

# Rotor

BY AIRBUS HELICOPTERS

**MISSION**  
Helicopter EMS  
in China

**LIFE OF THE RANGE**  
Search and  
rescue missions

**LOGBOOK**  
The Tiger HAD  
bares its teeth



# Training

## A tool for safety



© Éric Raz

# 08

## FEATURED ARTICLES Training, a tool for safety



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### IN THE SPOTLIGHT

4/ The Singapore Ministry of Defence chooses H225M helicopters

### 360°

5/Highlights from Airbus Helicopters

### UP ABOVE

16/An H130 from Corail Helicopters on Réunion Island

### LIFE OF THE RANGE

18/Search and rescue missions

### LOGBOOK

20/The Tiger HAD bares its teeth

### MISSION

22/A life-saving response: helicopter EMS in China

24/The Jatun Puma in its natural habitat

### BEHIND THE SCENES

26/Helionix

### AROUND THE WORLD

28/The past and future in flight over Japan

### OFF THE BEATEN TRACK

30/Made for the sea



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Dear customers and partners,  
 The world is changing fast and there are a great many challenges to face. We are investing all our energy and collective intelligence in overcoming even the most demanding of them, just as we have been able – through helicopter flight – to defy the laws of gravity. We are working hard to be faster and more proactive so that we can protect and save lives and transport people in complete safety. We are also continuing to work on disruptive technologies with a view to shaping helicopter flight of the future.

It is with that goal in mind that we are continuing with the transformation we embarked on three years ago. In maintaining our objectives with regard to satisfying our customers, providing them with the highest safety and quality standards and delivering the most

**“The increasing unpredictability of our fast-evolving world and the pace at which it moves will be key trends in the coming years.”**

**Guillaume Faury**

competitive aircraft, we are moving forward at an ever faster pace, harnessing digitisation as we do so.

The magazine's featured article, which takes as its theme training for pilots and crews, is an illustration of that. Thanks to the digital resources we have developed, we are in a position to offer innovative, competitive and easily accessible services to our customers around the world.

The increasing unpredictability of our fast-evolving world and the pace at which it moves will be key trends in the coming years. That is why we are undergoing a transformation and becoming more flexible, so that we can adapt to your needs. In our desire to face up to these new challenges on your behalf, I hope you will enjoy great success and satisfaction in your projects in 2017.

IN THE SPOTLIGHT



SINGAPORE 8 November 2016

**The Singapore Ministry of Defence chooses H225M helicopters.**

## FIRST AS565 MBe PANTHERS DELIVERED TO MEXICO AND INDONESIA

The Mexican Navy took delivery in September of the first of ten AS565 MBe Panther helicopters it purchased in 2014, nine months ahead of schedule, becoming the first customer in the world to receive the new version of this multi-role, medium-class military rotorcraft.

The Navy received three more in December and will take delivery of the remaining six in 2017.

In November, three Panther AS565 MBe were delivered to Indonesia. PT Dirgantara Indonesia will outfit these rotorcraft in-country with mission equipment before they enter into service with the Indonesian Navy.

These three AS565 MBe, from a contract for 11, will be used in naval anti-submarine warfare (ASW) missions.

The AS565 MBe is equipped with two Safran Arriel 2N engines, which enhance its performance in high & hot conditions and enable it to achieve a top speed of 278 km/h and a range of 780 kilometres. It also boasts a new main gearbox, a latest-generation tail rotor and a 4-axis autopilot that reduces crew workload and makes the most demanding missions, such as SAR, easier to perform. This enhanced MBe Panther, which has been developed and qualified following the latest state of the art processes and civilian (EASA) regulations, also benefits from an increased maximum take-off weight of 4,500 kg compared to the previous version at 4,300 kg, allowing an increased mission capability.



© Lorette Fabre

## FIRST H225M IN NAVAL COMBAT VERSION

Helibras and Airbus Helicopters introduced, at the end of October, the new H225M multirole utility helicopter in naval combat configuration. Developed and assembled locally by Helibras, Airbus Helicopters' customer centre in Brazil, this new H225M version is designed to meet the demanding requirements of the Brazilian Navy, with mission capabilities including anti-surface warfare and maritime surveillance. This evolution of the H225M

includes an APS-143 surveillance radar, advanced self-protection systems as well as signals intelligence capabilities. The helicopter is also equipped with two AM39 Exocet anti-ship missiles, while the cargo bay accommodates a dedicated sensor operator console providing the mission commander with an overview of the tactical situation. An automatic identification system (AIS) will also allow crew members to gather information on surface vessels.

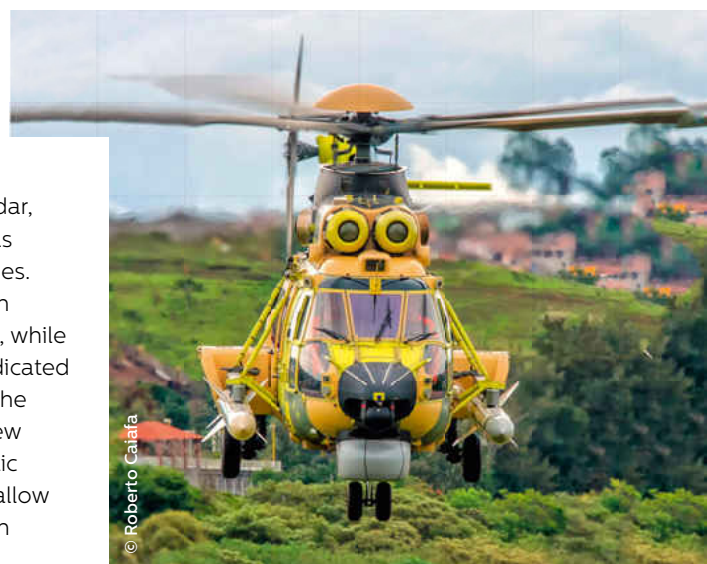
© Pablo Rada



## SPANISH AIR FORCE TAKES DELIVERY OF ITS FIRST H215

The Spanish Air Force took receipt of its first H215 in October. The aircraft carried out final test flights at the Albacete plant, where it was painted and fitted with specific mission systems enhancing its Search and Rescue (SAR) and Personnel Recovery/CSAR missions. The Air Force's H215 boasts additional fuel tanks that extend its range up to 560 km, an emergency buoyancy system, a high-frequency radio, a hoist, and a cockpit compatible with night vision goggles, among other equipment.

The new helicopter entered into service straightaway, following a short training programme for crews, who already have extensive experience of flying other versions of the Super Puma.



© Roberto Calafá

360°



Watch the video on Rotor online

WORLDWIDE

## 20TH ANNIVERSARY OF THE H135 FAMILY

Safe, silent, reliable, versatile and competitive, the light twin-engine H135 has completed some 4 million flight hours since its entry into the market in 1996, with almost 1,200 units delivered to more than 300 operators in 75 countries. During two decades it has proven that there is no mission beyond its capacity: emergency medical services (EMS), law enforcement, corporate transport, wind park maintenance, military training. And it is adding more. The H135 has undergone constant change during its 20 years to meet the changing needs of operators. Its latest version, which entered into service in December 2014 under the name EC135 T3/P3, offers more than 200 kilogrammes of additional payload with a greater maximum range in high and hot conditions. The most recent development, the Helionix avionics suite by Airbus Helicopters with a 4-axis autopilot, has been available since autumn 2016, reducing pilots' workload to further increase flight safety.



© Charles Abarr



© Anthony Pecchi

WORLDWIDE

## 30 MILLION FLIGHT HOURS FOR THE ECUREUIL AND COUNTING

At the end of August 2016, Airbus Helicopters' Ecureuil fleet reached the impressive milestone of 30 million flight hours, flying in 119 countries for more than 1800 customers.

The first Ecureuil was delivered in 1977 and was designed to be safe, simple, versatile and to offer the best performance versus operating cost in the world. Almost four decades later and thanks to several major evolutions, the Ecureuil family is still the best choice to perform the complete range of helicopter missions, specifically with the dual H125 and H130 offer. Future improvements will include the introduction in early 2017 of Garmin G500H avionics on all newly produced H125s and H130s. This glass cockpit solution will reduce pilot workload, especially for mission preparation, and enhance safety with Synthetic Vision Technology (SVT) while preserving external visibility – and all this with no additional weight.



Visit the dedicated website in Rotor online

FRANCE

## H175 IN PUBLIC SERVICES CONFIGURATION

The initial flight test campaign of the public services variant of the H175 was successfully concluded early October after 12 flights. This included a demonstration carried out with customer Government Flying Services (GFS) of Hong Kong, who became the launch customer for this new variant in September 2015 with an order for seven units. GFS' H175s will have a built-in electro-optical system for observation and tracking, along with an enhanced digital map display, both managed from an operator's console in the cabin. Other mission equipment includes dual hoists, loudspeakers and a steerable searchlight. The H175's highly capable autopilot will incorporate additional advanced modes to further decrease pilot workload during complicated SAR operations.



Watch the video on Rotor online

© Anthony Pecchi



**K Y R G Y Z S T A N**

## H130 SUPPORTS THE WORLD NOMAD GAMES 2016

In the framework of its growing relationship with the Kyrgyz republic, Airbus Helicopters decided to actively support the 2<sup>nd</sup> edition of the World Nomad Games, hosted on the shores of Lake Issyk Kul in Cholpon Ata, Kyrgyzstan.

The services of an H130 helicopter were allocated to the games' general organisation in order to perform a number of transport missions, playing an essential role in the extraordinary 5 day programme. Airbus Helicopters also equipped a number of volunteers with unique traditional clothing in order to provide recognisable public safety and management.

The World Nomad Games aim at reuniting all nomad cultures of the world with a special focus on central Asian states while engaging in a series of unique and spectacular sports. Over 130 means of mass media from all over the world covered this event which also gathered a number of regional political leaders, a large array of businessmen and countless spectators.



© Airbus Helicopters



© Beatriz Santacruz

**F R A N C E**

## JOINING FORCES TO DESIGN THE FUTURE TACTICAL VTOL DRONE SYSTEM

DCNS, a world leader in naval defence, and Airbus Helicopters are joining forces to design the future tactical component of France's Naval Aerial Drone programme. By pooling naval and aerospace skills and expertise, the teaming of DCNS and Airbus Helicopters will be equipped to address all technical challenges arising from the naval integration of the drones through the creation of a robust system architecture that can evolve and adapt to meet every need. A versatile and affordable platform, the VSR700, based on the Cabri helicopter, has been developed by Airbus Helicopters with a view to providing military customers with a solution that leverages a tried and tested civil aircraft and strikes the best possible balance between performance, operational flexibility, reliability and operating costs.

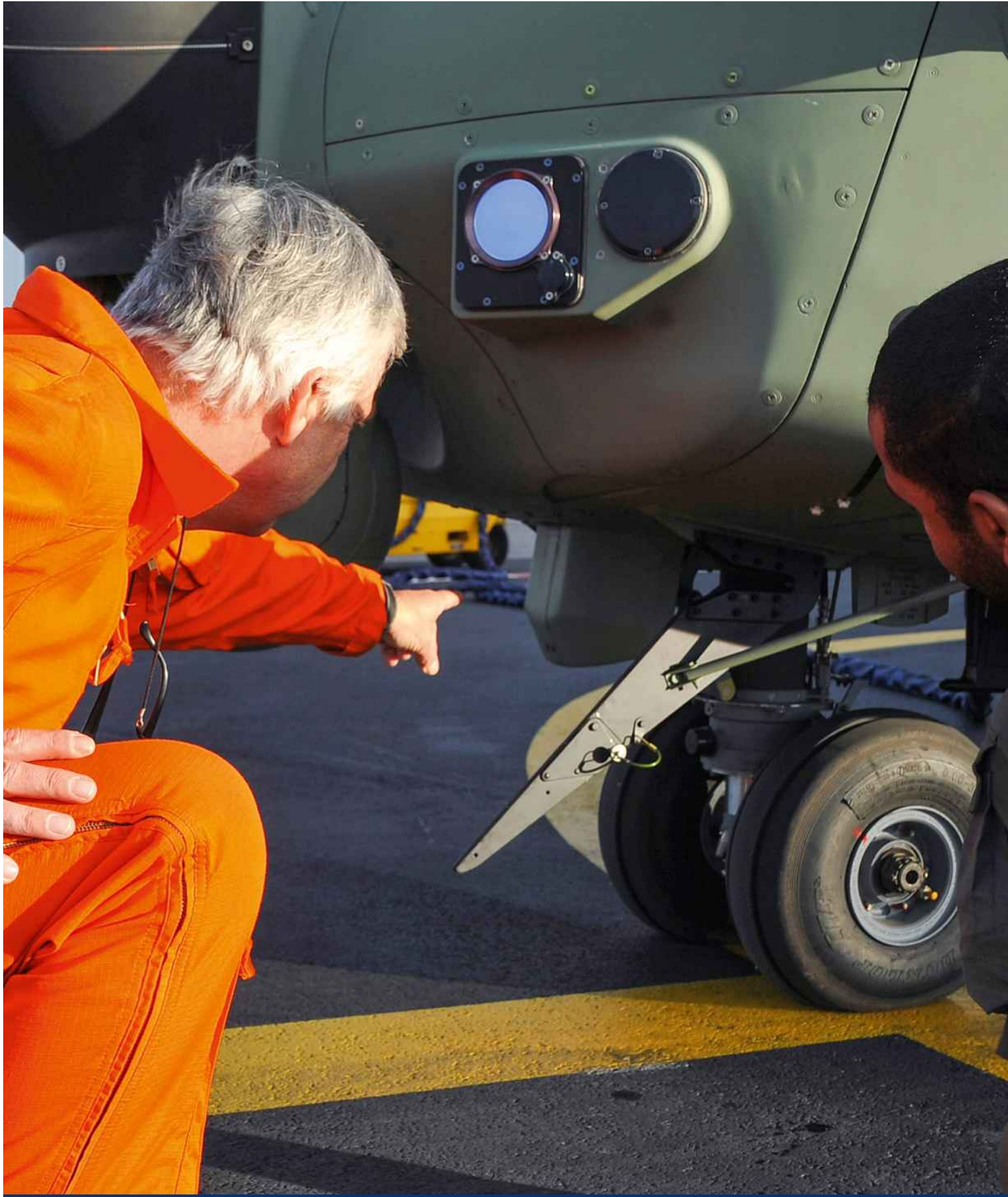
**R E U N I O N I S L A N D**

## CORAIL HELICOPTERS BECOMES LAUNCH CUSTOMER FOR FLEET KEEPER™

Corail Helicopters, operator of a fleet of seven Airbus Helicopters aircraft, has become the launch customer of Fleet Keeper™ thanks to a contract agreement signed during the Helitech exhibition in Amsterdam. Developed by Airbus Helicopters as part of its HCare Connected Services offering, Fleet Keeper™ has recently been validated by the French Civil Aviation Authority (DGAC) for use within Airbus Helicopters' airworthiness organisation. Fleet Keeper™ is a state of the art mobile and web application that replaces the traditional paper-based technical logbook. The tool allows pilots, airworthiness managers and technical teams to record flight reports, track technical events and transfer data between one another in real-time and at the push of a button.



© Lorette Fabre





Around 12,000 trainees are trained every year in the 23 training centres operated by Airbus Helicopters around the world.

# TRAINING, A TOOL FOR SAFETY



As part of its commitment to improving aviation safety, Airbus Helicopters provides realistic mission-focused training for its complete product line. It prepares aircrews and maintenance teams for real-world situations.

Quality training plays an essential role in assuring pilots' and aircrews' proficiency, and their ability to safely operate in a full range of conditions.

To ensure customers have access to world-class training, we continue to make significant investments in training facilities and programmes, providing operators with the right tools for safely and efficiently operating their aircraft. Our offer is evolving both in content – particularly for recurrent and mission training with on-site flight operations support – and in the way it is presented. We are also introducing more and more digital tools to enhance customer satisfaction and to reduce our customers' overall costs. As a result, we can provide a comprehensive suite of services, including customer help desks and flight operations support and analysis – all tailored for individual operator's needs.

Please read on to learn more about Airbus Helicopters' training offer.

**Matthieu Louvot**, Executive Vice President Support & Services at Airbus Helicopters.

## FEATURED ARTICLES

### Airbus Helicopters' training offer

**Proximity:** 23 training centres worldwide

**Safety standards:** realistic & mission-focused, OEM\* data package improvements

**Best practices:** standardised course structure, quality controlled

**Web-based digital training:** practice over theory, information widely available

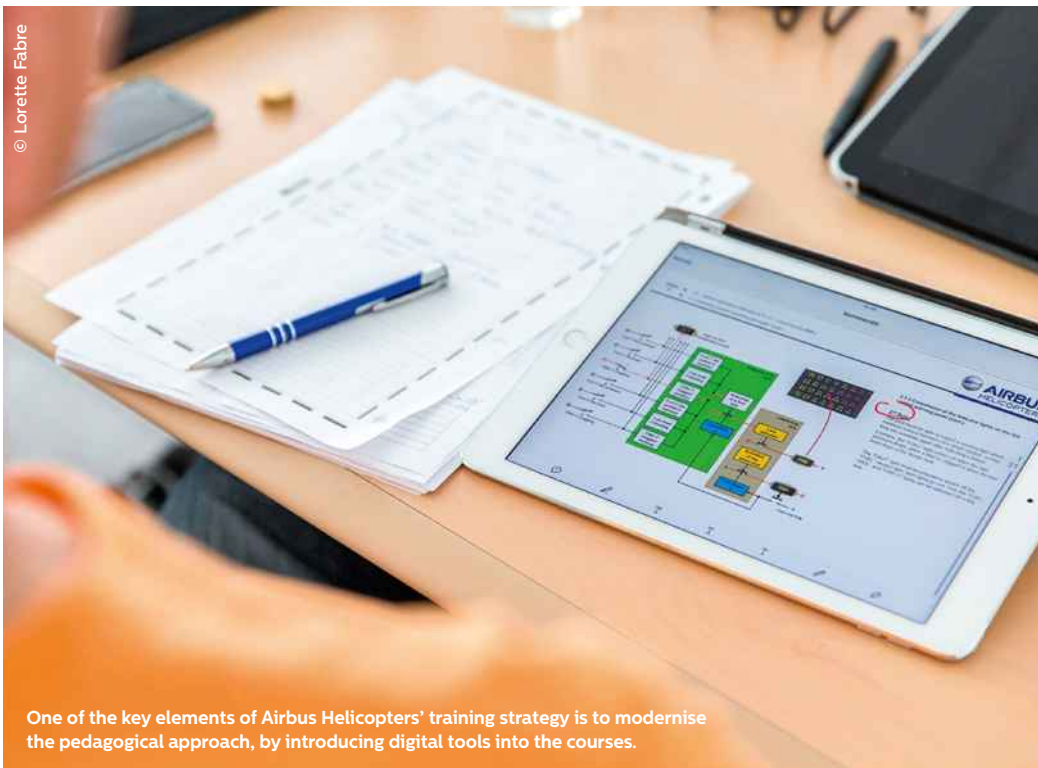
**Competitiveness:** course duration reduced, relevant & condensed content

\* OEM: Original equipment manufacturer



© Jérôme Deulin

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One of the key elements of Airbus Helicopters' training strategy is to modernise the pedagogical approach, by introducing digital tools into the courses.

© Éric Raz



Laurent Vautherin,  
Airbus Helicopters'  
Vice President  
Training, Simulation  
and Customer Flight  
Ops Services.



# “PROVIDING ADAPTED TRAINING CLOSER TO CUSTOMERS”

Training courses are the occasion for pilots and technicians to get the most in-depth look at the machine they work with, to get to know its inner workings so they may operate or maintain it in the safest and most efficient possible manner. Laurent Vautherin, Airbus Helicopters’ Vice President Training, Simulation and Customer Flight Ops Services, talks to *Rotor* about the role, and evolution, of helicopter training courses.

**Article:** Heather Couthaud

## Why is training so important?

**Laurent Vautherin:** Training is important because it is where our customers acquire the knowledge and skills necessary to operate the aircraft in the best and safest way. We know that quality training makes a difference in pilots’ and flight crews’ ability to safely operate the aircraft in a range of conditions, so we continue to make significant investments in full-motion simulators, computer-aided training and state of the art training tools. Through our Flight Operations, we also provide safety material to our customers, like Flight Crew Operating Manuals (FCOM), Quick Reference Handbooks (QRH) and safety videos.

## What makes Airbus Helicopters’ training offer the best choice for technicians and pilots?

**L.V.:** We’re different in two ways: first we have a strong network of training centres, letting us be close to customers. In training that’s important, because when people need to be away for training, having a centre nearby means they’re absent less time from their operations and at less cost. Second, we also have a unique combination of instructors, means and simulators compared to our competitors. This allows us to update our means as the design of our helicopters evolves, and more generally to ensure the quality of the training. It’s a question of keeping a high standard from the beginning to the end of training.

**Airbus Helicopters’ digital transformation has also brought changes to training. How is this type of training suited to customer needs?**  
**L.V.:** We are changing the traditional

training model by introducing a number of new tools improving on our current mix of theory and practice, in an on-going rollout (cf. *infographic on page 12*). For instance, we are developing a web-based module available before the course, where we explain the maintenance concept and provide general information about the aircraft. In class, trainees will also have access to virtual aircraft so they can see the systems and subsystems, and so that they can practice and perform troubleshooting. And post-course, we are developing web-based content (like safety videos) allowing our customers to dig deeper into mission equipment or specific procedures. Overall, using digital tools allows our customers to enrich their knowledge in the avionics system, to have a much more interactive training environment and to have access to distance learning, as well as having classes focus on the most value-added topics. All of this contributes to making our customers fully operational.

## What are the key elements of Airbus Helicopters’ training strategy?

**L.V.:** Our strategy comprises five main areas. One is to standardise our training worldwide, to ensure that we deliver the right level of quality in each of our training centres, knowing that the regulation in one region may be different from another. The second is to modernise our pedagogical approach, by introducing digital tools into our courses. The third element of our strategy is to reduce the overall cost of training for customers. For instance, using those same digital tools we’re striving to condense the course content and to focus on what our customers need. On the light helicopters, we have been able to reduce the technician course from four weeks to three weeks. A fourth element is customer experience, from enrolment to accommodation, in particular through the development of a worldwide Learning Management System. And last but not least, we want to diversify our offer to respond better to specific customer needs. For instance, we can provide maturation courses on some mission equipment if needed, or develop customised courses when relevant. This is what we do for military customers and also certain law enforcement agencies in the U.S.A. In some cases, we may even offer ab initio courses or instructor secondment\*. ■

### Worldwide training figures in 2015

**23 training centres:**

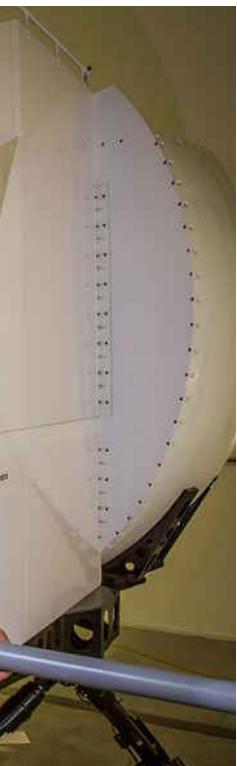
- 3 ab initio centres
- 13 simulation centres
- 27 simulators

**7,900 flight hours in aircraft**

**12,000 trainees  
(technicians and pilots)**

**29,000 simulation hours**

\* Instructor secondment: an instructor is dispatched to a customer’s site to perform additional training at the customer premises and using customer aircraft.



# NEW OFFER FOR TECHNICIAN & PILOT TRAINING

## 1 / PREPARATION

Familiarisation with the helicopter, the aircraft documentation and to prepare for the training course

### TECHNICIAN

### PILOT



**HELICOPTER**  
Web-based virtual 3D helicopter to become familiar with the aircraft.



**DOCUMENTATION**  
Web-based training documentation.



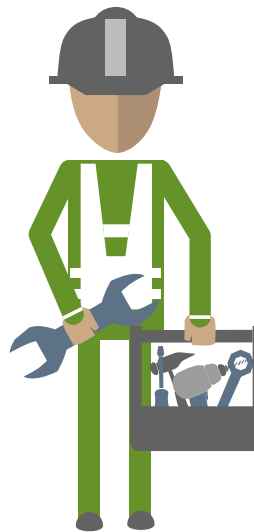
**COURSE**  
The Learning Management System provides trainees with the course, content and schedule.

## 2 / TRAINING

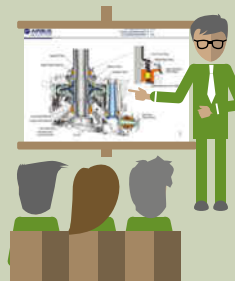
To fly the helicopter and perform troubleshooting following procedures thanks to an in-depth system knowledge and practical training.

### TECHNICIAN

### THEORETICAL



Acquire the knowledge necessary to understand the helicopter systems.



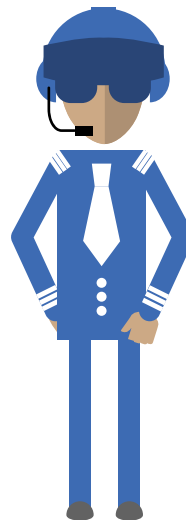
**Courseware**  
description of helicopter's functions.



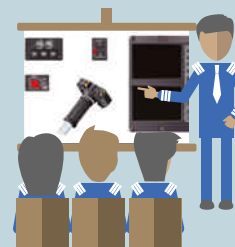
**Interactive Training Manual**  
on iPad.

### PILOT

### THEORETICAL



Acquire the knowledge necessary to understand the helicopter systems.



**Courseware:**  
Description of helicopter's functions.



Light training devices enable trainees to explore **HMI** systems.

Airbus Helicopters provides complete training solutions in 23 training centres throughout the world – from ab initio to recurrent, along with type rating and mission training for both technicians and pilots.

## PRACTICAL

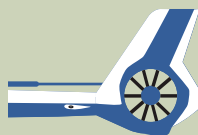
Train on maintenance procedures including trouble shooting in both virtual and real environments.

Maintenance Simulation Training Devices (MSTDs)



Helionix Advanced Training Device.

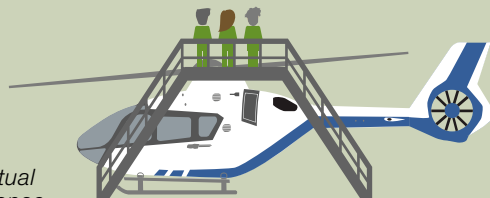
Maintenance Training Devices (MTDs) adapted to customer configurations.



Component Training Rig.



VMT Virtual Maintenance Trainer.



Fully functional training mock-up.

## 3 / RECURRENT

To maintain proficiency and operate safely.

## CONTINUING EDUCATION

Refresher training courses.

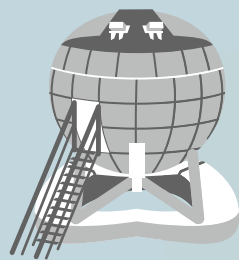


Web based training.

## PRACTICAL

Obtain the necessary skills to safely pilot the helicopter.

**FSTD:** Simulator which replicates aircraft for normal and abnormal flight procedures.



Cockpit Trainer  
Hand's on training.



Real flight

## SUPPORT FOR EIS

Mission system module to ease helicopter operation.



Ops Doc (FCOM, FOBN...)

eApps



FSTD



## RECURRENT TRAINING

To increase safety and efficiency.

Real flight



HMI: Human Machine Interface.

FSTD: Full Simulation Training Device.

EIS: Entry Into Service.

FCOM: Flight Crew Operating Manual.

FOBN: Flight Ops Briefing Note.



# CUSTOMER FLIGHT OPERATIONS

Customer Flight Operations is dedicated to helping operators enhance their aircraft's performance and safety in use.

"The services of Customer Flight Operations are oriented towards a single goal: increasing aviation safety, while helping our customers get the most out of their aircraft," says Michel Deparis, Head of Pilot Training & Flight Operation at Airbus Helicopters. "These services, which complement the training received by pilots during type rating, provide a better understanding of our aircraft, improve performance, and ultimately enhance aviation safety."

## SAFETY AND PROFITABILITY

In practical terms, Customer Flight Operations makes a range of tools available to customers. A first set of tools supplies information that helps the operator to draft their own operational documentation, with the focus on Airbus Helicopters' recommendations regarding the use of the autopilot or crew coordination. These tools include Flight Operations Briefing Notes (FOBN), which are freely available on the TIPI exchange platform, and Flight Crew Operating Manuals (FCOM), with Airbus Helicopters the first to supply such documents in the helicopter industry. FCOMs now come with Quick Reference Handbooks (QRH), also known as "pilot checklists."

In a similar vein, the Customer Flight Operations service

has produced a range of videos demonstrating how certain emergency procedures should be conducted on light helicopters.

"In addition to these tools, which are mainly concerned with aviation safety, we are also developing apps for tablets so that our customers can get the most out of their helicopters performance-wise," says Deparis. "For example, we offer a range of apps for calculating weight and balance. These apps are now available for H125s, H130s, H135s, H145s and H175s as a fully integrated component of Airbus Helicopters' products and services, and are gradually being rolled out across our entire range of aircraft."

## EXPERTISE

Rounding off the portfolio of quality services is technical support. Using the WebTek system, customers can post questions online and have them answered directly by experts. Experienced pilots can also be sent out to provide support to customers on-site. The aim in the process is to provide customers with specialised consultation on their aircraft and in their sphere of operations. Airbus Helicopters' services strive to offer customers the right balance between cost and benefits in terms of profitability and operational safety. ■



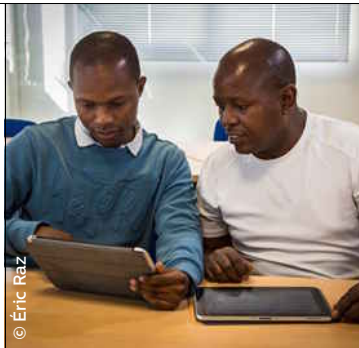
**More information  
in Rotor online**

# SPEAKING FROM EXPERIENCE

Local resources, web based training, going the extra mile...  
Four customers talk about their experiences training at Airbus Helicopters.

**Captain José Antonio da Costa Vasques,**  
Instructor Operating Station H225M –  
Força Aérea Brasileira

“We did an IOS (Instructor Operating Station) training on the H225 simulator in October 2016. It met our expectations, particularly the improvement of the CRM (cockpit resource management) doctrine. We decided to go to Helibras Training Center in Rio de Janeiro because having a simulator with this capacity in Brazil is a contributing factor to better training for pilots and local teams, as is access [to the simulator] and the cost of travel abroad which can, on occasion, inhibit training. The exchange in the cockpit, the ease in understanding the language, the database of imagery with Brazilian scenes, and the support offered by Helibras instructors are all advantages of such geographic proximity.” ■



**Tshimologo Dichaba and Lorekang Carrel,**  
Mechanics H225,  
Botswana Defence Force

“Our course lasted seven weeks: one with Turbomeca for the engines and six with Airbus Helicopters for the airframe. The training manager prepared everything in advance regarding logistics so we could feel almost at home here: he rented our car, took care of the accommodation...We got a warm welcome.”

**Lorekang Carrel**

“All the tools we are using in our course are very good, especially the training we are doing directly on the aircraft, where all parts are removed so that we can learn everything we need to know about them. This is the second time I am doing an Airbus Helicopters Training (I did my first in 2003 to become a mechanic for the AS350 B3) and of course, the content is very different regarding all of the modern elements and the double systems of the H225.”

**Tshimologo Dichaba** ■

**Jonathan Capillaire,**  
H130 mechanics course, Corail Helicopters

“I’m taking this course so I can authorise major overhauls of the H130. I think it’s really great. I’ve got access to some excellent tools, such as the tablet. I can make all my notes on it and access all the documentation on mechanics and the courses themselves. During practical sessions, the instructor takes the time to explain all the different parts of the helicopter to us and spells out the need to follow the technical documentation. I’m also delighted with the logistics of the course and how it’s organised. Before I arrived I received a file with all information I was going to need, like the course timetable, details on the hotel and transport, and even tourist information so I could make the most of my free time.” ■



**Alfredo Silva,**  
H215 pilot transition course,  
Bolivian Armed Forces

“This course begins with an introduction to twin-engine systems and digital control panels. Next comes the ground school, where we broaden our knowledge of the aircraft’s various systems: electrical, fuel, etc. We are then tested on what we have learned before moving on to the simulator phase; every pilot completes two sessions. Being in the simulator is a great experience. It is very realistic in terms of how it feels to use the various systems and how they affect the flight itself. We are now doing practical flight training, applying everything we learned in our classes. We are extremely pleased with the course. The atmosphere is good. The instructors are also very experienced and very good at sharing their knowledge. A key feature of both our theory and flight training at Airbus was the fact that the instructors had a military background, which meant that every aspect of the aerospace training we received throughout the course was covered more comprehensively.” ■

UP ABOVE







© Sébastien Diernaz / Corail Hélicoptères - An H130 from Corail Helicopters on Reunion Island.

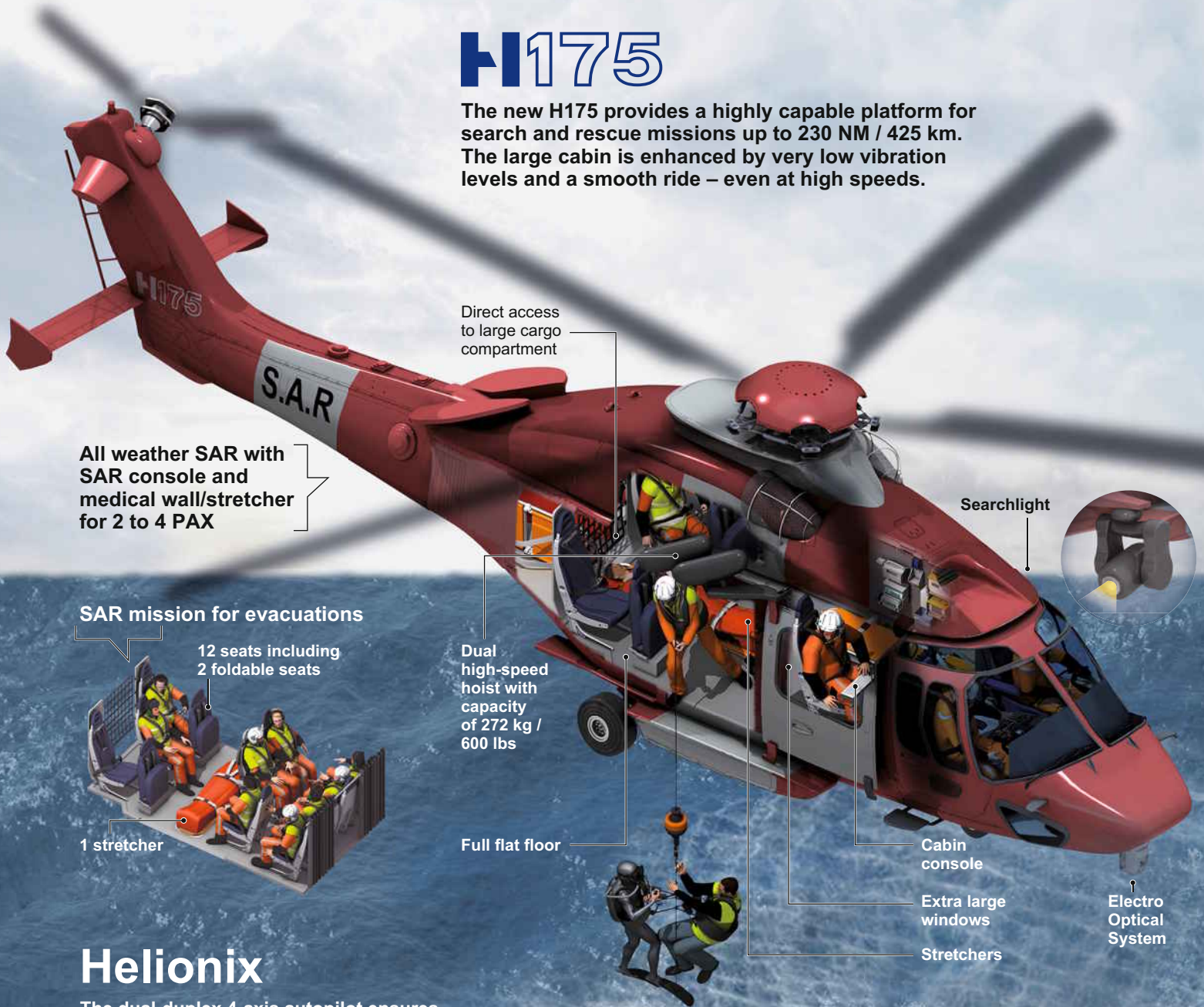
LIFE OF THE RANGE

# SAR

Search and rescue agencies around the world count on the reliability, performance and efficiency of Airbus Helicopters rotorcraft for their critical missions. On call every day, Airbus Helicopters' light, medium and medium-heavy rotorcraft are ready for search and rescue duties.

## H175

The new H175 provides a highly capable platform for search and rescue missions up to 230 NM / 425 km. The large cabin is enhanced by very low vibration levels and a smooth ride – even at high speeds.



All weather SAR with SAR console and medical wall/stretcher for 2 to 4 PAX

SAR mission for evacuations

12 seats including 2 foldable seats

1 stretcher

Direct access to large cargo compartment

Dual high-speed hoist with capacity of 272 kg / 600 lbs

Full flat floor

Searchlight

Cabin console

Extra large windows

Stretchers

Electro Optical System

## Helionix

The dual-duplex 4-axis autopilot ensures flight precision and stability during flight, even in the harshest weather conditions.



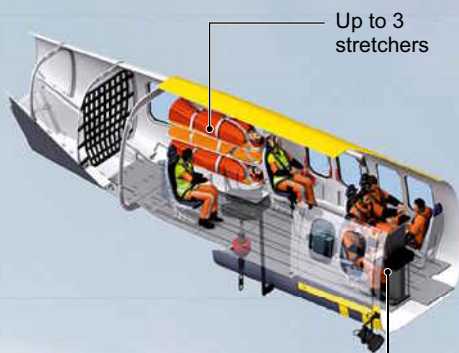
Automatic recovery in the event of pilot disorientation.

Hands-off one-engine failure management mode.



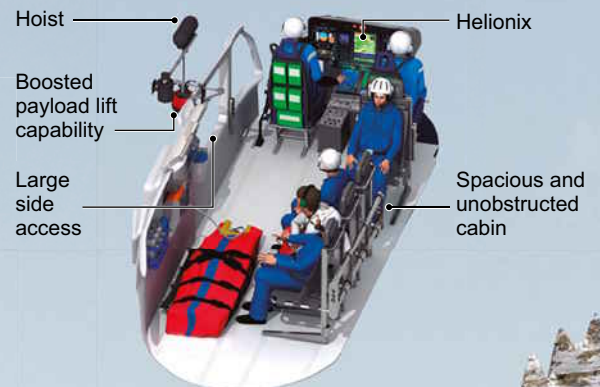
# H225

The H225 combines excellent payload lift and range capabilities for highly demanding SAR missions. It offers fast cruise speeds, along with flight endurance that exceeds 5 h. and 30 min.



# H145

The H145 offers large and usable interior volume for equipment and personnel, wide side doors and rear clamshell doors for loading/unloading. Safe rotor systems (with Fenestron®) allow safe on ground and in-flight operations.

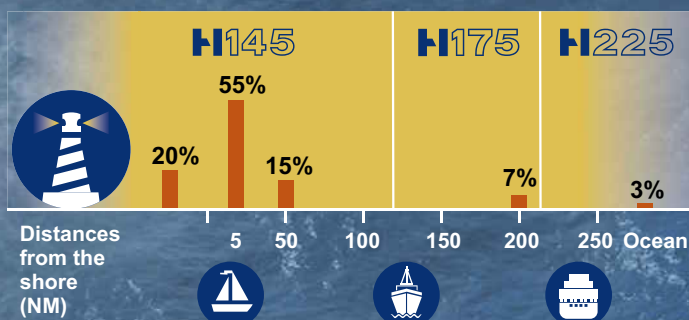


The H145 can hover up to 30 minutes at an altitude of 11,300 feet (ISA+20°C) for hoisting operations with a mission weight of 3,350 kg.



## Ready to save lives

Choice of platform driven by a balance between: the SAR area of responsibility and the number of rescues at radius of action.



## Technical data

	H145	H175	H225
SAR radius of action (incl reserve 30')	115 NM 212 km	230 NM 425 km	275 NM 509 km
SAR RoA with 1 hr search (incl reserve 30')	75 NM 139 km	180 NM 333 km	220 NM 407 km
Max endurance (without reserve)	3h30'	5h30'	5h45'
Cruise speed	130 kt 241 km/h	148 kt 274 km/h	144 kt 266 km/h
Max. fuel	723 kg	2,067 kg	2,771 kg

# The Tiger HAD bares its teeth

**After serving in Afghanistan, Libya and Mali**, the Tiger was deployed in the Central African Republic between November 2014 and May 2016, as part of Operation Sangaris. For the HAD version and its crews, it proved to be a baptism of fire.

Article: Alexandre Marchand - Photos: Armée de Terre française

The 1<sup>st</sup> Combat Helicopter Regiment (RHC), the first French Army Aviation (ALAT) regiment to receive the Tiger HAD, is based in Phalsbourg, northeastern France. Just 40 kilometres from the Rhine, it is situated in a part of the world that was very much at the centre of 20th-century history. Today's conflict zones are a good deal further away, however. "We did a lot of training ahead of the deployment, including regiment exercises and simulator sessions," explained Lieutenant Florian and Captain Guillaume, two of the pilots who took part in the final phase of Operation Sangaris, in the first half of 2016. "Before we left we went over and over the various scenarios we were likely to face locally, paying special attention to landing in dusty conditions."

Then came the posting to Bangui and a reunion with the comrades they had come to replace. In place were two Tiger HADs and two Pumas: four aircraft with four crews and the leanest of support teams.

The facilities were spartan but not altogether unpleasant. "Our living quarters were in a hangar, which was the good thing about being based at an international airport," said the two men. "The only downside was that we couldn't leave the camp because of the security situation in the country."

## DEALING WITH DUST AND HEAT EVERYDAY

A Sangaris assignment involves spending four months on what could be described as a stationary aircraft carrier, 600 kilometres from the sea, though the crews do have the advantage of being as close as possible to their aircraft, meaning they can scramble at a moment's notice. "Our mission was to intervene as a back-up force, in support of the UN troops, whose brief was to keep the peace in the country," said Captain Thibault, the detachment commander. The fact there were only

two Tigers on the ground meant availability was an issue that required a great deal of planning, as did the scheduling of maintenance and preventive checks. The detachment took very good care of the aircraft. Though the Central African Republic is a lush, green country, dust is very much a problem in some areas, while temperatures easily exceed 30°C and humidity can be as high as 70 percent.

"We kept a very close eye on the wear and tear of the blades and engines," added Captain Thibault. "The main gear boxes and the avionics bay were cleaned regularly. Preventive maintenance was essential."

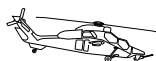
One hour's flying time away from Bangui, the town of Sibut is home to an advanced French airbase. Making the journey alone or with a Puma for company, one of the Tigers would stop over there for a few hours or days at a time. The logistics back-up could not have been smaller, with just two or three mechanics on hand per aircraft. With an extra-large fuel tank under one wing and rockets or missiles under the other, the Tiger can stay in the air for nearly four hours. Criss-crossing the country, the aircraft got information to troops on the ground and offered them protection, making themselves seen and heard in the process. The Tiger hunts both day and night, making full use of its rapid response capability and range.

"The power of the HAD meant we could carry all the shells we needed for the cannon without it impacting on range," said our pilots. "We had no hesitation about carrying Hellfire missiles because we sometimes had to deal with armed gangs, and it was hard to gauge what firepower they had." Though the cannons were used on occasion, not a single missile was fired in combat during Operation Sangaris – an indication, perhaps, of another of the Tiger's unique attributes: its ability to show its strength without having to use it. ■

- 1 – The HAD version of the Tiger had a baptism of fire in the Central African Republic. Following interventions in Afghanistan and Libya, the combat helicopter earned even more stripes for itself here.
- 2 – Support operations were entrusted to the Puma, a veteran of African operations, with the utility helicopter cementing its already solid reputation.
- 3 – Speed of response, range and firepower: the Tiger once again showed what it can do in a highly demanding theatre of operations.
- 4 – After operating at altitude in Afghanistan and in drought conditions in Mali, the Tiger came up against the tropical climate of the Central African Republic, where the two rotorcraft deployed offered support to UN forces.
- 5 – With only two aircraft deployed in the country, the 1st Combat Helicopter Regiment's (RHC) small contingent of personnel had to schedule maintenance work just right to keep the helicopters available, a task to which they proved equal.



## Tiger HAD



- Capacity: 1 pilot (front seat)  
+ 1 aircraft commander (rear seat)
- Engine: 2MTR 390 Step  
1.5 FADEC
- Fast cruise speed: 271 km/h  
– 146 kts
- Maximum range: 740 km –  
400 NM (armed, standard  
fuel tanks)



# MISSION



**1 – Two H135 of Beijing 999 Emergency Rescue Centre are used for EMS missions and the inter-hospital transport in Beijing and its region.**

**2 – China could require some 2,000 helicopters, with a first realistic expectation of 200 initial helicopters to be placed over the next ten to fifteen years.**

**3 – Mr. Yin Wei, director of Emergency Dept. of Xijing Hospital with the H130 EMS from Xi'an Helicopter.**

CHINA

# A life-saving response: helicopter EMS

**The availability of helicopter-assisted emergency medical services** is a vital need in China, whose 1.3 billion inhabitants live in both congested cities and remote villages. A look at how this segment is developing in the world's most populous country.

Article: Heather Couthaud

The all-out flight of a helicopter carrying a patient to hospital, its hover at the scene of a disaster – worldwide, some 1,300 aircraft in the Airbus Helicopters range perform emergency medical services (HEMS). In Asia, that number is still in its infancy: at the end of 2015 just 80 Airbus Helicopters aircraft flew EMS in the Asia-Pacific region.

Yet the numbers are catching up. In China EMS, though still small, is a growth segment. And not surprisingly. Natural disasters and freeway accidents take a toll in a country where emergency resources face a stark duality: providing assistance in congested mega cities, while serving the needs of remote areas with inadequate infrastructure. Helicopter EMS has proven to be a life-saving response to both urban and rural needs.

Before 2014, the country had no dedicated HEMS unit. Emergency transport was handled by police aircraft or by helicopters attached to hospitals, such as two H135s used by Honliv hospital in Henan for inter-hospital transfers. Aircraft, like an H125 owned by Beijing Capital Helicopter, were often tasked with a variety of missions, EMS just one among them. And while such solutions succeed in bringing patients to hospital, there was no guarantee of adequate equipment available on board.

## A BIG STEP FORWARD

In 2014, Beijing 999 Emergency Rescue Centre took delivery of an H135, in the process supplying China with its first helicopter dedicated to HEMS missions. The light twin aircraft, with an increased payload and medical systems from Bucher, was set to work operating inter-provincial intensive care unit (ICU) flights between Beijing, Tianjin, Hebei, Inner Mongolia and Shandong province. A second H135 joined it in March of the following year.

"The two H135 are being used for running EMS missions and the inter-hospital transport in Beijing and the neighboring provinces. "So far, it performs very well", said Chongyue Jia, head of Beijing 999 Emergency Rescue Centre. "The regulation on low altitude air traffic in China is loosening. I believe the cooperation with Airbus Helicopters will benefit the people and allow us to save more lives." Quickly following suit, in 2015 MIT Group's subsidiary, HEMS 999, signed a contract for seven H130 EMS helicopters destined for emergency services in Shandong

province. A special EMS kit allowing two pilots, one stretcher with necessary EMS equipment and three medical attendants was specially designed by AAT in order to fulfil the local regulation requirements and constraints. The decision placed the H130 alongside the H135 and H145 as the reference for rescue helicopters in the region.

The potential for acquisitions like these is great. In mature markets, the need is an average of two EMS helicopters per million inhabitants; by this calculation, China could require some 2,000 helicopters, with an expectation of 200 initial helicopters placed over the next ten to fifteen years. However, EMS still faces obstacles, including sufficient financing and access to low-altitude airspace. In Asia-Pacific, EMS accounts for 3 per cent of the market, mainly limited to more mature markets (Japan, New Zealand, Australia, etc.). But in its developing countries, EMS growth has been slower, primarily due to the need for government involvement.

## THE H130 IS GAINING GROUND

"Our H130 has a good and unobstructed view for the pilots to see obstacles and landing sites, especially for EMS missions where routes and landing areas are uncertain," explained Sun Huaihe, CEO of Xi'an Helicopters. "It has a co-pilot seat so that two pilots can work together during complicated EMS missions, or so the co-pilot can gain flight hours. For a single-engine helicopter, its cabin has space to install a stretcher and a rack for medical equipment and oxygen systems. With wide sliding doors, the patient can easily be loaded and unloaded. If there is only one pilot, the co-pilot seat can be made into a doctor's seat. We are satisfied with the H130's performance for EMS."

Plans are going ahead to meet the country's HEMS needs. In mid-2016, a consortium named Qingdao United General Aviation Industrial Development Company (Qingdao United) signed a contract for 100 H135s to be assembled in China, thereby leading to the launch of an H135 final assembly line (FAL) in Qingdao, Shandong province. The intention is to meet the burgeoning demand for the H135 in aerial utilities, civil and parapublic services – and above all in EMS. ■



More information  
in Rotor online

## Airbus Helicopters in China

- **Offices:** Beijing, Shanghai, Shenzhen, Chengdu, Wuhan, Harbin and Hong Kong
- **MRO support:** CGAMEC joint venture, Shenzhen, and BCAH center in Beijing
- **Logistics hub:** Hong Kong
- **H225 full-flight training simulator:** Beijing

**1 – The H215M was designed with maintainability in mind.**

**2 – The six Bolivian H215M have already carried out more than 1,600 flight hours in more than 1,000 missions.**

**3 – The H215M is perfectly suited to operate in hot temperatures and at high altitudes typical in Bolivia.**

## BOLIVIA The Jatun Puma in its natural habitat

**In its two years of operation in Bolivia,** the H215M has proved its ability to operate effectively and safely in high & hot conditions.

Article: Belén Morant – Photos: Anthony Pecchi

1 a.m. Monday 29 August. There is no let-up in the torrential rains affecting the department of Santa Cruz, Bolivia, leaving people trapped in the Espejillos area by the rising river Pirai. The S.O.S. call is urgent: there's been a report of a group of people who have disappeared and are at risk of hypothermia. The Bolivian Air Force's Search and Rescue Group is activated immediately, in spite of the dark night and bad weather, with two H215Ms deployed for SAR operations. The pilots, who perform the operation with night vision goggles, are experienced; the victims are located and 32 people are rescued safe and sound, with two requiring immediate care for hypothermia. At four o' clock in the morning the rescue operation is complete – a successful mission has been accomplished.

"We already have six H215Ms baptised with the name Jatun Puma. They provide the Armed Forces with the capacity to carry out medical evacuation missions, to support the civil population during natural disasters, to transport people and to combat drug trafficking," explains the General Commander of the Bolivian Air Force, Celier Aparicio Arispe Rosas. "The H215M is a fundamental tool for us, because it has enabled us to expand our load capacity to 20 passengers, thus reducing the volume of flights. We've been operating for more than two years with the version C1e, the short one, which is a perfect fit for the demands of flights in Bolivia, which involve high altitudes, often

above 13,000 feet, high temperatures and a high humidity rate."

### **THE H215M, MADE TO MEASURE FOR BOLIVIA**


The Bolivian Air Force, a launch customer for the H215M, received its first helicopter in August 2014, with the aim of gradually replacing its old fleet. In October they received the sixth and final aircraft. They've used them for more than 1,000 missions, such as the one carried out in Espejillos, and more than 1,600 flight hours from their bases in Santa Cruz and Chimoré, to the north of La Paz. The relationship between the Bolivian Air Force and Airbus Helicopters goes back to 1975, when they started to use the Lama helicopter, followed by the Alouette, the B3, the EC145 and finally the H215M Jatun Puma.

"In Bolivia we have three types of environment: plains, valleys and high plateaus. It's not easy to find helicopters that can adapt well, with sufficient power margin at high altitudes. On the Bolivian high plateau, power is fundamental. It's also necessary in our operations from the Chimoré base, which is at more than 1,000 meters, with temperatures often in excess of 40 degrees and very high humidity," explains General Arispe. "The H215M Jatun Puma, in addition to the greater flexibility that it offers, enables us to carry out a single flight for every three flights required by the previous helicopter, so the final cost to benefit ratio is obvious. Our evaluation after its two years of operation is highly positive." ■

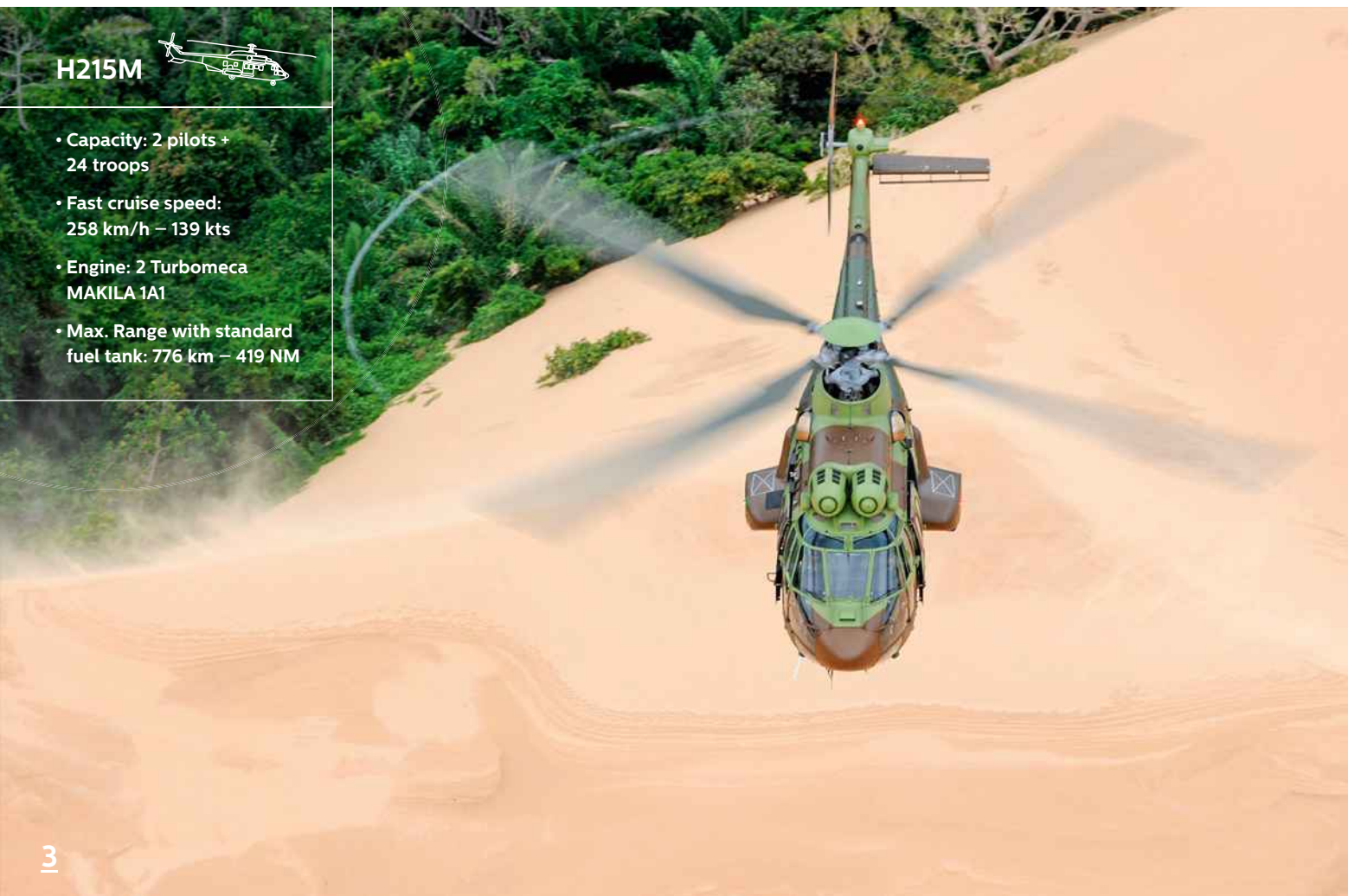
"The H215M's four-axis autopilot has enabled a reduction in pilot workload of around 40 per cent, compared to the previous model," says General Arispe.





**H215M** 

- Capacity: 2 pilots + 24 troops
- Fast cruise speed: 258 km/h – 139 kts
- Engine: 2 Turbomeca MAKILA 1A1
- Max. Range with standard fuel tank: 776 km – 419 NM



# An onboard flight assistant

**Helionix is an avionics system that offers operators enhanced mission flexibility and safety.** Designed on the basis of a family concept, it is in service on the H145 and H175 and has now been certified for the H135.

Article: Eva Schaar



© Airbus Helicopters - Christian Keller

## WHAT IS HELIONIX?

Helionix is an avionics suite that reduces pilot workload and enhances safety. It features two computers and an all-screen cockpit comprising three (in the H135/H145) or four (in the H160/H175) display screens compatible with night vision goggles (NVG). It also offers a series of functions: flight management, autopilot, navigation, awareness of the flight environment, vehicle management, and maintenance. A ground segment enables processing of flight and maintenance data. ■

## WHY DEVELOP HELIONIX?

Development of Helionix is an integral part of the handover from one generation of Airbus Helicopters aircraft to another. Customers have been looking for helicopters that are easier to use and that offer them more in the way of safety and competitiveness, this at a time when systems are becoming increasingly complex and integrated. In seeking to achieve that, Airbus Helicopters has stripped back and streamlined its cockpits, equipping them with fewer screens and fewer yet more powerful computers, all with a view to reducing weight and costs and making maintenance easier. Helionix is an integrated, compact system that responds to the need to enable crews to manage vehicle systems transparently. New autopilot modes cut pilot workloads, while the system also controls new approach paths (e.g. LPV). In supporting missions, Helionix improves operational safety by increasing situational awareness through an advanced mapping system, a digital display of the terrain and a highly effective terrain awareness system. Helionix also simplifies the maintenance process, leading to increased aircraft availability. ■



© Airbus Helicopters – Philipp Franceschini

### WHAT'S NEXT?

The next enhanced version should be certified next year, on the H175 first of all. Airbus Helicopters has focused its efforts on consolidating the H175's SAR capabilities, assisting approaches to offshore platforms through the navigation system, and making functional improvements in response to customer feedback. Work has also centred on the mission system, specifically increased protection as offered by the Helicopter Terrain Awareness System (HTAWS) and significant improvements to the Synthetic Vision System (SVS), thanks to which the pilot receives a pseudo-3D image of the terrain on their screen. This gives them enhanced awareness of the flight environment, particularly when visibility is poor. ■

### WHERE CAN HELIONIX BE FOUND?

Helionix is being installed in a steadily growing number of Airbus Helicopters rotorcraft. The H135 received the EASA type certificate for its new Helionix cockpit on 15 November, while the system is already operational on the H145 and H175. Around 120 helicopters have been equipped with the new suite and have now chalked up 40,000 flight hours with it onboard. Feedback from customers reveals that they are especially appreciative of Helionix's human-machine interface and the autopilot, which greatly reduces workload and allows them to focus more on carrying out their missions. ■



© Anthony Pecchi



© Airbus Helicopters – Christian Keller

## KEY FIGURES

Helionix is available on the **H175, H160, H145 and H135.**

**40,000 flight** hours already completed.

From **two to four** screens

**200** people work on developing and integrating Helionix.

# The past and future in flight over Japan

**Known for its healthy dose of population density and given to high-tech solutions,** Japan is a natural fit for rotorcraft.

Little wonder that Airbus Helicopters enjoys a lengthy relationship, dating back 50 years, with the Asian island-nation.

Article: Heather Couthaud

Airbus Helicopters' history in Japan began with the delivery of an Alouette II to Mitsuya Air Service (now Toho Air Service). Since then, more than 450 rotary aircraft have exchanged hands for operations in law enforcement, training, fire-fighting, disaster relief, aerial work, news gathering, executive and passenger transport, and emergency medical services. Some 100 customers, including the Ministry of Defence and Japan Coast Guard, and commercial operators like Aero Asahi, Nakanihon Air Service and Toho Air Service, operate in Japanese skies. With 341 helicopters in service, including the H145/BK117 produced in-country, Airbus Helicopters holds a 55 per cent market share in the civil and parapublic sector.

## STRONG PREFERENCE FOR TWIN-ENGINE HELICOPTERS

The country's rotorcraft needs hinge primarily on the fleet replacement market. Future opportunities may also present themselves in the Japan Self-Defence Force. This, coupled with the Japanese predilection for twin-engine helicopters – single-engines are outranked two-to-one by twins – marks a need for reliable, safe, and efficient rotorcraft. Such need is often met in the Dauphin range; a fleet of AS365s are used by Japanese law enforcement agencies, for example. Currently fifty-four Dauphin helicopters operate in Japan, with more to come. At the Japan International Aerospace Exhibition this year, Fukuoka City ordered an AS365 N3+ as part of its fleet-replacement programme. And the Japanese news media primarily employ the Dauphin and H135, where helicopters are often equipped with sophisticated equipment. Dauphins are used in fire-fighting and disaster relief missions, too. "Our aircraft play an important role in the protection and safeguarding of Japan's islands," says Managing Director of Airbus Helicopters Japan, Olivier Tillier, who began in the position in November. Nor is the country's fleet limited to the Dauphin: on the light side, debut customer Mikikanko Co., Ltd. signed

a contract in October for an H125, the first purchase of an Airbus Helicopters aircraft for this company. On the medium-heavy spectrum, the H160 may well fit the bill for those needing to upgrade their Dauphin fleets. "The Dauphin is the aircraft the most in demand by Japanese customers for disaster relief, electronic news gathering (ENG) and law enforcement," says Head of Sales & Marketing, Guillaume Leprince. "In anticipation of this, we are preparing the entry-into-service of the H160 as a replacement for these fleets."

## FOCUSED ON SERVICES

With such abundance in the skies, the challenge is to make Japan's helicopter industry safer, more reliable and cost-efficient. Manufacturers are pressed to provide high quality products and services. "In line with Airbus Group's initiative, we intend to promote our R&D activities in the country," says President Airbus Group Japan, Stéphane Ginoux. "Further, to build on our strong local footprint and our own capabilities, we're targeting an MRO facility which could play a role as a regional hub. One of its most vital contributions would be in supporting the Airbus Helicopters fleet of other countries in the region, namely Korea and China." The facility operates under the requisite standards: as a Korean Civil Aviation Bureau (KCAB)-approved maintenance organisation, and a European Aviation Safety Agency (EASA)-approved blade repair centre. Customer support, aircraft availability and a high level of service are key in Japan. Thanks to a comprehensive range of services in the manufacturer's HCare package, Airbus Helicopters Japan recently welcomed the signing of a performance based logistics (PBL) contract with the Navy, a solution already contracted by the Army, in support of their fleets. "It is important that our offerings ensure and maintain a high level of customer satisfaction to meet Japanese expectations," says Olivier Tillier. "Just as they've done for the past half-century." ■

**1 – Nagoya City Fire Department uses their Dauphin AS365 for firefighting, disaster prevention, emergency medical transport and rescue missions.**

**2 – Airbus Helicopters Japan provides MRO activities in the centre of Kobe Airport.**

**3 – Olivier Tillier, Managing Director Airbus Helicopters Japan Co. Ltd since 1 November 2016.**

"We are proud to be the helicopter of choice for EMS and Doctor-Heli."

Olivier Tillier, Managing Director of Airbus Helicopters Japan.

## Airbus in Japan – One roof

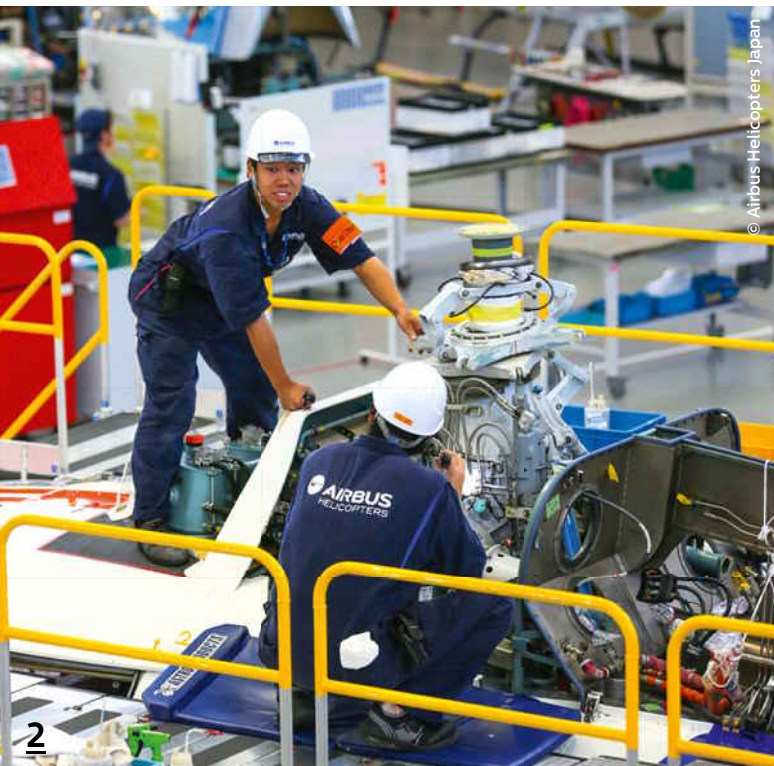
**Under its "one roof" policy, Airbus Group is strengthening its presence in a number of key markets, bringing together local operations under a single company to unite expertise. Japan is a strategic country for Airbus Group, which has a growing presence in every sector of the market and an increasing footprint, from Airbus aircraft and the thriving helicopter market, to contributions to Japan's space sector.**



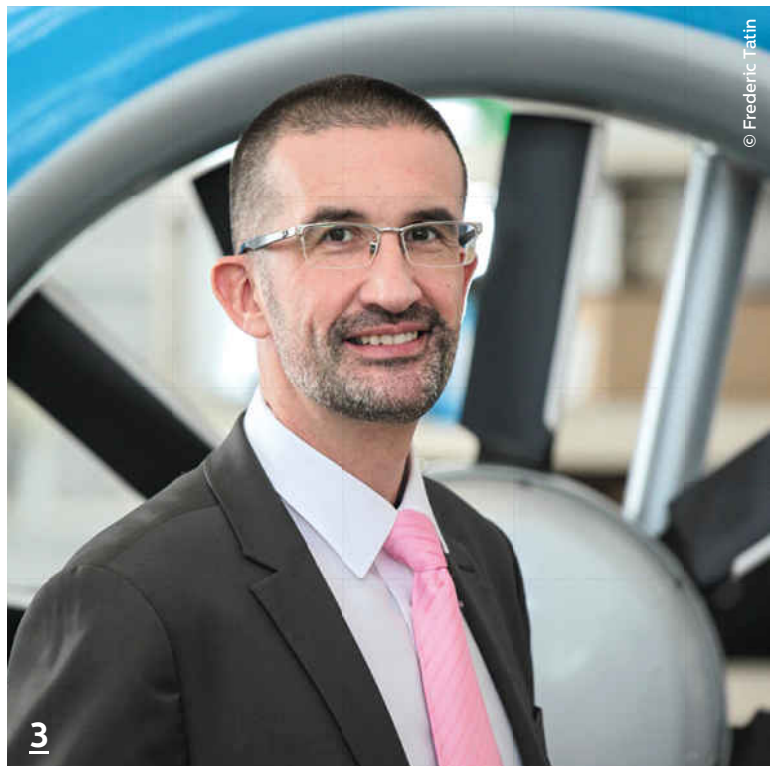
## Airbus Helicopters Japan

- Established: 2009
- Offices: Tokyo and Kobe
- Staff: 281
- MRO support: Kobe Airport, Tokyo Heliport
- Training: EC135 full-flight simulator and avionics trainer
- Activities: Aircraft sales; spare parts and logistics; maintenance, repair and overhaul (MRO); customisation, design and engineering; technical support; technical publications; pilot and mechanics training
- Fleet: 288 aircraft in service (excluding H145/BK117): H120, H125, H130, AS355, H135, H155, AS365, H215, H225

1



2



3

# Made for the sea

**“What would you take with you to a desert island?”** A realistic response would be an emergency doctor: emergency health care is a major challenge on many small islands or remote offshore wind farms. To overcome this challenge, Northern HeliCopter (NHC) puts its trust in telemedicine and Airbus Helicopters.

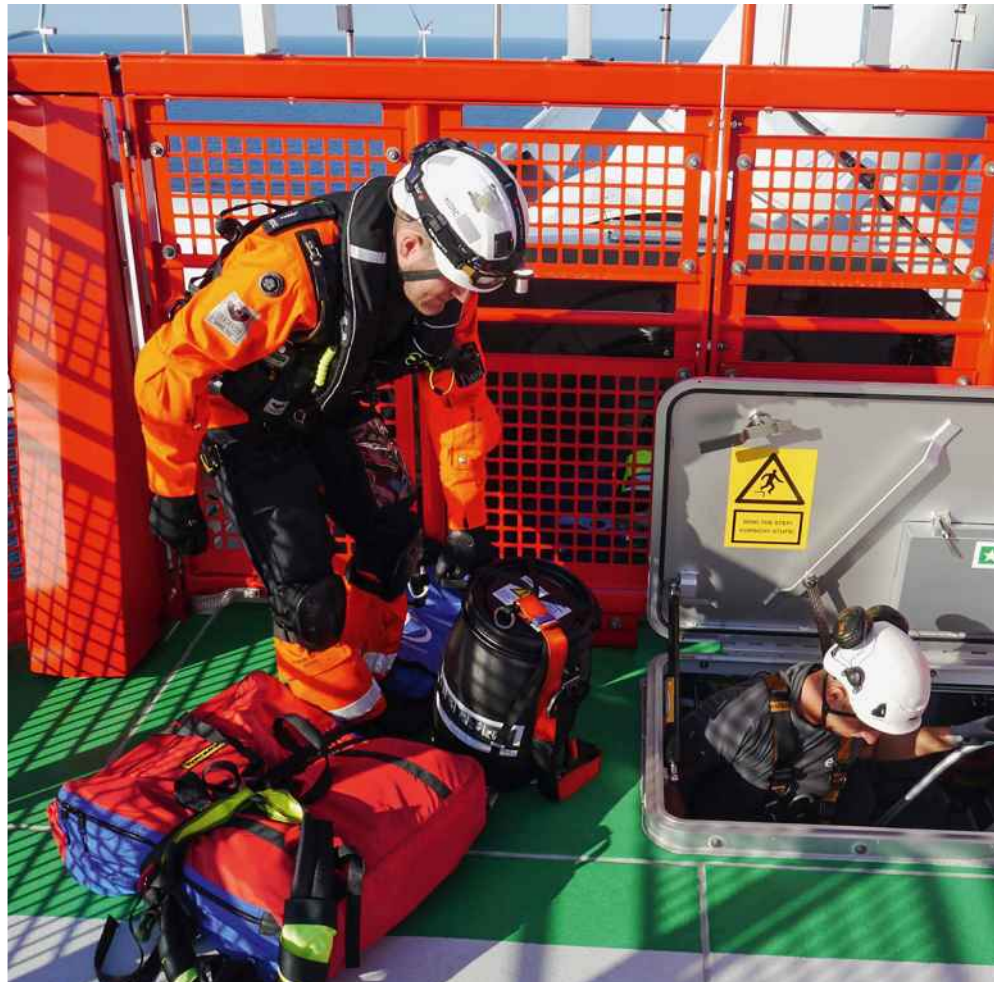
Article: Beata Cece - Photos: Northern HeliCopter

## PITFALLS OF ISLAND LIVING

When a pregnant woman suddenly has strong contractions, it quickly becomes clear that she needs to get to a hospital, fast. But calling an ambulance is out of the question when the expectant mother lives with her family on an East Frisian island in the North Sea. Inhabitants of this archipelago along the East Frisian peninsula are dependent on rapid air transport in an emergency. This is where NHC steps in: headquartered in Emden in northern Germany, the company is responsible for medical transport services from the East Frisian islands to the mainland. In this particular case, NHC will transport the expectant mother by helicopter to the nearest hospital in time for her delivery. In total, NHC flies up to 1,000 hospital transports per year. The company also flies offshore missions with its AS365 N3 helicopters and transports employees of North Sea wind farms with an H155. ■

## SCALING HEIGHTS IN THE NORTH SEA

The wind farms in the German North Sea are located up to 130 kilometres off the coast. Hundreds of people work on these farms day in, day out – even in storms and rain. “These people know the risks and are particularly careful because they are always aware of how far away the mainland is,” says Frank Zabell, managing director of NHC. Yet despite all the precautions taken, accidents and illnesses cannot always be prevented. Every year, NHC is called to around 70 offshore emergencies at the wind farms in the German Bight, for incidents ranging from electric shocks to heart attacks. To help the injured within the “golden hour,” NHC has worked with partners to develop a complete rescue chain for offshore wind farms. Part of that chain involves telemedicine. Here’s how it works: paramedics on the platform hook up the patient to equipment that provides live data, such as oxygen saturation and pulse. A doctor on the mainland evaluates the patient’s condition on the basis of that data as well as images on a patient monitor. The doctor gives instructions to the paramedics, even as the AS365 N3 rescue helicopter is already on its way. Once the patient is on board, the medical crew continues to treat them on the way to hospital. These offshore missions put great demands on both man and machine, as the pilots sometimes have to fly as close as five metres to the facilities. The demands placed on the medical crew are also high: the team is trained in rescues at above-average height, since the wind turbines are over 100 metres high and injured people have to be rescued at this height. ■





“More than anything else, we look at a helicopter’s range, as several wind farms are situated up to 130 kilometres off the coast. Hoist capabilities are also important because we often lower the medical crew using a winch and have to lift them back up on board. This is why the AS365 N3 is our favourite for offshore missions. That helicopter is simply made for flights around the sea.”

**Frank Zabell,**  
pilot and managing director  
of Northern HeliCopter.

## In the field



### OFFSHORE WIND FARM

- **When:** September 2015
- **Mission:** A worker suffers an electric shock on a wind turbine in the middle of the North Sea. Emergency doctor and crew must be lowered to the roof of the wind turbine with a winch.
- **Outcome:** After receiving on-site medical care, the patient is flown to the nearest intensive care station. He suffers no secondary injuries.



### SHIP

- **When:** August 2016
- **Mission:** A fire results from an explosion on a tanker. The fire is extinguished quickly but two members of the crew suffer severe burns. The rescue helicopter takes off just 15 minutes after the alarm is sounded.
- **Outcome:** Both patients have to be taken to a burns unit. Invasive medical procedures are carried out during the flight and at the clinic. Both survive their burns.



### OFFSHORE PLATFORM

- **When:** July 2016
- **Mission:** An employee on an offshore platform has a heart attack. The on-site paramedic follows the telemedical instructions while the rescue helicopter takes off and reaches the platform – located 100 nautical miles away – less than 60 minutes after receiving the call.
- **Outcome:** The patient, who has already been stabilised to a large extent, is taken directly to a specialist clinic. He survives his heart attack.



### SEA

- **When:** March 2016
- **Mission:** A small motorboat leaves the shipping channel and runs aground. It cannot be reached by land or sea; night falls and the temperature drops to minus 10 degrees Celsius.
- **Outcome:** The rescue helicopter reaches the small boat, and both members of the crew are rescued with a winch and taken safely to dry land.

THE FUTURE TAKES OFF



**H160**

Important to you. Essential to us.

