COLLABORATION OVER THE NORTH ATLANTIC: THE ROLE OF THE RADIO OPERATOR AND JOINT OPERATIONS

Over the North Atlantic, at the interface between pilot and controller is the radio operator, who acts as an intermediary for air-ground communications. This interface may not be well known to most controllers, but is known to pilots crossing the Atlantic, and is important to safety. In this article **Guðmundur Sigurðsson** introduces the role of radio operators in ISAVIA Iceland Radio, and collaboration between Iceland Radio and Shanwick Radio.

KEY POINTS

1. **Radio operators have acted as a critical interface between the controller and aircrew in the Oceanic FIR.**
2. **Collaboration between Iceland Radio and Shanwick Radio has helped to balance workload between the two sites.**
3. **Controller–pilot data link communication (CPDLC) is becoming the primary interface for sending and receiving messages over the North Atlantic, but specialised voice communication will have an important role for some time to come.**
4. **When automatic systems fail, aeronautical operators relay critical messages when needed.**

Air traffic control over the North Atlantic is collaborative by nature, and shared by a number of countries. Good communication and collaboration is therefore an essential part of air navigation in the North Atlantic. Unlike the usual controller-pilot interface, in the Oceanic FIR radio operators have acted as an intermediary between the controller and aircrew. Radio operators work within aeronautical communication centres in Gufunes (Iceland), Ballygireen (Ireland), Bodö (Norway), Gander (Canada), New York and Santa Maria (Portugal). Each has been allocated the responsibility to relay messages between air traffic controllers and pilots during trans-Atlantic flight, as well as airline companies and meteorological stations.

ISAVIA Iceland Radio is the aeronautical communication service provider in the Reykjavik FIR/CTA. It is the second largest in the world with an area of 5.2 million square km. Iceland Radio (Gufunes) communication centre is located in Grafarvogur, a suburb of Reykjavik, about 10 km NE of the city centre. Approximately 40 flight information officers (FIOs), on eight working positions, divided into 6 shift teams, work in the Communications Centre. These FIOs – or 'radio operators' – handle air/ground communication on VHF and HF frequencies, with equipment that is located in Iceland, Greenland and the Faroe Islands.

VHF coverage is from east to west, providing a corridor across the Atlantic for non-HF equipped aircraft. VHF is line-of-sight, and to get as much range as possible, equipment is placed on high ground, getting a maximum range for up to 300nm for aircraft flying at 30,000ft. Iceland Radio operates 3 VHF frequencies, one of them as 'Shanwick Radio' on account of joint operations.

Iceland Radio monitors 13 HF frequencies 24/7. They are divided into 'families' and are a part of a high frequency network of operations in the North Atlantic area. HF radio is long range but is affected by variations in the atmosphere and solar activity, such as solar flares. When HF communications are difficult, communication via satellite phone is often used.

Iceland radio and their counterparts in Ballygirreen, Ireland (known as 'Shanwick radio') have been in collaboration for some time and are now in full 'Joint mode'. This means that flight data systems and voice communication systems are available at each site, and are shared depending on the traffic, radio propagation, etc. The idea behind the collaboration is that instead of dividing the traffic between

"We've upgraded our systems to the digital era,
but we still need the human touch to manage the interfaces..."

the stations according to the edges of the control areas, the traffic is divided so that traffic peaks at each station are minimised and workload is evenly distributed. In this way, the services can be improved and future expenditure lowered. The safety aspect is also a key factor. For example, if one station has to be evacuated, the other could step in and handle contingency operations. Also if the message switches fail, messages can be routed via the direct link. At the same time, the stations serve as alternative stations for each other, which lowers costs.

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The information exchanged by radio operators includes:

- position reports at cleared reporting points
- pilot requests for changes in altitude, speed or route Air traffic control clearances from the area control centre
- weather information to and from pilots
- information provided to Airline Operations Centres (AOCs).

A system used to remotely control communication equipment in various locations is the VCCS (voice communication control system). This system gives operators great flexibility and security in their work. Furthermore, Iceland Radio provides phone patch on request. The most common use for phone patch is when medical assistance is required for flights en-route.

In critical conditions such as severe weather or medical diversions, pilots will often rather talk to a real person instead of using automatic systems. Radio operators sometimes have to rely on their local knowledge of things to quickly give pilots reassurance that things are being processed by ATC and also pick up on the urgency of the situation from the tone of the transmission, and follow messages up with a direct phone call to the controller.

With technological advancement, such as direct satellite data link communication between controllers and aircrew, demand for specialised radio station will gradually decrease. Many pilots can now make these reports via satellite links from the cockpit direct to the controller. Controller–pilot data link communication (CPDLC) is becoming the primary interface for sending and receiving messages, which are text-based instead verbal reports. This is part of a trend in aviation and society more generally. For contingency purposes, however, aeronautical radio stations and radio operators will be required for an extended period. Only when systems cease to fail and pilots become non-human, will specialised voice communication become obsolete.

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