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DATA OF STATISTICAL STUDY OF BIRD STRIKES WITH RUSSIAN AURCRUFTS FOR THE PERIOD 1988 TO 1990

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Summary

Changes in the system of bird strikes registration have influenced on the dinamics of the registered strikes. Decrease of the annual number of strikes by height, phase of flight, bird groups, part of aircraft, effect on flight two times less.

Key Words: Statistics, Civil Aviation, Country

1. REGISTRATION

1.1 Calculation of bird strikes is made by General inspection of inflight security of Civil aircrafts of Ruasian Federation. After accumulation in ASO ''Saftiness'' statistical data are transmitted to GOSNII GA for analysis.

1.2 Information for the period under analysis have unsatisfied level due not every strike in the list, lock of the needful characteristices of strikes. The fact takes place due to the changes in the system of giving statistics in 1988.

1.3. Before 1988 every strike was investigate by special tempopary bord which prepared report covered maximum information about the strike. The report was transmitted to the central branch authoriti.

1.4. fter 1988 there are different ways of for lefting information, such as:

1.4.1. for the strikes, entailed any damade of the airuraft or effected on flight there is a special form, mutual for the all typesuf events, which may mean damage : foe ex. damage entailed by atmosphera electricity, bird or any foreigh item strikes etc.)but acceptable without recommendation of bird strikes specialists.

1.4.1.1. In spite of mentioned about strikes, entailed serious damage are investigated as in previous time. We have full information and access to the records.

1.4.1.2. In case of strike entailed light damage the information is not full as the facts in the form are not enough. Sometimes the form in partly filled in.

1.4.2. Strikes which entailed no damage are not counted in present. In case of such strike only ICAO form is filled in (in Russian) and transmitted to GOSNII GA. Number of such cases lay out of registration.

1.5. These changes in registration and difference in records for strikes with or no damage can't be considered satistied due to the results they meant:

1.5.1. Decrease of the total level of registered bird strikes. It masks the real sharpness and causes misunderstanding of the problem.

1.5.2. Disproportion in information has grown up Portion of the no damage strikes in the whole capacity decrease due to the fact that number of such strikes are not registered. We can see it compearing number of damaged engines and the total number of strikes. The proportion is like followes:
in 1988 - (49/198) 25%
in 1989 - (37/120) 31%
in 1990 - (26/81) 32%
Another proportion is between total number of damage and total number of strikes, which is:
1988 - (89/188) 47%
1989 - (94/127) 74%
1990 - (62/86) 72%

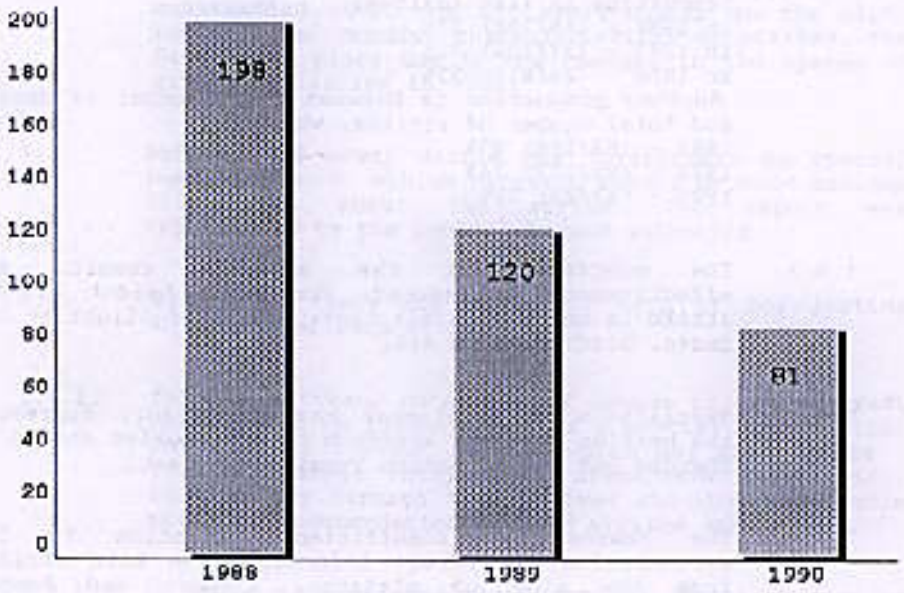
1.5.3. The exactness of the analysis results and effectiveness is reduced. For examp height of the strike is unknown in 56% cases, phase of flight in 55% cases, bird group in 61%.

1.6. Specialists in aviational have repeatedly expressed the opinion that the approach to the problem should be changed but the situation remains constant.

1.7. The reason for insufficient attention to the accumulation of current information on bird strikes from the side of airlines, airport and branch authority stuff is long period absence of significant accedents due to the bird in Civil Aviation of Russia.

2. CIVIL STATISTICS

FIGURE 1. Dinamics of annual level of bird strikes with russian aircrafts.



2.1. One of the reasons for sharp reducing of bird strikes level has been mentioned above (par.1.5). It is subjective and the main there is number of not registered bird strikes entailed no damage.

2.2. The other reason for the reducing is objective. It is considerable decreasing of intensivness of movements in Civil Aviation.

TABLE 1. DISTRIBUTION OF BIRD STRIKES BY HEIGHT

Year/ Height	1988	1989	1990	Total
0-100 m	52(58%)	25(52%)	30(81%)	107(61%)
101-400 m	15(17%)	12(25%)	5 (13%)	32(18%)
401-1000m	11(12%)	11(23%)	1(3%)	23(13%)
more 1000m	12(13%)	-	1(3%)	13(8%)
Total	90(100%)	48(100%)	37(100%)	175(100%)
Unknown	106	72	44	224

2.3. The bigest quantaty mid-air collisiones of the birds with aircraft in aerodrom zone on the heights from 0 till 100 m (61%), however fluctuation of the anual data are diffirent from 52% till 81%. 79% all mid-air collisiones of the birds with aircraft took place on the heights from 0 till 400m.

TABLE 2. Distribution of bird strikes by phase of flight

Year/ Phase of flight	1988	1989	1990	Total
Approach	32(41%)	23(42%)	12(27%)	67(37%)
Climb	20(26%)	16(29%)	8(18%)	44(25%)
Landing roll	13(16%)	5(9%)	9(20%)	27(15%)
Take-off run	3(4%)	7(13%)	11(24%)	21(12%)
Other	10(13%)	4(7%)	5(11%)	19(11%)
Total	78(100%)	55(100%)	45(100%)	178(100%)
Unknown	120	65	36	221

2.4. Accoding to our data persentage figures hesitation by years very srtong. For examp. strike share can change from 4% to 24%. This happenes due totha lack of statistics data.

TABLE 3. Distribution of bird strikes by bird groups

Year/ Bird groups	1988	1989	1990	Total
Gulls and Terns	17	7	3	27(35%)
Predominantly Perching birds	7	3	3	13(17%)
Pigeons and Doves	6	3	1	12(16%)
Hawks,Eagles etc.	2	3	3	8(10%)
Ducks, Gooses, etc.	5	2	1	8(10%)
Crows,Rook Owls	3	-	2	5(7%)
Larwings and Plovers	1	2	-	3(4%)
Total	-	1	-	1(1%)
Unknown	43	21	13	77(100%)
	155	99	68	322

2.5. Acceding to envirometal specibication Laridae and Columbidae are considered the most dangerous for aircraft movements, as they provoke more than 50% of the total number of strikes.

2.6. Acceding to the usual practice dead birds, provoked the strike are checked by local ornitologists to indentify the bird species but in the main cases group is not indentified. Usually in 70% - 84% cases). GOSNII GA receive dead birds for identification very seldom.

TABLE 4. Distribution of bird strikes by part of aircraft

Year/ Part struck	1988	1989	1990	Total
Engines	74(39%) 49	52(41%) 37	42(49%) 26	168(42%) 112
Wings	53(28%) 23	34(27%) 28	20(23%) 18	107(27%) 69
Windshield	7(4%) 1	5(4%) 2	5(6%) 4	17(4%) 7
Fuselage	4(2%) -	10(8%) 5	1(1%) -	15(4%) 5
Radome	17(9%) 9	9(7%) 7	7(8%) 6	33(8%) 22
Headlights	11(6%) 11	8(6%) 8	5(6%) 5	24(6%) 24
Landing gear	8(4%) 1	1(1%) 1	1(1%) 1	10(2%) 3
Other	14(9%) 6	8(6%) 7	5(6%) 0	27(7%) 13
Total	188(100%) 89(47%)	127(100%) 94(74%)	86(100%) 62(72%)	401(100%) 245(61%)

Note: Strike
Damage

2.7. The best quantaty mid-air strikes of the birds with aircraft happened with engines and winges (69%) that is probably related with construction features aircraftes, which are in the operation.

TABLE 5. Distribution bird strikes by effect on flight

Year/ Effect on Flight	1988	1989	1990	Total
Precautionary Landing	7	2	10	19
Aborted Take-off	2	–	3	5
Engine Shut Down	3	5	6	14
Other	2	1	4	7
None	186	216	63	365