

SUMMARY

A serious near collision incident occurred on 25 May 2017 during the international military exercise Arctic Challenge Exercise 2017 (ACE 17), in the airspace north-west of Arvidsjaur in Norrbotten County, Sweden.

A group consisting of four Swedish Gripen aircraft was flying south in level flight during its return to base phase after an aerial combat mission. At the same time, a group consisting of two French Mirage aircraft were flying north during a descent after completion of aerial refuelling.

One of the Mirage aircraft passed very close to one of the Gripen aircraft. The aircraft had visual contact with each other just before passage. Neither of the pilots performed any evasive manoeuvres.

The maintenance of separation between the aircraft was based on an overall airspace separation that was planned by the exercise management and was published in the form of an Airspace Control Order (ACO) and an Air Tasking Order (ATO). The Mission Commander (MC) for the exercise and his team then performed the detailed planning that was published in the form of a coordination card. The two aircraft groups interpreted the information received in different ways. This was in part due to their digital maps not showing the same information. Furthermore, important information was lacking in both the Airspace Control Order and the Air Tasking Order.

The event occurred in the exercise area that applied a tactical control method called “Loose Advisory Control”, which means, among other things, that the pilots themselves had responsibility for maintaining their own separation in relation to the exercise area’s lateral and vertical boundaries and to other military aircraft that were participating in the exercise.

The Mirage group, whose radar sensors were inactive, called the tactical control to get information about other traffic, but never received any response. The Mirage group executed the descent since they considered themselves to have a good situation awareness (SA).

According to NATO’s manual regarding exercise rules for aerial combat, the pilots could ensure their separation with other aircraft based on situational awareness (SA), geography, timing, on-board systems, GCI/AEW, visual contact, other fighters, or any other appropriate aid.

The cause of the event was that the exercise management underestimated the risks of separation infringement during the administrative flight phases of the exercise, which led to the exercise being conducted with latent collision risks.

Contributing factors were that:

- ACO was changed daily and lacked procedures and routes for transition between aerial refuelling and combat missions, and between combat missions and egress for the return to base.
- The limited content in ACO and ATO resulted in an extensive workload for the MC team.
- The term SA was not clearly defined, which gave the participants scope for different interpretations of, e.g., the altitude change procedure, ELEVATOR.

Safety recommendations

The Swedish Armed Forces is recommended, in consultation with the Finnish and Norwegian armed forces, to:

- Examine the need of clarifying the term SA (Situation Awareness) in the exercise rules contexts in which the term is used. *(RM 2018:03 R1)*
- Examine the need to address risks regarding administrative flight phases in connection with exercises and operations. *(RM 2018:03 R2)*
- Examine the need to conduct a simulation in order to validate the separation plan before the exercise. *(RM 2018:03 R3)*
- Evaluate the need and the possibilities to share recognized air picture with more participating units. *(RM 2018:03 R4)*