

# MILITARY & TRAINING SIMULATION NEWS

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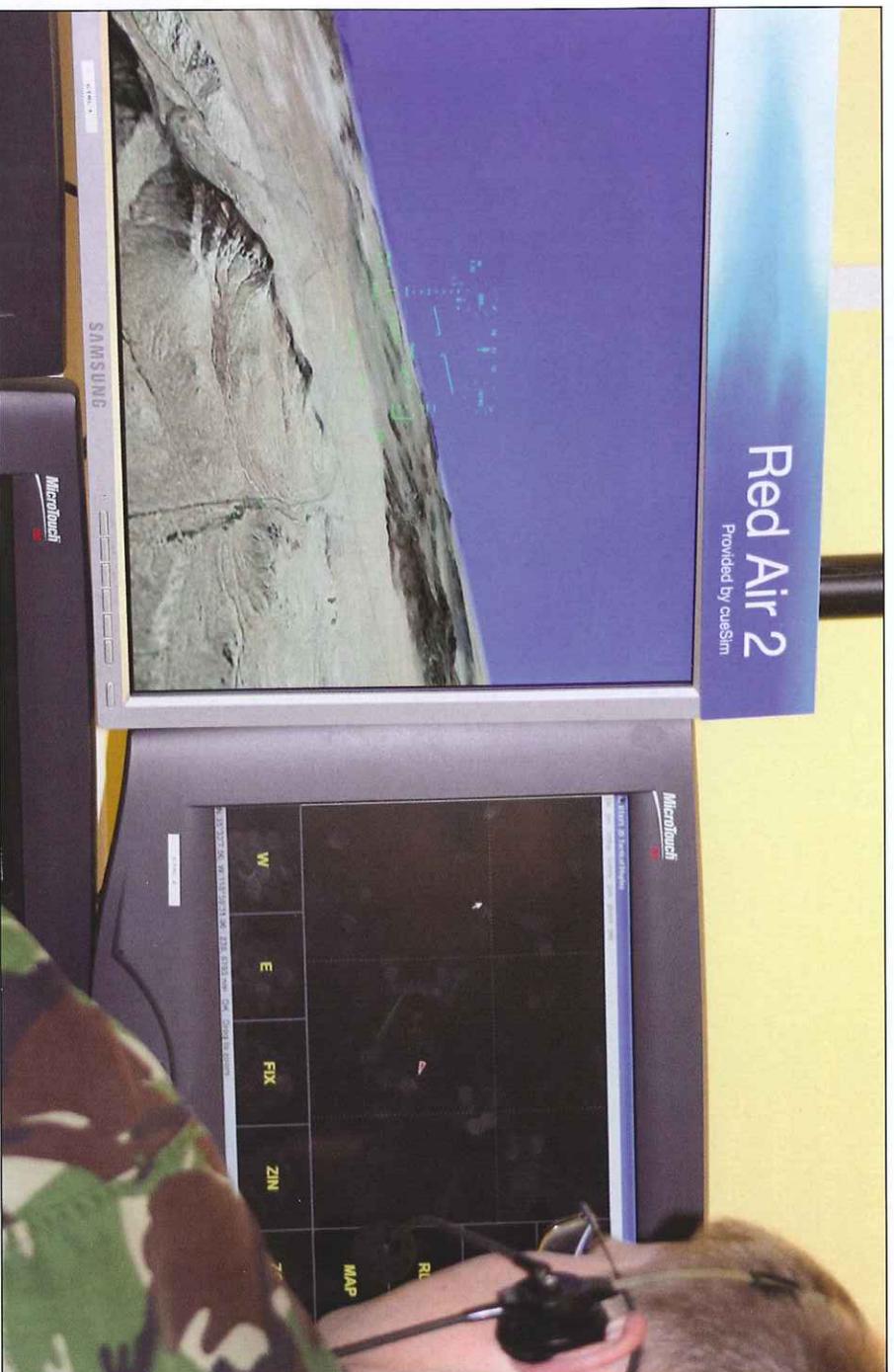
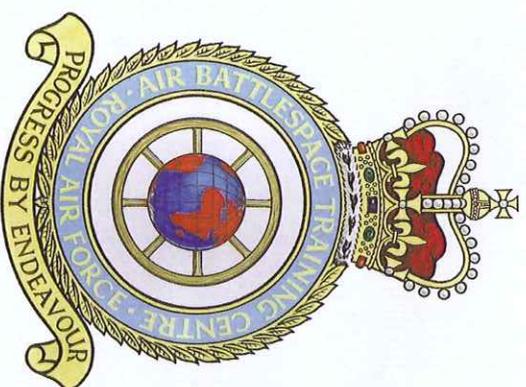
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# THE RAF'S ABTC

## Investigating the Future of Integrated Training

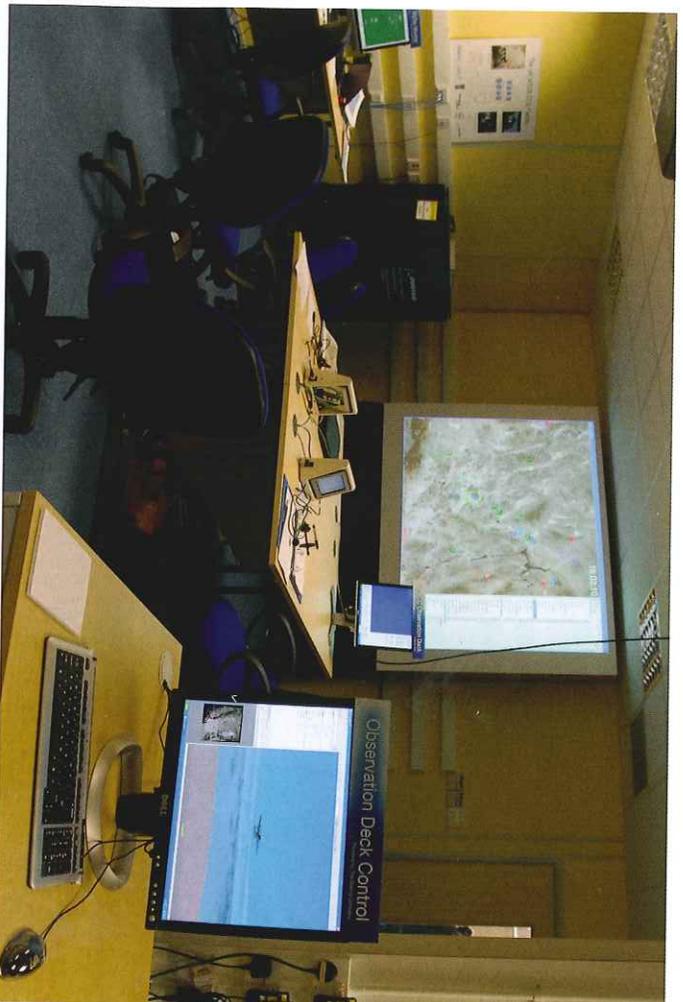
*Trevor Nash* travels to RAF Waddington to visit the Air Battlespace Training Centre and view the MTDS CCD. As his report shows, the simulator is opening new vistas as to what is possible with networked simulation.



located just south of the historic city of Lincoln, RAF Waddington has a long and historic past. Used as a bomber station during World War Two, the airfield was also home to the Vulcan bomber force that undertook the Black Buck raids on the Falklands in 1982. Today, the airfield is home to the Sentry AEW 1 aircraft of 8 and 23 Squadrons, the Sentinel R1's of 5 (AC) Squadron and the Nimrod R1s of 51 Squadron.

*A Red Air controller acts as a surrogate pilot to inject enemy aircraft into a scenario. As well as surrogate pilots, MTDS also uses CGF to create enemy, friendly and neutral forces.*

(Source: T Nash)



*The key to the success of the MTDS CCD is good exercise planning, a robust data capture system and a thorough data evaluation process.*

(Source: QinetiQ)

In addition, RAF Waddington is also home to the Air Battlespace Training Centre (ABTC) unit which is hosting the Mission Training through Distributed Simulation (MTDS) Capability Concept Demonstrator (CCD). ABTC was formed in July 2005 with the primary role of running the MTDS CCD with the aim of defining the level of technology required to: Use synthetic training environments to deliver operational team and collective training for the air component of the Joint Battlespace, and with the ability to participate in the joint and combined training areas.

MTDS was procured through the Defence Procurement Agency's (DPA) Flight Simulators and Synthetic Trainers (FsAST) Integrated Project Team (IPT) for Director Equipment Capability. Theatre Airspace (DEC TA). The £7.8 million (\$15.7 million) programme was awarded to the QinetiQ-led Team Active consortium in October 2005 and is scheduled to run until March 2008. Other team

*Housed in a hangar at RAF Waddington in Lincolnshire, the MTDS CCD has four simulators for the Typhoon, four for the Tornado and one rear-crew simulator for the E-3D AWACS.*

(Source: QinetiQ)



In essence then, the MTDS CCD is an air battle lab research facility. Its role is not to train pilots to operate air platforms but to assess the future training needs of collective joint and coalition missions at the operational level as well as providing a facility to look at research, technology assessment or tactics development.

Housed in a hangar at RAF Waddington in Lincolnshire, the MTDS facility comprises six main components: four Tornado GR4 and four Typhoon cockpits, a rear crew E-3 Airborne Warning and Control System (AWACS) simulator, a Forward Air Controller (FAC) cell, an exercise planning, briefing and debriefing facility, an exercise management cell and finally, a secure Wide Area Network (WAN) link to enable networked operations with other remote sites.

"We are looking to the future," says Squadron Leader Kath Newton, the ABTC Officer Commanding (OC), "and so therefore the system must be flexible enough to allow us to carry out and examine different training concepts. As such, we only use operationally qualified air crews which come from our Sentry, Tornado and Typhoon squadrons."

members include Boeing, cueSim, Rockwell Collins, HVR and Aviation Training International Ltd (ATIL).

Captain Iain Richmond RN is the Deputy Director of DEC TA. "Live training is becoming increasingly difficult and we therefore need to explore the benefits of distributed virtual training and ask ourselves what is the utility of training using Synthetic Environments (SE)?"

"We are doing this by conducting trials and training events and assessing the results to ascertain possible training solutions for coalition and joint operations. One bi-product of this process is to define the level of fidelity required of future training systems."



*One of the factors behind the success of the MTDS CCD is the use of experienced, combat ready pilots to fly the aircraft during the exercises. Shown above is a Tornado GR4 pilot from XV Squadron, RAF.*

(Source: QinetiQ)

As well as undertaking stand-alone experiments, the MTDS CCD links to the US Air Force Research Laboratory in Mesa, Arizona and to the UK Aviation Training International Limited's (ATIL) Apache training facility at Dishforth although it is now able to network to ATIL's other two sites at Middle Wallop and Waitisham. MT&SN understands that other sites, both in the US and UK, will join the secure wide-area network shortly.

"Each mission lasts between 1 hour 15 minutes and two hours," explains Wing Commander Mike Dobson, one of the seconded trainers at the ABTC, "with the objectives of the session being defined by DEC TA. After debriefing, data is objectively analysed and this forms the deliverable back to DEC TA."

One of the indications of how successful the CCD has been is that a further £1.1 million (\$2.1 million) funding package has been awarded to investigate issues raised by earlier experiments. Another indicator is how quickly the programme came together.

"In just 10-months an empty hanger has been transformed into a sophisticated networked state-of-the-art demonstration of future aircrew training, exercise management and control," says QinetiQ's MD of Ministry of Defence Support Business, Neville Salkeld.

Much of the risk had been removed from the programme by QinetiQ's previous work in trials for the MoD and by deciding to use mature simulation technologies for the CCD. Another factor was the presence of Boeing which is one of the key players in the USAF's Distributed Mission Operations (DMO) programme.

In terms of simulator hardware, the Tornado GR4 and Typhoon F2 cockpits have been built by QinetiQ-owned cueSim and are fitted with Rockwell Collins EPX visual systems. Two simulators

feature 250 degree horizontal x 75 degree vertical Field-of-View (FoV) whilst two have the vertical FoV reduced to 43 degrees.

The remaining four simulators feature single-channel, flat panel displays. In true development style, simulated aircraft cockpits have two levels of fidelity and can be moved between the various visual systems. Throughout the CCD, Boeing uses its BigTac Computer Generated Forces (CGF) system and provides its InSight briefing, debriefing and management toolset for Exercise Control.

In conclusion, MTDS CCD is being heralded as the lens through which the UK's airborne Networked Enabled Capability airborne operational tactics and training will be focused. There is no doubt that the facility at Waddington is a clear example of 'smart procurement' that is providing some valuable data to the military customer. MT&SN's bet is that the programme will continue after the planned March 2008 end date. Watch this space for more news.

