronde ▲

Civil service heroes honoured

The nomination process for the 6th annual Centrum Guardian Project is currently underway and will be finalised on 3 April 2013.

The Centrum Guardian Project, which aims to recognise and reward the bravery, skill, commitment and strength that members of the emergency services industry demonstrate each day, invites the full scope of the emergency services industry to submit nominations for the annual award.

The nominees will include fire fighters, paramedics, volunteer rescue personnel, lifesavers and other emergency rescue services crew.

The registration for all nominees are accepted and reviewed at the Centrum Guardian website at www.centrumguardian.com.

The competition is open to registered personnel and volunteers working in the emergency and rescue services fields in South Africa.

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Photograph courtesy of the SAAF

Multi-faceted rescue missions activated in SA and Mozambican floods

In the last two months, floods have wreaked havoc in many parts South Africa, as well as Mozambique, where scores of people were displaced after being washed out of their homes by the heavy rainfall and flooding of the Limpopo River and other dams.

In South Africa, the northernmost province of Limpopo was declared a disaster area by the local Maruleng Local Municipality in January this year, as heavy rain flooded the Mulalani Village, Hoedspruit, Kampersrus and surrounding areas in Limpopo.

The Provincial Disaster Management Centre in Limpopo activated relief efforts in the region. This was coordinated by the Cooperative Governance, Human Settlements and Traditional Affairs (CoGHSTA) while Limpopo provincial MEC, Soviet Lekganyane, led the distribution of mobile shelter units, blankets, food parcels and hygiene packs in the affected communities.

In Mpumalanga Province, the heavy rains in January caused major damage to public infrastructure and homes in the district municipality of Ehlanzeni that includes the five local municipalities of Nkomazi, Mbombela, Thaba Chweu, Bushbuckridge and Umjindi.

Mpumalanga premier, David Mabuza, said that the financial cost of

the floods was estimated to be more than R440 million for the region alone. Mabuza said that the provincial government in Mpumalanga has made available R36 069 444, while municipalities have contributed around R25 million.

The cost of rebuilding the damaged roads and bridges in the heavy hit areas of Mpumalanga totalled R266 293 000, while the rebuild and repair cost of schools was estimated at R47 571 000, reported Premier Mabuza. He added that the agriculture industry was also affected by the heavy rainfall and required relief funding totalling R18 677 000.

Limpopo MEC for Agriculture, Dipuo Letsatsi-Duba, stated although the LDA has a policy of not compensating farmers affected by flood disaster the department was moved by the loss of crops and infrastructure. The department conducted an assessment of the damage caused in order to provide relief funding for the affected farmers in the region. According to the Maruleng Municipality spokesperson, Kenny Mathivha, a total loss on both crop and infrastructure losses is estimated at not less than R27 million.

KwaZulu-Natal (KZN) also experienced heavy rainfall on its South Coast in December, which was estimated to cost damage totalling tens of millions of rand, stated the KZN COGTA.

Around 10 people lost their lives as a direct result of the inclement weather in the region, and many homes were destroyed when heavy rains hit informal settlements in the region, reported COGTA MEC, Nomusa Dube.

Search and rescue operations were conducted by Netcare911 paramedics along with the fire department and police services in the many affected rural villages of the KZN. Luxury housing complexes, such as the iFafa marina resort south of Umzinto, were also flooded.

The floods in South Africa and most notably in Mpumalanga and Limpopo called for a multi-faceted rescue operation that included the South African Police Service, the South African Red Cross, the South African National Defence Force (SANDF), as well as Doctors with Borders who were on hand to assist the affected communities – providing security and shelter, as well as emergency medical assistance, respectively.

Military intervention

South African Air Force's (SAAF) 17 and 19 helicopter squadrons were activated to lift scores of people to safety from parts of Limpopo, Mpumalanga and the Kruger National Park.

SAAF spokesman, Lieutenant Colonel Piet Paxton, told the media that the rescue mission had been intense. ▶

► Lt Col Paxton said that the airlift rescue that was called off several times was extremely dangerous. He said that it was difficult to perform rescue operations as a result of the adverse weather conditions. Despite the difficulty in the rescue mission, the SAAF aircrew persisted in aiding as many people as possible, said Lt Col Paxton.

Red Cross' Army Mercy Service helicopters were brought in to rescue people who were trapped on rooftops. The Limpopo provincial CoGHSTA spokesman, Dieketseng Diale said that the helicopters airlifted scores of locals to elevated areas of safety, as more than 800 people were trapped in and around the flooded areas of Vhembe and Mopani districts in Limpopo.

The Maruleng Municipality in Limpopo reported that the SANDF, the Provincial Disaster Management Centre, COGHSTA, SAPS divers search and rescue teams, as well as the Emergency Medical Services (EMS) and fire brigade in the area assisted with search and rescue of people in distress and the damages caused by the floods.

Diale stated that the region experienced multiple deaths in different districts either through drowning or the collapse of homesteads.

In Mpumalanga, a total of 112 sites were affected by infrastructure damage to bridges, culverts, patching, slip failure, erosion, and regravelling, reported local government spokesman, Simphiwe Kunene.

Kunene stated that the Department of Human Settlement conducted an assessment of damaged houses in the affected areas in Mpumalanga to determine what assistance could be provided to the affected households through the Emergency Disaster Housing fund.

Cross-border rescue

In Mozambique, military helicopters and boats from that country as well as South Africa rescued 12 000 families in the floods that hit the country in January, this year. Floods in central Mozambique killed 12 people and inundated villages, towns and huge swathes of farmland, reported Mozambican officials.

The war-scarred southern African nation's central provinces had up to 500 mm of rain in 12 days, more than the combined average for January, February and March, according to its Meteorological Institute.

The downpour, combined with floodwater surging down the Limpopo River from neighbouring South Africa and Zimbabwe, left the worst-hit



Photograph courtesy of the SAAF

The SANDF deployed Navy divers and helicopters to assist in rescue efforts in Mozambique

town of Chokwe, 140 kilometres north of Maputo, completely submerged, reported the international news media. Government shelters took more than 10 000 families affected by the floods, while the United Nations supplied food relief.

SANDF personnel were deployed in Mozambique for just over a week, first assisting in moving flood victims to safety while Navy divers did search and rescue tasks in swollen rivers.

At least 500 people were rescued by SANDF personnel from the raging storms and this included hoisting people to safety from rooftops and out of trees.

Lieutenant Colonel Paxton said the SANDF's search and rescue mission in Mozambique had evolved into a humanitarian relief mission. The SANDF deployed Navy divers, SAAF Oryx helicopters and crew as well as primary health care nurses, dieticians and environmental health officers from the SA Military Health Service.

The joint operation made it possible for the SANDF rescue team to distribute food to people in Mozambique after flood levels subsided, said SANDF Corporate Communications Director, Brigadier General Xolani Mabanga.

Doctors without Borders were also active in the flood-ravaged areas of Mozambique, as well as certain regions of Malawi and Zimbabwe that were affected by the floods. ▲



Photograph courtesy of the SAAF

The floods in Mozambique turned into a humanitarian relief mission

Luxury homes burnt down in December blaze



Luxury homes with thatched roofs were incinerated in the fires that swept through St Francis Bay late last year

The Eastern Cape resort town of St Francis Bay in South Africa was struck by two raging fires over just a couple of weeks that caused extensive damage to residential property.

The first fire swept through the town on 12 November last year, either destroying or causing damage to 76 luxury holiday homes with an average value of R3 million.

Another fierce blaze swept through the town on Christmas Day a few weeks later in the wake of strong south westerly winds that enabled the fire to spread rapidly. One home was completely destroyed and four other homes damaged.

Many of the houses at St Francis Bay have thatched roofs and its residents are holidaymakers who flock to the coastal town during the Christmas holidays.

A total of ten fire engines from the Nelson Mandela Bay and Koukamma municipalities were brought in to assist in containing the fire in November, said Kouga municipality spokesperson Laura-Leigh Randall.

All residents in the area had been asked to evacuate and a temporary joint operations centre had been set up at the local police station. Fire fighters from the Cacadu district municipality were at the scene monitoring the situation and checking for flare-ups, reported Randall.

A South African surfing legend is one of many who lost their life's possessions in the blaze which ripped through St Francis Bay in the Eastern Cape, reported SAPA.

The National Sea Rescue Institute (NSRI) reported that its local volunteers in St Francis Bay were called out to help fight a fire that broke out in a thatched roof house at no 5 Canal road on St Francis Bay's canals on 25 December.

St Francis Bay firemen and local disaster management were on scene in minutes and battled the fierce blaze, however, the house was destroyed in the raging fire.

St Francis Bay NSRI station commander Marc May said that because the fire fighting teams doused the roofs of neighbouring houses, and pulled thatch that

was burning out, they managed to save five houses and the fire was prevented from spreading further. Three of the St Francis Bay volunteers sustained burns while fighting the fire. They were treated and released by the 24/7 private ambulance service in St Francis Bay.

The community put out a call for help and the response had been great, according to the NSRI's May. "To say the whole world and its family came to put that out is an understatement," he is quoted as saying. In response to the November blaze, May said that people came from as far as Knysna and Port Elizabeth, 200km and 100km from St Francis Bay, respectively.

May painted a gloomy picture of the loss suffered by the fire. "Some people have lost holiday homes, but some people have lost everything. The fire was running across the roofs, we had to force people out of their homes with the televisions still on," added May.

The residents affected by the fires were taken in by neighbours and as a result, there were no plans to set up a refuge for those people who had lost their homes in the blaze. ▲

Medical services at top of priority list for Indian state

The Indian state of Tripura and the Ministry of Health has sanctioned the formation of an Emergency Response Service (ERS) to provide 24-hour medical services to patients at their doorstep, stated Tripura officials in December last year.

The health department of the Tripura government will start the ERS under the country's National Rural Health Mission (NRHM), which is a health programme for improving health care delivery across rural India, by early next year.

"To start the ERS, 75 ambulances would be purchased at a cost of 70-million rupees. Tripura would be the second state in northeast after Assam to launch this emergency health service scheme," says Tripura NRHM mission director, Samarjeet Bhowmik.

The ERS would provide round-the-clock medical advice and the service would be free of cost. The contact centre would classify the caller's condition into critical, serious, or stable groupings and provide appropriate advice, says Bhowmik. He adds that citizens will also be able to lodge their grievances against any public health provider at this centre.

The central government has already sanctioned Rs.7 crore and the state government has also submitted a detailed project report (DPR) in the health and family welfare ministry.

"There would be a control room in each district, sub-divisional and state headquarters to operate the scheme. An ambulance would reach the patient's doorstep at any time, once a call is made to the control room through a toll free telephone number," explains Bhowmik.

The ERS would involve a call centre connected with seven advanced life support and basic life support ambulances round-the-clock through GPS technology.

Under the scheme, ambulances fitted with basic life support system and medicine will be run by a private operator. The coordination of all medical services undertaken will be done through the call centre, which will prescribe a doctor, paramedical staff as well as a driver to operate the vehicle.

Bhowmik says, "The treatment will start once the patient boards the ambulance and continue till the patient reaches the nearest hospital. The state government requested that the central health and family welfare ministry allow the new medical service scheme to be run and operated by the Tripura government instead of a private operator. The union government's response in this regard is yet to come." ▲



Tripura state in India launches a new emergency health service scheme

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Application of flame retardants can reduce intensity of fire front



Long-term flame retardants mitigate wildfire damage

Supplier of specialised chemical products and services, Chemfit, has tapped into the innovative, halogen-free, flame retardant technology developed by chemical products manufacturer Budenheim Iberica, based in Zaragoza Spain, and part of the international Budenheim Group.

Chemfit has made Budenheim Iberica's halogen-free flame retardant available to the local industry, offering an environmentally friendly alternative to conventional halogenated flame retardants that release dangerous toxic substances after they are implemented or used in the field.

The flame retardant is particularly attractive owing to its purported contribution to the global drive towards the protection of health and environment.

Chemfit states that it is able to provide quality products and technology that conforms to the highest international standards through its partnerships with leading international chemical manufacturers.

Wildfire operations manager at Budenheim Iberica, Alberto Enfedaque Vallespin, has compiled a report on the development and benefits of using long-term retardants in ground application.

Vallespin says that the technology results in the reduction of fire spread and can ultimately stop the progression of a wildfire.

"Long-term retardants are additives to the water that can modify the combustion mechanisms of the cellulosic fuels by physical chemical processes, leading to a char formation instead of the emission of flammable gases," explains Vallespin.

Vallespin adds that the difference with short-term retardants such as foams and gels is that even after the water evaporation, the long-term retardants are still effective.

Development of the long-term retardant

Vallespin says that the development of the polymer additive is a response to the industrial need for a viable long-term retardant application that can be used without the negative impact on the equipment as a direct result of corrosion.

The product was designed to present low corrosion on materials that can be in contact with the retardant, such as galvanised steel, copper, brass and aluminum alloys and maintaining the same essential composition as the products used by air tankers.

The environmental impact of the chemical was reduced by minimising other additives such as pigments and thickeners.

The result was an environmentally friendly, long-term retardant with a corrosion level below the standards required in aviation, states Vallespin.

He says that the application of long-term retardants by ground tankers

led to a new technique in forest fire fighting. The new techniques include anchoring back fires or creating defense lines by reducing the intensity of the fire front, which enable ground personnel to achieve easier control. "The object was to design a vehicle that can have a tank divided in two parts; one for the long term retardant concentrate; and the other for the diluted retardant," mentions Vallespin. At the same time it had to be able to operate under different circumstances that can be faced in a wildfire event, adds Vallespin. "The vehicle had to have a powerful spray system that can wet fuels of different heights and densities, sprinklers at bottom in each corner just ahead of the wheels, systems that can operate at speeds of 5 km/h to 10 km/h, and obviously the necessary fittings to operate with hoses as any ground tanker."

Initial tests

The very first experiments were done in April 2004 in prescribed burnings in the counties of Beariz and Manzaneda, Spain, recalls Vallespin. "In June the same year, the new ground tanker for long-term retardant application started operating in the summer season in the region of Aragon, Spain, which facilitates the collection of field data on real fires in different scenarios."

Vallespin says that the information gathered here contributed to the development of standard proceedings for the use of long-term retardant from the ground.

Examples of this is the measurement of the dosage in square metres according to the fuel model of tankers, as well as the width of the wildfire barriers as a function of fire intensity, anchoring back fires and protecting housing areas in interface fires.

Recommended use of long-term retardants

The typical scenarios in which the long-term retardant can be implemented is in fires that threaten housing areas, industrial states, installations and other public goods that is in the urban-forest interface, states Vallespin.

He says that in regard to high intensity fires, it is very difficult to attack or ▶

► control fire fronts with flames up to 20 metres with water or foams. "Ground tankers cannot approach and ground personnel have to remain at 50 metres because of the heat. The only chance is an indirect attack with long-term retardant by building a chemical barrier ahead of the fire front," explains Vallespin.

He says that this approach will provide a safer operation and higher possibilities of success in controlling the fire front when it reaches the barrier. "In some circumstances, back fires are not easy to manage in a manner that will not return as a boomerang. The use of retardants in the set-up fire points, like the V-technology, mitigates the risks of this very effective technique."

Vallespin referenced a recommendation made by an official in the Spanish Emergency Unit of the Ministry of Defense in Spain, in carrying out prescribe burnings in the military training field, which states that 'there is no better way from the cost efficiency point of view, than the use of long-term retardants in prescribe burnings'.

Vallespin says, "The cost of moving machinery to prepare the parcels, the cost of personnel, the complexity of the area to be burnt, all these negative points can be minimised by building long-term retardant barriers."

Long-term retardants in preventing railway fires

In 2006, long-term retardants were used in railway preventing fires caused by operating trains and in return, to avoid any fires encroaching on railways in order to prevent damage to underground optical cables.

Vallespin says this was a positive exercise in the proceedings years as it provided a study and assessment on the risks of railways that were located close to national protected forests. "The train used for the application is the so called herbicide train. One wagon was adapted with a high pressure pump capable to deliver 0,25 litres per square metre of the diluted retardant at a speed of 15 kilometers per hour, which built a preventive treated line of 2,5 metres wide on both sides," explains Vallespin.



Railway fires are mitigated by distributing retardants

He says that after years of experience and more than 150 kilometers of treatment, the results are very positive. "Field experiences have proven that the retardant can resist up to 20 litres per square metre of rain before losing its effect because of washing off from the vegetation," states Vallespin.

He adds that long-term retardants can be further optimised, through experimental research, in finding additional applications in various industries. "Corrosion and environmental issues are not a concern today," concludes Vallespin.▲

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060 FRI Vol1No12



Safety equipment in extreme conditions

Technical rescue equipment supplier, Fremtac Fire and Rescue has added a wide range of international safety equipment to the South African industry that underscores its 'quest for innovation', reports the company.

Fremtac Fire and Rescue is a supplier of a range of safety products from technical equipment manufacturer Camp Safety, which offers a range of technical equipment that is designed to increase safety, as well as comfort in extreme work situations.

Camp Safety manufactures an extensive range of technical equipment and Fremtac Fire and Rescue offers this wide range of safety equipment that includes safety harnesses, helmets, energy absorbers and a wide range of rope and webbing lanyards with different

Health department announced R100 million cost savings

The Gauteng Health Department Health MEC, Hope Papo, announced that the department's implementation of a cost containment plan has resulted in savings of around R100 million over the past financial year.

Speaking to media at the Charlotte Maxeke Johannesburg Academic hospital in March, Hope said that the department will continue implementing its three-year cost containment strategy plan, announced in July last year.

The Gauteng Health Department aimed to improve the response times of emergency medical services and will procure 100 new ambulances and 20 specialised obstetric ambulances to respond to expectant women in labour, announced Papo.

He mentioned that the department is looking forward to the construction of the new Jabulani Hospital in Soweto by 1 April 2013.

connectors, reports Fremtac Fire and Rescue founder, Jimmy Croucamp.

Also in the Camp Safety range are anchor devices, temporary lifelines, rope adjusters and a wide range of retractable fall arresters, reports Croucamp.

He adds that Camp Safety's focus in 2013 has been product development with special attention placed on technical features and properties, to offer a greater degree of comfort and safety to workers performing rescue operations in elevated conditions or confined spaces.

Camp Safety continues in the tradition of product innovation, which has seen the company expand and solidify its global footprint, states Croucamp.

Other safety equipment in the company's range of products include a range of ropes and rope accessories, tripods and tripod winches, pulleys, a range of ascenders and descenders, rope rescue gloves, a wide range of steel and aluminium carabiners, as well as polyvinyl chloride (PVC) rope bags, equipment bag and a wide range of tactical rescue equipment, reports Fremtac Fire and Rescue.

Croucamp says that Fremtac Fire and Rescue's service does not end with the sale of equipment. "It extends to all areas of support and training necessary to ensure the safety of workers in various environments with professional and varied forms of support ranging from personal protective equipment (PPE) inspections to customised training courses for individuals, groups and institutions."

Camp Safety is a trend-setter in manufacturing standards and this has shaped and defined safety in some of the most extreme environments on the planet, states Croucamp.

He says, "The wide breadth of the Camp Safety product range is designed to give customers a single reference for safety equipment they can trust, as well as equipment that pushes the cutting edge in comfort and function."

Croucamp adds, "This is backed by 120 years of technical manufacturing prowess and the spark for genuine innovation." ▲

The quest for innovation

CAMP Safety follows in the footsteps of this heritage with technical equipment designed to increase safety and comfort in extreme work situations.



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NSRI answers more than 100 calls in December

The National Sea Rescue Institute (NSRI), much like every holiday period in the coastal area of South Africa, had its work cut out for it throughout December and early January.

The organisation faces a big challenge at the start of the holiday period towards the end of each year, as the number of emergency calls increase markedly, states NSRI marketing manager, Andrew Ingram. The holiday season sees a notable

influx of people on the sea as well as those using the inland waters for recreation. "We had a good number of call outs for fishermen washed off rocks, people caught in rip currents on the east coast and various issues with craft, such as running out of fuel and engine failure," states Ingram.

While the NSRI has not formulated its end-of-year analysis of the December 2012 and January 2013 seasonal incidents, NSRI's volunteers have responded to more than 100 calls in

December and January. The NSRI reinforces its emergency personnel in preparation for the increase in sea-distress and rescue calls during the holiday season.

"Each of our 35 stations around the country is prepared for this increase and the volunteers are prepared to give up their family and leisure time to help those who are in difficulty," states Ingram.

The NSRI maintains a tried and test call out system that is supported by a rescue crew made up entirely of unpaid volunteers. The volunteer teams are on standby night and day throughout the week, which makes the system of organising crews that much easier. "All of our sea rescue crew are unpaid volunteers who love the sea, are experts on their local conditions and are responsible for the search and rescue work," says Ingram.

He says that a local station commander is tasked with managing the volunteer crew at each station. The local station commander will look into and bolster the resources available to the NSRI during the busy holiday period.

"Each station is different, but generally before the holiday season the local station commander will check which of his crew are going away and make sure that he has the



NSRI conducted a public awareness campaign in December to teach people about the dangers of rip currents



(copyright - Dirk Erasmus)

NSRI is part of the SA Whale Disentanglement Group which freed a number of whales over the holiday season

► resources needed," explains Ingram. In the event that a NSRI volunteer visits another coastal location or holiday retreat, this person will inform the station commander of his plan so as to respond to be on call for any emergency scenarios in the region.

The NSRI has 97 sea rescue boats, 27 off-road rescue vehicles, and the rescue organisation has access to various helicopters depending on the nature of the emergency. The NSRI reports that the volunteer rescue crew save the organisation a salary bill in excess of R250 million per annum. The annual running cost of NSRI is in the region of R25 million.

Fifteen full-time staff is responsible for fundraising, procurement, training and coordinating awareness programmes at the NSRI which is funded by donations, sponsorships and bequests. The full time employees are also responsible for making sure that the NSRI's volunteers have the very best equipment possible to perform the rescue operations for others in distress.

Ingram says, "When they launch a sea rescue boat, the conditions are often

less than favourable. They must be very well equipped and trained to do this work, which can be dangerous."

The fatalities suffered during the holiday period from December through January included fishermen who were washed off rocks into the ocean. Ingram says that rip currents resulted in numerous deaths of children and adults over the holidays. "Rip currents on the east coast are without a doubt the biggest danger to beach-goers," he says.

Ingram states that the NSRI had an intensive public education campaign to teach people about the rip current this past holiday season. He says that emphasis was also placed on educating beach-goers to choose a beach where life savers are on duty; swim between their flags and wear life jackets when they launched a craft. "It is very difficult to put a life jacket on once you are in the water, and on the west coast when hypothermia sets in, it becomes more difficult and after a short period, impossible," explains Ingram.

He mentions that radio stations were involved in NSRI's public safety and

awareness campaigns, adding that 'they were fantastic in carrying this message out on a daily basis'. "This combined with a very fast response from our volunteers resulted in many people being rescued. The other thing that helped hugely on our beaches was the law-enforcement authorities' zero tolerance to alcohol. If alcohol was taken to the beach, it was confiscated," states Ingram.

The NSRI has been performing its service on South Africa's coast since 1967 following an incident near Still Bay where 17 fishermen drowned after their trawler sank at time when there was no rescue service operating at the time. The sea rescue organisation was formed in at a letter-writing campaign was started by a woman whose own life was saved in a life boat rescue in the British Channel.

The NSRI acquired its first rescue craft in 1967 – a 4,7-metre inflatable boat called Snoopy that was donated by the Society of Master Mariners. Today the NSRI coordinates a team of 980 volunteer's on-call at 32 bases in and around the South African coastline, and at three inland dams. ▲



Fifteen fire fighters first to benefit from 9/11 compensation fund

FDNY Lt Marty Fullam passed in January from 9/11 toxins that damaged his lungs rains hit eastern Australia in January

Fourteen fire fighters from the Fire Department New York (FDNY) were announced as the first to receive a pay out from the 9/11 Victims Compensation Fund administered by the US Congress, reported US government officials earlier this year.

Fifteen emergency responders, who toiled at Ground Zero and subsequently sustained injuries, will receive 10% of their respective compensation awards, ranging from \$10 000 to \$1,5 million.

However, the announcement of the fund created by an Act of Congress and the Air Transportation Safety and Stabilisation Act shortly after the 9/11 event, came just a day after the death of one hero 9/11 fire fighter.

FDNY Lieutenant (Lt) Marty Fullam, whose lungs were damaged by the Ground Zero toxins on the day of the 9/11 attacks, died on Monday, 28 January, earlier this year. Fullam underwent a lung transplant in 2009, but endured several trips to Capitol Hill to testify before US Congress in

support of the James Zadroga 9/11 Health and Compensation Act.

Zadroga was a New York Police Department office who died of respiratory disease soon after his participation in rescue and recovery operations at Ground Zero site in New York. Zadroga, a healthy non-smoker, was among the first public servants whose death was attributed to exposure to toxic chemicals at the 9/11 site.

The Victims Compensation Fund that the late Lt Fullam advocated, will provide benefit payments to the claimants, which includes one state correctional officer who responded to Ground Zero. All 15 of the claimants suffer from respiratory conditions, however none have cancer and all are still alive.

The \$2,8 billion Victims Compensation Fund was created by Congress to compensate emergency responders who suffered chronic health problems after their service at scenes of the 9/11 attacks. It was signed into law as part of the Zadroga Act by President Obama in 2010.

Birnbaum said that more than 16 000 people have registered for the fund, but less than 200 have completed the necessary paperwork for compensation. She said that the difficulties stem from applicants for the fund not providing signed authorisations that administrators need in order to confirm with city agencies that someone actually worked at Ground Zero.

There are questions as to whether the \$2,8-billion fund will be adequate to cover all claims, but officials working on the fund have estimated that as many as 26 475 people could one day be eligible for \$8,5 billion in compensation.

Advocate and non-profit FealGood Foundation head, John Feal, said that many law firms are now learning how to properly fill out the paperwork for their clients.

Feal stated that the compensation awards will truly help those who were devastated and hit hard by post-9/11 financial hardship brought by medical bills. ▲



Floods hit eastern Australia states of NSW and Queensland

The New South Wales (NSW), an Australian state located on the east coast of the country, and Queensland, which borders NSW, were hit by a major flood disaster in late January that claimed the lives of four people.

The heavy flooding in NSW also affected parts of the bordering state of Queensland, forcing thousands of people to evacuate their homes and leaving tens of thousands more isolated by rising floodwaters.

The ex-tropical cyclone Oswald dumped more than 200 millimetres of rain in some areas of the Queensland and NSW states, causing rivers to swell and swamp urban towns with heavy rainfall. The worst-hit areas were around the northern New South Wales towns of Grafton and Lismore and in the towns of Bundaberg, Rockhampton and Ipswich in Queensland.

A fleet of 14 helicopters rescued more than 1 000 people across Queensland overnight, as the overflow of a river in Bundaberg, Queensland flooded more than 2 000 homes and about 200 businesses. The floods forced the evacuation of 131 patients at the Bundaberg Hospital as water moved at around 64 kilometres an hour, threatening to rip houses from their foundations.

The heavy rains inundated areas of Australia's eastern coalfields, dumping up to 400 millimetres of rain on Queensland's Bowen Basin, home to giant open-pit mines owned by BHP Billiton, Mitsubishi Corp, Anglo American and Peabody Energy among other multinationals.

The state capital of NSW and the most populous city in Australia, Sydney, escaped the worst of the bad weather, although huge waves were recorded across many of the city's beaches and swells of up to eight metres out to sea.

The wet weather in January followed unprecedented heat waves across large parts of the country in the summer.

Thousands of homes were flooded after torrential rains hit eastern Australia in January

Emergency services had earlier issued fire warnings and battled many blazes across huge areas of the country, with Sydney experiencing its hottest day on record in mid-January 2013 - peaking at 46.5 degrees Celsius. ▲



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Wildfires in Australia fuelled by record high temperatures



Wild bush fires sweep through the Australian state of Victoria



A Tasmanian family hide under a jetty to escape the raging bush fires on the island

Australia was overcome by a heavy spate of bushfires in January and early February this year, as temperatures soared to record highs across the country in January.

Five Australian states battled through destructive wildfires that cause major damage to residential and farmland affecting thousands of local residents. In the island state of Tasmania, that was hardest hit by the wildfires this year, more than 100 properties were destroyed and around 3 000 people were forced from their homes in mid-January.

Fire crews from Victoria and New South Wales were assembled to assist in the Tasmanian fires that

destroyed 30% of the buildings in a coastal village of Dunalley on the island, including a police station and school.

Many inland regions were declared disaster areas as a result of the raging fires that were exacerbated by the record high temperatures. More than 80 fires were ablaze in three different Australian states in mid-January namely New South Wales, Queensland and Tasmania as well as in South Australia, with many homes being destroyed in the wide-ranging wildfires.

SAESI to host international conference

South Africa's largest and most important fire, rescue, emergency medical and disaster management services conference is set to be held on 15 and 17 May this year.

Southern Africa Emergency Services Institute (SAESI) will host the 29th International Conference, Exhibition and Training Event at the Expo Centre in Johannesburg.

One of the objectives of the conference is to highlight and ensure that a green and sustainable future remains at the top of the agenda of all industry stakeholders, reports SAESI.

The theme of the conference, trade expo and training event this year will be 'Working together to ensure our future'. Additional information on the event can be found at the SAESI website at www.saesi.com.

Tornadoes

Meanwhile, mini-tornadoes ripped through two coastal towns and torrential rain from ex-tropical cyclone Oswald, creating havoc in central and southern areas of the Queensland. One of the mini-tornadoes caused heavy damage in Bargara on the central coast of Queensland. Roofs were torn from buildings and power lines brought down in Bargara as the tornado hit the town.

Wildfires also tore through the south eastern states of New South Wales, Victoria and much of South Australia as 80% of the nation was overcome by the January heat waves.

Sydney officials reported that temperatures reached highs of 45,8 degrees Celsius in late January, eclipsing previous highs of 43 degrees Celsius for the region.

The nation's capital city of Canberra experienced its second highest temperatures on record in mid-January, as temperatures soared to 41,6 degrees Celsius on 17 January.

The record heat in late January followed reports of a national average temperature of 40,33 degrees Celsius on 7 January, which was deemed the hottest day in more than 100 years of records, reported Australian officials.▲

Company has exclusive rights to manufacture foam concentrates in Africa

Angelo Kater (AK) Fire Fighting Foams has the exclusive rights to manufacture Ansilite foam concentrate in South Africa and Africa.

A range of Aqua film forming foam (AFFF) and alcohol-resistant aqua film forming foam (AR-AFFF) concentrates that cover the complete range of flammable liquid and A-class fire risks is supplied by Angelo Kater fire fighting foams.

The product preferential at Angelo Kater fire fighting foams include, the class-A foam concentrate of Silv-ex as well as the Ansilite aqueous film-forming foam and the Ansilite alcohol-resistant concentrate fire fighting range of foam products.

Angelo Kater states that the fire fighting foam solution is produced from the mixing of three ingredients namely foam concentrate, water and air. The company explains that the solution is mixed with aspirated air to produce the foam, which is very fluid and readily flowing over liquid surfaces. The fire fighting foam agents suppress fire by separating the air or oxygen that it needs to burn from liquid fuel, explains the company.

The Silv-ex foam is a low, medium and high expansion foam concentrate formulated from specialty hydrocarbon

surfactants, stabilisers, corrosion inhibitors and solvents. It is the latest development in the original offering in forest fire control concentrate, and Silv-ex is proven effective on many deep-seated class A fires, such as tyre fires, paper fires, coal fires, structure fires and also wildfires, reports Angelo Kater.

The company states that the Silv-ex solution does not destroy or retard new forest growth, and will not harm fish or wildlife. It is biodegradable in soils, aquatic ecosystems and sewage treatment facilities.

The Ansilite aqueous film forming foam concentrate (AFFF) range that includes the Ansilite three percent, is formulated from specialty fluorochemical and hydrocarbon type surfactants along with solvents. Ansilite three percent is best suited to fires with low water-solubility, such as different crude oils, gasoline and diesel fuels and not suitable on fuel having appreciable water solubility.

Other fluorochemical and hydrocarbon type surfactants include the Ansilite six percent, which is intended for use as a six percent proportioned solution in fresh, salt or hard water.

Also in the film forming range is the Ansilite 1x3 F-601A alcohol-resistant aqueous film-forming foam (AR-AFFF) that ►



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Typhoon causes major destruction in Filipino villages



Filipino's protested against the government perceived mismanagement of calamity funds

The typhoon that hit the Asian state of Philippines, also known as the Republic of Philippines on 4 December last year, is regarded as the most destructive disaster ever to hit the Southeast Asian state.

Typhoon Bopha struck the east coast of Mindanao island in the Philippines in the early hours of 4 December, causing major damage to public infrastructure, homes and agriculture.

An estimated 6.2 million people across 3 064 villages, and 34 provinces were affected by the typhoon that is estimated to cost the Philippines \$947 million.

Typhoon Bopha destroyed or damaged a total of 216 817 homes, displacing close to one million Filipino's. Despite the very many people left homeless of the storm, only

1.4% were able to find shelter in evacuation centres or camps, which hampered relief efforts to reach those affected weeks after disaster struck.

In February this year, survivors of the typhoon protested against what they claim is the government's corrupt handling of the relief program following the disaster in December.

Protesters have staged a demonstration in front of the regional social welfare office accusing the government of mismanaging \$450 million in international aid and calamity funds.

In January, thousands of villagers blocked a road for ten hours to protest the government's aid program.

International aid

Aid organisations across the affected provinces in Mindanao have been focusing on getting schools functioning again after the typhoon. More than 600 schools and nearly 200 day-care centres were destroyed or damaged across the island and getting school up and running was considered a life-saving strategy.

An estimated 436 540 preschoolers and students were affected by Typhoon Bopha in the four worst-hit provinces alone. Of those, about 169 750 elementary and high-school children have been displaced.

Aid organisations in the United National Children's Fund (UNICEF), Plan International, World Vision, and Save the Children say getting children back to school is as much a priority as providing access to safe drinking water, shelter and good nutrition.

UNICEF's education emergency coordinator, Rhoewena Loreto, said, "Education saves lives in emergencies. Children need the rhythm of schooling and the space to interact with other children. The routine, stability, and structure of school help give children and teachers hope for the future, which is critical for their psychosocial recovery."

Plan International country director, Carin van der Hor, corroborated Loreto's sentiments stating that disasters disrupt education. She said that disasters like Typhoon Bopha most likely cause children to get involved in hazardous work; become vulnerable to the risks of trafficking and early marriage; and later on be forced to drop out from school.

"When a child is in a safe learning environment, he or she is less likely to be exposed to these risks," stated Van der Hor.

Aid agencies in conjunction with local groups; have been working with the Philippines' government to set up temporary learning spaces for children.▲

► is intended for use as a one percent proportioned solution on hydrocarbon fuels and as a three percent proportioned solution on polar solvent fuels in fresh, salt or hard water. The Ansulite 3x6 F-600A AR-AFFF specification is intended to be used as a three percent proportioned solution on hydrocarbon fuels and as a six percent proportioned solution on polar solvent fuels in fresh, salt and hard water, reports Angelo Kater.

Finally, the Ansulite alcohol-resistant concentrate (ARC) three or six percent AR-AFFF is intended for use as a three or six percent proportioned solution in fresh, salt or hard water – depending on the type of fuel.

To provide even greater fire protection capability, the Ansulite ARC can be used with dry chemical extinguishing agents without regard to the order of application, reports Angelo Kater.▲



Kempton Park pipe major, Reginald Simpson, signs an SAEC certificate of affiliation

Living and slain fire fighters honoured in SAEC ceremony

A burnout was demonstrated at the SAEC training facility in Modderfontein

The South African Emergency Care (SAEC) organisation that provides first aid, fire and occupational health and safety training courses held a burnout on 22 February, this year that coincided with the order of the black caps ceremony and the inauguration of a pipe band.

Two members of the emergency services fraternity namely, Rachel Martin, a fire fighter from the Greater Johannesburg Emergency Service, as well as Ekurhuleni Emergency Service acting director, Sam Matsibi, received recognition for their services to the industry as both being awarded the order of the black caps.

SAEC director and retired fire fighter, Jan Liebenberg, created the order of the black caps initiative that acknowledges the efforts of local emergency service personnel. He says that Matsibi was honoured for his many years of active service and dedication to the emergency services profession. Matsibi will be appointed as the president of the South African Emergency Services

Institute (SAESI) at the annual SAESI conference in May, this year.

Martin, stationed at the Northview Fire Station, who is a dog handler with the Urban Search and Rescue (USAR) group, was recognised for her passion and dedication to the fire fighting industry. She took part in a training exercise conducted by the SAEC for the USAR at its training station in Modderfontein.

"This dainty fire fighter has the heart and soul most fire fighters dream of. She took up the leadership whilst some of the other fire fighters struggled during the training. Her mannerism strongly portrayed her confidence," states Liebenberg.

Liebenberg says that his love for the emergency services industry and its challenges kept him involved with the fire and paramedical departments, locally as well as internationally after his resignation as a fire fighter in 1992. It is with this in mind, that the order of the black caps fraternity was created, says Liebenberg. "The order is a SAEC recognition initiative that

acknowledges emergency service personal for their extra ordinary contribution in their daily tasks."

The inauguration of the Kempton Park pipe band into the SAEC fold was inspired by a visit to New York, USA in September 2011, in a tenth anniversary commemoration service held for the victims of 9/11. Liebenberg says that pipe bands from the New York Fire Department (NYFD) and other associations led most of the proceedings at the event.

Kempton Park pipe major, Reginald Simpson, led the pipe band in the burnout procession, also signing the official certificate of affiliation presented by SAEC to the band. More than 300 people attended the procession in February including, 36 fire fighters and 28 black caps, led by the Kempton Park pipe band.

The SAEC reports that a moment of silence was held during the unveiling of SAEC's pipe band for reserve fire fighter, Glen Van Slingeland, from Loanhill Fire Station who passed away earlier that week. ▲



Fire and toxic smoke rapidly filled the Kiss nightclub in Brazil killing 239 students

Brazil nightclub fire claims 239 lives

A private consumer protection agency filed a claim of \$1.5 million for each family of the victims of a nightclub fire that took place in Santa Maria, Brazil, in January this year.

The raging nightclub inferno claimed the lives of 239 university students in the early morning hours on 28 January after a local rock band's pyrotechnics feature malfunctioned.

The flares of the failed pyrotechnics show ignited the highly flammable

soundproof foam of the club's ceiling –releasing of toxic smoke. The smoke filled the windowless Santa Maria nightclub, Kiss, causing revellers to asphyxiate.

More than 750 people crowded into the club that exceeded its capacity of 68. There were functioning fire extinguishers at the time of the accident and the only exit was blocked by bouncers trying to prevent clients from leaving without paying the bill.

The National Association for the Fulfilment of Legal Obligations (ANECOL) filed a \$150 000 claim for each of the nearly 100 people that survived and sustained injuries in the blaze, which was in addition to its financial claims on behalf of the families of each individual that died in the fire.

The claims were filed against the local government of Santa Maria, the club's owners, as well as the band, Gurizada Fandangueira, who were the performing band at the Kiss nightclub, said ANECOL lawyer Walter Euler Martins.

"The local authorities had the obligation of inspecting the nightclub's operation, the band may have caused the fire and the owners of the club had allowed overcrowding," stated Martins.

Authorities have arrested the two owners of the nightclub and two members of Gurizada Fandangueira subsequent to the inferno that was the worst experienced in Brazil in more than 50 years.

Brazilian President, Dilma Rousseff, cut short a state visit to Chile, where she was attending a European and Latin American summit January to attend to the tragedy in Santa Maria. ▲

Road safety service implemented in new EU countries

The Harmonised eCall European (HeERO) pilot project, which seeks to enhance road and general safety, announced that six additional European Union (EU) Member countries met to discuss the implementation of the eCall road and general safety initiative in January this year.

In January 2011, nine European countries formed the HeERO consortium, which aims to implement the eCall emergency response service in all EU member states by 2015. These countries include Germany, Sweden and The Netherlands.

The second phase of the HeERO project that started on 1 January

2013 saw six new countries in Belgium, Bulgaria, Denmark, Luxembourg, Spain and Turkey joining the nine other pilot sites of HeERO 1.

"This exciting project will bring this ground-breaking technology to life. The next steps will see the engagement of 19 pilot sites working together to ready those countries for eCall", explains the HeERO project coordinator, Andy Rooke.

The system will establish a direct connection with voice and location data between the vehicle and the 112 services in case of a car crash.

European cross-border continuity and harmonisation are two factors that will impact on the successful

implementation of the eCall service, reports the European Number Association (EENA) - a Belgium nongovernmental organisation (NGO) dedicated to promoting emergency services on the 112 number in the EU.

The electronic safety system automatically calls the emergency services in case of serious accident, even when the driver and passengers are unconscious. Severe impact in a vehicle collision will activate the 112 emergency calls to the closest emergency centre and transmits the exact geographical location of the accident scene.

The project is partially funded by the European Commission. ▲

Charter boat in Hout Bay capsizes with tourists on board

The capsizing of the Miroshga charter boat in Hout Bay, Cape Town in South Africa prompted an extensive rescue operation that included the services of the National Sea Rescue Institute's (NSRIs) Hout Bay, Table Bay and Bakoven volunteer sea rescue duty crews, as well as an array of emergency medical services (EMS) personnel in the Western Cape.

Apart from the NSRI respondents to the scene, emergency rescue tasks were performed by the Western Cape Government Health EMS, Cape Town Fire and Rescue Services, the South African Police Force, a Police dive unit and Netcare 911 ambulance services, as well as the Red Cross Air Mercy Services, among other rescue services organisations.

A joint operations command was set up on scene and included commanders from all services involved and senior police officers from the Police provincial commissioners' office, while the South African Navy and the South African Air Force were placed on alert.

An investigation was conducted by the South African Maritime Safety Authority (SAMSA) which released a statement citing a litany of irresponsible modifications to the tourist whale-watching vessel as the primary cause of the incident, in its preliminary findings.

SAMSA reported that the vessel was modified in 2010 by removing the inboard diesel engines and replacing them with two 205-horse power outboard engines.

"The vessel's last stability book, which was approved for the Miroshga's previous configuration with inboard engines, does not identify flood points as observed on the vessel. These flood points are compartment vents for the previous engine arrangements, which potentially allow substantial amounts of water to enter into the compartment," reported SAMSA.



An extensive rescue operation ensued after the Miroshga vessel capsized

The boating incident claimed the lives of two people, one being a resident of the United Kingdom, as well as a crew member of the 10-metre Miroshga charter boat, who was a resident of Hout Bay.

Western Cape Tourism Minister Alan Winde expressed the need for an inquiry into the incident saying, "We need to have an investigation to see why it has happened because we cannot afford these kinds of things happening within our industry. We need to ensure that all the safety requirements were adhered to."

It is believed that a total of 36 people, including four children, were saved in the incident that saw 24 people being transported to various hospitals in and around Cape Town for further treatment. However, all of these passengers were expected to recover fully from the injuries sustained in the incident.

NSRI reported that twelve of the survivors did not require to be hospitalised. However, these people were treated for hypothermia along with all the other survivors of the capsized vessel.

On arrival on-scene it was found that most survivors had been rescued by the charter boat Nauticat and by the charter boat Extravagance, reported the NSRI.

A group of women were rescued by EMS divers from inside the hull of the boat. The divers also used scuba gear to swim under the hull to reach a woman who used air pockets from inside the hull to breathe.

The woman was rescued, using a breathing apparatus, from underneath the capsized boat where she had been trapped for about two hours.

NSRI rescue boats came to the rescue of other distressed persons, some of whom were found in the water and some found clinging onto the hull of the upturned boat.

All the survivors were brought to shore and treated by on-scene paramedics before those who were in a more critical state being transported to various hospitals around Cape Town.

The NSRI states that the onboard passengers of the Hout Bay vessel consisted of South African residents, as well as tourists from the United Kingdom and France. ▲



Residents remonstrate against poor service delivery in Mpumalanga

donated by the Department of Water Affairs, Mkhondo (Piet Retief) and Albert Luthuli (Carolina) Local Municipalities.

Msukaligwa Municipality reported that the official declaration of the disaster has been made with the dissemination of the provincial gazette. This formed part of the implementation strategies of the newly formed JOC and the Ermelo council's resolution to look into intervention strategies.

In a subsequent meeting on 16 January the Ermelo Council Chamber, COGTA Mpumalanga MEC, Madala Masuku, accompanied by the director general of the Department, David Mahlobo, met with the members of the JOC in an official briefing session, reports Msukaligwa. The meeting resulted in the consultation of an additional team of experts and engineers with the aim of speeding the intervention process and addressing the water crisis in Ermelo and the adjacent areas.

The exploration of alternative water sources, emergency pumping systems and the reconstruction of the elevated water tank in Wesselton, to increase capacity, were amongst the short-term contingency plans agreed upon by the JOC. These recommendations were based upon a report and business plan by the DWA, compiled in conjunction with the Msukaligwa Local Municipality.

The Msukaligwa Municipality states that a long-term solution has been explored that will include the feasibility study for the implementation and provision of the bulk line to abstract water from the Jericho Dam supplying through Usuthu-transfer pipeline. All the procurement processes agreed to be concluded by the end of September 2013, reports the Msukaligwa Municipality.

Mpumalanga Water Affairs head, Fikile Guma, said the department would allocate an infrastructure grant to assist the municipality within the next financial year.▲

In January this year, the Msukaligwa Municipality in Mpumalanga, South Africa declared Ermelo and adjacent areas disaster communities amid a looming water shortage crisis in the region, reports the Msukaligwa Local Municipality.

The Msukaligwa Municipality reports that the water shortage required 'serious attention' from the political leadership and presiding officials of the local municipality.

The draught conditions called for cooperative inter-governance by sector departments to find solutions to the water crisis in the region. The Department of Water (DWA), Department of Corporate Governance and Traditional Affairs (COGTA) and the Gert Sibande District Municipality (GSDM) were subsequently consulted at the emergence of the crisis, states the Msukaligwa Municipality.

The water shortage had an adverse effect on the local community - consisting of 53 114 residents of Ermelo and 45 200 residents in the adjacent areas. By mid-January, more than 26 000 households in the northern part of Ermelo and nearby Wesselton were without water for about six weeks and four months respectively, after two dams went dry.

The local municipality in Ermelo reported that the water crisis was sparked by a flurry of challenges ranging from a faulty transformer, ageing infrastructure, theft and vandalism of electrical cables, as well

as fire hydrants affecting the supply of water in the reservoirs.

Msukaligwa Municipality states that the water crisis was discovered during the considerable drop in the water levels at both the Brummer and Douglas Dams in Ermelo.

The water levels were then reported to have decreased to just below 30% of its normal capacity on 18 November 2012 causing the municipality to convene a council meeting at the Ermelo Council Chamber on 2 January 2013.

A short-term contingency plan was agreed upon by the members of a Joint Operative Committee (JOC), comprising of the Msukaligwa Local Municipality, COGTA, and the DWA. This plan involved the provision of Jojo tanks, manufactured for rain water harvesting, as well as the supply of a sizeable number of water carts, reports the Msukaligwa municipality.

The tanks and water carts were placed in strategic areas of the affected communities in Mpumalanga. According to the local municipality, the water supply was supplemented by the implementation of water restriction programmes introduced in the region. "This was part of promoting civic responsibility amongst communities, urging members of the public to use water sparingly such as refraining from using hose pipes when washing their cars and so forth," reported the municipality.

Msukaligwa spokesperson Mandla Zwane said the Jojo tanks were

Letaba Fire Protection Association received sponsored PPE

The Letaba FPA's fire fighters proudly posing in their new PPE



Trevor Philips; Colin Jackson, Coca-Cola and Maritza Swanepoel, PR officer for the FPA

Trevor Philips, chairperson of Letaba FPA

Fire and Rescue International recently visited Letaba Fire Protection Association and joined in the handing over ceremony of personal protection equipment (PPE) for its volunteer fire fighters. The event coincided with the FPA's year-end function and committee meeting.

Coca-Cola Fortune kindly sponsored the PPE for the Letaba Fire Protection Association's fire fighters. The gear was personalised and each fire fighter also received gloves to match.

Trevor Philips, chairperson of the FPA, also announced a fire training initiative that will provide an opportunity for fire fighters to be trained in fire management for three days, starting 19 April 2013.

Phillips said that the association recognises the contribution that farmers, foresters and workers make in combating fires in the area.

To this end, Letaba Fire Protection Association will organise a three-and-a-half day training week, where fire management training will be

conducted for farmers, foresters and workers. Type 1 incident commander from the US and motivation speaker, Arnold Mol, is among the speakers at the event.

Open day

The FPA will also host an open day, which will allow for public participation. The event will provide an ideal opportunity for suppliers to exhibit their products. The open day will take place on 19 April 2013 at the Letaba Show grounds' in Hall B and will kick off at 7h30am and last until 3pm. ▲



The eastern United States (US) was overcome by a strong cold front that triggered severe thunderstorms and a devastating tornado in January this year.

The worst hit area in Adairsville, Georgia recorded one death that ended the longest continuous run of non-fatal tornado occurrences in the US.

The last death to occur in the US as a direct result of a tornado was in Florida in Tropical Storm Debby that hit the area on 24 June 2012.

This time around, the tornado caused extensive damage in Georgia with about 60 structures being destroyed, and a further 95 structures damaged. Jeff Masters of Weather Underground, which provides weather forecasts and conditions for locations worldwide, stated that warnings were issued well in advance with a lead time of around 20 minutes for the tornado.

The tornado came about as a result of warm air from the Gulf of Mexico that allowed temperatures to soar upward in the southeast of the US, while a strong cold front was pushing much colder temperatures behind the system.

The collision of these temperatures and the strong dynamics with the front

was what triggered severe weather across the region. The forecast for this outbreak of severe weather was predicted days in advance.

In another tornado incident, residential areas in the southern state of Mississippi were ripped apart by the twister which caused more than 60 injuries, however, no deaths were recorded.

Mississippi officials reported that several circumstances converged to ensure that no lives were lost in what could have been a deadly storm. In the local counties, sirens and television broadcasts alerted people to the danger about 30 minutes before. About 200 homes and mobile homes were damaged or destroyed, with another 100 apartment buildings were left uninhabitable.

Meanwhile, the state of Boston, located on the eastern part of the US was hit by its biggest storm in five years in February. The winter storm dubbed Nemo, because of its potential impact, dropped more than 63 centimetres of snow over two days.

Winter storm Nemo ripped the northeastern part of the US and Canada and was blamed for at least 15 deaths.

Coastal areas, however, were largely spared catastrophic damage despite

being lashed by strong waves and hurricane-force wind gusts at the height of the storm.

In Boston, hundreds of people left without heat or electricity at their homes, were forced to take refuge in emergency shelters set up in schools or other places.

Multiple deaths occurred indirectly as a direct result of carbon monoxide poisoning from vehicles. The poisoning occurred after motorists failed to remove the snow from exhaust pipes before starting up their cars.

One of the deaths that occurred in Boston was a 14-year old boy who escaped the cold of the blizzard by waiting in a car while his father shovelled snow.

Carbon monoxide (CO) is an odourless, colourless gas. It prevents the body from using oxygen, which can cause damage to the heart, brain, and other organs – even death. It is invisible and has no smell, and as such, people often do not realise that they are breathing CO.

Nemo forced the activation of a wide range of emergency and rescue services organisations including a local emergency management agency, fire departments, the police, the Red Cross and volunteers.▲



ATA International

offshore survival course gains popularity in oil and gas sector

Industrial operations can ensure that the dangers and perils faced on offshore sites are significantly reduced by ensuring that employees undergo comprehensive offshore survival course (OSSC) training provided by occupational health and safety expert, Action Training Academy (ATA), in collaboration with the Cape Peninsula University of Technology (CPUT).

Offshore survival training comprises a basic introduction to safety, working procedures and legislation in the offshore industry. The five day training course, which takes place in Cape Town, covers all aspects of offshore survival, including; practical water survival, helicopter underwater escape training (HUET), basic fire fighting and first aid awareness.

ATA International business development manager, Nicole de Montille says: "This course is specifically designed for oil and gas companies that have staff members manned on an oil-rig platform for more than 24 hours at a time. Due to the highly specialised nature of the training, we run the course in collaboration with the Cape University of Technology, at its survival centre."

De Montille notes that the first two days of the training are theoretical, where trainees learn the basic principles of survival in a classroom based environment. "Offshore workers are usually anywhere between 30 minutes and two hours away from the nearest

land-based facilities and it is therefore vital to understand the basic principles of survival in an emergency situation. This includes evacuation, first aid and basic fire fighting."

Following the theoretical training, De Montille highlights the fact that trainees undergo an intensive three-day practical training session. This includes HUET training, whereby the trainees are strapped into a simulated helicopter cabin, before being dropped into a swimming pool. "This type of escape training teaches trainees how to stay alive in a tropical oceanic environment by learning to identify the nearest point of exit and how to swim away. They are placed upside down in the dark in order to learn how to survive, even in the most disorientating scenarios," she continues.

What's more, trainees also receive hands-on fire fighting training, which is a fundamentally important aspect of offshore survival training, as quick and effective control of a fire can avoid a potentially catastrophic disaster.

De Montille highlights the fact that physical fitness is a prerequisite for all trainees. "The standards of offshore survival training are exceptionally high and no compromises are made whatsoever. If a person fails the practical, they simply will not be certified to go offshore. With this in mind, a trainee must be fully self-sufficient and healthy to qualify for this course, as offshore platforms are

one of the most dangerous working environments in the world."

According to De Montille, ATA's OSSC training has proven to be highly popular among large corporations based in the USA, Europe and Asia. "The training facilities at the Cape Peninsula University of Technology are world class and this has resulted in exceptionally high demand for the course. We do, however, only have the capacity for 12 trainees per class, so placements are limited and courses are booked out far in advance."

In addition to providing comprehensive health and safety training, ATA also arranges all transport and accommodation on behalf of its students, in order to streamline the entire process. De Montille adds: "Assisting students who are in a foreign country is a major value-added service offered by ATA, as it eliminates the stress associated with extensive travel before undergoing a major training exercise."

As the OSSC training course continues to gain popularity, De Montille remains confident of the future outlook for ATA. "As investment in oil and gas continues to rise, so too does the number of people working on offshore rigs. Corporations are also becoming more conscious of worker safety, and I believe that ATA has placed itself in a strong position as the preferred supplier of training to this constantly expanding industry moving forward," she concludes. ▲

Swift water rescue

A necessary special ops capacity in a changing world

By Colin Deiner, Chief Director, Disaster management and Fire Brigade Services, Western Cape Provincial Government

All inflatable rescue boats should have four secured handles



The continuing growth of informal settlements in and around South Africa's cities and large towns have necessitated the emergency services of these areas to review and, in many cases, drastically change their methods of dealing with the many relatively new risks that face people living in these areas. We have had to adapt our fire trucks to move through very narrow pathways; modify our fire fighting techniques to deal with structures that are virtually 100% flammable; we have to deal with a multitude of dwellings requiring search and rescue as well as aggressive fire fighting at the same time and we have even had to develop new stretchers and rescue harnesses to remove people from various entrapment scenarios.

One of the biggest risks posed by these informal settlements is the fact that they are generally established around some sort of water source, in most cases a river. It is also a fact that the areas close to these rivers are considered prime sites for the erection of shacks and despite attempts by municipal authorities to remove people from these areas, the difficulty in controlling the development within

informal settlements, leads to them always being inhabited. Emergency responders working in informal settlements situated close to rivers will tell you that they are generally confronted with the phenomenon of the river being a mere trickle in the dry season only to swell into a raging torrent during the rainy season. In certain parts of the country, the dry season is also affected by wildland fires which contribute to the dry riverbeds being filled with large heaps of tree branches, leaves and other types of biomass, thereby clogging the waterway and causing the damming up of water during the early rains of the new season. These "natural" dams can only hold a certain mass of water before bursting its banks and causing a flash flood downstream. Many eyewitness accounts of people being swept away in informal settlements have indicated that people were walking through a specific path at one moment and at the next moment, a huge stream of water appeared from "nowhere". Of course, the illegal dumping of household waste is a contributor to this "damming" scenario.

A further, and more compound hazard confronting inhabitants, is

what rescuers call "undercutting". This occurs due to shacks sitting on the sides of deep rivers with no solid banks. As the water flows through the settlement on a continuous basis, it erodes the sides of these banks to the point where it can no longer support the weight of the shacks and they collapse into the river, often taking a number of shacks and its inhabitants with it. More recently, we have also seen violent floods occur over roads in areas affected by poorly maintained drainage systems.

In painting the above picture, I haven't even mentioned the services that have to deal with the risk of sports and leisure activities on rivers in their towns and cities. A lazy Sunday afternoon of river rafting by a group of inexperienced people has often ended in tragedy. There is also the age-old reality that alcohol only mixes with small amounts of water.

A swift water rescue team

The above risks are sadly the cause of a great many deaths in this country and dealing with them should become a priority for all emergency services with this risk in their areas of jurisdiction. The cut-back environment that emergency services currently ►

► operate in, generally forces chiefs and managers to prioritise their budgets and focus on the more common types of incidents. A swift water rescue team carries a cost. Although your rescue kit might be relatively cheap, in comparison with a hydraulic rescue set for example, the major outlay will be for training. This is one field of rescue where you can't use poorly trained responders. Training is also not readily available and only a small group of providers is out there. In addition, most training courses have been derived from the river sports community and don't specifically relate to the additional types of risks mentioned earlier in this article.



Informal settlements are prone to flash floods due to the proximity of these to riverbanks

Swift water rescue technicians are strong swimmers who have a clear understanding of the dynamics of water flow and its related hazards. They must also be proficient at rope rescue systems and maintain a high degree of physical fitness and mental alertness. It is therefore obvious that not all responders will be able to achieve this. A junior fire fighter or ambulance attendant working in an informal settlement might spend most of his/her day responding to shack fires or ferrying patients to and from medical facilities and not see much need for swift water training. The problem is however, that when the flash flood occurs, they might be the first responders. They then need to know what to do and most importantly, what not to do.

Swift water rescue training is divided into three levels. The first level is aimed at first responders and focuses mainly on land-based rescues. The second level is the technician level and covers boat based rescues as well as physically entering the water and using rope systems. The third level is a specialist level and teaches the rescuer skills needed for handling personal watercraft and helicopter based rescues.

The table below gives a clearer indication of the requirements of the three levels:

Training level	Requirements
First responders	Land-based: Talk, flotation, reach, throw
Swift water rescue technician	Talk, flotation, reach, throw, row, go tow
Swift water specialist	All the above plus personal watercraft and helicopter based rescue

Low risk operations

A person trapped in rapidly flowing water has a very small window of survival and a rapid response is vital to ensure that survival. Entering water to rescue a person is an extremely high-risk activity and should be the last option to be performed by a qualified, skilled and experienced rescue team. A number of low risk options exist which should be attempted first and can be performed by first responders:

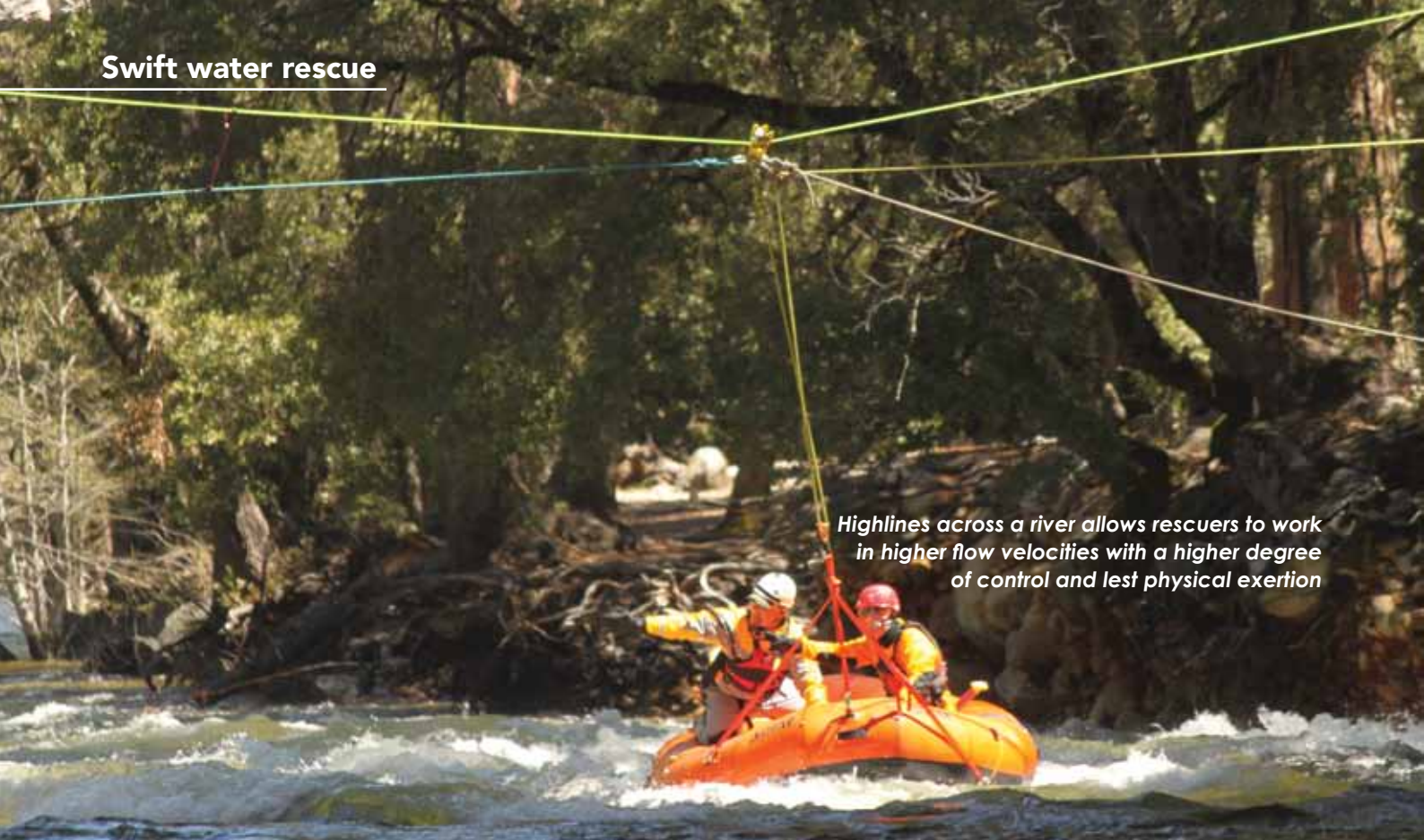
- **Talk:** Assuming the victim is coherent and within shouting distance, a series of instructions can be shouted in an attempt to manoeuvre him/her towards the riverbank where the rescuers are waiting. Once at the edge, the victims can either exit the water themselves or be assisted by the rescuers.
- **Flotation:** This entails getting a flotation device to the victim and "buying time" for the rescue team to set up a more viable option. A flotation device such as a buoy or life vest should not only keep the victim afloat but also prevent the onset of hypothermia.
- **Reach:** Rescues are performed by extending lengthy equipment (such as a ceiling hook) to the victim who is within reach. If the victim can reach the equipment, he/she can be pulled ashore and rescued from the water.

Rescuers must be connected to a rope to prevent them from falling in the water themselves. This option must only be performed by trained personnel and is used mainly in stationary water where the victim is in contact with a stationary object.

- **Throw:** The throw bag is one of the most versatile pieces of equipment available, the quickest to deploy and can be used in a wide range of places. It has also been used in the most successful rescues. The throw bag usually contains a length of polypropylene that floats on water and is highly visible to the victim. Rescuing a victim with a throw bag entails the rescuers tossing the bag in the path of the victim and then, after the victim has grabbed hold of the rope, pendulums him/her to the riverbank.

As in any rescue scenario, preplanning is vital. In many cases land-based, low-risk rescues may work at any point along the river. There will however, be certain sites that may afford an optimum advantage and the best chance for a rescuer to conduct a successful rescue. A tour of the riverbank by your rescue team will help to identify these sites and may even provide strong points for you to establish preconstructed anchor points on which to secure your ropes or rescuers performing shore based rescues.

Due to the fact that your swift water rescue teams are not as abundant as your first responders and may arrive well after them on a scene, it is ►



Highlines across a river allows rescuers to work in higher flow velocities with a higher degree of control and less physical exertion

► important to develop an interaction between the groups. The activities of the first responders can lengthen the window needed for a successful rescue downstream and give the victim a better chance of survival.

High-risk operations

High-risk operations are the types of activities that should only be performed by trained swift water rescue technicians. They include:

Row: Here the rescuer enters the water in an inflatable boat or river rescue board, both of which are fitted with four secured handles. The handles of the boat are tethered and land-based rescuers on either sides of the river can then move the craft up- or downstream or from side to side until they are able to get it close enough to the victim for the boat-based rescuer to physically reach the victims or throw a line out to them. The most commonly used methods of deploying boats are the two- and four- point tethered systems. They are easy to set up but difficult to manage and do not always work well when there are obstacles along the river bank or in the river, as a clear path is needed for the manoeuvring of the ropes needed to control the boat movement.

Constructing a highline across a river allows rescuers to work in higher flow

velocities with a higher degree of control and less physical exertion. These systems take a considerable amount of time to set up and it is very helpful to identify areas where they can be pre-rigged. Highlines have been deployed successfully to remove people from strainers, off vehicles and conducting low-head dam rescues.

Go and tow: This rescue involves the rescuer making physical contact with the victim who is usually unable to assist due to panic, injury or a compromised level of consciousness. A rescue swimmer will enter the water and aggressively make his/her way to the victim, approaching from upstream. When the victim is reached, the swimmer will assume a defensive swimming position, on the back, facing downstream and feet in front. The rescuer is then able to control the movement of himself and the victim. In most, if not all cases, the victim will not have the same level of protection that the rescuer has and therefore the rescuer must be prepared for any unsuspected or sudden movements from the victim.

The rescuer will then "tow" the victim to the shore by being upstream (behind) of the victim and guiding him/her to the shore.

Helicopter: A helicopter-based rescue requires a skilled pilot and crew that have trained together and understand the highly technical challenges of a heli-based rescue operation. This option should be seen as a last resort as it presents a range of hazards such as power lines, bridges, etc.

The first scenario where helicopters can be effectively utilised, is where a victim is floating in a river or stationary in a specific spot and a device is lowered to him/her. The victim would then attach him or herself to the device and be raised up into the helicopter or placed down in a safe area into the hands of a medical crew for evaluation or treatment.

Victims can also be rescued by means of a tethered rescue pick-off that involves lowering a heli-based rescuer down to the victim. The rescuer will, upon reaching the victim, secure him/her to the haul line and be lifted out of the water.

Personal watercraft: Personal watercrafts such as hovercrafts or small inboard boats are extremely versatile and can generally be deployed at any point in a river. The major disadvantage of these types of craft is the costs thereof. ►



A rescue swimmer should assume a defensive swimming position, on the back, facing downstream and feet in front



You can never practice too much

► Equipment

Equipment for swift water rescue is divided into personal protective gear or team rescue gear. Personal protective gear includes a wet suit (or dry suit), booties, gloves, a personal floatation device (PFD), a water rescue helmet, knife, whistle, strobe light, flashlight and swimming fins. Personal protective gear must be purpose made for water rescue and certified by a recognised authority. Using a standard rope rescue helmet in a swift water scenario can cause a serious neck injury if water shoots into the top of the helmet and has no openings through which to escape.

Team rescue equipment is dependent on the level of the rescue team and is made up of an assortment of ropes and related equipment, extra personal floatation devices and helmets, medical gear, throw bags, floatation rings, buoys, rescue boats, fluorescent lights and anchor rigging equipment.

Ideally, all this equipment should be placed on a single four-wheel drive vehicle capable of responding quickly and negotiating difficult terrain along riverbanks.

Preparation, preparation, preparation

The secret to any successful rescue operation is preparation. You can

never practice too much. Try to set a record for building a highline. Then try to improve on it every time you practice. Hold a competition for throw bag deployment. Let your team deploy rope from a bag and then retrieve it back into the bag in as short time as possible. These are the activities that can save you milliseconds during a rescue and improve your chances of saving a life.

Visit the rivers in your area. Identify the sites where you could set up. Practice deploying your team in those areas. It's a lot more productive and fun than sitting in the station complaining about your chief or watching football reruns on TV.

The third area to give attention is early warning. Recently a wide range of technology has become available whereby hazard areas can be identified by running software models over a geographic rendition of the river. This will guide you as to the kind of flooding you can expect with a certain rainfall intensity. River sensors have been used with great success in the Jukskei River in Alexandra, Johannesburg during the nineties. These sensors alerted the Sandton Fire Department swift water rescue team when the river reached a certain level and this prompted a response to a predetermined area. Teams then used to monitor any upstream

situations and be ready to rescue any person headed in their direction.

Ongoing theft of these components made it a difficult system to maintain. Recent improvements to the encasement of these systems should, I believe, be considered by services having similar risks.

Placement of your response units is most critical. Having your swift water team sitting at a station central to all your risks but impractically far away from them all is just stupid. Ideally, you need one unit for each informal settlement with a major river flooding risk. A more specialised unit can be placed more centrally but may need to be moved into a high-risk area if the indications are that a heavy downpour (with resultant flooding) might happen.

It will also be helpful to interact with agencies responsible for keeping rivers and channels clean and ensuring that all debris and biomass are removed prior to the wet season.

Remember, when a person's head goes underwater you have less than a minute to act. Be prepared.

Responding to the incident

In the South African scenario, it will generally be an initial response (low ►

Swift water rescue

► risk) unit that should arrive on scene first. Their initial activities will include the following:

- **Gather information:** The first-in unit should identify any witnesses and gather all relevant information. Firstly, they should try to determine if there were in fact any victims (and how many). They should also try to gather the following information:
 - The time of the incident
 - The location at which the victim/s were last seen
 - A description of the victim/s
 - Rivers involved

(This information will assist the swift water team in determining how many victims to search for and also to calculate the downstream parameter of the incident.)

- **Identify hazards:** Safety is always the priority and hazards such as debris, fences, bridges, trees/bushes, hydraulics, low-head dams, hydroelectric power plants and multiple channels should be identified.

A safety officer should also be assigned during a swift water incident and it is this person's prime responsibility to ensure that the general area surrounding the rescue site is safe. Bystanders should be evacuated from the site as well as any emergency service personnel not wearing the appropriate protective gear (fire fighting/turnout gear has no place at a swift water incident and could prove disastrous to a fire fighter/rescuer accidentally falling into a river).

The safety officer should also ensure that no ropes are tied around rescuers' bodies but rather to approved harnesses. A rope tied around a person's body in moving water can cause serious injury and even death to a rescuer.

All activities must be coordinated with the incident commander and rescue squad leader to ensure maximum safety at all times.

The action plan

Once all information is analysed, the incident commander should devise an action plan based on what is known as well as the team's capabilities. Firstly, consider all the low-risk options while setting up for high-risk options. Being ahead of the game is always advisable.

Any swift water incident will require the establishment of a strong incident command system that will vary in size depending on the magnitude of the incident. Figure 1 gives a good indication of an incident command structure during a major incident with multiple victims where air operations are a consideration.

No plan will progress if it is not adequately critiqued after the incident. Spend time on this. It might lead to small tweaks in your procedures and provide more information on the prevailing river hazards in your region. Incorporate these changes into your plans and use them next time you have to respond.

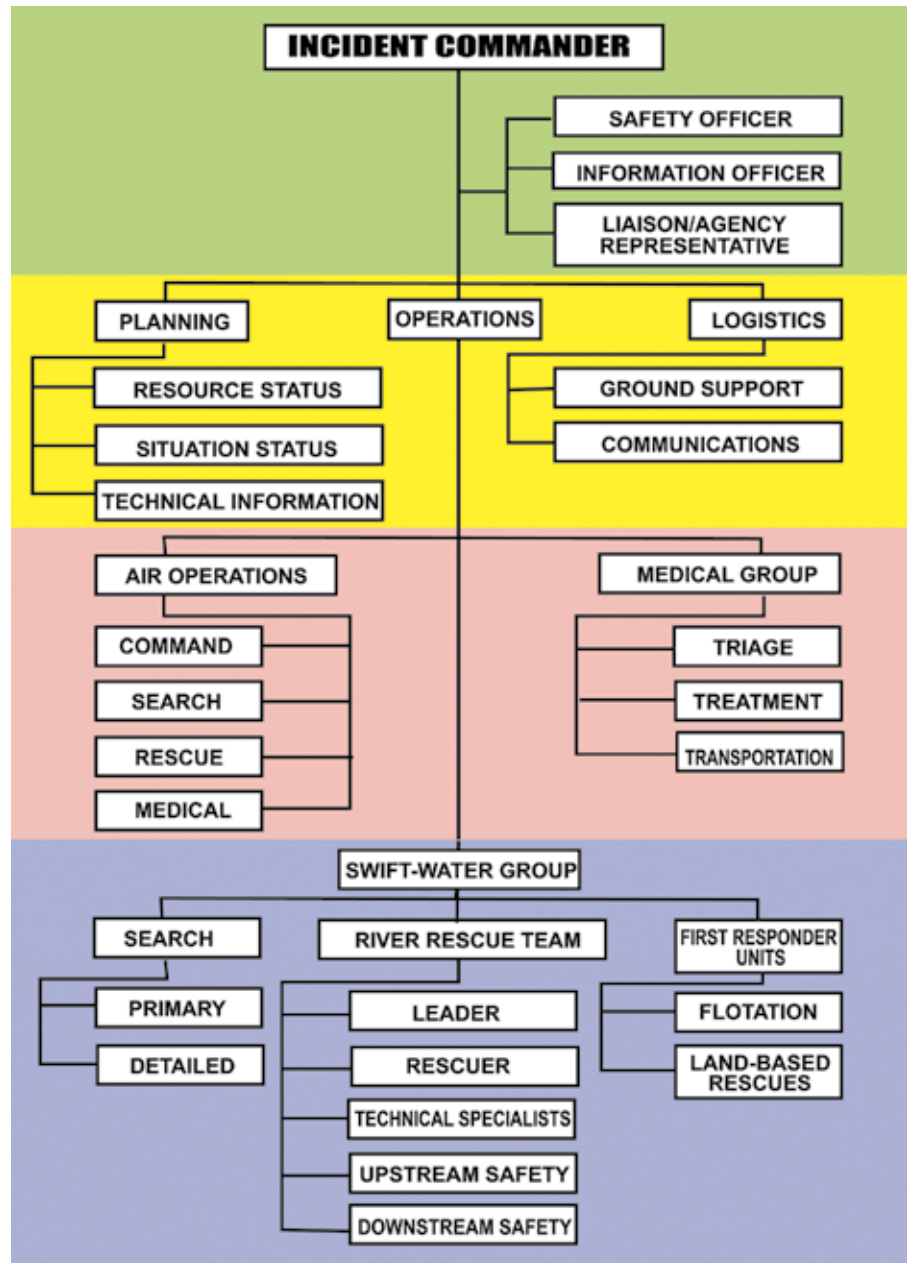


Figure 1

Also, keep in mind that any number of evil contaminants may affect rescuers entering the water and the need for decontamination must be a clear consideration.

The rescue team leader must at all times follow the action plan and direct all staff accordingly. He/she must communicate directly with incident command and provide status reports and requests for additional staff or equipment.

Finally

Swift water rescue incidents have a nasty habit of turning rescuers into victims. It is only through a thorough process of establishing a good safety platform and working through low-risk to high-risk options that we can ensure that all our staff (and the victim) gets to go home later. Let's be careful out there on the river. ▲

Incident command: are all emergency services on the same page?

By Lenny Naidoo, chief fire officer, Rural Metro Emergency Management Services, South Africa

The evolution of the incident command system goes back to 1971 when the United States Congress approved funding for the US Forest Service Research to design a system that was to make a quantum jump in the capabilities of southern California wildland fire protection agencies to effectively coordinate interagency action and to allocate suppression resources in dynamic multiple fire situations. This system became known as FIRESCOPE (Fire fighting Resources Organised for Potential Emergencies).

Ten years later the California Department of Forestry and Fire Protection and other agencies formally accepted the incident command system (ICS). The incident command system is now more than thirty years in existence and has been utilised in South Africa for close on 20 years or so.

The basics of the incident command system is taught at entry level on the Fire fighter I program and this is an important stepping-stone to successfully dealing with incidents. It is essential that all fire service staff members understand the concepts of incident command.

The system is doomed to fail if all responders cannot work together to achieve the objectives of the system.



Irrespective of the type of ICS being used, the principles and objectives remain the same.

What is important is that emergency services remain focussed on what an incident management system (IMS) is all about. Incident management is a set of personnel, policies, procedures, facilities and equipment, integrated into a common organisational structure designed to improve emergency response operations of all types and complexities.

In simpler terms, incident management is about managing an incident, regardless of the magnitude of said incident. It is a strategy that is used to ensure that there is order during the life of the incident.

Primary ICS management functions

- Command
- Operations
- Logistics
- Planning
- Finance/administration

The incident commander (IC) is responsible for all of the above functions. The incident commander can perform all functions or may delegate these functions. Delegation does not relieve the IC of responsibility.

Components of the IMS

- Common terminology
- Modular organisation
- Integrated communications
- Unified command structure
- Consolidated action plans
- Manageable span of control
- Predesignated incident facilities

Bronze, silver, gold command (UK)

- Bronze (operational command) - typically first arriving IC at an incident – the IC leads from the front getting involved in all operations
- Silver is more complicated (tactical command) - IC manages the incident, determining priorities, allocating resources
- Gold – most incidents and the early stages of serious incidents, may only require operational, or operational and tactical levels of command
- Larger incidents or more than one incident will require tactical or gold command. This is the most senior in an organisation and is common in major incidents. Does not deal with operations on the ground and is usually far away from the incident.
- Gold often involves political or policy decisions which extends beyond a single organisation.
- Major incidents place huge demands on the equipment of responding organisations, the community and environment

The evolution of ICS has led to a national incident management system (NIMS).

A snap shot of NIMS

Responsibilities: The jurisdiction must identify personnel who will be of importance in the assistance of implementing and making sure the jurisdiction fully adopts all components of NIMS in a timely matter.

Local jurisdictions are responsible for the following:

- Incorporate NIMS into emergency management plans
- Establish interregional emergency management response aid agreements
- Fully adopt the incident command system in all exercises and incidents ►

Book launch:

A Walk in a Forester's Boots

Greg Ellis and Ben Potgieter are proud to announce the printing of their first book in the trilogy, A Walk in a Forester's Boots. The first Journey: Finding my Feet

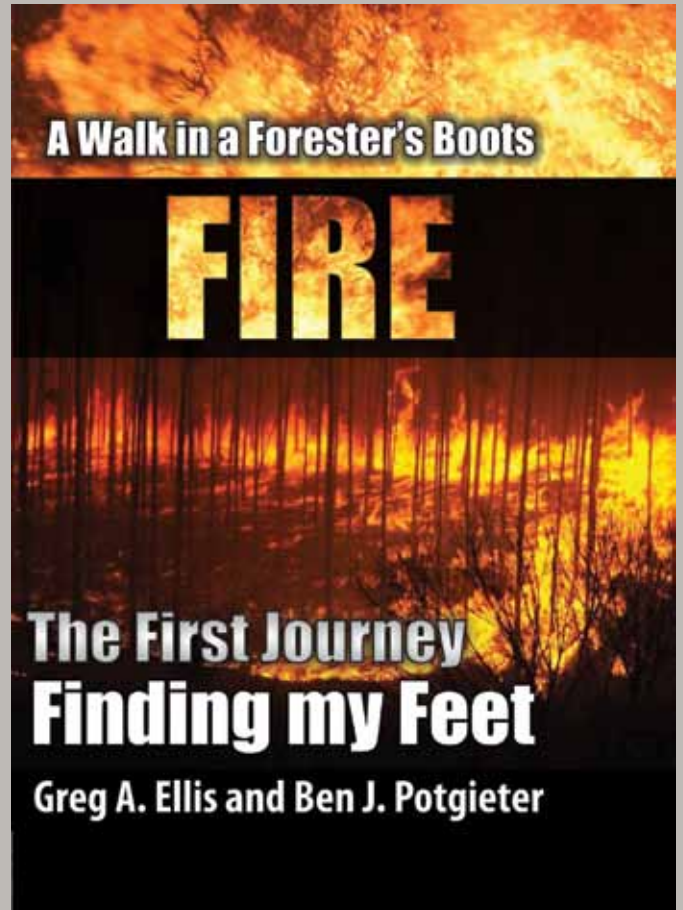
Ed Tippett's journey as a forester in South Africa is one that begins as a naïve, newly married young man that introduces him to a 'forestry lifestyle'. Through numerous incidents, he develops an ever-deeper understanding of the forest, the people, and the family but most significantly of himself.

The theme of fire gives Ed the opportunity to develop his skills in many aspects and brings both the elation of controlling fires, but also the tragedy of the destruction of forests, assets and life. While there are many characters that influence Ed, none is as significant as his friend Wilbur, who acts as his mentor. In turn, coaching and mentoring become the compelling reason for his being, and the joy and results that are associated with this.

The trilogy of books sees Ed develop from situational hands on forester, to forestry manager who develops systems, to a regional manager who engages strategies of integration.

While these books are written using forestry as a 'platform industry', the 'gems of wisdom' can be applied to any industry, in any country in its wider context, yet is constantly kept real by the interaction at family and relationship level.

Once you start reading, you will not put it down as you become so engrossed with the journey and the wide range of stories of a life, that could have been yours in parts, but no one person's alone. It is an epic journey of discovery for the reader who will open their mind for self and organisational improvement.



The first book is now available and can be ordered from: South Africa by contacting Ben Potgieter at prefire@forestrysolutions.net. The price is R250, VAT inclusive and if postage is required a further R25 for delivery in South Africa.

In New Zealand you can contact Greg Ellis at greg@spirals.co.nz. The price is NZ\$35, GST inclusive, and if postage is required a further \$4 for delivery in New Zealand and an additional NZ\$11 for Australia.

Postage outside of these areas will be determined.

- ▶ Establish a baseline for NIMS compliance through the NIMCAST tool
- Participate in table top or simulation exercise annually in order to evaluate our emergency plan and NIMS capabilities
- Identify educational requirements for all jurisdictional first responders and ensure training is completed in a timely manner
- Identify and type resources in conformance with homeland security standards
- Submit biannual progress reports

Local disciplines first responders (health, emergency medical services, law enforcement and fire) are responsible for the following:

- Incorporate NIMS into all emergency operations plans
- Participate in jurisdictional exercises and adjust emergency management plans as needed
- Identify individuals who need to attend basic educational training for NIMS and incident command

Currently in South Africa IMS is the accepted way to deal with emergencies; however, there is no absolute proof that all fire services are using the IMS concept.

Smaller fire services have capacity and training issues and may not be fully into the IMS concepts. It is also not clear whether IMS is used for all incidents – small and large.

Recommendations

1. All fire services receive training and development on incident command systems
2. All call takers and dispatchers receive training on incident command systems
3. All first responders receive training on incident command systems
4. Regular exercises be conducted with all first responders
5. Incident command system be implemented at every incident ▲

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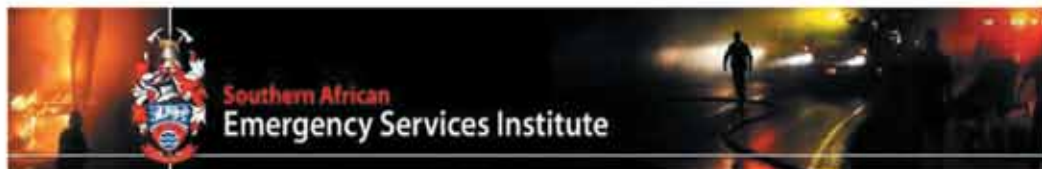
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Funding the rescue

Urban search and rescue training and development in SADC is a worthwhile cause for RSA and the continent

South Africa disaster response team, Rescue South Africa (RSA), received a grant from the United States Agency for International Development (USAID) to fund a training initiative in the southern African region.

RSA CEO, Ian Scher, says that the organisation drew up a detailed proposal for USAID in a process that took about a year and a half to complete. "It is a complicated intensive process but we were ultimately successful in proposing our funding plan."

USAID approved an initial 12-month grant to the RSA in September last year. RSA will make claims to USAID on a monthly basis for the first term of its grant, after which the activities of the organisation will be reviewed by the funding agency for an additional two-year grant.

"If we are successful in meeting our proposed objectives at the end of the first year and if we manage our financials and training effectively, this will serve as a report card for us. We will not be required to go through the same process of funding for the second- and third-year," explains Scher.

"We will have our systems audited by US government approved auditors.

They check financials, policies and procedures. So we are working on a first world standard and are accountable for every cent that is granted," he adds.

The USAID grant will directly support the capacity building exercise conducted by RSA in the South African Development Community (SADC) region. The proposal made to USAID by RSA is to conduct a scoping exercise in four countries namely, Lesotho, Namibia, Botswana and Zambia over a 12-month period.

"Ideally, we will then teach in two of these countries in the first year of the programme", explains Scher. "In the second and third year we will extend the programme to teach in the remaining two countries we scoped and will scope and teach in a further four countries that may include Swaziland, Mozambique, Malawi and Zimbabwe."

According to Scher, the reason the local disaster response team chose to work with these countries outside South Africa is the desperate need that exists here. Being able to transport the required specialised equipment by road rather than air to the identified countries, also makes the initiative a lot more cost effective.

Humble beginnings

RSA was registered as a non-governmental organisation (NGO) in 2001 with the primary objective of responding to large scale sudden onset disasters. Over the years the disaster response team has been made up entirely of volunteer response specialists from the South African public and private sector emergency and ancillary services. They have responded to various international disasters including earthquakes in India, Algeria, Iran, Pakistan and Haiti. They were also one of only 14 teams providing assistance following the earthquake and tsunami in Japan in 2011.

Today, thanks to funding from local and international donors such as the USAID, RSA is able to employ some permanent personnel to manage its capacity building programme, deliver training and coordinate and facilitate cooperation between relevant bodies with the aim of rendering the best possible technical rescue and emergency medical care should the need arise.

The fulltime staff compliment is also responsible for managing and maintaining the organisation's extensive cache of specialised equipment. "When we started out we didn't even have a screwdriver. We were completely reliant on ►

Team building 101

By Wayne Bailey, board member, International Fire Service Accreditation Congress (IFSAC), USA

When I was a kid and just starting to drive, I would jump at the opportunity to get in my first car and just drive. I wouldn't have a clue where I was going, but I was looking cool doing it. With the cost of petrol today, I plan out my route to do my errands and meeting before heading out, so I can work smart to save time and money, especially with the cost of petrol today.

How does this relate to building your team you might ask? You must plan the day so that you and your team's time are not wasted and you get the most out of the day. When you call a meeting, make sure there is a good reason to call one. You should have an agenda on paper on what needs to be covered. Make sure the team is healthy and find out what their needs

are and how can you help provide the necessary tools for them to do their job. Leonard Nimoy, actor and best known for his role as Spock in the original Star Trek said; "The miracle is this - the more we share, the more we have." Make sure you share your visions, dreams and goals with your team. Other thoughts are:

Continually develop your team for success. You could recommend reading or listening to motivational books in their down time. Today, books on an mp3 player are easily available. One of my favourite books and inspiration for this article and others is "The 17 indisputable laws of teamwork" by John Maxwell.

Whenever you offer up or implement a new policy and or procedure, get the buy in from the team. Answer any



Wayne Bailey

questions they have and make sure they know what is expected of them.

As a leader, you must be constantly reading to ensure you have the tools and mind-set to help make the team run smooth. If the engine in your car was running rough or firing on two less cylinders, you would take it to a car garage and have it repaired.

No different with your team. To ensure team success, make sure they are running on all success cylinders. ▲

► provinces and municipalities to loan us technical equipment for our responses," says Scher. "So, thanks to our donors, primarily USAID, we have approximately 20 tonnes of our own equipment warehoused in Isando." The equipment is used both for response and training.

RSA's first venture with USAID was in a training initiative the US funding organisation launched in South Africa, where they brought fire and rescue trainers from the USA to assist in joint training programmes with local fire and rescue teams in South Africa. "The urban search and rescue (USAR) train-the-trainer course we successfully facilitated in 2006, certified 26 trainers from various services in South Africa and was the catalyst for training multiple USAR technicians throughout the country."

"We have enjoyed ongoing support from our friends at USAID who in 2010, when we returned from our mission to Haiti, again assisted with funding to service and repair our equipment," says Scher. "Last year they also paid for Rescue South Africa to take a group of Western Cape fire chiefs to Los Angeles to look at their wildland fire programmes and USAR

capabilities. This was an invaluable learning opportunity for them."

New horizons

After the Japan earthquake in March 2011, in which RSA played a search and rescue role, they began to actively pursue the opportunity to take on bigger projects within the African landscape.

"USAID recognised that we could take on projects that would have long-term effects," recalls Scher. "They acknowledged our established credentials in dealing with large scale rescue operations and we were encouraged to formulate a plan and proposal for them to fund USAR capacity building initiatives in the region."

"We know there is a great need to develop trainers that can assist in building further capacity on our continent," says Scher. "RESPOND – our rescue programme for national development, funded by USAID/The Office of US Foreign Disaster Assistance, aims to do exactly that."

The concept of the RESPOND programme, based on generally accepted international best practice, is to establish building blocks for

response agencies, equipping them with core skills that can be applied in the management of multiple scenarios. This capacity building initiative providing rescue training and instructor development for fire and associated services in the southern Africa region, will use a train-the-trainer approach to see a primary core of instructors being trained to then transfer skills in a structured programme to other first responders in their countries.

Initially RSA will offer eight courses in its SADC training activities. "These courses will include five entry level courses," says Scher. "They will teach awareness on basic rescue operations such as what to do when first on scene. More technical courses involving specific rescue techniques and equipment functionality for various scenarios will follow."

"We are very excited about this project and we believe that in the long run this programme will be extremely beneficial to people on our continent. It is a worthwhile cause for Rescue South Africa as a humanitarian organisation," concludes Scher. ▲

Climate models project increase in US wildfire risk

Photo: Kari Greer/USFS Gila National Forest



The Whitewater-Baldy Complex wildfire in Gila National Forest, New Mexico

Scientists using NASA satellite data and climate models have projected drier conditions likely will cause increased fire activity across the United States in coming decades. Other findings about US wildfires, including the amount of carbon emissions and how the length and strength of fire seasons are expected to change under future climate conditions, were also presented at the annual meeting of the American Geophysical Union in San Francisco.

Doug Morton of NASA's Goddard Space Flight Centre in Greenbelt, Maryland, presented the new analysis of future US fire activity. The analysis was based on current fire trends and predicted greenhouse gas emissions.

"Climate models project an increase in fire risk across the US by 2050, based on a trend toward drier conditions that favour fire activity and an increase in the frequency of extreme events," Morton said.

The analysis by Morton and colleagues used climate projections, prepared for the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change, to examine how dryness, and therefore fire activity, is expected to change.

The researchers calculated results for low and high greenhouse gas emissions scenarios. In both cases, results suggest more fire seasons that

are longer and stronger across all regions of the US in the next 30 to 50 years. Specifically, high fire years like 2012 would likely occur two to four times per decade by mid-century, instead of once per decade under current climate conditions.

Through August of this year, the US burned area topped 2,5 million hectares, according to a fire emissions database that incorporates burned area estimates produced from observations by the moderate resolution imaging spectroradiometer instruments on NASA's Aqua and Terra satellites. That is short of the record 3,2 million hectares burned in 2011, but exceeds the area burned during 12 of the 15 years since record keeping began in 1997. This and other satellite records, along with more refined climate and emissions models, are allowing scientists to tease out new information about fire trends.

"Fire is an inherently global phenomenon, and the only practical way to track large-scale patterns and changes in fire activity is with satellites," says Louis Giglio of the University of Maryland at College Park and Goddard.

As the US land area burned by fire each year has increased significantly in the past 25 years, so too have the emissions. Carbon dioxide emissions from wildfires in the western US have more than doubled since the 1980s,

according to Chris Williams of Clark University in Worcester, Massachusetts.

The satellite-based view allowed Williams and his colleagues to quantify how much carbon has been released from fires in the US West. The team used data on fire extent and severity derived from Landsat satellites to calculate how much biomass is burned and killed and how quickly the associated carbon was released to the atmosphere. The team found carbon emissions from fires have grown from an average of eight teragrams (8,8 million tons) per year from 1984 to 1995 to an average of 20 teragrams (22 million tons) per year from 1996 to 2008, increasing 2,4 times in the latter period.

"With the climate change forecast for the region, this trend likely will continue as the western US gets warmer and drier on average," Williams said. "If this comes to pass, we can anticipate increased fire severity and an even greater area burned annually, causing a further rise in the release of carbon dioxide."

Researchers expect a drier and more wildfire-prone US in future decades. Previous research confirmed the connection between the measure of an environment's potential evaporation, or dryness, and fire activity.

From a fire and emissions management perspective, wildfires are not the entire US fire story, according to research by Hsiao-Wen Lin of the University of California at Irvine. Satellite data show agricultural and prescribed fires are a significant factor and account for 70 percent of the total number of active fires in the continental US. Agricultural fires have increased 30 percent in the last decade.

In contrast with wildfires, agricultural and prescribed fires are less affected by climate, especially drought, during the fire season.

"That means there is greater potential to manage fire emissions, even in a future, drier climate with more wildfires. We need to use cost-benefit analysis to assess whether reductions in agricultural fire emissions -- which would benefit public health -- would significantly impact crop yields or other ecosystem services," Lin said. ▲



Earthquakes in northern Italy resulted in damages to infrastructure worth \$16 billion and \$1.6 billion in insured losses

Global disasters cost insurers a total of \$160 billion in 2012

International reinsurance and primary insurance company, Munich Re, based in Germany, reported that the USA accounted for a higher proportion of global natural catastrophe losses than usual in 2012, in a media statement released earlier this year.

The natural disasters in the US were as a result of a series of severe weather-related catastrophes, such as the Super-storm Sandy that hit the north-eastern part of the US late last year. Munich Re reports that natural catastrophes caused a total of \$160 billion in overall losses and \$65 billion in insured losses worldwide, with some 67% of overall losses and 90% of insured losses attributable to the USA. The year's highest insured loss was caused by Sandy, with an estimated amount of around \$25 billion.

Munich Re board member, Torsten Jeworrek, says, "The heavy losses caused by weather-related natural catastrophes in the USA showed that greater loss-prevention efforts are needed. It would certainly be possible to protect conurbations like New York better from the effects of storm surges. Such action would make economic sense and insurers could also reflect the reduced exposure in their pricing."

Munich Re states that losses were significantly lower in 2012 than in the previous year, overall. In 2011 record figures were posted owing to the earthquakes in Japan and

New Zealand and severe floods in Thailand.

Losses came to \$400 billion and insured losses to \$119 billion overall in 2011, which was a record amount. A long-term comparison shows that 2012 losses were above the ten-year average of \$50 billion for insured losses and slightly below the average of \$65 billion for overall losses.

Some 9 500 people lost their lives in natural catastrophes last year compared with the ten-year average of 106 000. The relatively small number of fatalities was due to the fact that, in 2012, few severe natural catastrophes occurred in emerging and developing countries, where natural catastrophes tend to have far more devastating consequences in terms of human lives.

With regard to the 2012 loss statistics, Super-storm Sandy alone accounted for some \$50 billion in overall losses, while the insured losses are expected to be around \$25 billion. The estimate is still subject to considerable uncertainty because the losses are extremely difficult to assess. Had it not been for this exceptional storm, losses would have been very low in 2012, reports Munich Re.

Munich Re Geo risks research head, Professor Peter Höpfe, says, "Sandy's flood wave hit New York with full force. Its coincidence with the spring tide was a most exceptional circumstance, but such aspects also have to be borne

in mind when assessing risks relating to conurbations."

All in all, the losses revealed a significant degree of vulnerability, especially where infrastructure is concerned. Sandy left a trail of devastation in the Caribbean before it resulted in landfall on the northeast coast of the USA. Some 80 people lost their lives in Haiti, Jamaica and Cuba and on other Caribbean islands; the overall figure totalling 210. Even in Canada the storm caused insured losses in the order of \$100 million, reports Munich Re.

The organisation states that the second major loss event of 2012 was the summer-long drought in the USA that plagued the Corn Belt in the Midwest and surrounding states, where most of the USA's main agricultural crops, corn and soybean, are grown.

Until November, 2012 had been the USA's warmest year since records began in 1895. Even June and July largely failed to produce the usual rainfall. Only in the Dust Bowl years, from 1934 to 1936, had yields been decimated by a worse drought. Nearly half of the USA's arable acreage was hit by the 2012 event. The overall agricultural crop losses in the USA in 2012 totalled around \$20 billion, of which approximately \$15 to 17 billion is covered by the public-private multi-peril crop insurance programme, making it the biggest loss in US agricultural insurance history. In average years, insured losses ▶

Climate change is a reality in South Africa. How is this linked to wildfire damage?

By Dr Neels de Ronde



Does climate change play a role in fire intensity?

In the US, a number of scientists have apparently automatically assumed that a general increase in average air temperature ("global warming") will result in an increase in wildfire damage, but it appears that this is an unsubstantiated research approach and at best only partly correct. According to reports, no scientific evidence for this exists to eg determine (i) to which fire behaviour parameters weather variables are positively correlated, or (ii) what relationship exists between weather

variables and the main biomes in the USA.

I decided to attempt to compare the 2012 South African wildfire events with that in the US, if this was at all possible. Of course, this was a bit of a "wild card", but to my amazement, I already identified some important similarities.

Simultaneously, pro-prescribed-burners in some US States are now seriously advocating that a substantial

increase in prescribed burning will be the most effective way to counteract global warming and other climate change effects, but according to report, decision-makers have not yet made up their mind about such a (maybe rather drastic) policy change. Neither does it appear that the weather/fire behaviour parameters are researched seriously with regard to such vital (potential) correlations at biome level. Of course, prescribed burning per sé cannot be very effective without proper region planning and prioritising.

In South Africa (SA), prescribed burning application - as a fuel management measure - is still falling far short of requirements, for various reasons. As a result, extreme wildfires are still causing havoc with existing firebreak systems, which are still ineffective to say the least. Another problem with prescribed burning is the application without proper motivation or regional planning, resulting in at best creating nothing more than "prescribed burning islands" in the landscape. In some of the drier biomes (such as dry savannah) prescribed burning programs are almost non-existing. This subsequently takes authorities completely by surprise when such areas simply "explode" after a decade or more of fire exclusion, ▶

▶ are around \$9 billion. "These two catastrophes clearly demonstrate the type of events we can expect to contend with more often in the future. It is not possible, of course, to attribute individual events to climate change, each theoretically being possible in isolation. However, numerous studies assume a rise in summer drought periods in North America in the future and an increasing probability of severe cyclones relatively far north along the US East Coast in the long term," states Höppe.

He adds, "The rise in sea level caused by climate change will further increase the risk of storm surge and, with no apparent prospect of progress in international climate negotiations like those held recently

in Doha, adaptation to such hazards using suitable protective measures is absolutely essential."

Tornadoes also caused significant losses in the USA, many squall lines forming in the spring due to a natural climate cycle, reports Munch Re. The company reports that overall losses from the most severe tornado outbreak from 2 March to 3 March in 2012 came to \$5 billion, of which 50% was insured.

The Asia-Pacific region experienced far fewer severe natural catastrophes in 2012, following a year when the major earthquakes in Japan and New Zealand had featured prominently in global loss statistics, states Munich Red.

Europe's costliest events were the dual earthquakes that struck Italy's Emilia Romagna region in May, last year. A series of earth tremors were recorded in the region to the east of Modena, which has moderate earthquake exposure, in the period from May to July. The worst earthquakes, which had magnitudes of 5,9 and 5,8 in magnitude struck on 20 May and 29 May, respectively. Many of the region's buildings, including historic monuments, were destroyed and a large number of businesses located in this rural region's numerous small industrial estates were damaged. Overall losses from the two earthquakes totalled some \$16 billion and insured losses totalling \$1,6 billion for these events. ▲

- ▶ when extreme wildfires conditions are experienced.

Looking back at the 2012 fire season

With no effective wildfire statistics being kept in South Africa, it was not possible to provide data backed by detailed statistical information, but fortunately, the main wildfire events are still fresh in my mind and received some prominent coverage in the local press. As the significant contrasts in fire hazard in this country can basically be drawn across main biome lines, I will shortly discuss the outcome of the 2012 fire season in SA, based on these important characteristics of our landscape:

The fynbos biome in the Cape regions

Decades without effective prescribed burning application in fynbos is now taking its toll. In two major mountain catchments, basically the whole of the burnable fynbos-covered land was burned over within a few days. At a glance, I could not link any of these events to climate change variables, but it was clear that the average age of the fynbos was years beyond the optimum fire rotation age to maintain biodiversity. This caused fires to remain uncontrolled until running out of available fuel. In both mega fires experienced, adjoining industrial timber plantations were also burned out, but none of these fires started within these fuel sources.

Montane grassland in the higher rainfall regions of the Free State, KwaZulu-Natal and Mpumalanga

Where these grasslands occurred in a mixture with industrial plantations, the existing prescribed burning measures – applied in tandem with a mild fire season - paid off so far, with no serious wildfire damage having been reported. However, I must warn against any reduction of these fire prevention measures, as there are still some serious “hot-spots” to attend to before the 2013 wildfire season.

In contrast, the eastern Free State again experienced some devastating wildfires during August 2012, when some “out-of-season” extreme weather was experienced. The lack of prescribed burning and fuel management in general in this region, can be identified as the main cause for these fires.

Moist savannah in Mpumalanga, eastern North West Province and Limpopo

Particularly in Limpopo, the general lack of prescribed burning application (as part of a fuel management plan) was again taking its toll in (particularly) nature reserves and game farms, with this year also some serious loss of property experienced and even some loss of lives. Integrated fire management plans and related prescribed burning programmes are urgently required in these regions, particularly on game farms, where a complete lack of fire-use is common. Elsewhere, no serious fires were reported.

Dry savannah of the North West Province, western Free State and Northern Cape Province

This year saw an “explosion of wildfires” in this biome, with at least three wildfire areas exceeding a total of 75 000 hectares. Most of these wildfires occurred during August and November 2012, thus outside the most dangerous fire season (September and October). Although the out-of-season extreme fire hazard conditions might indicate a shift in seasonal pattern, this will have to be determined over longer periods of time and might thus still be a “once-off” occurrence.

The complete lack of any dedicated prescribed burning or regular grassland burning as part of a fuel management programme, cause a very serious fire hazard situation, after a number of above-average grassland biomass additions were recorded after good rains.

I tabled my worst fears and the seriousness of the explosive situation as early as during October 2011 already, but my warnings were ignored and the results are there for all to see. In one case, a wildfire in the Northern Cape region burned through at least 50 large farms and I believe damage estimates were still being progressed, at the time of writing.

As a result of this disappointing fire season (in terms of area burned over reaching record proportions) - despite my continuous warnings and proposals to deviate this looming disaster – no improved fire prevention measures were applied in the region.

Comparing wildfire occurrence during 2012 with that of earlier years

Looking back, I think the main contrasts between SA regions (and thus most probably between biomes) is clear, and these can be summarised as follows:

- 1. In the fynbos biome:** It is evident that there is steady increase in area burned over by wildfire, rather than any drastic changes.
- 2. In montane grassland – higher rainfall areas:** I could detect no significant change in wildfire patterns in KZN and Mpumalanga. The eastern Free State, however, saw a steady increase in wildfires experienced, particularly during the past three years.
- 3. Moist savannah:** Areas burned over in Limpopo appear to be increasing dramatically. However, this also appears to be linked to the degree of fuel management



Both the USA and South Africa were plagued by intense wildfires during 2012

applied: The more prescribed burning was applied the less serious wildfires were experienced.

4. Dry savannah: Although most of the (dry) western Free State can probably be regarded as montane grassland with savannah mostly restricted to some higher altitude "koppies", some mega-wildfires were experienced in this region as well, burning more than 75 000 hectare during 24 hours, in August 2012. In the Northern Cape, the most serious fires occurred during end October and November 2012, exceeding previous yearly wildfire experiences by far.

5. In South Africa as a whole: Although in some regions there was no change in wildfire occurrence, in other areas there was a dramatic increase in areas burned over.

A general comparison between the USA and SA, with regard to wildfire occurrence during 2012, compared to earlier years

Although no quantitative comparison will be meaningful, I have extracted a few published reports about wildfires experienced in the US, and I compared these with local (SA) reports:

"...Wildfires burned more than five million acres in Texas, New Mexico and Arizona combined, in 2011. Wildfires occur more in the west, but are not uncommon in the Great Plains and southeast."

Now this appears to be a similar situation in the drier States of the US, if we compare this to our drier savannah regions, but then the first as recorded one year earlier: A sudden "explosion" of wildfires in the drier regions (in the US during 2011 and in SA during 2012). The area burned over (five million acres) appears to be enormous, but if converted to hectares – also considering the much larger size of these States compared to the SA drier regions – it is estimated that both countries experienced a near-similar percentage burned over.

"....As of late October, wildfires had burned nearly nine million acres across the United States in 2012..... about four and a half million acres on average burned each year, from 2002 through 2011 the yearly average was seven million acres."

These are frightening figures. No wonder there is today a lot of discussion going on in the US about the worsening wildfire situation. Unfortunately, to my knowledge, such statistical data is not available in South Africa, but I am sure similar increases in South Africa (in total are burned over yearly) is the reality of the situation, in terms of percentage area affected by fire. However, there appears to be no concern about this serious increase in fire damage, and all I am reading is that "we are winning the fire battle" by means of "dedicated integrated fire management". I do not have to point out that we have here a "conflict of opinion".

"...We have not seen wildfire conditions this bad in October in a lifetime."

In South Africa, "October" could read "August" and "October/November", but otherwise similar reports could be made about the fire season in South Africa, during 2012.

"...several multi-year droughts have worsened fire conditions on the West and Central Plain States over the past decade, extending fire seasons and increasing supplies of dry fuel"

I cannot comment on this statement referring to the US, but in SA, we have seen an increase in grassland biomass in the drier regions (in dry savannah and on the Free State plains in particular) as a result of higher-than-normal rainfall over the past few years, which resulted in increased dry grass biomass levels. This situation thus points not to climate change but rather to unchecked, continued, grass biomass loading increases over a number of years, rather than drought effects. Also, keep in mind that this comment is only applicable to the dry savannah regions of SA, with most probably different situations elsewhere.

How is climate change affecting wildfire occurrence in South Africa?

In the US, emphasis is put on increased air temperatures, leading to drier climatic conditions and subsequent increased occurrence of wildfires. In my opinion, this is a generalised statement, which is debatable, particularly considering significant contrasts between main vegetation

biomes and other varying regional conditions. I can thus not completely agree to this, although there is probably some truth in this.

As in SA, too easily the increase in wildfires is just attributed to "climate change" or more particular "global warming" and other factors (such as lack of prescribed burning application and inadequate regional fire prevention measures) are simply ignored. Here follows a summary of my views:

1. Drier conditions (and droughts) will decrease moisture levels in static fuels such as in shrub lands and forests (including industrial timber plantations) and this will subsequently result in increased fire hazard. However, lack of effective fuel management (including absence of prescribed burning) can also result in increased fire hazard, and both are equally important to consider.
2. In dynamic fuels (such as montane grassland and savannah), biomass increases are mostly the cause of increased fire hazard and subsequent wildfire increases. Thus good rainfall years should be watched and not so much the droughty years, as these might indeed result in lower biomass levels.
3. "Out-of-season" or ("extended seasons") have been recorded to be more common in both the US as well as in SA, causing more fire damage outside the peak fire season and generally finding fire managers off guard and unprepared.
4. In shrub land (such a fynbos), the increase wildfire damage can mainly be attributed to decades of complete fire exclusion rather than to climate change.
5. In dry savannah, a few above-average rainfall years after a decade or longer of fire exclusion normally lead to extreme wildfire conditions when least expected. However, such a situation is not linked to climate change or global warming.
6. In montane grassland, in high rainfall regions, the most effective measure is prescribed burning application to keep accumulating grassland biomass under control and this process has nothing to do with changing climatic factors.
7. In nature reserves and game farms

with a savannah grassland fuel base, lack of fuel management (through absence of prescribed burning) normally results in an increase in wildfires and no abnormal weather patterns have been observed to be a significant influencing factor.

Of course, it is also true that the above summary of my personal observations can only be quantified and confirmed by effective research programs, comparing weather variables with fire behaviour parameters over time. For the interim, however, some determination and mapping of "hot-spots" will be required to at least identify the most serious fire hazard areas at a regional level.

Is climate change really increasing fire hazard and areas burned over by wildfire?

In the US there has also been lately some awareness that "climate change" cannot just be regarded as the only reason that wildfires increasing. Let us have a look at some recently publicised statements after the 2012 wildfire season:

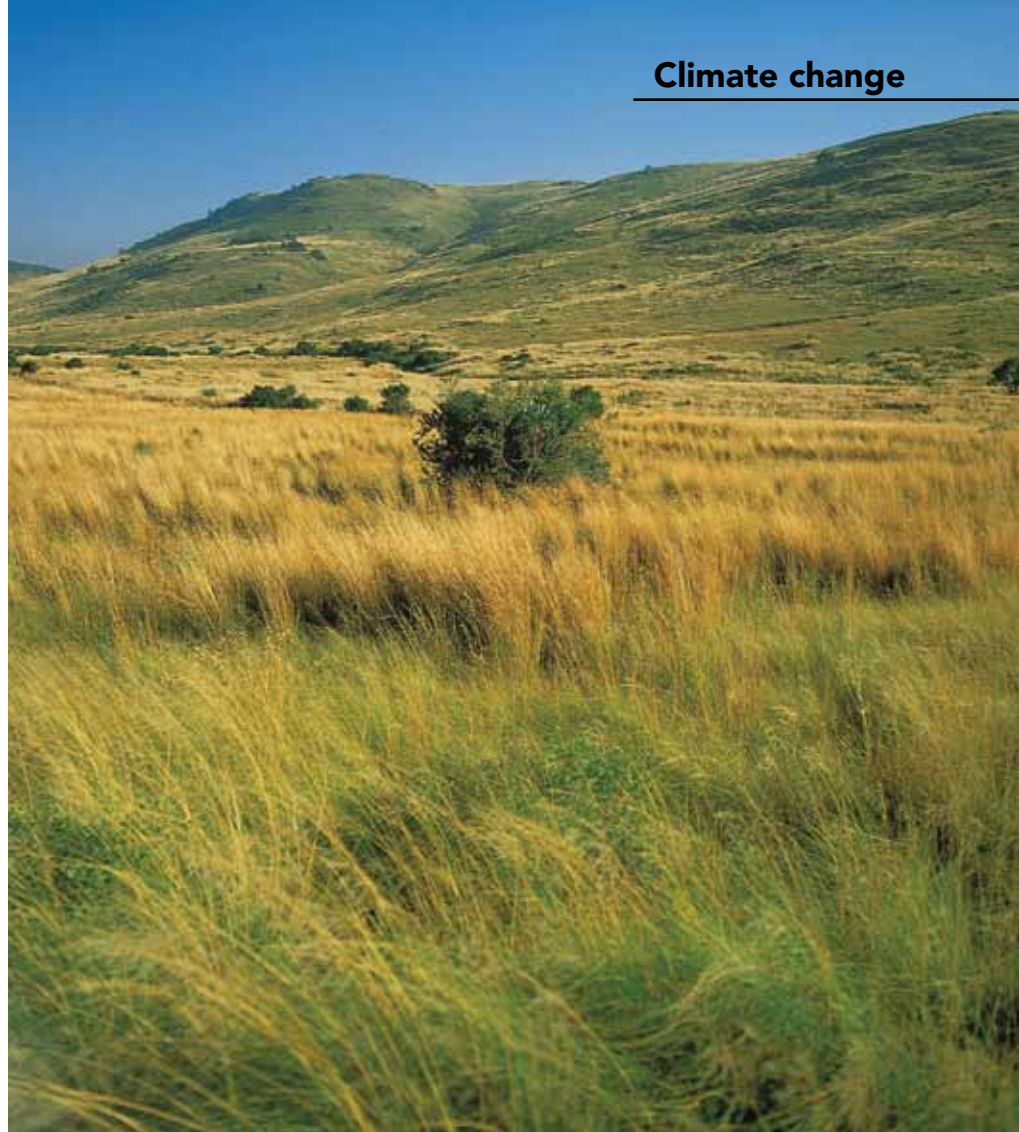
"...fire plays an important ecological role and federal land managers are working to reintroduce fire in controlled settings to regenerate combustible bush that can cause wildfires to burn out of control."

It still appears that the reality for the urgent need for increased fire-use has still not been realised in some regions and certainly not at top fire management level in South Africa. It is my opinion that this is a far more effective tool to counteract any potential increases in wildfires, provided this is linked to well-motivated integrated fire prevention plans. Below follows another US publication to confirm this:

"...From an ecological perspective, we have too little fire in the landscape. The acres burned today are a tenth of what burned before fire suppression started."

Another statement that could also easily refer to the South Africa situation reads as follows:

"...Climate change, residential development in fire-prone rural areas and the impact of fire fighting policies have combined to put many areas of the United States at risk."



South African grassland

Although I do not necessarily agree to the "fire fighting policies" as an influencing factor, because I think this is more referring to natural parks and nature reserves. The first two are true, also in our country.

Before the question of the role of climate change can be answered - if climate change is really affecting wildfire occurrence in SA - it is important that we determine how this is determined, because I cannot understand why the "air temperature" variable features so prominently in studies abroad. Is the "wind" variable not by far more important in fire behaviour studies? I asked this question to some of my overseas colleagues and they failed to answer this question to date.

To summarise, YES, I think climate change can have an effect on the occurrence of wildfires, but it is by no means the only influencing factor. Some other influencing factors are (i) unchecked fuel accumulation and linked to this, (ii) a lack of prescribed burning application, today not even

making out a fraction of what it should be.

A rethink of the fire hazard status in South Africa – and how this can best be counteracted – is in my opinion long overdue. Linked to this, a dedicated research program should be launched to answer all outstanding questions, and to strengthen future decision-making in this regard.

Then, to conclude, I would like to provide a few phrases from an article published by the well-known fire historian Steven Pyne, after the 2012 fire season in the US: *"...The decisive issue is not whether our science is good enough, but whether our politics is" and "...We renegotiate the political behind American fire. Or we continue as we have been, unable to do more than chase ever-worsening fires with ever-dwindling options."*

Does this sound familiar?

I have no further comments.▲

Action plans

for improving response to and preparation for wildfires in Europe

By Dr Robert Stacey, project officer, fire support services, Northumberland Fire and Rescue Service, UK

Northumberland live burn demo

Northumberland Fire and Rescue Service and 12 international partners are now approaching the final conclusion of an ambitious, innovative and highly successful two-year project focused on wildfire.

The European Forest Fire Networks Project (EUFOFINET), which was launched in October 2010, had a principal aim to improve and enhance regional and local approaches to wildfire prevention and suppression through European cooperation, collaboration and exchange of good practice.

The project partners organised and delivered a range of events and activities that were designed to address five key themes related to wildfires and forest fires including: detection and prevention of wildfires; wildfire suppression strategies; mapping risks and hazards; training and simulation strategies and restoration of land burned by wildfire. The key activities delivered during the event included: eight technical workshops; five technical guides addressing the five project themes; three staff exchange workshops;

the European Glossary for Wildfires and Forest Fires; an international conference and thirteen action plans detailing the implementation of good practice within all of the partner regions.

Technical workshops

The technical workshops were organised throughout the duration of the project and enabled partners and external experts from around the world to present and discuss good practice and innovation with regards to wildfires and forest fires. All of the workshops involved both lecture room-based presentations and discussions and practical-based field visits to observe demonstrations of equipment and procedures. The workshops were hosted by eight of the partner organisations and were held in France (May 2011), Denmark (September 2011), France (November 2011), Greece (January 2012), Spain (February 2012), Northumberland, UK (March 2012), Slovak Republic (May 2012) and Italy (October 2012).

Northumberland Fire and Rescue Service hosted a workshop focused on good practice in fighting and

suppressing wildfires between 19 to 23 March 2012. Countries represented at the event included: Greece, France, Italy, Spain, Poland, Denmark, Slovak Republic, Portugal, the Netherlands and the USA. During the workshop, officers from Northumberland Fire and Rescue Service (NFRS) discussed a number of suppression tools and techniques that have been developed in the county. One of these is the innovative Northumberland Wildfire Prediction System (WPS). WPS is an important management and health and safety tool, which allows both fire fighters and fire officers to predict likely behaviour and spread of a wildfire. In addition to explaining WPS, NFRS also discussed other health and safety systems adopted by NFRS at wildfire incidents and Northumberland's wildfire incident command system. Many of the tools and techniques presented by NFRS were developed in the county and are now being adopted by other fire and rescue services around the UK.

Another key part of the Northumberland workshop programme was the organisation of two field demonstrations within the ►



Florence workshop group

► Northumberland countryside. On Wednesday 21 March, a live burn exercise took place on a section of New Moor, near Longframlington. Northumberland's wildfire support officers demonstrated how fire could be used in a controlled manner as an effective technique for fighting wildfires. On Thursday 22 March, Northumberland Fire and Rescue Service coordinated a multi-agency exercise near the village of Linhope in the Northumberland National Park. The exercise demonstrated the practical use of a specially designed wildfire water resource pond - which included the use of a high-volume pump unit, a mobile command unit and multi-agency partnership working on wildfire issues within Northumberland. This exercise was delivered in close cooperation with Northumberland National Park Authority, the Cheviot Futures Project and the North of Tyne and Northumberland National Park mountain rescue teams. Both of the field exercises provided practitioners with interesting opportunities for observing theory being put into practice and for further discussion and debate.

Following the completion of the technical workshops, synthesis documents were produced to provide a summary of the presentations delivered, the good practices discussed and the conclusions and recommendations that were formulated during the workshops. The end result is the publication of a series of five technical guides, each of which addresses one of the five project themes.

Staff exchange workshops on training

During the second technical workshop of the project in France on November 2011, some of the project partners identified there would be significant potential benefits of providing additional opportunities for partners to exchange knowledge and good practice on training-related issues. The partners decided to organise three additional staff exchange training workshops, which the partners could opt to attend. The three staff exchange workshops were held in Aix-en-Provence (France), Galicia (Spain) and Region of Tuscany (Italy) during September, November and December 2012 and were attended by a number of specialists and trainers.

Northumberland Fire and Rescue Service opted to send four specialist wildfire officers to attend the staff exchange workshop in Aix-en-Provence, an event which was coordinated and hosted by ENTENTE pour la Forêt Méditerranéenne. The event focused on the use of ENTENTE's innovative real-time simulator to deliver wildfire incident command training to fire officers at different levels. Officers from Northumberland, Denmark, Slovak Republic and France used the simulator in a number of different ways to respond to incidents using the different incident command systems used within the four represented countries. Upon returning to the UK, the four officers from Northumberland wrote a report critically evaluating the simulator and training delivered and the recommendations of this report have informed the service's plans for developing the training delivered to specialist wildfire officers. NFRS is now liaising with ENTENTE regarding the potential for tailor-making and delivering wildfire incident command training to NFRS specialists in the future. ►



Slovakia workshop helicopter demo

► The European glossary for wildfires and forest fires

For effective collaboration across national borders on any technical or emergency issue, the establishment of a common language is crucial. The EUFOFINET partners identified during the early stages of the project that there was no existing European glossary of terminology for wildfires and forest fires and, therefore, no common language for the partners to use. This situation posed a problem to the partnership in terms of establishing a common understanding around technical and practical issues related to wildfires and forest fires. The EUFOFINET partners subsequently decided to set themselves the ambitious but very important task of creating a European glossary of terminology that could be used across the whole of Europe, both during and after the project. The development of the glossary was led and coordinated by Northumberland Fire and Rescue Service (UK), with the assistance and contributions of all of the EUFOFINET partners and a number of external experts across the world. The end result is an impressive English language glossary of more than 800

terms and associated definitions arranged within thirteen thematic chapters. The glossary has significant potential to improve cross-border work before, during and after wildfire and forest fire incidents and will be a very useful tool for maintaining and improving health and safety for suppression teams composed of individuals of multiple nationalities.

All EUFOFINET partners are currently working to implement the glossary within their own countries and to promote the adoption of the glossary across Europe. A number of partners will translate the entire glossary document into their native language (including French, Italian, Greek, Slovak and Gallego) during late 2012 and early 2013, which will further improve its accessibility and usability. Within the UK, Northumberland Fire and Rescue Service has already begun promoting the adoption of the glossary to local and national audiences. NFRS has already worked with the Scottish Government to harmonise and integrate the glossary within the new National Operational Guidance Manual for Wildfire Suppression that will be published late 2012/early 2013. NFRS has also begun promoting the glossary through key local and national wildfire stakeholder groups, including the CFOA Wildfire Operations Group, the England and Wales Wildfire Forum and the Northumberland Fire Group.

Action plans

A key element of the project has been the development of individual

action plans that outline how partners will integrate and implement good practices exchanged during the project within their own localities and regions. These action plans have been designed to have a positive impact on local, regional and national policies and procedures related to wildfires.

Northumberland Fire and Rescue Service's Action Plan contains six key actions for implementation over the next three to five years. To provide some specific examples, NFRS is currently investigating opportunities for organising wildfire incident command training and wildfire investigation training for officers within NFRS and other UK fire and rescue services. This wildfire-specific training will provide an opportunity for NFRS and other organisations in the UK to further develop the knowledge and skills of the service's officer so that they can prepare for and react more effectively when responding to wildfire incidents.

NFRS's action plan has been formulated to ensure that EUFOFINET has a long-lasting positive impact within Northumberland and the UK as a whole. In order to ensure that this action plan is integrated into NFRS's existing operational programme, formal support in principle has been sought and obtained from the chief fire officer of Northumberland Fire and Rescue Service and the executive member for Health and Public Protection at Northumberland County council. As already mentioned, NFRS has also included and begun working on specific actions and sub-actions



Florence workshop volunteer base

Northumberland burn team briefing



that aim to promote the deliverables of the project to a national audience of stakeholders.

Final conference

Following completion of all eight workshops, an international conference was held in Brussels on 12 November 2012. The event focused on the topic of wildfire risk and the improvement of regional action plans to address wildfire challenges in Europe. The event was organised to enable the EUFOFINET partners to present some of the key deliverables of the project, including partners' action plans and the glossary. The event was also organised to provide a forum for round-table discussions and debate between more than 80 practitioners and stakeholders within the European wildfire community. A very good representation of influential and knowledgeable delegates from the UK was achieved and feedback received from these delegates has been very positive. All of the EUFOFINET partners contributed to the event, either by delivering a summative presentation about one of the technical workshops or by delivering a synoptic presentation concerning the content of their action plan. Northumberland Fire and Rescue Service also introduced delegates to the final publication of the glossary.

Project conclusion and the future

The entire project partnership has concluded that participation in EUFOFINET has been extremely rewarding and beneficial, and this has also been concluded by Northumberland Fire and Rescue

Service (NFRS). The EUFOFINET project has enabled a number of officers from NFRS to develop their technical knowledge and understanding of wildfire through numerous constructive and instructive exchanges. EUFOFINET has also enabled NFRS to collaborate with a large number of experts and practitioners engaged in wildfire suppression and prevention activities around the world. A number of specific good practices have been included within NFRS's action plan, but it should also be noted that the exchanges that occurred during the project will positively influence and contribute to future developments and improvements within the service for many years to come.

Alex Bennett, chief fire officer for Northumberland Fire and Rescue Service, said: "Northumberland Fire and Rescue Service's involvement in the highly successful EUFOFINET project has been extremely rewarding. Working with international partners during the last two years has allowed us to review our practices, hone our skills and share expertise to ensure that we are equipped and trained to tackle wildfires in the best possible way in Northumberland. This additional knowledge and understanding we have acquired, coupled with the establishment of a new network of contacts across Europe, will help us to further improve how we protect life, property and the environment within our county over the coming years."

Paul Hedley, assistant chief fire officer for Northumberland Fire and Rescue Service and chair of the

Chief Fire Officers Association Wildfire Group added, "The benefits of the EUFOFINET project will also reach beyond the borders of the County of Northumberland. Knowledge exchanged during the EUFOFINET project is already being discussed and debated by the Chief Fire Officers Association's Wildfire Group with a view to developing and improving training and response to wildfires across the UK. A number of national and local stakeholders have been involved in activities organised throughout the project, reflecting the commitment from Northumberland Fire and Rescue Service to work with a range of stakeholders to ensure a safe and effective response to wildfires in Northumberland and the rest of the UK."

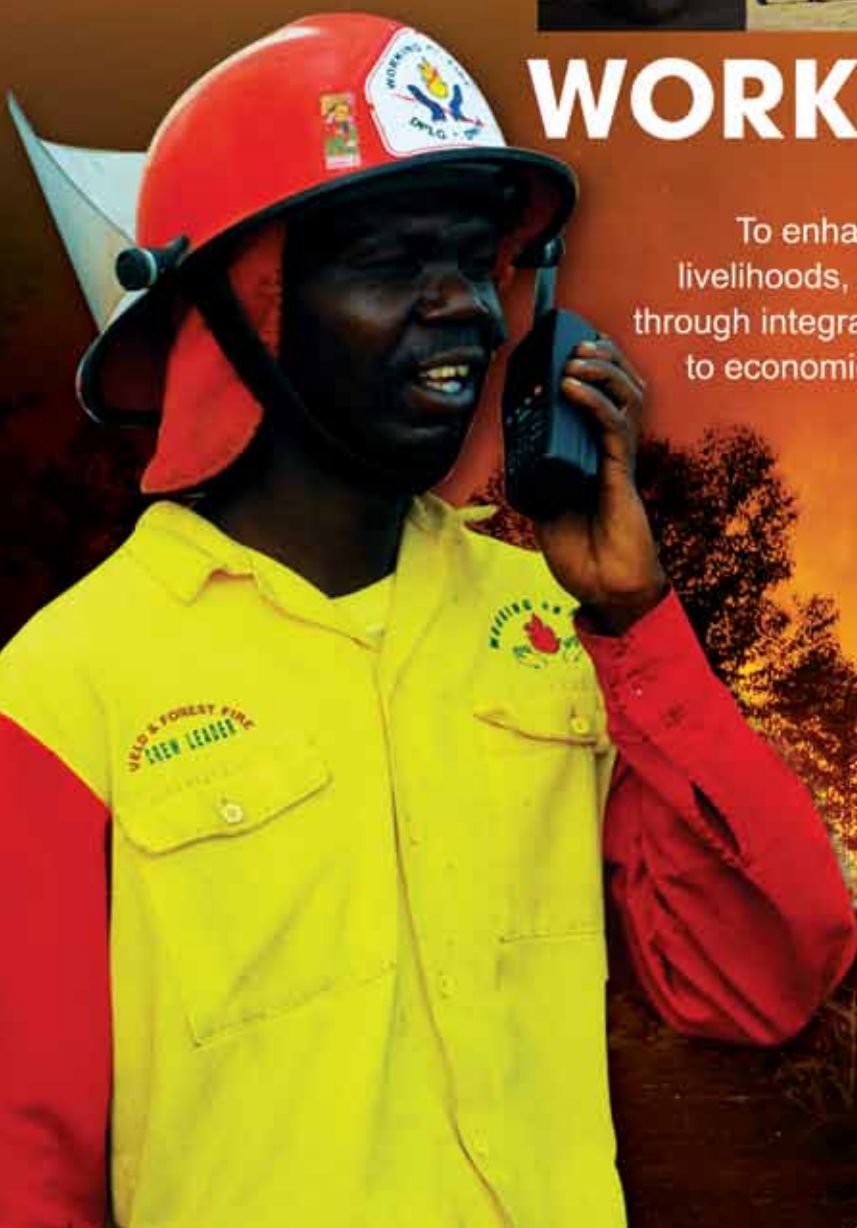
Now that EUFOFINET is nearly complete, the EUFOFINET partners are exploring ways to collaborate further in the future. In particular, a number of EUFOFINET partners are assisting one another with the implementation of individual action plans and some of the partners are also actively developing new collaborative projects on topics related to wildfires/forest fires. Some of the project partners, including NFRS, have been involved in submitting an application for additional external grant funding to finance the creation of a European network of experts on wildfire prevention issues. If the application is successful, this network will represent another important legacy by extending the exchange of knowledge and good practice far beyond the life and partnership of the initial project.▲



WORKING ON FIRE

SCHOLARSHIP FUND

To enhance the sustainability and protection of life, livelihoods, ecosystem services and natural processes through integrated fire management in order to contribute to economic empowerment, skills development, social equity and accelerated service delivery.



The **WORKING ON FIRE (WOF)** Programme is one of the most successful components of the South African governments Expanded Public Works Programmes designed to alleviate poverty through skills training and the creation of job opportunities. The WOF Programme draws beneficiaries from impoverished communities and transform formerly unemployed and in some cases unemployable youth into fit, disciplined and trained veld and forest firefighters, which are deployed at over 100 bases in fire prone areas across South Africa. South Africa has created a world record proportion of women in the ranks of these firefighters, where some 30% are young women.

The impact of this programme has been widely recognized through the accolades which it has been awarded over the years. Not only has the WOF Programme made a huge contribution to South Africa's veld and forest fire fighting capabilities, but the modest remuneration which the WOF Programme beneficiaries receive is a critical relief measure from the depths of poverty experienced by so many in South Africa. Their income represents a real contribution to the lives of the beneficiaries, their families and communities where they live.

WOF beneficiaries not only receive specialized training in various fields related to their veld and forest fire fighting work but are afforded to progress in the ranks of the WOF structure to become Type II then Type I crew leaders as well as branching out into the management and administration functions in the programme. Some 84 former fire fighters have already progressed into such positions such as instructors, regional managers, media and community liaison officers, financial clerks, stores and procurement administrators, etc.

The WOF Scholarship Fund is intended to provide resources to aspirant current and former wildland fire fighters still engaged by WOF to pursue further formal training to improve their skills and knowledge. The fund will be managed by a committee consisting of former fire fighters and programme managers, chaired by the executive chairman of FFA Operations, the company implementing the WOF programme.

Contributions will be solicited from the general public, both domestically and abroad, corporate social investment resources and public and private institutions both in the form of general contributions and targeted funding initiatives. Individuals or institutions may also choose to sponsor a WOF beneficiary pursue their further studies or training. The intention will be to register the WOF Scholarship Fund as a public benefit entity to allow for tax deductible contributions from the corporate sector. All contributors to the WOF Scholarship Fund will receive annual statements on the utilization of funds and beneficiary progress.

You are urged to make a contribution to this fund which will greatly enhance the ability of the WOF Fund beneficiaries to improve their skills and knowledge and in so doing improve their employment opportunities and contribution they can make to their communities. Contributions can be made via the enclosed pledge form.

For further information, please contact:

The Executive Chairman,
FFA Operations T/A WORKING ON FIRE,
Email: Abrahams@iafrica.com
Tel: +27 (0) 82 557 5069.

Also see the WOF website at www.workingonfire.org

Or deposit your donation in the following Bank Account:

Account Name: FFA Section 21
Account Nr: 405 953 7280
Branch code: 632005
Bank: ABSA Nelspruit
Ref: Scholarship Fund



CapeNature Eskom



Participants in the Valle d'Aosta

Annual EFICIENT forest management study tour 2012

By Daniel Kraus, senior researcher, European Forest Institute (EFI)

The recently held EFI Central European Regional Office (EFICIENT) forest management study tour 2012 focused on the Central Alpine fire regimes in Switzerland. The annual tour was held from 2 to 5 October 2012 and led a group of 15 participants to Switzerland and Italy.

Unusually high fire activity all along the Pyrenees throughout 2012, recently raised the interest in fire management challenges in and around mountain forests in Spain. On the other hand, the dry central alpine valleys of Valais and Aoste in Switzerland and Italy, have also repeatedly seen forest fires with a significant impact on protective functions of forests. For this reason, EFICIENT, WSL and the Pau Costa Foundation jointly organised a study tour with 15 representatives from regional governments in the Spanish Pyrenees (Catalonia, Aragon and Navarra) as well as from the University of Lleida, to exchange views and experiences with colleagues from research and practice in Switzerland, where efforts to mitigate fire effects like erosion, mud slides and avalanches play an very important role in risk management. Extensive

funds have to be spent in Switzerland when protected forests are burned and slow post-fire tree establishment is adding to the safety problem.

The main topics discussed on this study tour included post-fire succession and dynamics, response strategies and tactics, weather patterns and fire spread patterns, mitigation and prevention options in sensitive mountain forest ecosystems under climate change scenarios, and post-fire restoration measures. Local organisation of the tour was provided by Marco Conedera and Tom Wohlgemuth of the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL).

The tour started on 2 October from Bellinzona with a visit to the experimental site of the FireLess II system, an innovative wireless sensor network developed by EnvEve SA and WSL in collaboration with the University of Torino, allowing the acquisition of real time fuel parameters such as litter and humus moisture in specific forest stands. When coupled with a Meteo-station, the FireLess II system can also be integrated with fire weather indexes.

The next stop was a visit to a 55-hectare area of mixed broadleaved stand (chestnut, oak and beech) near Locarno burnt in April 2006. The different survival strategies of the affected tree species and their specific reaction to varying fire intensities and frequencies were observed and discussed. Special attention was given to the beech stands as these are expected to provide theories and ideas on how beech stands are reacting to increased fire incidents under a climate change scenario in other parts of central Europe.

The tour continued to the Canton Valais to visit different fire sites in a time line to observe the various post-fire dynamics and restoration and mitigation measures under dry central Alpine fire regimes. Research plots established in the burnt stands provided the necessary information on climate and soil conditions, vegetation development, fire history and fire effects on fauna for the discussions. Special focus was given to post-fire effects like erosion, water runoff, soil and nutrients, natural tree regeneration and reforestation approaches. ▶

► The next place visited was a post forest fire (March 2011) site above the town of Visp. A hot and intense fire consumed 120 hectare of protected forest consisting mainly of larch, spruce and fir just above the settlement on a northern slope. The fire was mainly driven by the local valley wind system and moved up-slope through the tree crowns with a complete kill-off even of the more fire resistant larches. Groups of fir survived at the fires left flank in more protected terrain. Immediate mitigation measures (nets against rock falls in the gullies and recumbent logs against erosion) were necessary to protect the town from debris flow after the fire and reforestation with downy oak was initiated in the lower elevations.

In the afternoon of the same day, the Leuk fire of August 2003 with a similar spread pattern but on a southern slope was visited. The fire was also driven up-slope by strong winds and moved through the tree crowns of the pine dominated stands. The post-fire development nine years after the fire is still very slow and hardly any natural tree regeneration can be observed. The influence of fires on Mykorrhiza and its post-fire effects on tree establishment were discussed in depth as a potential tree regeneration hindering cause, in addition to the very dry climatic conditions and distance to seed tree remnants.

The next day the group visited a forest fire site of June 1996 in Pfywald/Bois des Finges. This fire burned under extreme weather conditions (a Foehn wind) and shows a distinct spread pattern: the fir and spruce dominated forests on a northern exposition show a stretched fire scar across the slope. It only stopped advancing when another Foehn influence from the Val d'Anniviers crossed its path and slowed it down. Abundant tree regeneration of mainly pioneers such as birch, aspen and few scotch pines can be found and to a certain degree is functional as a protection forest, although the time scale since 1996 seems rather long, especially if protective functions are of high priority.

After a detailed introduction on the response system and a presentation of selected forest fires in the Valle



The Leuk post-fire site does not show much sign of natural regeneration

d'Aosta presented by Giancarlo Cesti (Nucleo Antincendio Boschivo Valle d'Aosta), the group visited the burn area of a forest fire from March 2005 consuming 250 hectares of pine and larch dominated forest on a southern slope. The focus of the



The burn area of 2011 near Visp

discussion was on different post-fire restoration and mitigation measures. Representatives from the Universities of Padua (Dr Emanuele Lingua) and Torino (Dr Raffaella Marzano and Dr Matteo Garbarino) presented their research on different post-fire treatments ranging from complete removal of the burned trees (salvage logging) to non-intervention. Due to

low abundance of tree regeneration in general, the treatments show not much variation to date, however. Treatments with partially cut trees and non-intervention seem to favour seedling establishment by shading, but fallen dead wood does not yet provide sufficient shelter against browsing by wildlife.

During the entire week, the discussions were inspiring and fruitful, for both the participants and the host organisations. We would like to thank all participants for a successful study tour, especially WSL for co-sponsoring and hosting the event and Pau Costa Foundation for co-organising the Spanish participation!

The 2013 annual EFICIENT forest management study tour will welcome the participants in Sweden. The focus of the 2013 tour will be the use of fire in nature conservation and in commercial forestry, boreal fire ecology and wildlife management.

The annual EFICIENT forest management study tours are part of the EFICIENT project line Research to Practice (R2P) and foster the exchange of knowledge from science to practice and vice versa, stimulate ideas for new cooperation and research and influence in the long term the forest policy support of EFI. ▲

2013

April

8 – 12 April 2013

Prescribed burning for fire managers

Presented by the FFA Training Academy in conjunction with the Working on Fire programme. The course is designed to assist the fire manager in understanding the planning, preparation, coordination and execution when conducting prescribed fire operations in fynbos

Venue: Agri Mega show grounds, Bredasdorp

Contact: Stephen Devine Tel: 076 390 5346
email: stephen.devine@wofire.co.za

8 – 12 April 2013

Veld and forest fire cause and origin determination course

Hosted by the Working on Fire programme, a team of highly qualified fire investigators will present this outstanding training opportunity. The course has been specifically adapted for South African conditions

Venue: Agri Mega show grounds, Bredasdorp

Contact: Mandla Ndlovu Tel: 073 234 7143
email: mandla.ndlovu@wofire.co.za

10 - 11 April 2013

Tangent Link's 10th aerial fire fighting conference, exhibition and air show

This world leading conference aimed at the world's aerial fire fighting community will bring together international government, procurement and operational officers, civil organisations, international manufacturers, operators and service providers to discuss and debate the latest techniques, technologies and platforms available to tackle the specific and persistent threat of wildfires

Venue: Marseille, France – details to follow

Contact: Rebecca Covey Tel: +44 1628 550047
email: rcovey@tangentlink.com

For more information visit: www.tangentlink.com

15 – 18 April 2013

Moscow international protection, security, fire fighting and safety exhibition

The largest commercial, international exhibition of systems and technologies of protection, security and fire safety in Russia and the CIS has been in operation since 1995.

Venue: Expocentre Krasnaya Presnya, Moscow, Russia

Contact: Ilya Sobolev Tel: +44 207 596 5170
email: ilya.sobolev@ite-exhibitions.com

15 – 19 April 2013

Confederation of Fire Protection Association's (CFPA) international short course in fire safety engineering course

The course will address the application of fire safety engineering principles, issues of the spread of fire within an enclosure together with the spread of smoke and toxic gases, detection of fire and activation of fire protection systems and evacuation.

Venue: FPASA College, 105 Springbok Road, Bartlett, Boksburg, Gauteng

Contact: Christine van der Westhuizen Tel: 011 397 1618
email: college@fpasa.co.za

For more information visit: www.fpasa.co.za

17 – 20 April 2013

International Fire Service Accreditation Congress (IFSAC) 2013 Annual Conference

Venue: Oklahoma City, Oklahoma

For more information visit: www.ifsac.org

22 – 27 April 2013

Fire department instructor conference and exhibition (FDIC)

The event will bring together a number of decision makers, experts and trainers along with many manufacturers and suppliers from the fire industry to present a comprehensive display of products, equipment, accessories and technologies for fire fighting and a number of educative seminars and workshops on different aspects of fire fighting and special events like award functions.

Venue: Indiana Convention Centre, Lucas Oil Stadium, Indianapolis, USA

Contact: Tel: + 888 299 8016
email: registration@pennwell.com or
Susie Cruz email: scruz@pennwell.com

For more information visit: www.fdic.com

23 – 26 April 2013

Full scale exercise – POLEX 2013

This exercise aims to practice search and rescue operations and international coordination methodology in accordance with the International Search and Rescue Advisory Group (INSARAG) Guidelines. This exercise based on an earthquake scenario will be open to both full-scale self-sufficient USAR teams and other interested participants or observers.

Venue: Poland, exact venue TBC

For more information visit: www.insarag.org

25 – 26 April 2013

Civil intelligence, surveillance and reconnaissance (ISR) Europe

This new European based conference and exhibition will attract a truly international delegate base to discuss and debate the wide-ranging requirements of civil organisations and agencies to utilise manned and unmanned ISR systems and related technologies in both day-to-day and emergency operations.

Venue: Grenchen Airport, Switzerland

Contact: Sophie Spence
Tel: +44 0 1628 550041 or
email: sspence@tangentlink.com

For more information visit: www.tangentlink.com

May

3 – 7 May 2013

Fire-Rescue Med 2013

The FRM conference attracts the industry's leading experts for premier education session and hands-on training exercises. No other EMS conference has experienced veterans and rising stars working together on concepts that impact the future of the industry.

Venue: Orleans Hotel, Las Vegas, Nevada, USA

Contact: Mary-Jane Vita email: mvita@iafc.org

For more information visit: www.iafc.org

4 May 2013

International Fire Fighters Day

For more information visit: www.firefightersday.org

6 – 10 May 2013

Confederation of Fire Protection Association's (CFPA) fundamentals of fire investigation course

The course will promote a clear understanding of fire investigation and the rendering of opinion regarding origin and cause

Venue: FPASA College, 105 Springbok Road, Bartlett, Boksburg, Gauteng

Contact: Christine van der Westhuizen Tel: 011 397 1618 email: college@fpasa.co.za

For more information visit: www.fpassa.co.za

9 – 11 May 2013

Fire fighting european helicopter show

Our program will feature a display and demonstration of fire fighting helicopters and associated airborne and ground equipment. Forest and bush fire fighting is the main purpose and utilisation for these helicopters.

Venue: Letiště 98, 503 41 Hradec Králové 7, Czech Republic

Contact: Emma Davey Tel: +44 020 8549 5024 email: emma@avbuyer.com

For more information visit: www.eurohelishow.com

15 – 17 May 2013

South African Emergency Services Institute's 29th international conference, exhibition and training event

The conference and training event will cover vehicle extrication, urban search and rescue, high angle rescue, EMS challenge and emergency services combat challenge.

Venue: Johannesburg Expo Centre, Johannesburg, South Africa

Contact: Wiek Alberts Tel: 076 494 2609 email: wieka@telkomsa.net

For more information visit: www.saesi.com

21 – 22 May 2013

Intermediate Life Support (ILS) refresher/update course

A course aimed at all intermediate life support health care professionals. Developed to update/refresh all skills and ILS protocols as according to the Health Professions Council of South Africa. CPD points will be awarded

Venue: LifeMed Ambulance Services
C/o Michael Brink (Nico Smith) and
19th Avenue Villieria, Pretoria

Contact: Charmaine Oosthuizen Tel: 012 330 9413 or email: training@lifemed911.co.za

For more information visit: www.lifemed911.co.za

27 – 31 May 2013

Confederation of Fire Protection Association's (CFPA) certificate in principles of fire safety engineering course

The course covers the application of fire safety engineering principles to the design of buildings

Venue: FPASA College, 105 Springbok Road, Bartlett,

Boksburg, Gauteng

Contact: Christine van der Westhuizen Tel: 011 397 1618

email: college@fpasa.co.za

For more information visit: www.fpassa.co.za

29 – 31 May 2013

Australian and New Zealand Disaster and Emergency Management conference

Will provide a forum to examine the issues surrounding natural and man-made hazards.

Venue: Brisbane, Australia

Contact: email: admin@anzdmc.com.au

For more information visit: www.anzdmc.com.au

June

3 – 7 June 2013

Confederation of Fire Protection Association's (CFPA) fundamentals of fire investigation course

The course will promote a clear understanding of fire investigation and the rendering of opinion regarding origin and cause

Venue: Cape Town, venue TBC

Contact: Christine van der Westhuizen Tel: 011 397 1618 email: college@fpasa.co.za

For more information visit: www.fpassa.co.za

4 – 5 June 2013

Search and Rescue Seminar (SAR)

This conference has been developed to help identify and address important future international SAR developments. In addition, there will be operational and technical presentations from international civil and military operators from North America, Middle East, CIS, Asia and Australasia

Venue: TBA Bournemouth, United Kingdom

Contact: Kate Niven Tel: +44 0 1628 660400 or email kniven@tangentlink.com

For more information visit: www.tangentlink.com

6 – 9 June 2013

International Hazardous Materials Response Teams conference

The conference promises informative sessions and unique hands on training designed to tackle the most pressing issues facing hazmat professionals.

Venue: Hilton Hotel Baltimore, Baltimore, Maryland, USA

Contact: Shannon Gilliland Tel: + 703 537 4838 or email: sgilliland@iafc.org

For more information visit: www.iafc.org/hazmat

10 – 14 June 2013

Confederation of Fire Protection Association's (CFPA) Fire prevention and safety strategies course

The course will cover the theory of fire legislation, flammable liquids and gases, fire hazards of electrical equipment, sprinklers and automatic fire detection systems, the organisation and management of fire teams and occupation fire brigades

Venue: to be confirmed

Contact: Christine van der Westhuizen Tel: 011 397 1618 email: college@fpasa.co.za

For more information visit: www.fpassa.co.za

I want to tell you lies

I want to tell that little boy, his Mom will be just fine
I want to tell that dad, we got his daughter out in time
I want to tell that wife, her husband will be home tonight
I don't want to tell it like it is...
I want to tell them lies

You didn't put their seat belts on, you feel you killed your kids
I want to say you didn't...but in a way you did
You pound your fists into my chest, you're hurting so inside
I want to say you'll be ok...
I want to tell you lies

You left chemicals within his reach and now it's in his eyes
I want to say your son will see, not tell you he'll be blind
You ask me if he'll be ok, with pleading in your eyes
I want to say that yes he will...
I want to tell you lies

I can see you're crying as your life goes up in smoke
If you'd maintained that smoke alarm, your children may have woke
Don't grab my arm and ask me if your family is alive
Don't make me tell you they're all dead...
I want to tell you lies

I want to say she'll be ok, you didn't take her life
I hear you say you love her and you'd never hurt your wife
You thought you didn't drink too much, you thought that you could drive
I don't want to say how wrong you were...
I want to tell you lies

You only left her for a moment, it happens all the time
How could she have fell from there? You thought she couldn't climb
I want to say her neck's not broke, that she will be just fine
I don't want to she's paralysed...
I want to tell you lies

I want to tell this teen his buddies didn't die in vain
Because he thought that it'd be cool to try to beat the train
I don't want to tell him this will haunt him all his life
I want to say that he'll forget...
I want to tell him lies

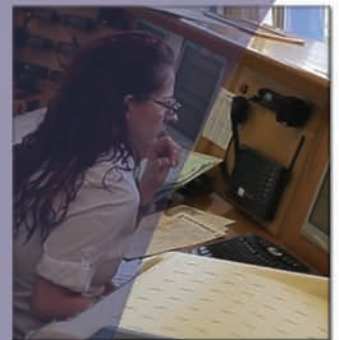
You left the cabinet open and your daughter found the gun
Now you want me to undo the damage that's been done
You tell me she's your only child, you say she's only five
I don't want to say she won't see six...
I want to tell you lies

He fell into the pool when you just went to grab the phone
It was only for a second that you left him there alone
If you let the phone ring perhaps your boy would be alive
But I don't want to tell you that...
I want to tell you lies

The fact that you were speeding caused that car to overturn
And we couldn't get them out of there before the whole thing burned
Did they suffer? Yes, they suffered, as they slowly burned alive
But I don't want to say those words...
I want to tell you lies

But I have to tell it like it is, until my shift is through
And then the real lies begin, when I come home to you
You ask me how my day was, and I say it was just fine
I hope you understand, sometimes...
I have to tell you lies

Anonymous



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Only those at the coal-face of an emergency rescue really understand what's needed there. That's why STIHL, the world's top-selling chainsaw company, has worked with professional firefighters to design the STIHL MS 461 R rescue saw specifically for fire and emergency rescue work. With an extra-large starting handle (for use with fire gloves), an adjustable cutting-depth limiter for unparalleled control, and the power and reliability of STIHL's famous German engineering, this saw is an invaluable asset for emergency services everywhere. **When time matters, the STIHL MS 461 R rescue saw matters most.**

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