In accordance with the decision made by COG 48/04 since 2013 in the Russian Federation there have been international volcanic ash exercises conducted on a regular basis in the Far eastern part of the ICAO EUR Region. The participants of the annual exercises are volcano observatories, volcanic ash advisory centers (VAACs), meteorological watch offices, national ATM and aeronautical information centers, airlines of Japan, China, Canada and the USA.

In April 2018 during the VOLKAM/18 Exercise Magadan ACC practised the reroute procedure using Controller-Pilot Data Link Communication.

In accordance with the Exercise Directive the aircraft was changing its route within the Magadan FIR boundaries.
INF 19-04-18 22:59:26 SRV_2_ALPHA acars history
FREE TEXT [EXERCISE VOLKAM18 RTE REQ RUSOR T658 TK B237 BENGA T565 ANIMO]

DARP-Like Procedure
CPDLC Utilization for Airborne Rerouting during VOLKAM/18

Main ATM Center (Moscow)

Magadan ACC

UAL835

Rerouting request via CPDLC

Rerouting Clearance via CPDLC

Airborne Flight Plan via AFTN (FPL)

INF 19-04-18 22:35:13 CBV 1 ALPHA acars history
[PL-UAL835-1S
-677/A+3DE1FGHIJ/15/S7/M1/M3/WRYVZ/L101
-AFL1244
-N0483F1300 RUSOR/M093F360 T658 TK B237 BENGA T565 ANIMO/M082F360 Y114 AWE Y116 CHE Y122 HWE Y124 AKIRA/M082F360 Y14 GOODO Y36 NIESO Y142 SAMCN
Y14 DGC Y128 ISAKY Y60 FUE/M077F300 Y50 ONKU/N045F300 A593
LAMEN/N084F300 A593 AKARA/M083150840 A593 DUMET DCT
-25PD01551 Z505
-5PNM1511B1C1O1502T1 NAV/RNP3 DAT/1F ANP2/D0C SUB/9P180
DOF/180419 REG/N795UA EET/ UHHH0035 RU0120 RKRR0340 ZHNA0405 SEL/ASFG CODE/A/ACC55 RVR/75 OPR/UAL PER/C RMK/TCS SOUTH KOREA
AA051755]
Reroute Clearance
In August 2018 the Branch “North East Air Navigation” hosted the meeting of the Volcanic Ash Exercises Steering Group for the (far) eastern part of the EUR Region (EUR (EAST) VOLKAM/18. Taking into consideration the fact that the new equipment has been installed in Magadan ACC and the operational testing of the voiceless interaction between Magadan ACC and Anchorage ARTCC on AIDC protocol is being under way it was decided and introduced into the VOLKAM 19 Exercise Draft Directive to have a reroute trial with the usage of the CPDLC data link in the Anchorage FIR this time.

During the Exercise the reroute coordination between ATS units was expected to be carried out on AIDC voiceless interaction protocol (between Anchorage ARTCC and Magadan ACC) and OLDI (between Magadan ACC and Khabarovsk ACC). The aim of this Exercise was to practise the coordination procedure between the involved Centers via AIDC under conditions close to reality using the current operational system.
During the Exercise, an aircraft (UAL79) simulated DARP procedure in Anchorage FIR. The aircraft was supposed to enter Magadan FIR from Anchorage ARTCC Sector 10 via RUSOR to Kamchatka-1 Sector. ABI message was received via AIDC (RUSOR/2327F340)

As previously agreed LRM message was sent in reply not to bring any confusion to the real planning system. It is noteworthy that equipment installed in Magadan ACC was capable of giving correct response to the coordination request.

This interaction proved equipment of our Centers to be capable of carrying out coordination via AIDC protocol in case of contingency including volcanic ash clouds avoidance.
The DARP-like procedure was implemented in the Branch “North East Air Navigation” this year. At present, it is possible to receive the airborne flight plan via CPDLC, to generate FPL (AFIL) automatically and to forward it to the Main ATM Center to get the new airspace utilization clearance (PLN). Once PLN is received, the reroute clearance is sent to the flight crew in a form of a structured message via CPDLC. Being received and checked the requested route is entered into the airborne navigational system at a touch of a button.

The operational testing of the modified Alpha System was conducted on July 11, 2019 involving the SDM6286 flight crew of the Russia airline. The following was checked during the test:

- the receipt of the reroute request from the flight crew via CPDLC;
- automatical FPL (AFIL) generation and sending of based on the request received;
- reroute clearance receipt and transfer to the flight crew via CPDLC;
- reroute clearance activation on board the aircraft.

It took 5 minutes to get the reroute request and to send the reroute clearance.

The DARP-like procedure was presented at the VOLCEX/SG/15 Meeting, which was hosted in Magadan in July of this year. It was highly praised by the participants of the Meeting including the American Airline representative (USA).

Automation of the dynamic rerouting via CPDLC significantly increases and simplifies the process of getting the reroute clearance and provision of it to the flight crew. It eliminates the possibility of errors when transferring the requested (cleared) route by voice or entering a new route into the FMS manually.
Since DARP implementation, five airborne dynamic reroute procedures were provided via CPDLC within the two-month period.

Delta Airlines, Southern Air, Pacific airlines have benefited from the DARP procedure. According to the flight crews’ feedback, it is user-friendly and it facilitates the rerouting. The North East Air Navigation Branch, if necessary, is ready to provide the airborne dynamic reroute by means of DARP procedure for all CPDLC capable aircraft operators.
THANK YOU FOR YOUR ATTENTION!