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EXPERIMENT OF PRESENTATION OF ACTUAL BIRD INTENSITY IN A "0 TO 8" SCALE ON A DISPLAY UNIT

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Belgian Air Force

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BY CDT JACOBS T.
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Since the bird strike problem "en route" differs completely as far as the military and civil aviation are concerned, and as the Belgian civil aviation shows no real interest for the problem I will limit this lecture to the one main item and/or problem :

" Bird strikes in military aviation "

For the last ten years now, and this since the start of the "Radar Working Group" in 1966, the Belgian Air Force Staff has insisted performing maximum effort to limit the bird strikes to a strict minimum.

After the example of the Royal Netherlands Air Force a Belgian observation system was build up at the radar site Semmerzake. By means of polaroid pictures intensity of bird migration was estimated and migration warnings were reported not only to the Belgian units but also to foreign countries.

An operational instruction was issued and distributed, explaining the complete warning system and responsabilities, including all measures and/or actions as far as flying restrictions were concerned. Meanwhile ornithologists and scientific specialists finished a research programme.

In 1975 a national bird strike committee was founded. The organisation, control and guard against bird strikes was handed over to the Meteorological Wing of the Belgian Air Force. Furthermore the Radar site at Semmerzake is now (partly) an automatic site and the Military Traffic Coördination Centre (Belga Radar) is equiped with a STANSAAB (Swedish) computer.

Before the automatization of this MTCC, the estimation of the bird intensity was done by the duty chief controller. He was to rely on the polaroid pictures and, of course, on his own experience interpreting these pictures.

Sometimes the interpretation was under- or overestimated which resulted in either :

- ignorance of the strike risks by the pilots (this in case of an underestimation)
- or in unnecessary aircraft groundings (in case of an overestimation)

Tests proved that the video extractor is able to handle bird echoes and therefore a program was written out to enable electronic counting of bird echoes. During the tenth Meeting in Stockholm 1975 Lt Soetens explained the experimental bird counting with a real time computer (see working paper /12). Any committee member who is interested in the technical details and/or lay out of the programme may write to the following address :

BELGIAN AIR FORCE
SEROS
Molenstraat 7
B-9740 GAVERE
BELGIUM

Of course visitors are welcome on rendez-vous.

CALIBRATION

During the last two migration seasons, counting was done electronically. Obtained figures were then compared with the polaroid pictures taken at the same time on a raw video screen. Results of electronic counting were more than satisfactory and after comparing them with the polaroid pictures, fixed intensity rates were inserted into the programme. Thereby the intensity (0 to 8) is now automatically printed out on the electronic display device.
Counting was done in a predetermined sector 20° in azimuth and 10 NM in range. This automatically displayed sector can be put anywhere on the scope providing an indication symbol is put (by means of a rolling ball) in the centre of the sector in which we want to do the counting of the bird echoes.

OPERATING PROCEDURES

As soon as a suspected bird echo is observed on the screen by the controllers following procedures are applicable :

1. Start the automatic tracking for one echo (for information there are no speed limits in the programme). If reasonable speed and heading is obtained the controller may be sure, he is dealing with a bird echo.

2. Select the highest density area.
   As said before, the sector will be displayed on the scope by bringing the indication symbol in the centre of this high density area.

3. Read out the bird intensity (in 0 to 8 scale).
   After a maximum time of 25 seconds the result is displayed on the screen. The bird intensity can be acquired on each of the 14 control points in the MTCC.

4. The actual bird intensity is broadcast to all Belgian military airfields specifying intensity per zone.

Remark : The Belgian territory is devided into two zones :

- The coastal zone : over the sea and along the coast 10 NM inland.
- Over land : south - east of this line.

5. Flying restrictions become effective depending the bird intensity.

6. All military traffic on low level over Belgium is informed about the intensity via a broadcast on the flight information frequency (307.7 Mcs.). Pilots can than start all necessary security measures immediately (e.g. visor down, speed reducing, etc.).

7. In case of intensity "5" or higher all low level traffic is postponed or derouted, depending the zone of high bird intensity.

8. When reaching intensity "5" a "BIRDTAM" is transmitted to all member nations of the committee.

DISPLAY OF BIRD INTENSITY IN THE FLYING UNITS

At this moment the Belgian Air Force is developing an automatic transmission system, allowing the Meteorological Wing to update the wing operation totes. Bird migration warning will complete Met Info.

CONCLUSION

1. As a reminder, this lecture is only dealing with a procedure to avoid birdstrikes of military aircraft "en route".

2. Our system for automatic echo counting, defining and displaying of bird intensity with the help of a computer is not a technical miracle, but at least, all possible human errors in estimating the intensity are now eliminated.

3. This system is much faster than the polaroid picture taking : from 15 minutes down to 25 seconds.

4. The handling is easy for the controllers.

5. No additional hardware or cost is required.

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