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A Preliminary Study of Fifty Seven Pilot Sighting Reports Involving Alleged Electro-Magnetic Effects on Aircraft Systems[1]

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Abstract

This preliminary report presents the findings of a comprehensive review of over fifty years of pilot reports in which permanent or transient electro-magnetic (EM) effects occurred on in-flight aircraft systems allegedly as a direct or indirect result of the relatively near presence of one or more unidentified aerial phenomena (UAP). From a total of 1,300 reports fifty seven (4.4%) were found that involved E-M effects. Of these, twenty seven (2.1 %) case reports contained 52 different E-M effects that fit the authors' level 1 (highest) acceptance criteria. Of these cases, the (fundamental) aircraft system most frequently affected was electrical (40 cases; 77%) followed by power plant (4 cases; 7.7%), on-board radar contact (4 cases; 7.7%), and miscellaneous (3 cases; 5.8%). Of the forty electrical system interference cases the radio's function was affected most often (15 cases; 37.5%) followed by compass reading errors in 10 cases (25%). In general, it was found that general aviation aircraft were more likely to be affected than commercial or military type aircraft. The most commonly reported UAP shape is round or oval. Interestingly, most of the E-M effects occurred when the UAP was nearby the aircraft. These findings are potentially important and deserve further in-depth study and confirmation by obtaining additional high quality aviation reports.

[1] The original version of this paper was presented by Dominique Weinstein at a meeting of the National Aviation Reporting Center on Anomalous Phenomena in Palo Alto, California on February 17, 2001.

Introduction

Civilian, military, and commercial pilots have reported seeing unidentified aerial phenomena (UAP) for over fifty years. These ubiguitous phenomena have been reported by air crews of almost every nation on earth and have led, in the past, to the establishment of several official civilian or military review boards or study groups (e.g., Chile, France, Soviet Union, United States of America). The interested reader should consult (Haines, 1983, 1992, 1993, 1994, 2000; Hall, 1964; Jacobs, 1975, Gillmor, 1968; Ruppelt, 1956) for examples of such accounts.

As interesting as these general pilot sighting reports are there is another type of aviation event that is even more interesting and of more potential importance to those who are technically and scientifically minded, viz., UAP-related electro-magnetic effects on board the aircraft that could have impacted flight safety. The primary purpose of this paper is to review over fifty years of pilot reports which both authors have compiled over the years. These cases involve one or more on-board systems (navigation, guidance and control equipment, cockpit displays, circuit breakers, other electro-magnetically controlled systems) were influenced allegedly when one or more UAP were physically near the aircraft. Clearly, it is both the physical proximity of the UAP as well as the transient nature of these E-M effects that make them so interesting. If it can be shown that there is a direct, range-related influence of UAP on cockpit (and other) on-board systems then the application of traditional laws of physics is appropriate. And, if these effects last only as long as the UAP is near the aircraft and return to normal function after the UAP departs, it suggests that they are caused directly by the UAP and are not random or unrelated energy interactions within the airborne system(s). The following section discusses how these cases were selected for study?

- Electro-Magnetic Case Acceptance Rating Methodology (EMCARM) -

This methodology provides a set of rating criteria for pilot reports involving EM effects. EMCARM represents a clear and relatively simple set of acceptance guidelines with which to accept or reject candidate EM reports. Table 1 presents the eleven factors and their ratings.

Table 1

EMCARM Evaluation Factors

No.	Factor	Criterion	Rating
1.	Pilot Flying Experience	> 5000 hrs. (commercial / military)	4
		1 to 5000 hrs.(commercial / military)	3
		> 1000 hrs. (private)	2
		1 – 1000 hrs (private)	1
		Not mentioned	0

2. Number of Aircrew Witnesses	>3	3
	2 pilots (or 2 rated aircrew)	2
	1 pilot/aircrew	1
	Not mentioned	0

3. Aircraft and UAP Altitude Scoring Matrix (use number in appropriate cell)

Aircraft Altitude (ft. x 1000)	1	10	30	50	70
50	0	1	2	4	2
30	0	1	4	2	0
10	1	4	3	1	0
1	3	2	1	0	0

UAP Altitude (ft. x 1000)

4. Separation Distance (d) between Aircraft and UAP	Very near (within 30 feet)	4
	Moderately near (30<d<100 feet)	3
	Moderately distant (100<d<5000 ft)	2
	Very distant (> 5000 feet)	1
	Can't be determined/not mentioned	0
5. Ambient illumination	Full daylight	3
	Very dim (incl. dawn or dusk)	2
	Dark	1
	Not mentioned	0
6. Duration of EM Effect(s)	Only during closest approach and ceased after UAP departed	4
	Appeared when UAP arrived and did not return to normal after UAP departed	2
7. Severity of EM Effect(s)	More than 3 independent sub-systems affected	4
	1 sub-system affected	3
	1 or more sub-systems had to be replaced	3
	Not specified	0
8. Sighting Duration (t)	> 60 min.	5
	10<t<60 min.	4
	2<t<10 min.	3
	0.5<t<2 min.	2
	<0.5 min	1
	Not specified	0

9. Aircraft Ground Speed (v) (Note: UAP must be near and maintaining station with aircraft to validly apply these ratings)	> Mach 1.0	3
	250<v<600 mph (~Mach 1)	2
	Stall<v<250 mph	1
	If not specified (private single engine aircraft = 1; twin engine jet aircraft = 2)	1 or 2
10. UAP Ground Speed	Ditto 9 above	
11. UAP Maneuverability (Relative to aircraft) (UAP must be nearby)	UAP circles aircraft that is flying on constant heading	3
	UAP maintains "station" precisely as aircraft changes heading, altitude, etc.	3
	UAP executes high precision flight, high-g turns, hi accel. stops/starts over relatively long periods of time (typ. > 5 min.)	3
	Other Maneuvers	3
	Not specified	0

Max. score = 40

In this report, a Category 1 incident achieved an ENCARM score of 22 or more and was included in the study while a Category 2 incident had a score of less than 22 and was not included. Category 3 incidents possessed scores between 20 and 21 and were reserved for possible future investigation as more information became available. The Category 1 threshold score is admittedly somewhat arbitrary yet it does provide an approximate boundary between the top 40%

It should be understood that this type of report rating methodology is most useful in evaluating a large number of cases, each of which differs along different lines of evidence. Since no two cases are likely to be the same EMCARM employs enough different factors and criteria to bridge the broad array of case detail differences. Of course, one practical difficulty in applying this methodology is that many reports lack sufficient detail to complete all eleven factors or to judge them accurately. This calls for significantly more rigorous data collection in the future.

E-M Effect Taxonomy

One of the authors (R.F.H.) developed a descriptive aircraft systems taxonomy that was found to be useful in his ongoing AirCatalogue (AIRCAT) research. This taxonomy (cf. Appendix) provides a three level designation system so that on-board systems can be grouped according to common functions in computer-based analyses. It was found to be useful in the present study.

Consistent use of such a two- or three-letter code will efficiently capture a large majority of EM effects experienced on-board an aircraft. Of course multiple codes should be used if more than one system was affected. Aviation specialists and mechanics can study these codes and learn what they share in common (besides electrical current and pulse frequency) and thereby possibly understand what might have caused the system effect(s).

Preliminary Results

The following subjects are discussed in this section: (A) Statistical Overview of Twenty Seven (47%) of the Total Fifty Seven Cases Scoring 22 or Higher on the EMCARM Rating Scale, (B) Study of E-M Effects – Experimental Questions, (C). How E-M Effects Are Distributed by Type of Aircraft, (D). Correlation Between Specific E-M Effects and Distance to UAP, (E) Relationship between E-M Effects and Reported UAP Maneuverability, and (F) Position of UAP relative to the Aircraft and E-M Effects.

A. Statistical Overview of Twenty Seven (47%) of the Total Fifty Seven Cases Scoring 22 or Higher on the EMCARM Rating Scale.

Fifty seven E-M cases were subjected to the EMCARM "filter." The results follow:

Scores	No. of Cases
Minimum score 9	1 case
Maximum score 31	2 cases
Mean score 22	4 cases
From 22 to 31	27 cases (category 1)
From 9 to 21	30 cases (category 2)[1]

EMCARM Criteria Selection Results for the 27 "Category 1" cases:

Factor 1: Pilot Flying Experience

	No. of Cases
>500 hrs. (Commercial Rated Pilot – military pilot)	6
1-500 hrs (commercial pilot – military pilot))	2
>1000 hrs (private pilot)	4
1-1000 hrs (Private pilot	5
not mentioned	10

[1] If we accept a third category for borderline acceptance scores (e.g., cases with scores from 20/40 to 21/40) seven more cases were found.

The "not mentioned" factor has the highest score (10). High time commercial pilots also tend to see (or only report?) more than do low time pilots.

Factor 2 : Number of Aircrew Witnesses

	No. of Cases
>3 pilots / aircrew members	7
2 pilots (or 2 rated crew members)	10
1 pilot / aircrew member	10
not mentioned	0

Factor 3 : Aircraft and UAP Altitude

altitude	nb of a/c	nb of UAP
<1000 ft	0	0
<10000 ft	16	10
<30000 ft	08	05
<50000 ft	03	03
not specified	0	09

Factor 4 : Aircraft and UAP Separation Distance (d)

	No. of Cases
Very near (within 30 ft)	3
Moderately near (30<d<100 ft)	2
Moderately distant (100<d<5000 ft)	11
Very distant (>5000 ft)	5
Not mentioned	6

Separation distance between aircraft and UAP is probably the single most important factor for E-M cases. The above table shows that 16 cases occurred at a distance of from 10 and 5,000 feet.

Factor 5 : Ambient illumination

	No. of Cases
Full daylight	12
Very dim (dawn or dusk)	0
Darkness	15
Not mentioned	0

Factor 6 : E-M Effect Duration

	No. of Cases
Only during closest approach phase (thereafter E-M symptoms disappeared)	24
E-M symptoms appeared with UAP (and did not return to normal after UFO departure)	1
Not mentioned	2

The main results for this factor indicate that these effects were transient in most of the cases - 24 of the 27 (89%). In only one case did the E-M effects not return to normal. This indicates that E-M symptoms were very likely caused by the UAP.

Factor 7 : E-M Effect Severity

	No. of Cases
More than 3 independent sub-systems affected	2
1 sub-system affected	25
1 or more sub-systems had to be replaced	0
Not specified	0

Comments : In most of the 27 cases only one or two sub-systems of the aircraft were affected by E-M effects. But for case 24/03/1955, 9 different sub-systems were affected (electrical system and power plant).

Factor 8 : Sighting Duration (t)

	No. of Cases
>60 min.	0
10<t<60 min.	9
2<t<10 min.	11
0.5<t<2 min.	3
<0.5 min.	3
Not specified	1

Factor 9 : Aircraft Ground Speed (v)

	No. of Cases
>Mach 1.0	2
250<v<600 mph (Mach.1)	5
Stall<v<250 mph.	20
Not specified	0

During E-M effects, Aircraft ground speed was, for most of the cases (20 among 27), between stall and 250 mph. More exactly, for 16 cases the aircraft speed was between 100 and 250 mph. The minimum aircraft speed was: 80 mph.

Factor 10 : UAP Ground Speed (v)

	No. of Cases
>Mach 1.0	3
250<v<600 mph (Mach.1)	5
Stall<v<250 mph.	10
Not specified	9

There are fewer cases where the speed of the UAP was mentioned, but when it was (18 cases) the speed of the UAP and the speed of the aircraft were the same in 14 cases (78%).

Factor 11 : UAP Maneuverability - Relative to Aircraft (UAP must be nearby aircraft)

UAP Maneuver	No. of Cases
UAP circles aircraft when aircraft flies straight	2
UAP flies "station" (paces) precisely as aircraft changes heading, altitude, etc.	12
UAP executes high precision flight, high-g turns, high acceleration, stop/starts for relatively long period of time (e.g.,>5 minutes)	8
Other maneuvers	5
Not specified	0

B. Study of E-M Effects – Experimental Questions

Distribution of E-M effects for the 27 "category 1" cases, using Haines' Airplane E-M Effects Nomenclature / Taxonomy list:

A. Distribution of E-M Effects symptoms for each cases (including EMCARM aircraft/UAP separation distance criteria 4)

Case n°	Date	Location	Type of a/c*	distance a/c – UAP (ft)	EMCARM factor 4 **	No EME	EME Type Level1 (Level2)	EMCARM total score
3	00/02/44	Bass Strait	M	100	MD	2	E(D)+E(R)	27
8	24/07/49	Mountain Home ID	P	1500	MD	1	P(P)	23
11	10/02/51	Gander, NewFoundland	M	100	MD	2	E(D)+E(M)	31
12	00/04/51	Atlanta, Georgia	P		0	3	E(M)+P(P)+M(O)	24
13	18/09/51	Goose Bay, Labrador	M	170184	VD	1	E(D)+R(A)	26
15	02/02/55	SW of Barquisemeto	C	1320	MD	1	E(R)	23

16	24/03/55	Ryukyu Islands	P	900	MD	9	E(A)+E(B)+E(D)+E(E)+E(T)+E(V)+P(P)	27
19	31/05/57	Rochester, Kent	C		0	1	E(R)	23
23	13/08/59	Roswell, NM	P	500	MD	1	E(M)	22
26	20/04/64	McMurdo Sound	M		0	3	E(R)+P(P)+R(A)	24
28	03/02/67	Lima	C	48614	VD	3	E(L)+E(M)+E(R)	22
32	24/10/68	Minot AFB, ND	M	2000	MD	3	E(R)+R(A)	30
34	02/02/73	Wanganui area	C	90	MN	3	E(D)+E(M)+E(V)	27
35	16/07/73	Palamos / Playa de Oro	P		VD	1	E(R)	25
36	18/10/73	Mansfield, OH	M	500	MD	2	E(M)+E(R)	29
38	28/11/74	Shabbona, Illinois	P	1320	MD	1	E(M)	23
39	13/08/76	Diepholz/Petershagen	P		0	2	E(M)+M(O)	23
40	19/09/76	Tehran	M	15000	VD	3	E(I)+E(N)+E(R)+R(A)	23
41	12/03/77	Syracuse	C	3000	MD	3	A(H)+E(G)+E(M)	29
42	17/06/77	Castelo de Bode	M	18	VN	2	E(G)+M(O)	28
43	26/10/77	Abilene, Texas	M	121560	VD	1	E(R)	22
45	26/05/79	Hailey, ID	P		0	4	E(D)+E(M)+E(R)+P(P)	22
46	10/09/79	Myrtle Creek, Oregon	P	160	VN	1	E(R)	30
48	08/04/81	San Luis Reservoir	P	500	MD	3	E(E)+E(R)+E(T)	25
49	18/06/82	Gong Huei, Hubei	M		0	2	E(G)+E(R)	24
50	24/10/82	Lowell, IN	P	10	VN	1	E(A)	25
53	17/11/86	Fort Yukon, AL	C	500	MD	1	E(R))	31

(*) M = military, P = private, C = commercial
(**)VN = very near, MN = moderately near, MD = moderately distant, VD = very distant

B. Distribution of the E-M effects for Taxonomy Level 1and 2 cases

Level 1 Basic System	No. of Cases	Level 2 Specific Hardware Affected	No. of Cases
Autopilot	1	Heading mode of operation	1
Electrical system	40	Altimeter	1
		Automatic direction finder	5
		Distance Measuring Equipment	1
		Gyro-compass system	3
		Inertial navigation system	1
		Cabin lights	1
		Magnetic compass system, RMI, &/or slaved gyro-compass	10
		Military weapon	1
		Radio system	15
		Transponder system	1
		VOR system	1
Power plant	4	Reciprocating engine	4
Radar	4	On-board	4
		Air visual contact simultaneously	2
Miscellaneous	3	Other	3
Total	52	E-M effects for 27 reports	

Comments. Fifty two different E-M effects were discovered among these 27 cases. The aircraft electrical system category had the most with 40 (77%), then power plant and on-board radar 4 (8%) effects each with 3 more (6%) in the miscellaneous category. In 26 cases there is at least one E-M effect on the electrical system.

Concerning the distribution of the 40 E-M effects on electrical system, the radio system(s) had 15 (38%) effects and the magnetic compass system had 10 (25%) effects.

Concerning the E-M effects upon on-board radar, only cases involving E-M effects registered on air-borne radar with at least one other E-M effect on another system (electrical, power plant or autopilot) were selected for inclusion in this report. These results will change when an additional 58 on-board radar cases will be added to this study. Autopilot function, lights, and VOR system were affected in only three cases, all commercial aircraft.

Altimeter, distance measuring equipment, and transponder systems were affected in only three private aircraft cases.

On-board radar effects (in, correlation with other E-M effects) occurred in only four military aircraft cases.

C. How E-M Effects are Distributed by Type of Aircraft

The 27 "Category 1" cases are distributed as follows: Military (M) = 10 cases, Commercial (C) = 6, Private (P) = 11 cases. For all 57 E-M cases (category 1 + category 2), the distribution is: M = 22, C = 13, P = 22. This may be compared with the distribution found in 1,305 cases of a larger aircraft/UAP database (D.F.W.) where the overall distribution of cases is: M = 606, C = 444, P = 193, not mentioned = 43, multiple aircraft types (C & M, C & P, or P & M) = 19. Private aircraft clearly experience a disproportionately larger percentage of reported EM effects than the distribution of UAP reports in the larger database. Most of the pilot reports in the larger database are only of visual sightings.

Level 1	Level 2	Type of aircraft (M/C/P)		
Autopilot	Heading mode of operation	M=0	C=1	P=0
Electrical system	Altimeter	M=0	C=0	P=1
	Automatic direction finder	M=3*	C=1	P=2
	Distance Measuring Equipment	M=0	C=0	P=1
	Gyro-compass system	M=2	C=1	P=0
	Inertial navigation system	M=1	C=0	P=0
	Lights	M=0	C=1	P=0
	Magnetic compass system, RMI, &/or slaved gyro-compass	M=2**	C=3	P=5
	Military weapon	M=1	C=0	P=0
	Radio system	M=**7**	C=4	P=4
	Transponder system	M=0	C=0	P=1
	VOR system	M=0	C=1	P=0

Power plant	Reciprocating engine	M=1 C=0 P=3
Radar	On-board	M=4 C=0 P=0
	Air visual contact simultaneously	(not an EME case)
Miscellaneous	Other	M=1 C=0 P=2

Comments: It is known that many types of military aircraft are specially shielded against spurious and deliberate external enemy E-M radiation. This fact deserves further study in relation to reported E-M effects from UAP on various aircraft types for it may shed light on specific aspects of the radiation thought to originate from UAP.

Among the 10 military cases, there were E-M effects on the magnetic compass system, RMI, and/or slaved gyro-compass system in only two cases. Furthermore, for these two cases the type of aircraft is important, viz., one helicopter and a transport airplane, (U.S. Navy R5D), which is the military version of the commercial DC-4.

E-M effects on radio systems occurred most frequently (15 cases; 37.5%).

Concerning the reported E-M effects on automatic direction finding (ADF) hardware (five cases), two are military cases, but they took place in the early-years (1944 and 1951).

It appears that private aircraft are more prone to E-M effects as mentioned above. Magnetic compasses (5 cases) and radios (4 cases) are the most affected systems on private aircraft. E-M effects also occurred on power plants (3 cases).

D. Correlation Between Specific E-M effects and Distance to the UAP

The approximate distance between the airplane and UAP is known in 20 cases of the 27 cases. The distribution of aircraft type by distance for these 20 cases is:

Distance :	No. of cases	Type of aircraft	
>10,000 ft	4 cases	M = 3 A = 1 P = 0	
< 3,000 ft	16 cases	M = 5 A = 4 P = 7	
< 2,000 ft	15 cases	M = 5 A = 3 P = 7	
< 1,000 ft	11 cases	M = 4 A = 2 P = 5	
< 500 ft	9 cases	M = 3 A = 2 P = 4	
< 100 ft	5 cases	M = 3 A = 1 P = 1	
< 50 ft	2 cases	M*= 1 A = 0 P = 1	(* the military aircraft was a
unknown	7 cases	M = 2 A = 1 P = 4	light plane)

Distance	No. of cases	Type of EME (See Appendix)
>10,000 ft	4 cases	E(D) E (L) E(M) E(R) E(I) E(N) R(A)
< 3,000 ft	16 cases	A(H) E(D) E(R) E (M) E(A) E(B) E(E) E (G) E(T) E(V) R(A) P(P)
< 2,000 ft	15 cases	E(D) E(R) E (M) E(A) E(B) E(E) E (G) E(T) E(V) R(A) P(P)
< 1,000 ft	11 cases	E(D) E(M) E(R) E(A) E(B) E(E) E(G) E(T) E(V) P(P) M(O)
< 500 ft	9 cases	E(A) E(D) E(M) E(R) E(V) E(G) M(O)
< 100 ft	5 cases	E(A) E(D) E(M) E(R) E(V) E(G) M(O)
< 50 ft	2 cases	E(A) E(G) M(O)

Curiously, in the two cases in which the aircraft were at the smallest distance (ten feet and 18 feet) from the UAP there was only one E-M effect for each case: the *altimeter* (at 10 feet) and electrically driven *directional gyroscope* (at 18 feet). In the first case (n°50), a UAP paced a Piper Cherokee at an estimated 150 feet distance for 10 minutes with no E-M effects, then suddenly it crossed the aircraft flight path and passed about 10 feet from the right wing tip. The altimeter malfunctioned as it passed. In the second case (n°42), a Dornier 27 light plane began to vibrate violently and went into an uncontrolled dive while it was at no more than 18 feet from another UAP. The directional gyroscope rotated wildly and deviated by 180° relative to the magnetic compass.

E-M effects on automatic direction finders (ADF) occurred at relatively short distances (between 90 and 100 ft) in 3 cases (n°3, 11, 34).

Effects on power plant occurred between 900 feet and 1,500 feet distance. At 900 feet, the single engine of a Beechcraft sputtered and all the instruments stopped working when a “hat-shaped” object flew around the aircraft. At 1,500 feet distance a brand new 4 cylinder engine began to malfunction when the pilot crossed the flight path of seven delta-shaped objects (the four spark plugs were shorted and eventually burned out.

Four E-M effects on electrical systems occurred only in the four largest separation distance cases, between an estimated 15,000 feet and 170,000 feet. The four electrical systems affected were: inertial navigation system (I), lights (L), and military weapon (N). The inertial navigation system and a military weapon system were affected in only one case, viz., Tehran, 1976. Here, a military F-4 Phantom jet aircraft, at a distance of 15,000 ft from the UAP, experienced INS fluctuations from 30 to 50° during a 360° orbit by the pilot in addition to failure of its Sidewinder missile firing system.

E. Relationship between E-M Effects and reported UAP maneuverability

Case n°	Date	Location	UAP maneuverability	EME Type * Level1 (Level2)
3	00/02/44	USA	pace	E(D)+E(R)
8	24/07/49	USA	passed on the left, turn right ahead and passed on the right	P(P)
11	10/02/51	Canada	came toward, reversed its course and disappeared	E(D)+E(M)
12	00/04/51	USA	stationary with oscillating motion	E(M)+P(P)+M(O)
13	18/09/51	Canada	parallel	E(D)+R(A)
15	02/02/55	Venezuela	came toward, leveled off and raced away	E(R)
16	24/03/55	Japan	came to the left, flew around	E(A)+E(B)+E(D)+E (E)+E(T)+E(V)+P(P)
19	31/05/57	UK	came toward, reversed its course	E(R)
23	13/08/59	USA	passed across in front from left to right and around aircraft	E(M)
26	20/04/64	Antarctic	came from above and paced on the left side	E(R)+P(P)+R(A)
28	03/02/67	Peru	came toward, stopped above, went away, came again behind	E(L)+E(M)+E(R)
32	24/10/68	USA	approached from right rear, moved to the left, paced	E(R)+R(A)
34	02/02/73	NZ	paced parallel	E(D)+E(M)+E(V)
35	16/07/73	Spain	paced and maintained same position on right	E(R)
36	18/10/73	USA	came toward, stopped above and followed its course	E(M)+E(R)
38	28/11/74	USA	flew parallel on the left, tipped up and disappeared	E(M)
39	13/08/76	Germany	paced on the left side slightly behind, accelerated forward	E(M)+M(O)
40	19/09/76	Iran	stationary, then came toward aircraft, various maneuvers	E(I)+E(N)+E(R)+R(A)
41	12/03/77	USA	stationary on the left side	A(H)+E(G)+E(M)
42	17/06/77	Portugal	appeared on the right, paced, accelerated and disappeared	E(G)+M(O)
43	26/10/77	USA	came toward then went on the opposite direction	E(R)
45	26/05/79	USA	came toward , went over to the left, approached closer	E(D)+E(M)+E(R)+P(P)
46	10/09/79	USA	paced behind and below, moved toward, underneath	E(R)
48	08/04/81	USA	pulled alongside and shot forward	E(E)+E(R)+E(T)
49	18/06/82	China	stationary , climbed rapidly and increased speed.	E(G)+E(R)
50	24/10/82	USA	pace	E(A)
53	17/11/86	USA	flew in front and in formation with aircraft	E(R))

In nine cases, the UAP came toward the aircraft, remained nearby for from a few seconds to minutes, and then fell behind or accelerated and disappeared from view. In a few cases the UAP approached the airplane close enough that the crew described it as being on a collision-course. Numerous other similar reports of this type are found elsewhere (Haines, 2000).

F. Position of UAP relative to the aircraft and E-M Effects.

N°	Date	UAP position	E-M symptom
03	00/02/44	beside	Radio system and ADF complete failure
08	24/07/49	beside / below	Engine began to malfunction
11	10/02/51	behind / in front	Magnetic compass rocking back and forth / ADF needle jumping
12	00/04/51	beside / above	Magnetic compass spinning wildly / engine began to run rough
13	18/09/51	beside	ADF went out a few min. / radar jamming and went out
15	02/02/55	in front	Radio interference
16	24/03/55	circled	All instruments stopped working and engine sputtered
19	31/05/57	in front	Radio total failure
23	13/08/59	circled	Magnetic compass rotating continuously (360° swing)

26	20/04/64	above / beside	Radio dead / engine stopped and altitude maintained / radar stopped working
28	03/02/67	above / behind	Magnetic compass oscillated 15° left then 20° right / lights reduced / radio went out
32	24/10/68	beside / below	Radio became inoperative
34	02/02/73	beside	ADF needles rotating aimlessly / magnetic compass screwed up / VOR lock on UAP
35	16/07/73	beside	Radio failed
36	18/10/73	above	Magnetic compass rotating slowly radio UHF and VHF frequencies was dead
38	28/11/74	beside	Magnetic compass rotated counter-clockwise
39	13/08/76	beside	Magnetic compass spinning rapidly in clockwise direction
40	19/09/76	in front	Inertial navigation system fluctuated / radio communications lost
41	12/03/77	beside	Magnetic compass offset from normal direction / Autopilot failed to operate normally
42	17/06/77	beside	Gyro-compass rotated wildly
43	26/10/77	in front	Radio static
45	26/05/79	beside	ADF& magnetic compass spinning / radio blocked by static / engine running rough
46	10/09/79	behind / below	Radio interference
48	08/04/81	beside	DME went out / radio failed / transponder went out
49	18/06/82	in front/ beside	Gyro-compass gave a wrong direction 30° on right / radio jamming
50	24/10/82	behind / beside	Altimeter malfunctioned
53	17/11/86	beside / in front	Radio interference

The relative position of the UAP to the aircraft also was quantified as is shown in the following table.

UAP's Relative Position to Aircraft	No. Cases
Above	1
Below*	0
Beside	10
- and in front	2
- and above	2
- and behind	1
- and below	2
In front	4
Behind*	0
- and in front	1
- and below	2
Circle	2

* Perhaps the UAP was impossible to see at this position.

It is clear that most of these E-M effects occurred when the UAP was beside the aircraft (10 cases), beside, or in another relative position (7).

In several cases, it appears that there is a correlation between the position of the UAP and E-M effects on the compasses, more especially their needle deviation. In several cases the compass pointed directly toward the UAP as it changed its relative position. This aspect needs to be studied in greater depth to help us understand if the magnetic compass malfunction and/or deviation could have been due to a strong magnetic field induced by the UAP.

Provisional Conclusions

This preliminary report presents only a brief overview of pilots' UAP sighting reports that have E-M effects on aircraft. Only the 27 highest EMCARM scoring "category 1" cases are presented here with a longer report in preparation. An in-depth study of these selected cases is called for.

From this overview we identified several interesting points that deserve further study :

1. Private airplane are more likely to be affected by E-M effects than military or commercial aircraft.

2. Magnetic compass seems not to be affected on military aircraft (many of which tend to be specially shielded against radiation.)

3. Radio systems and compasses are the most affected systems by UAP.

4. Most of the UAP (in E-M effects cases) are circular/round in shape.

5. Most of the E-M effects occurred when UAP were near the aircraft.

6. Magnetic compass deviation seemed to be correlated to the UAP position. An intense magnetic field appears to be associated with these UAP.

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Appendix A

Airplane E-M Effects Nomenclature / Taxonomy List (27 "Category 1" cases)

Level 1(primary)		**Level 2** (secondary)		**Level 3** (symptoms)	
A *Autopilot* system	**1**	**A** altitude-hold mode of operation **H** heading mode of operation **L** localizer (VOR) mode of operation	**1**	**F** failed to operate normally	**1**
E *Electrical system* driven/electrical	**40**	**A** altimeter system (all types)	**1**	**E** erroneous readout	**1**
		B bank/turn indicator		**S** shorted out	
		C circuit breakers/fuses/etc.			
		D Automatic Direction Finder (ADF)	**5**	**B** burnt out	
				F failed to operate normally	**2**
				R needle(s) rotated continuously	**3**
				O needle(s) oscillates (back and forth)	
				S needle(s) offset from normal	
				L low frequency radio pulsing	
		E Distance Measuring Equipment	**1**	**F** failed to operate normally	**1**
		G gyro-compass system	**3**	**I** irregular needle swings (no apparent pattern, aimless)	
				R rotating continuously (specify direction, rate, etc.)	**1**
				S offset from normal direction and stable (specify angle)	**2**
				P precessed slowly	
				A aimed toward UFO	
		I inertial navigation system (all types and components)	**1**		
		L lights (all types)	**1**	**C** changed apparent color/hue	
				D dimmed (but didn't go out)	**1**
				E extinguished completely	
				F appeared to flicker (but not go out 100%)	
		M magnetic compass system, RMI, &/or	**10**	**I** irregular needle sswings (no apparent	**1**

		slaved gyro-compass		pattern, aimless) **P** precessed slowly and continually **R** rotating continuously (specify direction, rate, etc.) **5** **S** offset from normal direction and stable (specify angle) **3** **O** other abnormal effet(s) (unspecified) **1**
		N military weapon (any type attached to airplane)	**1**	**F** total failure (lasting until landing) **P** personnel incapable of activating weapon(s) (any reason) **T** temporary failure (only during AAP contact) **1**
		P (power) generator, alternator, APU (jet)		**F** total failure (lasting until landing) **R** reduced power output level from normal **T** temporary failure (only during AAP contact)
		Q Auxiliary power system (e.g., APU or electr. generator)		**T** total failure
		R Radio system (all kinds)	**15**	**C** carrier circuit affected/malfunctions **1** **F** complete failure (permanent) **7** **T** temporary failure **R** receiving circuit affected/malfunctions **2** **S** static **3** **U** unusual noise(s) **2** **V** change in perceived volume (specify change dir. and amt.)
		T transponder system	**1**	
		V VHF Omnidirectional Range (VOR) system	**1**	**F** complete and permanent failure (to landing) **I** intermittent malfunction **1**
		W wiring, connectors		
P *Pover plant*	**4**	**P** reciprocating engine only **J** turbo-jet engine only	**4**	**A** engine(s) rpm accelerated **I** intermittent operation (restarted in flight) **1**
		O other (ram-jet, misc.)		**R** runs roughly **3** **S** stopped (permanently)
R *Radar* contact (all types of non correlated; unidentified)	**4**	**A** On-board airplane (any type of set)	**4**	**F** complete permanent equipment failure **1**
		G Ground radar contact		**I** intermittent failure/malfunction **1** **J** jamming symptoms **1** **M** multiple returns (n>2) from obviously airborne objects
		V Air visual contact simultaneously	**2**	
M.*Miscellaneous* on-board effects or experienced symptoms	**3**	**C** Camera / sensing system **D** visible damage to a/c structure **F** Fire visible on-board **G** accelerative changes **H** heat experienced **I** Flight instrument went crazy **P** Air pressure change		

S Smoke in cockpit/cabin/other
T Auditory tone(s) heard
O Other

3	Instrument panel vibrated very bad	**1**
	a/c made two rapid 360° rolls	**1**
	a/c vibrated violently, uncontrolled dive	**1**

Appendix B

List of the 27 "category 1" cases

Case 3 **Score : 27**
February, 1944 2:30
Bass Strait, Australia (39°30 S / 145°50 E)

During february 1944, at 2:30 am, the crew of a RAAF Beaufort bomber flying at about 4,500 feet above Bass Strait sighted a " dark shadow " which appeared alongside the plane and kept pace with it, at a distance of only 35 meters. The Bristol Beaufort was travelling at about 235 mph. The object had a flickering light and flame belching from its rear end. The strange object stayed with the bomber for some 20 minutes, **during which time all radio and direction-finding instruments refused to function**. It finally accelerated away from the plane at approximately three times the speed of the bomber.
Sources :
The OZ files, Bill Chalker, 1996 p.35
Beyond Top Secret, Timothy Good, 1998, p.152

Case 8 **Score : 23**
July 24, 1949 12:03
Mountain Home, Idaho (43°10 N / 115°35°W)

The pilot of an American Piper Clipper aircraft flying at 19,000 ft altitude reported being passed by two rows of three objects each flying in perfect formation with a seventh object slightly to the rear of the others. When they passed they turned right about 1,500 ft ahead and 500 ft below his aircraft. Then they turned right again and passed his right side at a velocity estimated to be from 450 to 500 mph. They were all the same shaped with a delta shaped wing and a dark colored circle about 12 feet in diameter located midway between the tips of the object. Its top surface was perfectly flat and a shallow dome was seen on top about 2 to 5 feet high. Each object had a needle sharp nose and a flat tail. Some type of outer panels seemed to oscillate. They disappeared from full view suddenly. The wing to wing span was 35 to 55 feet. **As the pilot flew through the objects'flight path he expected some turbulence but there was none. His Lycoming 4 cylinder opposed engine was brand new but began to malfunction at this time. Upon landing a mechanic found all fur spark plugs to have been shorted and burned out**.They had ne visible means of propulsion and the trailing edge of the wings were flat (not tapered). (From "Review of selected aerial phenomenon sightings from aircraft from 1942 to 1952", by Dr Richard F. Haines, MUFON Symposium proceedings, 1983)
Sources :
"Review of selected aerial phenomenon sightings from aircraft from 1942 to 1952", by Dr Richard F. Haines,
MUFON Symposium proceedings, 1983

Case 11 **score : 31**
February 10, 1951 0:55
90 miles west of Gander, Newfoundland, Canada (49°50 N / 50°03 W)

From by Lt Graham E. Bethune's ooficial report in 1951 and interview 1998 :
"I, Graham E. Bethune, was co-pilot on Flight 125 from Keflavik, Iceland to Naval Air Station, Argentia on the 10th of February 1951. At 0055Z I signed and observed the following object : While flying in the left seat of the R5D at 10,000 ft on a true course of 230 degrees at a position of 49°50

North / 50°03 West, I observed a glow of light below the horizon about 1,000 to 1,500 feet Above the water. Its bearing was about 2 O'Clock. There was no overcast, there was a thin transparent group of scuds at about 2,000 feet altitude. After examing the object for 40 to 50 seconds I called it to the attention of Lieutenant Kingdon in the right hand seat. It was under the thin scuds at roughly 30 to 40 miles away. I asked « What is it, a ship lighted up or a city, I know it can't be a city because we are over 250 miles out ». We both observed its course and motion for about 4 or 5 minutes before calling it to the attention of the other crew members. Its first glow was a dull yellow. We were on an intercepting course. Suddenly its angle of attack changed, its altitude and size increased as though its speed was in excess of 1,000 miles per hour. It closed in so fast that the first feeling was we would collide in mid air. At this time its angle changed and the color changed. It then definitely circular and reddish orange on its primiter, it reversed its course and tripled its speed until it was last seen disappearing over the horizon. Because of our altitude and misleading distance over water it is almost impossible to estimate its size, distance and speed. A rough estimate would be at least 300 feet in diameter, over 1,000 miles per hour in speed, and approached within 5 miles of the aircraft. I initially has disconnected the autopilot in order to avoid colliding with the object. My intention was to fly under it. When it became obvious that we would not collide, because the object has stopped moving toward us, I reconnected the autopilot. In those "Antique" airplanes, every autopilot engagment had to be coordinated with the magnetic heading of the airplane. This was done by referring to the magnetic compass, which was located on the frame separating the two cockpit windows. this is just like compasses sold for use in automobiles, consisting of a circular "needle" immersed in a transparent fluid. The fluid provides some dampening so that the needle movement is slow and steady, and relatively unaffected by turbulence. it is completely independent of all other aircraft systems. **I glanced up to note our magnetic heading, and saw that the compass was rocking back and forth. this is most unusual. I mentioned it to Lt Kingdon, and he said, "You should have seen it when the object was close. The compass was spinning". We looked at our radio direction finders, which are essentially low frequency radio receivers. A ground station is tuned in, and needles point to the relative bearing of the radio transmitter. The needles were jumping all over the place. We had another compass system which used magnetic compasses located near the wing tips. That was spinning. Finally, we had a vacuum-driven compass system. Alone among our direction finding instrument, this was steady, and we used it to calibrate the autopilot**. I conclude from this that the object had a very strong magnetic field, perhaps pulsing. The instruments returned to normal after the object left our vicinity. lt Jones recalls hearing me and Lt Kingdon discussing the spinning compass."

Sources :

Confidential US Navy intelligence report, Fleet Logistic Air Wing, Atlantic/Continental Air Transport Squadron One, U.S. Naval Air Station, Patuxent River, Maryland, Memorandum report to Commanding Officer, Air Transport Squadron One, Subject : "Report of unusual sighting on Flight 125 / 9 February 1951" by Lt Graham E. Bethune

Draft of a report by Bob Durrant, inculding interview with Graham Bethune(1998)

Case : 12 **score : 24**
April, 1951 Morning
Atlanta, Georgia, USA (33°45 N / 84°23 W)

From the pilot's report (sent to Major Donald Keyhoe, NICAP) in March 1965.

" One Morning in April 1951, flying an Loan L-4, I took off as from Atlanta Municipal Airport. I took a 180° heading from the airport. I had only a Airboy receiver, no transmitter. The tower cleared me for take off and then cleared me to leave the pattern. I climbed to 3000 feet on a 180° heading. The wind was from the west, 270° at 12 to 15 mph and there was some low ground fog and scud. Overhead, it was very clear, no overcast or cloud. I was in the rear seat, as the aircraft was placarded for solo flights

the pilot was to fly from the rear. I was about 20 minutes out of Atlanta, completely relaxed enjoying the cool air and smooth flight when I saw a perfectly round disc slightly SW at about the two o'clock position. My first thoughts were that I had lost my heading and that I was looking at the sun through an overcast.. I glanced at my compass and I was steady on 180° heading. I looked to the East and saw the sun well above the horizon. My next thought was it a weather balloon ? I ruled this out because it was not moving at all. I then headed in the direction of the disc which I noted was 210° and high, I recall. I tried to guess how far away the object was, but there wasn't anything to compare or estimate the distance again. I began to climb in the direction of the object, constantly observing it. The disc was a white silvery color and seemed to be oscillating but remaining perfectly stationary as far as vertical or horizontal motion was concerned. I continued towards the object and after 8 to 10 minutes of steady observation **the L-4's engine began to run rough and the instrument panel began to vibrate very bad. I looked at the compass and it appeared to be spinning wildly**. As I mentioned I was in the back seat and I immediately thought the engine was icing up and that I must get the carburator heat on. I had to loosen my seat belt and reach around the front seat to pull the heat full on. **After pulling on the carb. heat nothing happened, the vibration and roughness continued seemingly getting worse, I actually thought the engine was going to quit any second.** My thoughts were of disappointment not to be able to continue towards the object but my thoughts were that possibly I could glide to the field or to some open field where I had practised emergency landings. I turned back to North and headed for the airport and at the same time continued to look back over my left shoulder and watch the object, which was still in the same position. I was looking directly at the object, and as if someone pulled a switch the object completely disappeared, no vapor trail or anything, it was just gone**. Immediately the vibration and roughness disappeared and the L-4 ran as smooth as ever.** I landed at Atlanta, tied down the aircraft and proceeded to work one half hour late. "
Source :
Capt. Robert H. Pasley written report sent to Major Donald Keyhoe, NICAP) in March 1965.

Case : 13 **score : 26**
September 18, 1951 4:35
Goose Bay, Labrador, Canada (65°40 N / 71°40 W)

On 18-20 september 1951, three B-36 flew a training flight from Goose Bay, Labrador to Resolute NWT, Thule, Greenland, and return to Goose Bay. At 3:20 GMT, the radar operator on the B-36 n°44-92668 noticed a **radar interference on the radar scope** which was finally determined to be an unidentified aircraft on a relative bearing of 130 degrees and 28 nautical miles from the B-36. The position of the B-36 at that time was 61°30N / 68°50W. **There was a very noticeable jamming at approximately 4:20 GMT** when the aircraft position was 63°30N / 70°00W. **The anti-jamm device on the APQ-24 was turned « on » but there was no change in the jamming pattern** on the radar scope. The crew was informed at this time that « it looked as though the aircraft was being tracked by a aircraft or ground station. At 4:35 GMT, **a radar interference was coming from the right side** of the B-36 and covered 120° on the radar scope. When the B-36 was at the position 65°40N / 71°40W the unidentified « aircraft » crossed over from the right side of our aircraft to the left side at 18,000 ft and at a speed estimated to be 30 knots faster than the B-36 (B-36'speed was 208 knots according to navigator's log). Passing lights were not standard. Instead of having the usual red and green lights on the wing tips, all the lights were white, and it had a twin flashing white tail lights. At 4:50 GMT, **the auto-pilot and the APQ-24 radar set went out. They came back a few minutes later.**
Source :
USAF Air Intelligence Information Report n°IR-17-51, October 10, 1951
USAF Project Blue Book 16 mm microfilms from Maxwell AFB

Case 15 **score : 23**
February 2, 1955 11:15
25-30 miles southwest of Barquisimento, Venezuela (09°00 N / 070°00 W)

On February 2, 1955, a Venezuelan Aeropost airliner piloted by Captain Dario Celis, a famous Venezuelan flyer, was flying at 7,500 ft feet between Barquisimento and Valera (enroute from Maiquetia to Merida). It was a clear day, with unlimited visibility. Until 11:15 the flight was normal. Suddenly Captain Celis and his co-pilot spotted a strange round « apparatus » flying swiftly toward the plane. Rotating counter clockwise, the mysterious machine shone with a greenish light. Around its center was a red ring or band which emitted flashes of brilliant light. Above and below this band were lighted portholes. Hurriedly the pilot cut in his mike to call the Barquisimeto radio station. After reporting the saucer, he waited for an answer**. But the receiver had had gone dead. Later the Barquisimeto radio operators stated that just as the pilot had begun his report, communication was cut off.** As the pilot went back to alert the passengers, the co-pilot banked toward the rotating UFO. Instantly the object whirled downward. Then leveling off, it raced away at tremendous speed. When the plane landed, the pilots learned of **the sudden break in radio communication not only at Barquisimento, but at Valera, which was also receiving the information**. Not until the airliner was a few miles from Valera airport had **the radio resumed normal operation**. (From The Flying Saucer conspiracy », Major Donald Keyhoe)
Source :
Dr Richard F. Haines files
The Flying Saucer Conspiracy », Major Donald Keyhoe, Holt

Case 16 **score : 27**
March 24, 1955 14:30
Ryukyu Islands, Japan

On March, 1955, a pilot was giving flying lessons to a student pilot over Ryukyu Islands. A glowing « hat-shaped » object with three « windows » in the « crown », came into view to his left. This extraordinary object changed color from white to orange, as it flew around the Beechcraft plane, « looking it over ». **None of the instruments worked and the engine sputtered**. In a panic, the instructor pilot went into a dive to lose the unwelcome aerial companion, but the UFO easily stayed with the single engine aircraft. Two jets were sent from Kadena AFB.
Sources :
Dr Richard F. Haines files
UFOs a history: 1955, Loren E. Gross

Case 19 **score : 23**
May 31, 1957 7:17
2 NM south of Rochester, Kent, UK (51°21 N / 00°29 W)

On May 31th, 1957, at 07:17 hours a British airliner was flying over Kent, the pilot was in command of a scheduled airline service from Croydon airport to Holland. As They got to a position two nautical miles south of Rochester the First Officer and the pilot became aware of a brilliant object bearing 110° (T) from north and elevated about 10° above the haze level. They were flying at 5,000 feet above sea level, heading 080° magnetic 074° (T). The UFO was about two-thirds the size of a sixpence in the windscreen at first. It then appeared to come towards them. When it was about the size of a sixpence the object became oval in shape and turned away. Then it became as before and reduced in size to about half the size of a sixpence. Then to their astonishment the UFO disappeared completely as they watched it. We did not see the UFO go, but became aware that we were looking at an empty sky. "**We**

were unable to contact London Radar due to a complete radio failure in the aircraft, nor were we able to report to London Airways, nor to London Flight Information. Radio failure, especially complete radio failure, is rare these days, and in our case was due to our circuit breakers not keeping " in ". A radio circuit breaker " breaks circuit " when the system is overloaded by an extra source of electrical or thermal energy. On this occasion we were not using all our equipment, so there was no cause for overloading. However, our radio equipment became fully service-able after the UFO had gone, and all circuit breakers stayed " in ". (from Pilot's account in Timothy Good's " Beyond Top Secret, 1997)
Source :
Beyond Top Secret, Timothy Good, 1997
Flying Saucer Review, Vol.4 n°3

Case 23 **score : 22**
August 13, 1959 16:00
Between Roswell and Corona, New Mexico, USA (33°52 N / 05°06 W)

On August 13, 1959, Jack H. Goldsberry, former US Navy PBY, pilot of a Cessna 170 was flying from Hobbs to Albuquerque, New Mexico, at 8,000 feet. At halfway between Roswell and Corona, **his Magnesyn electric compass suddenly moved around a slow 360° swing (a complete revolution) in about four to five second sweeps. He glanced out to orientate himself with known landmarksand saw that he was on course. Looking at his other standard magnetic compass, he was amazed to see it spinning crazily.** About this time, he saw three small elliptical objects in close echelon formation passing across in front from left to right and on around to his plane at a distance about 150 to 200 yards and a speed of about 200 mph. They appeared about as large as a half dollar held at arm's length. They were gray and slightly fuzzy. **The Magnesyn compass was following their exact speed indicating their position as the objects circled laterally around the plane. They began another circle and disappeared to the rear of the plane. Both compasses setteled down their normal reading.** After his strange encounter, he contacted the FAA controller at Albuquerque who told him that they were canceling his flight plan and that he was to land at Kirtland AFB, where he was interrogated for about two hours by an Air Force major, the UFO officer at the field, who told him to say nothing of the incident to anyone except his wife. The major told him also that if any unusual illness happened to him to get to a government hospital and they would take care of him.
Sources :
NICAP Files (complete report from NICAP Bay area subcommittee including drawing of the objects and map)
Dr Richard F. Haines Files (interviewed of the pilot conducted by Dr. James McDonald on January 20, 1968

Case 26 **score : 24**
April 20, 1964 Early morning
McMurdo Sound, Naval Air Station, Antartic (77°04 S / 166°17 E)

During Operation Deep Freeze six members of a US coast Guard aircraft sighted a V formation of nine objects glowing white and flying at an estimated 35,000 fet altitude. They were flying from McMurdo Naval Base with supllies and were travelling in a C-130 turbo-prop transport airplane . The right side observer first sighted the objects approaching at about 400 knots from above and to their right side. When they came abreast of the airplane they showed to its speed. After a « short time » they flew above above the airplane and took up position above and to their left side. The pilot attempted to radio the ground but the **radio was dead and their radar also stopped working. When the pilot try to switch to auxiliary power it too was not functioning. At one point the airplane's engines stopped**

(the oil began to congeal in the very cold air). Instead of loosing altitude it maintained « a steady altitude and course. ». The airplane alledgly continued flying in complete silence ! Then it entered a « strange haze »(likened to a white-out) with air filled with static electricity. There was electrical arcing from one's body to metal inside the fuselage. The haze vanished after about 20 minutes. The power suddenly returned and the crew was able to restart the engines in sequence. The airplane had covered a distance of 265 nautical miles during the 45-50 minute period while travelling at from an indicated airspeed of from 160-190 knots. (From Dr Richard F. Haines ' « Project Delta : a study of multiple UFO, LDA Press, 1994)

Source :
Dr Richard F. Haines ' « Project Delta: a study of multiple UFO, LDA Press, 1994
Aerial Phenomena Research Organisation (APRO) bulletin Vol. 23 n°3

Case 28 **score : 22**
February 3, 1967 0:30
Near Lima, Peru (12°02 S / 77°02 W)

Pilot's report : « … I was flying my plane, a Douglas DC-4 of the Compania de Aviacion Fawcett S.A. of Lima, from Chiclayo to on February 2, altitude 7,000 feet, and at 24:30 GMT, we saw at the west of ur plane a very luminous object which we confused initially with a star or planet, but after we were very sure that the apparent movement of the object was not the effect of our plane, we could see that the object was coming fast closer to our plane ; we estimated the distance about 8 nautical miles. At this time it was really a spectacle, it had so much light taht all passengers of our plane saw it and started to be very nervous and exclaimed, « There is an OVNI ». After a while the UFO passed over my plane and stopped right over us. **At this moment we noticed a 15° left oscillation on our radio compass and later a 20° right oscillation without stopping, and all the lights in the main cabin started to reduce in intensity, the as our fluorescent lights of the cockpit and all radio receptions went out, and a bit of static noise.** (After the flight we were informed that our transmission was 5X5 OK). The UFO, from the 90° position over our plane, moved over to the east of our plane, increasing its light by about 50% into a bluish light and disappeared with a fantastic speed… After 5 minutes the UFO returned with another one and situated itself at a close distance from our tail section and in this formation we flew for 5 minutes before landing at the Lima International airfield. » (Timothy Good's Beyond Top Secret, p.267)

Sources :
Beyond Top Secret, by Timothy Good
Project 1947, Jan Aldrich

Case 32 **score : 28**
October 24, 1968 03:35
10 miles from Minot AFB runway, North Dakota (48°14 N / 101°18 W)

On October 24, 1968, staff members of the Minot missile AFB sighted a bright red-orange object hovering at about 1,000 ft above the ground (Members of Project Blue Book had gathered the testimonies of 14 staff members of the missile base). A USAF B-52 from Minot AFB was vectored toward this location.

According to Bradford Runyan Jr., co-pilot of the B-52H : « While flying in the right seat as instructor co-pilot of a B-52H, I requested permission to descend from FL 200 (flight level 20,000 ft) to land at Minot AFB. At this time I was requested to check on something in the area and given a heading to follow. When I asked what I was asking for, I was told I would know if I found it. Minutes later we had an object on our radar scopes approaching from the right rear of our plane at such a high rate of

speed that they thought a collision was imminent. The object stopped off our right tail momentarily, then moved to the left side of our plane. **We lost radio contact with the base**, and I decided to land the plane. The UFO stayed with us until within 10 miles of the base where it set down on the ground and our radios came back on. We were instructed to go back and overfly the object which we did at 2,000 ft altitude**, again loosing radio contact with the base when we flew over the object.** At a briefing the following day, I was told that a 20 ton concrete lid had been removed from a Minuteman missile silo and both outer and inner alarms had been activated. Our aircraft film showed a radar return about 5 times as large as a KC-135 tanker and a closure rate of about 3,000 mph. Ground crews saw the object joined with us, and recently a retired CIA investigator sent to investigate the incident told me that Blue Book lied, and that it was a UFO. » The body was several hundred feet long and glowed dark orange in color. The crescent moon-shaped part was connected to the body with a space between. Blue, green and possibly orange lights appeared to be inside the crescent shaped part as we passed over the object and to the right of the picture. (From USAF Project Blue Book 16 mm microfilms from Maxwell AFB and co-pilot's report to CUFOS (11/02/2000) and filmed interview by Tom Tulien SHG)

Sources :
USAF Project Blue Book report, 16 mm microfilms from Maxwell AFB
Co-pilot's interview and report
Dr Richard F. Haines files

Case 32 **score : 27**
February 2, 1973 2:02
VOR Ohara 157° radial, Wanganui area, New Zealand (38°51'20 S / 174°59'20 E)

Captain Peter Telling, flying a Grand Commander aircraft at a altitude of 10,000 ft over the Ohura Beacon area thought he had a fire in his starboard engine. His flight position was 157° radial from Ohura Beacon. About 30 yards from the aircraft was a ball of intense bluish-white light, much like a welding arc, that was 20 to 20 feet in diameter, and stayed with his aircraft for about 20 to 25 sec. **The Automatic Direction Finding Compass, and both the gyroscopic compass and magnetic one, went haywire and spun at a speed of about 12 revolutions per minute. All directional equipment remained non-functional until** he passed over the Wanganui area. The ADF needle rotationg aimlessly, the magnetic compass screwed up (not reliable) and needles rotated several rom for some times. The VOR stayed lock on the source.
Source :
Dr Richard F. Haines files (pilot's report))

Case 35 **score: 25**
July 16, 1973 18:30
Between Palamo and Playa de Oro, Spain

On July 16, 1973, Miguel Romera Fernandez de Cordoba was flying a forest fire aircraft from Palamos to Playa de Oro at 3,000 feet altiude, and with a clear sky and a good visibility. Suddenly he saw a strange object which looked like a rugby ball cutted on lower part. The object paced and maintened same position on the right of the aircraft for 10-12 minutes. Te aircraft radio system failed during the sighting. The movment of the object gave to the pilot a sensation of fear.
Source :
Dr Richard F. Haines Files

Case 36 **score : 29**
October 18, 1973 23:05
Mansfield, Ohio, USA (40°47 N / 82°31 W)

The Army helicopter 68-15444 was returning from Columbus, Ohio to Cleveland, Ohio, and, Ohio, and at 2305 hours east, southeast of Mansfield Airport in the vicinity of Mansfield, Ohio while flying at an altitude of 2500 feet and on a heading of 030 degrees, SSG Yanacsek observed a red light on the east horizon, 90 degrees to the flight path of the helicopter.Approximately 30 seconds later, SSG Yanacsek indicated the object was converging on the helicopter at the same altitude at an airspeed in excess of 600 knots and on a midair collision heading. Captain Coyne observed the converging object, took over the controls of the aircraft and initiated a power descent from 2500 feet to 1700 feet to avoid impact with he object. A radio call was initiated to Mansfield Tower who acknowledged the helicopter and was asked by capt. Coyne if there were any high performance aircraft flying in the vicinity of Mansfield Airport, however there was no response received from the tower. The crew expected impact from the object ; instead the object was observed to hesitate momentarily over the helicopter and then slowly continued on a westerly course accelerating at a high rate of speed, clear west of Mansfield Airport then turn 45 degrees heading to the Northwest. Capt. Coyne indicated the altimeter read a 100 fpm (feet per minute) climb and read 3500 feet with the collective in the full down position. The aircraft was returned to 2500 feet by capt. Coyne and flown back to Cleveland, Ohio. The flight plan was closed and the FAA Flight Service Station notified of the incident. **The radio returned to normal 10 minutes after the incident, having gone completely dead on both UHF and VHF frequencies just after Coyne had established contact with Mansfield control tower.** Some witnesses on the ground reported seeing the helicopter as well as and object « like a blimp » and « as big as a school bus » hovering above the helicopter. When the UFO's green light appeared it was described by the witnesses as « like rays coming down…. The helicopter, the trees, the road….everything turned green. »

Capt Coyne : « From a speed of 600 mph, it abruptly slowed down to our exact speed of 100 mph and hovered above us. »
Co-pilot Jezzi : « The object was cigar-shaped, metallic grey, with a dome on top. »
Staff Sergeant Healey : « it was about 60 feet long, without any portholes or intake openings that we could see. At first it was just showing a red light in nose. Then a green spotlight at the back swept around and shone into our cabin. »
Sources :
Army disposition form, 23 nov 1973)
Above Top Secret, by Timothy Good
Coyne helicopter incident » by Jennie Zeidman, CUFOS

Case 38 **score : 23**
November 28, 1974 0:10
Shabbona, Illinois, USA (41°46 N / 88°52 W)

On November 28, on a bright day with visibility limited to 6-7 miles due to haze, Hugo W. Feugen was flying his own Aeronca « Champ » aircraft from Dekalb to Mendota, Illinois, at 2,500 feet altitude with a compass bearing direction of 240 degrees to compense for a cross wind. As he passed over the small town of Shabbona,, Illinois, he was checking his position on the aeronautical map that he held in his lap to determine if he was still « on course » with visual navigation to his destination of Mendota. When he looked up from his map, he noticed with amazment that **the magnetic compass on the panel of his old Aeronca Champ number N82198 was rotating counter-clockwise at a rate of four or five revolutions per minute.** He immediately became concerned for the radical behaviour of his

compass because this was one of the few instruments in the aircraft used for navigational purposes. He looked to his right side and saw nothing but the town of Shabbona below him. When he turned to his left, he saw an object flying parallel to his aircraft at the same speed (ground speed 75 to 80 mph) and altitude, pacing him at 120 degrees at an estimated one quarter of a mile distance. He described the object as being shaped like a disc or an elipse. If it was one-fourth mile away, he estimated the size as 120 feet long and 30 feet thick. It appeared to be a solid object, white or dull silver in color, without any openings or protusions. There may have been a depression on the top, but this angle was observed only for a brief second as it was departing. **After pacing him for 8-10 seconds, while the compass continued to spin**, the object tipped slightly and the pilot could observe that it was not an ellipse, but was round in shape. As it tipped up on an angle, it accelerated to a fantastic speed toward the east andwas out of sight in less than one second.. The pilot did not have his radio turned on, so there is no report of interference with radio communications. (From Skylook n°89, MUFON)
Sources :
Skylook n°89, MUFO

Case 39 **score : 23**
August 13, 1976 17:00
Between Diepholz and Petershagen, Germany (52°22 N / 09°00 E)

The pilot of a Piper Arrow PA-28 was flying at 3,500 feet between Diepholz and Petershagen when he noticed a strange light approaching from the northeast at his 9 o'clock. After 3-5 minutes, the object came closer and took a fixed position off the Piper's left wing. The object was oval-shaped and very bright yellow in its center with an indistinct flame-orange boundary. Its diameter subtented about 3.5 degrees of arc. Suddenly the Piper went **into two rapid 360° clockwise rolls** from which the pilot had to recover manually. He discovered that he had dropped about 500 feet during the roll and recovery maneuver. When he next checked his instrument panel, he discovered that **his magnetic compass was spinning in clockwise direction so fast that he couldn't read the number in its square window**. Looking outside again, he saw that the UFO was still behind him, suggesting that he had too had lost the same amount of altitude. The pilot climbed back to his cruise altitude and called on the radio to Flight control at Hannover airport to the east of his position.The air traffic controller told him that the radar showed both his airplane and another object nearby him. The controller said that aircraftwould be sent to investigate. Little more than four minutes later, two USAF F-4 Phantom jets arrived on either side of him travelling brtween 400 and 500 mph. The jet on the right side was slightly lower, closer, and ahead of the jet on the left. The pilot was cetain that they were American planes. Just as the jets arrived, the UFO accelerated forward and then upward at about a 30° angle above the horizontal and turned right, passing in front of his aircraft. It quickly outdistanced its pursuers and was out of sight in a matter of seconds. **The compass eventually returned to normal operation after the UFO departed.** The pilot was interrogated after his landing by « military men ». (From International UFO Reporter, CUFOS, Vol.24 #4, An aircraft UFO encounter over Germany, by Dr Richard F. Haines)
Sources :
Dr Richard F. Haines Files

Case 40 **score : 23**
September 19, 1976
75 km north of Tehran, Iran

At about 12:30 am on 19 sep. 1976 an Irabian Air Force high ranking officer received four telephone calls from citizens living in the Shemiran area of Tehran saying that they had seen strange objects in the sky. Some reported a kind of bird-like object while others reported a helicopter with a light on. There were no helicopters airborne at that time. After he told the citizens it was only stars and had talked to Mehrabad Tower, he decided to look for himself. He noticed an object in the sky similar to a

star, bigger and brighter. He decided to scramble an F-4 from Shahrokhi AFB to investigate. At 01:30 on the 19th th F-4 took off and proceeded to a point about 40 NM (nautical miles) north of Tehran. Due to its brilliance, the object was easily visible from 70 miles away. **As the F-4 approached a range of 25 NM, he lost all instrumentation and communications (UHF and intercom). He broke off the intercept and headed back to Shahrokhi. When the F-4 turned away from the object and apparently was no longer a threat to it, the aircraft regained all instrumentation and communications.** At 01:40 a second F-4 was launched. The backseater acquired a radar lock on at 27 NM 12 o'clock high position with the VC (rate of closure) at 150 NMPH. As the range decreased to 25 NM the object moved away at a speed that was visible on the radar scope and stayed at 25 NM. The size of the radar return was comparable to that of a 707 tanker. The visual size of the object was difficult to discern because of its intense brilliance. The light that it gave off was that of flashing strobe lights arranged in a rectangular pattern and alternating blue, green, red and orange in color. The sequence of the lights was so fast that all the colors could be seen at once. The object and the pursuing F-4 continued on a course to the south of Tehran when another brightly lighted object, estimated to be one-half to one-third the apparent size of the moon, came out of the original object. This second object headed straight toward the F-4 at a very fast rate of speed. **The pilot attempted to fire an AIM-9 missile at the object but at that instant his weapons control panel went off and he lost all communications (UHF and interphone).** At this point the pilot initiated a turn and negative G dive to get away. As he turned the object fell in trail at what appeared to be about 3-4 NM. As he continued in his turn away from the primary, the second object went to the inside of his turn then returned to the primary object for a perfect rejoin. **Shortly after the second object joined up with the primary object another object appeared to come out of the other side of the primary object going straight down at a great rate of speed. The F-4 crew had regained communications and the weapons control panel** and watched the object approached the ground anticipating a large explosion. This object appeared to come to rest gently on the earth and cast a very bright light over an area of about 2-3 kilometers. The crew descended from their altitude of 25,000 ft to 15,000 ft and continued to observe and mark the object's position. They had some difficulty in adjusting their night visibility for landing, so after orbiting Mehrabad a few times they went out for a straight in landing. **There was a lot of interference on the UHF and each time they passed through a mag. bearing of 150 degrees from Mehrabad they lost their communications (UHF and interphone) and the INS fluctuated from 30 degrees to 50 degrees during 360° orbit by F-4 pilot's dark adaptation was regained (est. duration of INS fluctuation of 10-15 sec, while at radial of 150° from Mehrabad). The one civil airliner that was approaching Mehrabad during this same time experienced communications failure in the same vicinity (Kilo Zulu) but did not report seeing anything.** While the F-4 was a long final approach the crew noticed another cylinder-shaped object (about the size of a T-bird at 10 M) with bright steady lights on each end and a flasher in the middle. When queried the tower stated there was no other known traffic in the area. During the time that the object passed over the F-4 the tower did not have a visual on it but picked up after the pilot told them to look betwen the mountains and the refinery. During daylight the F-4 crew was taken out to the area in a helicopter where the object apparently had landed. Nothing was noticed at the spot where they thought the object landed (a dry lake bed) but as they circled off to the west of the area they picked up a very noticeable beeper signal. At the point where the return was the loudest was a small house with a garden. They landed and asked the people within if they had noticed anything strange last night. The people talked about a loud noise and a very bright light like lightning. The aircraft and area where the object is believed to have landed are being checked for possible radiation. (from the confidential DIA report declassified on August 31, 1977)

Sources :

UFO government documents (CIA), volume 2, FUFOR
Uninvited Guests, Richard Hall, 1988
The UFO Cover up, L. Fawcett and B. Greenwood, 1984

Case 41 **score : 30**
March 12, 1977 21:05
South of Syracuse, New York, USA

This case occurred at 21:05 est on March 12, 1977, between Buffalo and Albany, New York, and involved United Airlines flight 94, a non stop flight from San Fransisco to Boston. The DC-10 airplane was under the control of autopilot system #2 and was flying at 37,000 feet altitude. The entire sky was dark and clear ahead and above the airplane, except for a partial undercast with small clouds extending to about 20 miles ahead. The aircraft was flying at an indicated air speed of 275 knots (true air speed 530 knots). The aircraft was about half way between BUFFALO and Albany, and had just changed from contact with the " FROM " VOR (Very -High-Frequency Omnidirectional Bearing) signal emanating from Buffalo to the " TO " signal from Albany. The aircraft was just south of Syracuse New York. **Suddenly and unexpectedly, the airplane began to turn left, making a 15 degree bank.** Within a few seconds, the first officer and the captain looked to the left side of their plane and saw an extremely bright white light at about their own altitude. Subsequently, the Flight Engineer also looked and saw the light source. It appeared to be perfectly round and its apparent diameter was about 3 degrees of arc. However, the captain estimated the object to be about 1,000 yards away and to be about 100 feet in size, that corresponds to an angular size of 2 degrees. " Its intensity was remarkable, about the intensity of a flashbulb, " he remarked. Boston ATC radioed to ask " United 94, where are you going? " The captain replied " Well, let me figure this out. I will let you know. " **He then noticed that the three cockpit compasses (that use sensors in different parts of the plane) were all giving different readings. At this point, the co-pilot turned off the autopilot and took manual control of the airplane.** Based upon the fact that the object did not move laterally in the cockpit window during 45 degree left heading change from knowledge of the turn radius of this airplane as its stated velocity, Dr Richard F. Haines calculated the approximate distance to the object to be about 10 nautical miles. If the pilot's angular size estimate for the object is accurate, this suggests that the light source was about 2100 feet across. The object appeared to stay with the airplane for 4 to 5 minutes, after which it departed very rapidly, disappearing within 15 seconds behind them to the west. The captain asked ATC if they had any radar traffic in the area and received a negative reply. The navigation system involves two gyro-suspended compasses, each coupled to a special circuit with a " mismatch annunciator flag . ". If the reading from the two compasses differ by 3 degrees or more, the autopilot should automatically disengage and the mismatch annunciator flag should be displayed. This forces the pilot to take manual control of the airplane. However in this event the readings on the two compasses differed by more than 3 degrees yet the airplane remained on autopilot and the mismatch annunciator flag was not displayed. Dr Haines reviewed several possible interpretations of this event. It seems most probable that the malfunction of the three compasses was due to a transient perturbing magnetic field that disturbed the two primary magnetic compasses, the sensor on the wing tip nearest the object (which was controlling the active autopilot at the time) being disturbed more than the other wing-tip sensor. Upon landing, the compasses were checked and found to be in normal operating condition. (from the Proceedings of the Pocantico workshop, New York 1997, from Peter Sturrock, case discussed by Dr Richard F. Haines)

Sources :

Proceedings of the Pocantico workshop, New York 1997, from Peter Sturrock
The UFO Enigma, Dr Peter Sturrock
Dr Richard F. Haines' files

Case 42 **score 28**
June 17, 1977 12:00
Castelo de Bode Dam, Portugal (39°33 N / 08°19 E)

On june17, 1977 José Fransisco Rodrigues was flying a portuguese Air Force Dornier 27 light plane.He was flying over the Castelo de Bode dam at around noon when suddenly, emerging from the clouds, he saw a dark object against a backdrop of white stratocumulus, slightly to the right of his plane. Thinking that the object was perhaps a cargo plane, he banked to the left and immediately radioed to ask if there was any traffic in the vicinity. The reply was negative. As the pilot completed a turn to port, the unknown object suddenly appeared at his eleven o'clock position « no more than six meters away ». It was definitely not a cargo plane. The upper section, partially concealed by cloud, was black, and on the lower section there appeared to be four or five panels. The object was approximately 13 to 15 meters in diameter. Suddenly it accelerated and vanished from what the pilot believes was an initial stationary position. **The Dornier began to vibrate violently and went into uncontrolled dive.** Struggling to regain control, the pilot pushed the control column forward. Air speed increased to 140 knots then 180 knots as the ground came nearer. Control was fortunately regained when almost « touching the tree tops » and the plane was landed in one piece. - with a badly shaken pilot. **During the encounter the directional electric gyroscope (connected to a magnetic compass) rotated wildly, and by the time the plane landed it had deviated by 180° relative to magnetic compass.**
Source :
Beyond Top Secret, by Timothy Good, 1998

Case 43 **score : 22**
October 26, 1977 18:45
Abilene, Texas, USA

En route from Dyess AFB, Texas toward Dallas, cruising at 15,000 ft MSL in a T-38, I, the aircraft commander, 1st Lt Seth Bryant (instructor pilot) and 1st Lt Choate (student pilot) overheard transmissions from Fort Worth Center to another pilot. From listening to the center's transmissions it was obvious the other aircraft had sighted a red object which he could not identified. We chuckled at the idea of a UFO and for the next 5-6 minutes were busy with enroute procedures. At this time, 1st Lt Choate sighted the red object and informed me of its position. The bright red glowing object was at our 12:30 position, approximately 10,000-12,000 ft, and seemed stationary (no trajectory). The distance was very difficult to determine but was estimated to be about 20 NM. Initially, the red glowing light was very brilliant and after viewing the object for approximately 15 seconds the object appeared to be closing very rapidly. An evasive maneuver was considered but determined unnecessary. It appeared the closing had ceased. The size of theobject at this time was about that of a dime. At this time I contacted Fort Worth Center giving the position of the red object and asked if he was painting anything on radar. He replied he wasn't. The size of the red light slowly decreased, similar to a very slowly rotating beacon, and was lost from sight. The total time of the sighting was less than a minute. **1st Lt Choate recalled static over his head set at time of sighting**. Fort Worth Center relayed this sighting to the first aircraft that had sighted the object. The other pilot seemed to be reassured that someone else had seen the object. An airliner in the general vicinity was queried, negative results. (From the pilot's report, Dr Richard F. Haines files)
Source :
Dr Richard F. Haines Files

Case 45 **score : 22**
May 26, 1979 0:05
Hailey, Idaho, USA (43°15 N / 114°00 W)

The pilot of a private plane sighted five orange objects flying in a horizontal line formation. They tilted and spread out. Then they regrouped into a vertical line formation and they got all mixed up. They seemed to come right at the plane as the distance was closing. They lengthened the distance from the pilot out front and went over to his left. **At that time the magnetic compass started spinning and the automatic direction finder started spinning.** At that stage they were again in a straight line formation just before blinking out. **According to the pilot, the radio interception was blocked by static and the engine started running rough.** At the same time, ground radar had contacted both the plane and the objects. Finally, a large orange object approached the aircraft at a tremendous speed. The pilot climbed rapidly and did not see the object again. (From Dr Richard F. Haines ' Project Delta)
Sources :
Dr Richard F. Haines files
Project Delta: a study of multiple UFO, Dr R. Haines, 1994

Case 46 **score : 30**
September 10, 1979 13:15
10 miles north of Myrtle Creek, Oregon, USA (43°02 N / 123°16 W)

Two pilots were flying ten miles north of Myrtle Creek at 5,000 ft in a Piper Aztec and about a half mile off formation with a Cessna 182 which was a brand new airplane. They were just getting ready to let down at Myrtle Creek when one "thing" came for about a four o'clock position from the coast and looked - when it was facing the Aztec pilot - like the round fuselage of an airliner with a reflection in front but not on the sides. Then it moved in behind the Cessna, several hundred feet behind and below it. And then it started moving directly toward the Cessna and I called him. The Aztec pilot tried to tell the Cessna pilot that there was a plane coming up on him. The Cessna pilot got only the word "plane", he looked around on both sides and couldn't any word from the other pilot. The Aztec pilot tried **on two different transmitters and all he could hear was static all the time the object was around.** The object moved underneath the Cessna, several hundred feet below him, then it lifted up vertically to pretty close underneath him - within 25 feet - and hung there for a minute. The object was probably 30 feet in diameter and shaped like a sphere. There was nothing sticking out from it and it was metal. Then it dropped back down and slid behind the Cessna. And then it pulled underneath the Cessna again but not so close this time. Finally it moved off to the right at about four or five o'clock position and dropped down over the coast mountain range. All the observation lasted for about five minutes. (From the APRO Bulletin Volume 31 #10)
Sources :
Dr Richard F. Haines files
Aerial Phenomena Research Organization (APRO) Bulletin Volume 31 #10

Case : 48 **score : 25**
April 8, 1981 2:30
San Luis Reservoir, California, USA (37°03 N / 121°07 W)

On April 8, 1981, Mr Dennis was flying his Piper Archer II from Palm Springs, California to Novato, California. He was just above San Luis Reservoir, 45 miles southeast of San Jose, when he saw the same bullet of saturn-shaped object that he had seen in November 5, 1980. It pulled alongside his 3 o'clock position. **In the same time his DME (Distance measurment equipment (DME) went out, and then his navigation and communications radios** likewise. When his transponder went out,**

this caused some concern at the tower for he had disappear from their scope. Now the object Shot forward of the aircraft some 500 yards, the pilot estimates, and executed some very erratic motions. Then, slowly drifting backwards until it was at his 9 o'clock position, it paced him, « obviously looking me over » said the pilot, maintaining a steady course. He drifted behind and somewhat below it, as close as 500 ft to it at one instant. The pilot continued to drop back, placing the object first at his 1-2 o'clock position and then finally at his 11 o'clock position. The object was bullet-shaped emiting an orange glow with a whirling bluish ring. This bluish ring started close to the body of the craft, whirling at right angles to it, and then, as it whirled faster and faster, it expanded, becoming thinner and finally dissipating. Then the front part of the object began to pulsate, faster and faster, and now appeared as a bright solid intense red-orange glow. It then shot forward to about four or five miles ahead of the plane, about twice as far as the first time. Then it made an instantaneous right-angle turn upward and in four or five seconds it was lost in the black sky above. **In the same time all the radios came back on again, by themselves, and the pilot could heard the Center frequency talking and called them up. They had been worried about him as they didn't have a primary target on him.** (From: International UFO Reporter – CUFOS, January 1982 and Dr Richard F. Haines' Files)

Sources :
Dr Richard F. Haines ' Files
International UFO Reporter, CUFOS, January 1982

Case 49 **score : 24**
June 18, 1982 21:57
Gong Heui area, Hubei, China (44°20 N / 114°31 E)

In Northern China on June 18, 1982, many sightings were reported from Heilongjiang Province, between 21:10 and 22:53. One of the most interesting case is that reported by five Chinese Air Force pilots on patrol over north China's military frontier. At about 21:57 **the jet fighter's electrical systems malfunctioned ; communications and navigation systems failed.** Suddenly the pilots encountered and UFO of a milky yellowish-green luminous color, about the size of the full moon. The object grew larger and picked up speed, at which point it looked « as big as a mountain of mist ». Then black spots were seen in the interior of the phenomenon. One pilot stated in his report : « When I first saw the object, it flew toward me at a high rate of speed as it whirled rapidly. While it was rotating it generated rings of light. In the center of the light ring was fire. In ten seconds the center of the ring exploded, then the body of the object expanded rapidly The planes were forced to return to base because of the equipment failures. The other four pilots also prepared reports. It is not known if gun-camera film was taken. After 30 seconds, the beam of light disappeared completly and replaced by a yellow sphere with clear edges. This sphere climbed rapidly and increased its size and brightness……**The instruments returned to normal** when the pilot went down to 500 meters altitude. At 22:01, One of the pilot arrived to his first turn at Cong Huei. Then after he flew for 3 mn toward his second step **when his radio began to jamm : big noises resounded in the receiver, as if rain clouds and thunderstorm were in front of him, and the voice of the control tower operator became less audible. The radio compass instead of giving the direction of the tracking station direction gave a direction 30° on his right**. He climbed to 6,000 then 7,000 meters, then he flew horizontally **but the unusual noises continued to be heard in the receivers and the radio compas was still indicating a wrong direction 30° on the right**. The pilot saw a bright object above the horizon. Very quickly this object became a beam of yellow light like a car headlight This beam of light was directed vertically toward the ground, **in the same direction indicated by the radio compass**.

Sources :
Beyond Top Secret, Timothy Good, 1996
L'empire du Milieu Troublé par les Ovnis », Shi Bo, 1993

Case 50 **score : 25**
October 24, 1982 9:20
Lowell, Indiana, USA (41°17 N / 87°25 W)

On October 24, 1982 Michael Davis pilot and his father student-pilot of a Cherokee 140 single-engine were returning to the Lowell airport after practicing navigation and landings. Approximately 4-5 minutes after takeoff, and just after reaching their cruising altitude of 2,300 ft (above ground level), on a 240° course, the pilot noticed an object that at first he took to be a malfunctioning parachute. It first appeared in their 10 o'clock position sufficiently enough below their level to be silhouetted against the ground. The object would pass beneath him, so the pilot initiated a left-hand (45°) turn, applying power and climbing to 2,800 ft. Immediately before this turn, the UFO appeared to be on a bearing of 355° (almost due north) and at a height of approximately 1,700 ft. The pilot planned to turn and pursue, looked around for the target and was startled to find it just 10 seconds later only 50 yards behind them holding their course and speed. Just after the pilot began a slow turn to the right, away from the object, and initiated a gradual descent from 2,800 ft to 1,100 ft.As they descended through the object's original flight path, they encountered about 2 seconds of heavy turbulence. According to the pilot, it was like hitting the vortex of a large airliner. Until then, the flight had been entirely smooth. After making a 270° turn, they levelled out at 1,100 ft on a bearing of 90° at 140 kts, with the object still holding at 50 yards at their 4:30 position. After a mile or two, the pilot banked slightly to the right across the UFO's path coming to a bearing of 120°. The object did not turn with them, but slowed down to remain on the inside of the curve. At this point they have a good look at the object for almost one minute. It has a complex 3-part structure consisting of a set of four tubes and a nozzle with two upper ringed-dome sections. The nozzle itself was cream colored but had small dark markings resembling cooling vents or fins. The rest of the lower structure was transluscent grey with a tinge of blue, like some type of raw plastic stock. The upper structures consisted of two pod-like domes, connected at their bottom center by a sort of tubular swivel-joint. The major portion of the dome surfaces were of a silver-blue color, with the right dome being approximately 20 % larger then the other. Both « domes » were encircled at their equators by a ring of goedesic-type panels made out of some glass-like substance, clearish but with an almost iridescent blue-grey sheen. Now as the object slowed to stay inside their curve, the two domes began to gyrate in a peculiar manner, best described as a twisting motion, like holding two tennis balls, one in each hand, and rotating one ball away from you, and the other in the opposite sense (while still touching them together), and then reversing the directions. The UFO now, without any sort of transition, instantly reversed course, heading back on a mirror image bearing of 270°, remaining at its level of 1,100 ft at a speed of 140 knots, in a period of no more than two seconds. The pilot completed his turn to the right and took a pursuit position directly behind the object, about a mile to its rear. The moment they fell in directly behind, they again encountered the same heavy turbulence as before. This time the turbulence continued for the length of the pursuit. The pilot increased his aircraft speed to its maximuml (140 knots), but the object began to pull directly away from them, gradually building between 50 and 100 mph, separation speed, and drawing almost 5 miles away. After 3-4 minutes, the pilot was just about to give up the chase when, suddenly, despite the distance, the dome-spheres went into their peculiar rotation again. Almost instantly the object reversed course once again, picking up speed fast by this time, and giving them only enough time to realize that it had reversed course, where it was headed. Then at the last moment, the object flicked across their nose, veering to its left and missing the aircraft'' right wing tip by no more than 10 feet. **At the instant that it passed, the vortex hit them so hard that the plane's airframe groaned in protest, and the altimeter « went wacky ».** It continued to curve to the left, back on what appeared to be its original heading of 355°, still accelerating, and eventually beginning to climb until it finally disappeared into the distance haze. At no time during the encounter had the UFO shown any sort of exhaust trail. (From the International UFO Reporter, CUFOS, May-June 1983)
Source :
International UFO Reporter, CUFOS, May-June 1983

Case 53 **score 31**
November 17, 1986 17:11
Fort Yukon, Alaska, USA (66°34 N / 145°16 W)

At 17:11, on November 17, 1986, Capt Terauchi, pilot of a JAL B-747 cargo, was flying above Alaska heading southwestward at an altitude of 35,000 ft, when he saw unusual lights on his left and below. He first thought that they were lights of fighters. After a few minutes, the lights appeared to travel along the plane.After changing his direction, according to Anchorage Air Route Traffic Control (AARTCC) instruction, the pilot spotted like aircraft lights 30° left in front of his aircraft. The lights were 2,000 ft below, moving in the same direction and about the same speed : 525 kts. These lights stayed in the same position for a few minutes. Then two "spaceships" stopped in front of the cockpit shining brightly. Immediatly Capt. Terauchi felt warm in his face. The pilot saw two pairs of nearly rectangular arrays of lights. Then the two objects moved immediately nearly in front of the plane and seemed now stationary. After a few seconds, they began to fly in level flight at the same speed as the B-747, between 500 and 1,000 ft in front of it. The shape of the object was square, its middle sparked a stream of light from left to right and the reverse. After flying in formation with the airliner for 3-5 minutes, the objects changed their position from one above the other to side by side. The lights looked like flames (amber and whitish in color) coming out of multiple rocket exhaust ports. The copilot described the lights as "Christmas assorted lights" red, orange and white, pulsating. The pilot added that the two rectangular arrays of lights were separated by a rectangular area. At 17:19, AARTCC, which had tracked an unidentified target in front of the airliner track, asked the copilot if they could identify a traffic in front of them, the copilot said yes. AARTCC had no other known traffic in the area. The pilot attempted to take a picture but in the same time the Boeing became to vibrate and he gave up taking a picture.When the objects came closer, **the VHF communications (in transmitting and receiving) were extremely difficult for 10-15 minutes (communications was 2 out of 5). No other effects on the aircraft's equipments.** The pilot observed now only a "pale white flat light" on the same direction. AARTCC reported that they lost the unidentified target. At 17:23, AARTCC asked Elmendorf Regional Operational Control Center (ROCC) if they saw approximately 40 miles south of Fort Yukon the JAL 1628 and a primary target. At 17:24, the pilot saw in the direction of the "pale white flat light", two white fluorescent lights. He had the impression that the two lights were on a very large mothership. AARTCC had nothing on his radar. Suddenly a large green round object appeared, 7-8 miles away. At 17:25, AARTCC radar and the airborne radar picked up the unidentified target again, which remained on the screens for several minutes. Then the two "pale white lights" moved gradually to the left and disappeared behind the airliner. At 17:26, AARTCC and ROCC got an unknown traffic about 8 miles in front of the JAL 1628 at the same altitude 35,000 ft. At 17:27, while approaching Fairbanks and Eielson AFB, the pilot saw "two very bright lights" which appeared suddenly from the north. At 17:30, The lights of the city (Fairbanks) were very bright and when the crew checked the two "pale white lights" behind them, they saw the silhouette of a gigantic spaceship (fig.5). The copilot requested quickly AARTCC for a change of course to right 45°. Checking the rear, they saw the huge object which was still following them. At 17:32, They requested a change of altitude from 35,000 ft to 31,000 ft. The Fairbanks Approach Radar controller had no other target than the airliner. At 17:33, the pilot had still the traffic on his radar, "coming right in formation". At 17:36, it appeared that the object had stayed in the same position relative to the airliner and had descended with it to an altitude about 31,200 ft. AARTCC asked then the pilot to make a 360° turn to test the object. ROCC confirmed to AARTCC request that there were no other traffic in the area. At 17:39, the pilot said to AARTCC that the object had disappeared during the turn. During the turn ROCC confirmed an anomalous radar target near the plane. The JAL 1628 was then directed to Talkeetna At 17:40 a United Airlines jet took off from Anchorage and headed north to Fairbanks. When it was at 29,000 ft, AARTCC asked the UAL pilot if he could see anything behing the JAL 1628 (as the unknown target was still following the plane on the radar). At 17:51, when the two planes got closer, the object disappeared. At 18:20, JAL 1628 landed at Anchorage airport.
Sources : FAA documents.