

## 'Small things can have a huge impact in air traffic control'

Anna Collard-Scruby on her work as a Senior Human Factors Specialist with NATS, the UK-based air traffic control company, in Prestwick

Prestwick Air Traffic Control Operations Centre is a room reminiscent of NASA's mission control. A team of around 500 air traffic controllers and support staff work with flights from as far south as the Midlands all the way to the mid-Atlantic; this is not a room you can just wander into. Security is tight.

I swipe my security pass to enter. It is early on a Tuesday morning and I've just answered a call: 'Hi Anna, we've changed those colours on the track centre-line as discussed, are you available to come down and take a look?'

I duly approve the colour change that my colleagues have implemented; we have changed one of the new track lines from blue to white so that it is easier for controllers to perceive on their radar screens, and to differentiate from other similar lines. This minor change might help prevent an unsafe situation from occurring during a flight, because the controllers are better able to monitor the progress of the flight along this track. Successful human factors is often the culmination of a lot of small actions rather than 'big ticket' events. Yet even though it sounds trivial, small things can have a huge impact in air traffic control.

Back at my desk, the phone rings again. The Engineering Safety Manager would like to chat about a 'Human Factors in Engineering' session that I am facilitating next week. Spreading the word about how we can improve safety and maximise human performance in all aspects of our business is key to our role at NATS. I draw heavily on my background in organisational psychology and human performance for this kind of work.

Later in the day I publish an assurance report for an airspace change project I have been working on for months. It is the culmination of a lot of simulations, human performance measurement, interviews and questionnaires from my team. All this evidence helps us to be confident that the changes we are making are acceptable to the controllers, and support their safe and effective performance. I rely on the interviewing

and questionnaire-building skills I gained at university, and through my practical Chartership training to make these activities effective.

In the same day I also book travel to attend a selection activity for new air traffic controllers, and conduct a Confidence and Resilience coaching session with a controller who has had some difficulty adjusting to the new system after a period of sick leave. Tomorrow I am contributing to the investigation of an event that has been flagged as having a human error component. I have also recently been involved in considering how we could make use of biometric measurement (e.g. EEG, ECG) to support controller performance.

This is an example of the wide variety of activities that I am involved with as a Senior Human Factors Specialist at NATS. Aviation is a fast-paced industry, and I enjoy working with high-performing professional teams to optimise their performance. There is always a new challenge to solve, and every day can be different!

### Aviation human factors at NATS

I work as part of a multidisciplinary team of 27 human factors specialists at NATS (formerly the National Air Traffic Service). Three of us are based at the Prestwick Centre, about 30 miles southwest of Glasgow, (and not, as commonly misperceived, at Prestwick Airport). The other 24 team members are based in our Corporate and Technical Centre in Fareham, Hampshire, adjacent to our Swanwick Air Traffic Control Centre. Between us we have academic backgrounds in psychology, systems engineering, ergonomics, physiology, and some with operational experience as air traffic support staff.

We work across a broad range of activities, which include providing human factors assurance for airspace and technical changes, training design and delivery, selection of air traffic controllers, performance coaching, safety culture measurement, critical incident defusing and incident investigation, internal and external consulting on human factors issues, and interface with wellbeing activities.

The aim of NATS human factors specialists is to minimise the impact of human error and maximise safe human performance. With one of the largest human factors teams in Europe, we strive to: work with controllers to enhance their performance – ensuring safety is central to all we do; help our controllers get the best from the cutting-edge technology they use; and make controller selection and training effective and efficient. The biggest challenges for our team at present are catering to the wide range of demand for our specialist human factors skills across the business, and implementing ways to keep up with innovation in aviation. The role of an air traffic controller will need to change significantly to keep up with growth and new technology, and part of our role is to support these changes, and help to find the safest and most effective ways of merging the human and system components of air traffic control in the UK.

### Flight path

I was once described by a colleague as being 'congenitally aviation'. Before he retired my dad was a flight examiner, and was earlier my mum's flying instructor, so it might be inevitable that I ended up working in aviation. I have several family members who were or are commercial or private pilots, so it is definitely a 'family business'. However, I was never seriously interested in being a pilot myself, and found that I was much more interested in how humans worked – in aviation – through my university studies.

I completed an MA in Psychology at the University of Auckland, New Zealand, in 2005. My first role out of university was working in selection with the New Zealand Police. This consolidated the interview and psychometrics skills I had gained, but I was keen to broaden my skills and seek registration as a Psychologist (the equivalent to a UK Chartership).

This led me to join the Royal New Zealand Air Force as a Psychology Officer in 2008. I was fortunate that the New Zealand Defence Force has their own agency for psychology registration, and I completed my registration with them in 2009. I served for seven years, completing a wide variety of psychology activities that spanned a number of military and aviation applications. In particular, the skills I gained around selection and psychometrics; questionnaire building, delivery and feedback; training and development; internal consulting; performance coaching; critical incident support and incident investigation have been invaluable. In my last military role I worked as a Human Factors Psychologist, and was involved in growing the awareness of human factors in the military, and helping with training, investigating safety events, and incorporating human factors considerations into other military processes.

In 2015 I was looking around for a new challenge, and was keen to find a role that would allow me to develop more 'hands-on' human factors skills. I happened across the NATS role on LinkedIn, and it was a great fit. I moved over from New Zealand to start my new role at Prestwick in April 2015, and was able to transfer my New Zealand psychology registration to the equivalent UK Chartership in 2016. I have now been with NATS for two and a half years, and have learned some great human factors skills that complement and enhance my psychology skills.

### Lining up for take-off?

Psychology and human factors in aviation is a growing field. If you are interested in a similar path, gaining a postgraduate degree in a related discipline will help to open doors. Having a background in psychology has allowed me to explore a wide range of scientific research, which benefits NATS; literature searching and critical reading skills are a must! I also really value the practical skills I developed through my earlier roles.

Think this career could be for you? NATS has a large human factors team – it's worth making contact!